

# BUILDING REACH CODE UPDATE (D) 6

---

Transportation and Environment Committee  
December 5, 2022

Presented by Kerrie Romanow, Director – Environmental Services Department (ESD)

Julie Benabente – Deputy Director – ESD

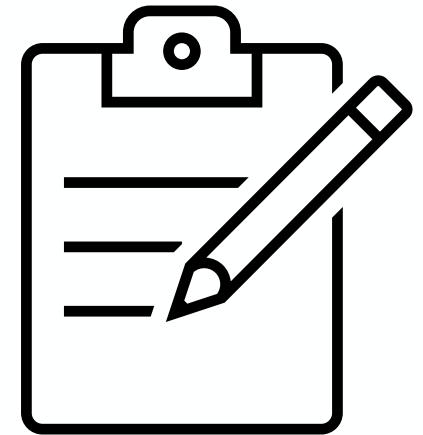
Jessica Zenk – Deputy Director – Department of Transportation (DOT)

Delivering world-class utility services and programs  
to improve health, environment, and economy.



# BACKGROUND

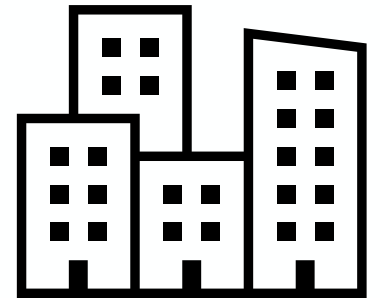
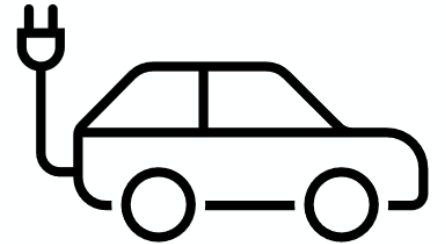
- Climate Smart San José (2018) and Pathway to Carbon Neutrality by 2030 (2022) set and accelerated electric vehicle (EV) and local renewable energy installation goals
- California set rule requiring 100% zero-emissions car sales by 2035 (2022)
- City's 2019 building reach code
  - Required 70% EV Capable, 20% EV Ready, 10% EV Service Equipment (EVSE) for new multifamily buildings
  - Requires solar-readiness across all new developments






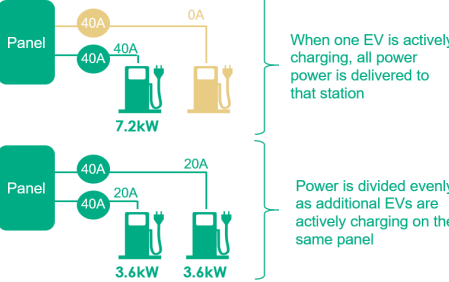
# COUNCIL DIRECTION

City Council directed staff to return before the end of 2022, after community engagement, with:

- An estimate of the marginal per-unit cost of expanding multifamily EV charging infrastructure requirements (5% EVSE, 95% EV Ready)
- Recommendations on 1) updating roof space design standards to expand use of solar on rooftops and 2) mitigate embodied carbon from building materials



# EV CHARGING INFRASTRUCTURE DEFINITIONS

<p><b>EV Capable</b></p>		<p>Raceway (conduit), electrical capacity (breaker space).</p>
<p><b>EV Ready (Plug &amp; Play)</b></p>		<p>Raceway (conduit), electrical service capacity, overcurrent protection devices, wire and outlet (i.e. full circuit).</p>
<p><b>EV Supply Equipment (EVSE) Installed Level 2 Charger</b></p>		<p>All the equipment needed to deliver electrical energy from an electricity source to the EV.</p>
<p><b>Automated Load Management System (ALMS)</b></p>	 <p>When one EV is actively charging, all power is delivered to that station</p> <p>Power is divided evenly as additional EVs are actively charging on the same panel</p>	<p>Allows for power sharing across multiple charging stations.</p>
<p><b>Networked</b></p>	<p>EVSE are connected remotely to a larger network and are part of an infrastructure system of connected chargers. Allows for remote access and management of the charging station.</p>	
<p><b>Low Power (LP)</b></p>	<p>Charge at a slower rate than standard L2 chargers but provide cost savings due to reduced electrical infrastructure needs.</p>	

# MARGINAL COST ANALYSIS FINDINGS

EVCI Cost Analysis	Cost per Port	San José Reach Code		Option 1A - Council Direction		Option 1B-Regional Model		Option 1C - Networked Model	
		% of spaces	cost	% of spaces	cost	% of spaces	cost	% of spaces	cost
L2 EV Capable	\$2,362	70%	\$165,358		\$0		\$0		\$0
L1 EV Ready	\$2,061		\$0		\$0		\$0		\$0
L2 EV Ready - LPL2	\$2,352		\$0	85%	\$199,903	85%	\$199,903	85%	\$199,903
L2 EV Ready	\$2,806	20%	\$56,111	10%	\$28,056		\$0		\$0
L2 EVSE- dumb ALMS, dual port	\$3,114	10%	\$31,136		\$0	15%	\$46,703		\$0
L2 EVSE- networked ALMS, dual port	\$4,935		\$0	5%	\$24,676		\$0	15%	\$74,027
L2 EVSE - networked ALMS, single port	\$7,135		\$0		\$0		\$0	0%	\$0
<b>Total</b>		100%	\$252,604	100%	\$252,634	100%	\$246,606	100%	\$273,930
% of construction cost			0.4%		0.4%		0.4%		0.5%
% of charging spaces		30%		100%		100%		100%	

- Options 1A (min. Council direction) and 1B (regional model) are cost comparable, at 0.4% of construction cost, to the City’s current reach code while Option 1C is slightly higher (0.5%)
- Option 1B and 1C include more EVSE (15%) with either a “dumb” (non-networked) or networked EVSE option respectively.

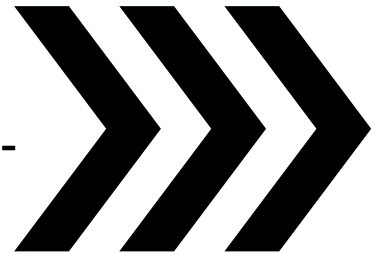
# KEY ANALYSIS TAKEAWAYS

## EV Charging Infrastructure in Multifamily

- Updating to a minimum of 5% EVSE and the remainder L2 EV Ready can be cost comparable to the City's current reach code standards while providing significantly more EV charging spaces.
- Implementing at the time of construction will be significantly less costly than implementing as a retrofit

## Embodied Carbon

- Estimated at 2.7% of consumption-based emissions, not in City's inventory
- Existing statewide legislation and local policies require or encourage the use of more carbon-friendly materials, such as timber and low-carbon concrete.
- CALGreen has voluntary measures for low-carbon concrete mixes
- Bay Area Embodied Carbon Regional Working Group is developing a regional policy guide



## Solar

- San José has 270 MW of solar installed (5<sup>th</sup> in the nation per capita) and a goal of 1 gigawatt by 2040.
- Reach code, online City permitting, and federal tax credits incentivize installations
- CPUC's final NEM 3.0 rules (under review) could significantly influence solar financials

# STAKEHOLDER ENGAGEMENT OVERVIEW

General support for the City to expand EV infrastructure in multifamily housing and to pursue voluntary measures to increase low-carbon concrete use in construction.

Feedback around three themes:

- **Managing building cost increases** by allowing charging access for each household rather than each parking space and consider L1 charging requirements
- Reframing EV charging access in multifamily housing as an **equity concern** and **connecting to a unit's electrical service panel** to allow for the resident to manage cost
- Suggestion for City to **assess EV ownership data** in multifamily housing to support the need for infrastructure

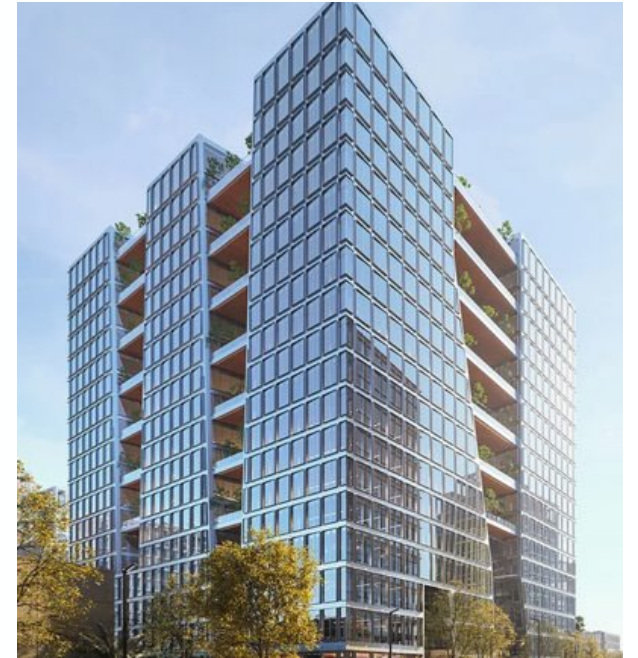
## 5 Public Webinars

### Invitees included:

- **Two sessions:** contractors, developers, labor organizations, affordable housing community
- **Two sessions:** residents, affordable housing community
- **One session:** landlords, HOAs, property managers, community-based organizations, affordable housing community

# RECOMMENDATION

Accept this update on the marginal cost analysis for increased electric vehicle charging infrastructure in new multifamily housing developments and on the research findings on embodied carbon mitigation strategies and the City's roof design standards to allow expanded use for rooftop solar.





# Questions