CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Memorandum

TO: TRANSPORTATION AND ENVIRONMENT COMMITTEE

FROM: Matt Loesch
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SUBJECT: **Electric Vehicle Fleet and Charging Infrastructure Update**

DATE: November 8, 2024

Approved  Date **11/25/24**

RECOMMENDATION

Accept the report on the status of the Electric Vehicle Fleet and Citywide Charging Infrastructure Workplan.

BACKGROUND

Emissions from transportation make up about half of San José's total greenhouse gas emissions.[1] Electrifying transportation through the adoption of electric vehicles (EVs), buses, medium- and heavy-duty vehicles, and e-bikes will be a major factor in reducing emissions.

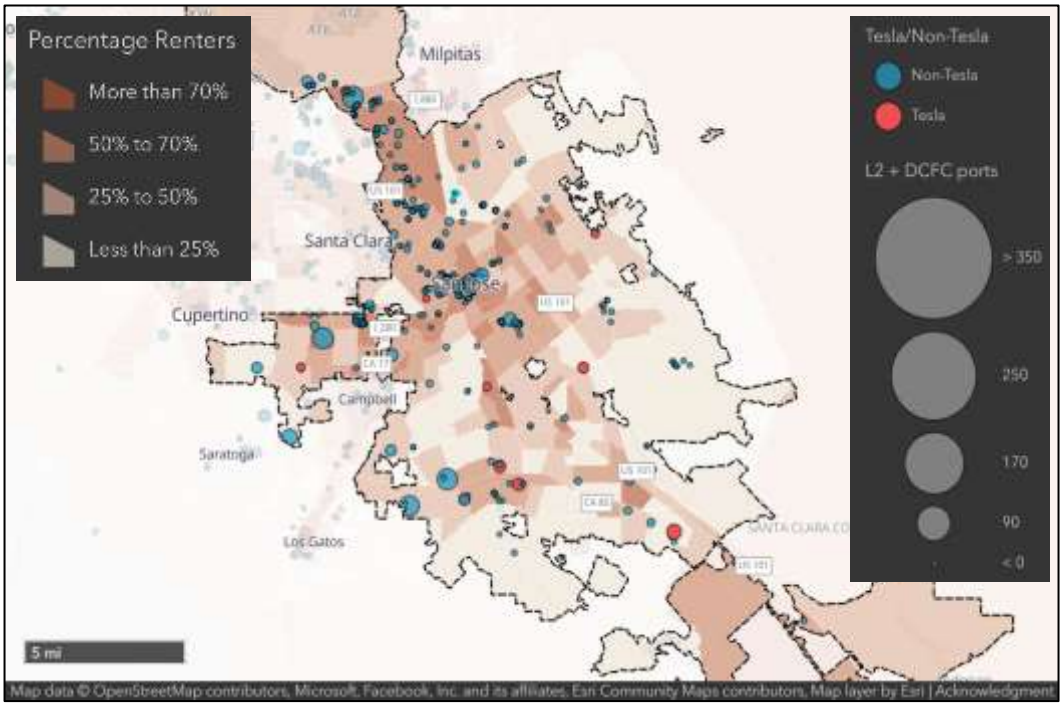
State rules will propel consumers and fleets towards EVs. In August 2022, the California Air Resources Board established the Advanced Clean Cars rule that will rapidly scale down the availability of new cars that run on gas; by 2035, only zero-emission cars and light trucks will be for sale. Already, zero emission vehicles (including EVs, plug-in hybrids, and fuel cell vehicles) made up 42% of new light-duty vehicle sales in Santa Clara County in 2024 year-to-date.[2] EV adoption has been concentrated among higher-income households that typically are able to charge at home. While the high purchase prices have created a barrier to EV adoption for many, federal and state programs and market forces are making EVs more affordable and accessible for low-income consumers. However, renters and residents living in multifamily properties face further barriers to EV adoption due to the lack of charging available where they live and little to

[1] Climate Smart San José 2021 Communitywide Greenhouse Gas Inventory
[2] California Energy Commission Light-Duty Vehicle Population in California

no access to public charging infrastructure (Figure 1). While the prevalence of charging infrastructure is slowly increasing in low-income communities, more public investment is needed to close the charging access gap. Public charging retail rates – set by third-party owners of chargers – can be as high as 80% more than off-peak home charging rates for fast charging and 10% higher for Level 2 charging.[3] Residents who are unable to charge at home may face higher fueling costs without intervention.

To ensure that all residents have access to zero-emission transportation, staff recommend expanding the number and variety of affordable options that are available throughout the city, including but not limited to bikeshare, shared scooters, electric microtransit (on-demand shuttles), and e-carshare services. More and affordable charging options are also essential to realizing this goal.

Figure 1. Public EV Chargers and Percentage of Renters by Census Tract (Data Sources: City of San José Open Data Portal, American Community Survey 2022, U.S. Department of Energy)



In April 2023, the California Air Resources Board adopted the Advanced Clean Fleet rule, which required many fleets in the state, including local government fleets, to begin to transition medium and heavy-duty vehicles to zero-emission options, which includes electric and hydrogen, in 2024. Fleet owners can request exemptions to purchase an

[3] Assumes off-peak home charging rate of $0.32/kilowatt-hour (kWh) versus $0.58/kWh for public fast charging and $0.35/kWh for public level 2 charging.

internal combustion engine vehicle if a zero-emission option does not exist and the fleet cannot otherwise meet the targets. There are two compliance pathways:

1. Purchase schedule: Starting in 2024, 50% of new vehicle purchases must be zero-emission; that increases to 100% starting in 2027; or
2. Milestone: Transition a percentage of vehicles to meet zero-emission milestones that increases to 100% by 2035-2042, depending on vehicle type.

In its first compliance filing in spring 2024, the City of San José chose the purchase schedule pathway. The Department of Public Works manages the City's fleet and associated equipment, including 3,000 active assets of which 1,941 are vehicles (Table 1). Approximately 50% of the vehicles use alternative fuels, including renewable diesel, propane, and either all-electric or hybrid fuel mixes. All-electric and hybrid vehicles make up nearly 12% of the City's fleet inventory, equating to nearly 250 vehicles, with 240 current charging stations throughout Citywide facilities. Additionally, there are currently 229 new vehicle acquisition requests across the City, which will require more charging stations and electrical service upgrades to facilities to support these operations (Table 2).

Table 1. Number of Existing City Fleet Vehicles by Type and Purpose

	Light Duty	Medium Duty	Heavy Duty	Total
Public Safety	771	45	94	910
Non-Public Safety	693	240	98	1031

Table 2. Current Acquisition Requests

	Light Duty	Medium Duty	Heavy Duty	Total
Public Safety	92	4	9	105
Non-Public Safety	67	40	17	124

ANALYSIS

In response to state regulations and the City's climate goals, the Departments of Energy (administrator of San José Clean Energy), Public Works, and Transportation continue to collaborate in Fiscal Year (FY) 2024-2025 on two workplans aimed at addressing these priorities: [4]

1. Electrification of the City's fleet and installation of accompanying charging infrastructure, and
2. Ensuring residents have equitable access to public charging infrastructure and affordable charging rates.

[4] San José's pathway to Carbon Neutrality by 2030 accelerated the city's Climate Smart goals to transition 79-88% of passenger vehicles to electric by 2030 and to reduce commute trips taken in single-occupancy vehicles.

The sections below provide updates on key elements of these workplans.

Fleet Electrification Master Plan Findings

In December 2023, staff hired an industry consultant to produce a master plan to guide electrification of the City's fleet. As part of this analysis, the consultant:

- Computed average daily electric demand for each fleet vehicle once converted to electric and allocated this demand to 55 City facilities where the vehicles domicile;
- Compiled total cost of ownership, including capital and operating costs for vehicles and chargers, for the conversion of the fleet to electric vehicles over the next decade and compared it to the total costs for a gas-powered fleet;
- Interviewed several City departments about their use of fleet vehicles;
- Assessed the electric capacity and infrastructure needs of 28 City sites for charging;
- Developed conceptual plans for charger installations at 12 City sites, with 9 more in progress; and
- Scored City facilities for their ability to meet public charging demands for multifamily residents and renters, among other activities.

The consultant found that the City will need to install 919 additional charging plugs across 55 City-owned sites over the next 15 years for the fleet. Approximately 93% of the charging plugs should be Level 2 while 7% should be Direct Current Fast Chargers, with an average of 2.0 vehicles sharing a charging plug (ranging from close to 1 and up to 4.5 vehicles per charging plug, depending on vehicle usage characteristics and projected charging demand at each site). Of the 55 City sites requiring charger installations, the consultant identified seven charging "hubs" where approximately 70% of the total ports should be installed to meet fleet charging demand. These sites are: Police Garage, Central Service Yard, Employee Garage, Police Department Southern Substation, Mabury Yard, South Yard, and the Airport. The second level of sites with "large" demand includes the Regional Wastewater Facility, San José Municipal Water Offices, 4th Street Garage, and Kirk Community Center. Sites with lower levels of charging demand for the City fleet include fire stations, parks, community centers, and libraries.

Converting the full City fleet to electric and fueling it with electricity supplied by San José Clean Energy will result in the reduction of 15,391 metric tons of carbon dioxide equivalents of annual greenhouse gas (GHG) emissions. This will effectively remove all GHG emissions from the City's fleet, which accounts for 12% of municipal emissions. This assumes that 100% carbon neutral electricity is used to power the fleet starting 2030.

As the citywide electrification program expands to comply with internal Green Fleet Policy goals and State mandates, it will require additional funding support. There are

three major phases of procurement and operation, including the acquisition of new electric vehicles (for replacement of existing or new adds to support growing programs), the purchase and installation of electric vehicle supply equipment to properly charge vehicles in their domicile locations, and the site assessment and behind-the-meter electric infrastructure upgrades at such domicile locations to ensure load demand can be accommodated. Such needs have been discussed in past capital budget cycles and will continue to be discussed as part of future budget building cycles.

The cost associated with gradually replacing the City fleet with electric vehicles is estimated at a total of $106.5 million, equaling about $64,000 per vehicle on average across the entire fleet (light-, medium-, and heavy-duty vehicles). This cost assumes that the City will prioritize replacement of gasoline and diesel vehicles before replacing any existing EVs. The transition of vehicles is expected to last through 2039, implying an average annual cost of approximately $7.1 million for the next 15 years. Continued gas and diesel vehicle purchases are projected to be less costly only in the next few years, while purchase cost parity between EVs and combustion engine vehicles is projected to be achieved by 2030 and possibly sooner for some vehicle types. The City's past fleet vehicle replacement budget has averaged $1.25-1.5 million per year for non-public safety vehicles and $6 million per year for public safety vehicles, which combined is about the same as the projected average annual EV purchase costs.

The cost associated with the buildout of suitable fleet EV charging infrastructure across the City's 55 facilities is estimated at roughly $29.5 million over the transition period of 15 years. The charger installations are recommended to be completed in phases and concentrated, rather than adding chargers every year or all at once. While only comprising 7% of all chargers recommended to be installed by the City, direct current fast chargers account for about 35-40% of the estimated total fleet charging infrastructure installation costs. This is due to comprehensive electrical service upgrades required at the facilities where fast chargers should be deployed. Currently, there are grant funding opportunities (Appendix) and tax credits available to lower costs to the City to deploy this infrastructure.

The City's consultant is currently finalizing a comparison of operational costs needed over time for an electric fleet and how these costs compare to a gas-powered fleet. Typically, owners of electric light duty vehicles spend about half as much on maintenance compared to gas-powered vehicles.

In FY 2024-2025, staff will explore several options for procuring electric vehicles, trucks, and chargers. While local governments typically purchase vehicles outright and own and operate chargers, new procurement models have emerged such as charging-as-a-service and vehicle-as-a-service. In these new models, vendors provide fleet operators with access to chargers and/or vehicles without the fleet operator needing to own or maintain them. The fleet operator pays the vendor a fixed monthly or annual fee for a set term (typically 10 to 20 years) that combines capital and operating expenditures.

While overall costs could be higher than the own/operate model, fleet operators would not need to make a large capital investment to procure chargers or vehicles.

Challenges with Advanced Clean Fleets

The City is currently experiencing challenges meeting the Advanced Clean Fleet requirements due to the lack of availability of medium-to-heavy duty compliant vehicle types in California as well as reserving such vehicles for purchase due to extremely limited supply. Even when available the cost of such compliant vehicles is 300% or more than the cost of a traditional gas fueled equivalent. Additionally, in order to properly charge these vehicles for the duration of their operations per day, direct current fast charger equipment is required. Currently only Level 2 chargers are installed at City facilities. Staff is working with the fleet electrification master plan consultant to assess the electrical supply at the various vehicle domicile locations to determine service level upgrade needs and associated costs to procure and install direct current fast chargers.

Staff has met with the California Air Resources Board on multiple occasions to share the challenges with complying with the Advanced Clean Fleet requirements related to procurement of both vehicles and charging equipment, specifically the availability, affordability, and chargeability. Due to the difficulties obtaining compliant vehicles and installing charging equipment, and to ensure continued operations of critical programs, staff will submit exemption requests in November 2024 to allow the purchases of alternate vehicles.

External Funding Opportunities for Chargers

Staff is applying for grants and programs to increase the amount of charging infrastructure in San José to meet both fleet and public needs. The Appendix includes a list of grant opportunities that the City applied to in FY 2023-2024 and opportunities it is evaluating in FY 2024-2025.

Public Charging Infrastructure Programs and Initiatives

These four City programs and initiatives described below aim to make charging stations available to residents in more parts of San José, particularly in areas lacking charging infrastructure

- **Multifamily Charger Incentive Pilot Program**: In October, San José Clean Energy launched a rebate program for the installation of low-power Level 2 chargers and Level 1 and 2 outlets at multifamily properties, offering up to $5,000 per charging stations and up to $2,000 per outlet. Multifamily property owners can stack the program with a PG&E program to reduce installation costs. Energy staff expect the program to fund projects at seven to 10 multifamily properties and will evaluate whether to recommend expansion of the pilot to the City Council in spring 2025.

- **Direct Current Fast Charging Hubs Pilot Program**: In November 2022, the City Council approved San José Clean Energy to develop a fast charging hubs pilot program, whereby the City would enter into tolling agreement(s) with one or more vendors to deploy one to three fast charging hubs at City-owned or private sites in low-income communities to increase access to affordable and reliable EV charging. Each hub would contain parking spaces and chargers to accommodate at least 10 EVs and run for 10 years. San José Clean Energy would control variable retail pricing to encourage middle-of-the-day charging. In 2022 staff bid out the program, negotiated with bidders, conducted interviews with other market participants, and determined that the program should be rebid to receive more offers. Energy staff plan to rebid the pilot program in winter of FY 2024-2025 with six to seven sites that could also help meet the City fleet's charging needs.
- **Third-party Charging Providers**: Energy and Transportation Department staff continue to explore whether allowing third-party charging providers such as Tesla and EVGo to install chargers on City property could help the City meet fleet and public charging needs cost-effectively and equitably. The City could benefit from having control over or influencing the retail rates, specifically to better reflect the cost of energy on the power grid and include discounts for low-income residents and/or the City fleet. Staff is conducting outreach to charging providers and working with the City Attorney's Office to develop a policy for Council consideration similar to Council Policy 7-10 which guides macro telecommunication installations on City-owned facilities, to standardize the requirements and process for EV charger installations.
- **EV Infrastructure Planning and Mapping Tool**: In 2023 Department of Transportation staff began developing an internal, web-based GIS application to identify and evaluate potential sites for public EV charging stations, particularly targeting areas lacking charging infrastructure to support grant applications. With access to a comprehensive data subscription and the completion of related EV planning efforts in 2024, such as the fleet electrification master plan, City staff will explore options to broaden this tool's scope and functionality. This expansion aims to enable the evaluation of potential EV charging sites across the City, including public facilities, curbside locations, and other strategically selected areas.

Shared and Micromobility Initiatives

In 2023 and 2024, the City was awarded various grants to expand the Bay Wheels bikeshare system to underserved communities in the East San José area (Appendix Table 1). These grants will support a total of 32 new bikeshare stations and over 700 new e-bikes to be deployed over the next 2 years.

In addition to bikeshare expansion, in 2024 Department of Transportation staff secured $5.2 million in grant funding to develop the East San José Equity Mobility Project. This comprehensive program aims to enhance e-mobility and micromobility services in East

San José through partnerships with community-based organizations, including SOMOS Mayfair, AMIGOS de Guadalupe, and META Co-Op. The project includes:

- Bike school programing: Hands-on bike education, training, and safety clinics reaching 600 students from Overfelt High School, James Lick High School, Escuela Popular, and SOMOS Jovenes Activos. The program features bike earning opportunities, safety workshops, mechanic apprenticeships, and support for open street events like Viva Calle.
- Emerging Mobility Promotoras Program: A community-led initiative that trains and empowers local women (Promotoras) to become leaders in transportation engagement and advocacy.
- Micro-transit co-op feasibility study: This study will assess the technical, operational, and financial feasibility of creating a worker co-op to operate zero-emission micro-transit services in East San José.

The East San José Equity Mobility Project Program will launch in fall 2025 and is expected to conclude by April 2027.

COORDINATION

This memorandum has been coordinated with the City Attorney's Office, City Manager's Budget Office, and the Environmental Services Department.

/s/	/s/	/s/
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ATTACHMENT

Appendix: Summary of EV Charging Infrastructure Grant Opportunities

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Table 1. Submitted Grant Applications

Grant Name/Agency	Opportunity	Application Amount	Timeline
Charging and Fueling Infrastructure (CFI) Community Program, Cycle 1 US Department of Transportation	Department of Transportation applied for funding to install 12 Level 2 chargers at three libraries in East San José	$1.2M	Applied in spring 2023; and resubmitted in July 2024; Not awarded.
Charging Infrastructure for Government Fleets California Energy Commission (CEC)	Energy Department applied for funding to install 120 Level 2 and 36 fast charging ports to meet EV fleet and public charging needs.	$3.77M	Submitted April 2024; Not awarded.
CFI Community Program Cycle 2 US Department of Transportation	Department of Transportation applied for funding to install 106 Level 2 and 14 fast charging ports across 12 City facilities to meet fleet and public charging needs. The City applied in partnership with Silicon Valley Clean Energy (SVCE) for additional chargers to be installed in other Santa Clara County cities (20% match requirement).	$6M	Submitted September 2024. Notice of awards expected Q1 CY 2025.
Community Change Grant US Environmental Protection Agency (EPA)	Purchase and install 12 Level 2 chargers across three City facilities. Includes site design, software, trenching, and permits.	$1.1M	Submitted August 2024. Notice of awards expected Q1 of CY 2025.

Grant Name/Agency	Opportunity	Application Amount	Timeline
Bay Wheels Bike Share Expansion Metropolitan Transportation Commission (MTC)	Direct funding to Lyft to acquire approximately 700 e-bikes and install 23 new bikeshare stations in East San Jose, with funding gradually provided over the course of the project.	$3M	Effective October 19, 2023 through 2025
Clean Mobility Options California Air Resources Board (CARB)	Funding to support 9 new bikeshare stations in East San Jose	S1.5M	Submitted on August 16, 2023. Awarded on October 10, 2023.

Table 2. Grant Applications Under Consideration

Grant Name/Agency	Opportunity	Application Amount	Timeline
Sustainable Transportation Planning Grant California Department of Transportation (Caltrans)	Available for technical planning, such as development of a strategic Electric Vehicle Charging Station Network Plan	$300,500 (total project cost)	Apply in Winter 2025; Notice of Award Summer 2026
2024 Climate Program Implementation Grants: Charging Infrastructure Metropolitan Transportation Commission (MTC)	Available for acquisition, installation, or operation of publicly accessible electric vehicle (EV) or e-mobility charging infrastructure (Level 1, Level 2, DC Fast Charge).	$500,000-$2M	Apply by December 20, 2024.
PG&E's EV Fleet Program	Provides rebates for infrastructure costs for charger installations for medium and heavy-duty fleet vehicles at City facilities. Also provides rebates for the chargers if the chargers are in census tracts with a high pollution burden.	Up to $9,000/vehicle (up to 25 vehicles) for infrastructure upgrades, or up to 80% of costs and up to $42,000/charger	Through 2026 or until funding is subscribed.
CFI Program Cycle 3, US DOT	Pending announcement for a new cycle, the City will continue to pursue funding for installation of EV chargers for fleet and public use prioritizing disadvantaged communities	$10M-20M	Next round of funding expected in FY 2025