

RS 8. B. 11/15/22 Presentation

# REQUIREMENTS FOR EV CHARGING INFRASTRUCTURE

City Council Public Hearing  
Land Use File #ZA-2022-006  
November 15, 2022

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# NEW STATE REQUIREMENTS

- **House Bill 2180 (HB 2180)**
- **Climate Friendly & Equitable Communities (CFEC) Rulemaking**
- **Deadline for code amendments = March 31, 2023**



*Milwaukie's Electric Avenue*






# HB 2180 & CFEC RULE COMPARISON

<b>Table 3</b> <b>New Statewide Requirements for EV-Capable Infrastructure</b>		
	<b>HB 2180</b> <b>(ORS</b> <b>455.417)</b>	<b>CFEC</b> <b>(OAR 660-12-</b> <b>0410)</b>
<b>Amends the State Building Code</b>	<b>Yes</b>	<b>No</b>
<b>Mandates amendments to Milwaukie city code</b>	<b>No</b>	<b>Yes</b>
<b>Applies to Mixed-Use &amp; Multifamily Buildings with 5+ units</b>	<b>Yes</b>	<b>Yes</b>
<b>Applies to Commercial Buildings</b>	<b>Yes</b>	<b>No</b>
<b>Applies only to New Construction</b>	<b>Yes</b>	<b>Yes</b>
<b>Requires EV-capable parking spaces that support Level 2 chargers</b>	<b>Yes</b> <b>(20%)</b>	<b>Yes</b> <b>(40%)</b>
<b>Effective date</b>	<b>07/01/2022</b>	<b>03/31/2023</b>



# LEVELS OF EV CHARGING INFRASTRUCTURE

Table 1  
Levels of EV Charging\*

Level 1	Level 2	Level 3
 <ul style="list-style-type: none"><li>• Great for overnight charging</li><li>• Plug into a typical grounded outlet</li><li>• All you need is the charging cable that comes with your car</li></ul>	 <ul style="list-style-type: none"><li>• Uses 240-volt outlet (dedicated EV-charging)</li><li>• Ideal for all-electric car charging at home, at work, or on the road</li><li>• Recharge in just a few hours</li></ul>	 <ul style="list-style-type: none"><li>• Recharge in less than an hour</li><li>• Plug shape matters:<ol style="list-style-type: none"><li>1) CHAdeMO standard for Japanese and Korean cars</li><li>2) CCS Combo standard for most American and European</li><li>3) Tesla (unique plug shape)</li></ol></li></ul>

\* These definitions were sourced from Forth, a nonprofit working to “electrify transportation by bringing people together to create solutions that reduce pollution and barriers to access.”



# SPECTRUM OF EV CHARGING INFRASTRUCTURE

Table 2  
Spectrum of EV Charging Infrastructure

## EV Capable



- Electrical capacity is installed—or space is reserved at the panel.
- A conduit system labeled for EV-charging

## EV Ready



- EV Capable requirements are met
- Wiring is installed
- A junction box or 240V outlet is installed

## EV Installed



- All EV-capable and EV-ready requirements are met
- An actual EV charging station is installed.



# WHAT IS REQUIRED BY THE NEW RULES?

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- **40% of new parking spaces must be Level 2 capable** (new multi-unit or mixed-use buildings with 5 units or more)
- **Electrical service capacity** (or space reserved at the panel) **and conduit marked for EV charging**
- ❖ **Cannot require installed EV chargers, nor EV-ready wiring and outlet**



# EQUITY CONSIDERATIONS

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- **Reduced local air pollution** from traffic
- 80% of EV charging **occurs at home**
- Homeowners are **3x more likely** to own EVs — **renters often lack EV chargers** at home
- Likely to **increase EV access** for renters
- **Small impact** on expected rent levels



# EVs IN THE CLIMATE ACTION PLAN

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- *Implement “electric vehicle ready” zoning regulations for commercial buildings and multifamily housing*
- **Create a program** to install EV charging infrastructure at multi-unit housing complexes;
- **Develop incentives** for workplace EV charging; and
- **Support outreach efforts** to encourage shift to electric vehicles.





# CITY COUNCIL DIRECTION

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**At its August 16 work session**, Council expressed support for:

- Increased requirements beyond CFEC and HB 2180 standards
- Compliance options that prioritize installed chargers



# PROPOSED AMENDMENTS

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## **Residential Development** *(Multi-unit or mixed-use 5+ units)*

- Option A = 100% of parking spaces EV Capable

**OR**

- Option B = 40% of parking spaces EV Capable, including at least 10% of spaces with an installed charger

## **Commercial Development**

- Option A = 50% of parking spaces EV Capable

**OR**

- Option B = 20% EV Capable, incl. at least 5% with charger



**Table 4**

**Total EV-Capable Spaces Created and EV Chargers Installed by Compliance Scenarios**

Commercial Scenarios			Spaces Created with EV infrastructure								Residential Scenarios			Spaces Created with EV infrastructure									
			<i>(Parking Lot Size)</i>											<i>(Parking Lot Size)</i>									
			2	6	10	15	25	50	75	100				2	6	10	15	25	50	75	100		
Minimum Compliance		% EV capable	20%	1	2	2	3	5	10	15	20	Minimum Compliance		% EV capable	40%	1	3	4	6	10	20	30	40
Proposed Compliance Options <i>(Choose A or B)</i>	Option A	% EV capable	50%	1	3	5	8	13	25	38	50	Proposed Compliance Options <i>(Choose A or B)</i>	Option A	% EV capable	100%	2	6	10	15	25	50	75	100
	Option B	% EV capable	20%	1	2	2	3	5	10	15	20		Option B	% EV capable	40%	1	3	4	6	10	20	30	40
		% Chargers	5%	1	1	1	1	2	3	4	5			% Chargers	10%	1	1	1	2	3	5	8	10
<p><i>Note:</i> Spaces with an installed charger count toward the EV capable requirements</p>														100% EV-capable spaces									
														75-99.99% EV-capable spaces									
														50-74.99% EV-capable spaces									

# KEY QUESTIONS FOR DISCUSSION

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- Do the proposed amendments satisfy the Council's interest in exceeding the minimum requirements and incentivizing the installation of EV chargers?



# APPROVAL CRITERIA

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## Amendments to Zoning Text (MMC 19.902.5.B)

Consistency with:

1. Other parts of Milwaukie Municipal Code
2. Goals/policies of Comp Plan
3. Metro Urban Growth Management Functional Plan
4. State statutes and Statewide Planning Goals
5. Relevant federal regulations



# DECISION-MAKING OPTIONS

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1. Approve the proposed amendments as presented (with the recommended Findings in Support of Approval).
2. Approve the proposed amendments with revisions (adjusting the recommended Findings as needed).
3. Continue the hearing.

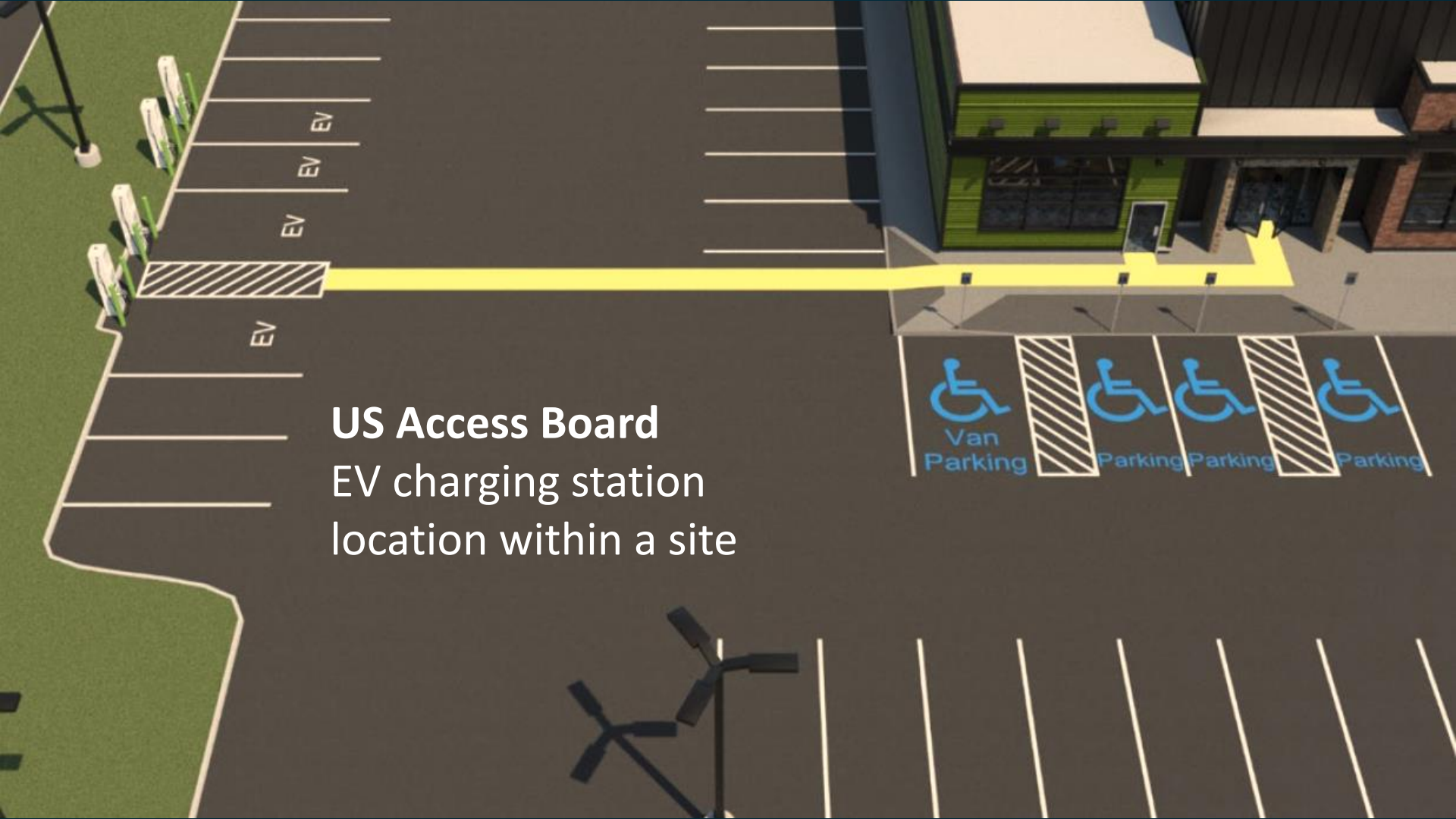
(Amendments required by March 31, 2023)



# END OF PRESENTATION

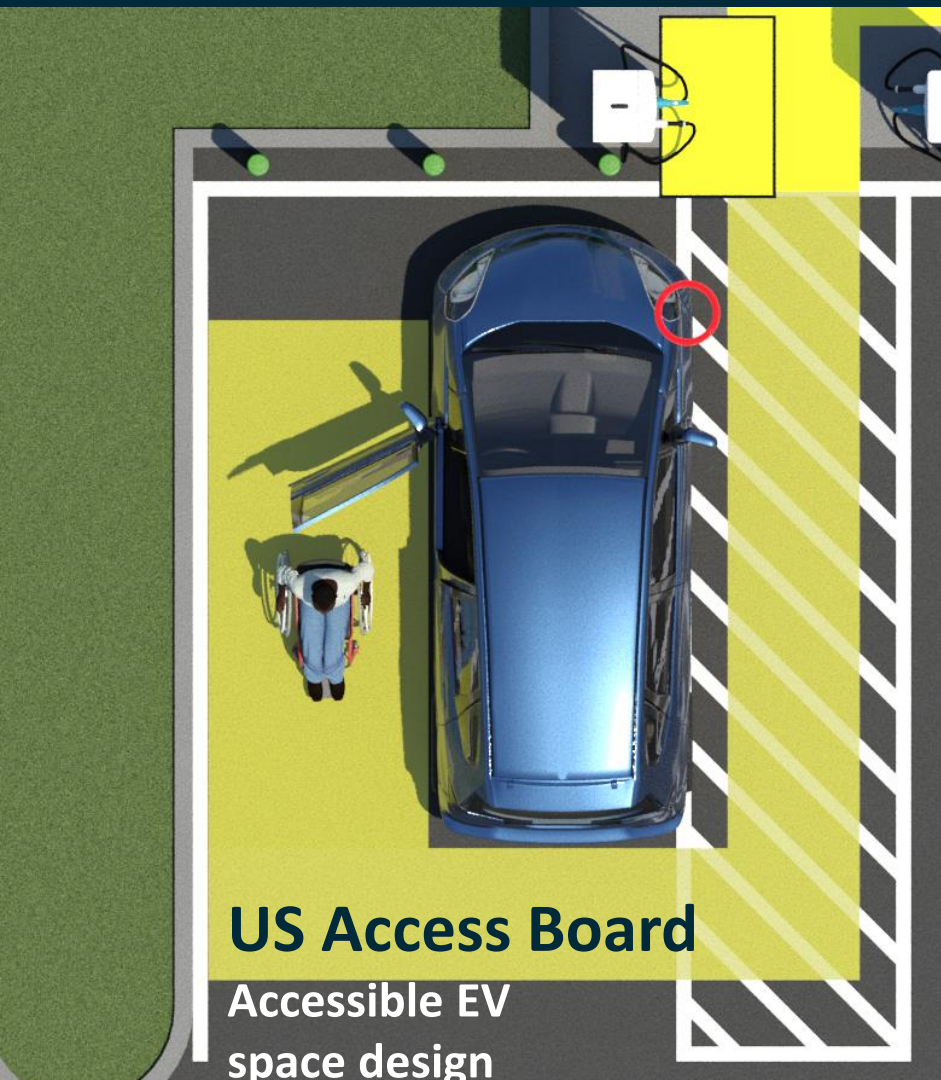
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An aerial view of a parking lot. On the left, there are several EV charging stations, each with a white charging cable and a green charging station. A yellow line connects the charging stations to a building on the right. In the foreground, there are accessible parking spaces marked with blue wheelchair icons and the text 'Van Parking', 'Parking', 'Parking', and 'Parking'. There are also hatched areas between the accessible parking spaces. The building has a green facade and a brick section. There are also some trees and a street light in the background.

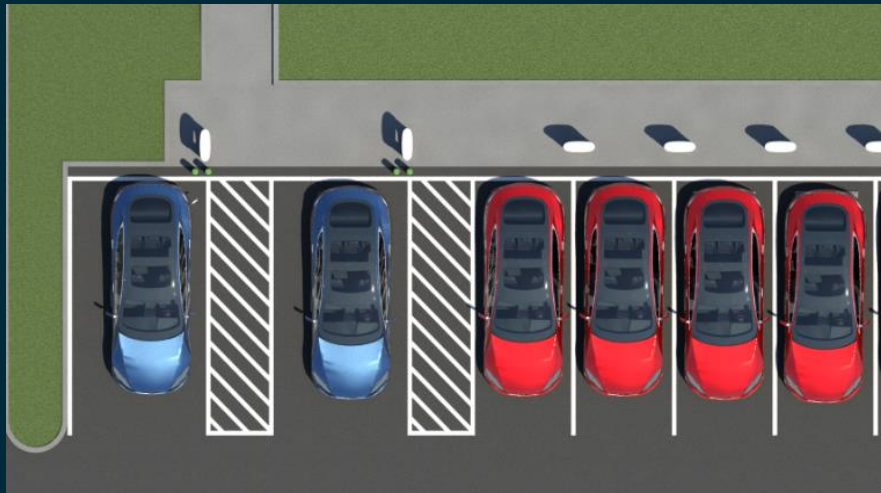
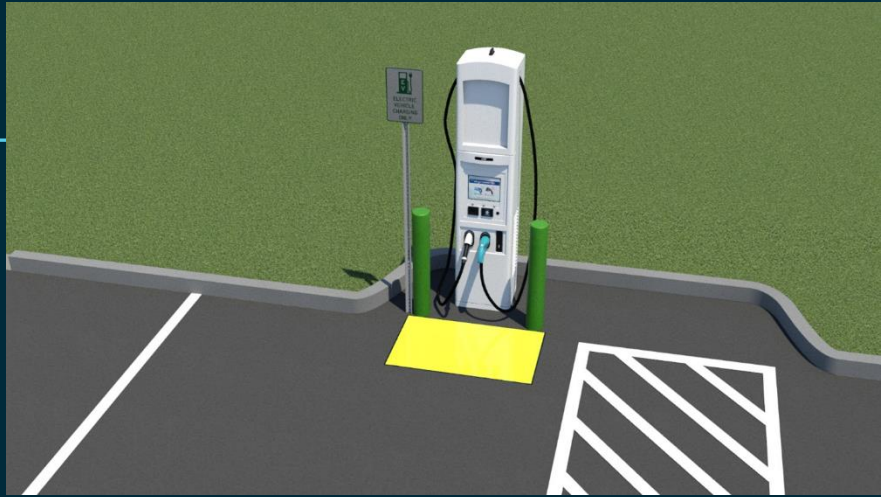
**US Access Board**  
EV charging station  
location within a site





# US Access Board

Accessible EV  
space design





# Milwaukie Community Climate Action Plan

- **10/2/18**  
**CAP approved**

- **8/18/20**  
**Comp Plan**  
**approved**

- **10/6/20**  
**Council letter**  
**supporting EV**  
**Roadmap**  
**Initiative**



# PORTLAND'S CODE APPROACH

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- **Adding development standards** (e.g., placement) for voluntary and required EV-ready installations.
- **Clarifying how EV-ready installations are categorized** in land use code (e.g., primary versus accessory use).
- **Targeting certain incentives to include EV charging** for car sharing and carpool parking.
- **Exempting EV improvements** from nonconforming development thresholds



# PORTLAND CHARGER PLACEMENT

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- **The chargers and equipment can be placed in areas adjacent to parking spaces but are not allowed within required perimeter landscaping areas.**
- **The chargers may project into a portion of a parking space.** However, the chargers cannot project more than a 2-foot square into the minimum required parking dimension.
- **Electrical equipment, generators or transformers associated with EV chargers must be screened from the street** and adjacent residential zones by walls, fences, or vegetation. Screening must comply with at least the L2 or F2 standards of Chapter 33.248, Landscaping and Screening, and be tall enough to screen the equipment.



# PORTLAND FAR INCENTIVE

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- 0.5 to 1 Floor Area Ratio (FAR) bonus incentive for providing structured parking over surface parking if it includes installed chargers adjacent to 50% of spaces, or at least 6+ chargers, whichever is greater.





## DETACHED VERTICAL STRUCTURES

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- Detached vertical structures for Level 2 or higher EV charging must be located within 5 ft of a vehicle area

Detached structures holding conduit and charger are “detached vertical structures.”

## EXHIBIT 1

Cost ranges for charging infrastructure components.

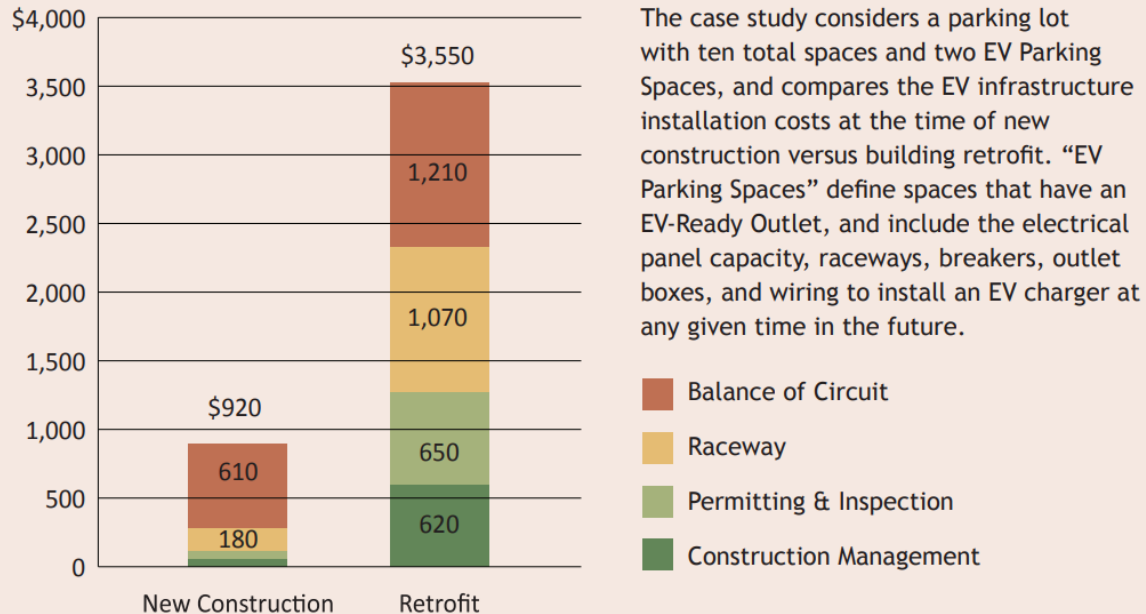
COST ELEMENT	LOWEST COST	HIGHEST COST
Level 2 residential charger	\$380 (2.9 kW)	\$689 (7.7 kW)
Level 2 commercial charger	\$2,500 (7.7 kW)	\$4,900 (16.8 kW); outlier: \$7,210 (14.4 kW)
DCFC (50 kW)	\$20,000	\$35,800
DCFC (150 kW)	\$75,600	\$100,000
DCFC (350 kW)	\$128,000	\$150,000
Transformer (150–300 kVA)	\$35,000	\$53,000
Transformer (500–750 kVA)	\$44,000	\$69,600
Transformer (1,000+ kVA)	\$66,000	\$173,000
Data contracts	\$84/year/charger	\$240/year/charger
Network contracts	\$200/year/charger	\$250/year/charger
Credit card reader	\$325	\$1,000
Cable cost	\$1,500	\$3,500



# RETROFIT VS NEW CONSTRUCTION COST

## Cost per EV Parking Space: New Construction vs Retrofit

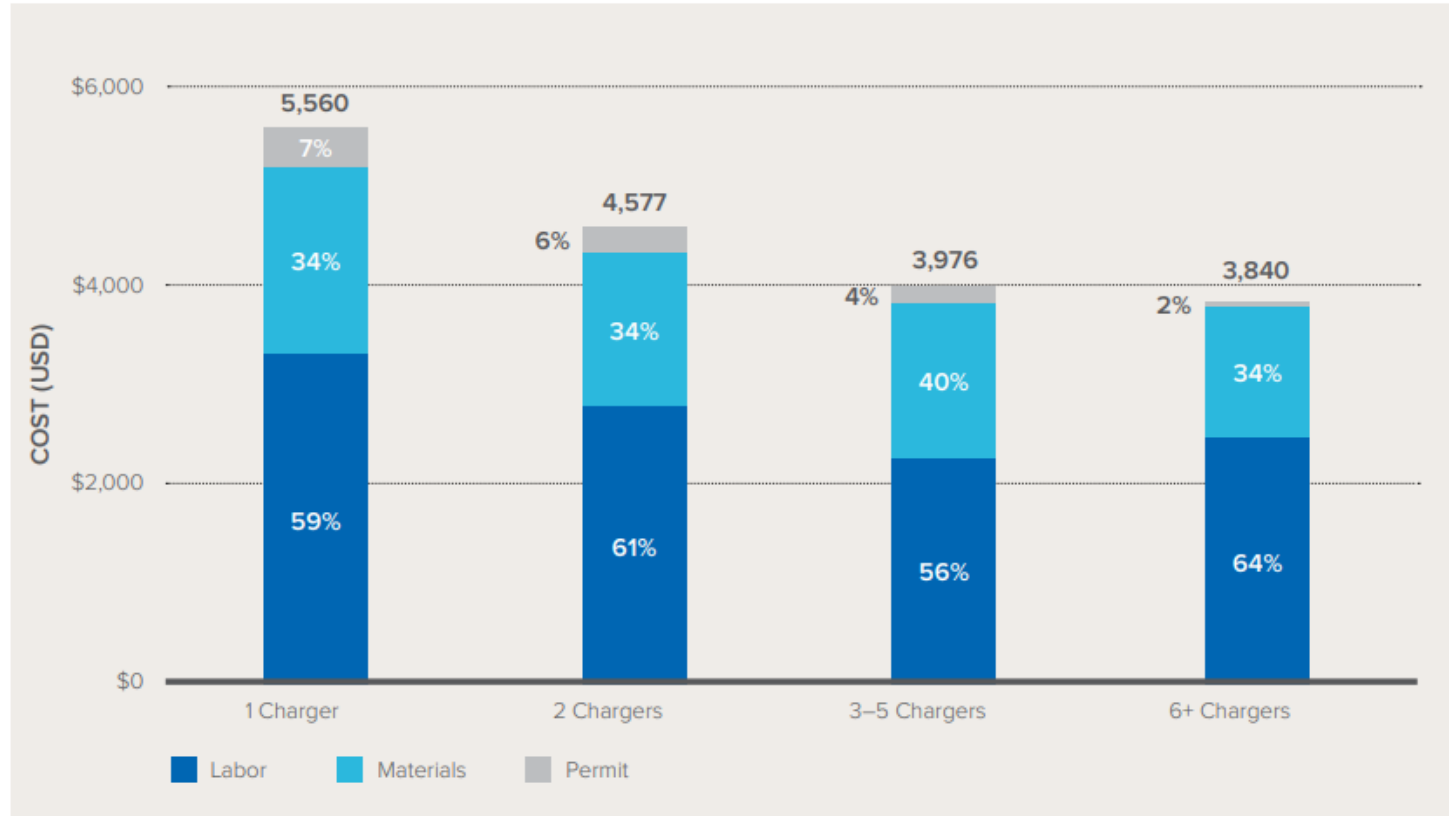
Case Study prepared for the City and County of San Francisco (2016)





## EXHIBIT 14

Average commercial Level 2 installation costs per charging station by cost category, by number of chargers per site.



Source: *Electric Vehicle Supply Equipment Installed Cost Analysis*, EPRI, 2013

