

# SEMPO Plug-In Electric Vehicle Readiness Plan

Southeast Metropolitan  
Planning Organization (SEMPO)

44 North Lorimier Street  
Cape Girardeau, Missouri 63701

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Federal Transit Administration and  
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### **Purpose Statement from SEMPO**

The Southeast Metropolitan Planning Organization (SEMPO) undertook the development of an Electric Vehicle Readiness Plan (EVRP) to inform the general public, transportation agencies, electric vehicle stakeholders, private businesses, and local government entities of the advent of increased electric vehicle ownership and electric vehicle infrastructure deployment within the SEMPO Metropolitan Planning Area. The rapidly evolving technologies driving electric vehicles and electric vehicle infrastructure require preplanning and local efforts toward understanding the potential benefits, equitable deployment and access, future implications, potential barriers, and best practices. It is also imperative that the proliferation of electric vehicles and electric vehicle infrastructure be coupled with deliberate planning and appropriate policies to ensure equity of distribution and deployment so the disadvantaged and traditionally underserved members of the community are able to participate and benefit from these advancements.

Recent public and private sector investments into electric vehicles and charging infrastructure aided SEMPO's decision to prioritize the development of this plan. At the federal level, we have seen efforts focus on sustainable transportation through legislative actions such as the Bipartisan Infrastructure Law which has dedicated \$5 billion over the next five years to help states create a network of electric vehicle charging stations. In the private sector, automakers have communicated detailed plans to electrify large portions of their fleets over the next decade, with some announcing goals for fully electrified lineups within five years. These significant investments will undoubtedly have an impact on the number of individuals interested in electric vehicle adoption.

The implications of increased electric vehicle adoption and corresponding infrastructure buildout could be significant for the SEMPO region and may provide opportunities to gain a competitive edge. As more electric vehicles are introduced into the market so too will the demand for charging options. Planning for this demand could further attract electric vehicle users to the SEMPO area enhancing the region's appeal as a regional hub for commerce, retail, education, and health care services.

Advancements in technology have continually evolved transportation throughout history. Therefore, transportation planning must remain future-oriented to account for these advancements. It is SEMPO's intent that this planning document serve as a valuable resource to any and all interested in the emerging technology of electric vehicles, related charging infrastructure, and the potential decision to invest.

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# COMMONLY USED TERMS & SEMPO ACRONYMS

**Alternating Current (AC)** - An electric current that reverses direction multiple times per second, used to offer fast charging.

**Americans with Disabilities Act (ADA)** - A civil rights law that prohibits discrimination against individuals with disabilities in all areas of public life, including jobs, schools, transportation, and all public and private places that are open to the general public.

**Ampere (Amps)** - The fundamental base unit of electrical current.

**Battery Electric Vehicle (BEV)** - A vehicle that receives all its power from batteries and one or more electric motors.

**Combined Charging System (CCS)** - A standard for charging electric vehicles providing power up to 350 kilowatts. These connectors are extensions of the IEC 62196 Type 1 and Type 2 connectors, with two additional direct current (DC) contacts to allow high-power DC fast charging.

**Charge de Move (CHAdeMO)** - A charging standard for fast-charging stations.

**Disadvantaged Communities (DACs)** - The areas which most suffer from a combination of economic, health, and environmental burdens.

**Direct Current (DC)** - An electric current flowing in one direction only, used for fast charging electric vehicles, regardless of which charging port is used (Tesla, CCS, or CHAdeMO).

**Direct Current Fast Charger (DCFC)** - Chargers that convert AC power to DC power to provide DC power straight to your EV's battery; the AC-to-DC conversion happens in the charging station before the electrons enter your vehicle.

**Electric Vehicle (EV)** - A vehicle propelled by one or more electric motors using energy stored in rechargeable batteries.

**European Union (EU)** - An international organization comprising 27 European countries and governing common economic, social, and security policies.

**Federal Highway Administration (FHWA)** - A federal organization that provides stewardship over the construction, maintenance and preservation of the nation's highways, bridges and tunnels.

**Fuel Cell Electric Vehicle (FCEV)** - A vehicle fueled with pure hydrogen gas stored in a tank on the vehicle. Similar to conventional internal combustion engine vehicles, FCEVs can fuel in less than 4 minutes and have a driving range over 300 miles.

**Greenhouse Gas (GHG)** - A gas that contributes to the greenhouse effect by absorbing infrared radiation, such as carbon dioxide (CO<sup>2</sup>).

**Hybrid Electric Vehicle (HEV)** - A vehicle powered by an internal combustion engine in combination with one or more electric motors that use energy stored in batteries.

**Horsepower (HP)** - A unit of measurement of power, or the rate at which work is done, usually in reference to the output of engines or motors.

# COMMONLY USED TERMS & SEMPO ACRONYMS

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**Homeowners Association (HOA)** - An organization designed to manage common or shared property, protect owners' property values, provide services to residents, and develop a sense of community through social activities and amenities.

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**International Brotherhood of Electrical Workers (IBEW)** - An organization that represents active members and retirees who work in a wide variety of fields, including utilities, construction, telecommunications, broadcasting, manufacturing, railroads and government.

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**International Building Code (IBC)** - The International Building Code is a model building code developed by the International Code Council (ICC). It has been adopted for use as a base code standard by most jurisdictions in the United States. The IBC addresses both health and safety concerns for buildings based upon prescriptive and performance related requirements.

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**International Residential Code (IRC)** - A model building code developed by the International Code Council (ICC) which comprises all building, plumbing, mechanical, fuel gas and electrical requirements for one- and two-family dwellings and townhouses up to three stories.

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**International Energy Conservation Code (IECC)** - A model building code developed by the International Code Council (ICC) which establishes minimum requirements for energy-efficient buildings using prescriptive and performance-related provisions.

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**Kilowatt (kW)** - A unit of electrical power equal to 1000 watts.

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**Kilowatt-hour (kWh)** - A unit of energy equal to 1 kilowatt of power sustained for one hour and is commonly used as a measure of electrical energy.

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**Manual on Uniform Traffic Control Devices (MUTCD)** - The standards used by road managers nationwide to install and maintain traffic control devices on all public streets, highways, bike-ways, and private roads open to public travel.

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**Megawatt (MW)** - A unit of electrical power equal to 1 million watts.

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**Metropolitan Planning Area (MPA)** - The boundary in which the transportation planning process must be carried out. The MPA is made up of the census-defined Urbanized Area (UA), plus the contiguous area expected to become urbanized within the next 20 to 25 years.

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**Metropolitan Planning Organization (MPO)** - An organization created and designated to carry out the metropolitan transportation planning process. MPOs are required to represent localities in all urbanized areas (UAs) with populations over 50,000, as determined by the U.S. Census.

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**Multi-unit Dwelling (MUD)** - A dwelling unit consisting of five or more self-contained suites or apartments having sleeping, cooking and bathroom facilities.

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**National Electrical Code (NEC)** - The benchmark for safe electrical design, installation, and inspection to protect people and property from electrical hazards.

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# COMMONLY USED TERMS & SEMPO ACRONYMS

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**National Electrical Manufacturers Association (NEMA)** - An organization that forms the standards for the manufacturing of medical imaging equipment and electrical equipment.

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**National Electric Vehicle Infrastructure (NEVI) Funding Program** - Provides funding to states to strategically deploy electric vehicle (EV) charging infrastructure and to establish an interconnected network to facilitate data collection, access, and reliability.

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**Plug-in Electric Vehicle (PEV)** - An electric vehicle containing a battery that can be recharged by plugging in to an external source of power.

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**Plug-in Hybrid Electric Vehicle (PHEV)** - A hybrid electric vehicle containing a battery that can be recharged by plugging in to an external source of power and by the on-board engine and generator.

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**Request For Proposal (RFP)** - A business document that announces a project, describes it, and solicits bids from qualified contractors to complete it.

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**System Average Interruption Duration Index (SAIDI)** - A system index of average duration of interruption in the power supply indicated in minutes per customer.

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**System Average Interruption Frequency Index (SAIFI)** - A system index of average frequency of interruptions in power supply.

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**Supervisory, Control, and Data Acquisition (SCADA)** - A combination of hardware and software enabling the capture of data within, and automation of, industrial processes. SCADA connects the sensors that monitor equipment like motors, pumps, and valves to an on site or remote server.

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**Sport Utility Vehicle (SUV)** - A car classification that combines elements of road-going passenger cars with features from off-road vehicles, such as raised ground clearance and four-wheel drive.

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**State Highway Systems (SHS)** - All existing and future transportation projects constructed, operated, repaired, maintained, and administered under the jurisdiction of the department of transportation, including toll projects and highway projects.

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**Technical Planning Committee (TPC)** - A group comprised of engineers, planners, and other professionals to analyze issues from a technical perspective and serve in an advisory capacity by providing recommendations to the board of directors based on scientific information, technical sufficiency, accuracy, and completeness of studies, plans, and programs.

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**Urbanized Area (UA)** - A developed urban area with more than 50,000 people.

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**United States Department of Energy (DOE)** - A federal department working to address the country's energy and environmental challenges.

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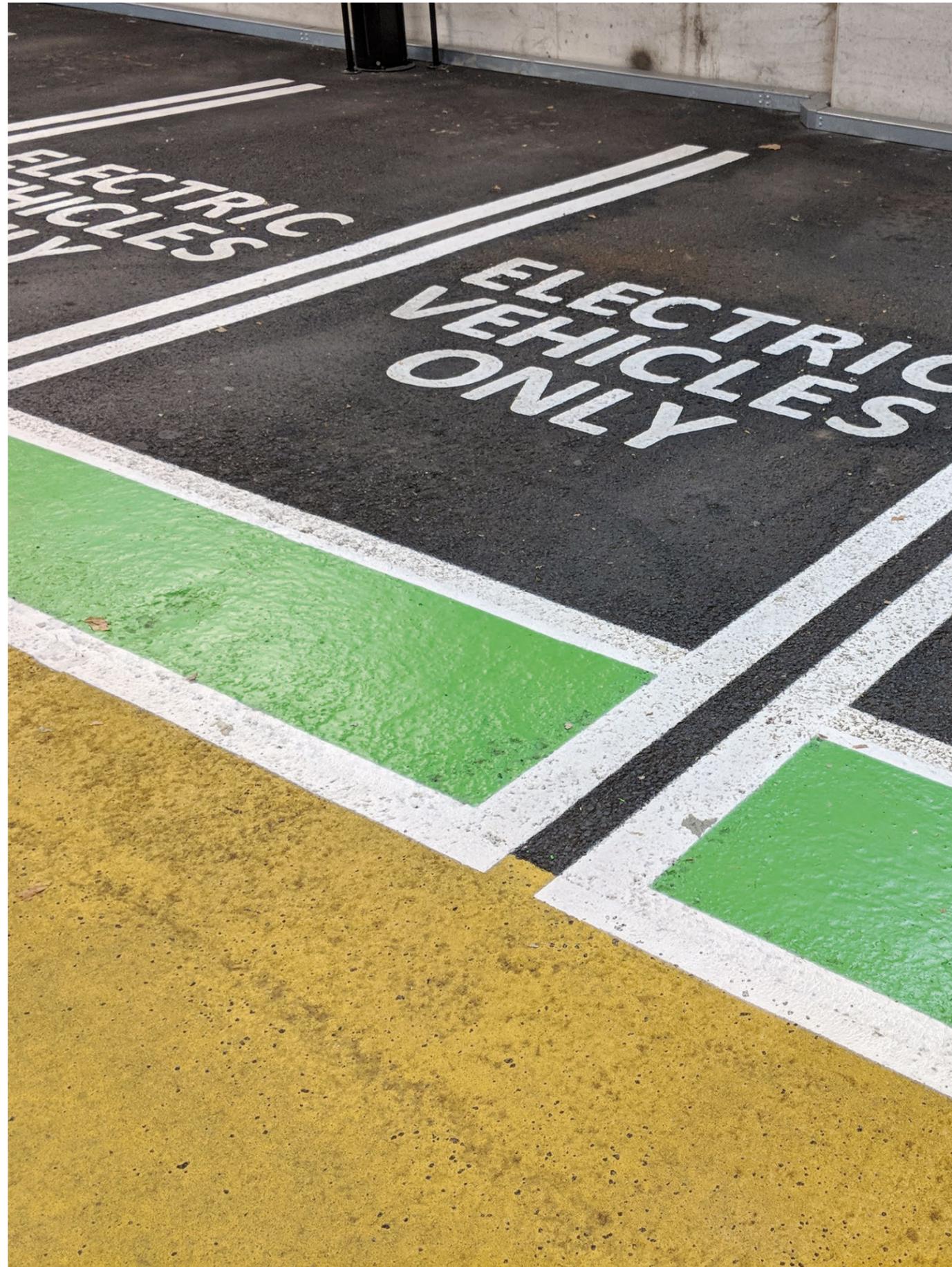
**United States Department of Transportation (USDOT)** - A federal department responsible for planning and coordinating federal transportation projects. It also sets safety regulations for all major modes of transportation.

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# EXECUTIVE SUMMARY

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# EXECUTIVE SUMMARY

## SEMPO Plug-in Electric Vehicle Readiness Plan

The Southeast Metropolitan Planning Organization (SEMPO) Plug-in Electric Vehicle (PEV) Readiness Plan was developed to support the growing market of PEVs in the region by enabling municipalities and others to address immediate needs and long-term planning objectives so the SEMPO region will become an electric vehicle (EV) destination, corridor, and gateway.

The Readiness Plan delivers a comprehensive course of action to efficiently and effectively provide EV charging infrastructure and remove barriers to further EV adoption in the SEMPO region. This document serves as a starting point for both public and private entities to become familiar with the challenges and opportunities associated with EV adoption and EV charging infrastructure. It also serves as a guide for future agency-level and public engagement efforts.

The Readiness Plan supports the 2045 SEMPO Metropolitan Transportation Plan, a single overarching plan for SEMPO's transportation future, by advancing the use of EVs to improve air quality and by fostering economic development through the encouragement and expansion of the labor force to support EV infrastructure.

## Emerging Needs and Opportunities

Many automakers have recently announced their commitment to EVs by diversifying their offerings and making pledges towards electrifying their fleets over the next few years. Automakers are driving the need for EV charging station infrastructure to charge the vehicles they are offering. Private sector EV infrastructure service providers deploy in areas where use is high, which leaves gaps in the network. SEMPO has an opportunity to adapt to these emerging technologies by closing EV charging infrastructure gaps and removing barriers to EV adoption. These technologies also have implications for transportation funding at the statewide and local levels. Careful consideration must be given to balance the desire to move toward electrified mobility and sustain resources for the region's long-term success.

## Recommendations

The process for the development of the Readiness Plan included coordination with state, regional and local agencies and stakeholders as well as members of the public. Multiple stakeholder meetings were conducted in addition to a 90-day public survey period. The collaborative process was informed by technical analysis, which led to the development of the recommendations.

The recommendations provide a framework and strategic actions that SEMPO should consider to help achieve the goals and objectives of the Readiness Plan. These foundational concepts are steps toward expanding EV charging station networks and furthering EV adoption along multimodal transportation infrastructure and enhancing both public and private investment in charging stations.

## INITIATIVES



### Adapt

Adapt transportation infrastructure to advance electrified mobility.



### Facilitate

Facilitate the transition of next-generation infrastructure through strategic investments and partnerships.



### Educate

Provide resources to share information and knowledge that enhance educational and outreach efforts to support SEMPO's goals.



### Coordinate

Engage other Metropolitan Planning Organizations (MPOs), communities, agencies, and stakeholders to coordinate best practices related to EVs.

# INTRODUCTION

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## INTRODUCTION

As the Electric Vehicle (EV) market expands, the Southeast Missouri region benefits in several ways: EVs help improve air quality, save consumers money, reduce greenhouse gas emissions, and foster new companies to grow and create jobs. As more Southeast Missourians purchase EVs, a robust regional charging infrastructure network will be necessary for supporting this growing market. Building this infrastructure in the Southeast Missouri region requires coordinated effort among local governments, the contractor community, businesses, residents, and local utilities.

The Southeast Metropolitan Planning Organization (SEMPO) Plug-in Electric Vehicle (PEV) Readiness Plan is part of a nationwide effort to prepare local governments for the deployment of EVs. The Readiness Plan builds on national efforts to promote regional PEV readiness, identifies barriers to the deployment of PEV charging infrastructure and includes recommendations and resources for public agencies, property owners, consumers and other stakeholders to overcome these barriers.

### **Southeast Metropolitan Planning Organization**

SEMPO is a metropolitan planning organization (MPO), which is a federally mandated and funded policy-making organization that oversees transportation planning for an urbanized area (UA). As the MPO for the Cape Girardeau – Jackson UA, SEMPO is responsible for meeting the federal metropolitan planning regulations for the specified geographic area that includes the City of Cape Girardeau, the City of Jackson, and portions of Cape Girardeau County and Scott County, Missouri, and also portions of the Village of East Cape Girardeau and Alexander County, Illinois. SEMPO is comprised of a Board of Directors, a Technical Planning Committee (TPC), and the planning and administration staff.

The SEMPO Metropolitan Planning Area (MPA), as delineated by the SEMPO board of directors, contains the UA and portions of unincorporated, non-UA within Cape Girardeau and Scott counties in Missouri and Alexander County in Illinois. The MPA covers approximately 117 square miles; 111.7 square miles in Cape Girardeau County, 4.7 square miles in Alexander County, and 0.6 square mile in Scott County.

**Figure 1** shows a map of the MPA.

## SEMPO PEV Readiness Plan

The SEMPO PEV Readiness Plan was developed to support the growing market of PEVs in the region by enabling municipalities and others to address immediate needs and long-term planning objectives for the SEMPO region to become an EV destination, corridor, and gateway.

Multiple stakeholders, including public agencies, utility providers, property and business owners, charging station manufacturers, local automobile dealers, transit providers, fleet delivery services, and the public, among others, coordinated with the SEMPO TPC to help shape and inform the Readiness Plan. The Readiness Plan provides background and analysis of the SEMPO PEV market and assesses areas where local governments, businesses, workplaces, and residents can more easily adapt and better prepare for PEVs and charging infrastructure in the region. Importantly, this plan includes recommended solutions to reducing several of the following barriers identified for the SEMPO region:

- Lack of EV and EV supply equipment (charging station) information
- Regional planning for public charging stations
- Charging station permitting/inspection
- Charging station at multi-unit dwellings (MUDs)
- Commercial and workplace charging stations
- Zoning and parking rules
- Building codes
- Training and education for municipal staff and electrical contractors
- On-peak charging and utility rates

The Readiness Plan identifies the complexities behind each barrier and provides guidance for municipalities to address these complexities, educate constituents and streamline permitting and other regulatory policies. Regional and statewide examples are provided throughout the document as model ways to overcome these barriers.

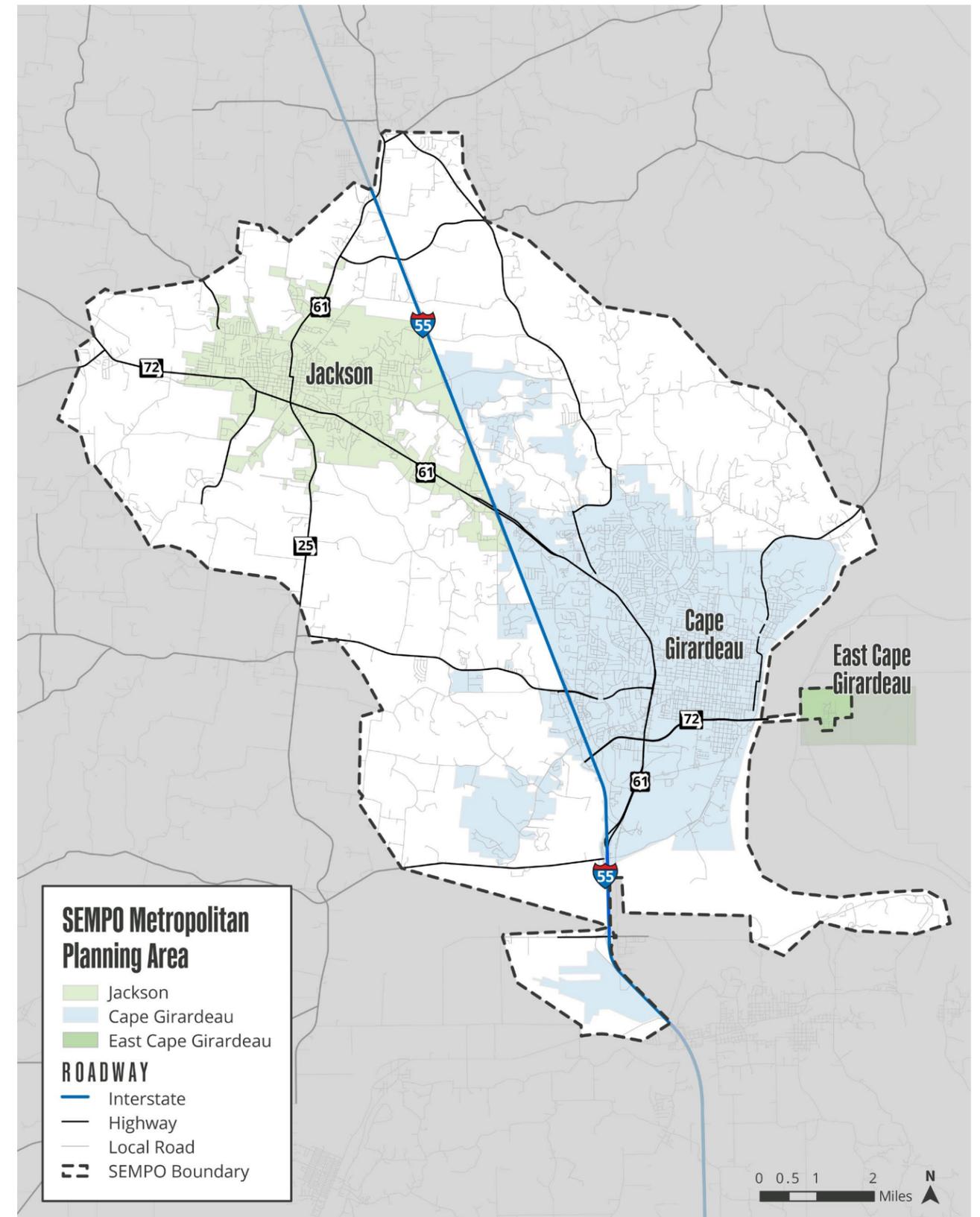


FIGURE 1 | SEMPO METROPOLITAN PLANNING AREA BOUNDARY

# BENEFITS OF ELECTRIFIED MOBILITY

Transportation electrification provides opportunities to transform mobility by providing environmentally friendly and cost-effective travel options while promoting energy independence.



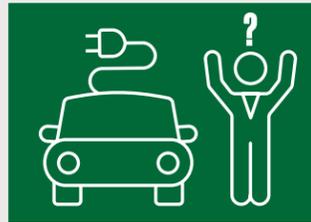
The transportation sector (automobiles) is one of the largest contributors of greenhouse gases (GHGs).



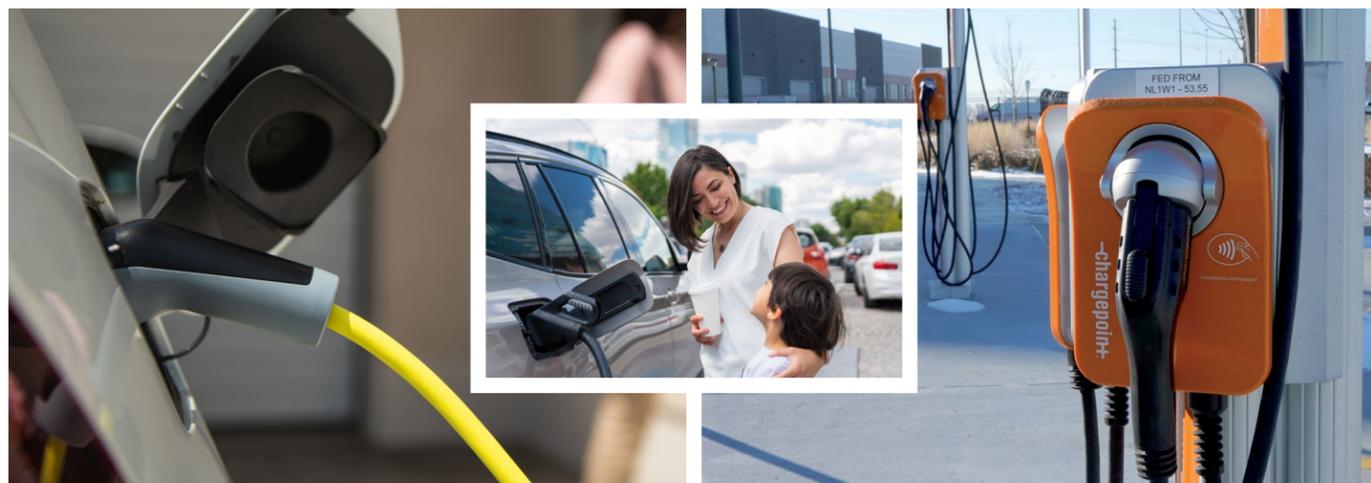
Lack of transportation energy diversity can lead to over-reliance on specific energy sources. This makes Southeast Missouri susceptible to changes (price fluctuations / availability) in the global energy market. EVs can be fueled by any power source.



One energy sector fuel source (for electricity generation) is natural gas. Natural gas is becoming more popular and is a cleaner fuel source compared with coal-based electricity. At the same time, Missouri utilities are rapidly investing in renewable energy sources, which could further reduce an EV's carbon footprint.



General lack of awareness / education and higher price points for new EVs has led to confusion about overall total cost of ownership. Significantly less maintenance and zero trips to the gas pump will help drive down costs of EVs over time.



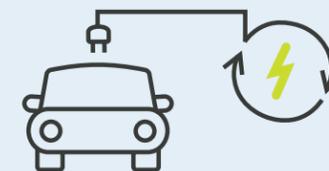
# THE BASICS OF PLUG-IN ELECTRIC VEHICLES AND CHARGING INFRASTRUCTURE

## Types of EVs

EV technology is rapidly evolving; as batteries improve, more models become available, and the vehicles themselves become more affordable because EVs are powered by batteries rather than by gas. This section provides an overview of the types of EVs available, how EVs compare to gas-powered vehicles (**Table 1**) and what EV charging technology currently looks like (**Table 2**).



### Battery Electric Vehicle (BEV)



**BEVs** are fueled entirely by electricity stored in onboard batteries. The range of BEVs varies greatly between cars tailored for short commutes of 100 miles to luxury vehicles that can travel 500 miles or more.

- Range: Up to 500 miles depending on make and model of car. The median among all models is 250 miles.
- Primary user considerations:
  - Intercity travel

### Plug-in Hybrid Electric Vehicle (PHEV)



**PHEVs** are fueled in part by electricity stored in onboard batteries which have a short range. Once the battery energy is consumed the car uses a gas-powered engine.

- Range: Up to 40 miles fully electric, then a combination of gas and battery power until the next charge.
- Primary user considerations:
  - Short range commutes
  - Not limited in range by electricity

## Gas-powered Vehicles vs. EV

When looking at EVs and gas-powered vehicles side by side, it can be difficult to spot the differences. These vehicles have many similarities; however EV's noticeably have no tailpipe for emissions. Under the hood, gas-powered vehicles have an engine made with several components fueled by the combustion of fossil fuels, typically either diesel or gasoline, and sometimes natural gas. EVs are powered directly by a battery, which has far fewer moving parts and requires significantly less maintenance over the course of ownership. No regular oil change is necessary, so other than balancing the tires, service mostly consists of refilling the windshield wiper fluid and checking the brake pads.

The range of a gas-powered vehicle depends on the fuel tank capacity in gallons, the vehicle efficiency in miles per gallon, and the availability of gasoline fueling stations. Comparatively, the range of an EV depends on the battery size in kilowatt-hours (kWh), the vehicle efficiency in miles per kWh, and the availability of charging infrastructure. In addition to these factors, cold temperatures and battery age both decrease battery capacity.

Today's EVs already produce significantly lower carbon emissions over the course of their lives than traditional gas-powered vehicles – even when accounting for all factors such as mining, manufacturing, power generation, and energy consumption. EVs have this advantage over gas-powered vehicles even though power generation and mining practices presently rely on fossil fuels in many cases. This lower carbon emissions benefit is expected to improve because these industries and utilities are setting ambitious decarbonization goals; for instance, the mining industry is adopting alternative drive trains for equipment and Ameren, a Southeast Missouri energy provider, is committed to becoming carbon-neutral by 2050.

One typically unaccounted for and often difficult to measure impact comes from the mining of the precious limited resource of rare earth metals for the batteries. Manufacturers are constantly searching for new, more efficient, and less impactful battery chemistries and methods to recycle used batteries. Globally, the battery recycling industry is quickly expanding and becoming more profitable. It currently has the capacity to recycle over 320,000 tons of material annually from spent batteries. In the future, expect hydrogen and renewable natural gas to become more prevalent in conversations regarding sustainable transportation, especially regarding medium and heavy-duty vehicles. The mining industry is currently testing fuel cell technologies for use with heavy machinery, and multiple fleets of hydrogen fuel cell electric buses are being tested in California.<sup>1</sup>

<sup>1</sup> Sources: Lithium-Ion battery recycling trends: [https://pubs.acs.org/doi/10.1021/acsenergylett.1c02602](https://pubs.acs.org/doi/10.1021/acseenergylett.1c02602)  
 Source: Comprehensive evaluation of hydrogen fuel cell EVs: <https://www.nrel.gov/hydrogen/fuel-cell-vehicle-evaluation.html>  
 Fuel Cell busses: <https://www.nrel.gov/docs/fy21osti/75583.pdf>

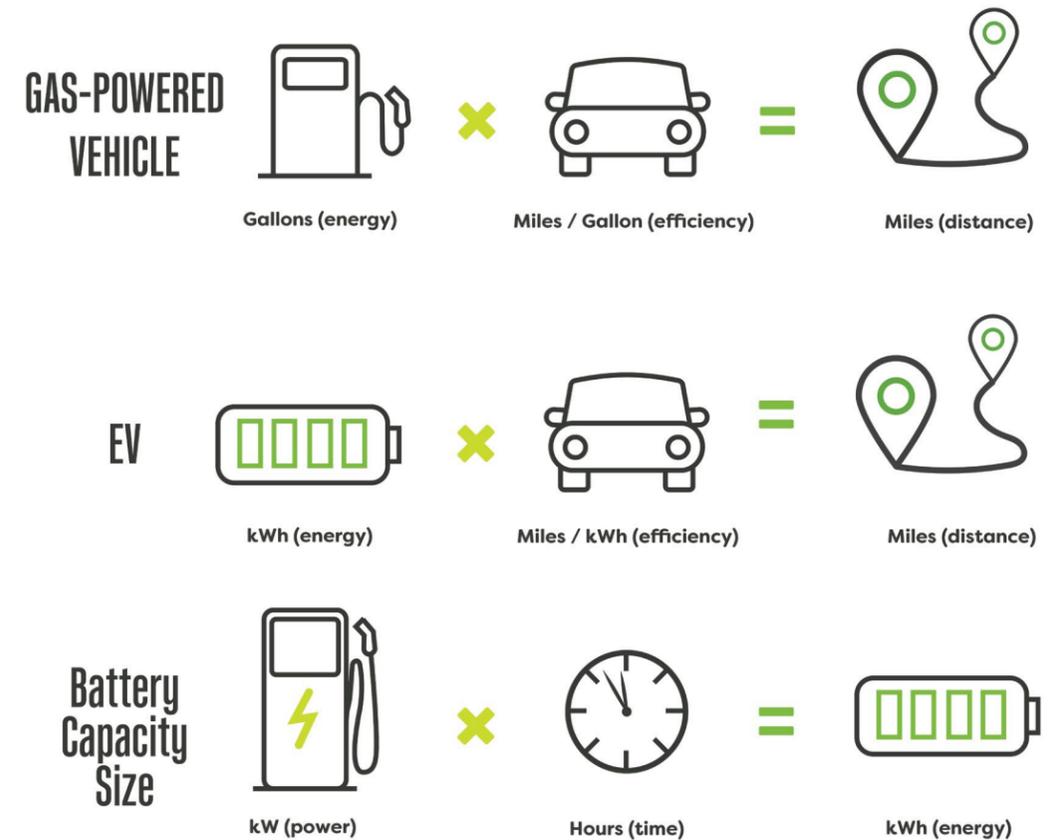


## Conversions



Gas Powered Vehicle	Electric Vehicle (EV)
• Energy Type (diesel, gasoline, or natural gas)	• Energy Type (electricity)
• Efficiency (miles/gallon)	• Efficiency (miles/ kWh)
• Distance (miles)	• Distance (miles)
• Gallons (energy) * Miles / Gallon (efficiency) = Miles (distance)	• kWh (energy) * Miles/kWh (efficiency) = Miles (distance)
	• Battery Capacity Size: 30-200 kWh for Battery Electric Vehicles (BEVs) and 10 kWh for Plug-in Hybrid Electric Vehicles (PHEVs)

TABLE 1 | GAS-POWERED VEHICLE VS ELECTRIC VEHICLE (EV)



## Charging Infrastructure

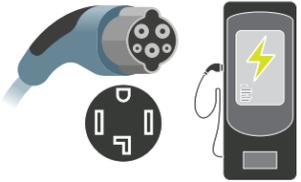
	Level 1	Level 2	Direct Current Fast Charger (DCFC)
CHARGE RATE	3-7 miles of range per hour	10- 60 miles of range per hour	175-500 miles of range per hour
CHARGING USE CASES	Overnight or emergencies	Charge overnight or while at work	Charge while shopping, going to the gym, or during interstate travel
SUPPLY VOLTAGE	120-volt outlet (toaster)	240-volt outlet (clothes dryer)	480-volt (small office building)
POWER LEVEL	15 amps	30 to 100 amps	Up to 250 amps
CHARGING CONNECTOR TYPES	Standard equipment for most battery electric vehicles (BEVs)	At home charging requires a 240-volt outlet and a charging adapter. These charging stations may also be available at work and in public spaces.	Public charging locations
CHARGER EXAMPLES			
INSTALL COST	\$ Typically, the connector is included	\$\$ • \$300-800 for a 240-volt outlet installation, if not already available. • \$300-2000 for a charging adapter	\$\$\$ Not available for residential installation
KEY TAKEAWAYS	<ul style="list-style-type: none"> <li>Access to charge in emergency situations is widely available.</li> <li>Obsolete for commercial purposes.</li> </ul>	Currently accounts for most of all charging demands.	Best used for long-range travel

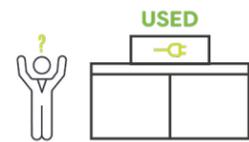
TABLE 2 | CHARGING STATION TYPES

The charging ports above represent the most used technology. Some proprietary charging connectors are still used in the industry. When looking at purchasing an EV, be mindful of the compatibility between ports and connectors.

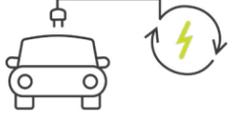
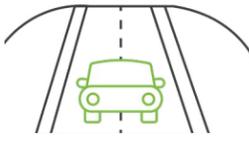
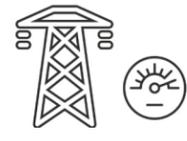
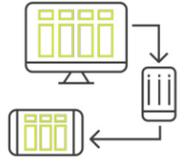
# BARRIERS TO ADOPTION AND INDUSTRY TRENDS

Emerging technologies often face barriers to market acceptance. Some barriers are easily overcome through innovation and market forces while other barriers are persistent. Some major barriers are highlighted below.

## EV Adoption Barriers

	EV cost parity with gas powered vehicles – expected to occur short term (2025-2030)
	No secondary market – limited amount of used EV inventory
	Long-distance travel, multi-family housing, and lack of charging stations
	Range anxiety
	Lack of dealership knowledge, and willingness to suggest EVs, and lack of EVs available at dealerships
	Lack of truck, SUV/ crossover EV models available on the market
	Lack of current manufacturer and model options and vehicle availability. This is expected to improve 2022-2024

## Charging Station Adoption Barriers

	Low EV customer base
	Lack of public awareness regarding charging station locations
	Charging station charging speed
	Service providers locate charging stations where EV adoption is highest, creating gaps in under-represented communities
	Utility demand charges
	Lack of site-specific back-end utility infrastructure for Direct Current Fast Charger (DCFC) stations, especially in rural areas
	Additional costs when providing back-up power at charging station locations for emergency evacuation
	Long recharging times

## EV Market Trends in the United States

A global market for EVs has been growing with a significant increase in sales starting in 2017 (see Figure 2). California has the largest annual sales percentage, with EVs accounting for over 6 percent of all vehicles sold in 2020. Several other states have reached annual EV sales percentages of 3-4 percent. The United States national average has increased slowly and is now just under 5 percent of annual vehicle sales with a goal of 50 percent by 2030.

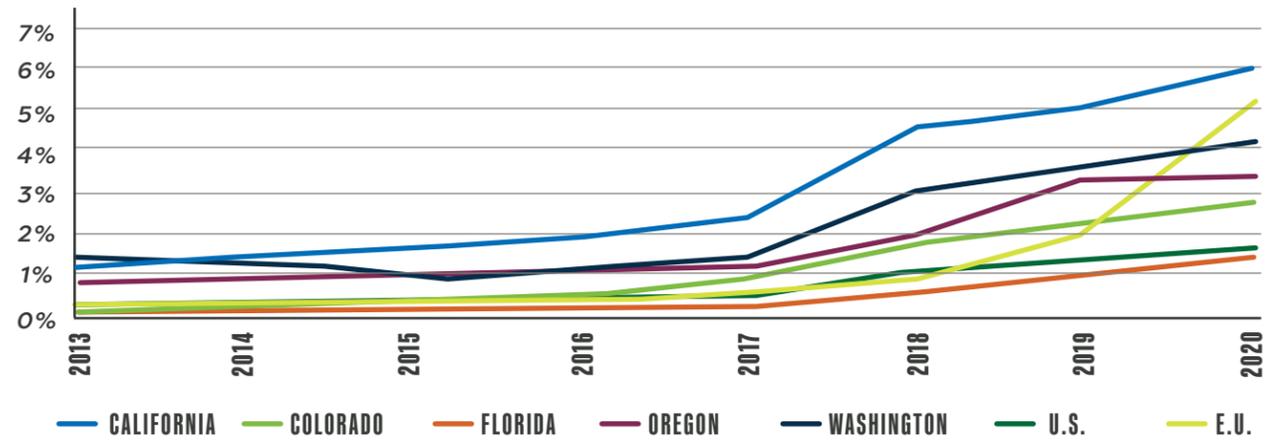


FIGURE 2 | ELECTRIC VEHICLE (EV) SALES



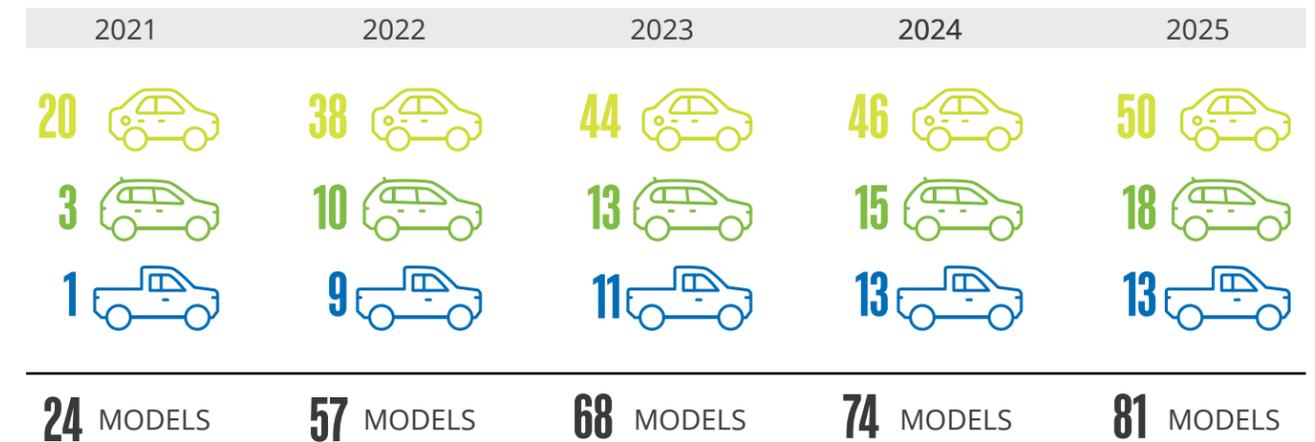
## Cumulative Battery Electric Vehicle (BEV) Offerings by Vehicle Type

By the end of 2020, there were 17 BEV models on the market. By 2025, there will be at least 81 additional BEV models available to consumers. Because the EV market is still relatively new, a limited selection of vehicle types of EVs is available, especially sport utility vehicles (SUV), vans, and trucks. Automobile manufacturers are looking to change this, and have announced a diversified menu of electric cars, many of which are expected to be available in 2023.



### Automobile Manufacturers are Going Electric

<b>VOLVO</b> has pledged that 50% of its vehicle offerings will be EV by 2025.	<b>GENERAL MOTORS</b> has pledged that all light-duty cars and SUVs will be EV by 2035.	<b>FORD</b> expects that 40% of global sales will be EV by 2030.	<b>VOLKSWAGEN</b> expects that 50% of US sales will be EV by 2030.
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# SEMPO EV STEERING COMMITTEE AND STAKEHOLDERS

## Background and Purpose

Gathering information from the SEMPO region community allowed the Steering Committee to understand the current available resources, the performance of existing charging stations, and the need for future infrastructure. Multiple stakeholders, including public agencies, utility providers, property and business owners, charging station manufacturers, local automobile dealers, transit providers, fleet delivery services, and the public, among others, coordinated with the SEMPO Steering Committee to help shape and inform the Readiness Plan. Holding stakeholder interviews and online surveys throughout the course of this effort provided insight into the knowledge gaps, common misconceptions and potential opportunities within the SEMPO region. The full list of stakeholders is provided in *Appendix A – Engagement Results*. In general, feedback from participants showed they view EVs and the potential of transportation electrification in a positive light.

## Summary of Stakeholder Engagement

Education, awareness, and community dialogue around EVs and infrastructure is paramount to the success of this Readiness Plan and will lay the groundwork to ensure widespread acceptance and approval of the recommendations crafted as part of this effort. Early in the development of the Readiness Plan, it was evident that a knowledge gap existed within the community around EVs. To jump start the number one recommendation in this Readiness Plan, to develop and implement EV education and awareness programs, the Project Team developed an engaging and thought-provoking survey.

Using an interactive online format, participants responded to specific questions about EVs, which helped the Project Team and the EV Steering Committee understand the community's current knowledge base regarding EVs. Published on the project website in November 2021, the online surveys were completed by over 50 individual stakeholders. The purpose of the survey was to gauge knowledge gaps while also gathering information about existing EV efforts in the SEMPO region that would help inform recommendations developed as a part of this Readiness Plan. See *Appendix A – Engagement Results* for the survey questions, answers, and a list of engaged stakeholders.

## Key Findings from Public Survey Respondents

	<b>Vehicle Ownership</b>	<b>67%</b> own three or more vehicles		
	<b>Average number of miles driven on a daily basis</b>	<b>35%</b> drive under 20 miles	<b>41%</b> drive between 20 and 50 miles	
	<b>Range of an electric vehicle (EV) on a single charge before EV purchase considered</b>	<b>43%</b> less than 300 miles	<b>46%</b> between 300 and 500 miles	
	<b>Maximum charge time acceptable in order to consider purchasing an EV</b>	<b>23%</b> less than 15 minutes	<b>31%</b> between 15 minutes and 1 hour	<b>29%</b> between 1 to 4 hours
	<b>Likelihood of owning an electric vehicle in the next 5-10 years</b>	<b>57%</b> are likely to own an electric vehicle		
	<b>Age groups who completed the survey</b>	<b>5%</b> under 25 years	<b>47%</b> 40-59 years	<b>24%</b> over 60 years

## Key Findings from Primary Stakeholders

	<b>Power Providers</b>	<ul style="list-style-type: none"> <li>Ameren has a net-zero carbon goal for 2050.</li> <li>Ameren has charging station incentives for workplaces, multi-unit dwellings (MUDs), and publicly accessible locations.</li> <li>Citizens Electric does not currently offer charging station incentives.</li> </ul>
	<b>Agencies and Municipalities</b>	<ul style="list-style-type: none"> <li>City of Cape Girardeau has installed publicly accessible EV charging stations.</li> <li>Jackson has not installed any EV charging stations to date.</li> </ul>
	<b>Automobile Dealerships</b>	<ul style="list-style-type: none"> <li>Some local dealers have sold EVs and can service EVs.</li> <li>Local dealers have seen an increase in demand for EVs from their customers.</li> <li>Some local dealers have expressed no interest in selling or servicing EVs.</li> </ul>
	<b>Fleets (transit, delivery, etc.)</b>	<ul style="list-style-type: none"> <li>Cape Girardeau County Transit Authority has six hybrid vehicles and has plans to convert its entire fleet to EVs.</li> <li>Cape Girardeau County Transit Authority has plans to install EV charging infrastructure with the completion of its new facility, roughly expected in 2025.</li> </ul>
	<b>Educational Institutions</b>	<ul style="list-style-type: none"> <li>Southeast Missouri State University has an enrollment of 12,000 students with roughly 7,000 parking spaces. No charging stations are currently provided, though some students have inquired about them.</li> </ul>
	<b>Businesses and Organizations (hotels, airports, hospitals, gas stations, etc)</b>	<ul style="list-style-type: none"> <li>Local hotels, gas stations, and grocery stores have installed charging stations in recent years.</li> <li>Local businesses have noticed an increase in demand for charging stations.</li> </ul>
	<b>Electric Charging Station Providers</b>	<ul style="list-style-type: none"> <li>Demand for charging stations has dramatically changed in the past 12 months.</li> <li>Residential, commercial, and fleet providers have requested quotes for charging stations.</li> </ul>

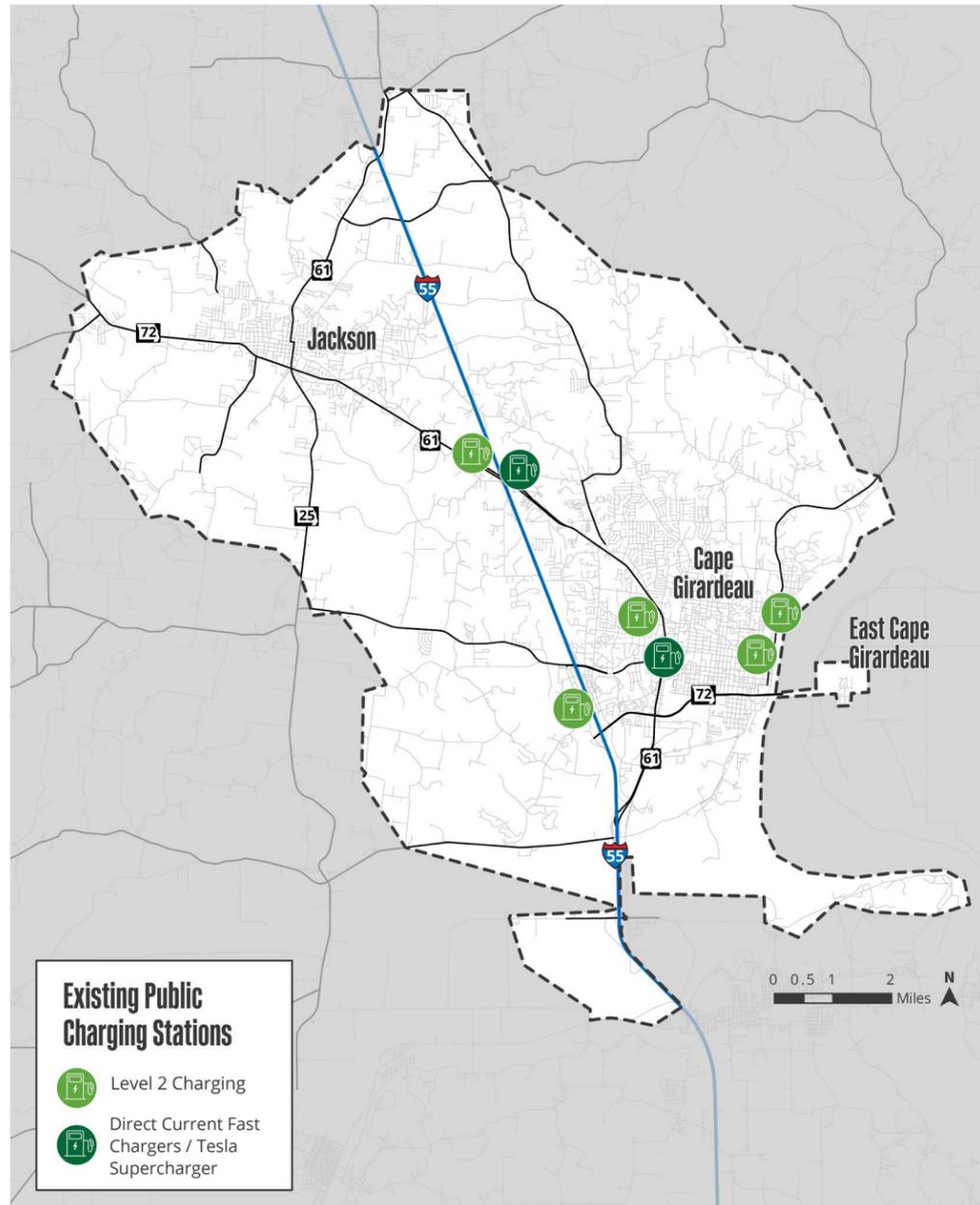
# PEVS AND PUBLIC CHARGING INFRASTRUCTURE IN THE SEMPO REGION

## PEVs in SEMPO Region

As of June 2021, there were more than 6,700 registered EVs in the state of Missouri per the National Renewable Energy Laboratory's data posted on the U.S. Department of Energy (DOE) website. EV registration data specific to the SEMPO region is currently not available.

## Locations of public charging stations in the SEMPO Region

As of April 2022, there were 30 EV charging stations, 20 public Level 2 charging stations, and 12 public Direct Current Fast Chargers (DCFC) serving the SEMPO region. Locations and charging types are included in **Figure 3**. **Table 3** shows the location of existing EV chargers and their hours of operation, type of charger, connector type, facility type, and pricing.



**FIGURE 3 | SOUTHEAST METROPOLITAN PLANNING ORGANIZATION (SEMPO) REGION EXISTING CHARGING INFRASTRUCTURE**

Station	Access	Hours	Level 1	Level 2	DCFC	Total	Network	Connector	Facility	Pricing
<b>BEST WESTERN PLUS</b> 3003 S Old Orchard Road, Jackson, MO 63755	Public	24 hours daily	-	2	-	2	Non-networked	J-1772	Hotel	Free
<b>WINKS</b> 2505 Veterans Memorial Drive, Cape Girardeau, MO 63701	Public	24 hours daily	-	-	8	8	Tesla	Telsa	Convenience Store	\$0.34/kWh
<b>JOHN SINCLAIR NISSAN</b> 478 Siemers Drive, Cape Girardeau, MO 63701	Public	Dealership business hours	-	2	-	2	Non-networked	J-1772, Wall Plug	Car Dealer	Free
<b>AC BRASE ARENA</b> 410 Kiwanis Drive, Cape Girardeau, MO 63701	Public	8am-5pm	-	8	-	8	Non-networked	NEMA 14-50, Wall Plug	City Park	\$10 a day
<b>CAPE GIRARDEAU CITY HALL</b> 44 N Lorimier Street, Cape Girardeau, MO 63701	Public	24 hours daily	-	2	-	2	Non-networked	J-1772	City Hall	Free
<b>SCHNUCKS</b> 25 S Kingshighway, Cape Girardeau, MO	Public	24 hours daily	-	2	4	6	ChargePoint	CCS/SAE, CHAdeMO, J-1772	Grocery Store	\$0.25/kWh
<b>CENTURY CASINO</b> 777 N Main Street, Cape Girardeau, MO 63701	Public	24 hours daily	-	4	-	4	ChargePoint	J-1772	Casino	\$0.25/kWh
			<b>0</b>	<b>20</b>	<b>12</b>	<b>32</b>				

\*Charging Infrastructure in SEMPO Region as of 04/30/2022.

**TABLE 3 | SOUTHEAST METROPOLITAN PLANNING ORGANIZATION (SEMPO) EXISTING CHARGING INFRASTRUCTURE INVENTORY**

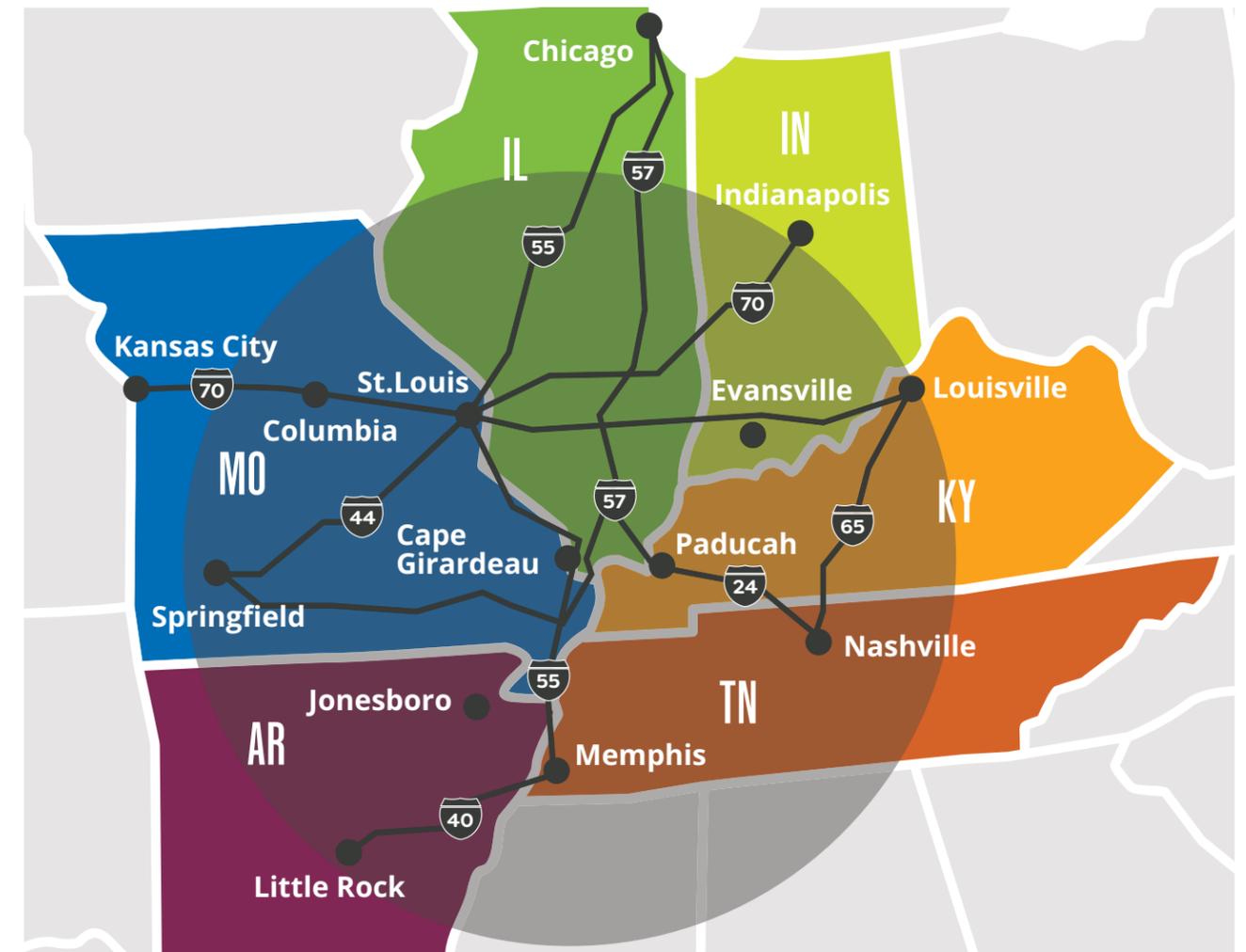


## Finding public charging infrastructure

Drivers typically use websites or mobile applications to locate public charging stations. EV drivers can find these charging locations by using several online resources. Additionally, each charging network (e.g. ChargePoint, Tesla, etc.) has its own web-based or mobile application to help its members find network-specific charging locations. Resources for locating public charging stations are provided further below in **Table 4**. Locating charging stations during regional travel is a crucial resource for EV owners, especially for the SEMPO Region given the significant amount of major metropolitan cities like Memphis, St. Louis, Louisville, and Indianapolis all within 400 miles of the SEMPO Region as shown in **Figure 4** and **Table 5**.

Charging Infrastructure Source	Description	Website
<b>Plugshare</b>	Available online or through a mobile application. Users can leave reviews on public chargers and have their own residential chargers displayed on the map.	<a href="https://www.plugshare.com/">https://www.plugshare.com/</a>
<b>Alternative Fuels Data Center Station Locator</b>	Displays hours of availability and number of charging units per site. Allows end users to add new stations.	<a href="http://www.afdc.energy.gov/locator/stations">http://www.afdc.energy.gov/locator/stations</a>
<b>Open Charge Map</b>	Displays hours of availability and number of charging units per site. Allows end users to add new stations, leave reviews, and photos.	<a href="https://openchargemap.org/site">https://openchargemap.org/site</a>
<b>ChargeHub</b>	Available online or by a mobile application. Users can leave reviews on public chargers including photos.	<a href="https://chargehub.com/">https://chargehub.com/</a>

**TABLE 4 | FINDING PUBLIC CHARGING INFRASTRUCTURE**



**FIGURE 4 | REGIONAL CONTEXT MAP**

Paducah	70 Miles	1.50 Hours	Springfield	270 Miles	4.25 Hours
St. Louis	118 Miles	2.00 Hours	Louisville	274 Miles	4.00 Hours
Evansville	141 Miles	2.75 Hours	Little Rock	289 Miles	4.00 Hours
Jonesboro	151 Miles	2.50 Hours	Indianapolis	305 Miles	4.50 Hours
Memphis	172 Miles	2.50 Hours	Kansas City	349 Miles	5.00 Hours
Nashville	202 Miles	3.25 Hours	Chicago	374 Miles	5.50 Hours
Columbia	225 Miles	3.25 Hours			

● Circle Shows 250-mile Radius of Electric Vehicle on Single Charge from Cape Girardeau

**TABLE 5 | DISTANCE FROM CAPE GIRARDEAU TO SURROUNDING REGIONAL CENTERS**

# REGIONAL PLUG-IN ELECTRIC VEHICLE INFRASTRUCTURE EXISTING CONDITIONS

PEV infrastructure in the SEMPO region is rapidly evolving with local governments, homeowners, multi-unit property managers and local businesses playing a crucial role. This section will highlight the existing conditions and what is already being done around PEV infrastructure in the SEMPO region.

## Local Government

Local governments set the tone for how PEVs are adopted into communities and how infrastructure will expand to support PEVs primarily through planning efforts or regulatory compliance.

## Cape Girardeau and Jackson

The City of Cape Girardeau and the City of Jackson do not yet have policies specific to EVs and PEV infrastructure. However, the SEMPO Metropolitan Transportation Plan (MTP) has identified EV readiness as a priority, which is the basis for this EV Readiness Plan.

By starting from scratch, Cape Girardeau and Jackson can implement best practices that have been successful for other communities. Much of this effort is accomplished by integrating charging station installations into streamlined building permit processes, pre-wiring for installation into

public projects, and identifying limitations in zoning codes that may inhibit public charging station installations. These opportunities are further expanded in the *Regional Barriers to Charging Station Deployment and Key Recommendations* section of this document.

## St. Louis City and County

Regionally, several bills and ordinances that affect the availability of PEV infrastructure have been enacted. One of these efforts is an ordinance in St. Louis and St. Louis County that requires “EV Ready” (EVR) parking spaces for all new single-family buildings. New requirements are also in place for new construction and “Level 3 Alterations” (50 percent of building areas being reconfigured) for commercial projects. These requirements mandate a certain number of EVR spaces and charging stations, depending on the size of the project and the number of required parking spaces. These are a few examples of communities around the region implementing new practices to support EVs.

## Single-family Residences

Charging behavior studies clearly indicate that most PEV drivers charge their vehicles at home. Many PEV drivers who have single-family homes will find a standard household outlet (120 voltage, alternating current [VAC]) available for charging where their vehicle will be parked. However, some PEV owners install a dedicated Level 2 (240 VAC) charging station to charge their vehicle. The installation of a Level 1 or Level 2 charger does not currently require a permit from any of the local jurisdictions or utility providers in the SEMPO region.

Developing a charging station permitting and installation process for homeowners has been proven to help reduce barriers to home charging and further PEV adoption. Training and information tailored for homeowners is also essential to easing concerns and informing PEV drivers. A common way these practices have been implemented in other communities around the country is by offering a home charger station purchase incentive program that is managed by local power utility providers to help facilitate the adoption of PEVs while standardizing the permitting and installation processes.

## Multi-unit Dwellings

As noted, most drivers charge their PEVs at home; however, multi-unit dwellings (MUDs) offer a unique set of challenges. Shared utilities, parking designations or restrictions, and design and infrastructure hurdles make charging station installations at MUDs more complex. To date, no local governments, developers, or property owners in the SEMPO region have conducted any educational or outreach activities. Training, education, and outreach activities with all MUD stakeholders (local governments, developers, and property owners) will play a crucial role in expanding charging options for MUD PEV drivers. Recommendations specific to MUDs will be highlighted in the *Regional Barriers to Charging Station Deployment and Key Recommendations* section of this document.



## Workplace, Retail and Public Locations

PEV drivers are limited by the range of their vehicle. Although most veteran PEV drivers are aware of their vehicle’s range, others experience range anxiety, which can hinder their decision to purchase a PEV or make them less likely to drive one they have purchased. Several local retailers, workplaces, and public destinations now have charging stations available to their customers, employees and the public. Expanding charging options for PEV drivers will continue to play a critical role in broadening the range and number of PEV owners.

Charging station installations at workplace, retail, and public locations will continue to expand the existing charging network and give PEV drivers options similar to those available to drivers of traditional gas-powered vehicles. Contractor and business owner training, education and outreach will be crucial to encouraging the decision to install charging stations. Permitting processes, construction, and electricity costs are also concerns for local business owners and can impede charging station installations. One-way local governments can help is to provide employees and customers EV-charging infrastructure on public property, thereby leading by example and filling gaps in the charging network.

# REGIONAL BARRIERS TO CHARGING STATION DEPLOYMENT AND KEY RECOMMENDATIONS

As stated previously, barriers exist for regional charging infrastructure installations and PEV adoption. This section details the types of PEV charging stations currently available and discusses considerations, by land use type, and how the barriers can be overcome.

## Regional Planning for Public Charging Stations

### Overview

Collaborative planning for regional charging infrastructure is necessary to establish a cohesive and interconnected charging network. Such planning efforts include assessing priority locations, establishing optimal land use, providing access, and understanding driver behavior. Defining the needs and establishing ideal locations to support charging stations that benefit PEV drivers have to be done on a large scale to be effective and functional.

### Classifying local land use statistics for PEVs

Understanding local land uses and PEV driving habits helps identify optimal locations for charging stations and the appropriate type of charging station required. **Table 6** describes the different types of charging stations and the applications for which they are best suited.

Charging Station	User Profile	Typical Venues	Charging Time	Miles/Hour Charge
Level 1	Parked for 6 to 8 hours	Streets/Meters	1 to 2 hours	3 to 7
		Parking Garages	2 to 10 hours	
		Cultural & Sports Centers	2 to 5 hours	
		Airports (long term) & Hotels	8 to 72-plus hours	
Level 2	Parked for 2 to 4 hours	Shopping Centers	0.5 to 2 hours	10 to 60*
		Airports (short term)	< 1 hour	
		Streets/Meters	1 to 2 hours	
		Parking Garages	2 to 10 hours	
		Cultural & Sports Centers	2 to 5 hours	
		Airports (long term) & Hotels	8 to 72-plus hours	
		Highways & Commuting Roads	< 0.5 hour	
Direct Current Fast Charging (DCFC)	Parked for 15 to 60 minutes	Shopping Centers	0.5 to 2 hours	175 to 500*
		Airports (short term)	< 1 hour	
		Highways & Commuting Roads	< 0.5 hour	

\*Depending on vehicle onboard charger.

TABLE 6 | CHARGING STATION TYPES AND APPLICATIONS

### Land use/parking analysis for charging stations

Parking requirements specific to individual land uses are established by local jurisdictions and often determined through a formula relative to the use or service being provided at the site and the size of the use in conjunction with state and federal mandates, such as those addressing accessibility. All these factors are important to consider when assessing the potential parking availability for charging stations. The information in **Figure 5** is commonly referred to as industry best practices for assessing parking opportunities for consideration in PEV land use planning and was developed by UCLA Luskin Center.



Source: UCLA Luskin Center, Southern California PEV Readiness Plan

FIGURE 5 | STEPS IN PLUG-IN ELECTRIC VEHICLE (PEV) LAND USE ASSESSMENT



### Public EV charging stations

Public charging stations and an integrated charging network are critical to regional PEV adoption. Reducing range anxiety and providing more opportunities for drivers to charge their vehicles will support increased PEV adoption rates. Local governments play a crucial role in expanding the regional charging network and in ensuring connectivity among driving corridors. Challenges to installing public charging stations include electricity costs and accessibility, operation, and maintenance needs.

**To aid local governments, public agencies, and businesses with the procurement of installation and operation of EV charging stations, a standardized request for proposal (RFP) template is recommended for the SEMPO region.**

By having standardized equipment specifications, contractor minimum qualifications, and a general scope of work, agencies can minimize efforts, reduce risk, and reduce liability while taking advantage of consistent text that has already been vetted through other local agencies for the installation and maintenance of public charging stations. Example RFP's and templates are provided in *Appendix B*.



## Permitting and Charging Practices for Charging Stations

### Overview

The permitting process is very influential in encouraging or hindering charging station installations. The SEMPO region does not currently have a single, regional standard permitting or installation process related to charging stations. The following section describes critical components of permitting and installation processes and identifies opportunities to expand charging station installations and best practices for specific charging stations.

### Permitting charging station installations at residential locations

Permitting for installing a charging station at a residential location varies depending on the type of charger. Level 1 chargers do not currently require any notification or permit to be installed in the SEMPO region. However, installing a Level 2 or DCFC charging station requires you to notify the local power provider prior to installing. There is, however, no standard permitting process established to date.

**Local jurisdictions in the region should work together to develop guidance and a streamlined permitting process to assist permit applicants with permitting, installation, and inspections for charging stations.**

**Table 7** contains recommended supporting documents for residential charging station permit applications. This information is based on research of best practices throughout the country.

## Permitting charging station installations at commercial locations

The installation of a charging station at a commercial location is typically more complex than one at a residential location and may require additional permits or documentation. Some additional considerations for commercial charging station installations include the following:

- Zoning
- Community or Design Guidelines
- Existing Use Permits
- Electrical Source and Metering
- Parking and Signage
- Permit and Inspection Fees

A simple commercial charging station installation may have similar permitting requirements as a residential installation. However, a more complex commercial installation may require a modification to an existing use permit or a site plan addressing specific community or zoning design criteria. It is important to meet with staff from the building, and if necessary, planning departments of the permitting jurisdiction to fully understand all the necessary requirements and fees prior to applying for permits.

Supporting Documentation	Description
<b>Plot Plan</b>	Identify the complete layout of existing parking spaces and the proposed location of charging station parking space(s) with respect to existing buildings and structures
<b>Electrical Load Calculations</b>	Home electrical load calculations estimate whether an existing electrical service will handle the extra load from a residential charging station and the necessary wiring methods based on the National Electrical Code (NEC).
<b>Electrical Plans</b>	Single-line diagrams showing the system, point of connection to the power supply, and charging station.
<b>Charging Station Information</b>	The charging station manufacturer's installation instructions and charger specifications.

**TABLE 7 | RECOMMENDED SUPPORTING DOCUMENTS FOR RESIDENTIAL CHARGING STATION PERMITS**

## Permitting Charging Station Installations at Multi-Unit Dwelling (MUD) Locations

MUD is a generic term for a variety of multi-unit residence types. These include (but are not limited to) apartment buildings, attached and detached housing units within a community, high-rise buildings, mobile home communities, and others. Installing charging stations at MUDs presents several unique challenges. **Table 8** summarizes the barriers to charging station installations at MUDs.

Barrier	Description
<b>Cost</b>	Installation costs can range anywhere from \$2,000 to \$10,000. A building that has sufficient panel capacity and existing conduit running from the panel to the Plug-in Electric Vehicle (PEV) parking space will likely only incur charging station, permit and electrician installation/assessment costs, resulting in a lower-cost installation. On the other hand, a building with limited panel capacity, no conduit, and a parking space located a significant distance from the electrical panel will likely incur higher installation costs.
<b>Power Supply</b>	Transformers supplying power to multifamily buildings typically have 10 percent to 15 percent excess capacity, or overhead, which is enough to sustain a few electric vehicles. However, as PEV adoption grows and vehicles are equipped with higher charging loads, these transformers may be insufficient to handle a wide-scale conversion of electric vehicles.
<b>Proximity to Metering Equipment</b>	Service panels for multi-unit dwellings (MUDs) can be located substantial distances from where the charging station is to be installed.
<b>High-Rise Units</b>	In high-rise units, meter rooms are often located on the upper floors and conduit space is limited. Challenges are faced in installing additional conduit and/or encountering physical limitations (e.g., drilling through concrete floors).
<b>Parking</b>	Parking is not standard across MUD building types. In some MUDs, parking is bundled into the rent or sale price of the unit. In other buildings, parking is unbundled or paid for separately. Unbundled parking spaces can be assigned on a first-come, first-served basis, or they can be unassigned. A charging station tied to a bundled parking space could be added value to a future tenant; however, a charging station on an unbundled or unassigned spot may pose challenges for assigning costs to individual owners. Choice of spaces also must address issues with proximity to metering equipment as addressed above.
<b>Electricity Rates and Meters for Common Areas</b>	Parking garages/lots are typically on a common meter. This means electricity provided in parking garages and other common areas is paid by the property manager or HOA and then billed to residents through HOA fees or rent. This creates a challenge in allocating charging costs to individual owners.
<b>Homeowner Associations (HOAs)</b>	HOAs cannot prohibit or restrict the installation of a PEV charging station. Senate Bill 880 codified this and other provisions for charging installations in common areas. However, HOA boards may still resist installations. Lack of information regarding charging station installations remains a signification barrier.

**TABLE 8 | BARRIERS TO CHARGING STATION INSTALLATIONS AT MULTI-UNIT DWELLINGS**

**Best practices and recommendations to help address barriers to charging station installations at MUDs have been organized from similar EV readiness plans from around the country and are included below.**

These recommendations can serve as a resource for local governments, residents, building managers, homeowner associations, and apartment associations that are assisting with the siting of charging stations at MUDs.

**REACH OUT TO BUILDING MANAGEMENT OR HOA**

- Because EV chargers will likely be installed in common areas, it is important to engage the building management or HOA early in the process. Identify any existing rules in the covenants, conditions and restrictions that could affect the installation of charging stations.

**DETERMINE DEMAND FOR EV CHARGER INSTALLATIONS**

- Survey residents to gauge their interest in purchasing a PEV. This survey will help determine the number of charging units and/or amount of conduit to install and in what layout(s). Identify demand for Level 1 versus Level 2 charging. Planning ahead by installing extra capacity for future charging units can save on costs down the road.

**ALLOCATE COSTS**

- It is important to establish how EV charger installation, operations, maintenance, insurance, and electricity bills will be paid. How costs are allocated will depend on how the chargers are installed. Potential options include the following:
  - Chargers in assigned spots: Individual meters installed for each charging station and the resident covers the actual charger cost, billing, insurance, and maintenance of the unit. Installation costs for the meters, panel upgrades and conduit can either be covered by management or the resident, or the cost can be shared.
  - Common area chargers for residents only: Building management installs charging stations in common areas and recoups costs from residents through a billing system in the charger.
  - Common area chargers for residents and the public: Building management installs charging stations in public common area and recoups costs from residents and the public through a billing system in the charger.

**SITE EV CHARGERS**

- Identify the location and type of electric metering and wiring in the parking area. Determine if the existing supply is adequate or if a meter/panel upgrade is needed. If an upgrade is required, consider the capacity needed to accommodate additional PEV chargers in the future. Contact the building/planning department to discuss any permits or requirements that should be considered when siting chargers.

**PROVIDE POWER SUPPLY FOR EV CHARGERS**

- The closer the charging station is to the power supply, the lower the installation costs will be.
- Installation costs will increase if a panel meter installation upgrade is necessary. The power supply needs for Level 1 and Level 2 charging stations are as follows:
  - Level 1: Dedicated branch circuit with NEMA 5-15R or 5-20R receptacle
  - Level 2: Dedicated branch circuit hardwired to a permanently mounted charging station with 240VAC/single phase, 4-wire

**Charging at Commercial and Public Sites**

Though most PEV charging happens at home and work, charging stations at commercial and public locations complement a driver's daily commute needs, offer flexibility in traveling and maximize electric miles driven. As PEVs become more prevalent, the demand for diverse charging station options will increase.

**Factors for consideration when providing chargers at commercial and public locations are detailed below.**

**DOES YOUR BUSINESS OWN OR LEASE ITS FACILITIES?**

- Building owners: Commercial sites that own the facility and parking area will encounter fewer challenges when developing a plan for vehicle charging. Key stakeholders should be engaged earlier in the process, including PEV drivers, operations supervisors, building/facility managers, facility technicians, and legal counsel
- Building tenants: Commercial sites that lease their facility will likely require tenants to obtain an agreement from the building or property owner. If an agreement cannot be reached with the owner, look to partner with a neighboring parking lot owner or another business to develop a cooperative PEV charging program.

**WHAT TYPE OF CHARGING IS NEEDED?**

- Business owners should determine the appropriate charging levels based on the electrical capacity available at their facility, and refer to **Table 6** to determine the appropriate type of charging infrastructure based on the corresponding land use of the site.

**WHO WILL PAY FOR THE CHARGING?**

- Business owners can choose to cover electricity costs and allow consumers to charge their vehicles for free, or a business may want to recoup some or all the electricity costs by requiring consumers to pay for their charging.



**Charging at the Workplace**

The SEMPO region has a growing population of PEV drivers who are likely to require charging during the workday. Because the workplace is where these PEV drivers spend most of their time outside of home, expanding workplace charging opportunities will allow commuters more flexibility and maximize EV miles traveled.

The choice to add workplace charging is often conflicted between the value proposition of wanting to provide charging as an employee benefit and the up-front and long-term costs associated with the stations. Documenting and sharing workplace charging experiences and lessons learned with regional stakeholders can help encourage other employers to offer workplace charging. There are benefits to offering Level 1 charging stations at the workplace as a less expensive alternative to Level 2 charging stations. Providing Level 1 charging requires less electricity and is ideal for a workplace, where drivers are usually parked for longer times.

**Standardized regionally recognized permit processes and procedures for commercial and workplace charging station installations could reduce the time, costs, and confusion associated with workplace charging, and it is recommended for further consideration by SEMPO.**



## Zoning for Parking Policies and PEVs<sup>2</sup>

### Overview

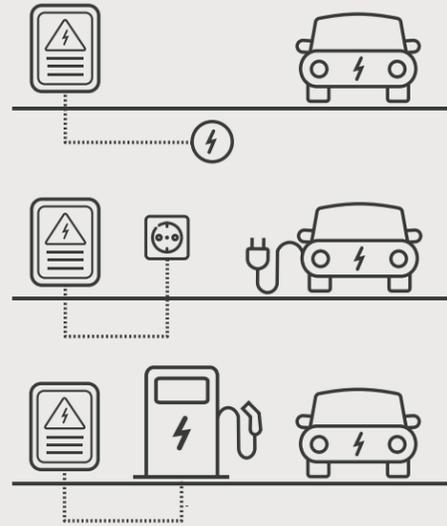
Zoning and parking policies help prescribe where and what types of development can occur within each jurisdiction and play a critical role in charging station deployment. Parking requirements defined by individual zoning ordinances or existing developments offer challenges to property owners or project developers when trying to identify optimal charger locations and capacity for such stations.

<sup>2</sup> Sources: MUTCD: Manual on Uniform Traffic Control Devices (MUTCD) - MUTCD News Feed - FHWA (dot.gov)  
DOE PEV Wayfinding Standards: [https://afdc.energy.gov/fuels/electricity\\_charging\\_station\\_signage.html](https://afdc.energy.gov/fuels/electricity_charging_station_signage.html)  
Article 1. GENERAL PROVISIONS, Chapter 30. ZONING, Code of Ordinances, Cape Girardeau (elaws.us)

### Charging stations and ADA accessible parking spaces:

1. It is important to consider ADA (Americans with Disabilities Act) accessible parking spaces when planning for charging station installations. Charging stations should be provided for both accessible and non-accessible spaces.
2. Charging stations for accessible spaces should display signage that indicates they are reserved for ADA accessible parking permit holders.
3. Charging stations for accessible spaces must be designed and installed in an ADA compliant manner, including access and operation.

**EV Readiness requirements are recommended to be developed and categorized into the following three levels:**



1. **EV Capable:** These parking spaces prepare for future charging station installation by providing dedicated electrical capacity in the service panel (40 amp breaker for every two EV-capable spaces) and conduit to the EV-capable space. These spaces do not require wiring to the space or a receptacle.
2. **EV Ready:** In addition to the EV-capable requirements, conduit is provided to each space with a 240-volt outlet receptacle.
3. **Charging Stations Installed:** These parking spaces are reserved for EVs and provide drivers the opportunity to charge their EV using EV charging stations rated at a minimum of 32 amp 7.2 kilowatts (kW). These spaces should be installed per the requirements of the NEC (NFPA 70) as adopted by the City of Cape Girardeau and Jackson.



### Zoning Ordinance Changes

Zoning ordinances offer an ideal mechanism for local governments to define opportunities for charging station installations through development. Currently, none of the jurisdictions in the SEMPO region have mandatory charging station development requirements.

**It is recommended that SEMPO jurisdictions add language and definitions to their zoning ordinances so when new development occurs, developers are using consistent language and standards that promote the development of charging stations.**

### Accessibility

The Americans with Disabilities Act (ADA) has specific access requirements to ensure that parking spaces accessible to persons with disabilities are provided in public, business, and non-profit parking facilities; however, these requirements have presented a number of challenges to charging station installations. There are currently no mandatory requirements for incorporating charging station-specific parking spaces in development projects.

Individual jurisdictions can develop standards for application within their own boundaries if they choose.

### PEV Signage

Wayfinding signage helps PEV drivers navigate to charging stations from other locations, such as a freeway exit.

The Federal Highway Administration (FHWA) defines minimum standards for signage, which it publishes in the Manual on Uniform

Traffic Control Devices (MUTCD). The MUTCD standards apply to signage on all public highways, streets, bike-ways, and private roads open to the public, such as roads internal to shopping centers or airports. The current MUTCD was published in 2009, but a new version is due to be published no later than May 15, 2023.

The MUTCD is being completely rewritten and is expected to include standards on PEV signage; for the time being, the FHWA has approved the following interim designs for charging stations.



D9-11bp



D9-11b



These designs can be combined with directional arrows and mileage for wayfinding purposes. Additionally, signage can be used to designate parking used only for PEVs that are actively charging, or for place time limits.

To be enforceable, any signs posted in public right-of-way must be supported by local ordinances that specify time limits, penalties, and definitions. Pavement markings painted on the surface of a parking space can be used to reinforce signage for charging stations, but most jurisdictions deem pavement markings unenforceable on their own.

## Building Code Changes<sup>3</sup>

### Overview

Updating local building codes to accommodate charging stations can help overcome barriers to PEV adoption. Mandatory building codes can promote PEV by requiring prewiring for charging equipment and dedicating a percentage of parking spaces for PEVs.

The first step toward making building codes more charging-station friendly is to increase understanding about how building codes are updated among jurisdictions. The State of Missouri has not adopted statewide energy codes or statewide building codes. Numerous municipalities and counties throughout Missouri, such as the SEMPO region, have independently adopted the International Residential Code (IRC), the International Building Code (IBC), and the International Energy Conservation Code (IECC). These codes can be used strategically with best practices found in comparable regions to avoid the difficult process of writing and validating new code.

As deemed appropriate, the SEMPO region jurisdictions may also choose to adopt section 429 of the IBC which discusses recommendations for PEV charging infrastructure. Recommended parking requirements for EVs based on land uses included in the recently updated section 429 of the IBC is provided in **Table 9**.

<sup>3</sup> Sources: orlandoevreadyguide\_2021.pdf  
 Sec. 65-22. - Off-street parking and loading regulations. | Code of Ordinances | Jackson, MO | Municode Library  
 ARTICLE II. - OFF-STREET PARKING | Code of Ordinances | Cape Girardeau, MO | Municode Library  
 Missouri Building Code - Permit Place  
 Missouri State and local officials make requirements for electric vehicle charging stations more realistic | Missouri | thecentersquare.com

### Recommendations

The SEMPO region can support charging station deployment by amending the Cape Girardeau and Jackson municipal codes. An effective first step would be to adopt a framework for requiring prewiring for charging stations and a number of charging stations installed spaces for development with the following conditions:

- All newly constructed residential and nonresidential buildings.
- Major remodeling affecting more than 25 percent of the existing building. (Excludes building repairs)
- Parking lot alterations affecting more than 50 percent of the existing parking lot.

Type	EV-capable Spaces	Charging Station Installed
<b>Certified affordable multifamily housing</b>	20%	Not Required
<b>Multifamily, hotel</b>	20%	2% (requirement begins at 50 spaces)
<b>Non-residential (offices, retail, public, recreational, and institutional uses)</b>	10%	2% (requirement begins at 250 spaces)
<b>Industrial (employee parking only)</b>	10%	2% (requirement begins at 250 spaces)

**TABLE 9 | RECOMMENDED PARKING REQUIREMENTS FOR ELECTRIC VEHICLES (EV) BASED ON LAND USES**

## Education and Outreach

### Overview

To facilitate the adoption of charging station installations and PEV usage, it is crucial that all relevant stakeholders (e.g., electrical contractors, property owners, utilities, and local government staff) are fully aware of charging station infrastructure installation requirements and potential challenges. Developing outreach activities specifically targeted to PEVs and charging stations will help local government staff, electrical contractors, and other stakeholders to be informed on how to execute seamless inspection and installation processes.



### Local Government Staff

Several training and workshop opportunities are available and have been tailored to the specific needs and interests of local government staff. The Electric Vehicle Infrastructure Training Program (EVITP) is one of the organizations that provide training opportunities for local government staff. The EVITP program provides a comprehensive training for the installation of EV supply equipment as well as a full overview of the electric vehicle industry including an extensive section on customer relations and customer satisfaction.

**As training needs evolve overtime for the region, it is recommended that SEMPO work with EV-related training providers to bring information to local government staff in the region.**

## Local Contractors

Local contractors and businesses are often exploring opportunities to expand the scope of their services to remain current and capable of meeting the needs of the existing market. Learning how to install charging stations is one way to drive the local economy toward an electrified future that supports local contractors and local jobs.

The Electrical Vehicle Infrastructure Training Program provides training and certification for contractors and electricians interested in installing charging stations. The program is coordinated by the United States Department of Energy (DOE), the International Brotherhood of Electrical Workers (IBEW), and the National Electrical Contractors Association (NECA), and is offered at community colleges and local electrical industry training centers.

**SEMPO should work with local educational institutions to offer this training in the region.**

### First Responders

First responders encounter PEVs, whether it is on the scene of an accident or when assisting a stranded motorist. It is vital they have knowledge about the technology and learn how to safely remove a passenger and tow a vehicle off the road. Several private providers, such as the National Fire Protection Association (NFPA), offer specific training geared to first responders to ensure they are properly equipped when encountering a PEV on the road.

**As PEVs become more prevalent in the SEMPO region, it is recommended that special PEV training be provided to first responders.**

## Utility Impacts and Considerations

### Overview

The shift from gas-powered vehicles to EVs is a fundamental shift in the type of energy we use for transportation. Over time, we will depend less on gasoline and more on electricity. This growing reality requires a deep look into the impacts on these utilities. The shift also highlights the importance of sound system planning and an exceptionally reliable electrical grid that will be needed to carry the additional load.

The SEMPO region is currently served by three primary utilities; Ameren, City of Jackson, and Citizen's Electric. Two other providers, Black River Electric Cooperative and SEMO Electric Cooperative also cover small portions of the region. The coverage areas for each are shown in

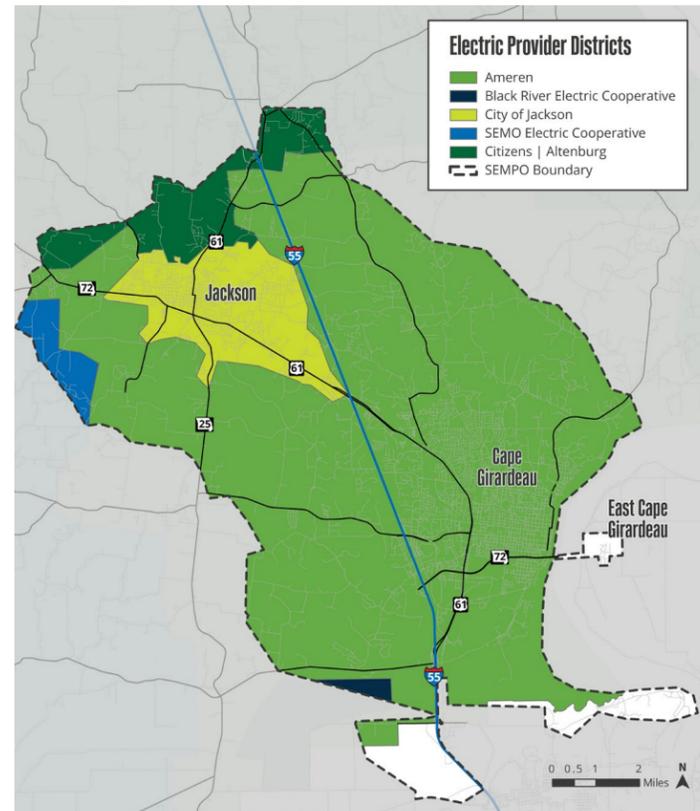


FIGURE 6 | ELECTRIC PROVIDER DISTRICTS

**Figure 6.** As part of our outreach efforts, the project team interviewed Ameren and Citizen's Electric. Both companies are excited and willing to partner with agencies in the region to prepare for greater EV adoption. Ameren has already taken many steps to prepare its network and its business structure and has services available to assist with fleet transition efforts. Detailed information can be found at their website: <https://www.ameren.com/missouri/residential/electric-vehicles>.

### Electrical Grid Challenges

An increased number of EVs introduces several challenges to our current electric infrastructure. A few of these challenges are described as follows.



- **Charging time.** The peak load for energy usage is in the evening, roughly from the time most people get home from work until they go to bed. If people come home and immediately plug in their EV to charge, they will amplify the peak demand to even higher values. Many utilities are looking at ways to delay EV charging to off-peak times, such as the middle of the night.
- **Grid Condition.** Throughout the country, a significant portion of the electrical grid equipment and infrastructure is well beyond its original design life. Keeping prices low for consumers has provided enough income to maintain the systems, but not enough income for significant system upgrades.
- **Rate Structures.** Each electric utility has designed and set up its own rate structure to determine an appropriate method to charge its customers. Some utilities – especially those that serve rural communities, have structures that will not easily accommodate the varying demand that will come from EV charging stations.

The response from utilities to these upcoming challenges varies widely. Some have embraced the anticipated change and are actively looking for solutions to these challenges. They are planning, promoting, and facilitating the adoption of EVs. Ameren, the primary provider in the SEMPO area, is one of these progressive organizations. Many other organizations are too stretched maintaining their current system to worry about accommodating EVs until they have to.



### System Planning

Most electric utilities have a regularly updated system plan. At the time of this report, most of these plans do not account for the anticipated impact of EVs. Utilities must plan for the increased loads in residential and business areas; and how these loads affect the entire system – all the way from the power plant to the charger. This is especially important where entire fleets of vehicles will be charged. Planning now and building for the future will help maintain the reliability of the system and save on costly emergency repairs and upgrades.

### Managed Charging

Managed charging is one way of helping manage the peak demand on the electrical grid by postponing charging activities until off-peak hours. This important concept is being promoted at the national level. A recent report funded by the U.S. government included the concept of managed charging related to EVs as follows:

**“Managed charging is a critically important consideration in the ultimate grid impact of EVs at scale. Even without managed charging, EVs at scale can be accommodated through capacity expansions based on traditional utility experience and management; however, planning and investing without considering managed charging may lead to a higher-cost infrastructure.”**

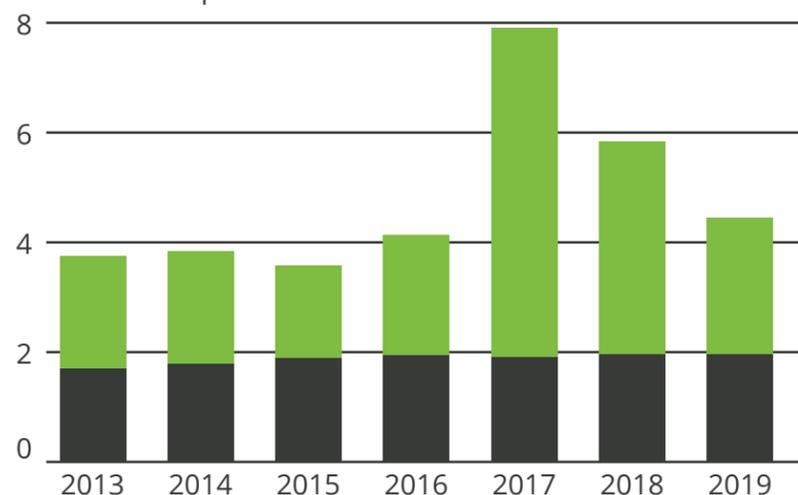
–GITT ISATT EVs at Scale Grid Summary Report FINAL Nov 2019

There are many ways of implementing managed charging. One method, nationally recognized as a best practice, was pioneered by San Diego Gas & Electric. It is a three-tiered *Time of Use Incentive*, through which customers pay 20 percent more for electricity during peak times than at off-peak times. Though this structure affects all electricity use, it encourages people to shift their EV charging time to off-peak hours.

A second method, used by Evergy in the Kansas City area, provides a \$250 rebate to customers to help offset the cost of installing a Level 2 charger in their home. The rebate increases to \$500 if those customers agree to sign up for Evergy's Time of Use Plan (similar to the plan used in San Diego). This plan has many benefits, including reducing a barrier to adoption, allowing Evergy to track the number and location of EVs using the grid, and managing charging times.

### U.S. Power customers experienced an average of nearly five hours of interruptions in 2019

Average duration of total annual interruptions in electricity service hours per customer



Source: U.S. Energy Information Administration, Annual Electric Power Industry Report

with major events without major events

### Implementing a managed charging strategy in the SEMPO area can promote EV adoption and help minimize the impact that charging will have during peak energy usage times.

#### Reliability

Electricity is at the heart of everything we do. We rely on it for nearly everything from light to heating and cooling to modern communications. We need electricity to maintain and even save lives. At the same time, we all rely heavily on vehicles for transportation and commerce. As we shift our vehicles' power from gasoline to electricity, our reliance on already-critical infrastructure becomes even more entrenched and its reliability more vital.

A 2019 study by the U.S. Energy Information Administration showed that on average, a customer in the U.S. experiences five hours of outages per year, as shown in the following chart. To help minimize these impacts, utilities may consider solutions such as microgrids and other rapid Smart Grid outage response methods.

To provide reliable service, most mature electric utilities monitor and measure the operational health of their system so they can identify and correct problems early. These monitoring systems are called SCADA (supervisory, control, and data acquisition) systems. Data gathered from these systems is used to measure the reliability of the system primarily using two metrics – one measures the frequency of interruptions (System Average Interruption Frequency Index [SAIFI]), the other measures an outage's average duration (System Average Interruption Duration Index[SAIDI]).

### When considering the additional demand that EVs will bring, utilities can use SAIFI and SAIDI metrics both to manage the system more effectively and to develop policy.

#### Charging Requirements

Charging stations, especially DCFC, require high levels of power (250kW for the newest Tesla supercharger) in a relatively short period of time. 250kW is an exceptionally high level of power consumption for a device drivers use every day. Currently, such chargers are uncommon. This will change as demand for EVs increases.

To put this demand on the grid into perspective, we'll compare a supercharger and a group of homes. A supercharger's 250kW requires roughly 10 times the amount of power supply connected to a group of four homes. In other words, one 250kW supercharger's maximum demand is roughly the same as that required to power 40 homes. A group of 4 superchargers, all in use, would require the same amount of electricity as a neighborhood of 160 homes.

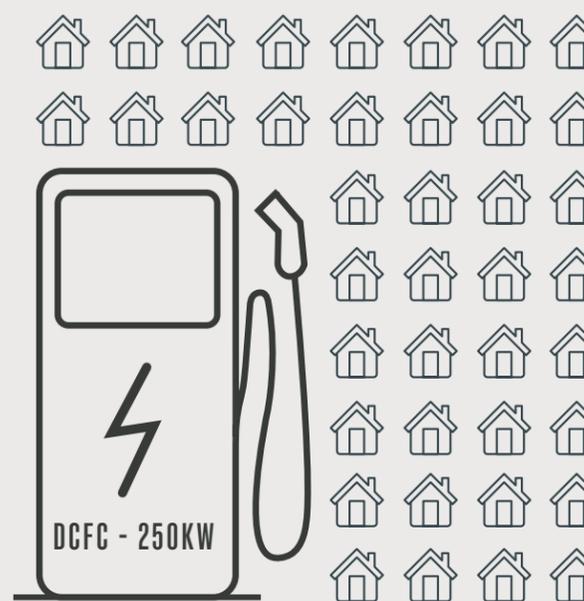


#### Education and Outreach

The recent publicity and activity surrounding EVs has inspired a lot of curiosity and interest among individuals and organizations. It would be helpful for SEMPO, in partnership with the utilities in the area, to consolidate and provide reliable information and data about the costs, environmental impacts, and other information about EVs. To be most effective, the information can be targeted for consumers, businesses, and fleet managers.



One 250kW charger's maximum demand is roughly the same as that required for 40 homes



### Modeled Impacts on SEMPO Region

To understand the direct impacts of EVs on the electrical grids that serve the SEMPO region, the project team used a tool developed by the DOE. The tool takes various inputs for a region and models the load impacts for a certain number of EVs. Note that the tool does not account for the recently developed 250kW superchargers but does accommodate the slightly less impactful 150kW DCFC. The tool also assumes that charging would be spread evenly throughout the region, and not concentrated in large groupings – something that would need to be accounted for in a more detailed plan and analysis.

The tool also considers many other nuances, such as the reduction of grid and EV efficiency during extreme temperatures, and other seasonal variations. The team used conservative values for this analysis, including an average ambient temperature of 14 degrees Fahrenheit. The results in **Figure 7** shows the load a local electric grid (within one mile) would incur on a typical

weekday resulting from the addition of 1,000 EVs to the network. At approximately 8:30 pm, charging demand would be the highest, roughly 1.25 megawatts (MW), and at approximately 6:30 am, charging demand would be the lowest, roughly 0.25 MW.

#### Model assumptions:

- A 1,000 vehicle fleet addition
- 75 percent PEVs and 25 percent PHEVs
- Average daily drive of 35 miles
- Ambient temperature of 14 degrees Fahrenheit
- 80 percent of the fleet are sedans
- Workplace charging stations are 80 percent Level 1 and 20 percent Level 2
- 100 percent of the owners of these vehicles also have access to home charging
  - 80 percent Level 1 and 20 percent Level 2
- 100 percent had a preference for home charging
- A preference for immediate (versus delayed) charging at home
- A preference for immediate (versus delayed) charging at work



## INCREASING EV ADOPTION IN UNDERSERVED COMMUNITIES

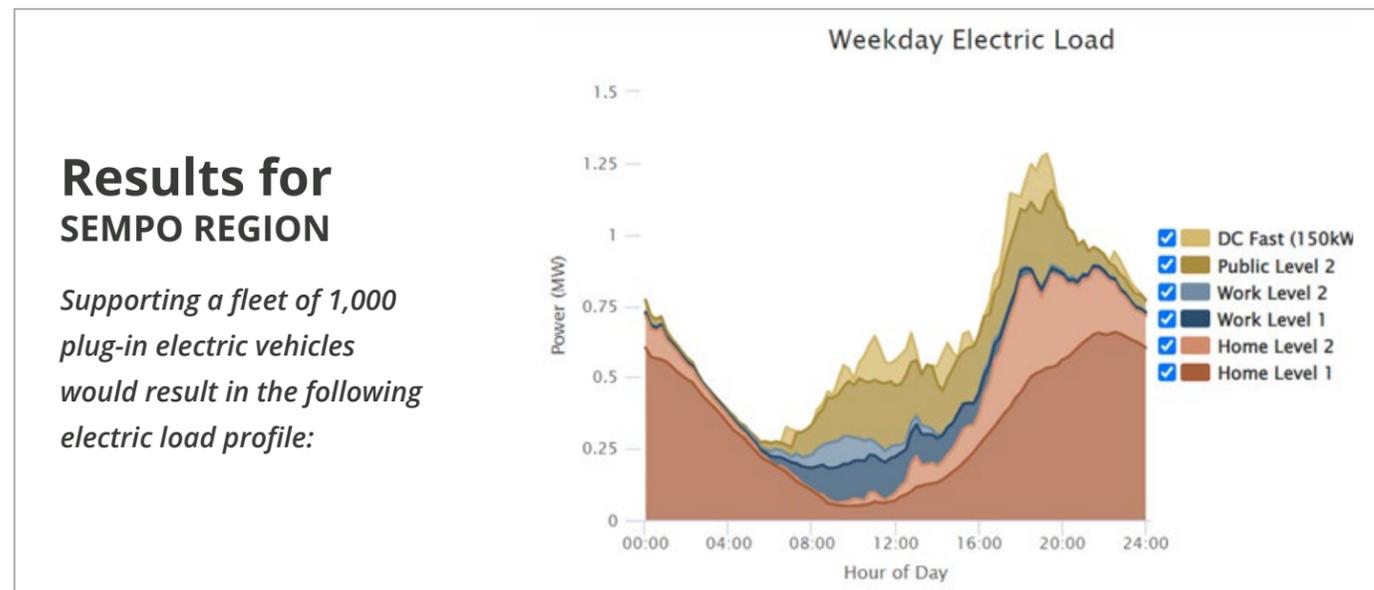
The electrification of vehicles can and should benefit everyone. EVs need to be accessible to all kinds of households. SEMPO is determined to bring the benefits of EV to everyone – including Disadvantaged Communities (DACs), i.e., traditionally underserved communities.

The first step in this process is to determine what constitutes a DAC. For this plan, the team used the definition provided by the Justice40 initiative<sup>4</sup>. Justice40 is a “whole-government” initiative; the goal is for 40 percent of benefits from clean energy and clean transportation investments to benefit DACs. The current guidance for Justice40 suggests that agencies use data such as poverty levels, transportation access, health disadvantage, energy burden, economic

disadvantage, and others. Specifically for this study, the team followed the guidance for the National Electric Vehicle Infrastructure (NEVI) program, which combines the formulas of both the US Department of Transportation (USDOT) and the DOE. The resulting formula highlights energy-and transportation-burdened communities, communities facing high rates of environmental pollution, those whose economies are highly dependent on fossil energy sources, and those with high rates of social vulnerability<sup>5</sup>. **Figure 8** shows the various percentages of persons living below the poverty level in the SEMPO area.

<sup>5</sup> Argonne National Laboratory, <https://www.anl.gov/es/electric-vehicle-charging-equity-considerations>

<sup>4</sup> Source: <https://www.transportation.gov/equity-Justice40> accessed May 2022



### Results for SEMPO REGION

Supporting a fleet of 1,000 plug-in electric vehicles would result in the following electric load profile:

FIGURE 7 | 1,000 PLUG-IN ELECTRICAL VEHICLE (PEV) ELECTRICAL IMPACT GRAPH

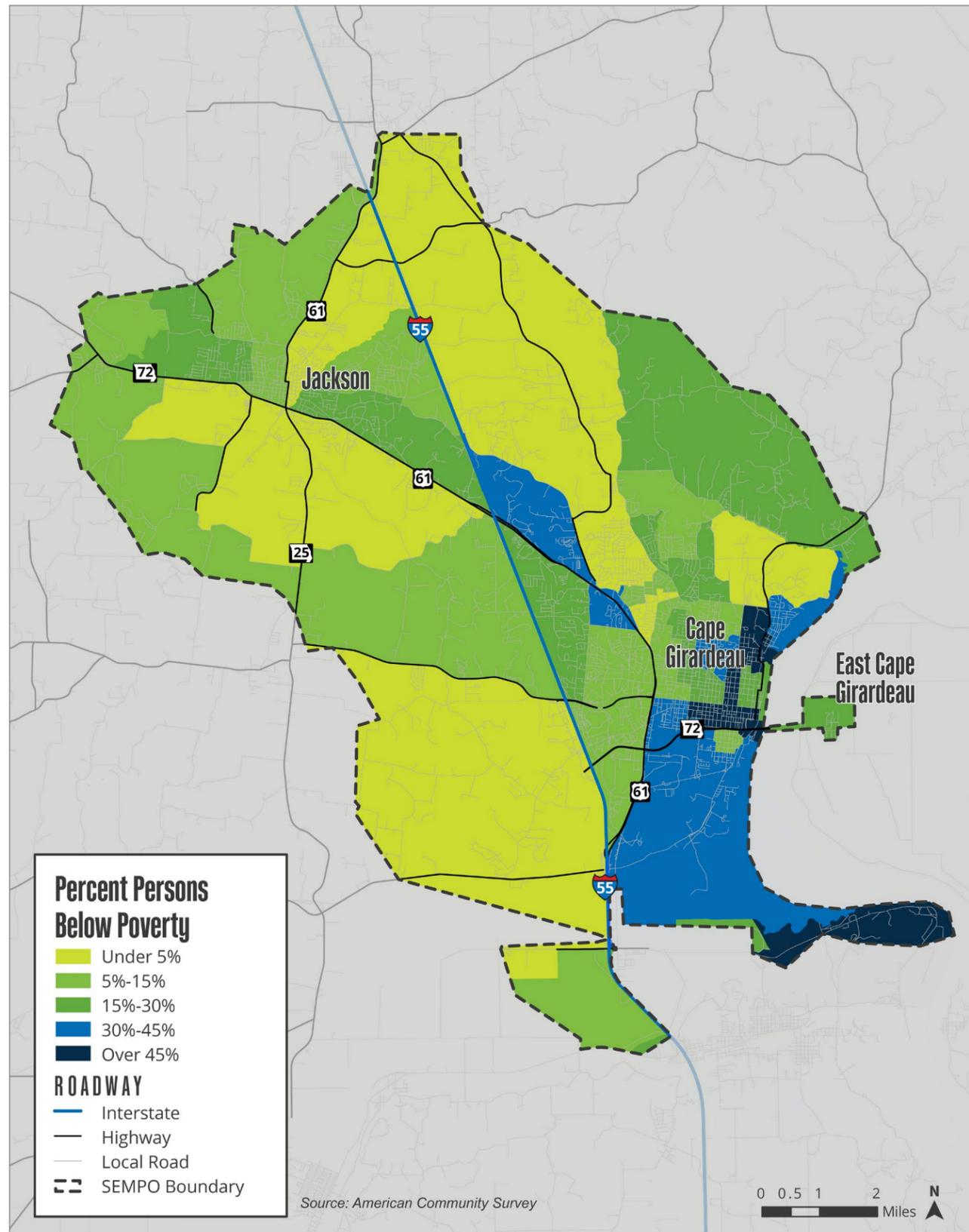


FIGURE 8 | PERCENT OF PERSONS BELOW POVERTY LEVEL

### Socioeconomic Challenges to EV Adoption

Many factors can make EV adoption challenging in underserved communities. These factors relate not just to household income levels, but also to a historical lack of investment, advocacy, support, and community resources. A few of the primary factors and considerations are listed in **Table 10**.

Challenge	Description
 <b>Initial Vehicle Cost</b>	Though the lifetime cost of owning an electric vehicle (EV) is less than a gas or hybrid vehicle, they are more expensive to purchase. Although EV prices are dropping faster than expected, everyday consumers still need financial subsidies to overcome the cost difference and incentivize them to buy an EV over a conventional car.
 <b>Community Trust &amp; Buy-in</b>	Because of a historical lack of support and advocacy, disadvantaged communities are often disengaged. This makes it difficult to understand a community's needs, which can lead to misunderstanding, lack of trust, and even pushback or resentment if public charging is installed in the neighborhood.
 <b>Community Capacity &amp; Resources</b>	Community capacity is the human, organizational, and social capital that combine to solve collective problems. Because of causes such as historical lack of investment, or community members not returning after gaining education, underserved communities simply don't have the community capacity to solve their collective issues.
 <b>EV Adoption vs Zero Emission Mobility</b>	EV ownership is not practical for every underserved community because mobility needs vary. It is important to consider all modes of transportation, including transit and other zero-emission mobility options to improving the overall quality of life for a community.

TABLE 10 | SOCIOECONOMIC CHALLENGES TO ELECTRIC VEHICLE (EV) ADOPTION





### Government EV Programs for Underserved Communities

To help address these challenges, the project team first looked at other programs from around the country to learn from their successes. Three specific programs are highlighted here.

#### AFFORDABLE HOUSING MOBILITY HUB (CALIFORNIA)<sup>6</sup>

With funding from the California Air Resources Board, TransForm is partnering with the Metropolitan Transportation Commission to bring EV car sharing, EV charging infrastructure, and other travel options

to three affordable housing communities in Oakland, Richmond, and San Jose. The exact design of each mobility hub is based on residents' needs to ensure that the mobility hubs are effectively tailored to each community. The program offers car share and transit discounts, and also bike share and ride share credits.

#### CLEAN CARS 4 ALL (CALIFORNIA)<sup>7</sup>

The program's guiding legislation aims to focus the benefits of the program on low-income and disadvantaged communities and has a heavy emphasis on consumer protections, education of the new technologies, and coordination with other clean transportation programs.

<sup>6</sup> Source: TransForm, *EV Car Sharing and Mobility Hubs in Affordable Housing Pilot*, Accessed March 2022

<sup>7</sup> Source: California Air Resource Board, *CC4A*, Accessed April 2022

### CONNECTICUT HYDROGEN AND ELECTRIC AUTOMOBILE PURCHASE REBATE (CHEAPR) (CONNECTICUT)<sup>8</sup>

This statewide program offers incentives to Connecticut residents who purchase or lease an eligible vehicle from a licensed Connecticut automobile dealership. Incentive amounts range from \$4,250 for an eligible BEV, to \$2,250 for a PHEV, and up to \$9,500 for a fuel cell electric vehicle (FCEV) for income qualified individuals.

### Utility EV Programs for Underserved Communities

In addition to the government programs described in the previous section, many utility companies have also taken steps to encourage EV growth, including specific programs for underserved communities. These companies (specifically, investor-owned utilities such as Ameren), can use infrastructure funding to encourage EV growth in low-income areas using identical program elements as those previously defined. However, because they are the distributors of electric energy, they have the ability to provide other types of programs, such as the following:

#### SCHOOL BUS ELECTRIFICATION (VIRGINIA)

Programs like that created by Dominion Energy in Virginia can encourage EV use in underserved areas through public and community transit. Through this program Dominion Energy installed DCFC to support 50 fully electric school buses.

<sup>9</sup> Source: Connecticut's CHEAPR Program, Accessed April 2022



#### EMPOWER EV CHARGER INCENTIVE AND EDUCATION PROGRAM (CALIFORNIA)

This program created by Northern California Utility Pacific Gas and Electric Company, specifically addresses EV adoption barriers for underserved communities. The program consists of public outreach and education, and increasing access to EV charging stations; it provided 44 percent of distributed EV incentives to low-income and underserved communities.

## Strategies for Addressing Equity in SEMPO's EV Program

From the research and analysis, the project team has identified various best practices and program focus areas that can help extend the benefits of EVs to the underserved communities in the SEMPO area.

### Programs

- Support programs that provide financing to reduce the upfront cost of charging infrastructure in under served areas.
- Develop programs that incentivize the installation of charging at existing MUDs with lower rents, provide hands-on technical assistance to building managers, and ensure affordable charging rates.
- Support the implementation of subsidized or low-cost fast charging stations near MUDs, including utility or municipally owned charging infrastructure.
- Focus incentive programs on lower-income drivers, reducing information barriers and costs.

### Codes

- Adopt EV readiness building code requirements that apply to all housing, including affordable units or public/social housing.

### Charging Hubs

- Streamline permitting and location for public charging hubs, ideally in highly visible locations.
- Ensure affordable charging plans are available for the drivers who are most dependent on these hubs, such as Uber/Lyft drivers, taxis, and those without home charging
- Site public hubs in close collaboration with communities and as part of a broader engagement strategy that ensures residents and community-based organizations will benefit.
- Co-locate public hubs with other modes of transportation such as public transit, bike-share, etc.

### Community Engagement<sup>9</sup>

- Conduct meaningful, purposeful, and effective community engagement in underserved areas prior to rolling out any program or initiative in these communities.
- Include individuals, community-based organizations, trade associations, government agencies, nonprofit organizations, and coalitions.

<sup>9</sup> Source: *Equity in Practice, Developing a City Transportation Electrification Roadmap*, accessed April 2022



### In addition, the following list includes actions that will help SEMPO and its member agencies meaningfully and purposefully address EV equity throughout the community.

- Consider all modes of transportation that may meet a community's needs, including personal vehicles, ride share, transit, micromobility, and active transportation.
- Meaningfully engage with the community and strive to collaborate with and empower community stakeholders in the decision-making process.
- Assess transportation needs during the beginning stages of planning to allow for a thorough understanding of the communities' necessities.
- Work with a local organization that has experience reaching out to the community and can invest time to build the relationship.
- Engage the individuals and communities that will be affected and using these mobility modes during the planning process, including individuals, community based organizations, trade associations, government agencies, nonprofit organizations, and coalitions.
- Choose the appropriate engagement strategy for the level of participation and collaboration you are seeking from a community stakeholder(s).
- Provide "EV 101" education in meetings with community stakeholders.
- Creatively incentivize participating community stakeholders for their time in meetings, focus groups, and other engagements.

# THE ROAD AHEAD

## Overview

This plan will allow the SEMPO region to make great strides toward integrating EVs into existing policies, processes, and lifestyles, but there is still a long way to go. This plan provides a platform for identifying and overcoming barriers for installation and obstacles to broader PEV adoption. However, a number of challenges and barriers are still stifling charging station installation and hindering EV adoption, such as those described in this Readiness Plan. To ensure progress continues, sustained collaboration is crucial for a cohesive regional charging network and for consistent and streamlined deployment.

Charging equipment and vehicle technologies continue to evolve at a rapid pace and it is necessary to understand the equipment demands and the needs and wants of the public. Monitoring and applying policies uniformly will help all public agencies, contractors, EV drivers, local businesses and manufacturers address gaps, emerging trends and future needs.



## Increased PEV Presence

Though initial EV growth has been relatively slow to date, the increased availability of EV models and the addition of more public charging stations will lead to a significant rise in EVs on the road. It is difficult to predict the many national, regional, and local conditions that will affect the ultimate EV growth rate within a region, but it is important to study probable scenarios to demonstrate the impact on other factors such as charging stations and power requirements (discussed elsewhere in this report).

To establish a reasonable estimation of the increase in EV adoption within the SEMPO region, a three-scenario growth prediction model was developed. The low-adoption scenario assumes a 25 percent EV saturation in 2050, the medium-adoption scenario assumes a 50 percent saturation in 2050 and the high-adoption scenario assumes a 75 percent saturation in 2050. The starting value in 2020 was estimated by assuming the EV adoption rate in the SEMPO region matched the adoption rate of the State of Missouri. The model assumes steady population growth of 1.87 percent per year through 2050. Results of the three adoption scenarios are summarized in **Table 11**.

	2020	2025	2030	2040	2050
Low Adoption	73	1,353	3,335	9,409	18,294
Medium Adoption	73	2,675	6,670	18,842	36,588
High Adoption	73	3,997	10,005	28,275	54,882

**TABLE 11 | INCREASED PEV PRESENCE - ADOPTION SCENARIOS**

## Estimating Future Demand for Charging Stations in the SEMPO Region

Adoption of EVs will be highly influenced by buyer perception of the availability of EV charging stations. Though most EV owners will charge their vehicles at home, there is still a significant need for public chargers near workplaces, in commercial locations, along major corridors and in MUDs. Using the projected EV growth data, the required charging station demand was modeled using the Alternative Fuels Data Center website<sup>10</sup>. These projections use several assumptions considering distance driven per day, average EV battery size, and range fluctuations because of environmental conditions. It should also be noted that the DCFC chargers indicated in this model do not reflect specific requirements related to corridor charging specifications for NEVI.

## Funding

Several funding mechanisms have been established at federal, state, and local levels to support the adoption of EVs and charging stations. These programs seek to offset some of the initial costs (see Barriers to EV Adoption) allowing consumers and private businesses to experience the benefits of EV ownership. Some funding types and specific funding programs are outlined below.

## EV PURCHASE INCENTIVES

One of the most impactful incentives increasing adoption of EVs is the federal tax incentive for purchase of a new car or truck that includes a 2.5kWh or larger rechargeable battery (this covers both PEV and PHEV). The tax credit ranges from \$2,500 to \$7,500 depending on the battery size and is available for certain manufacturer vehicles. This incentive begins to phase out once the

<sup>10</sup> Source: <https://afdc.energy.gov/evi-pro-lite>

		2020	2025	2030	2040	2050
Low	Workplace	2	33	80	223	430
	Public	18	26	64	174	319
	DCFC	4	5	12	33	60
Med	Workplace	2	64	159	443	842
	Public	18	51	126	327	558
	DCFC	4	9	23	62	105
High	Workplace	2	95	237	657	1,251
	Public	18	76	184	459	791
	DCFC	4	14	34	87	136

**TABLE 12 | SEMPO REGION FUTURE CHARGING STATION DEMAND SCENARIOS**

manufacturer sells 200,000 qualified vehicles.<sup>11</sup> Only two manufacturers have reached this phase out period; Tesla and General Motors (including Chevrolet and Cadillac) – both manufacturers have fully phased out as of April 1st, 2020.

## FEDERAL FUNDING FOR CHARGING STATIONS

**Current Funding:** A settlement involving auto manufacturer Volkswagen has provided a robust amount of funding for offsetting the costs of EV charging station installations. In Missouri, these funds are managed by the Missouri Department of Natural Resources (DNR). Funds have been released in two rounds thus far. The first release was in October 2021 and the second release was in July 2022. Funds have been awarded for 28 sites throughout the state, with additional sites expected to be approved (subject to certain restrictions).

**Future Funding:** In November of 2021, the Infrastructure Investment and Jobs Act bill (IIJA) was signed into law at the federal level. The bill provides EV funding through several program,

<sup>11</sup> Source: Ref 2 <https://www.irs.gov/credits-deductions/individuals/plug-in-electric-drive-vehicle-credit-section-30d>, accessed May 2022

grant, and financing opportunities and includes a \$7.5 billion allocation for building out the EV charging network across the country. The State of Missouri is slated to draw at least \$99 million of that funding over a five-year period (\$18 million for 2022) and is eligible to receive portions in grant funding.

The State of Missouri is currently developing an EV Readiness Plan that will define the parameters of use for the funding that must align with federal guidelines. The \$99 million in program funding will be focused on supporting charging station installations along major interstate corridors and rural and underserved communities. Missouri has until August 1, 2022 to submit its plan to the FHWA. All funding distributed under this program will go to grant programs requiring a 20 percent local match.

### ELECTRIC UTILITY INCENTIVES

Utility providers are also significant contributors to regional EV incentives. Utility incentives can be administered through various program types including time of use rate structures, rebates for home charging station purchase/ installation, and commercial charging station cost sharing. Several utilities also incentivize EV use by installing and operating public charging stations.

Within the SEMPO region, Ameren is providing the Charge Ahead program which provides incentives for non-residential customers who install Level 2 or DCFC charging stations. Stations must be installed at qualified workplaces, MUDs, or public areas. Applicants can receive up to \$500,000. Available funding programs related to EVs as of July 2022 are included in **Table 13**.

### CHART OF AVAILABLE FUNDING

As of the release of this report, the following funding programs were identified for the Southeast Metropolitan Planning Organization (SEMPO) region:

Funding Administrator	Status	Allocation Type	Link
Missouri Department of Natural Resources	Current	Direct Current Fast Charge Charging Stations	<a href="https://dnr.mo.gov/air/what-were-doing/volkswagen-trust-funds/electric-vehicle-charging">https://dnr.mo.gov/air/what-were-doing/volkswagen-trust-funds/electric-vehicle-charging</a>
Ameren	Current	Charging Station	<a href="https://www.ameren.com/missouri/company/environment-and-sustainability/electric-vehicles">https://www.ameren.com/missouri/company/environment-and-sustainability/electric-vehicles</a>
Federal Highway Administration	Future	Charging Station	<a href="https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/nominations/90d_nevi_formula_program_guidance.pdf">https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/nominations/90d_nevi_formula_program_guidance.pdf</a>
Internal Revenue Service	Current	Vehicle Purchase Tax Rebate	<a href="https://www.irs.gov/businesses/irc-30d-new-qualified-plug-in-electric-drive-motor-vehicle-credit">https://www.irs.gov/businesses/irc-30d-new-qualified-plug-in-electric-drive-motor-vehicle-credit</a>

TABLE 13 | AVAILABLE FUNDING PROGRAMS RELATED TO ELECTRIC VEHICLES

### Installation Considerations

Installation of charging stations requires special considerations for how, where, and why EV operators charge their vehicles. Locations along travel corridors are ideal for DCFC. Level 2 is best suited at locations with longer dwell times. Predeployment charging station considerations for DCFC and Level 2 are included in **Figure 9** and **Figure 10**.

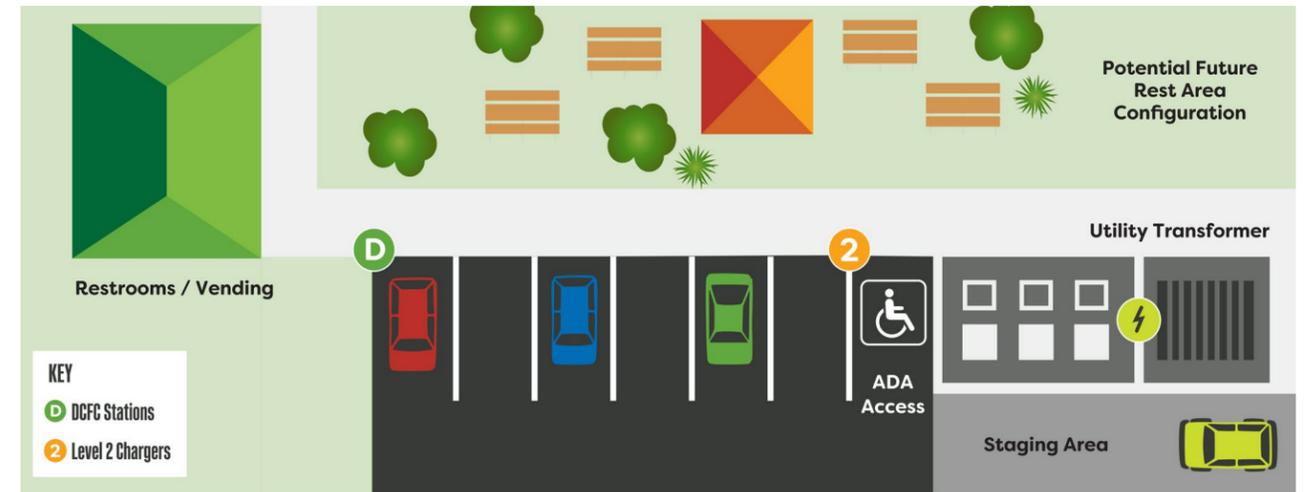


FIGURE 9 | DIRECT CURRENT FAST CHARGER (DCFC) INSTALLATION SITE | LONG RANGE TRAVEL



FIGURE 10 | LEVEL 2 INSTALLATION SITE | COMMUNITY CHARGING

## Charging Station Predeployment Planning

A significant amount of planning must take place before EV charging stations can be deployed on a large scale. The following are considerations for predeployment planning.

### POWER SUPPLY

#### GENERATION

Predeployment planning at the generation level will likely see responses in more localized generation capacity increases. For the short term, this could take the form of ~2MW natural gas generators. However, for the long term, deep assessments will be needed to navigate generation portfolio blends that meet future significant load increases.



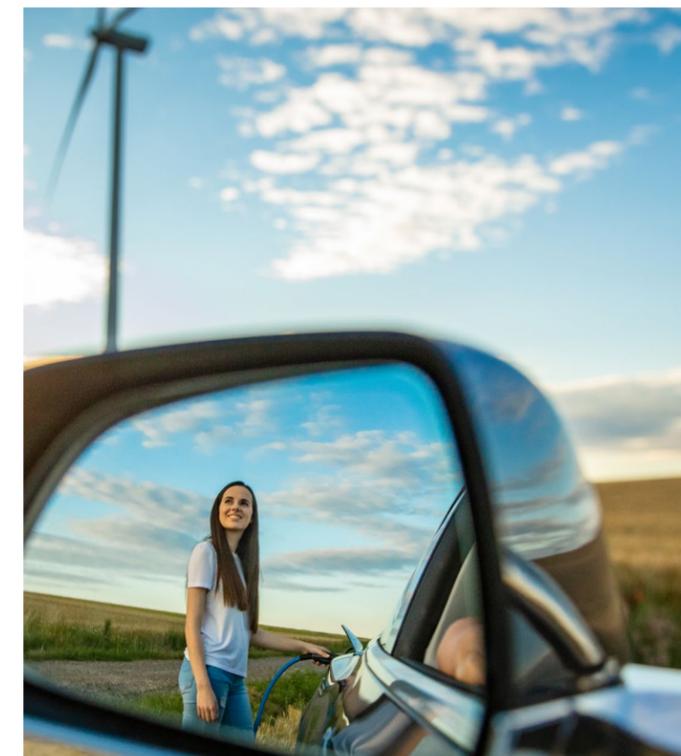
#### DISTRIBUTION

Distribution infrastructure is more likely to be impacted first by large-scale deployment of EV charging stations, as opposed to substation facilities. Substation facilities, especially in the short term, will likely be able to accommodate general increases resulting from individual use. However, fleets will certainly affect distribution facilities and likely substation facilities.

- The following scenario illustrates how quickly a fleet could affect distribution facilities. This scenario is highly improbable but makes the illustration clear.
- This scenario assumes a fleet installation of 25 superchargers with an individual demand of 250kW each (equivalent demand of 40 homes). If every charger is used simultaneously, the demand would be 6.25M. However, a typical 12.45 kilovolt (kV) distribution feeder running at 50 percent capacity (industry standard) over 556 kcmil only carries approximately 6.5 MVA. Thus, a utility could argue that the implementation of a supercharger based fleet would result in the need for new feeder systems simply to provide for the demand of a single fleet of vehicles.

#### RATE STRUCTURE

The increase in electric demand due to EVs can be mitigated through rate structures that provide incentives, especially for fleet implementation. By timing fast and super-fast charging with off-peak hours through incentives, utilities can mitigate rapid changes in load demand. The intelligence needed to control and monitor the timing of charging patterns will require the use of SCADA information and analytics.



#### SPACE REQUIREMENTS

Electrical utilities will typically require an easement for the overhead or underground power supply and for the equipment. Distribution transformers typically have 3 feet of space available to the sides and rear for fire safety and up to 10 feet of clearance at the front for operational safety. Larger load sites (typically greater than 1 MW) may have additional utility requirements.

Charging stations located near parking stalls are recommended to be located within approximately 10 to 15 feet of the vehicle. ADA requirements and queue management for EVs waiting to charge should be taken into consideration at all charging station sites.



## Identification of Potential New Charging Station Locations

A geographic information system (GIS) computer mapping analysis was used to identify gaps in the SEMPO region's long-range and short-range charging network. Multiple consideration factors were combined to find areas around the SEMPO region that had a high potential to fill the gaps in the charging station network and are detailed in this section.

### Gap Analysis for Long-range Travel (DCFC)

Consideration factors used for the long-range travel gap analysis varied from proximity to existing DCFC charging sites, daily traffic patterns, and proximity to designated Alternative Fuel Corridors and State Highway Systems (SHS). How these consideration factors were used in the gap analysis are expanded below. Results of the Long-range Travel gap analysis are included in **Figure 11**.

#### PROXIMITY TO EXISTING DCFC CHARGING SITES:

- Areas within a 25-mile driving distance of an existing DCFC charging station were considered to be adequate.
- Locations between 25 and 50 miles driving distance of an existing DCFC charging station were considered to be potentially suitable.
- Areas more than 50 miles from a DCFC charging station were rated as most in need of new charging stations. Because the existing DCFC stations tend to be clustered in UAs, this factor also helped address equity concerns by finding potential charging station locations in more rural areas.
- The NEVI minimum requirement for Alternative Fuel Corridors was also considered by identifying areas where four DCFC plugs co-located at no more than 50 miles apart and no more than 1 mile off a designated Alternative Fuel Corridor. These locations were rated as most in need of new charging stations.



#### DAILY TRAFFIC AT INTERSECTIONS ALONG THE STATE HIGHWAY SYSTEM:

- Areas near high-traffic intersections rated higher than those with moderate- or low-traffic volumes.

#### PROXIMITY TO STATE HIGHWAY INTERSECTIONS ALONG EVACUATION-CRITICAL ROUTES:

- Located areas with easy access for motorists on the SHS.
- Identified areas within 1-minute, 5-minute or 10-minute drives from each SHS intersection.
- Areas within a short drive-time were rated higher than areas that took longer to reach.

#### TO ENSURE THE GREATEST BENEFIT TO THE MOST EV DRIVERS, THE PROPOSED CHARGING STATION LOCATIONS WERE PRIORITIZED BY THE FOLLOWING:

- The amount of daily road traffic on the SHS roadways.
- Higher priority given to the most heavily traveled roads.

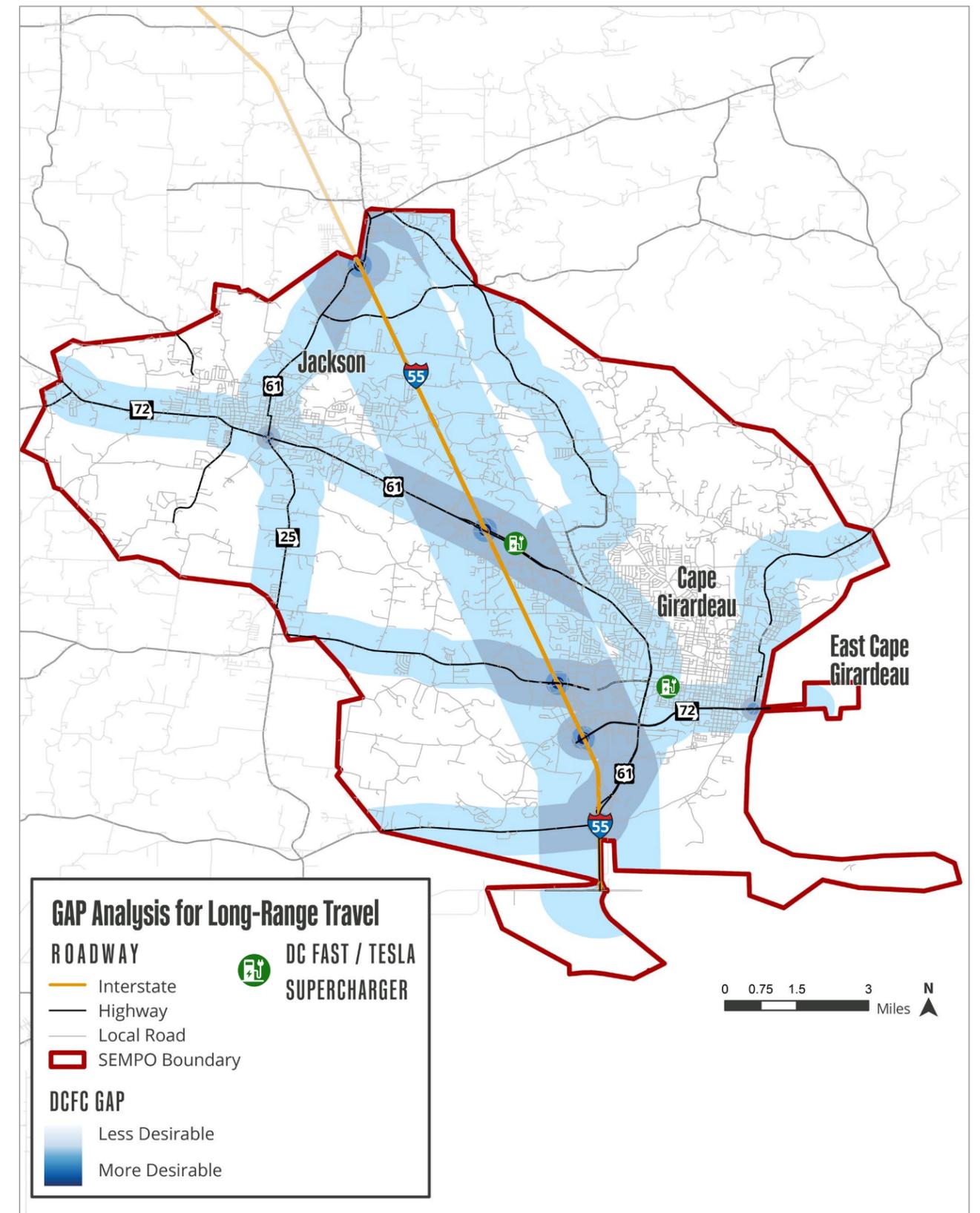


FIGURE 11 | GAP ANALYSIS FOR LONG-RANGE TRAVEL (DCFC)

## Gap Analysis for Short-range Travel (Level 2)

Consideration factors used for the short-range travel gap analysis were largely based on a 10-minute walking distance proximity (or one-quarter mile) from land use types where drivers might park for extended periods of time. Land use types include multifamily housing with more than five units, parks, hotels, supermarkets, universities and trade schools, offices, theaters, retail commercial establishments, and the airport. Household income and the current presence of Level 2 chargers also played a role in the gap analysis.

All these factors were given a weight value ranging from -2 to +2, based on the likelihood the factor would affect need and use of public charging. **Table 14** provides an overview of each assigned weight. Results from the Short-range travel gap analysis are included in **Figure 12**.



WITHIN A QUARTER MILE OF...	
Park	
Hotel	
Supermarket	
Multifamily unit with 5 plus DU	
College / Trade School	1
Office	
Retail	
Theater	
Further than 1 Mile from Existing Charging Station	
Airport	2
University	2
Existing Charger	-2
PERCENT PERSONS BELOW POVERTY	
Under 5%	0
5%-15%	0.5
15%-30%	1
30%-45%	1.5
Over 45%	2

TABLE 14 | CONSIDERATION FACTORS FOR SHORT-RANGE TRAVEL (LEVEL 2) GAP ANALYSIS

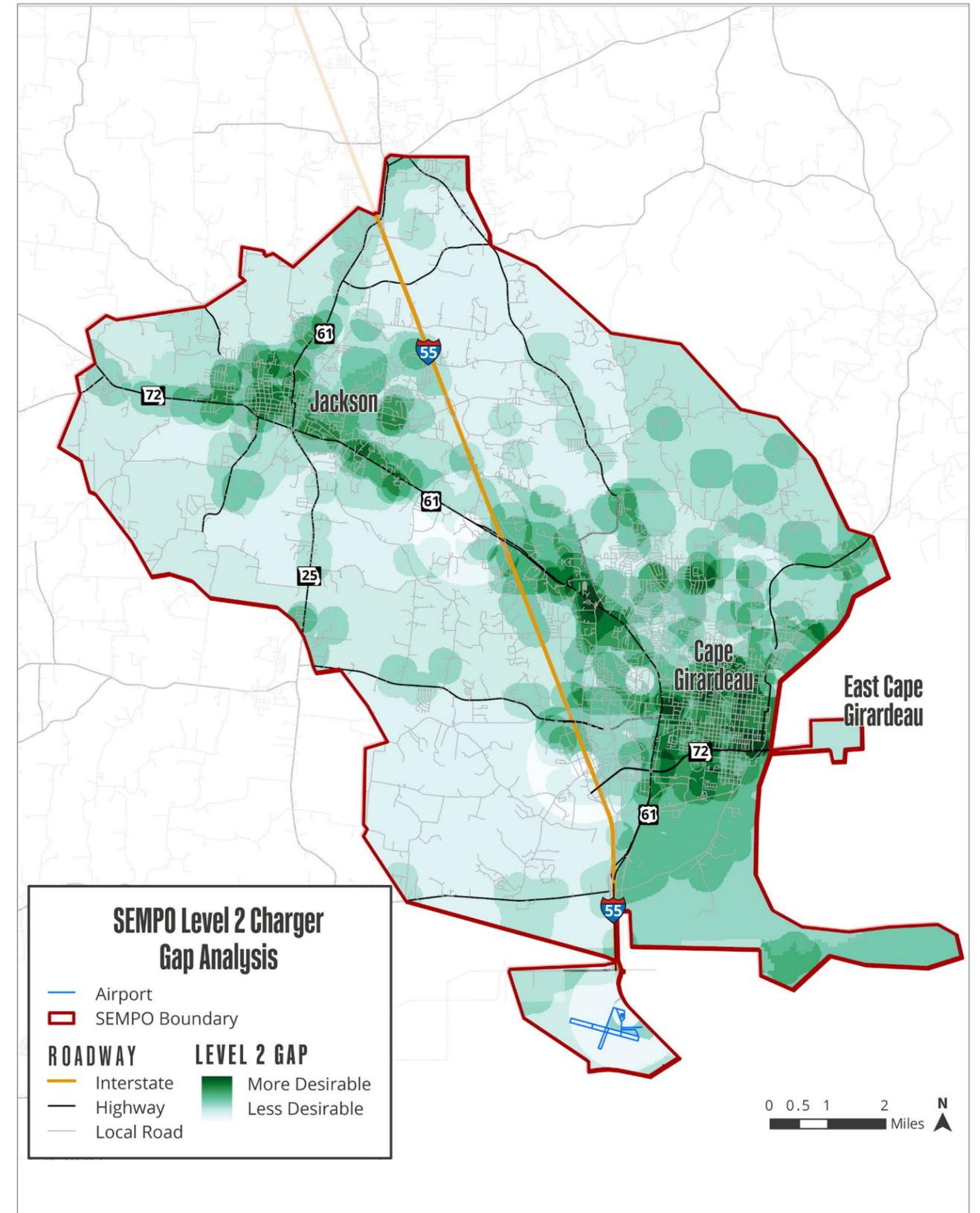


FIGURE 12 | GAP ANALYSIS FOR SHORT-RANGE TRAVEL (LEVEL 2)

# RECOMMENDATIONS

## Introduction

This section includes recommendations for actions and next steps toward facilitating the expansion and adoption of EVs in the SEMPO region to support transportation mobility goals. The recommendations were developed based on what the team heard from the SEMPO region stakeholders during the outreach portion of this project as well as results from the existing conditions analysis, best practices from around the country for similar geographic regions, and engineering judgment.

SEMPO's primary role in the region is to assist with planning and to advocate on behalf of its member agencies. SEMPO does not receive any funding for capital projects. The recommendations for this plan have been tailored specifically to the SEMPO region and its stakeholders.

The SEMPO Board will monitor and track the progress of these recommendations while also advocating and connecting stakeholders to facilitate the recommendations within this plan.

## GOALS

The following goals were developed based on the 2045 SEMPO Metropolitan Transportation Plan to establish the framework of this Plan.

- **Promote** a variety of energy sources, reducing dependency on fossil fuels in transportation
- **Position** the SEMPO region to support transportation electrification
- **Expand** EV adoption and charging station access in the SEMPO region
- **Anticipate** changes in travel choice and transportation technologies toward EV adoption
- **Support** access to transportation for disabled and low-income persons
- **Enhance** Missouri's overall transportation system

## FRAMEWORK

The framework provides an overview of recommendations that should be considered for action to support the identified goals, initiatives, objectives, and strategies.

In an effort to make the recommendations for this plan easily digestible, clear, concise, and actionable, recommendations have been organized into four initiatives: Adapt, Facilitate, Educate, and Coordinate. Each initiative has three to four recommended objectives. Each objective includes recommended strategies to fulfill each initiative. **Figure 13** provides an overview of the Framework.

## INITIATIVES AND OBJECTIVES

This section includes a general overview of each initiative followed by objectives to fulfill each initiative. Recommended strategies for each objective are detailed in the following section.



### Initiative 1: Adapt

#### OBJECTIVES

1. Anticipate market and industry trends
2. Adapt Transportation policy framework
3. Expand charging station infrastructure
4. Support local agencies



### Initiative 3: Educate

#### OBJECTIVES

1. Support charging station-focused education and outreach
2. Support local agencies
3. Increase awareness of publicly available charging station locations



### Initiative 2: Facilitate

#### OBJECTIVES

1. Promote charging station infrastructure
2. Pursue various funding options
3. Promote installation of community charging infrastructure



### Initiative 4: Coordinate

#### OBJECTIVES

1. Advance a regional and comprehensive approach to EV infrastructure
2. Continuously coordinate stakeholders to support charging station planning and implementation efforts
3. Establish regional and local agency roles and responsibilities
4. Coordinate the utility roles and rates to support the goals of this plan



#### GOALS

*Desired outcomes expressed in simple and broad terms.*



#### INITIATIVES

*Broad focus areas that describe how SEMPO could approach the implementation of this Plan.*



#### OBJECTIVES

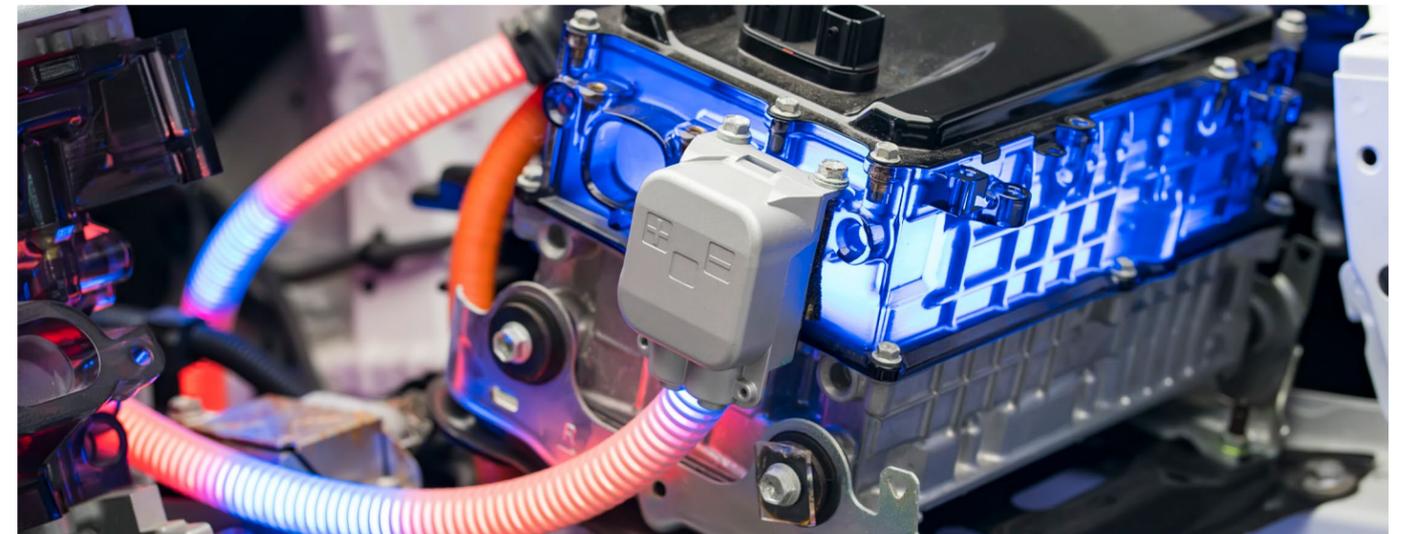
*Statement of what to achieve to support the Plans goals and Initiatives.*



#### STRATEGIES

*Recommended plans of action to achieve a major or overall goal.*

FIGURE 13 | OVERVIEW OF FRAMEWORK





## Initiative 1: Adapt

OBJECTIVE 1			
<b>Anticipate market and industry trends</b>			
TIMELINE	<i>Short to Intermediate</i>	RESPONSIBILITY	<i>MPO or Local Agencies</i>
STRATEGY	<ul style="list-style-type: none"> <li>Monitor industry trends to inform decision-making</li> <li>Track number of registered EVs in the SEMPO region               <ul style="list-style-type: none"> <li>Understanding what is happening in the EV and charging station market is critically important to adapting transportation infrastructure to meet changing customer needs.</li> </ul> </li> </ul>		
OBJECTIVE 2			
<b>Adapt transportation policy framework</b>			
TIMELINE	<i>Short to Intermediate</i>	RESPONSIBILITY	<i>Local Agencies</i>
STRATEGY	<ul style="list-style-type: none"> <li>Remove legal and institutional barriers for installing charging stations</li> <li>Identify alternative and innovative revenue sources               <ul style="list-style-type: none"> <li>Motor fuel consumption is going to decrease while the wear and tear on our roads is going to increase. It is critically important to identify sustainable revenue sources.</li> </ul> </li> </ul>		
OBJECTIVE 3			
<b>Expand charging station network along transportation infrastructure</b>			
TIMELINE	<i>Short to Intermediate</i>	RESPONSIBILITY	<i>Local Agencies &amp; Private Sector</i>
STRATEGY	<ul style="list-style-type: none"> <li>Fill charging station gaps               <ul style="list-style-type: none"> <li>The private sector is leading the implementation; however, low return on investment creates infrastructure gaps in areas with low charging station use. SEMPO can play an important role in filling these gaps. Charging station infrastructure investments should be scaled with EV market adoption.</li> </ul> </li> <li>Develop and implement a phased approach to charging station deployment               <ul style="list-style-type: none"> <li>Develop a charging station deployment plan that prioritizes immediate needs while expanding the network over time to meet future needs.</li> </ul> </li> <li>Include charging stations in planning and project development               <ul style="list-style-type: none"> <li>Account for charging station needs when existing infrastructure is enhanced or new infrastructure is developed.</li> </ul> </li> </ul>		
OBJECTIVE 4			
<b>Support municipal and local agencies with implementation of the SEMPO EV readiness plan</b>			
TIMELINE	<i>Short</i>	RESPONSIBILITY	<i>SEMPO</i>
STRATEGY	<ul style="list-style-type: none"> <li>Increase or raise awareness and provide guidance for early adopters of charging stations               <ul style="list-style-type: none"> <li>Develop guidance and standards for the entire life-cycle of a charging station.</li> </ul> </li> </ul>		



## Initiative 2: Facilitate



OBJECTIVE 1			
<b>Promote charging station infrastructure to support short-range and long-range corridor travel</b>			
TIMELINE	<i>Short to Intermediate</i>	RESPONSIBILITY	<i>SEMPO, Local Agencies, &amp; Private Sector</i>
STRATEGY	<ul style="list-style-type: none"> <li>Forge strategic partnerships to expand the charging station network               <ul style="list-style-type: none"> <li>Facilitate charging station network expansion through public-private partnerships.</li> </ul> </li> <li>Encourage open-source data               <ul style="list-style-type: none"> <li>Work with partners to encourage all DCFCs to adhere to latest Open Charge Point Protocol industry standards to ensure interoperability.</li> </ul> </li> </ul>		
OBJECTIVE 2			
<b>Identify and pursue a variety of funding options with partners to support charging station implementation</b>			
TIMELINE	<i>Short to Long</i>	RESPONSIBILITY	<i>SEMPO, Local Agencies, &amp; Private Sector</i>
STRATEGY	<ul style="list-style-type: none"> <li>Continuously monitor federal funding programs               <ul style="list-style-type: none"> <li>Low and zero emission public transportation research, demonstration, and deployment funding</li> <li>Alternative Fuel Infrastructure Tax Credit</li> <li>Improved Energy Technology Loans</li> <li>Congestion Mitigation and Air Quality (CMAQ) Improvement Program</li> <li>Diesel Emissions Reduction Act (DERA) Funding</li> <li>Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD)</li> <li>Rebuilding American Infrastructure with Sustainability and Equity (RAISE)</li> <li>Department of Energy / Clean Cities Coalition Funding Opportunity Announcements (FOAs)</li> <li>Federal Lands Access Program (FLAP)</li> <li>Voluntary Airport Low Emissions Program (VALE)</li> <li>Department of Energy Loans Program</li> <li>Surface Transportation Block Grant Program (STBG)</li> <li>Surface Transportation System Funding Alternatives (STSFA)</li> </ul> </li> </ul>		



## Initiative 2: Facilitate (Cont.)

OBJECTIVE 3	Promote installation of community charging infrastructure		
TIMELINE	<i>Short to Long</i>	RESPONSIBILITY	<i>SEMPO, Local Agencies, &amp; Private Sector</i>
STRATEGY	<ul style="list-style-type: none"> <li>• Develop an innovative and ongoing funding program               <ul style="list-style-type: none"> <li>– Work with partners to develop a grant and/or loan program to expand access to charging station in low-income and historically disadvantaged communities.</li> </ul> </li> <li>• Charging Station Planning program               <ul style="list-style-type: none"> <li>– Support agencies, counties, and municipalities to develop their own EV readiness plans.</li> </ul> </li> <li>• Model building and zoning codes               <ul style="list-style-type: none"> <li>– Draft language that local governments can adopt or modify for use in establishing requirements and guiding the implementation of charging stations. Model building and zoning codes are provided in <i>Appendix C</i>.</li> </ul> </li> <li>• Multifamily charging stations               <ul style="list-style-type: none"> <li>– Develop and promote educational campaigns related to installing charging station at multi-family developments.</li> </ul> </li> <li>• Fast-tracked and streamline charging station permitting               <ul style="list-style-type: none"> <li>– Each permitting entity should allow fast-tracked permitting to charging station infrastructure. This should also include standardizations by agencies to allow designers to quickly meet standards and requirements.</li> </ul> </li> <li>• Charging station minimum functionality standards               <ul style="list-style-type: none"> <li>– Provide guidance and minimum functionality, or operational requirements for charging stations installed in public areas or using public resources. These standards should include the latest in universal high-functionality payment standards, allowing travelers to seamlessly plug and charge.</li> </ul> </li> <li>• Develop minimum EV-ready parking requirements               <ul style="list-style-type: none"> <li>– Work with local government partners to establish minimum EV-ready parking requirements for planning future charging stations or requirements for installing charging stations based on different land uses or building types. These requirements should acknowledge the crossover between EV charging spaces and ADA required spaces.</li> </ul> </li> </ul>		



## Initiative 3: Educate

OBJECTIVE 1	Support charging station-focused education and outreach		
TIMELINE	<i>Short to Long</i>	RESPONSIBILITY	<i>SEMPO, Local Agencies, &amp; Private Sector</i>
STRATEGY	<ul style="list-style-type: none"> <li>• Develop and launch a consumer-oriented education and outreach program               <ul style="list-style-type: none"> <li>– A program to educate the public on the basics of EV ownership, such as how the charging works, the potential benefits and downfalls, the cost, the incentives available, and information relevant to purchasing or owning an EV. This program could inform the public on available EV infrastructure. This effort should be coordinated to provide education and outreach to the broader community with active engagement efforts in low-income and historically disadvantaged communities.</li> </ul> </li> <li>• Develop a fleet and charging site-oriented education and outreach program               <ul style="list-style-type: none"> <li>– Develop a fleet and charging site-oriented program to educate owners and operators on the cost, planning considerations, benefits, available incentives, etc. This effort should target the rental agencies, businesses, and property owners, and incorporate feedback on any barriers to adoption of this technology.</li> </ul> </li> <li>• Attract, retain, and train charging station installation and maintenance professionals to support adapting our transportation infrastructure               <ul style="list-style-type: none"> <li>– Collaborate with workforce development agencies to recruit talent.</li> </ul> </li> <li>• Workforce development with active engagement efforts in disadvantaged communities               <ul style="list-style-type: none"> <li>– Coordinate with education providers around the state to develop the knowledge and curriculum needed to train the workforce to service EVs and to install, service and maintain charging station infrastructure.</li> </ul> </li> </ul>		
OBJECTIVE 2	Support local agencies		
TIMELINE	<i>Short to Long</i>	RESPONSIBILITY	<i>SEMPO</i>
STRATEGY	<ul style="list-style-type: none"> <li>• Practical Guidance               <ul style="list-style-type: none"> <li>– Develop practical guidance for planning considerations, charging station installation, prioritization, and any of the knowledge that community planners and engineers need to support their EV and charging station implementation efforts.</li> </ul> </li> <li>• Develop Long-range Transportation Planning (LRTP) Guidance               <ul style="list-style-type: none"> <li>– Develop potential guidance on how to best consider charging station and equity into the development of the LRTP.</li> </ul> </li> </ul>		
OBJECTIVE 3	Increase awareness of publicly available charging station locations		
TIMELINE	<i>Short to Long</i>	RESPONSIBILITY	<i>SEMPO, Local Agencies, &amp; Private Sector</i>
STRATEGY	<ul style="list-style-type: none"> <li>• Leverage partner and available resources               <ul style="list-style-type: none"> <li>– Promote charging station availability through signage, web sites and social media.</li> <li>– Promote publicly-available charging locations. This effort should be coordinated with charging network providers to offer up to date information and status of chargers in the SEMPO region.</li> </ul> </li> </ul>		



## Initiative 4: Coordinate

OBJECTIVE 1	Advance a regional and comprehensive approach to EV infrastructure		
TIMELINE	Short to Intermediate	RESPONSIBILITY	SEMPO
STRATEGY	<ul style="list-style-type: none"> <li>• Coordination with the Missouri Department of Transportation (MoDOT), and other surrounding MPOs               <ul style="list-style-type: none"> <li>– Partner with MoDOT and surrounding MPOs to harmonize interstate corridor electrification efforts.</li> </ul> </li> </ul>		
OBJECTIVE 2	Continuously coordinate stakeholders to support charging station planning and Implementation efforts		
TIMELINE	Short to Intermediate	RESPONSIBILITY	SEMPO & Local Agencies
STRATEGY	<ul style="list-style-type: none"> <li>• Leverage SEMPO EV Readiness Plan steering committee and other surrounding MPOs and EV-interest groups               <ul style="list-style-type: none"> <li>– These groups should include diverse representation including but not limited to, low-income and historically disadvantaged communities throughout the region.</li> </ul> </li> </ul>		
OBJECTIVE 3	Establish regional and local agency roles and responsibilities		
TIMELINE	Short to Intermediate	RESPONSIBILITY	SEMPO
STRATEGY	<ul style="list-style-type: none"> <li>• Program charter               <ul style="list-style-type: none"> <li>– Initiate a program charter that identifies the roles and responsibilities of each stakeholder involved in charging station planning and implementation.</li> </ul> </li> <li>• Planning continuum               <ul style="list-style-type: none"> <li>– Develop structure to harmonize regional charging station planning and implementation with regional and local efforts.</li> </ul> </li> </ul>		
OBJECTIVE 4	Coordinate the utility roles and rates to support the goals of this plan		
TIMELINE	Short to Intermediate	RESPONSIBILITY	SEMPO & Local Agencies
STRATEGY	<ul style="list-style-type: none"> <li>• Electrical grid benefits and impacts               <ul style="list-style-type: none"> <li>– Evaluate the benefits and impacts of incorporating charging station into the electrical grid.</li> </ul> </li> <li>• Coordinate with local utilities               <ul style="list-style-type: none"> <li>– Facilitate EV infrastructure deployment best practices.</li> </ul> </li> </ul>		



## CLOSING THOUGHTS

As technology related to EVs continues to evolve, the Readiness Plan’s goals and strategies will also need to evolve and adjust to the new electrified landscape of the SEMPO region; for example, as more EV models become available in the SEMPO region, the public EV adoption rate will increase resulting in an increase in demand for local public charging stations.

There are many variables that will directly or indirectly impact the actual rate of adoption for EVs. A few of the most impactful items the project team identified include:

- **Energy Costs** – When the cost of fossil-based fuels are relatively higher than that of electricity, EV adoption rates will increase. When fossil-based fuels drop in price, or if electricity costs increase, EV adoption rates will decrease.
- **Supply Chain** – The current surge in demand for EVs has exceeded the production capacity of vehicle manufacturers. Most of them are scrambling to build up both the number and type of available EV models, and to develop production capacity to meet current and future demand. Further up the supply chain, many organizations are also quickly working to increase mining, refining, and battery production operations along with other needed EV components.
- **Political Support** – Current infrastructure funding initiatives are intended to seed and accelerate the adoption rate for EVs. This type of support can change over time to commensurate with political agendas. This is likely to have some impact on the rate of adoption in the early stages but is likely to diminish as the number of EVs on the road increases.
- **Momentum / critical mass** – As more and more people and organizations purchase and drive EVs, and as charging stations increase (in particular, L3 charging stations in rural areas), the adoption rate is likely to also increase. This is in part because someone you know is telling you that range anxiety is not as scary as you think, and operating an EV is much less expensive than that gas guzzler you’re driving!

Because all these factors are not entirely possible to predict, it is recommended that SEMPO assesses progress on the Readiness Plan’s strategies and goals, regional EV sales/stock, and regional public charging station availability on an annual basis. SEMPO should work with the Missouri Department of Motor Vehicles to understand the current EV adoption rate and update the adoption scenario analysis approximately every one to three years, depending on how quickly the EV landscape changes. Updated analyses will provide accurate information on the current EV adoption rate in the region and will ensure the recommendations of this plan continue to align with the needs of the SEMPO region. Below is a list of short term and long-term recommendations SEMPO should prioritize to meet the goals of this Plan.

### Short-Term:

- Track number of registered EVs in the SEMPO region
- Provide education related to EVs
  - **Public** – Individuals who may consider purchasing one
  - **Fleets** – Organizations that may consider transitioning in full or part to EV
  - **Businesses** – Entities that may consider installing charging stations
- Promote charging station infrastructure to support short-range and long-range travel

### Long-Term:

- Pursue a variety of funding opportunities with partners to support charging station implementation
- Expand charging station network along transportation infrastructure
- Coordinate utility roles and rates to support the goals of this plan



# APPENDIX A

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# APPENDIX A

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## List of Stakeholders

### 1. Power Providers:

- Ameren Electric
- Citizens Electric Corporation
- Missouri Public Utility Alliance

### 2. Automobile Dealerships:

- Cape Girardeau Honda
- Coad Chevrolet
- Coad Toyota
- Auffenberg Hyundai of Cape Girardeau
- Auffenberg Kia of Cape Girardeau
- John Sinclair Nissan
- Bening Mazda
- Ford Groves

### 3. Business Organizations that may currently have or could have charging stations onsite:

- Cape Girardeau Regional Airport
- Saint Francis Healthcare
- Southeast Health
- MidAmerica Hotels Corporation
- Century Casino
- Plaza Tire Service
- Drury Southwest Inc.
- Drury Development Corporation
- Midwest Energy (Gas Stations)
- Kidds Inc. (Gas Stations)
- Pajco Inc.
- Bi-State Oil Co. (Gas Stations)
- H&S Investments (Gas Stations)

### 4. Universities:

- Southeast Missouri State University

### 5. Fleets:

- Cape Girardeau County Transit Authority
- Visit Cape
- Jackson Chamber
- Cape Chamber
- Uptown Jackson
- Old Town Cape
- Community Partnership of Southeast Missouri
- Buchheit Logistics
- SIMX Inc.

### 6. Electric Vehicle Service Providers:

- EVT Motor Werks
- Electrical Contractors, Inc.

### 7. Electric Vehicle Charging Station Providers:

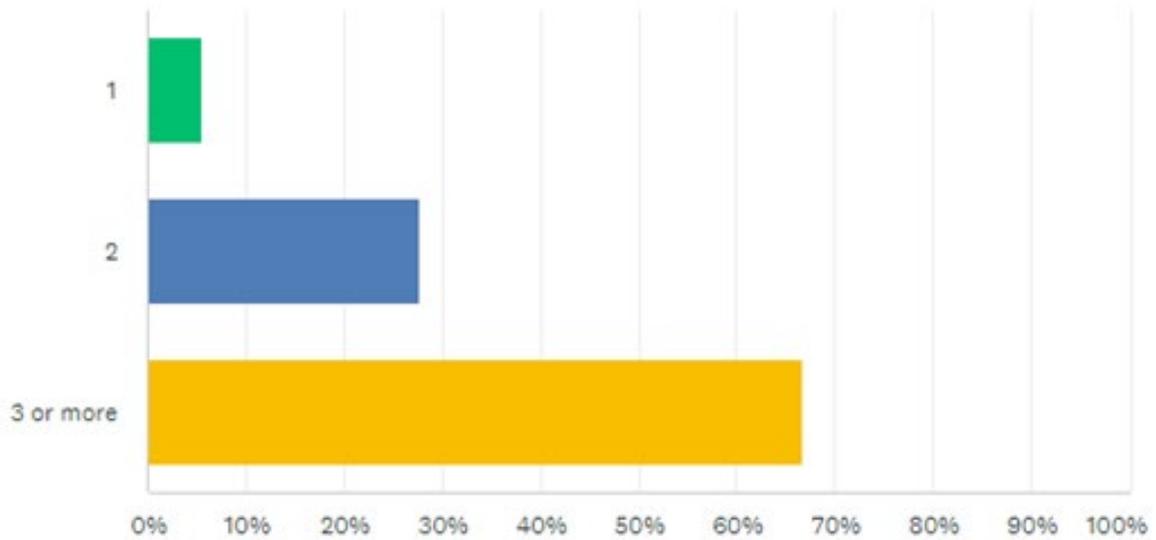
- EVT Motor Werks
- Electrical Contractors, Inc.
- Charge Point

### 8. General Public

## General Public Survey Results

# How many vehicles do you / your household currently own?

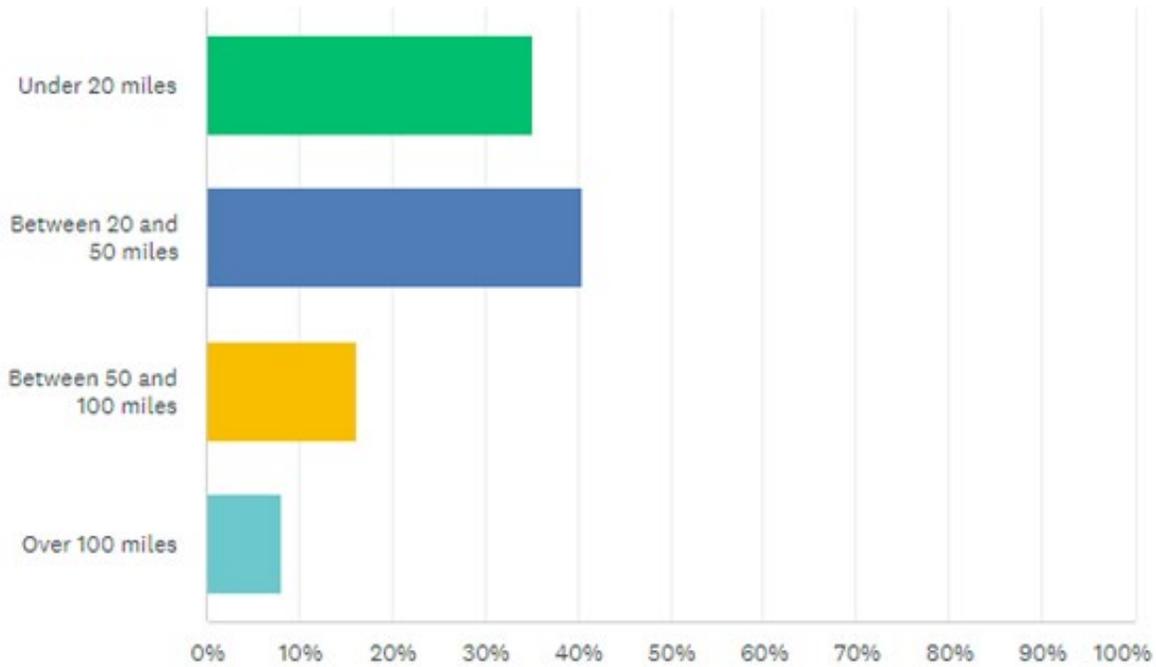
Answered: 36 Skipped: 1



ANSWER CHOICES	RESPONSES	
1	5.56%	2
2	27.78%	10
3 or more	66.67%	24
<b>TOTAL</b>		<b>36</b>

# On average how many miles do you drive on a daily basis?

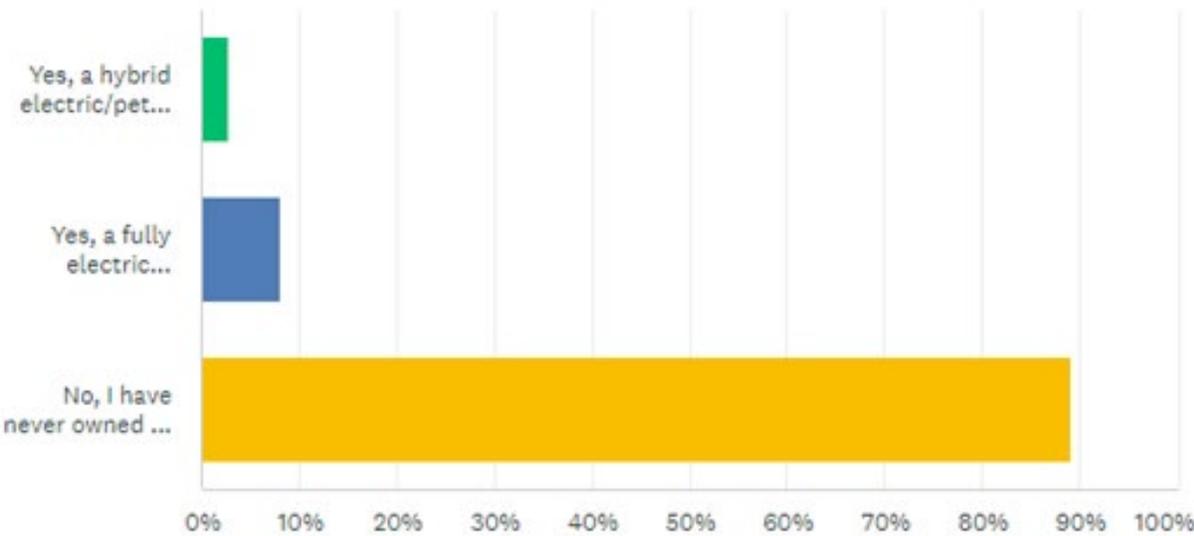
Answered: 37 Skipped: 0



ANSWER CHOICES	RESPONSES	
Under 20 miles	35.14%	13
Between 20 and 50 miles	40.54%	15
Between 50 and 100 miles	16.22%	6
Over 100 miles	8.11%	3
<b>TOTAL</b>		<b>37</b>

# Have you ever personally owned an electric vehicle?

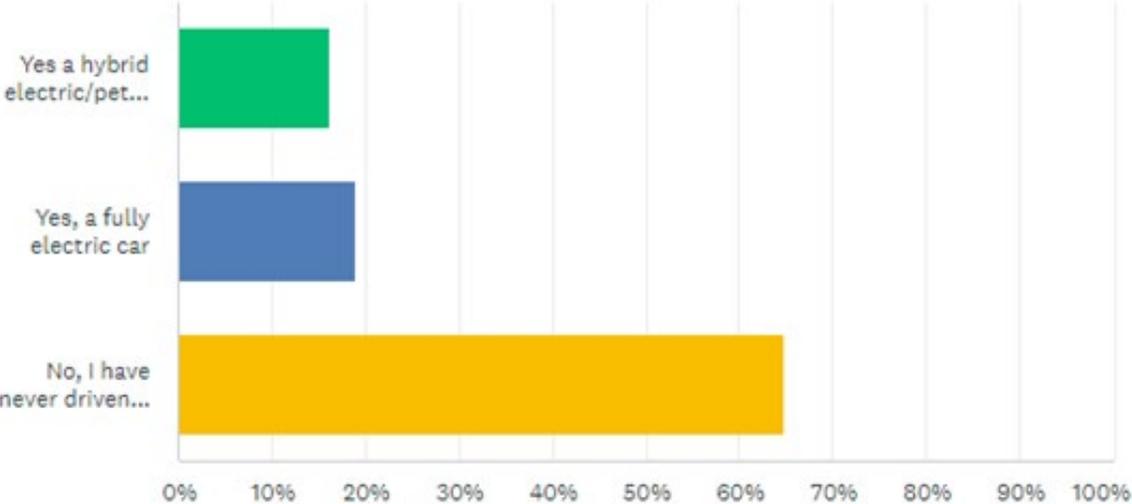
Answered: 37 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes, a hybrid electric/petrol vehicle	2.70%	1
Yes, a fully electric vehicle	8.11%	3
No, I have never owned an electric vehicle	89.19%	33
<b>TOTAL</b>		<b>37</b>

# Have you ever driven an electric vehicle?

Answered: 37 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes a hybrid electric/petrol vehicle	16.22%	6
Yes, a fully electric car	18.92%	7
No, I have never driven an electric vehicle	64.86%	24
<b>TOTAL</b>		<b>37</b>

# What do you consider the main benefits or advantages of electric vehicles?

Answered: 35 Skipped: 2

1. Good for environment, no gas costs
2. Not having to buy \$5 fuel
3. Ability to charge at home when not in use. Quieter operation. Less maintenance.
4. Fuel efficiency
5. None
6. Nonexistent
7. Nothing
8. None
9. Time gained not having to go to the gas station to get fuel. Less exhaust. Perks of having more up-to-date tech than traditional cars currently allow.
10. fine for in town use 1-3 miles
11. Less pollution, low maintenance, good acceleration, latest technology
12. I don't see any.
13. Fuel efficiency
14. Instant torque, frequent updates, fun to drive.
15. Quiet, less pollution
16. The environment and cost.
17. I hope it is reduction of pollution both air and sound.
18. Quiet & potentially less impact on the environment.
19. More environmentally friendly in terms of emissions produced by the vehicle and in producing energy. Since I have PV solar panels, I can recharge with zero emissions.
20. No more pumping gas! & it barely raised my electric bill charging my car from home.
21. Lower emissions, reduced operation cost, reduced maintenance
22. It has been stated that electric vehicles will be beneficial environmentally
23. Environmental
24. Emission reduction
25. Cost Savings along with reducing my environmental footprint.
26. Reduced maintenance
27. technologically advanced
28. Green
29. ECONOMICAL AND EFFICIENT
30. Power, speed, noise emissions
31. Not having to purchase gas or have engine maintenance.
32. I hope and assume that an electric vehicle is less costly to operate.
33. Not having to buy gas with prices so high & helping the environment
34. Gas expenditure savings
35. Environmentally better
36. Contributes less to the world being on fire

# What do you consider the main disadvantages of electric vehicles?

Answered: 36 Skipped: 1

1. Access to charging stations
2. Their range and the extended time to recharge if traveling long distances
3. Infrastructure to recharge both at home and out and about. Unpredictability of finding charging stations out of town. Driving distance per charge.
4. Range on a charge
5. Short charge time, battery going dead quickly, smaller vehicle size, etc
6. Distance and ability to pull a trailer
7. The batteries are very dangerous! It takes fuel to supply the electricity to charge the vehicles! I think it is a waste of taxpayers money!
8. Waste of time. Their batteries kill the earth. These "green" people should at least be smart enough to know that.
9. Cost to create electricity using fossil fuels, mining of rare minerals for batteries, cost to general public for facilities to serve a proportionately small number of vehicle owners.
10. Range per time of recharging/refueling on longer trips. The upfront cost of the vehicle and charging equipment/installation. Resale value.
11. Takes too long to charge, too few places to charge, would not trust it on the highway,
12. Less practical for long trips, concerned about the expense of eventually replacing the battery as we keep cars for a long time, having to install a charger at home
13. How am I supposed to pull a cattle trailer, haul hay, etc.
14. 1) Mechanics were scared of my hybrid, I can't imagine it would be easy to service a full electric engine, 2) There aren't a lot of charging ports
15. None
16. Currently inconvenient, not widely present, too heavy for current infrastructure
17. Availability of charging for long trips
18. Range and very uncertain of their total life cycle cost.
19. Availability of charging stations when traveling. Potential maintenance costs, if any.
20. Lack of charging stations.
21. Not enough public charging stations for Tesla specifically.
22. Impacts of mining battery materials, reduced range between refueling, limitations of recharging, time to refuel, no current recycling of batteries
23. Not enough infrastructure to support with unknown time it takes to recharge while traveling....unknown cost both upfront and ongoing...
24. Limited fueling stations in our region
25. Powerless. Easy to deliver a can of gas rather than a jolt of electric if stranded. - I am sure the enhancement to provide power other than AAA will increase over the years.
26. Battery replacement. Possibly loss in towing capacity for trucks.
27. charging locations and time required to charge being 100% reliant on the electrical grid which could be targeted or fail on its own.
28. Access to charge and range anxiety
29. LACK OF SUPPORT
30. Lack of charging stations relatively high purchase cost
31. The distance you can travel on a charge.
32. Distance to travel may be limited by availability of charging stations, length of time to gain a full charge, maintenance costs.
33. Access to charging stations & the long time it takes to charge
34. Inconvenience, they are unrealistic to overall environmental goals, sustainability is questionable, long-term cost is questionable
35. Cost & Range
36. More expensive, harder to find charging stations

# How quickly (hours) would it need to take to fully charge an electric vehicle for you to consider buying one?

Answered: 35 Skipped: 2

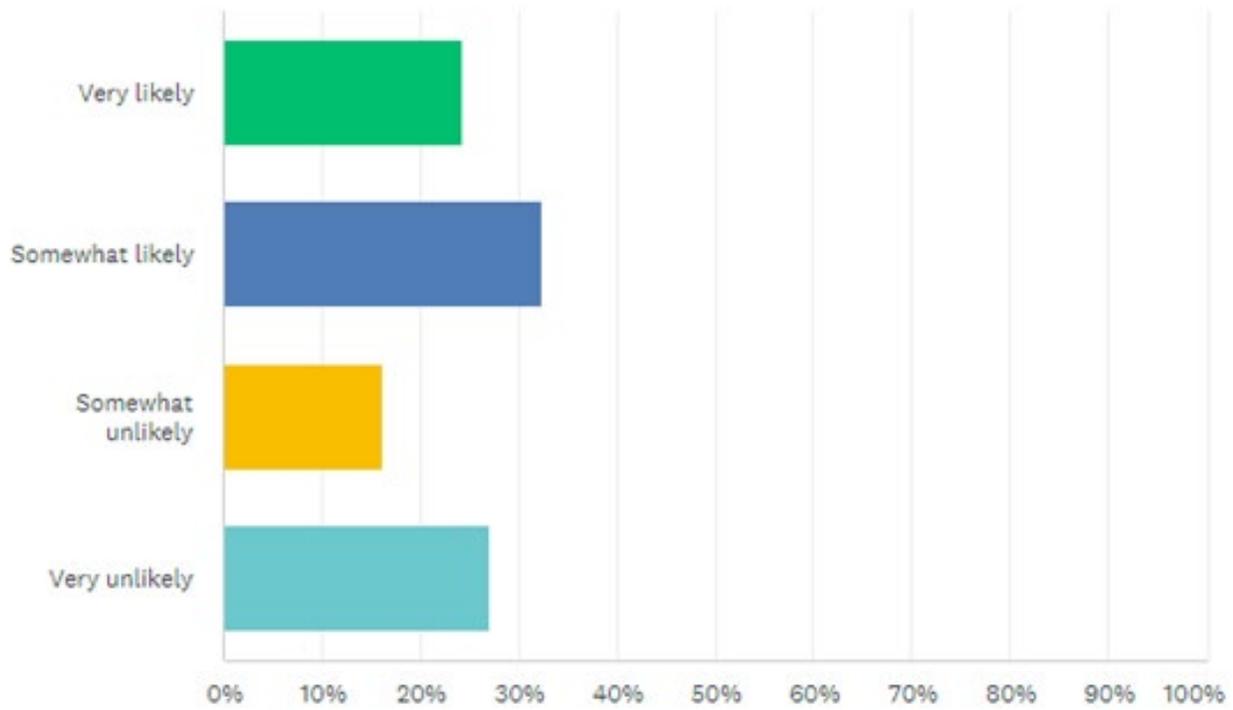
- |     |  |     |   |
|-----|--|-----|---|
| 1.  | 2  | 19. | 30 minutes  |
| 2.  | 30 minutes   | 20. | less than 2   |
| 3.  | 6  | 21. | 0.1 hour  |
| 4.  | 1  | 22. | 1/2 hour  |
| 5.  | No amount would convince me  | 23. | not sure  |
| 6.  | 1  | 24. | 1   |
| 7.  | It would have to be able to pull my 5th wheel over 800 miles in one day! | 25. | Depends daily routine driving would be overnight. but if travelling I would think an hour tops. |
| 8.  | 30 min   | 26. | 15 minutes  |
| 9.  | Will not buy   | 27. | Minutes   |
| 10. | .5   | 28. | 2HRS  |
| 11. | 5 minutes  | 29. | 4   |
| 12. | 8  | 30. | Ideally less than 30 minutes.   |
| 13. | 5 min  | 31. | 1/4 hour  |
| 14. | 1-2 hrs  | 32. | 2   |
| 15. | 0.20   | 33. | 1   |
| 16. | 10 minutes   | 34. | Unsure  |
| 17. | 0.5  | 35. | About 2 minutes per mile of charge would be nice  |
| 18. | 1  |     |   |

# How far (miles) would you expect to be able to drive an electric vehicle on a fully charged battery for you to consider buying one?

- |     |   |     |  |
|-----|---|-----|--|
| 1.  | 400   | 18. | 400  |
| 2.  | 250   | 19. | 400  |
| 3.  | 350 to 400  | 20. | 400  |
| 4.  | 300   | 21. | 300  |
| 5.  | No amount would convince me   | 22. | 300 plus   |
| 6.  | 500   | 23. | 300  |
| 7.  | I have a place in Florida and it's over 1100 miles! I would not consider buying one until I could make the trip without charging a vehicle. | 24. | not sure   |
| 8.  | As far as a gas tank would  | 25. | 500  |
| 9.  | Does not matter   | 26. | 300  |
| 10. | 500   | 27. | 300 +/-; like a regular car                                    |
| 11. | 200   | 28. | 400  |
| 12. | 300   | 29. | 300  |
| 13. | 450   | 30. | 250  |
| 14. | 350   | 31. | 400-500  |
| 15. | 300 +   | 32. | 350 -500   |
| 16. | 400   | 33. | 400  |
| 17. | 300   | 34. | 210  |
|     |   | 35. | at least enough to get me from here to STL, so like ~120 miles |

# How likely are you to own an electric vehicle in the next 5-10 years?

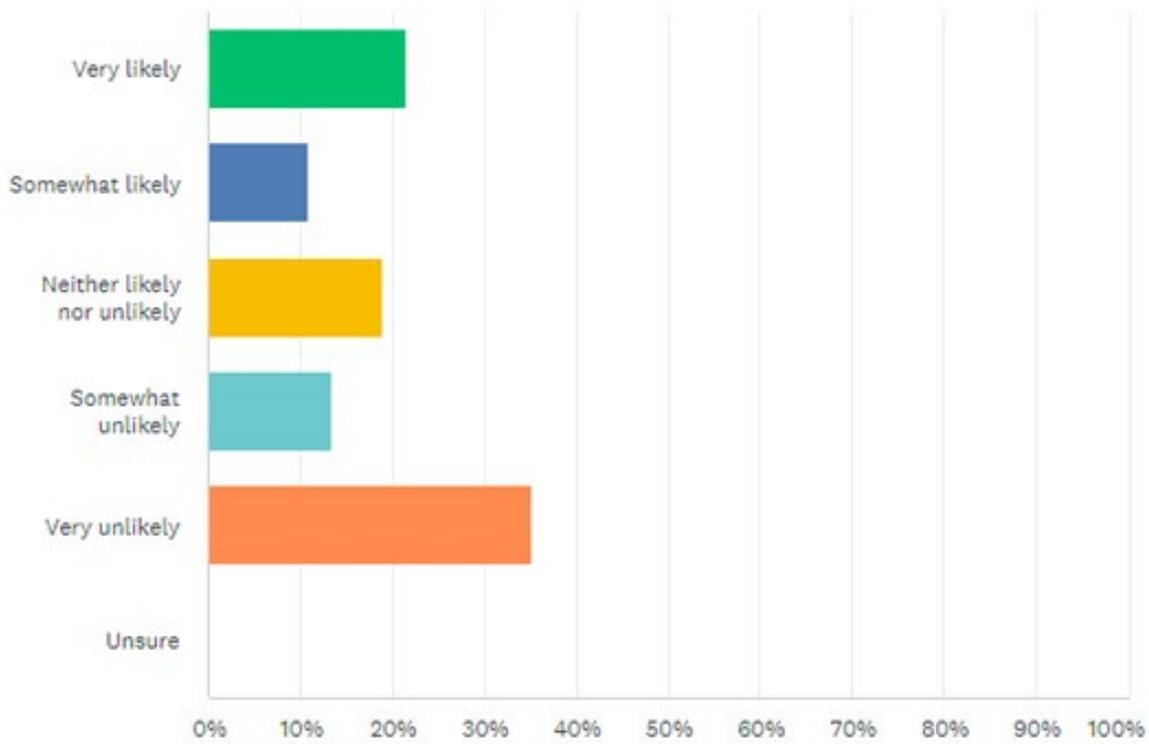
Answered: 37 Skipped: 0



ANSWER CHOICES	RESPONSES	
Very likely	24.32%	9
Somewhat likely	32.43%	12
Somewhat unlikely	16.22%	6
Very unlikely	27.03%	10

# How likely are you to consider buying an electric vehicle in the next 3 years?

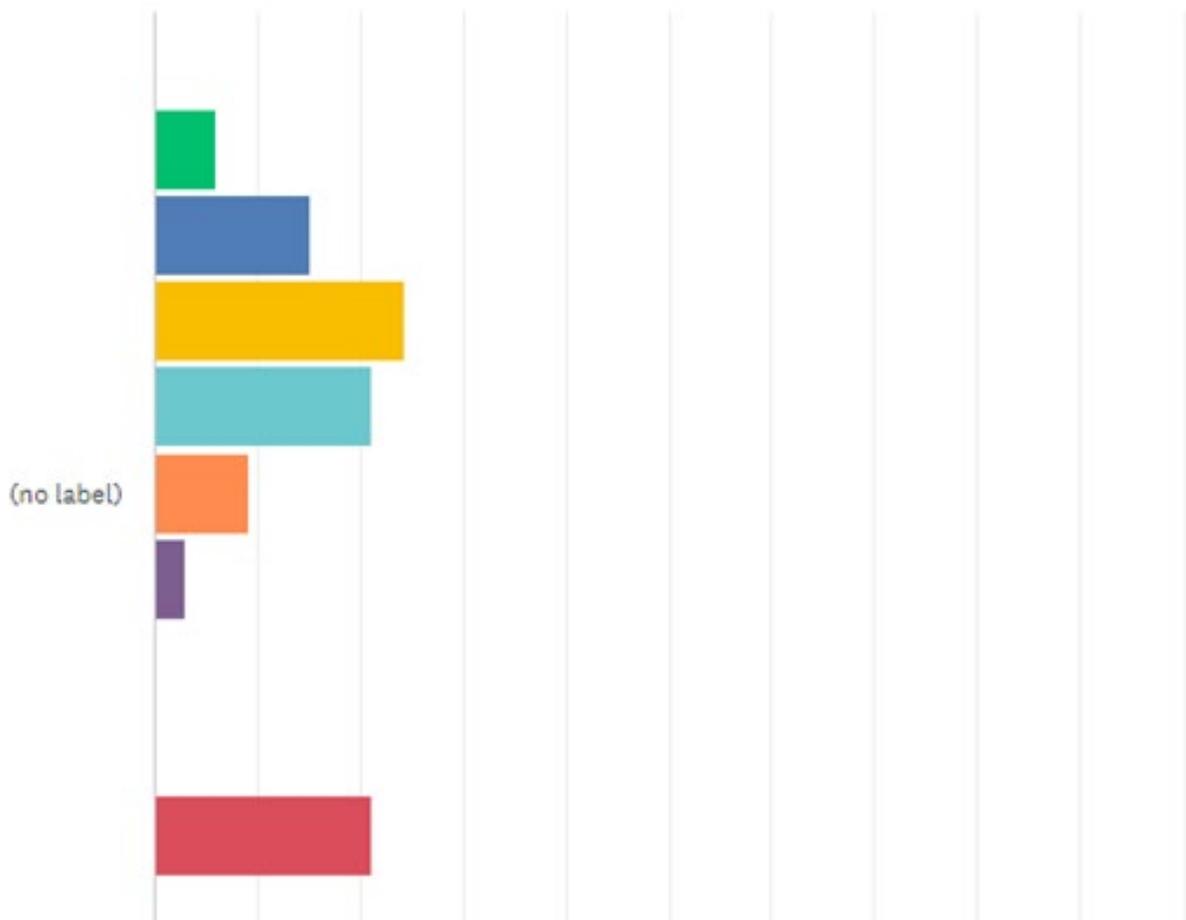
Answered: 37 Skipped: 0



ANSWER CHOICES	RESPONSES	
Very likely	21.62%	8
Somewhat likely	10.81%	4
Neither likely nor unlikely	18.92%	7

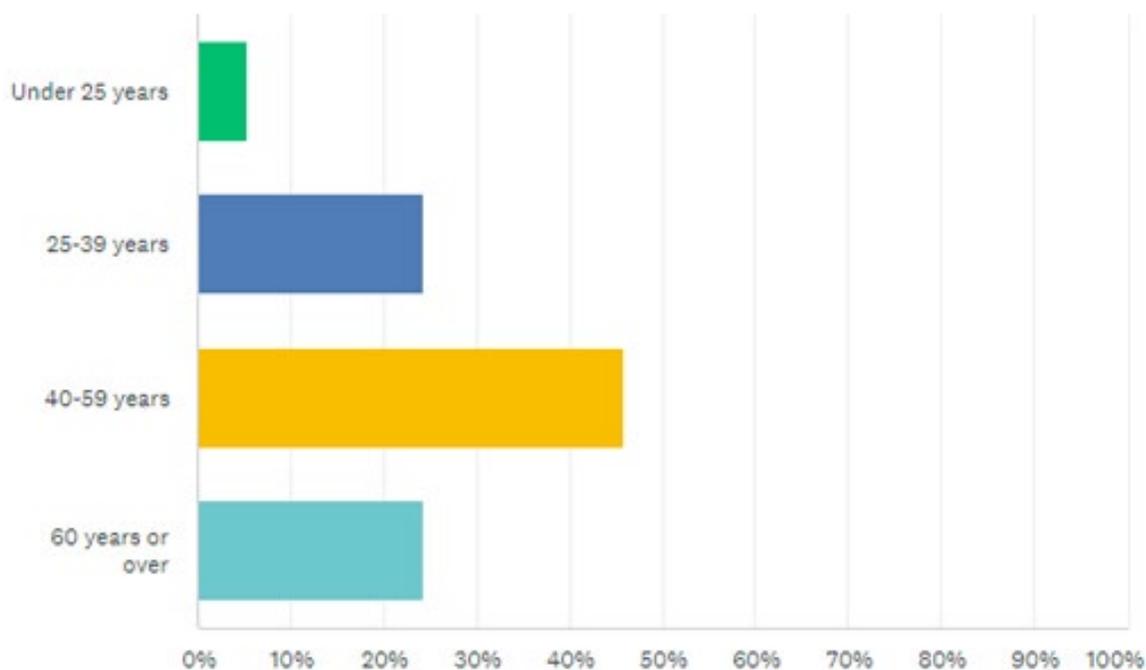
If prices for gasoline increased, at what price (\$ per gallon) would you be much more likely to consider buying an electric vehicle?

Answered: 33 Skipped: 4



## Which of the following age groups are you in?

Answered: 37 Skipped: 0



ANSWER CHOICES	RESPONSES	
Under 25 years	5.41%	2
25-39 years	24.32%	9
40-59 years	45.95%	17
60 years or over	24.32%	9
<b>TOTAL</b>		<b>37</b>

# APPENDIX B

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# APPENDIX B

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## **Example RFP's related to the procurement of installation and operation of EV Charging Stations**

1. City of New Rochelle, New York – Electric Vehicle Charging Infrastructure RFP
  2. City of Sacramento, California – Curbside Electric Vehicle Charging Pilot RFP
  3. Xavier University of Louisiana – Electric Vehicle Charging Station Solutions RFP
- 

## **Example RFP Template related to the procurement of installation and operation of EV Charging Stations**

- San Diego County Sample RFP Template

*Department of Finance*  
515 North Avenue  
New Rochelle, NY 10801



*Tel (914) 654-2072*  
*Fax (914) 654-2344*

**Mark Zulli**  
*Commissioner*

**Edward J Ritter**  
*Deputy Commissioner*

**City of New Rochelle  
New York**

**REQUEST FOR PROPOSALS**

**SPEC NO. 5335**

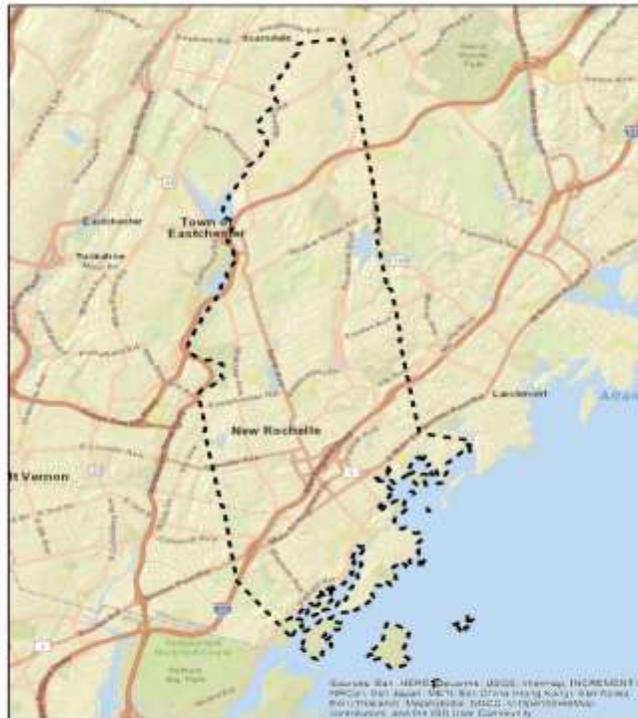
**Due Date: August 19 at 3:00PM**

**Deadline for Questions: July 30, 2020 by 4:00pm**

**Answers Posted: August 5, 2020 4:30pm**

**Proposals Due: August 19, 2020, 3pm**

**Electric Vehicle Charging Infrastructure,  
Electric Vehicle Car Share and Related Operations Services**



## **1. OVERVIEW**

The City of New Rochelle is dedicated to improving regional air quality, reducing petroleum usage, mitigating greenhouse gas emissions and improving the lives of its residents by offering affordable and state-of-the-art transportation options through the deployment of innovative “green technologies”. Recognizing the critical role of local governments in the development of alternative-fuel infrastructure, the City is acting as a catalyst for market transformation, leading by example in its own operations and encouraging the private sector to bring about significant and sustainable use of alternative fuels and advanced vehicle technologies.

As part of this effort, the City of New Rochelle is interested in installing multiple public access electric vehicle charging stations on city-owned property throughout the City. This project will provide the initial testing needed to develop a sustainable operating model for the public and the City of New Rochelle.

The City of New Rochelle is seeking responses from qualified firms (each, a “Respondent”) to:

- i. Design, furnish, install and maintain publicly accessible Electric Vehicle (EV) and/or Plug-in Hybrid Electric Vehicle (PHEV) charging stations on City-owned property
- ii. Attract one or more EV/PHEV car-sharing operators that will provide and maintain EVs/PHEVs in the City (“EV/PHEV Operator”)

This project is anticipated to accommodate the growing use of EVs and/or PHEVs and car-sharing to put the City at the forefront of this trend. The City’s intent is to benefit from respondents that can leverage the private sector’s innovation, broad experience and capital access in close partnership with the City.

## **2. GENERAL REQUIREMENTS/OBJECTIVES**

The City of New Rochelle desires to enter into an agreement with an entity that is capable of providing publicly accessible charging stations for EVs, PHEVs and related products and services. The firm awarded the project upon completion of the procurement process (the “Company”) will be responsible for designing, furnishing, installing and maintaining the infrastructure to enable the use of EVs/PHEVs in and around the City. The City and the Company would cooperate to locate and designate parking spaces in public areas including public streets, surface lots and/or garages in the City where charging stations would be installed.

The Company would also be responsible for securing one or more EV/PHEV Operators to provide and maintain the EV/PHEV Car Share Service. The City and the Company would cooperate to locate and designate parking spaces in public areas including surface lots and/or garages in the City to be used by the EV Operator(s) and their customers.

The City’s goals include:

- Reducing traffic congestion and parking demand;
- Reducing greenhouse gas emission;
- Providing City residents, employees and visitors with an affordable transportation option
- Encouraging the use shared mobility options; and
- Encourage the use of EVs and PHEVs in the City

At the end of the Procurement Process, the City intends to enter into an agreement (“Transaction Documents”) with a company (the “Company”) to implement the project. The bidding process, vendor selection, contract negotiations and execution and implementation of the Transaction Documents will be conducted by the City in accordance with applicable law. Respondents should carefully review this document, which constitutes the formal RFP for the services sought by the City, to ensure a clear understanding of the City’s needs, objectives and scope of work.

This project must result in a self-sufficient, independently operated system requiring no City capital or operating expenses.

This proposal shall provide for a phased expansion of the Electric Vehicle (EV) and/or Plug-in Hybrid Electric Vehicle (PHEV) charging stations as well as the car share program if the City and the Company jointly agree to do so. The locations shall be collaboratively chosen by the City and the Company to provide charging stations and car share service in additional areas.

If any addenda or clarifications are issued on this Request for Proposals (RFP), a good faith effort will be made to deliver a copy to each of those potential proposers who, according to the records of the Purchasing Office, have previously received a copy of this RFP. However, it shall be the sole responsibility of those offering proposals to contact the Purchasing Office prior to submitting their proposal to determine whether any addenda or clarifications have been issued.

### **3. PROPOSAL DUE DATE**

Sealed proposals will be accepted up until **3:00 p.m. August 19, 2020** in the Purchasing Office at City Hall, 515 North Avenue, New Rochelle, New York, 10801. Please note “**Spec #5335**” on your outside mail package.

The City of New Rochelle is a sponsor of the Westchester Affirmative Action Equal Employment Agreement and strongly encourages all firms qualified and certified as Women/Minority Business Enterprises (W/MBE) to submit proposals.

### **4. PRE-PROPOSAL QUESTIONS**

All questions must be submitted in writing via e-mail to Rebeca Bonacci and Sandi Murray no later than 4:30pm July 30 2020. [rbonacci@newrochelleny.com](mailto:rbonacci@newrochelleny.com)  
[Smurray@newrochelleny.com](mailto:Smurray@newrochelleny.com)

**All questions and answers will be posted on the City’s website no later than 4:30pm, August 5, 2020. It shall be the individual’s responsibility to check the website for info; email responses will NOT go out to each individual contractor.**

The City reserves the right to amend the RFP based on questions and issues raised at any time prior to the RFP submission deadline.

If any addenda or clarifications are issued on this Request for Proposals (RFP), a good faith effort will be made to deliver a copy to each of those potential proposers who, according to the records of the Purchasing Office, have previously received a copy of this RFP. However, it shall be the sole responsibility of those offering proposals to contact the Purchasing Office prior to submitting their proposal to determine whether any addenda or clarifications have been issued.

## **5. SCOPE OF SERVICES**

All proposals must conform to the specifications and guidelines contained herein. There is no expressed or implied obligation for the City of New Rochelle to reimburse responding proposers for any expenses incurred in preparing proposals. Late proposals will not be accepted, although during the evaluation process, the City reserves the right to request additional information or clarification from proposers, or to allow correction of errors or omissions. The City also reserves the right to reject all proposals at the City's discretion.

### **5.1 Overview**

The City envisions the project as the first step in a scalable EV/PHEV program. The Company must have a plan to educate, in collaboration with the City, each of the key stakeholder groups – the City, the local electric utility, current and prospective EV/PHEV drivers, station hosts, EV/PHEV car sharing companies, and station providers -- about how the system will work and how EV/PHEV drivers will interact with it. This Project is expected to play a significant role in shaping the region's long-term vision for EV/PHEV market development and driving the availability of future resources. This infrastructure will support the initial fleet of EV/PHEVs as they become available to the general public and will expand with the increased acceptance and use of EVs/PHEVs.

The City is looking for a turn-key program. The Company selected must provide all necessary equipment and must have standard industry knowledge of all equipment. In addition, the Company must plan for deployment and marketing, including landowner relationships, and demonstrate the vision for a full scale EV/PHEV infrastructure in the City. The City sees this initial deployment of charging stations as an opportunity to act as a catalyst for further market and government investment in charging infrastructure and EVs/PHEVs.

The Company will be responsible for:

- developing, in coordination with the City, the strategy for locating charging infrastructure locations to maximize utilization
- securing one or more EV/PHEV Operators to provide and maintain an EV/PHEV car share service
- working with the Company's project partners and City's team to meet their infrastructure needs
- purchasing and installing charging stations and associated infrastructure that will support the Project
- determining whether incentives to consumers may support daily use of EVs/PHEVs;
- developing and implementing the business model, including the back-end functionality; and
- providing warranty and service for the vehicles, charging stations, and infrastructure for the term of the Transaction Documents.

### **5.2 EV/PHEV Charging Stations**

#### **5.2.1 Parking Spot Designation**

The City will provide the Company exclusive rights to use municipally owned parking spaces available for designation on-street, in surface lots and in garages to install and operate EV/PHEV Charging Stations as approved by the City of New Rochelle. The City will designate such exclusive parking spots as tow-away zones and will ensure it has the

authority, and will exercise such authority, to tow violators. The City anticipates a phased-in installation, which may, at the Company's request, include a small, short pilot program before full installation of the first phase. The Company will propose sites for the parking spaces, subject to the required approvals as described in this RFP. The City will also provide the Company the right of first refusal to license or lease the designated parking spaces upon termination of the Transaction Documents.

The process for designating parking spots will take place in phases, as mutually agreed to between the City and the Company. The parking spot locations will be subject to a feasibility study and an approval process (as described in Section 5.2.2 below). The Company and the City will also work with business owners and residents potentially impacted by the site selection (as described in Section 5.4 below).

### **5.2.2 Site Selection**

Each Respondent will demonstrate its vision for selecting parking spot locations for the EV/PHEV Charging Stations. The City and the Company will identify locations where EV/PHEV Charging Stations have the highest potential to be utilized and to be profitable.

### **5.2.3 Feasibility Study & Approval Process**

Reserved on-street parking spaces must be established by Ordinance of the City Council; therefore, all spaces will be subject to the following approval steps:

- Pass review by transportation engineering staff to ensure functional feasibility and no conflicts with other regulations (e.g., do not locate a space in a tow away zone);
- Charging stations and power cords must not cause an obstruction;
- Engineering feasibility study to determine source of electricity; Company must coordinate with Con Ed for power source, metering requirements, etc.;
- Working together with the City to determine optimal locations to ensure stations can be implemented for reasonable price in such locations; and
- [Other].

### **5.2.4 Infrastructure**

The Company will develop infrastructure and install charging station ports (dual chargers), and will be responsible for the following:

- Providing all surveys
- Obtaining municipal permits (DPW, etc.) for EV charging station electric work
- Obtaining dedicated electric service for EV charging station
- Civil activities (Concrete, Asphalt, Trenching, Underground Enclosures)
- Demolition (Concrete, Asphalt)
- Supply and install new distribution equipment
- Electric work- full turnkey electric work, including but not limited to:
  - Running electrical conduit
  - Circuitry between electrical distribution set-up and chargers
  - Coordination with Con Ed and payment of all associated fees
- Installation of all EV/PHEV chargers.
- Compliance with National Electrical Code and FCC regulations for safety and operation requirements
- Charge connector shall be SAE J1772
- Compliance with Americans with Disabilities Act (ADA)

- Make necessary repairs to sidewalks, pavement and other areas that might have been damaged as a result of installation
- Provide City approved signage and pavement markings
- Prepare drawings identifying the proposed location of each charging station depicting the specific placement of the station in compliance with existing setbacks and easements and all applicable laws, such as but not limited to, local zoning requirements, historic district requirements, and the Americans with Disabilities Act

### **5.2.5 Operation and Maintenance**

After installation, the Company will be responsible for the day-to-day operations of the charging stations, including:

- Charging station maintenance/repair must be available 24/7/365.
- General upkeep of Charging Station and vicinity immediately surrounding station
- Charging station improvements, at discretion of Company, subject to City approval
- Insurance of the charging station and related equipment
- Charging stations
  - Back office – software, analytics;
  - Trouble-shooting and communication with charging station manufacturer.
- Upon termination of services, all charging stations and related infrastructure must be removed by the Company.
  - All charging station locations must be restored to pre-install conditions (sidewalk repair, removal of signage and street markings, etc.)

### **5.2.6 City Intent**

If the location on which the charging station is Municipally-owned property, the City intends to:

- Prohibit parking by non-EV/PHEVs in designated EV parking spots and enforce towing of violators;
- Prohibit parking by EV/PHEV in designated EV parking spots if not actively charging and enforce towing of violators;
- Assist with obtaining relevant permits.

## **5.3 EV/PHEV Car Sharing Service**

The Company will be responsible for engaging and managing one or more EV/PHEV Car Sharing Operators. The Company will have the right and ability to hire and/or terminate any EV/PHEV car sharing Operator; however, the City must review and approve before any action is taken. The Company will propose the structure of its car sharing operations, which must provide for one-way model (A2B) or round-trip model (A2A). The one-way model allows a member to pick up a vehicle at predetermined, designated location A and drop it off at a designated location B. The round-trip model allows a member to pick up a vehicle at a predetermined dedicated spot and return it to that same location.

The Company must commit to providing EV/PHEVs dedicated to public car sharing and will be responsible for the vehicles at all times, including for:

- Insurance of Vehicles
- Electricity/Gas
- All communication with car sharing operator

- Ensuring car sharing operator is properly maintaining car sharing vehicles
- Cleaning of vehicles
- Networked electric vehicles/PHEV available 24/7 accessible via mobile app/website
- Movement of EVs to ensure accessibility
- Clearing snow
- Keeping designated spaces free and clear of debris and garbage
- Maintaining City-approved signage in designated spaces
- Moving for Alternate Side Parking, if necessary.
- Providing Customer Service 24/7/365 to all car sharing customers.

The City is requiring that the Company provide an EV/PHEV car sharing program as opposed to a car sharing program using gas-powered vehicles or any other non-EV/PHEV (a “Non-EV”).

### **5.3.1 Parking Spot Designation**

The City will provide to the Company exclusive rights to use parking spaces available for designation as car sharing pods, in municipally owned surface lots and garages, as approved by the City of New Rochelle. The City will designate such exclusive parking spots as tow-away zones and will ensure it has the authority, and will exercise such authority, to tow violators. The City anticipates a phased-in installation, which may, at the Company’s request, include a small, short pilot program before full installation of the first phase. The Company will propose sites for the parking spaces, subject to the required approvals as described in this RFP. The City will also provide the Company the right of first refusal to license or lease the designated parking spaces upon termination of the Transaction Documents.

The process for designating parking spots will take place in phases, as mutually agreed to between the City and the Company. The parking spot locations will be subject to a feasibility study and an approval process (as described in Section 5.3.2 below). The Company and the City will also work with business owners and residents potentially impacted by the site selection (as described in Section 5.4 below).

### **5.3.2 Site Selection**

Each Respondent will demonstrate its vision for selecting parking spot locations for the EV/PHEV Car Share Service. The City and the Company will identify locations where EV/PHEV Car Sharing has the highest potential to be utilized and to be profitable.

### **5.3.3 Feasibility Study & Approval Process**

Reserved surface lot and garage parking spaces must be established by License Agreement; therefore, all spaces will be subject to the following approval steps:

- Pass review by transportation engineering staff to ensure functional feasibility and no conflicts with other regulations (e.g., do not locate a space in a tow away zone);
- Charging stations and power cords must not cause an obstruction;
- Engineering feasibility study to determine source of electricity; Company must coordinate with Con Ed for power source, metering requirements, etc.;
- Working together with the City to determine optimal locations to ensure stations can be implemented for reasonable price in such locations; and
- [Other].

#### **5.4 Community Outreach**

The Company will propose a plan and work with the City to educate and prepare the community for the project, including residents, current owners of EV/PHEVs who may use charging stations, business owners potentially affected by the Project, regulators and government officials. This may include establishing a pilot charging station for the community to visit, test and ask questions before full implementation of the Project. This community outreach would be designed to increase the likelihood of acceptance and success of the Project as well as to mitigate the risk of objections or adverse impact on any business or resident.

Prior to implementation of a Car Share Service, the Company will propose a plan and work with the City to educate and prepare potential users of the EV/PHEVS provided by the EV Operators.

#### **5.5 Web-Based and Mobile App-Based Membership and Tracking**

The City recognizes that customers for any service expect access to the latest technology and conveniences to allow ease and flexibility. The City requires each Company to be able to provide users with a high-tech, easy and user-friendly way to use the charging stations and vehicles. The Company will make available to EV/PHEV owners, third-party mobile or web-based applications sponsored by the EV/PHEV Operators or others, enabling EV/PHEV owners to use a smartphone or other web-based device. Car sharing customers may connect using a web-based application. The Project application and related software must:

- Be fully networked to allow for the management of charging operations including access, pricing, power distribution and charging notifications
- Be capable of accepting and processing payments of all major credit cards and bank issued ATM cards through a secure system
- Provide station location and real-time availability to users on the web through designated sites
- Have measurement and data capture of real-time statistics, including GPS vehicle tracking, and fuel or charge level information
- Provide for available 24/7/365 customer support for users.

The Company must implement and maintain a 24/7/365 call service available to receive any questions or complaints concerning the Project.

#### **5.6 Revenue Response**

The Company is responsible for funding the Project through whatever means it determines, which may include loans, grants and/or other sources. Unless the City terminates the Transaction Documents with the Company without cause before the end of the initial term, the City will have no out-of-pocket obligation with respect to the Project. Upon an early termination without cause, the City will refund to the Company, the Company's investment to the extent the Company has not recovered such costs on or before the early termination date.

During the term of the Transaction Documents, the Company should anticipate initiating a profit-sharing program with the City. Such program would be implemented after the Company has demonstrated to the City that they have recovered the Company's initial investment and has achieved positive operating cash flow for 12 consecutive months. The profit-sharing program would provide that in each year after the Company satisfies those two threshold requirements, at least 5% of the Company's annual profits (if any) would be distributed to the City. The Company will be required to submit annual Financial Statements to the City to verify profits or lack thereof.

## **5.7 Regulatory Considerations**

Any stations and associated infrastructure developed by the Company will comply with the appropriate state and local government laws, rules, regulations and policies. The Company (potentially through the Company's landowner partners) will also be responsible for applying for and obtaining applicable certifications, licenses, and permits necessary for the installation and operation of the stations and associated infrastructure.

The City is committed to their role in supporting the initial deployment of charging infrastructure and will work with the Company to help resolve any regulatory hurdles that may arise.

## **5.8 Training and Marketing**

The City will require the Company to provide training and education necessary to ensure that vehicles and charging equipment are installed, maintained, and operated in a safe and proper manner; develop a marketing, branding and outreach strategy; and create public awareness to educate the community about the Project and its accompanying benefits. The City and the Company will have the following obligations:

### **For signage:**

- The Company will install and maintain City-approved signage at designated parking spaces
- The Company will have the right to ad space on EV/PHEV charging stations, subject to review and approval by the City, and may otherwise use advertisements on or inside vehicles, at locations, on the City's or other websites, and mobile applications;

### **For markings:**

- The Company will install and maintain, at the Company's expense, City-approved stenciled markings to help further depict designated parking spaces for exclusive EV/PHEV and/or car share use.
- All markings must be approved by the Department of Public Works prior to installation and after installation to verify conformity.

## **5.9 Data and Reporting Requirements**

The Company will own data about EV/PHEV usage, but will be required to provide usage data to the City upon request.

## **6. PROPOSAL REQUIREMENTS**

Each Response must be based upon and incorporate the information provided in this RFP and contain the following information:

### **6.1 Cover Letter**

An authorized representative of the Respondent, preferably the Executive Director, must sign a cover letter. The cover letter must contain a commitment to provide services in accordance with all terms and conditions of the RFP. In addition, the cover letter must contain an overview of the experience and background of the Respondent, or Respondents if this is to be a partnership. If a partnership, the fiscal agent must be identified and each of the collaborating partners' principal place of business and the name and telephone number of the principal contact person. **The Cover Letter should not exceed 2 pages.**

### **6.2 Executive Summary**

The Executive Summary must provide an overview of the Response. **The Executive Summary should not exceed 1 page.**

### **6.3 Narrative**

In this section the Respondent must provide the following information:

- A narrative describing the project, keeping in mind the project principles and the Scope of Services provided in this RFP, with particular attention to Section 5.
- Jobs created/retained or any other public benefit derived from the project.
- Name of representative authorized to act on the Respondent's behalf.
- A statement of commitment to adhere to the provisions of all applicable federal, state, local laws, ordinances and regulations prohibiting discrimination or segregation by reason of race, religion, color, gender, physical or mental handicap or disability, national origin or ancestry, sexual orientation, military status, parental status, or source of income, including, such laws, ordinances, and regulations with regard to the sale lease or occupancy of the parcels.
- Identify if the firm been in bankruptcy, reorganization or receivership in the last 5 years? If so, please explain current status.
- Has the firm/individual been disqualified or terminated from any public agency? If so, please explain under what circumstances this disqualification or termination occurred.
- A project schedule including key activities such as:
  - Station locations identified;
  - Arrangements with site hosts established;
  - Permitting, licensing, and certifications complete;
  - Station equipment procured;
  - Station equipment delivered to site;
  - Infrastructure development complete;
  - Training/education complete;
  - Stations operational;
  - Scheduled station maintenance;
  - Marketing/outreach activities;
  - Data collection and submission;
  - Quarterly Reporting; and
  - Project Close Out Report

### **6.4 Business Model**

Please submit one proposed business model for the Project for the City, including initial and future deployment plans.

### **6.5 Illustration and Maps**

A list and map of proposed station locations must be submitted. Maps should indicate:

- Station charging technology;
- Proposed location of stations and entity hosting the station;
- Proposed location of stations with integrated renewable energy systems; and
- Other information necessary to readily illustrate the Response.

An endnote section should also define the methodology for station location selection. Illustrations or pictures of station equipment and components must be submitted.

### **6.6 Statement of Qualifications**

Submit, preferably, at least three (3) references from previous or current projects and describe qualifications and ability to perform the project. Identify principal members of the Respondent’s team, including partners, and indicate their past experience in design and implementation of similar projects, including biographies. Also include any examples of charging infrastructure in operation on a city-wide level. **This section should not exceed 4 pages.**

**6.7 Attachments**

Each Response must include the following as attachments:

- Commitment letters from identified project partners indicating their amount of financial or other support to the project, including a statement that they intend to keep the stations operational for a minimum of three years;
- Current Certificate of Insurance;
- Most recent audit report or a pre-approved equivalent;
- Respondents may submit any letters of support; and
- Charging station specifications.
- The attached Exhibit A must be completed and returned with your proposal.

**7. AWARD CRITERIA**

The award of a contract for the described services will be made by the City’s RFP Evaluation Committee and shall be based on the respondent’s qualifications including, but not limited to, the following: cost of service, references, knowledge and interpretation of the City’s needs, and experience. Firms may be asked to meet with the Evaluation Committee and the City Council.

All proposals shall be submitted with a completed City of New Rochelle Vendor Responsibility Form as provided.

Proposals will be evaluated and scored on the basis of the following criteria:

<b>Item</b>	<b>Max Points</b>	<b>Comments</b>
A. Qualifications/Experience	20	Should demonstrate relevant experience with EV/PHEV infrastructure and car-sharing programs
B. Technical Criteria	30	
1. Planning		Ability to provide quality concept plan
2. Maintenance		Plan for maintaining charging stations/EVs
3. Fleet Redistribution		Ensuring adequate number of EV/PHEVs at stations computer
4. Computer System & Operations		Functionality of charging station interface & main computer
5. Vehicles		Quality & type of EV/PHEVs provided
6. Promotions/Marketing		Ability to promote system to public
7. Customer Service		Quality of customer service/staffing Functionality for City and public users
8. Website & Mobile Apps		Functionality for City and public users
9. Legal		Indemnification, insurance, etc.
C. Management Criteria	30	

1. Financial Capability/Sponsorship		Ability to secure project financing Ability to financially sustain system
2. Levels of Investment/System		Ability to financially sustain system
3. System Expandability		Ability of the system to expand within the Municipalities and into additional jurisdictions. Should provide a plan for future expansion based on demographic analysis, trip generators, existing public transit, and demographic
4. Profit to City		Percentage of profit to be shared with the Municipalities
D. Implementation Schedule	20	Provide implementation plan and ability to expedite schedule
Total	100	

### **8. RIGHT TO REJECT PROPOSALS**

This Request for Proposal (RFP) does not commit the City to award a contract, pay any cost incurred in the preparation of a proposal in response to this RFP or to procure or contract for services. The City intends to award a contract(s) on the basis of the best interest and advantage to the City and reserves the right to accept or reject any or all proposals received as a result of this RFP, to negotiate with any or all qualified proposers or to cancel this RFP in part or in its entirety, if it is in the best interest of the City to do so.

### **9. QUALIFICATION REQUIREMENTS**

The following list is the minimum qualification requirements:

- a) A firm with past experience developing, installing and maintaining EV infrastructure and engaging car sharing operators for at least two (2) municipalities.
- b) A firm with at least three (3) years of experience with developing, installing and maintaining EV infrastructure and engaging car sharing operators.
- c) At least 3 references from clients currently/previously served for which similar services have been provided. At least two (2) of the references must be from a municipality. Please include:

- ✓ Client organization's name.
- ✓ Client organization's address.
- ✓ Contact individual, title, project role, phone number and email address.
- ✓ Project start and end dates.
- ✓ Brief description of services provided.
- ✓ Links/and or electronic files of any publicly-available deliverables or reports.

### **10. TERMS OF CONTRACT**

Selected vendor will be required to execute an operating agreement. The City intends to award a five-year contract, with the option to extend for additional five-year terms or longer as mutually agreed.

### **11. PROPRIETARY INFORMATION**

The New York State Freedom of Information Law, Public Officers Law, Article 6, provides for public access to information. Public Officers Law, Section 87(d)(2) provides for exceptions to disclosure for records or portions thereof that are "trade secrets or are submitted to an agency

by a commercial enterprise or derived from information obtained from a commercial enterprise and which if disclosed would cause substantial injury to the competitive position of the subject enterprise." Information that the proposer wishes to have treated as proprietary and confidential trade information should be identified and labeled "Confidential" or "Proprietary" on each page at the time of submittal. This information should include a written request to except it from disclosure, including a written statement of the reasons why the information should be excepted.

## **12. CANCELLATION CLAUSES**

Any violation of the terms, conditions, requirements and/or non-performance of the agreement resulting from this RFP shall result in immediate cancellation. The agreement may be cancelled by the City for any other reason(s) upon sixty (60) days written notice.

## **13. LIABILITY REQUIREMENTS**

The successful bidder shall supply and maintain insurance which defends, indemnifies and holds harmless the City of New Rochelle, its officers, employees and agents from and against any and all liability, damage claims, demands, costs, judgments, fees, attorney's fees or loss arising directly out of acts or omissions hereunder by the contractor or third party under the direction or control of the contractor. The successful bidder must furnish the City with Certificate of Insurance and Endorsement prior to commencement of work. The required coverage shall not be less than the following:

<b>Workers Compensation</b>	<b>Statutory Requirements</b>
<b>NY State Disability</b>	<b>Statutory Requirements</b>
<b>General Liability</b>	<b>\$2,000,000</b>
<b>Automobile Liability</b>	<b>\$1,000,000</b>
<b>"Contractual Liability"</b>	<b>Must be printed on</b>
<b>Certificate Errors and Omissions</b>	<b>\$1,000,000</b>

INSURANCE CERTIFICATES SHALL NAME THE CITY OF NEW ROCHELLE AS ADDITIONAL INSURED PARTY AND SHALL STATE THAT ALL COVERAGE SHALL BE PRIMARY TO ANY OTHER INSURANCE COVERAGE HELD BY THE CITY.

## **14. GENERAL**

### **New York Law and Venue**

The contract/agreement resulting from this RFP shall be construed under the laws of the State of New York. All claims, actions, proceedings, and lawsuits brought in connection with, arising out of, related to, or seeking enforcement of this contract/agreement shall be brought in the Supreme Court of the State of New York, Westchester County.

In addition, all City contractors not incorporated in the State of New York shall produce a Certificate to Do Business in the State of New York from the New York Secretary of State prior to executing their contract with the City.

### **Iran Divestment Act**

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of section 165-a of the state finance law.

## **Required Form**

Proposal response must include a completed City of New Rochelle Vendor Responsibility Form provided.

## **15. PROPOSAL FORMAT**

**Please include the following qualification and requirement information with your bid response.**

Proposals should be placed in a sealed envelope with the RFP Spec No.5335 and the name of the firm clearly labeled on the envelope. Sealed bids should be delivered to the Purchasing Department.

Please provide **two (2) hard copies and one digital version** of your proposal to the Purchasing Department

The proposal should address each item as listed in each section and numbered/labeled identical to this RFP.

**EXHIBIT A: REQUEST FOR PROPOSAL SPECIFICATION #5335**

All terms, conditions and requirements as set forth in this Request for Proposal are acceptable as specified therein. Yes \_\_\_\_\_ No \_\_\_\_\_

If "NO", please provide a detailed description and/or explanation of any deviation in your proposal from the specification detailed in the Request for Proposal with your proposal response.

By submission of this proposal, each contractor, and each person signing on behalf of any contractor, and in the case of a joint RFP, each party thereto as to its own organization, under penalty of perjury, certifies that to the best of its knowledge and belief:

A. the prices in this proposal have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other contractor or any competitor; and

B. unless otherwise required by law, the prices which have been quoted in this proposal have not been knowingly disclosed by the contractor prior to the opening, directly or indirectly, to any other contractor or to any competitor; and

C. no attempt has been made or will be made by the contractor to induce any other person, partnership or corporation to submit or not to submit a RFP for the purpose of restricting competition.

The bidder certifies that this proposal is made without any connection with any other person making a proposal for the same purpose, and is in all respects fair and without collusion or fraud, and that no elected official or other officer or employee or person whose salary is payable in whole or in part from the City of New Rochelle treasury is directly or indirectly interested therein, or in any portion of the profits thereof.

**As an authorized representative of the identified company, I accept all the terms and conditions identified in Request for Proposal Spec. #5335 except as identified.**

**Company Name and Address** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
**Signature**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Name and Title**

\_\_\_\_\_  
**Phone Number**

\_\_\_\_\_  
**Email Address**

\_\_\_\_\_  
**Fax Number**



## **REQUEST FOR PROPOSALS**

Curbside EV Charging Pilot

(PN: 15001021)

(Bid #: P19151131015)

**Proposals Due**  
**January 18, 2019 by 4:00PM**

**Pre-Proposal Meeting**  
**(Attendance is highly recommended but not mandatory)**

**December 17, 2019 at 9:30 AM**

'New' City Hall  
915 I Street, 2<sup>nd</sup> Floor  
Conference Room 2105  
Sacramento, CA 95814

Issue Date: December 7, 2018

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Appendix A: Guidance for EV Chargers in the Right-of-Way

Appendix B: Sponsorship Sign Exemption & Digital Sign Guidelines for EV Chargers in the Right-of-Way

Appendix C: Map of Streets in the Central City with Potential for Curbside Charging

Appendix D: Parking Permit Fees for Operators of Curbside EV Chargers

# REQUEST FOR PROPOSALS

## INTRODUCTION

This Request for Proposals (RFP) solicits Vendors to participate in the City's Curbside Electric Vehicle (EV) Charging Pilot Program. The City requests proposals from vendors that would construct, operate, and maintain EV charging infrastructure (EV supply equipment, or "chargers") in the right-of-way (i.e., to provide EV charging in on-street parking spaces) through the pilot, at no direct cost to the City. The City will consider reserved electric vehicle charging spaces for public use, primarily in commercial or mixed-use locations.

The objective of this pilot is to identify how the City can effectively accelerate EV adoption by providing access to third-party owner/operators of EV chargers in the right-of-way. This pilot will inform next steps for deployment of future EV chargers in the right-of-way, or curbside. Specifically, the City seeks to:

- Test multiple EV charging technologies and business models
- Target new EV users in a broader market by facilitating curbside EV charging
- Determine feasible options that minimize City investment and liability
- Identify approaches that best suit specific locations while minimizing any negative impacts to other assets in the right-of-way, adjacent land use, or to drivers, cyclists, or pedestrians
- Gather data and performance metrics on curbside charging to identify viable solutions

Although this is a no-cost contract to the City, the City is using this RFP to select competitive proposals for the pilot. At a minimum, a proposing Vendor or Vendor Team should have experience constructing and operating EV chargers for public charging use. In addition, vendor experience with public-private partnerships and operating chargers in the right-of-way is highly preferable.

Contract term will vary depending on proposed charging technology in successful proposals. The City will enter into three-year agreements for curbside Level 2 charging infrastructure, or up to five-year agreements for DC fast charging of 50-kilowatt capacity or more. Selected vendors will be responsible for ownership and operation of the infrastructure for the duration of the agreement term.

Written questions should be submitted via the PlanetBids website where the RFP has been posted under the "Q&A" tab. Questions will be answered as they are received. The deadline to submit questions is December 19, 2018 at 4:00 pm PST. Questions submitted after that time will not be addressed.

Qualified consulting firms are invited to submit proposals to provide professional services for the project. Firms responding to this RFP shall submit:

- One (1) electronic PDF copy of the Proposal (uploaded to PlanetBids).

**The deadline to submit the Proposal is Friday, January 18, 2019 at 4:00 PM PST**

- **Proposal must be posted to PlanetBids by 4:00 PM PST on January 18, 2019:**

<https://www.planetbids.com/portal/portal.cfm?CompanyID=15300>

In the event it becomes necessary to revise any part of this RFP or provide additional information, a written electronic addendum will be issued. Any amendment to this RFP is valid only if in writing and issued by the City of Sacramento, Department of Public Works. Verbal conversations or agreements with any officer, agent, or employee of the City that modify any terms or obligations of this RFP are invalid.

All addenda for this RFP will be distributed via the PlanetBids website:

<http://www.planetbids.com/portal/portal.cfm?CompanyID=15300#>

It is solely the proposer's responsibility to monitor this website for possible addenda to this RFP. Failure of proposer to retrieve addenda from the site shall not relieve him/her of the requirements contained therein. Additionally, failure of proposer to return a signed addendum, when required, may be cause for rejection of his/her proposal.

Please refer to "Attachment B - Proposal Submittal Requirements" for additional information regarding proposal requirements. Refer to "Attachment C - RFP Information" for specific details about the Consultant selection process and other City of Sacramento submission process requirements.

Related Documents--For more detailed background and information on the project, please refer to the following documents which are posted on PlanetBids along with this RFP:

- Appendix A: Guidance for EV Chargers in the Right-of-Way
- Appendix B: Sponsorship Sign Exemption & Digital Sign Guidelines for EV Chargers in the Right-of-Way
- Appendix C: Map of Streets in the Central City with Potential for Curbside Charging
- Appendix D: Parking Permit Fees for Operators of Curbside EV Chargers

## TENTATIVE CONSULTANT SELECTION SCHEDULE

Release RFP	December 7, 2018
Pre-Proposal Meeting	December 17, 2018
Last Day to Submit Questions	December 19, 2018
Response to Questions Posted	December 20, 2018
Proposal Due Date	January 18, 2019
Interviews	Week of January 28, 2019 (tentative)
Notification of Results	February 1, 2019
Contract Execution	By March 29, 2019 (tentative)

## BACKGROUND

The City is releasing this RFP based on the City's early efforts to test and develop a curbside EV charging program. Throughout 2018, the City of Sacramento explored curbside EV charging with a range of stakeholders. This background work has led to the approach and solicitation in this RFP.

In June 2017, the Sacramento City Council approved an agreement with [EVgo](#) to construct and operate the first curbside EV charging project in Sacramento. Under Sacramento's [Demonstration Partnerships Policy](#), EVgo is currently in the process of installing up to six high power, 150-kilowatt (kW) charging stations in angled on-street parking spaces at Southside Park. Completion of this project is anticipated by December 2018. The intent of this project is to test, evaluate, and demonstrate the feasibility of curbside EV charging, with the early intent of developing a city-wide permit process to accommodate additional curbside EV charging projects. The project serves as an early pilot for curbside charging siting and permit processes.

In December 2017, the Sacramento City Council adopted Sacramento's first [Electric Vehicle Strategy](#). As the City's first strategic EV plan, this document calls for the widespread EV adoption and seeks to establish Sacramento as a testbed for clean transportation technologies. Key performance targets for the strategy include attainment of 75,000 ZEVs and 3,800 public or workplace Level 2 and Direct Current Fast Chargers (DCFC) within city limits by 2025. Action 1.4 of the EV Strategy calls for the creation of guidance for permitting EV infrastructure in the public right-of-way.

In June 2018, the City released draft [policy guidance](#) for the Curbside Charging Pilot, outlining a proposed permitting process for operators seeking to construct and operate EV infrastructure in the right-of-way. City staff discussed the proposal and received input from a range of stakeholders including other public agencies, private EV charging companies, and local community stakeholders. Key criteria from this draft guidance document provides as the minimum standards that the City will require of proposers on this RFP (refer to **Appendix A**).

City staff convened a multi-city workshop with other West Coast cities implementing or exploring curbside EV charging. This meeting was convened in July 2018 and brought together leading cities in the EV space to share experiences and evaluate opportunities. Many of the cities implementing larger curbside EV programs are those that directly own the infrastructure, whereas programs that allow private curbside EV installations generally operate at a much smaller scale.

In 2018, the City also took steps to allow sponsorship signage on EV chargers in the right-of-way. On July 3, 2018, City Council adopted Ordinance No. 2018-0026 that exempted such signs from the City sign code, subject to restrictions such as size and number. City Council also adopted additional design guidelines (Resolution 2018-0449) that would apply to any digital sponsorship signage for EV chargers in the right-of-way.

Several emerging considerations have led the City to redirect its approach for curbside EV charging to support a more targeted approach to the right-of-way. Some considerations include the following:

- Competing demand between new mobility services and existing vehicle demand
- Limited space for supportive equipment in the right-of-way and potential conflicts between existing trees, utilities, and sidewalk space
- Challenges in accommodating van accessible widths and ramps
- Time required for evaluating and vetting opportunities site by site

#### PROJECT GOALS AND OBJECTIVES

The goal of this RFP is to select one or more vendors for the City's Curbside Pilot that will construct and operate up to 15 curbside EV supply equipment (EVSE) units in the right-of-way and potentially provide a path for rapid program expansion, based on project performance. This is a no-cost RFP, for the City to select competitive vendors that can successfully operate EV chargers without public investment. The City is seeking construction of no more than 15 curbside chargers in total for the pilot period. This pilot is intended to serve as a basis for expansion of the City's EV charging programs, based on successes and lessons learned.

As a result of this RFP, the City intends to enter into at least one agreement for curbside charger deployments. Depending on responses, the City may elect to enter into up to three contracts for multiple vendors to cumulatively provide a total of 15 curbside chargers (15 in total amongst all vendors). The City may determine more than one contract is appropriate, if it allows for greater testing of a range of charging technologies.

Pilot objectives:

- (Phase 1) Successful permitting, construction, and operation of 15 curbside chargers through a rapid deployment, at no direct cost to the City
- Evaluation of Phase 1 performance and development of an approach for an expanded Phase 2. Information on usage will need to be provided to the City to help evaluate the pilot technologies and locations
- (Phase 2) Implementation of expanded programs, dependent on achievement of City objectives and successful deployment in Phase 1

Proposals should provide recommended approaches to achieve the City's objectives for both Phase 1 and Phase 2.

## BUDGET

This RFP solicits services at no cost to the City. Proposals should include an estimated project budget to allow the City to evaluate the cost-effectiveness and long-term financial viability of proposed services. Proposals shall identify anticipated budget for Phase 1 and Phase 2.

Projects with self-sustaining business models are highly preferred for this pilot. However, notwithstanding the foregoing, depending on pilot project performance, the City may elect to pursue grant funding to support Phase 2 expansions, at the City's discretion. Proposals should identify any anticipated funding needs for Phase 2. Proposers are strongly encouraged to present sustainable business models that do not require public funding support.

## SCHEDULE

The anticipated project schedule follows. The City strongly encourages proposals that present a project schedule that is fast but feasible, with quick ramp-up for Phase 1. Vendors should demonstrate capacity and ability to meet the desired schedule outlined below. The following schedule presents the City's preferred timeline for the project:

- February 2019: execute agreements, confirm initial project sites
- March – April 2019: community engagement and stakeholder outreach, confirmation of preferred project sites for Phase 1
- April – May 2019: pre-application vetting with key City divisions and departments, application submission
- June – July 2019: Application review and revisions
- August 2019: Issuance of construction notice to proceed, project construction
- August – December 2019: Project operation
- By January 2020: Determination of next steps for Phase 2

## SCOPE OF SERVICES

The Vendor shall be responsible for project management activities through completion of this project. Proposals should be phased and provide scopes that can be easily scaled. The following tasks should be itemized and incorporated into the proposal response.

1. Phase 1: construct and operate up to 15 curbside chargers
  - 1.1. Preliminary site identification
  - 1.2. Community and stakeholder engagement
  - 1.3. Pre-application vetting with City staff
  - 1.4. Community noticing
  - 1.5. Permitting
  - 1.6. Construction
  - 1.7. Evaluation and reporting

2. Phase 2: expanded program roll-out (optional task for the City)
  - 2.1 Identify approach, schedule, and proposed phasing for future installations
  - 2.2 Preliminary site identification
  - 2.3 Engagement and pre-application vetting
  - 2.4 Application and construction

## PROPOSAL SUBMITTAL REQUIREMENTS

These guidelines were developed to standardize the preparation of proposals by Consultants. The purpose of these guidelines is to help assure consistency in format and content of proposals that are prepared by Consultants and submitted to the City. This process will reduce the time required for the Consultant to prepare a proposal and will simplify the review process by City staff.

Proposals must be received by the City of Sacramento no later than 4:00 pm PST on January 18, 2019. Late proposals will not be accepted. All proposals and documents submitted become the property of the City of Sacramento. Proposals shall contain the following information:

- 1) Cover Letter
- 2) Table of contents
- 3) Project Understanding
- 4) Qualifications and Experience of Project Manager and Team
- 5) Work Plan
- 6) Project Examples & References
- 7) Itemized Planning Budget
- 8) Statement of Project Commitment
- 9) Litigation
- 10) Conflict of Interest Statement
- 11) Insurance Coverage

## RECOMMENDED DETAIL

All references to the maximum number of pages are to a single side, not including tabs or section dividers. The minimum font size for the body text shall be 12 point. The required page limit does not apply to items 8 through 12 above. Proposals should be no more than twenty (20) pages. Brevity is encouraged. The following items do not count towards the 20-page limit:

- Cover letter
- Cover page/proposal cover
- Table of contents
- The proposal signature page
- Itemized budget
- Resumes (2-page maximum per resume)
- All attachments required by this RFP
- Insurance Coverage

1. Cover Letter (Maximum 2-page limit)

This letter should be addressed to:

City of Sacramento  
Department of Public Works  
Jennifer Venema, Project Manager  
915 I Street, Room 2000  
Sacramento, CA 95814

Indicate the name of the firm submitting the proposal, its mailing address, telephone number, and the name of an individual to contact if further information is desired. In addition, any project partners should be clearly identified. This letter should reflect the consultant's project understanding and summarize critical issues, challenges, milestone tasks and appropriate resourcing. This should be based on existing information available in the Request for Proposals, available documents, and from applicable regulations or requirements. The letter should include a statement of the office location(s) at which work will primarily be performed. This letter should also contain an expression of the Consultant's interest in the work, a brief summary statement regarding the qualifications of the Consultant to do the work, and a brief summary of any information about the project team or the Consultant that may be useful or informative to the City.

NOTE: Along with the introductory letter, the Consultant should indicate his/her acceptability of the terms and conditions in Appendix A "Guidance for EV Chargers in the Right-of-Way." Any proposed deviations and modifications to the agreement should be noted, with reasons given, in the introductory letter for review by the City. **The City will not consider changes to the agreement terms in Appendix A once the selection process has been completed.**

2. Table of Contents

Identify all primary sections and page numbers that correspond to the required sections of this RFP.

3. Project Understanding

Provide a summary of the project issues. Include a short discussion of the intended approach which demonstrates that the proposer understands the issues and the team's ability to address them. Identify key elements of the project and what special approach your firm will use to develop these elements. Also, identify any information or assistance required from City staff to accomplish each step in the process.

4. Qualifications and Experience of Project Manager and Team

**An organization chart for proposed team, including any subcontractors, must be included.**

Describe how the Consultant team will be organized. Discuss the qualifications and experience of the Consultant firm, project manager, construction team, and project team on similar projects. Specific experience with City projects and public-private partnerships, in addition to experience with EV charger installations. Include all sub-consultants, individuals in those firms, and their qualifications and experience related to the specific services they are to provide. Resumes should be included as an attachment for all key staff, with a 2-page limit per resume. Resumes do not count towards the 20-page limit. NOTE: If there are any changes in key personnel after the award of a project, any changes shall require approval in writing from the City.

5. Work Plan

Identify key personnel that will be made available to this project and define their level of project involvement and time commitment. Describe the responsibilities of key team members and explain how they will interact with respect to delivery of critical tasks. The proposal should contain a brief listing of current work commitments to other projects or activities in sufficient detail to indicate that the organization and all of the individuals assigned to the proposed project will be able to meet the schedule outlined in the proposal. The work plan will ultimately become part of the contract by reference to the proposal. It should describe and define in a specific, concise and straightforward manner the proposed approach to achieving the objectives and accomplishing the tasks described in this Request for Proposal. It should be concise, yet include sufficient detail to completely describe the planned approach. Description of how the objectives will be achieved shall be presented in a logical, innovative and rational plan. THE PLAN SHOULD DESCRIBE TASKS TO BE UNDERAKEN FOR PHASE 1, WITH RECOMMENDED APPROACH TO SCOPE AND IMPLEMENT PHASE 2, INCLUDING THE ROLE FOR EACH CLASS OF PERSONNEL/AND FOR EACH SUBCONSULTANT.

In addition, the Work Plan should include the following:

1. Technical & Site Proposal: Summary of the proposed technology, general proposed site design, and curbside configuration that would be used for all installations, based on the guidance established in **Appendix A**. This may include graphic examples, concept-level site plan example, and/or narrative summary. This should also include details on proposed EV charging technology, including but not limited to the number, technology type, customer interface, proposed configuration (such as orientation to the street), and phasing. In addition, the proposal should include measures to minimize negative impacts and reduce conflicts with other assets in the right-of-way such as vehicles, cyclists, and pedestrians.

2. Performance Metrics, and Outreach & Monitoring Plan: Provide an outreach and monitoring plan, including methods to engage the community for input and proposed metrics to track and evaluate project success, such as the number of charging sessions, indicators of service to new EV drivers and low-income or underserved communities, etc. This section should identify performance metrics, evaluation techniques, reportable data types, customer surveys, and provide a sample of an online data dashboard or other data report. This section should include a proposed approach for sharing data and performance with the City. The outreach discussion should describe tactics and approach to engage a spectrum of local residents, businesses, and community members for input on the project and feedback on proposed sites.
3. Sponsorship Signage (If Applicable): Proposals that include sponsorship signage as part of the business model must be consistent with the sign code exemption adopted by City Council (City Code Section 15.148.600.G) and the adopted design guidelines for digital EV sponsorship signs (**Appendix B**). If the proposal includes digital signage, respondents should review the design guidelines in **Appendix B** and confirm project consistency or identify any questions or feedback related to the guidelines.
4. Proposed Service Map: Concept-level map identifying initial proposed locations, or priority areas, for proposed curbside installations, based on the City's map of potential areas identified in **Appendix C**. Sites should focus on commercial and mixed-use corridors. This map should be accompanied by a brief summary of methods and/or key criteria that informed site selection, such as adjacent uses, land use densities, or considerations based on the proposed service model. Note that once vendor(s) are selected, the City anticipates evaluating sites in greater detail and confirming sites in collaboration with the vendor and based on community input, prior to project permitting. Areas identified in the map in **Appendix C** have not yet been fully evaluated, but were screened based on available data such as suitable parking regulations, existing or planned bicycle improvements, and land use zoning. Potential sites may be suitable for curbside charging, pending additional site-specific analysis.
5. Permit Fee Acknowledgement: Acknowledgement of the City's adopted parking permit fees, which establish annual parking fees for any operator of curbside EVSE as established in **Appendix D**.

6. Project Examples & References

Provide brief project summaries of up to 3 examples of previous projects of similar scale and scope, including any relevant partnerships with public agencies (if applicable), limited

to no more than 1 page per project. Include key contacts name(s) and phone numbers/addresses of references.

A minimum of three (3) references are required for each of the following: prime Consultant, any sub-Consultants, and Project Manager. Each will be contacted by City staff. References with incorrect contact information will not count toward the required minimum. References should know the key personal included in the project organization chart.

8. Itemized Planning Budget

In a separate electronic file, provide an itemized planning-level budget, including a breakdown of anticipated costs for the project. The intent of this budget is to allow for City evaluation of cost-benefit of the various types of curbside charging technologies and site configurations. The budget shall be used for evaluation purposes, but is understood to be an anticipated, conceptual budget prior to confirmation of site-specific considerations and cost factors.

9. Statement of Project Commitment

Include a statement that the firm (s) has sufficient staff resources and capability to perform the work contained with the Request for Proposal within the specified time frame.

10. Litigation

List any lawsuit or litigation and its outcome resulting from any public agency project undertaken by your firm within the last five (5) years or any project where a claim or settlement was paid by your firm or its insurers within the last five (5) years.

11. Conflict of Interest Statement

The prospective Consultant shall disclose any financial, business or other relationship with the City that may have an impact upon the outcome of this contract. The prospective Consultant shall also list current clients who may have a financial interest in the outcome of this contract or City construction projects that may follow. In particular, the prospective Consultant shall disclose any financial interest or relationship with any construction company that might submit a bid on a related City construction project.

- a. Under the California Political Reform Act, Government Code §§ 81000 et seq., designated employees of the City are required to comply with the City's Conflict of Interest Code. The term "designated employees" is a term of art and includes individuals working for contractors providing services or performing work for the City, if such individuals are considered to be "consultants" under the Political Reform Act. The term "consultant" generally includes individuals who make, or participate in making, governmental decisions or who serve in a staff capacity. Individuals who

perform work that is solely clerical, ministerial, manual or secretarial are not “consultants.”

The City’s Conflict of Interest Code requires individuals who qualify as “consultants” to file the following statements of economic interests with the City:

- An “assuming office” statement of economic interests to be filed within 30 days after execution of the agreement between the City and the contractor;
- Annual statements of economic interests while the agreement remains in effect, to be filed not later than April 30 of each year; and
- A “leaving office” statement of economic interests to be filed within 30 days of completion of the contract.

The above statements of economic interests are public records subject to public disclosure under the California Public Records Act.

The City’s Conflict of Interest Code also requires individuals who qualify as “consultants” under the Political Reform Act to comply with the conflict of interest provisions of the Political Reform Act, which generally prohibit individuals from making or participating in the making of decisions that will have a material financial effect on their economic interests.

- b. Conflict of Interest Statements. The standard agreement attached to this RFP indicates whether or not the individual(s) who will provide services or perform work pursuant to the agreement will be considered “consultants” within the meaning of the Political Reform Act and the City’s Conflict of Interest Code. The submission of a proposal in response to this RFP constitutes the proposer’s acknowledgement and agreement that, if the proposer is awarded the agreement by City, the individuals who will provide services or perform work pursuant to the agreement will not have a conflict of interest under the City’s Conflict of Interest Code.

In addition, if the proposer is awarded the agreement by City, such proposer shall cause the following to occur within 30 days after execution of the agreement:

- The proposer shall identify the individuals who will provide services or perform work under the agreement as “consultants” within the meaning of the Political Reform Act and the City’s Conflict of Interest Code;
- The proposer shall cause these individuals to file with the City Representative identified in the agreement the “assuming office” statements of economic interests required by the City’s Conflict of Interest Code.
- Thereafter, throughout the term of the agreement, the proposer shall cause these individuals to file with the City Representative annual statements of

economic interests, and “leaving office” statements of economic interests, as required by the City’s Conflict of Interest Code. The City may withhold all or a portion of any payment due under the agreement until all required statements are filed.

12. Insurance Coverage

The prospective Consultant shall provide a summary of the firm's insurance coverage for Comprehensive General Liability Insurance, Automotive Liability Insurance, Professional Liability Insurance, and Worker's Compensation Insurance.

For additional information regarding insurance requirements, see “General Information” section 6 of this RFP.

13. Local Business Enterprise (LBE)

Firms should submit all applicable forms shown in Attachment 2. There is a 5% LBE preference for this RFP.

## GENERAL INFORMATION

1. Selection Process

The selection process is described below.

- A. After the period has closed for receipt of Request for Proposals (RFP), each will be examined to determine compliance with the format requirements specified in the RFP. Any proposal that does not meet the format requirements may be eliminated from competition and returned to the Consultant. The City may reject any proposal if it is conditional, incomplete, or contains irregularities.
- B. A Selection Panel (SP) will review each proposal that meets the format requirements. SP members will individually evaluate and score each in accordance with the scoring system shown in Attachment 1.
- C. Following independent evaluation of the proposal, the top candidates **may** be requested to participate in an interview, which will be scored in accordance with part 2 of the evaluation criteria, contained in Attachment 1. However, **the City reserves the right to determine the qualifications of the firm on the basis of the written proposal only.**
- D. All competitors will be notified of the results via email.

2. Late Submittal

A proposal is late if received at any time after the required submittal date and time. A proposal received after the specified time will not be considered and will be returned to the proposer.

3. Modification or Withdrawal of Submittal  
Any proposal received prior to the date and time specified above for receipt of proposal may be withdrawn or modified by written request of the Consultant. To be considered, however, the modified proposal must be received by the required time and date specified.

4. Written Questions  
Written questions should be submitted via the PlanetBids website where the RFP has been posted under the "Q&A" tab. Questions will be answered as they are received.

**The deadline to submit questions is Wednesday December 19, 2018 at 4:00PM PST. Questions submitted after that time will not be addressed.**

5. Signature  
The proposal shall be transmitted with a cover letter that must be signed by an official authorized to bind the prospective Consultant contractually.

The signed cover letter constitutes certification by the prospective firm, under penalty of perjury, of the debarment and suspension certificate required under Part 29, Title 49, CFR, and also constitutes certification under penalty of perjury, that the prospective Consultant complies with non-discrimination requirements of the State and the Federal Government.

An unsigned proposal or one signed by an individual not authorized to bind the prospective firm will be rejected.

6. Insurance  
The firm shall provide a summary of the firm's present and proposed insurance coverage (comprehensive general liability, professional errors and omissions (if required), automotive liability, and workers' compensation) for this project. Minimum limits of coverage are as follows:

- Statutory Worker's Compensation Insurance, and Employer's Liability limits of \$1,000,000 per accident per employee (the Workers' compensation policy shall include a waiver of subrogation in favor the City); and
- Commercial General Liability Insurance, written on an occurrence basis, covering bodily injury (including death), personal injury, and property damage, with limits of not less than \$2,000,000 per occurrence, \$4,000,000 aggregate; and
- Automobile Liability with a combined single limit of \$1,000,000.
- Removal Bond: Prior to permitting of construction for any EV charging site developed pursuant to this RFP, the vendor provider shall hold a third-party removal bond with a penal sum of bond no less than \$30,000 for each site for the duration . The City of Sacramento shall be the designated payee. In the event the vendor fails to meet the obligations for site surrender at the conclusion of the

agreement or otherwise violates the terms of agreement, the City will use the Removal Bond to pay for decommissioning of the site.

Prior to commencement of the work described in Scope of Services, a certificate of insurance shall be furnished stating the following:

1. That the insurer will not cancel the insured's coverage without 30 days prior written notice to the City.
2. That the City will not be responsible for any premiums or assessments on the policy.

The firm agrees that the bodily injury liability insurance herein provided for shall be in effect at all times during the term of this contract. In the event said insurance coverage expires at any time or times during the term of this contract, the firm agrees to provide, at least thirty (30) calendar days prior to said expiration date, a new certificate of insurance evidencing insurance coverage as provided for herein for not less than the remainder of the term of the contract, or for a period of not less than one (1) year. New certificates of insurance are subject to approval by the City. In the event the firm fails to keep in effect at all times insurance coverage as herein provided, the City may in addition to any other remedies it may have, terminate this contract upon occurrence of such event.

7. Property Rights

A proposal received within the prescribed deadline becomes the property of the City and all rights to the contents therein become those of the City.

8. Confidentiality

Prior to award of the contract, all proposals will be designated confidential to the extent permitted by the California Public Records Act. After award of the contract, or if not awarded, after rejection of all proposals, all responses will be regarded as public records and will be subject to review by the public. Any language purporting to render all or portions of the proposal confidential will be regarded as non-effective and will be disregarded.

9. Amendments to Request for Proposals

The City reserves the right to amend the RFP by addendum prior to the final proposal submittal date. The City also reserves the right to extend the due date, or to cancel this RFP at any time.

10. Non-Commitment of City

This RFP does not commit the City to award a contract, to pay any costs incurred in the preparation of a proposal for this request, or to procure or contract for services. The City reserves the right to accept or reject any or all proposals received as a result of this request, to negotiate with any qualified firm or to modify or cancel in part or in its entirety the RFP if it is in the best interests of the City to do so.

11. Award of Contract

It is anticipated that there shall be no compensation under any contract resulting from this Request for Proposals (RFP).

Any contract awarded as a result of this RFP will be awarded without discrimination based on race, color, religion, age sex, or national origin.

The prospective Consultant will be required to adhere to the provisions of a fully executed agreement. Provisions of the agreement shall be based on the terms and conditions for curbside charging established in **Appendix A** and other relevant attachments of this RFP . **Please include a statement in your cover letter that you agree to the terms and conditions set forth in this RFP and identify any concerns or proposed deviations.**

12. Execution of Contract

The prospective firm is advised that should this RFP result in recommendation for award of a contract, the contract will not be in force until it is approved and fully executed by the City.

13. Public Domain

All products used or developed in the execution of any contract resulting from this RFP will remain in the public domain at the completion of the contract.

14. Coordination

Coordination of Vendor and City activities will be accomplished through a Firm Project Manager and the City Project Manager. The Firm Project Manager shall not be removed from the project during the course of work without City approval.

The firm shall carry out instructions as received from the City Project Manager and shall cooperate with the City and any other contractors working on the project.

It is not the intent of the foregoing paragraph to relieve the firm of its professional responsibility during the performance of this contract. In those instances where the firm believes a better plan, methodology or solution to the problem is possible, it shall promptly notify the City Project Manager of these concerns, together with the reasons therefore.

15. Materials Provided by the City

All existing City codes, standards and other city documents related to the project will be available at the firm's request.

16. City Reserves the Right

The City reserves the right to modify this RFP at any time prior to the proposal due date, or to extend the proposal due date, or to cancel this RFP at any time.

17. Rejection of Proposals:

The City of Sacramento reserves the right to reject any and all proposals received in response to this request, or to negotiate separately with any source whatsoever in any manner necessary to serve the best interests of the City. The City of Sacramento may at its discretion determine not to award a contract solely on the basis of this request for proposals and will not pay for the information solicited or obtained.

It is recognized that each Proposer may have developed unique and typical methods of service delivery. It is not the City's intention to disqualify a Proposer due to variations in service delivery that do not adversely affect quality and performance. Any proposal offering services equivalent to or of better quality and performance than that requested, which provides the necessary service, will receive full consideration for award.

18. Business Operations Tax Certificate

Chapter 3.08 of the Sacramento City Code requires that anyone conducting business in the City of Sacramento obtain a Business Operations Tax Certificate and pay the applicable tax if necessary. The successful Proposer, and any subcontractors, will be required to show compliance with this requirement prior to award of the contract.

Information about the Business Operations Tax Certificate may be obtained the City of Sacramento, Revenue Division, 915 I Street, New City Hall First Floor, Sacramento, CA 95814, or by telephone at (916) 808-8500.

19. Other Information

Proposals may be withdrawn or modified before the due date of submission for proposals by delivering a written and signed request by the due date. A request for modification of the proposal after the due date will not be considered, including a representation that the proposer was not fully informed regarding any information pertinent to the proposal or the offer. The City shall not be responsible for or bound by any oral instructions, interpretations or information provided by the City or its employees other than the RFP contact.

Any agreement shall not be binding unless it is executed by authorized representatives of the City and the selected proposer. Proposing firms are solely responsible for any expenses incurred in preparing their proposals in response to this RFP.

Proposals should be prepared simply and economically, providing straightforward, concise delineation of the firm's capabilities to satisfy the requirements of this RFP. The emphasis should be on completeness and clarity of content. To expedite proposal evaluations, it is essential that specifications and instructions contained in the proposal instructions are followed as outlined.

Responses to this RFP become the exclusive property of the City. At such time as City staff recommends a Proposer to the City Council, all proposals received in response to

this RFP become a matter of public record and shall be regarded as public records and will be disclosed upon receipt of a request for public disclosure pursuant to the California Public Records Act; provided, however, that if any information or elements of the proposal is set apart and clearly marked as "Trade Secret" or "Proprietary" when it is provided to the City, the City will give notice to the Proposer of the request for disclosure to allow the Proposer to seek judicial protection from disclosure.

Failure by the Proposer to take timely steps to seek judicial protection from disclosure shall constitute a complete waiver by the Proposer of any rights regarding the information designated as "Trade Secret" or "Proprietary" and such information may be disclosed by the City pursuant to applicable procedures under the California Public Records Act. Under no circumstances will City have any obligations to seek judicial protection from disclosure for any proposals or other materials submitted in response to this RFP.

City has no liability for any disclosure, unless such disclosure is made in violation of a court order obtained by a Proposer or pertains to materials marked as "Trade Secret" or "Proprietary" for which the City failed to give the above notice.

Any/all respondents responding to this RFP do so entirely at their expense. There is no expressed or implied obligation by the City to reimburse any individual or firm for any costs incurred in preparing or submitting responses, for providing additional information when requested by the City or for participating in any selection demonstrations or interviews, including pre-contract negotiations and contract negotiations.

The City reserves the right to decide that one proposer is more responsive than the others and to select that proposal based on review of the proposal only.

The City reserves the right to reject individual firm members, firms, and subcontractors and request substitution without indicating any reason.

A proposal is late if received at any time after the required submittal date and time. A proposal received after the specified time will not be considered and will be returned to the proposer.

Unauthorized conditions, limitations, or provisions attached to a proposal may be cause for its rejection. No oral, telegraphic or telephonic proposals or modifications will be considered. The proposal may be withdrawn upon request by the Proposer without prejudice to the Proposer prior to, but not after the time fixed for opening of proposals, provided that the request for withdrawal is in writing, has been executed by the Proposer or the proposal's duly authorized representative, and has been filed with the City.

## ATTACHMENTS

**Attachment 1 - SAMPLE EVALUATION CRITERIA WORKSHEET**

<b>WRITTEN PROPOSAL</b>	<b>MAXIMUM POINTS</b>	<b>REVIEWER SCORE</b>
<b>Cover Letter</b> – Reflects project understanding and summarizes critical issues, challenges, milestone tasks, and appropriate resourcing.	<b>5</b>	
<b>Project Team</b> – Team organization, qualifications and experience of the firm, project manager and team, construction team, team, and sub-consultants on similar projects. Experience with City projects and public-private partnerships, and EV infrastructure.	<b>20</b>	
<b>Outreach, Reporting &amp; Performance Metrics</b> - Outreach and monitoring plan, methods for community engagement, clearly defined performance metrics, methods to evaluate and report utilization and performance metrics.	<b>5</b>	
<b>Workplan</b> – Assignment, understanding, and organization of tasks, understanding of interrelationship of critical tasks, approach, range of EV technologies, proposed EV site configuration and design, consistency with City guidance, proposed deliverables/milestones; measures to minimize any negative impacts to other assets in the right-of-way, including vehicles, pedestrians, and cyclists.	<b>15</b>	
<b>Priority criteria</b> - Project integrates one or more of the following key criteria: provides a financial incentive for EV charging to residents from low-income households or regulated affordable housing, such as a membership discount, incentive, or subsidy; includes a proposal to construct off-street EVSE at areas underserved by existing EVSE in addition to curbside charging units; constructs EVSE with connected charging infrastructure for electric-assist bike charging; participation in the City’s Local Business Enterprise Program or employs local area residents; integrates a partnership with a qualified EV car share operator or supports public transit or electric shuttle routes.	<b>5</b>	
<b>Schedule</b> – Adequacy and reasonableness of schedule and deadlines, in addition to responsiveness to the preferred project schedules presented in this RFP.	<b>5</b>	
<b>Budget</b> – Cost-effectiveness of the budget relative to proposed performance metrics	<b>5</b>	
<b>SUBTOTAL FOR SHORTLISTING</b>	<b>60</b>	
<b>References</b>	<b>10</b>	
<b>SUBTOTAL TO INTERVIEWS</b>	<b>70</b>	
<b>INTERVIEW (if requested by City)</b>		
<b>Presentation by PM</b> - Project understanding, critical issues, innovation, and solutions.	<b>10</b>	
<b>Presentation by team</b> – Experience, roles and responsibilities, communication and coordination between team members, agencies, and City.	<b>10</b>	
<b>Q&amp;A</b> – Response to panel’s questions.	<b>10</b>	
<b>SUBTOTAL WITH INTERVIEWS</b>	<b>30</b>	
<b>TOTAL</b>	<b>100</b>	
<b>RANKING OF CONSULTANT FIRM (assigned after completion of scoring)</b>		
<b>Name of Evaluator:</b>	<b>Date Evaluated:</b>	

# Appendix A

## Guidance for EV Chargers in the Right-of-Way

## Appendix A – Guidance for Chargers in the Right-of-Way

This document is based on draft guidance from the City’s Curbside EV Charging Pilot Program, released in June 2018. Criteria relevant to this RFP have been adapted from the June 2018 draft to inform responses to this RFP solicitation. Proposals are expected to meet the following minimum standards and criteria. Any proposed deviations to the standards established herein shall be clearly identified and justified in the proposal. These standards will be incorporated into any agreement award resulting from this RFP.

### Definitions and Abbreviations

*“Block face”* means one side of a city block between two intersections.

*“Direct Current Fast Charger”* means a device used to recharge an electric vehicle that meets the definition of "DC Level 3" as defined in Standard J1772 of SEA International or an equivalent power output level and which is listed under the applicable UL Standards and requirements or the equivalent listing by a nationally-recognized testing laboratory.

*“Encroachment”* means the use of city rights-of-way to perform excavations, construction related work, window cleaning; to access overhead or underground public or private utilities; to pressure wash sidewalks or driveways; to place or store construction equipment, materials, trailers, containers, dumpsters, or bins; or for any other similar or related purposes pursuant to City Code Chapter 12.12.

*“Electric vehicle”* means a vehicle that is recharged by electricity; can include battery-electric vehicles and plug-in hybrid vehicles

*“Electric vehicle charging space (EVCS)”* means a parking space located within the public right-of-way served by electric vehicle supply equipment

*“Electrical vehicle supply equipment (EVSE)”* means a unit of fueling infrastructure that supplies electric energy for the recharging of plug-in electric vehicles, including battery electric vehicles and plug-in hybrid electric vehicles. EVSE is also referred to in this guidance as an electric vehicle charger and electric vehicle infrastructure.

*“EVSE provider”* means the person, entity, or organization under agreement with the City and authorized to install and operate EVSE in the public right-of-way.

*“Level 2 Charger”* means a device used to recharge an electric vehicle that meets the definition of “AC Level 2” as defined in Standard J1772 of SAE International or an equivalent power output level and which is listed under the applicable UL Standards and requirements or the equivalent listing by a nationally-recognized testing laboratory.

*“License and Revocable Permit Agreement”* means the terms and conditions under which the City of Sacramento authorizes an approved party to operate electric vehicle supply equipment within the public right-of-way for the specified term of agreement.

*“Site”* means the proposed or approved location on a site block face for the installation of one or more contiguous EVCS to be operated by a single EVSE provider.

*“Real property”* means land and anything permanently affixed to the site by EVSE provider or EVSE provider’s agents, employees, invitees, contractors, or subcontractors, including but not limited to any real property alterations, improvements, or additions that are permanently affixed to the project area, such as sidewalk flatwork or road improvements.

*“Trade fixture”* means a piece of equipment on or attached to the site which is used in a trade or business and is removable from real property at the conclusion of operations.

## Appendix A – Guidance for Chargers in the Right-of-Way

### Abbreviations

BOT – Business Operation Tax  
DC – direct current  
DCFC – direct current fast charger  
EV – electric vehicle  
EVCS – EV charging space  
EVSE – EV supply equipment  
L2 – level 2 charger  
Public Works – Department of Public Works  
SMUD – Sacramento Municipal Utility District

### 1. Project initiation

Upon selection by the City and execution of a contract agreement, the proposer, or EVSE provider, shall hold a kickoff meeting with City staff to conduct initial evaluation of proposed sites. City staff will provide preliminary direction on feasible sites that are appropriate for further vetting with the community and stakeholders.

### 2. Community and stakeholder engagement

The EVSE provider shall notify property owners, and/or residents (collectively referred to as “stakeholders”) nearby the proposed site(s) for EVSE installation of their intent to propose curbside charging in the area. Stakeholders along the block face, across the street of the block face, and each of the corner properties near the proposed site must be notified through one or more communication channels, such as written mail, door knob hangers, and in-person conversations. The EVSE provider shall attend at least one meeting of the local neighborhood association, and at least one meeting of the local business district. The purpose of attending these meetings shall be to present the project concept and seek input on sites. Letters of support from business districts and neighborhood associations at or near the proposed site(s) of installation are beneficial, but not required. The EVSE provider shall be required to submit documentation of outreach to the City.

### 3. Pre-application review

**3.1 Initial City Review:** Following community outreach, the EVSE provider shall confirm the proposed project sites. Key City staff will review and evaluate the proposals, including but not limited to the Sustainability Manager, Parking Services, Development Engineering, Traffic Engineering, Urban Forestry, and the current Planning/Urban Design Manager, in addition to SMUD. The City team will consider factors such as parking supply, traffic flow, design considerations, historic designations, and planned or existing transportation improvement projects. The City will review and provide direction for changes to the proposed sites, or approval to proceed to provide project noticing. The City may elect to convene community meeting(s) to review the proposals with stakeholders at the City’s sole discretion. Participation by the EVSE provider in any such meeting shall be required, up to three meetings.

**3.2 4.2.4 Community Notice:** The City shall post a public notice for the public at conditionally approved project site(s) indicating the number and type of curbside charging units proposed and the parking spaces to be impacted. Notices shall be posted for a period of 10 consecutive

## Appendix A – Guidance for Chargers in the Right-of-Way

calendar days, and shall include contact information for the public to seek information, provide comments, or to protest the action. City staff will consider any comments or protests and refer the action to the Public Works Director or designee to make a final determination for the proposed project site.

### 4. Electric service and permits

Upon City approval of proposed sites, the EVSE provider may proceed to electric service and project permitting. To proceed, the EVSE provider must submit completed applications for each approved charging site within ninety (90) days. Projects will require electric service permits, or proof of electric service dedication. EVSE providers are responsible for providing and maintaining electric service to all permitted EVSE at their sole expense, including costs related to establish a new service account, obtain utility permits, and all demand and delivery charges for electric service. In addition, each proposed site shall require an encroachment permit application through a commercial plan check (CPC) process. Other permits may apply.

### 5. Fees

The EVSE provider shall be responsible for all permitting fees, which may include, but are not limited to, SMUD service fees, CPC encroachment permit fees, building permit fees (if electrical service is routed from private property), annual public-use EV charging parking permit fee, and annual business operations tax.

### 6. Data Sharing and Pilot Evaluation

The EVSE provider shall share anonymized, aggregate data specified by the City including EVSE performance, utilization and user demographics. Data-sharing is essential for the City to evaluate success of the pilot and develop future iterations of the Curbside EV Charging Program. The City may share this data with other public and/or non-profit entities for research purposes. Data provided to the City shall become public information, with very few exceptions.

### 7. Siting and Design

**7.1. General Siting Summary:** The City has identified opportunity areas where curbside EV charging may be appropriate in **Appendix C** of this RFP. These opportunity areas are based on available criteria such as appropriate on-street parking regulations and other relevant City data, such as planned road diets or bicycle network improvements as identified in the Central City Specific Plan or Bicycle Master Plan, or other special considerations where curbside chargers may be incompatible or infeasible uses. **Appendix C does not** identify preferred or approved spots for curbside charging. The map is intended for informational purposes, to show areas that may be suitable pending additional site-specific analysis.

**7.2. Parking Supply:** **Appendix C** accounts for all parking regulations where curbside charging may be considered, as identified in **Table 1** below. However, to ensure adequate parking turnover for EV drivers, only DCFC will be considered for parking spaces in 1+ zones or where certain restrictions exist. See **Table 1** below for site eligibility by level of charge. Generally, the City will not permit more than two EVSE per block face. On-street parking designations are periodically updated and may be viewed online using the weblink at the [Parking Service's webpage](#) or accessed via the City's [Open Data portal](#).

## Appendix A – Guidance for Chargers in the Right-of-Way

**Table 1. Site Eligibility**

Time Limit or Zone	Allowable EVSE	
	DCFC	Level 2
White Zone, Yellow Zone, Green Zone, Commercial Loading Zone, or Passenger Loading Zone	No	No
Parking spaces with daily, weekly, or monthly parking restrictions	No	No
30-minute parking or less	No	No
1+ zone	Yes	No
2+, 3+, 4+, 6-hour, and 10-hour	Yes	Yes

**7.3 Other Locational Considerations:** Block-level characteristics must be considered when siting curbside EVSE. Based on a range of criteria, the City encourages thoughtful selection of sites and may choose to prohibit and/or limit the number of EVCS for a proposed location. Sites will be evaluated and decided through collaborative process with successful proposers, upon selection for participation in the pilot. In general, all curbside charging should avoid the following:

- Damage to or removal of a City tree as defined in Section 12.56 of the Sacramento City Code, or where the site would be at risk for root intrusion
- Where other major transit or active transportation improvements exist or are planned, such as areas immediately adjacent to bus stops or light rail routes
- Within areas characterized by unique cultural or design characteristics, potential factors that may limit the compatibility of infrastructure may include, but are not limited to, designated historic districts, areas adjacent to individually-listed landmarks, such as historic sites listed on the Sacramento Register of Historic and Cultural Resources
- Areas where the installation would be the first of such features, potentially resulting in an adverse change to the design setting (e.g., topographic separation, landscape separation, fencing, or other site features that obscure views from historic resources)
- Where the existing parking supply is heavily impacted
- Where EVSE and/or associated signage violate the requirements established by the California Manual on Uniform Traffic Control Devices, including Section 2A.18, providing a minimum height of 7' above a pedestrian sidewalk or pathway, or as otherwise identified therein
- Where the site causes obstruction to visibility at traffic intersections, pursuant to City Code Section 12.28.010

## Appendix A – Guidance for Chargers in the Right-of-Way

### 7.4 EVSE Specifications, Payment, and Customer Support

**7.4.1 Specifications:** EVSE that provides a Level 2 charge must be compliant with SJ 1772 standards. DCFC or high-power charging is preferred and shall support both SAE Combined Charging System (CCS) and CHAdeMO charging standards. EVSE must also be listed by an approved product listing agency, rated for outdoor use, and installed in accordance with the manufacturer's specifications.

**7.4.2 Payment Methods:** Payment for the use of EVSE shall be convenient and strive to accommodate several transaction methods, including but not limited to universally accessible smartphone payment applications, contactless credit card payments, point-of-sale credit card terminals located on the EVSE unit; and/or toll-free phone payment services.

**7.4.3 Fee Structure:** To ensure parking turnover and availability of infrastructure for EV charging, EVSE shall also comply with at least one of the following requirements:

- Charging is provided as a paid service at a reasonable market rate; OR
- Active charging is free, provided that a reasonable idle fee is charged by minute or by hour for vehicles that remain parked after the battery is fully charged, or another similar method is using to ensure charging turnover

**7.4.4 Customer Support:** All EVSE in the right-of-way shall include information for real-time and convenient customer support for assistance with use of the equipment, reporting EVSE issues such as a lack of voltage, and reporting public safety issues.

**7.4.5 State Regulations:** All projects permitted pursuant to this pilot are subject to state-wide regulations for EV charging stations, including upcoming policies associated with Senate Bill (SB) 454 Open Access Charging Stations Act.

### 7.5 Design Requirements

The following criteria establish the minimum requirements for allowable EVSE considered for installation in the public right-of-way.

**7.5.1 Minimum standards:** All minimum standards for curbside structures shall apply. The following placement and design guidelines shall be adhered to when developing plans for the installation of EVSE:

- Maximum EVSE cabinet size of eight (8) feet tall, four (4) feet wide and two (2) feet deep, unless the City determines that deviations from these standards are appropriate for success and performance of the installation, based upon information submitted by the EVSE provider in the RFP response
- Maintain at least 6 feet of clearance from fire hydrants, and at least 18 inches from the face of the curb
- Position such that the EVSE supplier is stored at a height of 24 inches to 48 inches above the parking surface (National Electrical Code, Article 625.30(B)e)
- Proper distances should be maintained between the EVSE and features in the public right-of-way, including street trees, utility poles, and signs

## Appendix A – Guidance for Chargers in the Right-of-Way

- Minimize the reduction of vegetation on sidewalks
- Minimize the physical footprint of electric service equipment in the public right-of-way
- Avoid impacts to trees or tree removals
- Any other relevant design requirements may apply, as provided by Development Engineering and SMUD
- Orient EVSE to minimize conflicts with other uses in the right-of-way and minimize negative impacts to safe travel, avoiding impacts to vehicles, drive-by traffic, cyclists, and pedestrians

**7.5.2 ADA Standards for Accessible Design:** On-street parking spaces are subject to compliance with Americans with Disabilities Act (ADA), including both parallel and angled on-street spaces. Newly altered parking spaces shall meet the minimum number of accessible EVCS as identified herein.

On-street EVCS shall be designed according to the following accessibility standards, consistent with relevant sections of the proposed Guidelines for Pedestrian Facilities in the Public Right of Way (United States Access Board 2011), the proposed California Department of Transportation (CADOT) 2010 Revised Standards Plan RSP A90B, 2016 California Building Code Chapter 11B, and Plug-In Electric Vehicles: Universal Charging Access Guidelines and Best Practices (Governor’s Office of Planning and Research 2013), unless more recent and/or restrictive standards are imposed by a superseding authority (e.g., state or federal court ruling or legislation). The City reserves the right to modify and add additional accessibility requirements as appropriate due to site-specific considerations. At a minimum, curbside EVCS shall meet the following requirements:

### *Accessible Parking Spaces:*

- Each site shall include at least one van accessible EVCS
- Parallel van accessible EVCS shall be located at the end of the block face, to be usable by vans that have rear lifts and cars that have scooter platforms
- Accessible EVCS shall be located where the street has the least crown and grade close to key destinations

### *Ground Space:*

- Clear ground space for access to operable controls
- 30” by 48” clear ground space provided adjacent to operable controls and equipment
- 36” clear width accessible route to operable controls
- Minimum of 6’ wide clear walking path behind the EVSE

### *Operable Parts:*

- Operable controls located at 48” maximum height
- No reaching obstructions greater than 10” for any operable controls

## Appendix A – Guidance for Chargers in the Right-of-Way

**7.5.3 Public Safety:** EVSE providers shall take measures to secure their investment and ensure public safety around the site. All EVSE shall be located safely and reasonably in the public right-of-way. Site designs must include the following safety requirements:

- To further maintain clear ground space, EVSE shall feature a single-head elevated or retractable charge cord technology to elevate the cord when not in use and ensure that cords do not lie on the ground
- EVSE placement shall not impede pedestrian and bicycle traffic
- Bollards shall be installed to protect EVSE from vehicular traffic while maintaining accessible ground space requirements
- EVSE shall be installed in a location with ample night-time lighting or new light fixtures must be installed at the expense of the EVSE provider to provide for overnight visibility

**7.5.4 Parking Enforcement:** Public Works shall provide and maintain parking signs for any approved EV charging site in the right-of-way. When new signage is required, the City may install poles for signs and invoice the EVSE provider for costs of any new signage. Installation of poles for signage should be included in project drawings. The EVSE provider shall not attach or erect any additional signs at the site. Parking Services enforce all parking regulations imposed by the City's parking signs. The Parking Services Manager shall also designate and enforce on-street spaces for active EV charging only.

**7.5.5 Attached Signs:** All EVSE units shall include attached signs or markings compliant with all current California Division of Measurements and Standards requirements, including manufacturer name or trademark, and model identifier. Other attached signs may include instructions on how to dispense electricity, pay for service, or other operating instructions. Such signs shall be limited to 4 square feet; signs larger than 4 square feet are subject to compliance with City Code Chapter 15.148.600.G. Guidance for digital sponsorship signage for curbside chargers is addressed separately in City Code Section 15.148.600.G, and **Appendix B** in this RFP.

## 8. Agreement Terms

**8.1 Agreement Overview:** License and Revocable Permit Agreements will be issued to each party who is permitted to construct one or more curbside EV charging stations through this RFP. The License and Revocable Permit Agreement will establish the terms and conditions of project including, but not limited to, requirements related to operation, maintenance, administration, enforcement, data sharing, and other criteria as identified in this RFP. The agreement will include an exhibit outlining the anticipated sites for construction. Upon entering into an agreement, the City will evaluate and confirm sites with the provider. City approval of sites shall be required prior to EVSE provider application for permits. In addition to the criteria specified elsewhere in this RFP and **Appendix A**, the following criteria shall apply in the Agreement:

## Appendix A – Guidance for Chargers in the Right-of-Way

**8.1.1 Term of Agreement:** The initial term of Agreement is five years for DC Fast Charging equipment and three years for L2 Charging equipment following the date the EVSE is first operational. Agreements may be revoked at any time for sites not in compliance with the terms of the program, as outlined below.

**8.1.2 Renewals:** After successful completion of the initial Agreement term, the City may offer an Agreement renewal to the provider. If offered by the City and accepted by the vendor, the Agreement may be renewed for successive one-year periods upon satisfactory completion of an annual inspection unless terminated by either party after the initial term of agreement upon at least thirty (30) days prior written notice.

**8.1.3 Annual Inspection:** EVSE providers shall provide an inspection schedule for the EVSE according to manufacturer or supplier standards. The EVSE provider shall contract a third-party inspector to ensure EVSE is in proper conditions and safe working order. The entire site, including striping and signage improvements, shall receive an inspection on an annual basis by a designated City division with costs of the inspection to be paid by the EVSE provider. The City will determine annual inspection schedules, giving at least ten (10) days' notice to the EVSE provider before annual inspections take place. Invoices for the costs of City staff time for annual inspections will be calculated according to hourly rates in effect at time of the inspection.

### 8.2 Insurance and Bonds

**8.2.1 Proof of Insurance:** EVSE providers shall maintain the following coverages and amounts of insurance at all times:

- Statutory Worker's Compensation Insurance, and Employer's Liability limits of \$1,000,000 per accident per employee (the Workers' compensation policy shall include a waiver of subrogation in favor the City); and
- Commercial General Liability Insurance, written on an occurrence basis, covering bodily injury (including death), personal injury, and property damage, with limits of not less than \$2,000,000 per occurrence, \$4,000,000 aggregate; and
- Automobile Liability with a combined single limit of \$1,000,000.

**8.2.2 Removal Bond:** The EVSE provider shall hold a third-party removal bond with a penal sum of bond no less than \$30,000 for each site. The City of Sacramento shall be the designated payee. In the event the EVSE provider fails to meet the obligations for site surrender or otherwise violates the terms of agreement, the City will use the Removal Bond to pay for decommissioning of the site as stipulated herein.

### 8.3 Operational Requirements

**8.3.1 Access:** EVSE in the public right-of-way shall be accessible to customers twenty-four hours per day, seven days per week, and 365 days per year, excluding any prohibited parking hours for City services, or street closures for special events. Unless the EVCS is dedicated for use by a Qualified Car Share Operator per City guidelines,

## Appendix A – Guidance for Chargers in the Right-of-Way

EVCS shall not be dedicated for any other user group. Notwithstanding the foregoing, access to the EVSE site may be prevented at times due to planned maintenance, City-sponsored events, or emergencies. If the City is aware of major closures on the street immediately shared with the site, the City shall make a reasonable effort to provide prior notice to the EVSE provider.

**8.3.2 Data Sharing & Reporting:** EVSE providers are required to provide transactional data and a summary of statistical data regarding use of the EVSE provider's charger(s). The daily transactional data will include, at a minimum, charging unit type, charging time and duration, and location information. The summary data will contain usage statistics such as charge sessions by hour, kilowatts consumed, number of charge events, and average charge times. All data shall be prepared according to a format prescribed by the City with the concurrence of the EVSE provider and furnished to the City on a quarterly basis or upon request. The EVSE provider is encouraged to provide information that surveys users to determine usage by existing versus new EV drivers, point of origin of customers, and impact on EV adoption and awareness. In addition, the provider is encouraged to provide climate and air quality performance metrics and related assumptions, such as pounds of carbon dioxide equivalent (CO<sub>2</sub>e) offset by electric miles traveled. The City highly encourages a near-to real-time data dashboard which illustrates the status of all charger(s), as well as overall availability including charger location(s), number of stalls, and charger utilization information. The City will have the right to use and share data with partners for program evaluation and research purposes.

### 8.4 Site Access, Maintenance and Repairs

**8.4.1 Site Access:** The EVSE provider and EVSE provider's agents, including employees, contractors, and vendors, may access the site at any time to maintain, inspect, repair, upgrade or replace any portion of the charging equipment unless such actions will require a full or partial sidewalk closure or street closure. If this is the case, the EVSE provider must apply for a construction encroachment permit from Development Engineering to coordinate a traffic control plan. If the EVSE provider or its agents must close the sidewalk and/or street to respond to an emergency at the site, the EVSE provider or its agents must make best efforts to contact an appointed City staff member to communicate and coordinate the emergency response.

**8.4.2 Maintenance and Repairs:** The EVSE provider, at its sole expense, shall be responsible for maintaining improvements of the site and EVCS for the duration of the agreement including, but not limited to, the chargers, flatwork and accessibility improvements, and all supporting equipment and structures. The EVSE provider shall keep and maintain all improvements in a safe and clean condition, in good order and repair. Should the EVSE provider fail to maintain improvements according to these standards, the City shall provide notice of default to the EVSE provider. Should the EVSE provider fail to respond within thirty (30) days after receiving City notice and initiate remediation of conditions, the City may elect to conduct such maintenance at the EVSE provider's sole cost and expense, in which case, the EVSE provider shall

## Appendix A – Guidance for Chargers in the Right-of-Way

reimburse the City for such costs on or before the 45th day following the applicable invoice due date.

### 8.5 Revocation and Site Decommissioning

**8.5.1 Basis of Revocation:** The City may revoke the agreement to operate EVSE in the right-of-way at any time, but generally shall do so pursuant to life and safety issues, or noncompliance with agreement terms. Potential rationale for revocation may include but is not limited to issues pertaining to life and safety such as failure to respond to written notices from the City due to unsafe conditions in the street or walking path due to the project, electrical parts that are unstable or unsecure; failure to repair EVSE units or safety enclosures where EVSE have been inoperable for more than sixty (60) consecutive days after written notice of default from the City, when such closure, removal, or failure to repairs results in the absence of functioning chargers and is solely the fault of the EVSE provider and not attributable to other causes such as utility outages, natural disasters, or other situations beyond the control of the EVSE provider or the City; failure to pay annual fees within 30 days' written notice of default; and failure to maintain appropriate amounts of insurance .

**8.5.2 Decommissioning of EVSE:** Unless otherwise directed by the City, within ninety (90) days of the expiration or earlier termination of an Agreement, the EVSE provider shall restore the site to its original condition, normal wear and tear excepted. If the site is damaged by the EVSE provider in the process of removal, such damage shall be repaired forthwith by the EVSE provider at its sole cost and expense. Should the EVSE provider fail to complete said removal within ninety (90) days, the City shall conduct the removal and disposal of improvements at the EVSE provider's sole cost and expense using the EVSE provider's removal bond. Any remaining trade fixtures shall become the property of the City, without the requirement of reimbursement to the EVSE providers.

**8.5.3 Surrender of Real Property Improvements:** Any real-property improvements shall become the property of the City upon termination of the Agreement or upon Agreement expiration, whichever occurs first, without the requirement of reimbursement to the EVSE provider.

## Appendix A – Guidance for Chargers in the Right-of-Way

### Checklist for Permit Process

The following checklist is intended to inform RFP proposers of the anticipated permit process, for full permitting of the project after selection of a successful vendor pursuant to the RFP.

#### A.2 City Permit Applications

##### A.2.1 Major Construction Encroachment Permit

- Completed “[Construction Encroachment Permit Application](#)” Form
- 8 ½” x 11” (or larger size) site plan – 4 copies
- Traffic Control Plan (also include pedestrian path of travel) – 4 copies
- List of active building permits for this location
- Proof of liability insurance on “Accord” Form AND “ADDITIONAL INSURED ENDORSEMENT” page
- Permit deposit/fee and Trench Cut Fee (if applicable)
- Submit application to Development Engineering, 300 Richards Blvd., 3rd Floor, Sacramento, CA 95811

##### A.2.3 Building Permit\*

- Completed “[Application for Building Permit](#)” Form
- Submit application to the Building Division, 300 Richards Blvd, 3rd Floor, Sacramento, CA 95811

*\*Required ONLY if EVSE power supply will come from existing electrical components of a private building/property, or if the project involves other improvements on private property*

#### A.3 SMUD Electrical Permit

- Complete appropriate applications for service and/or construction with SMUD ([link](#)), OR
- Copy of executed agreement with property owner and any applicable SMUD documents, verifying consent of property owner to provide electrical service for the project (if applicable)

#### A.4 Business Operation Tax (BOT) Certificate

- Complete a “[BOT Application](#)” Form and pay BOT fees
- Submit your application [online](#), or in person or by mail to Revenue Division 915 I Street, Room 1214, Sacramento, CA 95814
- Renew BOT Certificate and pay fees annually

## Appendix B

### Sponsorship Sign Exemption & Digital Sign Guidelines for EV Chargers in the Right-of-Way

## ORDINANCE NO. 2018-0026

Adopted by the Sacramento City Council

July 3, 2018

### An Ordinance Amending Section 15.148.600 of the Sacramento City Code Relating to Signs

**BE IT ENACTED BY THE COUNCIL OF THE CITY OF SACRAMENTO:**

#### SECTION 1

The City Council finds as follows:

According to the Sacramento Metropolitan Air Quality Management District, air pollution is a serious public-health problem for the residents of Sacramento County. The Sacramento metropolitan area is classified as a severe nonattainment area for federal ozone levels, a moderate nonattainment area for federal 24-hour PM-2.5 levels, and a nonattainment area for state annual PM-10 levels (see <http://www.airquality.org/businesses/air-quality-plans/federal-planning>). In addition, the American Lung Association has ranked the Sacramento-Roseville metropolitan area as the fifth most polluted area in America for ozone in 2018 (see American Lung Association, *State of the Air 2018* (2018), at <http://www.lung.org/assets/documents/healthy-air/state-of-the-air/sota-2018-full.pdf>), representing a worsening score from the region's 2017 ranking as the eighth worst for ozone (see American Lung Association, *State of the Air 2018* (2017), at <http://www.lung.org/assets/documents/healthy-air/state-of-the-air/state-of-the-air-2017.pdf>).

During the summer months, the air pollutants in Sacramento, including ground-level ozone, come mostly from mobile sources powered by internal-combustion engines, such as the cars, trucks, and buses. Persons who suffer from heart disease (such as coronary artery disease or congestive heart failure) or from respiratory disease (such as asthma, emphysema, or chronic obstructive pulmonary disease) are most at risk from air pollution, as are children whose lungs are still developing and pregnant women. Even for healthy persons, polluted air can cause respiratory irritation or breathing difficulties during exercise or outdoor activities, resulting in wheezing, chest pain, dry throat, headache, nausea, reduced resistance to infection, increased fatigue, and weakened athletic performance.

To help counter the injurious effects of air pollution from mobile sources, the City Council desires to promote and facilitate the public's use of electric vehicles ("EVs") on city streets by attracting public and private sponsors who will underwrite the costs of providing EV charging at subsidized rates. This ordinance will encourage the sponsorship of EV-charging facilities, and thus will directly advance the City's goal of reducing air pollution while also maintaining a safe

and attractive public environment, by allowing the sponsors to place on the EV-charging stations a limited number of signs that inform EV users and the public of the sponsors' financial support. At the same time, this ordinance will advance several important City policies:

- The City's 2035 General Plan commits the City to continue to collaborate with state and regional partners to support rapid adoption of zero emission and low-emission vehicles, including public and private EV-charging stations (Policy M1.5.5).
- The City's 2035 General Plan establishes targets for the reduction of community-wide greenhouse-gas ("**GHG**") emissions, calling for a 15% reduction below 2005 baseline levels by 2020, and 49 and 83% reductions by 2035 and 2050, respectively (Policy Environmental Resources 6.1.5). Reducing vehicle emissions from transportation is a key strategy to achieving community GHG targets.
- The City's Electric Vehicle Strategy, which the City Council adopted on December 12, 2017, Motion No. 2017-0374 (see <http://www.cityofsacramento.org/Public-Works/Electric-Vehicle-Initiatives/EV-Strategy>), directs the City to "Advance the next generation of transformational and highly visible [zero-emission vehicle] mobility applications and programs" and to "Increase the visibility and awareness of [zero-emission vehicles] as a viable transportation option" (Goals 3 and 4).
- The Electric Vehicle Strategy also calls for the City to "Prioritize public charging for those without other charging options" (Action 1.4). Currently the City has about 430 EV-charging stations, far short of the City's 2025 goal of 3,800 EV-charging stations (Table 2). The ordinance will help attract the investment needed to achieve this goal.
- The City's 2012 Climate Action Plan ("**CAP**") documents that the transportation sector accounts for 48% of community-wide 2005 baseline GHG emissions. To reduce GHG emissions and thus improve air quality, the CAP calls for replacing internal-combustion vehicles with EVs.

## SECTION 2

A. Subsection G is added to section 15.148.600 of the Sacramento City Code, to read as follows:

- G. Sponsorship signs for EV-charging stations. Signs affixed to a structure or apparatus that provides the public with access to subsidized, non-proprietary charging of electric vehicles and is located on city property, as defined in section 15.148.015, under an agreement between the city and the owner of the structure or apparatus.

1. Each such structure or apparatus (an “EV charging station”) may have up to two sponsorship signs that display instructions for use and identify the sponsor or sponsors of the EV charging station.
  2. Each sponsorship sign for an EV charging station must comply with all of the following:
    - a. the display area of each sign may not exceed eight square feet;
    - b. any illumination must be from a light source within the sign;
    - c. the sign may not use digital-display technology unless expressly allowed by the agreement between the city and the owner of the structure or apparatus;
    - d. the sign must comply with sections 15.148.570 (if applicable), 15.148.620, 15.148.640, 15.148.650, and 15.148.710;
    - e. general advertising may not be displayed;
    - f. the sign must not constitute a nuisance or hazard to vehicular traffic, pedestrians, or adjacent property; and
    - g. the sign must satisfy all requirements, conditions, and restrictions in the agreement between the City and the owner of the structure or apparatus.
- B. Except as amended by subsection A above, all provisions of section 15.148.600 remain unchanged and in effect.

Adopted by the City of Sacramento City Council on July 3, 2018, by the following vote:

Ayes: Members Ashby, Carr, Guerra, Hansen, Harris, Jennings and Mayor Steinberg

Noes: None

Abstain: None

Absent: Members Schenirer and Warren

Attest: **Mindy Cuppy** Digitally signed by Mindy Cuppy  
Date: 2018.08.01 17:34:15  
-07'00'

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Mindy Cuppy, City Clerk

*The presence of an electronic signature certifies that the foregoing is a true and correct copy as approved by the Sacramento City Council.*

Passed for Publication: June 26, 2018

Published: June 29, 2018

Effective: August 2, 2018

## GUIDELINES FOR DIGITAL DISPLAYS ON EV-CHARGING STATIONS IN THE PUBLIC RIGHT-OF-WAY

### Background and Purpose

The City has established a program to promote and facilitate the public's use of electric vehicles (“EVs”) by contracting with public and private companies that will install EV-charging stations in the City's rights-of-way and provide EV charging to the public without charge or at substantially subsidized rates (“Providers”). To attract Providers, the City will allow them to install, on the EV-charging stations, signs that identify the Provider and the financial sponsor or sponsors of the stations.

As a further inducement, the City will allow a Provider to install identification signs that use “**digital displays**”—i.e., signs that display still images using grid lights, cathode-ray projections, light-emitting diodes (LEDs), plasma screens, liquid-crystal displays (LCDs), fiber optics, or other electronic media or functionally equivalent technology—but only if the Provider and the digital displays comply with City Code § 15.148.600.G.2.b and these guidelines.

Among other things, § 15.148.600.G.2.b requires that each Provider who desires to install digital displays in the City's rights-of-way must enter into a written agreement with the City that specifies the requirements, conditions, and restrictions applicable to the displays (“**Display Agreement**”).

### Guidelines

1. A Provider may not apply for or be issued encroachment permits for an EV-charging station that will include digital displays unless the City and the Provider have entered into a Display Agreement for station. Any encroachment permit issued before the City and the Provider enter into a Display Agreement is voidable at the City's discretion.
2. Each EV-charging station in the right-of-way may have up to two digital displays, each with a display area not exceeding eight square feet.
3. Only one EV-charging station with digital displays is allowed per block unless the City determines, in its sole discretion, that more than one station per block is consistent with the character, land uses, and density of the surrounding area.
4. Providers who install digital displays on EV-charging stations must comply with the following to avoid negatively affecting sensitive uses, such as residences:
  - 4.1 Before applying to the City for an encroachment permit covering the station, provide notice of the proposed digital displays to potentially affected residents and property owners and to business and neighborhood organizations, as required by the Display Agreement.

- 4.2 When the City notifies the Provider of any negative effects from a digital display—such as glare, vandalism, noise, or equipment malfunction—the Provider must promptly eliminate or mitigate the negative effects to the City’s satisfaction. If the Provider fails to do so within 30 days after receiving notice of the negative effects, then the City may give the Provider a written notice stating that the City proposes to terminate the Display Agreement for the digital display, explaining the reasons for the proposed termination, and advising the Provider that it has 15 days to respond to the notice. If the Provider does not timely respond, or if the Provider responds but the City determines, after considering the response, that termination is appropriate, then the City may notify the Provider in writing that the Display Agreement is terminated. Upon receiving notice of termination, the Provider must promptly deactivate and remove the digital display.
- 4.3 When an encroachment permit is issued for an EV-charging station that will include digital displays, the Provider must provide the residents, property owners, and organizations that were notified under § 4.1 with an ongoing phone number and email address for registering any concerns or complaints about the digital displays during construction and after installation. The EV-charging stations must also display this information.
5. Operation of digital displays.
- 5.1 A digital display must be permanently attached to the EV-charging station, integral to the station’s structure, and compatible with the station’s design.
- 5.2 A digital display must meet the following operating criteria:
- (A) It must NOT display general advertising. It may display only sponsor messages and government messages. “Sponsor messages” identify the Provider or the financial sponsor or sponsors of the subsidized EV-charging station and EV-charging services by displaying names, logos, web addresses, QR codes, phone numbers, and social-media contacts. “General advertising” is defined in City Code § 15.148.1170.
  - (B) It must not have any animation.
  - (C) Changing messages must use either an instant transition between messages or a fading transition with a transition time between messages of not less than 1 second and not more than 2 seconds.
  - (D) It must not go blank during a transition between messages.
  - (E) Messages must remain on the digital-display screen at least 8 seconds.
  - (F) It must not use a pixel pitch greater than 12 mm.
  - (G) It must be equipped with a sensor or other device that automatically adjusts the brightness of the display according to changes in ambient

lighting to comply with a brightness limitation of 0.3 foot-candles above ambient lighting. It must transition smoothly at a consistent rate from the allowed daytime brightness to the allowed nighttime brightness levels, beginning approximately 45 minutes before sunset and ending approximately 45 minutes after sunset. Upon the request of the public works director or his or her designee, the digital display owner must, at the owner's expense, have a City-approved testing agency measure the brightness of a digital display and adjust the brightness to comply with these brightness standards.

- (H) If installed on EV-charging stations in areas with residential uses or other sensitive uses such as assisted living facilities, hospitals, schools, or other uses that the City may identify during the process of developing a Display Agreement with the Provider, the digital display must comply with any additional standards the City establishes—such as mandatory dimming periods, restricted screen orientation, and screening—to avoid negatively affecting those uses.

5.3 Based on new or updated information or studies, the City Council may amend these guidelines by adding new requirements to mitigate effects on the visual environment or on residential properties or other sensitive receptors; to reduce driver distractions or other hazards to traffic; or to otherwise protect and promote the public health, safety, and welfare. Each Display Agreement will provide that such amendments to these guidelines will apply to the covered digital displays even if the amendments occur after the date of the Display Agreement.

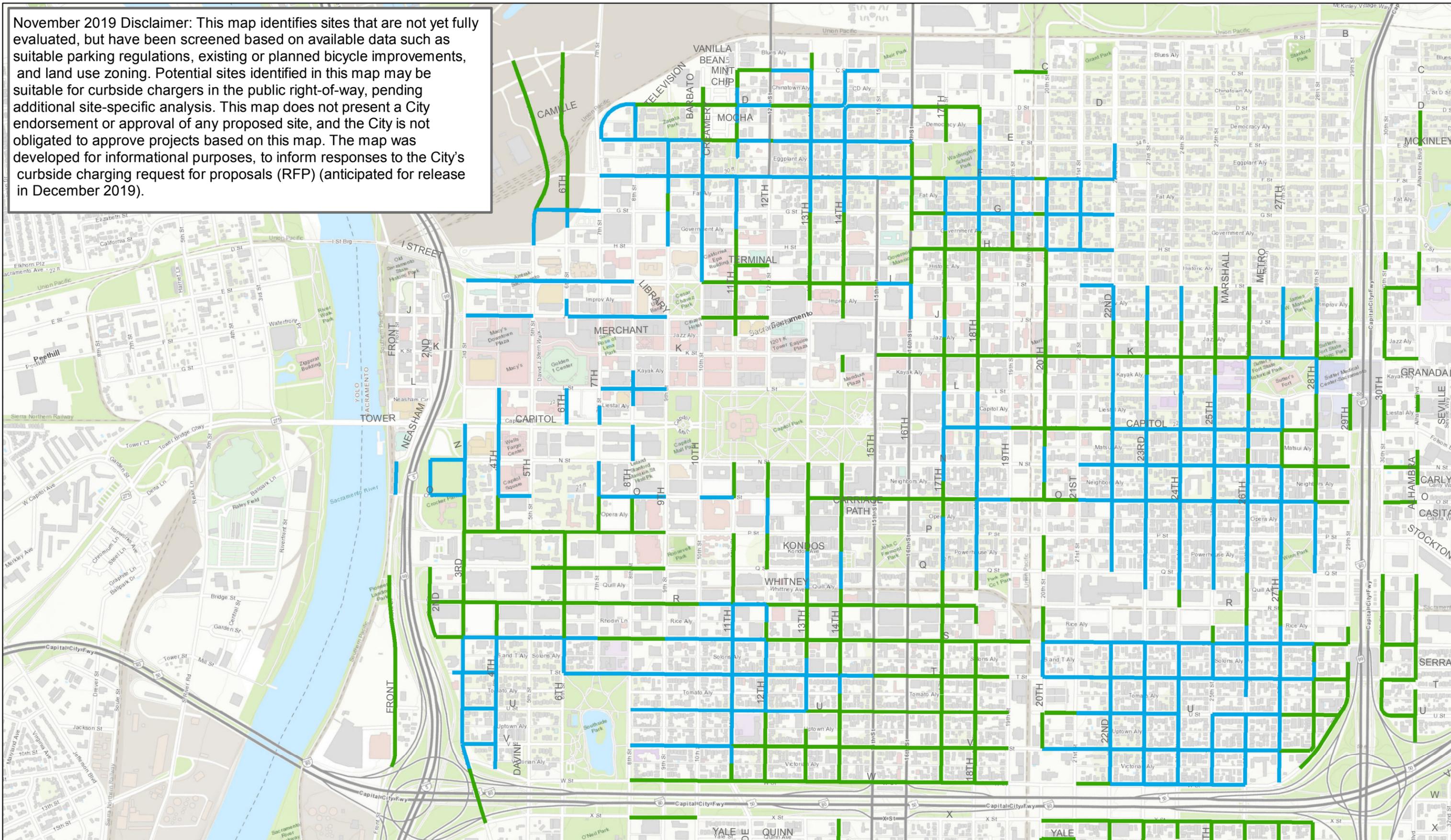
5.4 Each proposal for digital displays on EV-charging stations will also be reviewed during the approval process for an encroachment permit by either the design director (defined in City Code § 17.108.050) or the preservation director (defined in City Code § 17.108.170), as appropriate. When deciding whether to approve the plans and specifications for digital displays on EV-charging stations, the design director or preservation director will not consider the content or graphic design of messages other than to determine legality under federal or state law.

## Appendix C

# Map of Streets in the Central City with Potential for Curbside Charging

For a digital version of the map, refer to the City website: <http://www.cityofsacramento.org/Public-Works/Electric-Vehicle-Initiatives/Curbside-Charging>

November 2019 Disclaimer: This map identifies sites that are not yet fully evaluated, but have been screened based on available data such as suitable parking regulations, existing or planned bicycle improvements, and land use zoning. Potential sites identified in this map may be suitable for curbside chargers in the public right-of-way, pending additional site-specific analysis. This map does not present a City endorsement or approval of any proposed site, and the City is not obligated to approve projects based on this map. The map was developed for informational purposes, to inform responses to the City's curbside charging request for proposals (RFP) (anticipated for release in December 2019).



- Anticipated Opportunity
- Potential Opportunity (Lower Likelihood)

# Streets with Potential for Curbside Charging

## Appendix D

### Parking Permit Fees for Operators of Curbside EV Chargers

## DEDICATED SPACE PARKING PERMIT FEES

*Fees to be paid by the operator of the curbside charging infrastructure*

Parking Space Type	Annual Fee	
	Metered	Time Zone
Dedicated Public-Use EV Charging Space (Curbside Charging Space)	\$932	\$360

Adopted by the Sacramento City Council July 31, 2018 (Resolution 2018-0313)

More information available online: <https://www.cityofsacramento.org/Public-Works/Transportation/Programs-and-Services/Car-Share>



**Xavier University of Louisiana  
New Orleans, Louisiana**

# **Request for Proposal (RFP) Electric Vehicle Charging Station Solutions**

**RFP #XUEV032020  
DUE: 4:00 P.M., CST, 04/01/2020**

Proposal Release Date: 03/02/2020  
Deadline for Inquiries 4:00 P.M., CST, 03/23/2020

Mail or Deliver all Proposals to:

**Marion Bracy  
Vice President of Facility Planning and Management**

**Xavier University of Louisiana  
Office of Facility Planning and Management  
1 Drexel Drive  
Administration Building, Office 216B  
New Orleans, LA 70125**

## **1.1 INTRODUCTION TO XAVIER UNIVERSITY OF LOUISIANA**

Xavier's origins date back to 1915, when then Mother Katharine Drexel, a former Philadelphia socialite who founded the Sisters of the Blessed Sacrament and devoted her life to the education of African Americans and Native Americans, opened a high school on the site previously occupied by Southern University. Ten years later, in 1925, Xavier University of Louisiana became a reality when the College of Liberal Arts and Sciences was established and in 1927, a College of Pharmacy was opened.

The University's major academic units are the College of Arts and Sciences and the College of Pharmacy. The University also awards the Master of Theology through its Institute for Black Catholic Studies. The total enrollment for fall 2019 was 3,325, which included a freshman class of 832. Of these, 2,512 are undergraduates in the College of Arts and Sciences, 608 are students in the College of Pharmacy, and 187 are graduate students. The university is supported by the efforts of more than 500 full-time and part-time faculty and staff.

XULA is a campus located on over 63 acres with 26 residential houses, 4 residence halls, and approximately 25 academic, office, and athletic buildings. XULA's ultimate purpose is to contribute to the promotion of a more just and humane society by preparing its students to assume roles of leadership and service in a global society. This preparation takes place in a diverse and conscientious learning and teaching environment that incorporates all relevant educational means, including research, sustainable practices and community service.

## **2.1 OVERVIEW OF THE PROJECT**

The purpose of this Request for Proposals (RFP) is to solicit proposals to enter into a contract with a qualified electric vehicle (EV) charging station Vendor for the design, purchase and installation of hardware and accompanying software implementation for facilitation and management of electric vehicle supply equipment (EVSE) for XULA. The companies submitting proposals in response to this RFP will hereafter be referred to as "Vendor." This work will also include assisting the jurisdiction in identifying ideal site locations for the EVSE installations.

## **2.2 INTENT**

Based on this RFP, XULA intends to award a single contract to the responsible Vendor whose proposal, conforming to this RFP, is most advantageous to the University, price and other factors considered. XULA reserves the right to issue multiple contracts or to separately procure individual requirements that are the subject of the contract during the contract term, when deemed by the University to be in its best interest.

## **3.1 SCOPE OF PROPOSAL**

XULA is seeking to hire an experienced and qualified Vendor that can provide a turnkey solution of all equipment, corresponding software and networking, accessories, warranties, and deliveries required to install up to (3) EVSE on XULA's campus, as well as identify prime site locations. At least one unit must be able to service more than (1) car simultaneously. Vendor must also provide proper EV parking signage and

assist with reconfiguration of any parking stalls for EV parking. In addition, Vendor will comply with all permitting, ADA and parking requirements.

Detailed information about the business model, including but not limited to the ability to set pricing for end users, billing practices, service fees, revenue distribution, and cost recovery for electricity responses should be outlined in the proposal.

XULA intends for this RFP to result in a contract for a period of (5) years, consisting of a (3) year base period and 2 (1) year option periods at the pricing and proposal information contained herein upon mutual agreement with the Vendor. The contract may be extended for additional (1) year periods by mutual written consent of the Vendor and XULA.

XULA desires a vendor with a minimum of (5) years of experience with turnkey electric vehicle charging stations in the U.S. markets. All design phase deliverables and all other procedures and responsibilities shall be as described in the section below.

***Estimated Timetable:***

Key milestones for the procurement are shown below. Proposers shall note that the dates provided are a guideline only and subject to change as XULA deems in its best interests.

<b>RFP Release Date</b>	March 2, 2020
<b>Deadline for Clarifying Questions</b>	March 23, 2020 4:00pm
<b>Proposal Submission Deadline</b>	April 1, 2020 4:00pm
<b>Select Vendor Interviews/Presentations</b>	TBD
<b>Targeted Notice of Award</b>	June 1, 2020
<b>Targeted XULA Commission</b>	Approval June 8, 2020
<b>Targeted Contract Execution, Project Kick-Off</b>	June 15, 2020
<b>Project Delivery/Completion</b>	September 2020

***Additional Documents (Attachments)***

- **Exhibit A** – Campus Map

### **3.2 ADDENDA TO THE REQUEST FOR PROPOSAL**

Any changes, additions, or deletions to the RFP will be in the form of a written addenda issued by XULA. Any addenda to this RFP will be posted publicly on the XULA website at:

<https://xula.edu/facility-rfps>

XULA shall not be responsible for failure of any prospective proposer to receive such addenda. All addenda so issued shall become part of this RFP.

### **3.3 ADDITIONAL CONSIDERATIONS AND SPECIFICATIONS**

The vendor must agree to insurance and liability requirements (6.1 – 7.1 Insurance Requirements) set by the jurisdiction and state such in its proposal.

#### **3.2.A CHARGING STATION TECHNICAL SPECIFICATIONS**

EV charging stations shall meet, at a minimum, the following specifications and requirements:

- Level 2 (or higher) charging capacity, including at least (1) Level 3, DC Fast Charger
- SAEJ1772 charge connectors with self-retractable cables
- Enclosure Rating - NEMA 3R or better, per UL 50E
- NEC Article 625 and related articles and tables
- Open Safety Ground Detection – continuously monitors presence of safety (green wire) ground connection
- Operating Temperature – -22F to 122F (-30C to +50C) and Operating Humidity of up to 85% @ +50C (122F) non-conde
- Meter Accuracy – +/- 2% from 2% to full scale (30A) with 15-minute interval recording
- Compliance with National Electrical Code, FCC and other relevant regulations for safety and operation
- Minimum 18' cable length with automatic retraction to keep cables from lying on the ground.
- Compliance with the Americans with Disabilities Act (ADA)
- Applicable OSHA Regulations

#### **3.2.B NETWORKING AND INTEGRATION**

The ideal vendor would have the ability and desire to develop integrations with current and new software and services utilized by XULA. We desire to partner with vendors and organizations that can integrate applications and data with other partners. Through database access, API usage, compliant web based applications and cross platform compatibility, we are better able to leverage the technology in which we have invested. Especially web based applications allow us to have the flexibility to use any type of computer in our office. HTML compliant applications offer the opportunity to use Windows and Apple computers without being tied to a specific platform.

XULA desires a system that will virtually allow for monitoring of electric vehicle charging usage and reporting functionality as well as payment and occupancy.

- Accessible to all members of the public without subscription-based membership
- Must operate on a cloud-based and networked for remote management
- Capable of accepting and processing point of sale transaction payments of all major credit cards and ATM cards through a secure system
- Demonstrate PCI Compliance. The vendor needs to provide documentation on the following:

- Level 1 Compliant: -A PCI DSS Service Level 1 compliant provider has proven their ability to not only process credit cards in large volume, but also maintain the highest level of security.
- SSAE 16 Compliant: SSAE 16 compliant vendors have the necessary processes in place to remain compliant in day-to-day activities.
- Cybersecurity Insurance Policy: This policy will protect the University if there is a security breach of mobile payment platform.
- Publicly available information on station location and real-time availability of charging stations, and ability to notify driver when charging is complete or if a charging session has been disrupted.
- Must have the ability to collect revenue from the driver and have flexible pricing options, including hourly, by session, and vary the price by time of day or length of session. Additionally, the system must be able to provide free charging to select vehicles/drivers
- Screen display(s) shall be user-friendly and easy to operate. Displays shall be LCD, LED or equivalent, and shall be readable in direct sunlight and at night
- Security design that is both tamper-proof and vandalism-proof, such as tamper-resistant screws, anti-vandalism hardware, locked enclosures, and graffiti-resistant coating
- Captures data on all charging operations and provides data to XULA in regular, automated intervals
- Available 24/7 customer support

Proposals shall contain detailed technical descriptions of charging stations proposed, including compliance with specifications listed above, energy delivery speed and time to charge an average electric car battery, the useful life of all components, the system's payment and usage model, and a full description of hardware and software used in networking and data capture. If the Proposal does not meet one of the technical specifications described above, a full explanation of the reasons why should be included in the Proposal.

### **3.2.C ENERGY MANAGEMENT**

The Electrical Charging Station (EVC) must:

- Provide a standards-based interface for energy management – describe the interface in comments
- Ability to set (by port) allowed load based on percentage of current load or set a maximum load (kW)
- Ability to set an aggregate maximum load for a group of stations. The stations will self-manage to remain below the configured allowance with no additional physical hardware required.
- Report on Rolling Average Power (kW) and Peak Power (kW) in 15-minute intervals with ability to export to Excel/CSV
- Report on Energy (kWh) by EVSE or by group of EVSE with ability to export to Excel/CSV

### **3.2.D DATA COLLECTION AND REPORTING**

The following information for each charging event (session) will be collected and available via secure web interface, and available for download/export to Excel/CSV:

- Standard Reports
- Vendor Created Customized Reports
- User Created Customized Reports
- Direct Query Access
- Third Party Reporting Tools

**3.2.E CHARGING LOCATIONS**

At this time XULA intends to install up to (3) charging stations in three parking lots on campus while maintaining contractual flexibility for future purchase and installations, with minimal to no trenching needed. Potential areas are:

Level 2 Charger	DC Fast Charger
<ul style="list-style-type: none"> <li>• Lot B</li> <li>• Lot V</li> <li>• Lot in front of Building Services</li> </ul>	<ul style="list-style-type: none"> <li>• Lot H - fed from Qatar Pavilion</li> <li>• Lot K - fed from Central Plant</li> <li>• Lot L - fed from University Center</li> <li>• Lot Q - fed from Living Learning Center</li> <li>• ON Drexel Drive next to the Fitness Center</li> </ul>

*(See Exhibit A, Campus Map)*

The final location for the units would be determined jointly by XULA staff and the Vendor based on location, electricity, economics, access and security.

**3.2.F WARRANTY**

The maintenance plan provided shall be for up to (5) years, and a minimum (3) year manufacturer’s warranty for all EV charger equipment, hardware, and software (EVSE Services). The Warranty shall include all materials, equipment, parts, tools, labor, and incidentals, as well as all contractor-or manufacturer, recommended upgrades. Warranty shall cover complete repairs or replacements, and site visits as necessary. For activities covered under the warranty, an approved local service provider shall be used. If there is a failure of the EV charger during the warranty period, the hardware provider shall agree to replace such components or parts within 72 hours of notification. Contractor shall identify local service providers who will be providing all warranty and services to the charger stations.

**3.2.G QUALITY ASSURANCE, INSPECTION & TESTING**

The Respondent shall develop and submit for approval a comprehensive inspection and testing plan, including test procedures and test reports, to demonstrate successful integration of current or future Reservation Management system components; equipment, software, interfaces, and data reporting provided under this Contract. The inspection and testing plan shall include a detailed schedule indicating the sequence of each test and where and when each test will take place. The Respondent shall be responsible for managing all testing and producing test reports, the cost of which shall be included in all costs proposed.

***Security and Authorization***

Only those parties identified in writing after the award of the RFP will have access to electric vehicle charging station software system. The Respondent shall protect and authenticate a limited number of

representatives that shall have access to the system and confidential information. The Respondent shall respect and utilize security access codes.

***Response Time/Support:***

As part of the warranty process, the Respondent shall provide timely, same day, response for any service calls placed between 8 a.m. to 5 p.m. EST, Monday through Friday (excluding major holidays) regarding repair or replacement of any and all components identified as part of the RFP which shall malfunction.

**3.2.H TRAINING**

The Respondent shall provide a program to educate, train and teach personnel in all details of the electric vehicle charging stations hardware and software. The Respondent shall submit for Parking Services approval a Training Program Plan outlining how it intends to instruct the Parking Services staff. The Respondent shall include in the proposal how and what type of training will be carried out. A combination of train-the-trainer and training sessions directly to Parking Services designated staff will be preferred. The Respondent shall provide a program to educate, train and teach personnel in all details of the Meter Reservation Management software to the component level as required allowing Parking Services personnel to operate and understand them satisfactorily. The Respondent is to provide training on an individual basis or in a group setting as approved by the Parking Services Department. The Respondent shall provide a training program for technicians and staff responsible for software, installation, implementation, and maintenance of the disciplines identified herein the RFP.

**4.1 MANDATORY EXPERIENCE AND REQUIREMENTS**

Vendors must affirm they meet all mandatory requirements without qualification. If a Vendor is not able to meet a mandatory requirement, the Vendor’s response will be deemed as “non-responsive.” Please affirm the following:

1. All Level 3 EV Charging Equipment proposed:
  - a. UL Listed
  - b. UL2202 and UL2231 (Parts 1 and 2) – Standard for Personal Protection Systems for EV Supply Circuits.
2. All Level 2 EV Charging Equipment proposed meets the following:
  - a. UL Listed
  - b. UL2202 and UL2231 (Parts 1 and 2) – Standard for Personal Protection Systems for EV Supply Circuits.
  - c. UL916 – UL standard for energy management.
3. Demonstrated ability to complete contract by September 2020.
  - a. Provide confirmation of acceptance of Terms and Conditions of Purchase Order.

## 5.0 PROPOSAL INSTRUCTIONS AND EVALUATION PROCESS

It is a mandatory requirement of this RFP that the proposer respond to each of the sections listed in the following paragraphs 5.1 – Proposal Requirements, and in the order in which they appear. XULA is seeking bids from Electric Vehicle Charging Supply Equipment Vendors in the performance of these professional design and installation services. Therefore, it is incumbent upon the proposer to present the responses to the RFP concisely and to the point. The awarding of projects will be based upon the responses to proposals. The personnel listed at the end of section 5.1 are the only contacts required for this project, and although a XULA selection committee will make selection of the awarded firm, these members are the point people for the committee.

***Each proposer's submission will be scored in each of the following categories by the selection committee:***

Dun/Bradstreet Number and Date Granted	Y / N
Certificate of Insurance	Y / N
Vendor References	10 points
Assigned Personnel and Staff Qualifications	10 points
Experience and Qualifications of Vendor	10 points
Experience with Educational Facilities	10 points
Proposed product solutions <i>(Including technical requirements, integrations, timeline, and product functionality)</i>	30 points
Warranty and Support services proposed	10 points
Cost Proposal	20 points

The evaluation committee will develop a composite rating indicating the collective ranking of the highest rated responses in descending order. The evaluation committee may then conduct interviews and presentations with the top ranked responses, usually the top two to three depending upon the number of responses received. Propers selected for an interview and presentation will be provided the opportunity to clarify or elaborate on the proposal, including ease of use of the software and hardware, equipment quality and durability, performance, integration, etc. The evaluation committee may request an interview, or make a recommendation for the Contract award, at the committee's sole discretion, upon which negotiations may then be conducted with response(s) so selected.

## 5.1 PROPOSAL REQUIREMENTS

Firms submitting proposals should include the following information as a minimum:

### ***Vendor Information:***

1. The legal name of the vendor, address and telephone number, as well as the information on any other local office that may assist in provision of services.
2. Executive Summary with a brief company introduction and background history.
3. The structure of the organization (e.g., sole proprietorship, partnership, corporation, etc.) including state of formation.
4. The name, address and telephone number of the person to whom correspondence should be directed.
5. The year the company was established as currently being operated.
6. A certified financial statement, including, but not limited to a Dun and Bradstreet number and rating.

### ***Vendor Background & Work Experience:***

1. A list of all communities within the local utility (e.g., Entergy) territory in which the vendor has provided and maintained publicly available EVSE during the last five years, if applicable. Please list communities with active EVSE.
2. Also include the following information for each community:
  - a. Name of the organization that contracted with you for EVSE sites. Please include the name of a contact person and phone number.
  - b. Was the contract/franchise exclusive or nonexclusive?
  - c. Number of EVSE provided.
  - d. Time period that the EVSE were installed.
  - e. Reporting sales & usage (sample reports).
3. A list with additional communities in the United States in which the vendor has provided and maintained publicly available EVSE during the last five years, if applicable.
4. A list of vendor's ten most recent projects with a short description of the scope of work.
5. Please list any public agencies that have chosen to cancel or not renew EVSE contracts with your firm during the last five years.
6. Provide (3) similar contract references with names of organizations and names and phone numbers of customers who have used similar services to those, which are to be provided. Please include the organization's name, address, phone number, email address, and a contact person for each. The University reserves the right to contact or visit any of the references provided. Additionally, the University reserves the right to contact additional references that the University is aware of or may become aware of.
7. Provide experience and qualifications of the staff and local contractors/subcontractors that will perform the EVSE installations. Demonstrate that the vendor is working with licensed electrical contractors employing state-certified electricians to handle EVSE installations and maintenance. The assigned Project Lead or Manager of this project shall be identified in the proposal and cannot be changed, replaced, or altered throughout the project unless agreed to by both XULA and the Vendor.
  - a. List any EVSE-specific trainings or certifications that the vendor's electrical contractor and/or the contractor's electricians have completed, if applicable (e.g., Electric Vehicle Infrastructure Training Program).
  - b. Include the number of EVSE installations completed to date by the vendor's electrical contractor and/or the contractor's electricians.

8. Provide an overview of your staff and qualifications, with a list of any significant awards for work completed. Please provide a resume and an executive summary of the agency representative(s) the Vendor will assign to the University.
9. Demonstrate an understanding of New Orleans, Louisiana processes, required permits, permit costs, licenses and applicable state and local codes specific to EVSE and procedures for this type of project.

**Scope of Work:**

1. A written and pictorial description of the proposed EVSE design including:
  - a. Comprehensive specifications (make, manufacturer and model numbers of equipment), including all software components.
  - b. Delivery and proposed installation schedule.
  - c. The submission of more than one type of charging station is permitted, however, if the selection of any particular design would result in a change to the proposed rate structure and method of collection, those changes must be noted.
2. Proposed EVSE end-consumer rate structure (e.g., charging customers per plug time) and customer method of payment (e.g., credit card reader for universal usage).
3. Description of the proposed EVSE warranty and parts replacement program and anticipated response times.
4. Description of ability and staff expertise to provide services including design and installation of EVSE and training.
  - a. Quality control/safety features.
  - b. Design plan and implementation details and available resources.
5. Financial incentives to the XULA (if applicable).
6. Cost Proposal: For each solution proposed, provide a clear, complete, and detailed cost and price schedule for the services and requirements described in the RFP, including but not limited to:
  - a) Purchase, installation, integration, and implementation costs for any solution
  - b) Unit pricing for equipment and accessories utilized with each solution
  - c) All Software, hardware, and back-end fees
  - d) Other on-going or recurring fees, including hourly rates for any additional service work
  - e) Yearly costs for up to five years of Extended Maintenance and Support (to commence upon expiration of the initial warranty), as well as future purchase costs for equipment and accessories

**Additional Items:**

The proposal must be signed by the individual(s) legally authorized to bind the vendor. If complete responses cannot be provided without referencing supporting documentation, such documentation must be provided with the proposal and specific references made to the tab, page, section and/or paragraph where the supplemental information can be found.

**Proposal Format:**

- Vendors shall submit one (1) original proposal marked "ORIGINAL" and four (5) identical copies.
- Proposals shall be in an 8 ½" x 11" format. Supplementary information such as firm brochures, publicity material will be accepted. Organize response information in the same format and order as this RFP. Any variances from specifications which may be proposed must be specifically noted and marked as an "Exception."

**Submittal Requirements:**

For questions regarding this RFP, submit all inquiries via email to [facilities@xula.edu](mailto:facilities@xula.edu) by 4:00 pm, March 23, 2020. Responses to the questions will be posted <https://xula.edu/facility-rfps> no later than March 27, 2020 by 4:00 pm. All proposers are recommended to visit the above mentioned website on a regular basis as responses will be posted when available. All documents for a proposal should be included in the package, no separate mailings. Proposals must include a table of contents and all pages numbered.

- Submit 6 hard copies of your proposal and a flash drive with all documents in digital format **by 4:00 PM, April 1, 2020** to:

Xavier University of Louisiana  
1 Drexel Drive  
Administration Building  
Office 216B, Facility Planning and Management  
New Orleans, Louisiana 70125  
Attn: Marion Bracy, Vice President of Facility Planning and Management

- Proposals can be mailed or hand delivered in a box or envelope and label mailings as follows:

REQUEST FOR PROPOSAL NO.: #XUEV032020  
FOR: Electric Vehicle Charging Station Solutions

- In addition to the submission of 6 hard copies of your proposal, you are also required to submit an electronic PDF formatted copy of your document on a labeled flash drive or other digital media.

*Proposals that do not arrive by the specified date and time, **WILL NOT BE ACCEPTED** and will be returned unopened. Vendors may submit their proposal any time prior to the above stated deadline. At its sole discretion, XULA may reject incomplete proposal submittals if, in its judgment, the submittal lacks information needed to effectively evaluate the proposal. Nothing in this request for proposals implies a contractual obligation with any firm, nor will XULA reimburse costs for submittal preparation.*

**5.2 SUBCONTRACTOR INFORMATION**

Does this proposal include the use of subcontractors?

- If “Yes”, vendor must: Identify specific subcontractors and the specific requirements of this RFP for which each proposed subcontractor will perform services.
- XULA requires that the awarded vendor provide proof of payment of any subcontractors used for this project.
- Proposals shall include a plan by which XULA will be notified of such payments.
- Primary contractor shall not allow any subcontractor to commence work until all insurance required of subcontractor is obtained.

## 6.1 INDEMNIFICATION

The awardee (Contractor) shall indemnify XULA, its Board of Regents, its officers and employees against any loss or damage (including reasonable attorney's fees and other costs of litigation) caused by the Contractor's negligent acts or omissions or negligent acts or omissions of the Contractor's agents or employees. Contractor shall defend any suit against XULA alleging injuries or damages arising out of the services performed; provided, however, that nothing contained herein shall require the Contractor to defend or indemnify XULA for injuries or damages arising solely out of the negligence of XULA, its agents, or employees.

## 7.1 INSURANCE REQUIREMENTS

Without limiting any liabilities or any other obligation of Contractor, Contractor will purchase and maintain (and cause its subcontractors to purchase and maintain), until all of their obligations have been discharged or satisfied, including any warranty periods under the Agreement, insurance against claims that may arise from or in connection with the performance of the work hereunder by the Contractor, its agents, representatives, employees or subcontractors, as described below.

These insurance requirements are minimum requirements for the Agreement and in no way limit any indemnity covenants in the Agreement. XULA does not warrant that these minimum limits are sufficient to protect Contractor from liabilities that might arise out of the performance of the work under the Agreement by Contractor, its agents, representatives, employees, or subcontractors. These insurance requirements may change if Contractor is a foreign entity, or with foreign insurance coverage.

Contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder and the results of that work by the Contractor, his agents, representatives, employees or subcontractors.

**7.2 MINIMUM SCOPE AND LIMIT OF INSURANCE** Coverage shall be at least as broad as:

1. Commercial General Liability (CGL): Insurance Services covering CGL on an "occurrence" basis, including products and completed operations, property damage, bodily injury and personal & advertising injury with limits no less than \$2,000,000 per occurrence. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.
2. Automobile Liability: covering any auto, or if Contractor has no owned autos, hired, and non-owned autos, with limit no less than \$1,000,000 per accident for bodily injury and property damage.
3. Workers' Compensation: as required by the State of Louisiana, with Statutory Limits, and Employer's Liability Insurance with limit of no less than \$1,000,000 per accident for bodily injury or disease.
4. Professional Liability (Errors and Omissions) Insurance appropriate to the Vendor's profession, with limit no less than \$1,000,000 per occurrence or claim, \$2,000,000 aggregate. If the Vendor maintains broader coverage and/or higher limits than the minimums shown above, XULA requires and shall be entitled to the broader coverage and/or the higher limits maintained by the contractor. Any available

insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to XULA.

## **8.1 INTERPRETATION OR CORRECTION OF RFP DOCUMENTS**

Proposers shall promptly notify XULA, in writing, of any ambiguity, inconsistency or error, which they may discover upon examination of the RFP Documents or of the site and local conditions. Proposers requiring clarification, interpretation, changes or modifications to the Proposal Documents shall submit a written request to XULA in time to be received by XULA at least five (5) calendar days prior to the opening of the proposal (date to be announced). Interpretations, changes or modifications to the meaning of the RFP Documents will be accomplished through written addenda to all Proposers of record, issued by XULA.

Only questions answered by formal written addenda will be binding. All questions concerning interpretation, changes or modifications shall be emailed to:

[facilities@xula.edu](mailto:facilities@xula.edu)

## **9.1 PROPOSER'S REPRESENTATIONS**

Each Proposer by making his Response represents that:

- A. Proposer has read and understands the RFP Documents and his Response is made in accordance therewith.
- B. Proposer has visited the campus, has familiarized himself generally with local conditions under which the work is to be performed.
- C. Proposer has familiarized himself with all local conditions that may in any manner affect performance, including manpower availability and local labor practices.
- D. Proposer has familiarized himself with Federal, state and local laws, ordinances, rules and regulations that may affect this project.
- E. Proposer acknowledges that XULA is not responsible for any costs associated with the preparation, submittal, or presentations of any kind and that the Proposer assumes all costs of same.

## **10.1 RIGHT TO REJECT STATEMENTS OF QUALIFICATION**

XULA reserves the right, at its sole discretion, to reject any and all Proposals, to cancel this RFP in its entirety, or to cancel the selected group of approved applicants.

Any submittal which does not meet the requirements of this RFP may be considered to be non-responsive, and the Proposal may be rejected. Respondents must comply with all of the terms of this RFP and all applicable local, state, and federal laws and regulations. XULA may reject any Vendor that does not comply with all of the terms, conditions, and performance requirements of this RFP.

## **11.1 ADDITIONAL INFORMATION, TERMS AND COMPLIANCE**

### **11.2 NONDISCRIMINATION**

No person shall be excluded from participation in, be denied benefits of, be discriminated against in the admission or access to, or be discriminated against in treatment or employment in the XULA's contracted programs or activities on the grounds of handicap and/or disability, age, race, color, religion, sex, national origin, or any other classification protected by federal constitutional statutory law; nor shall they be excluded from participation in, be denied benefits of, or be otherwise subjected to discrimination in the performance of contracts with XULA or in the employment practices of XULA's Vendors. Accordingly, all Request for Proposal Proposers entering contracts with XULA, upon request, be required to show proof of such nondiscrimination.

### **11.3 MINORITY PARTICIPATION**

XULA highly encourages meaningful participation from minority-owned businesses. The Vendor candidates will be evaluated as to the extent that the Proposer identifies and commits to minority-owned businesses, whether as a Prime Vendor, joint-venture team arrangement, or through the use of sub-consultants.

### **11.4 SMALL BUSINESS ENTERPRISE**

XULA encourages the acquisition of goods and services from small businesses in our community. A Small Business as it is used in these Proposal Documents means an individual or business entity that

- (1) is independently owned and operated,
- (2) is not dominant in its field of operation,
- (3) has no more than 15 employees and
- (4) its average annual receipts do not exceed \$1 million if, together with its affiliates.

Acquisitions from Small Businesses are encouraged by providing the following advantages or preferences:

Preference is hereby given to materials, supplies and provisions, produced, manufactured or grown in Louisiana, quality being equal to articles offered by competitors outside of the state.

XULA offers a preference for Small Businesses that offer materials, supplies, or equipment that are manufactured, processed, produced or assembled in Louisiana, and which XULA judges to be equal in quality to other materials, supplies, or equipment, provided that all of the following conditions are met:

1. The cost of the Louisiana products does not exceed the cost of other materials, supplies, or equipment that are manufactured, processed, produced or assembled outside the state by more than five per cent.
2. The Vendor of Louisiana products agrees to sell the products at the same price as the lowest Proposal offered on such products.

3. In cases where more than one Proposer offers Louisiana products that are within five per cent of the lowest Proposal, Proposer offering the lowest Proposal on Louisiana products is entitled to accept the price of the lowest Proposal made on such products.

On contracts of \$100,000 or less, a performance bond, as required by the Louisiana public proposal law may be waived by XULA for a Small Business which:

1. Meets the definition and requirements of a “responsible proposer” as set forth below:
  - a. The Small Business has an established business and has demonstrated the capability to provide goods and services in accordance with the terms and conditions of the contract, plans and specifications without excessive delays, extensions, cost overruns or changes for which the Contractor or Sub-Contractor was held to be responsible, and who does not have a documented record of past projects resulting in arbitration or litigation in which the Small Business was found to be at fault.
2. The Small Business has a negotiable net worth or shall be underwritten by an entity with a negotiable net worth, which is equal to or exceeds in value the total cost amount of the public contract as provided in the proposal submitted by the Small Business. All property comprising the negotiable net worth shall be pledged and otherwise unencumbered throughout the duration of the contract period.
3. Has been operating as the same business for a continuous period of at least three years.
4. Provides an irrevocable letter of credit, property bond or other authorized form of security that is acceptable to the public entity and is in an amount of not less than the amount of the contract, for the faithful performance of his duties.
5. XULA may adopt rules and regulations in accordance with law to effectuate the provisions of this subsection.

In order to qualify for the advantages provided for Small Business in this Plan, the Vendor shall be required to certify by an affidavit under penalty of perjury that it meets the criteria for a Small Business as defined above. The Small Business shall also be required to certify that no person, corporation or other entity that does not meet the definition of a Small Business has any direct or beneficial ship of the Small Business. The certification shall be subject to challenge by competing Proposer’s and XULA upon reasonable suspicion. In the event of a challenge, XULA shall conduct an investigation and determine whether the Contractor qualifies as a Small Business.

## **11.5 COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA)**

It is the policy of XULA not to discriminate against any individual having any judicially recognized disability of any kind.

It is the policy of XULA not to discriminate against any company or organization that has an officer or employee with a disability of any kind.

All products, materials and services of this project shall be in compliance with the Americans with Disabilities Act (ADA).

Proposers shall not discriminate against any individual having any disability of any kind when considering award of a joint venture contract, subcontract or purchase order.

Proposers shall not discriminate against any company or organization that has an officer or employee with a disability of any kind when considering award of a joint venture contract, subcontract or purchase order.

# ATTACHMENT A: XULA Campus Map

CAMPUS MAP  
AUGUST 2015



INTERSTATE 10

HOWARD AVE

DIXON ST

S TELEMACHUS ST

EUPHRASINE ST

AGROWTOPIA

S CLARK ST

S GENOIS ST

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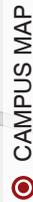
BROADWAY ST

BROADWAY ST

BROADWAY ST

BROADWAY ST

S CARROLLTON AVE



CAMPUS MAP

## BUILDING INDEX

- 1 Administration Building
- 2 Administration Annex
- 3 Convent
- 5 College Of Pharmacy
- 6 Pharmacy Addition
- 8 St. Katharine Drexel Chapel
- 9 Pedestrian Art Mall
- 10 Music Building
- 11 Gateway/Main Entrance
- 13 St. Joseph Academic/Health Center

## PARKING INDEX

- 14 Katharine Drexel Residence Hall
- 17 University Center
- 18 Central Power Plant
- 21 St. Michaels Residence Hall
- 33 Qatar Pharmacy Pavilion
- 36 NCF Academic Science Complex
- 37 NCF Addition
- 38 Library Resource Center
- 39 Art Village Building D
- 40 Xavier South
- 42 Student Fitness Center
- 43 Art Village Building C
- 44 Deporres Residence Hall
- 45 Shipping And Receiving
- 47 Claver Residence Hall
- 51 Art Village Building A
- 61 Convocation Academic Center
- 62 Convocation Annex
- 63 Tennis Center
- 64 Pedestrian Bridge
- 65 Xavier University Community Outreach Center
- 70 Crescent Plywood Building Services - A
- 71 Building Services - B
- 72 Building Services - C
- 73 Building Services - C
- 85 STEM Building
- 88 Living / Learning Center
- 89 Campus Police
- 92 Building Services

- A Visitors
- B Staff
- C Faculty
- D Reserve
- E Faculty
- F Vendors
- G Faculty
- H Fac. / Staff
- I Open
- J Staff
- K Staff
- L Staff
- M Open
- N Open
- O Staff
- P Open
- Q Student
- R Staff
- S Faculty
- T Reserve
- U Student
- V Open
- W Open
- X Fac. / Staff
- Y Open
- Z Open

## San Diego County Sample RFP Template

### **REQUEST FOR PROPOSAL (RFP) TEMPLATE:**

#### ***Installation and Operation of Electric Vehicle Charging Stations***

The following is a Request for Proposal (RFP) template that provides recommended headings and proposal language to assist in the issuance of an RFP for Electric Vehicle Charging Stations. In the outline, a brief summary is provided for each heading and this information can and should be customized for each individual RFP.

**Disclosure:** *Proposals shall be kept confidential until a contract is awarded. The <insert jurisdiction> reserves the right to request clarification of any proposal term from prospective suppliers. Selected supplier(s) will be notified in writing. Any award is contingent upon the successful negotiation of final contract terms. Negotiations shall be confidential and not subject to disclosure to competing suppliers unless and until an agreement is reached. If contract negotiations cannot be concluded successfully, the <insert jurisdiction> reserves the right to negotiate a contract with another supplier or withdraw the RFP. Any contract resulting from this RFP shall not be effective unless and until approved by the <insert jurisdiction Council>.*

#### **1. Overview of the Project**

Requesting proposals from suppliers to fully fund, design, install, operate, maintain, market, and potentially remove electrical vehicle (EV) charging stations, also known as Electric Vehicle Supply Equipment (EVSE), on publically-owned property for public use. This work will also include assisting the jurisdiction in identifying ideal site locations for the EVSE installations.

#### **2. Acronyms/Definitions**

A glossary of the necessary acronyms and definitions used throughout the RFP (e.g. “Supplier” – Organization/individual submitting a proposal in response to this RFP)

EVSE – Electric Vehicle Supply Equipment

#### **3. Scope of Project**

The Scope of the Project is as follows:

- Provide attractive and well-maintained EVSE.
- Cover all costs associated with installation, maintenance, and electricity for the EVSE. The supplier may establish a service charge and method of payment collection to recoup these costs as well as any operating profit from EVSE users.
- Provide proper EV parking signage and reconfiguration of any parking stalls for EV parking.

- o Market the project as well as provide product advertisement.
- o Offer options for EVSE when the agreement expires (e.g. charging unit removal, transfer of ownership, contract renewal options).
- o The <insert jurisdiction> to provide the required parking spaces to accommodate the EVSE within the parking facilities at no cost to the supplier.

**4. Additional Considerations**

- A. The supplier must agree to insurance and liability requirements (scope and coverages) set by the jurisdiction and state such in its proposal.

<Jurisdiction to insert summary of applicable insurance and liability requirements here and/or can attach full description to end of this template.>

- B. <Jurisdiction can add any additional considerations here. For example, if City offers/restricts use of advertisements on or around EVSE.>

**5. Submittal Instructions**

For questions regarding this RFP, submit all inquiries via email to <insert email address> by <insert due date>. Responses to the questions will be posted <insert where responses will be made available> no later than <insert date>. All proposers are recommended to visit the above mentioned <insert jurisdiction> website on a regular basis as responses will be posted when available.

***Proposal Evaluation Process Timeline***

<b><u>TASK:</u></b>	<b><u>DATE/TIME:</u></b>
Deadline for submitting questions	<Insert date>
Answers to all questions submitted	<Insert date>
Pre-Submission conference/meeting	<Insert date>
Deadline for submission of proposals	<Insert date>
Evaluation period	<Insert date>
Selection of supplier	<Insert date>

**MANDATORY SITE VISITS**

Site visits are scheduled as follows for potential EVSE suppliers to gather data and further assess proposed sites. The dates and times identified will be the only opportunity to view the proposed sites. Failure to attend the mandatory site visits will result in automatic disqualification with no further consideration for award.

<u>PROPOSED SITE</u>	<u>DATE OF VISIT</u>	<u>TIME</u>	<u>CONTACT</u>
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***NOTE: The dates above represent a tentative schedule of events. The <insert jurisdiction> reserves the right to modify these dates at any time, with appropriate notice to prospective suppliers.***

Suppliers shall submit one (1) original proposal marked "ORIGINAL" and four (4) identical copies to the following:

<Insert Jurisdiction Name>

<Insert Contact Name>

<Insert Address>

Proposals shall be clearly labeled in a sealed envelope or box as follows:

REQUEST FOR PROPOSAL NO.: <insert proposal number>

FOR: Electric Vehicle Charging Stations

**Disclosure:** *Proposals must be received by <insert date and time>. Proposals that do not arrive by the specified date and time WILL NOT BE ACCEPTED and will be returned unopened. Suppliers may submit their proposal any time prior to the above stated deadline. E-mail or fax submissions will not be accepted.*

*At its sole discretion, the <insert jurisdiction> may reject incomplete proposal submittals if, in its judgment, the submittal lacks information needed to effectively evaluate the proposal. Nothing in this request for qualifications implies a contractual obligation with any firm, nor will the <insert jurisdiction> reimburse costs for submittal preparation.*

Proposal Format:

*Supplier Information:*

- The legal name of the supplier, address and telephone number.
- The structure of the organization (e.g., sole proprietorship, partnership, corporation, etc.) including state of formation.
- The name, address and telephone number of the person to whom correspondence should be directed.
- The year the company was established as currently being operated.
- A certified financial statement, including, but not limited to a Dun and Bradstreet rating.

*Supplier Background & Work Experience:*

- A list of all communities within the San Diego Gas & Electric (SDG&E) service territory in which the supplier has provided and maintained publicly-available EVSE during the last five years, if applicable. Please list communities with active EVSE and communities where EVSE have been removed. Also include the following information for each community:
  - Name of the organization that contracted with you for EVSE sites. Please include the name of a contact person and phone number.
  - Was the contract/franchise exclusive or nonexclusive?
  - Number of EVSE provided.
  - Time period that the EVSE were installed.
  - Reporting sales & usage (sample reports)

- A list with additional California communities, and/or communities in United States in which the supplier has provided and maintained publicly-available EVSE during the last five years, if applicable. Include all of the information identified in the previous bullet.
- Please list any public agencies that have chosen to cancel or not renew EVSE contracts with your firm during the last five years. Show names of organizations and names and phone numbers of persons who can be contacted.
- Provide qualifications of the local contractors that will perform the EVSE installations. Demonstrate that the supplier is working with C-10 licensed electrical contractors employing California state-certified electricians to handle EVSE installations and maintenance.
  - List any EVSE-specific trainings or certifications that the supplier's electrical contractor and/or the contractor's electricians have completed, if applicable (e.g. The Electric Vehicle Infrastructure Training Program (EVITP) or UL training).
  - Include the number of EVSE installations completed to date by the supplier's electrical contractor and/or the contractor's electricians.
- Demonstrate an understanding of <insert jurisdiction> processes, required permits, permit costs, licenses, applicable state and local codes specific to EVSE and procedures for this type of project.

*Scope of Work:*

- A written and pictorial description of the proposed EVSE design, including:
  - Comprehensive specifications (including make, manufacturer, & model numbers of equipment).
  - Delivery and proposed installation schedule.
  - The submission of more than one type of charging station is permitted, however, if the selection of any particular design would result in a change to the proposed rate structure and method of collection, those changes must be noted.
- Metering configurations identifying how the supplier will provide the electricity to the EVSE end consumer at no cost to the jurisdiction.
  - Process and schedule for reimbursement to the jurisdiction for cost recovery of electricity provided to EVSE (if applicable).
- Proposed EVSE end consumer rate structure (e.g. charging customers per kWh usage or plug time) and customer method of payment (e.g. credit card reader for universal usage or restricted access for only network users).
- Description of the proposed EVSE maintenance program including the location of maintenance facilities, number of staff that will be available for maintenance, and anticipated response times.
- Description of ability and staff expertise to provide services including marketing, installation, monitoring, and maintenance of EVSE.
  - Quality control/safety features.
  - Marketing plan details and available resources.
- Financial incentives to the <insert jurisdiction> (if applicable).
- Options for EVSE when the agreement expires (e.g. charging unit removal, transfer of ownership, contract renewal options) and responsible party for any costs incurred (if applicable). Highly preferred that the supplier cover any removal costs.

*Additional Items:*

- The proposal must be signed by the individual(s) legally authorized to bind the supplier.
- If complete responses cannot be provided without referencing supporting documentation, such documentation must be provided with the proposal and specific references made to the tab, page, section and/or paragraph where the supplemental information can be found.

## 6. Proposal Evaluation & Award Process

Proposals will be evaluated based on the following criteria (please reference attached *RFP Criteria Review Template*):

- Current and past supplier performance in similar contracts with other agencies.
- Financial stability of the proposer as reflected in a certified financial statement or other certified statement, including but not limited to a Dun and Bradstreet financial rating.
- EV customer rate structure and method of customer payment that will be used to charge customers.
- Description of metering configuration.
- Process and schedule to reimburse the jurisdiction in order to recoup cost of electricity used to provide EVSE (if applicable).
- Maximum public benefit (i.e., in terms of affordability and customer support).
- Strength, quality, durability, advanced technology, future flexibility, and aesthetic appeal of proposed EVSE.
- Proposed maintenance, repair and replacement schedule including response times for malfunctioning EVSE (e.g. supplier's proximity to the <insert jurisdiction> and number of proposer's employees performing maintenance functions).
- Possible commitment to providing additional EVSE at other <insert jurisdiction> owned parking facilities (desirable but not required).
- Supplier's specific marketing strategy that includes product advertising.
  - EVSE installation marketing plan.
  - Description of the supplier's available marketing resources.
- Proposed options for EVSE (e.g. system removal, transfer of ownership, contract renewal options) when the agreement expires and potential costs to the jurisdiction.

*Suggestion for Jurisdiction: Create a scoring criterion that may include assignment of percentages and/or weighting each criterion listed above.*

## 7. Project Specifications

- Provide installation site plans (if applicable [for reference, please see Exhibit A of the City of Long Beach RFP No. PW12-016]).

## 8. Subcontractor Information and Business License

Does this proposal include the use of subcontractors?

Yes \_\_\_\_\_ No \_\_\_\_\_ Initials \_\_\_\_\_

If “Yes”, supplier must:

- Identify specific subcontractors and the specific requirements of this RFP for which each proposed subcontractor will perform services.
- The <insert jurisdiction> requires that the awarded supplier provide proof of payment of any subcontractors used for this project. Proposals shall include a plan by which the <insert jurisdiction> will be notified of such payments.
- Primary contractor shall not allow any subcontractor to commence work until all insurance required of subcontractor is obtained.

**BUSINESS LICENSE**

<Insert Jurisdiction> requires all businesses operating in the <insert jurisdiction> to pay a business license tax. In some cases the <insert jurisdiction> may require a regulatory permit and/or evidence of a State or Federal license. Prior to issuing a business license, certain business types will require the business license application and/or business location to be reviewed by the Development Services, Fire, Health, and/or Police Departments.

**9. Cost**

- N/A

**10. Terms, Conditions and Exceptions**

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<Insert project specific terms, conditions and exceptions>

To view an example, please reference section 9 of the City of Long Beach RFP No. PW12-016.

<Insert individual public liability and insurance requirements for your agency>

# APPENDIX C

olsson®

# APPENDIX C

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**Draft language local governments can adopt or modify for use in establishing requirements and guiding the implementation of charging stations.**

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**International Code Council – Electric Vehicles and Building Codes:  
A Strategy for Greenhouse Gas Reductions**



INTERNATIONAL  
CODE  
COUNCIL®

# Electric Vehicles and Building Codes: A Strategy for Greenhouse Gas Reductions



## INTRODUCTION

In 2019, the U.S. transportation sector accounted for 29 percent of the nation's greenhouse gas (GHG) emissions, with the demand for travel consistently increasing from 1990 to 2019.<sup>1</sup> The U.S. Federal Government has adopted decarbonization policies to reduce emissions, support green job growth, improve equity, and mitigate the impacts of climate change.

A major initiative of the U.S. Federal Government has been to reduce carbon pollution from the transportation sector. The adoption of electric vehicles (EVs) and implementation of EV infrastructure through building codes supports the national goal of achieving net-zero GHG emissions by 2050, which in turn supports the climate initiative of limiting global warming to 1.5 degrees Celsius.<sup>2</sup> In August of this year, the U.S. administration released an Executive Order encouraging one-half of all new vehicles sold in 2030 to be zero-emissions vehicles, including battery electric, plug-in hybrid electric or fuel cell electric vehicles.<sup>3</sup> American automakers including Ford, General Motors and Stellantis, and the United Auto Workers, are aligning their EV targets in support of this goal.

The built environment will need to facilitate charging infrastructure that supports the increasing deployment of all classes (light-duty, medium-duty and heavy-duty) of EVs across the nation to meet GHG reduction targets. Buildings and building codes have been identified as important components in comprehensive, community-wide strategies to advance the deployment of EV charging infrastructure.

EV infrastructure requirements in building codes support the transition towards EV ownership by increasing access to parking spaces with charging stations. Current EV charging provisions in some state and local building codes typically require new buildings and major renovations to include a mixture of parking spaces with installed EV charging infrastructure and some with the necessary electrical equipment to support the future installation of EV charging equipment as EV use continues to grow. Published studies show that the installation of EV electrical equipment into new buildings can decrease installation costs of charging stations by up to 75 percent compared to installation during a building retrofit.<sup>4</sup>

## ABOUT THIS DOCUMENT

In March 2021, the International Code Council's (Code Council's) Board of Directors issued a new framework to support advancements in energy efficiency and GHG reductions, [\*Leading the Way to Energy Efficiency: A Path Forward on Energy and Sustainability to Confront a Changing Climate\*](#). The framework includes provisions for the development of technical and policy resources that provide communities with tools to support achievement of their energy efficiency and GHG reduction goals. The resources are intended to be useable independently and adopted alongside the baseline code to support community needs in specific areas.

This document presents the solutions select jurisdictions have enacted to support increased EV deployment. Also included is model language that communities can use to set their own policies. The model language is designed to provide communities with approaches that reflect local conditions and needs. This language follows a format that can be directly integrated into the International Codes (I-Codes®)—including the *International Energy Conservation Code*® (IECC®), *International Building Code*® (IBC®) and the *International Residential Code*® (IRC®)—and was compiled by the Code Council with input from interested stakeholders, as identified in the Appendix.

This document spells out placement of EV charging requirements within the IRC and IECC. The new scope and intent for the IECC moving forward (as defined by the Code Council Board of Directors) includes avenues for the inclusion of energy and GHG reduction requirements like EV charging. EV charging requirements could also be located in the IBC with the current EV requirements in Section 406.

In July 2021, The U.S. Department of Energy (DOE) and the Pacific Northwest National Laboratory (PNNL) developed a technical brief, [\*Electric Vehicle Charging for Residential and Commercial Energy Codes\*](#) with input from the Code Council. The language presented throughout the Code Council's resource is largely consistent with DOE and PNNL's technical brief, but provides flexibility for local jurisdictions on the number and type of EV spaces and reflects additional feedback received from a diverse set of stakeholders, listed within the resource's appendix.

1. U.S. Environmental protection Agency, "Sources of Greenhouse Gas Emissions," (2021).

2. The U.S. White House, "Fact Sheet: President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target...", (2021).

3. The U.S. White House, "Executive Order on Strengthening American Leadership in Clean Cars and Trucks," (2021).

4. Southwest Energy Efficiency Project, "EV Infrastructure Building Codes: Adoption Toolkit," (2020)

EV-related policy is evolving. This resource captures the prevailing strategies communities have already deployed. As strategies change, the Code Council will review this content to assure its continued relevance. Additionally, the content may be considered as the basis for EV-related criteria in future editions of the I-Codes which will allow for further development.

## COMMON EV-INTEGRATED BUILDING CODE STRATEGIES

There are three EV parking space charging infrastructure strategies that building codes can include for new buildings: EV-Capable, EV-Ready and EVSE-Installed.

**EV-Capable:** Parking spaces that have the electrical panel capacity and conduit installed during construction to support future implementation of EV charging with 208/240-volt (or greater), 40-ampere (or greater) circuits. This strategy ensures the reduction of up-front costs for EV charging station installation by providing the electrical elements that are difficult to install during a retrofit. Anticipating the use of dual head EVSE, the same circuit may be used to support charging in adjacent EV-Capable spaces.

**EV-Ready:** Parking spaces that have full circuit installations of 208/240-volt (or greater), 40-ampere (or greater) panel capacity, raceway wiring, receptacle and circuit overprotection devices. This strategy provides all required electrical hardware for the future installation of EV Supply Equipment (EVSE). Anticipating the use of dual head EVSE, the same circuit may be used to support charging in adjacent EV-Ready spaces.

**EVSE-Installed:** EV Supply Equipment (EVSE) that is fully installed from the electrical panel to the parking space.

## CURRENT APPROACHES TO EV-INTEGRATED CODES

Local governments have adopted various approaches to EV-integrated building codes. Table 1 highlights EV infrastructure code provisions that are currently implemented across several jurisdictions in North America. These approaches can help communities determine the best combination of EV space types and numbers to meet their individual GHG reduction targets.

### International Green Construction Code – Model Code

The 2021 *International Green Construction Code*® (IgCC®) includes the following requirements:

#### **501.3.7.3 ELECTRIC VEHICLE CHARGING FACILITIES.**

Where 20 or more on-site vehicle parking spaces are provided for International Building Code (IBC) Occupancy Group A, B, E, F, I, M, and S buildings, not less than 4% of the total number of parking spaces or not less than 8% of designated employee only parking spaces shall be EV-Ready spaces. Where 10 or more on-site vehicle parking spaces are provided for IBC Occupancy Group R-1, R-2, and R-4 buildings, not less than 20% of the total number of parking spaces shall be EV-Ready spaces. The required number of EV-Ready spaces shall be rounded up to the next highest whole number.

**Exception:** Parking spaces designated for other than passenger vehicles are permitted to be excluded from the total number of on-site parking spaces.

### California – State Level

California set ambitious targets for Zero Emission Vehicle (ZEV) charging infrastructure to support its mission of having five million ZEVs on the road by 2030. The state plans to install 250,000 shared plug-in electric vehicle chargers, including 10,000 direct current (DC) Fast Chargers (DCFCs) and 200 hydrogen stations, by 2050. The 2020 California Green Building Code (CALGreen) includes provisions for EV infrastructure requirements in new multifamily, residential and non-residential buildings, as well as stretch code requirements. Local governments can choose to adopt or surpass the CALGreen stretch codes for EV-Capable or EV-Ready spaces.

CALGreen requires new construction of multi-unit dwellings to include EV-Capable infrastructure in at least 10 percent of parking spaces. The two-tiered reach/stretch codes enable cities to adopt requirements for EV-Capable infrastructure in 15 percent or 20 percent of multi-unit development (MUD) parking spaces. CALGreen also established requirements for new construction single-family residences, duplexes and townhouses with private garages. The residential provisions

require EV-Capable capacity to support Level-2 (rated at 208/240 Volts) charging station installations. CALGreen also requires new construction non-residential buildings to have 6 percent of parking spaces that are EV-Capable, with reach codes supporting 8 percent and 10 percent capacity. The 2022 edition of CALGreen is currently under development and will be adopted by the California Building Standards Commission by early 2022 with an effective date of January 1, 2023. Proposed requirements include an increase to the number of EV-Capable and EV-Ready spaces.

Twenty jurisdictions in California have exceeded the minimum code requirements in their local code adoptions. Some municipalities are also implementing parking ordinances to encourage the installation of EV charging stations, specifically for new construction. Some jurisdictions are exploring adoption of EV infrastructure codes that address existing buildings including the City of Marin, City of Menlo Park, and the City and County of San Francisco. Such stretch codes target alterations and additions to provide opportunities for EV infrastructure installation in existing buildings.<sup>5</sup>

#### - Denver, Colorado – City Level

Denver, Colorado amended the 2018 IECC and IRC to include the following EV charging infrastructure requirements to meet its goal of electrifying 30 percent of all vehicles by 2030:

- **One- and two-family dwellings:** At least one EV-Ready parking space per dwelling unit.
- **Multifamily dwellings (3+ dwellings) with 10+ spaces:** 5% of parking spaces to be EV-Installed, 15% EV-Ready Parking Spaces, and 75% EV-Capable Parking Spaces.
- **Commercial buildings (Groups A, B, E, I, M, S-2) with 10+ spaces:** 5% of parking spaces to be EV-Installed, 10% EV-Ready Parking Spaces, and 10% EV-Capable Parking Spaces.
- **Building Alterations:** ‘Level-3 Alterations’, where the work area exceeds 50 percent of the original building area or where more than 10 parking spaces are substantially modified, are subject to the EV infrastructure requirements for both residential and commercial buildings.
- **DC Fast-charger provision:** For MUD and Commercial buildings, allow developers to substitute up to five Level-2 charging spaces with one DC fast-charging space (with a minimum rated power input of at least 20kW).<sup>6</sup>

#### - Winter Park, Florida – City Level

The City of Winter Park adopted an EV-Readiness Ordinance that amends both its Land Development Code and Building Code. Winter Park amended Section 58-86 “Off-street Parking and Loading Regulations” of its Land Development Code to include EV charging station infrastructure and parking space requirements. Under this amendment, non-residential properties with surface parking or parking structures are required to have a minimum of 10 percent of total parking spaces to be Level-2 EV-Ready. The EV charging infrastructure is required to be installed in accordance with the technical amendment made to the Florida Building Code (Chapter 22, Section 2703 of the City of Winter Park Code of Ordinances). The Land Development Code amendment also requires non-residential properties to provide, at minimum, 1 parking space equipped with a Level-2 EV charging station per every 20 required off-street parking spaces.

#### - Vancouver, BC – International/City Level

The City of Vancouver adopted Building Code Bylaw 10908, which requires EV charging infrastructure installation in new construction residential and commercial buildings. Single-family dwellings with garages are required to have at least one EV-Ready parking space per dwelling unit. Multifamily dwellings are required to have 100 percent of parking spaces be EV-Ready, while commercial buildings must have 10 percent of parking spaces be EV-Ready.<sup>7</sup>

Although the code requires EV-Ready for 100 percent of parking spaces in MUDs, there is no requirement to install the electrical capacity to charge all spaces at full power. Vancouver’s code requirements encourage the use of EV energy management systems (EVEMS) to achieve a high level of plug-in electric vehicle readiness without the need for larger

5. California Governor’s Office of Business and Economic Development, “Electric Vehicle Charging Station Permitting Guidebook,” (First Edition: July 2019).

6. City of Denver Community Planning and Development, “Code Amendment Proposal,” (2019).

7. City of Vancouver Building Policy Branch, “Electric Vehicle Charging of Buildings,” (2021).

building electrical capacity upgrades. The City of Vancouver and other BC cities have adopted minimum performance requirements that dictate the maximum extent of load sharing that may be used, ensuring that EV charging infrastructure is capable of providing a high-quality experience for end-users.

Likewise, 12 other cities in BC, Canada, have adopted 100% EV Ready residential parking requirements for new construction.

**TABLE 1: SAMPLE EV-INTEGRATED CODE PROVISIONS<sup>8</sup>**

Municipality/State	Year	Process Type	Single-Family	Multifamily	Commercial
Orlando, FL	2021	Land Development Code	-	20% EV-Capable	10% EV-Capable, 2% EV-Installed (250+ spaces)
Avon, CO	2021	IECC / IRC	1 EV-Ready Space per dwelling Unit	5% EV-Installed, 10% EV-Ready, 15% EV-Capable (7+ spaces)	5% EV-Installed, 10% EV-Ready, 15% EV-Capable (10+ spaces)
St. Louis, MO	2021	IBC / IRC	1 EV-Ready Space per dwelling Unit	2% EV-Installed, 5% EV-Ready (increases to 10% in 2025)	2% EV-Installed, 5% EV-Ready
Madison, WI	2021	Zoning Code	-	2% EV-Installed, 10% EV-Ready (increases by 10% every 5 years)	1% EV-Installed (increases by 1% every 5 years), 10% EV-Ready (increases by 10% every 5 years)
Washington D.C.	2021	Green Building Ordinance	-	20% EV-Ready (3+ spaces)	20% EV-Ready (3+ spaces)
Summit County, CO	2020	Green Code	1 EV-Ready Space per dwelling Unit	5% EV-Installed, 10% EV-Ready, 40% EV-Capable (10+ spaces)	5% EV-Installed, 10% EV-Ready, 40% EV-Capable (25+ spaces)
Dillon, CO	2020	Green Code	1 EV-Ready Space per dwelling Unit	5% EV-Installed (at least 1 dual-port charging station), 10% EV-Ready, 40% of remaining spaces EV-Capable (10+ spaces)	5% EV-Installed (at least 1 dual-port charging station), 10% EV-Ready, 40% of remaining spaces EV-Capable (25+ spaces)
Breckenridge, CO	2020	Green Code	1 EV-Ready Space per dwelling Unit	5% EV-Installed, 10% EV-Ready, 40% EV-Capable (10+ spaces)	5% EV-Installed, 10% EV-Ready, 40% EV-Capable (25+ spaces)
Frisco, CO	2020	Green Code	1 EV-Ready Space per dwelling Unit	2 EV-Installed Spaces, 20% EV-Capable (26+ spaces)	2 EV-Installed Spaces, 20% EV-Capable (26+ spaces)
Salt Lake City, UT	2020	Zoning Code	-	1 EV-installed per 25 spaces (>5,000sf)	1 EV-Installed per 25 spaces (>5,000sf)
Denver, CO	2020	IECC / IRC	1 EV-Ready Space per dwelling Unit	5% EV-Installed, 15% EV-Ready, 80% EV-Capable	5% EV-Installed, 10% EV-Ready, 10% EV-Capable
Honolulu, HI	2020	IECC / IRC	1 EV-Capable Space per dwelling unit	25% EV-Ready (8+ spaces)	25% EV-Ready (12+ spaces)
Chicago, IL	2020	Zoning & Land Use Code		20% EV-Ready (5+ spaces)	20% EV-Ready (30+ spaces)
Lakewood, CO	2019	Zoning Ordinance	1 EV-Capable Space per dwelling unit	2% EV-Installed, 18% EV-Capable (10+ spaces)	2% EV-Installed, 13% - 18% EV-Capable (10+ spaces)
Flagstaff, AZ	2019	IBC / IRC	1 EV-Ready Space per dwelling Unit	3% EV-Ready	3% EV-Ready
Massachusetts	2019	IECC	-	-	1 EV-Ready space (15+ spaces)
Seattle, WA	2019	Land Use Code	1 EV-Ready Space per dwelling Unit	100% EV-Ready up to 6 space, 20% for parking lots with 7+ spaces	10% EV-Ready
Sedona, AZ	2019	IECC	1 EV-Capable Space per dwelling Unit	-	5% EV-Capable
Golden, CO	2019	Zoning Code	-	1 EV-Installed Space per 15 parking space, 15% EV-Capable	
San Jose, CA	2019	Reach/Green Code	1 EV-Ready Space per dwelling Unit	10% EV-Installed, 20% EV-Ready, 70% EV-Capable	10% EV-Installed, 40% EV-Capable
Fort Collins, CO	2019	NEC/IRC	1 EV-Capable Space per dwelling Unit	10% EV-Capable	-

8. Southwest Energy Efficiency Project, "EV Infrastructure Building Codes: Adoption Toolkit," (2020).

Vancouver, BC	2019	BC Building Code	1 EV-Ready Space per dwelling Unit	100% EV-Ready	10% EV-Ready
Oakland, CA	2018	Green Code	-	10% EV-Ready, 90% "Raceway Installed", 20% total panel capacity	10% EV-Ready, 10% "Raceway Installed", 20% total panel capacity
Atlanta, GA	2017	NEC	1 EV-Capable Space per dwelling Unit	20% EV-Capable	
Aspen, CO	2017	IBC / IRC	1 EV-Capable Space per dwelling Unit	3% EV-Capable (240V individual circuit branch with EV CAPABLE labelling)	-
San Francisco, CA	2017	Green Code	1 EV-Ready Space per dwelling Unit	10% EV-Ready, Panel Capacity for 20%, Raceway for 100%	
Palo Alto, CA	2017	Green Code	1 EV-Capable Space per dwelling Unit	1 EV-Ready Space per Unit, 20% EV-Capable for Guest Parking with 5% EV-Installed	20% EV-Capable, 5% EV-Installed
Oregon	2017	IBC	-	5% EV-Ready	
Boulder County, CO	2015	IBC / NEC / IRC	1 EV-Ready Space per dwelling Unit	2% EV-Ready (for new construction and 50% or 5,000 SF additions)	
Washington	2015	IBC	-	For Group B, Group R-1 hotel and motel only, Group R-2 occupancies: 5% of parking spaces shall be EV Capable. Size electrical room to serve 20% of spaces.	
New York City, NY	2013	IBC	-	20% EV-Capable	-
California (CALGreen)	2010	Green Code	1 EV-Capable Space per dwelling Unit	10% EV-Capable	

Note: Number of spaces in parentheses indicate the threshold where requirements begin.

## MODEL CODE LANGUAGE

The code language provided below is based on input from stakeholders including the U.S. Department of Energy, Pacific Northwest National Laboratory and others listed in the Appendix, the content of code change proposals for the 2021 IECC, and strategies implemented in jurisdictions that have already adopted such policies, as compiled by the Code Council. This draft model code language can be used as a starting point for governments to adopt core EV infrastructure requirements into their building codes. These model requirements are intended to support consistency in approach and provide a degree of certainty for building owners, designers, contractors, manufacturers and building and fire safety professionals. As each jurisdiction is different, these provisions do not specify the number or percentage of spaces required for each building type or the EV parking space charging infrastructure strategies that should apply to each space—the jurisdiction should determine its requirements based on the sample provisions discussed above and captured in Table 1 as well as through community feedback.

## BUILDING CODE AMENDMENTS FOR ELECTRIC VEHICLE CHARGING

### RESIDENTIAL

Amend the International Energy Conservation Code Section R202 and/or International Residential Code Section N1101.6 to add the following definitions:

**ELECTRIC VEHICLE.** An automotive-type vehicle for on-road use primarily powered by an electric motor that draws current from an onboard battery charged through a building electrical service, electric vehicle supply equipment (EVSE), or another source of electric current.

**ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE).** The apparatus installed specifically for the purpose of transferring energy between the premises wiring and the Electric Vehicle.

**EV-CAPABLE SPACE.** A dedicated parking space with electrical panel capacity and space for a branch circuit dedicated to the EV parking space that is not less than 40-ampere and 208/240-volt and equipped with raceways, both underground and surface mounted, to enable the future installation of electric vehicle supply equipment. For two adjacent EV-Capable spaces, a single branch circuit is permitted.

**EV-READY SPACE.** A designated parking space which is provided with a dedicated branch circuit that is not less than 40-ampere and 208/240-volt assigned for electric vehicle supply equipment terminating in a receptacle or junction box located in close proximity to the proposed location of the EV parking space. For two adjacent EV-Ready spaces, a single branch circuit is permitted.

Further amend the IECC-Residential and/or IRC by adding the following:

**R103.2 Information on construction documents.**

10. Electric Vehicle charging details and locations.

**R401.4 (IRC N1101.15) ELECTRIC VEHICLE CHARGING.** Where parking is provided, new construction shall provide electric vehicle spaces in compliance with Sections R401.4.1 through R401.4.4 (IRC N1101.15.1 through IRC N1101.15.3). Where more than one parking facility is provided on a site, electric vehicle parking spaces shall be calculated separately for each parking facility.

**EXCEPTION:** This section does not apply to parking spaces used exclusively for trucks or delivery vehicles.

**R401.4.1 (IRC N1101.15.1) Electric vehicle ready circuit.** The service panel shall provide sufficient capacity and space to accommodate the circuit and over-current protective device for each EV-Ready Space.

**R401.4.2 (IRC N1101.15.2) New single family and two-family dwelling units.** Single family and two-family dwelling units shall provide not less than [number] of [EVSE-Installed, EV-Ready Spaces and/or EV-Capable Spaces] per dwelling unit.

**R401.4.3 New multifamily dwellings (three or more units).** EVSE-Installed, EV-Ready Spaces and EV-Capable Spaces shall be provided in accordance with Table R401.4.3. Where the calculation of percent served results in a fractional parking space, it shall round up to the next whole number.

**TABLE R401.4.3:**

**EVSE-INSTALLED, EV-READY AND EV-CAPABLE SPACE REQUIREMENTS**

<u>Total Number of Parking Spaces</u>	<u>Minimum number or % of EVSE-Installed Spaces<sup>a</sup></u>	<u>Minimum number or % of EV-Ready Spaces<sup>b</sup></u>	<u>Minimum number or % of EV-Capable Spaces</u>
<u>1</u>			
<u>2 – 10</u>			
<u>11 – 15</u>			
<u>16 – 19</u>			

<u>21 - 25</u>			
<u>26+</u>	<u># or % of total parking spaces</u>	<u># or % of total parking spaces</u>	<u># or % of total parking spaces</u>

a. Where EVSE-Installed Spaces installed exceed the required values in Table R401.4.3, the additional spaces shall be deducted from the EV-Ready Spaces requirement.

b. Where EV-Ready Spaces installed exceed the required values in Table R401.4.3 the additional spaces shall be deducted from the EV-Capable Spaces requirement.

**R401.4.4 (IRC N1101.15.3) IDENTIFICATION.** Construction documents shall indicate the raceway termination point and proposed location of future EV spaces and EVSE. Construction documents shall also provide information on amperage of future EVSE, raceway methods, wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site distribution transformers, meet the requirements of this code. Parking spaces equipped with EVSE shall be identified by signage. A permanent and visible “EV-Capable” or “EV-Ready” label shall be posted in a conspicuous place at the service panel to identify each panel space reserved to support EV-Capable or EV-Ready Spaces, respectively and at the termination point of the raceway or circuit termination point.

**NOTES:**

There are other important code references to examine in parallel to IECC/IRC Chapter 11 requirements. If not consistent with the latest editions, update:

- Section 625 of the National Electrical Code (NFPA 70)
- Section E3702.13 of the International Residential Code

See Section R328.10 of the International Residential Code and Section 1207.11.10 of the International Fire Code for provisions on the use of electric vehicles as energy storage systems.

**COMMERCIAL**

Amend the International Energy Conservation Code Section C202 to include the following definitions:

**ELECTRIC VEHICLE.** An automotive-type vehicle for on-road use primarily powered by an electric motor that draws current from an onboard battery charged through a building electrical service, electric vehicle supply equipment (EVSE), or another source of electric current.

**ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE).** The apparatus installed specifically for the purpose of transferring energy between the premises wiring and the Electric Vehicle.

**EV-CAPABLE SPACE.** A dedicated parking space with electrical panel capacity and space for a branch circuit that supports the EV parking space that is not less than 40-ampere and 208/240-volt and equipped with raceways, both underground and surface mounted, to enable the future installation of electric vehicle supply equipment. For two adjacent EV-Capable spaces, a single branch circuit is permitted.

**EV-READY SPACE.** A designated parking space which is provided with a dedicated branch circuit that is not less than 40-ampere and 208/240-volt assigned for electric vehicle supply equipment terminating in a receptacle or junction box located in close proximity to the proposed location of the EV parking space. For two adjacent EV-Ready spaces, a single branch circuit is permitted.

Further amend the IECC-Commercial by adding the following sections:

**C103.2. Information on construction documents.**

14. Electric Vehicle charging details and locations.

**C401.4 Electric vehicle parking.** Where parking is provided, new construction shall provide EVSE-installed spaces and facilitate future installation and use of EVSE through the provision of EV-Ready Spaces and EV-Capable Spaces provided in compliance with Sections C401.4.1 through C401.4.2, Where more than one parking facility is provided on a site, EVSE-installed, EV-Ready Spaces and EV-Capable Spaces shall be calculated separately for each parking facility.

**C401.4.1 New commercial and multifamily buildings.** EVSE-installed spaces, EV-Ready Spaces and EV-Capable Spaces shall be provided in accordance with Table C401.4.1 for Commercial buildings and Table C401.4.2 for multifamily buildings. Where the calculation of percent served results in a fractional parking space, it shall be rounded up to the next whole number.

The circuit shall have no other outlets. The service panel shall include an over-current protective device and provide sufficient capacity and space to accommodate the circuit and over-current protective device and the termination point shall be located in close proximity to the proposed location of the EV parking spaces.

**TABLE C401.4.1**

**EVSE-INSTALLED, EV-READY SPACE AND EV-CAPABLE SPACE REQUIREMENTS FOR NEW COMMERCIAL BUILDINGS**

<u>Total Number of Parking Spaces</u>	<u>Minimum number or % of EVSE-Installed Spaces<sup>a</sup></u>	<u>Minimum number or % of EV-Ready Spaces<sup>b</sup></u>	<u>Minimum number or % of EV-Capable Spaces</u>
<u>1</u>			
<u>2 – 10</u>			
<u>11 – 15</u>			
<u>16 – 19</u>			
<u>21 - 25</u>			
<u>26+</u>	<u># or % of total parking spaces</u>	<u># or % of total parking spaces</u>	<u># or % of total parking spaces</u>

a. Where EVSE-Installed Spaces installed exceed the required values in Table C401.4.1 the additional spaces shall be deducted from the EV-Ready Spaces requirement.

b. Where EV-Ready Spaces installed exceed the required values in Table C401.4.1 the additional spaces shall be deducted from the EV-Capable Spaces requirement.

**TABLE C401.4.2**

**EVSE-INSTALLED, EV-READY AND EV-CAPABLE SPACE REQUIREMENTS FOR NEW MULTIFAMILY BUILDINGS**

<u>Total Number of Parking Spaces</u>	<u>Minimum number or % of EVSE-Installed Spaces<sup>a</sup></u>	<u>Minimum number or % of EV-Ready Spaces<sup>b</sup></u>	<u>Minimum number or % of EV-Capable Spaces</u>
<u>1</u>			
<u>2 – 10</u>			
<u>11 – 15</u>			
<u>16 – 19</u>			
<u>21 - 25</u>			
<u>26+</u>	<u># OR % OF TOTAL PARKING SPACES</u>	<u># OR % OF TOTAL PARKING SPACES</u>	<u># OR % OF TOTAL PARKING SPACES</u>

a. Where EVSE-Installed Spaces installed exceed the required values in Table C401.4.2 the additional spaces shall be deducted from the EV-Ready Spaces requirement.

b. Where EV-Ready Spaces installed exceed the required values in Table C401.4.2 the additional spaces shall be deducted from the EV-Capable Spaces requirement.

**C401.4 IDENTIFICATION.** Construction documents shall indicate the raceway termination point and proposed location of future EV spaces and EVSEs. Construction documents shall also provide information on amperage of future EVSE, raceway methods, wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site distribution transformers, comply with the requirements of this code. Vehicle spaces equipped with EVSE shall be identified by signage. A permanent and visible “EV-Capable” or “EV-Ready” label shall be posted in a conspicuous place at the service panel to identify each panel space reserved to support EV-Capable or EV-Ready Spaces, respectively and at the termination point of the raceway or circuit termination point.

NOTES:

Jurisdictions adopting EV provisions that have not adopted the 2021 IBC must also amend earlier versions of the International Building Code to renumber Section 1109.14 Fuel-dispensing Systems and add the following language into Chapter 11:



## **SECTION 1107**

### **MOTOR-VEHICLE-RELATED FACILITIES**

**1107.1 GENERAL.** Electrical vehicle charging stations shall comply with Section 1107.2. Fuel-dispensing systems shall comply with Section 1107.3.

**1107.2 ELECTRICAL VEHICLE CHARGING STATIONS.** Electrical vehicle charging stations shall comply with Sections 1107.2.1 and 1107.2.2.

**EXCEPTION:** Electrical vehicle charging stations provided to serve Group R-2, R-3 and R-4 occupancies are not required to comply with this section.

**1107.2.1 NUMBER OF ACCESSIBLE VEHICLE SPACES.** Not less than 5 percent of vehicle spaces on the site served by electrical vehicle charging systems, but not fewer than one for each type of electric vehicle charging system, shall be accessible.

**1107.2.2 VEHICLE SPACE SIZE.** Accessible vehicle spaces shall comply with the requirements for a van accessible parking space that is 132 inches (3350 mm) minimum in width with an adjoining access aisle that is 60 inches (1525 mm) minimum in width.

#### **1107.3~~1109.14~~ FUEL-DISPENSING SYSTEMS.**

Fuel-dispensing systems shall be *accessible*.

#### NOTES:

There are other important code references to examine in parallel to IECC. If not consistent with the latest editions update:

- Section 625 of the National Electrical Code (NFPA 70)
- Section 406.2.7 of the IBC

## REFERENCE LIST

[Electric Vehicle Charging Station Permitting Guidebook – California Office of Business and Economic Development](#)

[EV Infrastructure Building Codes: Adoption Toolkit – Southwest Energy Efficiency Project \(SWEET\)](#)

[Final Code Amendment Proposal 2019 – City of Denver Community Planning & Development](#)

[Greenhouse Gas Emissions – U.S. EPA](#)

[IECC Commercial 2019 Group B Proposed Changes – International Code Council](#)

[Electric Vehicle Charging for Buildings – City of Vancouver Building Policy Branch](#)

[IECC Residential / IRC Energy 2019 Group B Proposed Changes – International Code Council](#)

[New Building Codes for Charging Electric Vehicles – Alliance to Save Energy \(ASE\)](#)

[2030 Greenhouse Gas Pollution Reduction Target \(Fact Sheet\) – U.S. White House](#)

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## APPENDIX

### STAKEHOLDERS PROVIDING INPUT

The following stakeholders participated in a listening session in January 2021 and/or August 2021 or provided feedback on a draft released for comment in July 2021. Participation in the listening sessions or providing feedback does not indicate support of the content of this resource. The content may not reflect the policies or positions of the individuals or organizations identified.

Sharon Bonesteel, Salt River Project

Joseph Briscar, Responsible Energy Codes Alliance

Joe Cain, Solar Energy Industries Association

Ed Carley, National Association of State Energy Officials

Andrew Carlson, Pyramid1

Kim Cheslak, New Buildings Institute

Patricia Chawla, Austin Energy

Sean Denniston, New Buildings Institute

Noelani Derrickson, Tesla

Ian Finlayson, State of Massachusetts

Matt Frommer, Southwest Energy Efficiency Partnership

Ken Gear, Leading Builders of America

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Duane Jonlin, City of Seattle

Emily Kelly, ChargePoint

Vladimir Kochkin, National Association of Home Builders

Eric Lacey, Responsible Energy Codes Alliance

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Steve Orlowski, Window and Door Manufacturers Association  
Christopher Perry, American Council for an Energy Efficient Economy  
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Steve Rosenstock, Edison Electric Institute  
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Nick Thompson, City of Aspen  
Michael Tillou, Pacific Northwest National Laboratory  
Clayton Traylor, Leading Builders of America  
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