OKC Development Codes Update

Electric Vehicle Parking Requirements

4/22/2022

Why Change the Code Now?

Development Codes Update Project

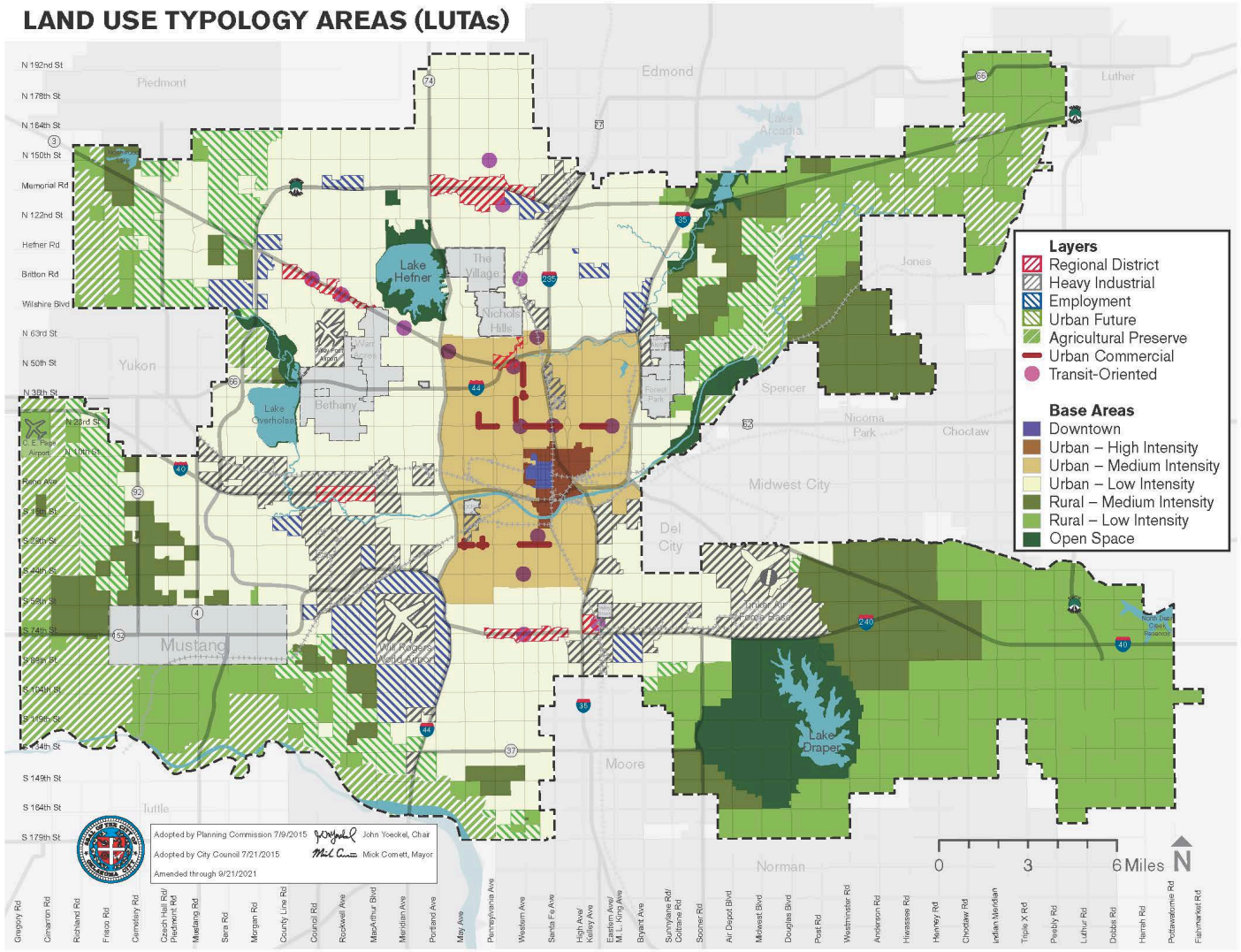
planokc

OKC's Land Use Plan for the Future

planokc.org

planokc LUTAS

"The LUTAs are oriented around a spectrum of development intensities – from undeveloped Open Space, to the high intensity of Downtown."
- planokc Development Guide



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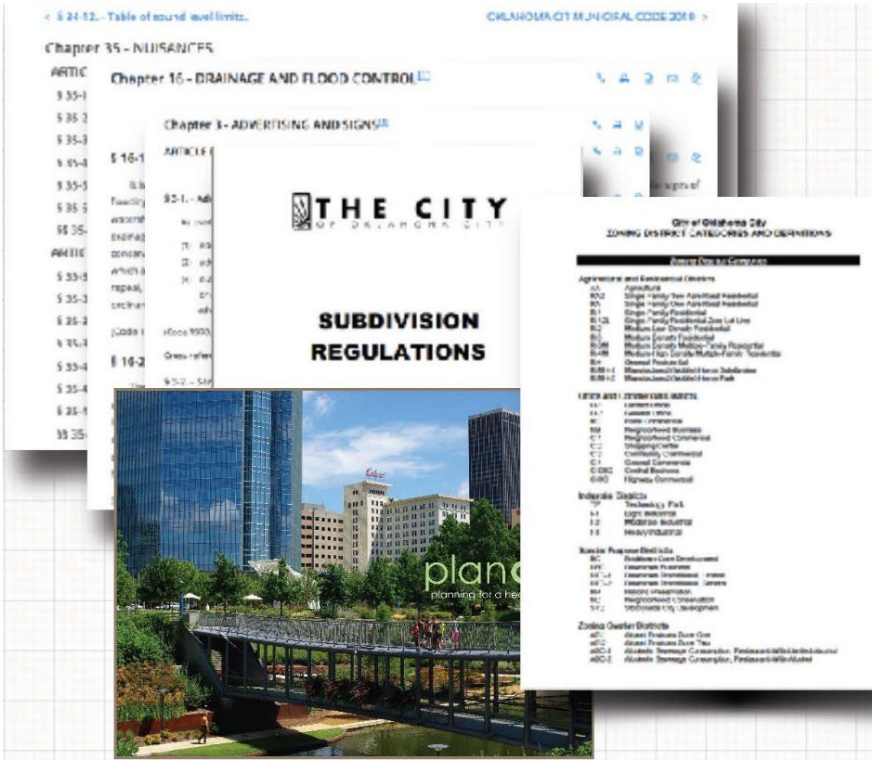
Desired Outcomes

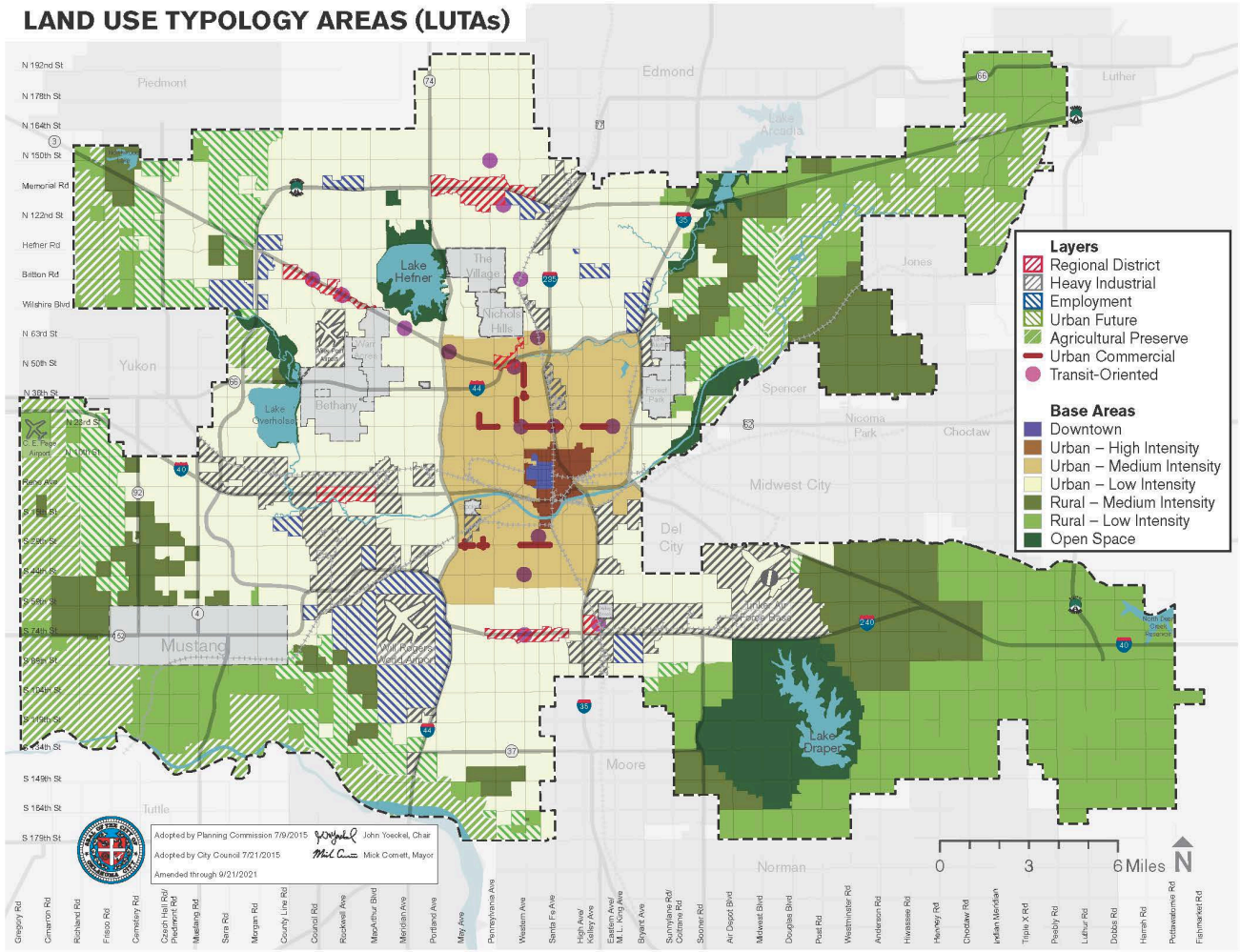
- Integrate uses while ensuring compatibility
- Allow increased densities where appropriate
- Mitigate negative impacts of compact development
- Integrate residential unit types and sizes
- Improve transportation system connectivity
- Increase walkability
- Revise parking standards + prohibit new surface parking downtown
- Facilitate cluster/conservation subdivisions
- Ensure adequate and quality open space and streetscapes
- Preserve environmental/water quality + reduce flood risk
- Increase landscaping amount and quality
- Establish citywide design regulations to ensure functional and aesthetic minimums
- Establish/Improve design standards



New LUTA Zone Approach

- Organize new zoning districts based on LUTAs
- Integrate more deliberate standards to align with LUTAs

- As LUTAs move along the continuum from rural to urban, purposeful standards apply regarding:
  - FAR to manage scale and bulk
  - Building and streetscape design
  - Parking
  - Walkability
  - Transit usage



Proposed Districts

LUTA	Proposed Districts	Current District(s)in relation to intensity
RL, Rural: Low Intensity & AP, Agricultural Preserve	**RL-AR**, Agricultural Residential **RL-RC**, Rural Commercial	AA, RC
RM, Rural: Medium Intensity	**RM-SF**, Single-Family **RM-RC**, Commercial Services	RA-2, RA, RC
UL, Urban: Low Intensity	**UL-SF**, Single-Family **UL-MR**, Mixed Residential	R-1, R-MH-1, R-1Z, R-2, R-3, R-4
	UL-MX, Mixed Use **UL-NC**, Neighborhood Convenience **UL-OI**, Office and Institutional **UL-GC**, General Commercial **UL-LI**, Light Industry	O-1, O-2, C-1, C-3, C-4, C-HC, I-1, I-2
UM, Urban: Medium Intensity	**UM-SF**, Single-Family **UM-MF**, Multi-Family	R-1, R-2, R-3, R-3M, R-4
	UM-NB, Neighborhood Business **UM-PO**, Professional Office **UM-MX**, Mixed Use **UM-LI**, Infill Industry	O-1, O-2, NB, C-1, C-3, C-CBD, I-1

Proposed Districts

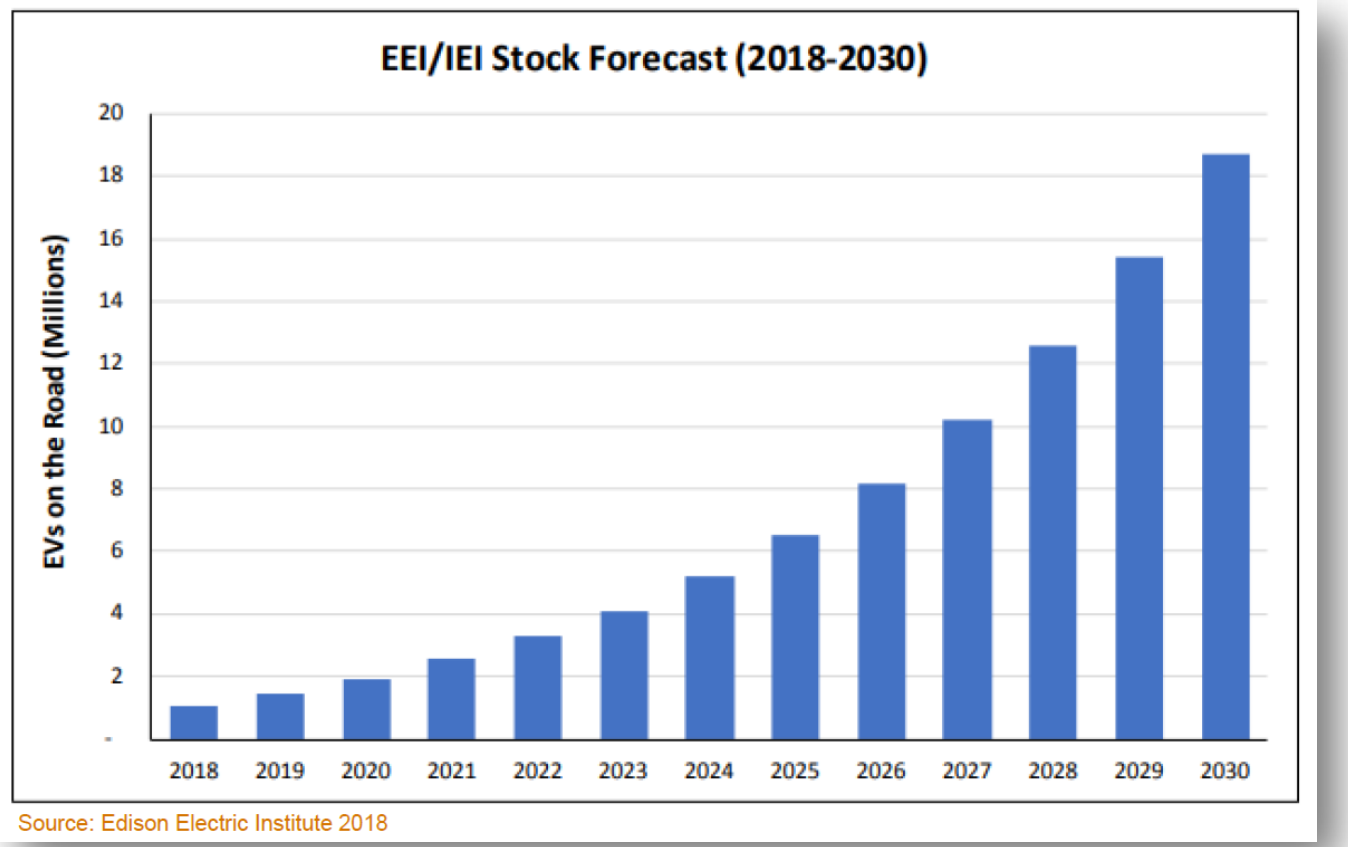
LUTA	Proposed Districts	Current District(s)
UH, Urban: High Intensity	**UH-OF**, Office **UH-OM**, Office Mixed **UH-BC**, Bricktown **UH-DT**, Downtown **UH-MH**, Mixed High	O-1, O-2, BC, DBD, DTD-1, DTD-2
UC, Urban Commercial	**UC-MS**, Main Street **UC-CC**, Commercial Corridor	NB, C-1, C-2, C-3, C-CBD
RD, Regional District **TO**, Transit-Oriented District	**RD-RC**, Retail Center **RD-AC**, Activity Center	C-3, C-4
DT, Downtown **TO**, Transit-Oriented District	**DT-CB**, Central Business **DT- MR**, Mid-Rise **DT-HR**, High-Rise	DBD, DTD-1, DTD-2
EM, Employment District	**EM-TP**, Technology Park **EM-BP**, Business Park **EM-IP**, Industrial Park	TP, I-1, I-2
HI, Heavy Industry	**HI**, Heavy Industry	I-3

EV Parking: Growing Demand & Cost Savings

Development Codes Update Project

Demand for EVSE

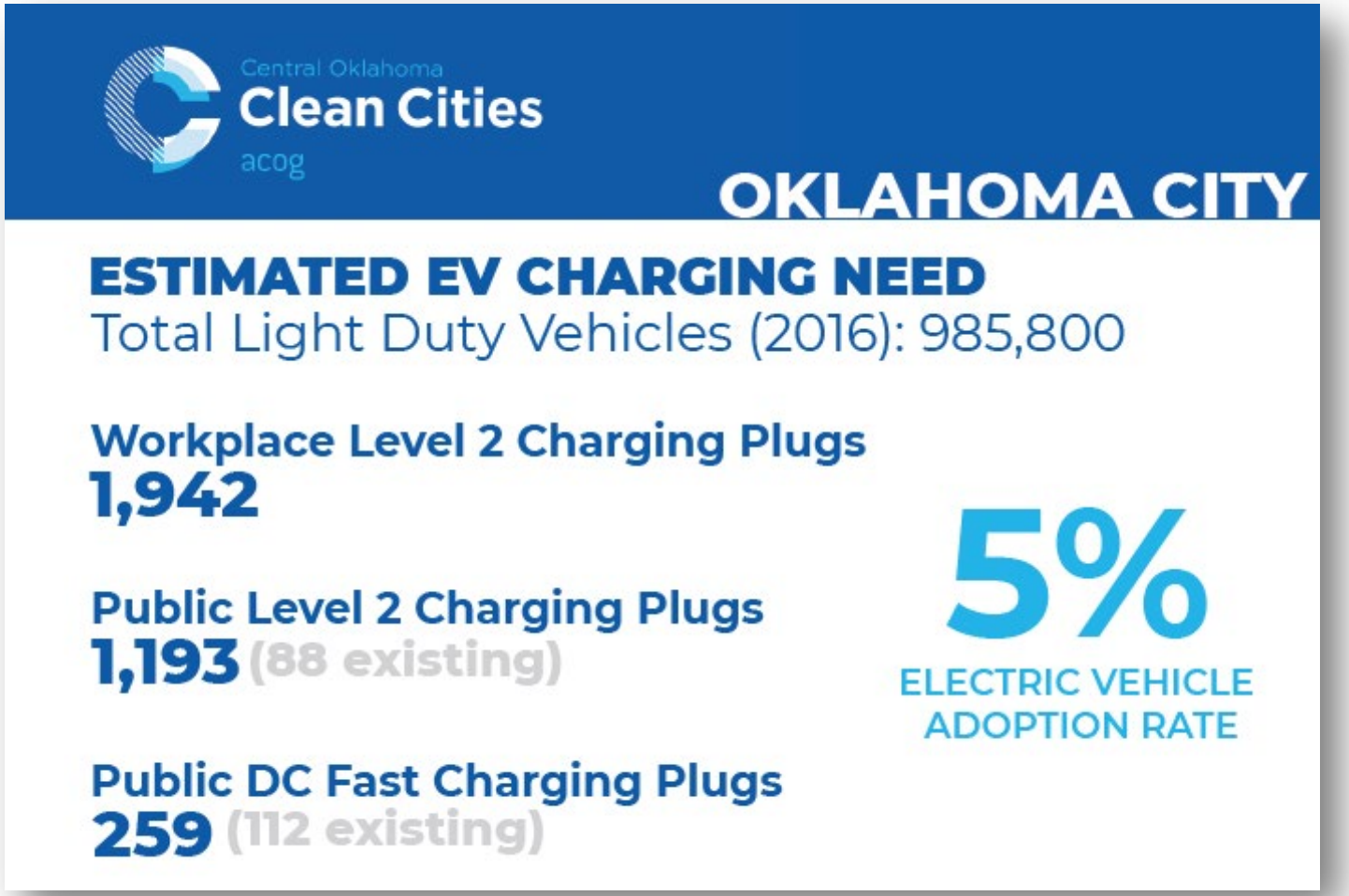
- By 2030, EEI forecasts the number of EVs on the road to reach **18.7 million**.
- This represents approximately **7%** of the 259 million vehicles on the road in the U.S.
- All major auto manufacturers have announced plans to electrify a significant portion of their vehicle fleets over the next 3–5 years.



Source: Edison Electric Institute 2018

Local Demand

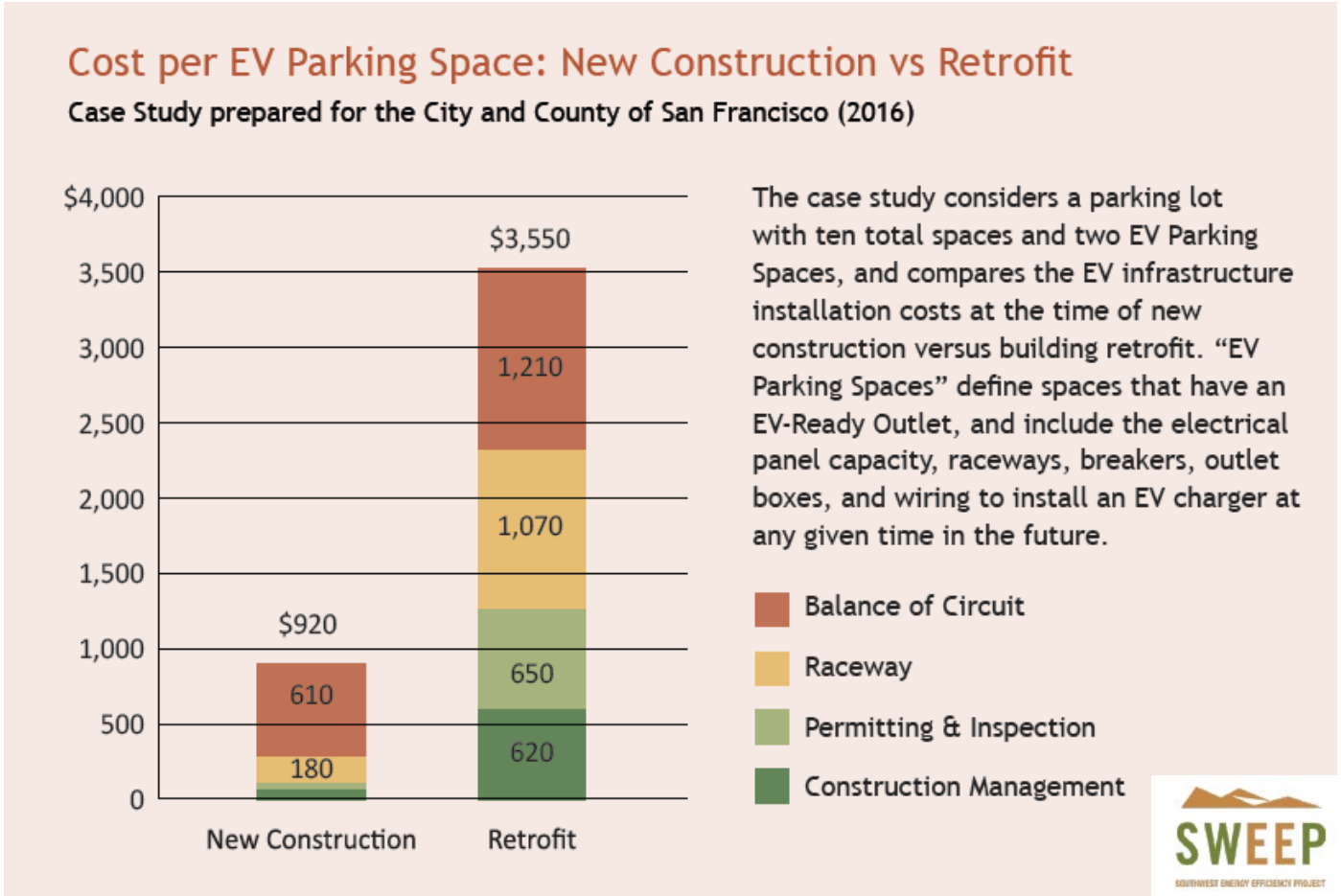
U.S. Department of Energy's Alternative Fuels Data Center *Electric Vehicle Infrastructure Projection Tool (EVI-Pro) Lite*



Why Address in Development Code?

Cost Savings

- Construction Management Coordination
- Permitting & Inspection efficiencies
- Shorter/more direct raceways and conduit routing
- Avoided trenching costs
- Correct sizing of electrical panels anticipating future loads



Why Address in Development Code?

Table 2. Cost of EV Charging Infrastructure

	Per EV Parking Space with Electric Circuit		Total Incremental Cost of Building	
	New	Retrofit	New	Retrofit
Scenario A – 10 Parking Space Building, two EV Parking Spaces	$920	$3,710	$1,840	$7,420
Scenario B – 60 Parking Space Building, 12 EV Parking Spaces	$860	$2,370	$10,320	$28,440

Source: PG&E 2016

SWEEP
SOUTHWEST ENERGY EFFICIENCY PROJECT

EV Parking Terminology

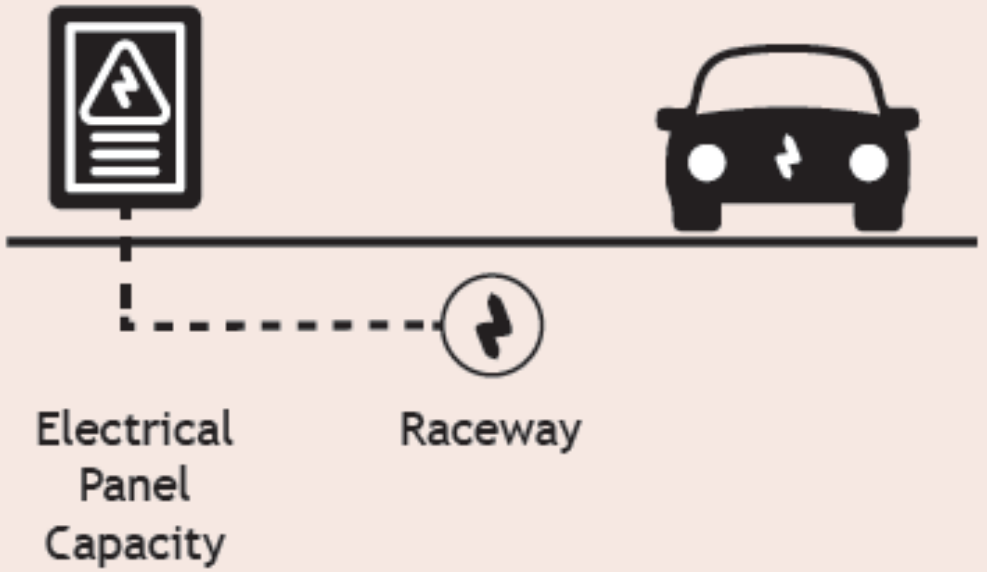
Development Codes Update Project

Terminology

1. EV-Capable

Install electrical panel capacity with a dedicated branch circuit and a continuous raceway from the panel to the future EV parking spot.

Sample Code: Denver, CO



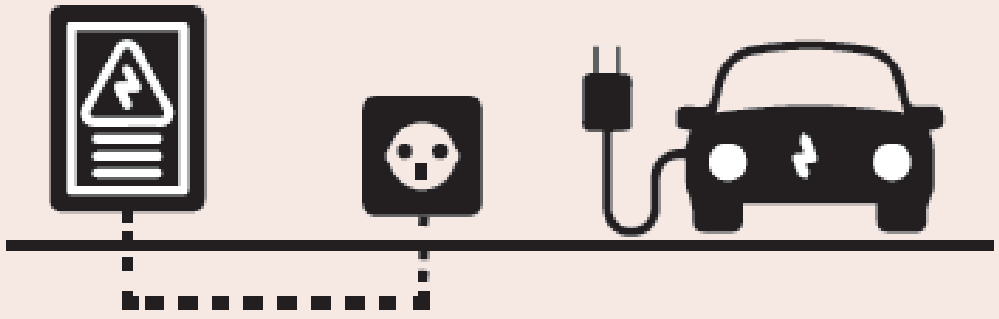
SWEEP
SOUTHWEST ENERGY EFFICIENCY PROJECT

Terminology

2. EVSE-Ready Outlet

Install electrical panel capacity and raceway with conduit to terminate in a junction box or 240-volt charging outlet (typical clothing dryer outlet).

Sample Code: Boulder, CO

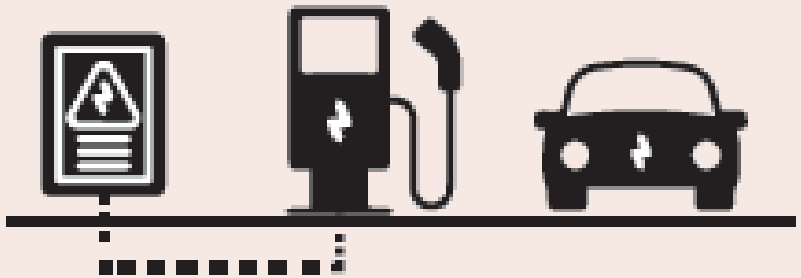


Terminology

3. **EVSE-Installed**

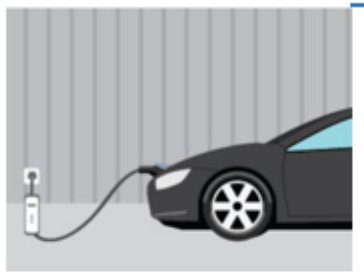
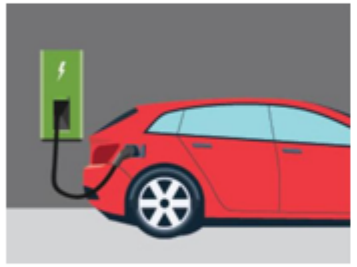
   Install a minimum number of Level 2 EV charging stations.

   Palo Alto, CA: 5-10% of parking is EV-Installed



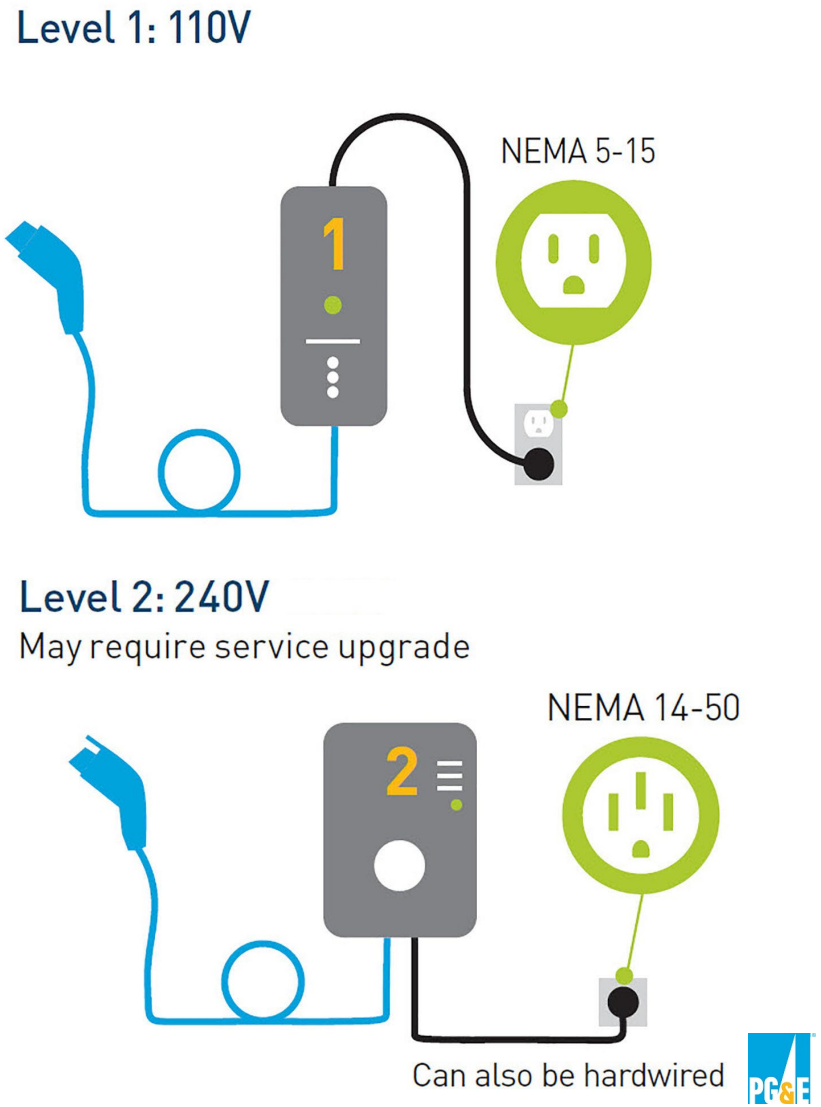
Terminology

EVSE = Electric Vehicle Supply Equipment a.k.a. “Charger”

		Range	Application
Level 1		2 to 5 miles of range per hour	• Single Family Homes • Multi-Unit Residential • Condos
Level 2		10 to 30 miles of range per hour	• Single Family Homes • Multi-Unit Residential • Workplace • Fleet • Public
Level 3 (Direct Current Fast)		150 to 350+ miles of range per hour	• Fleet • Public • Multi-Unit Residential

Terminology

- LEVEL I
  - 120v household outlet
  - 3-5 miles of range per hour
- LEVEL II
  - 208v/240v
  - 12-80 miles of range per hour
    - Most often 13-25 mrph
- DC Fast Charger
  - 480v – 500v
  - 10 to 30 minutes for full charge



EV Parking Regulations in Other Cities

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Single-Family

1 EV-Ready Space per Dwelling Unit:

- St. Louis, MO (2021)
- Boulder, CO (2020)
- Denver, CO (2020)
- Flagstaff, AZ (2019)
- Seattle, WA (2019)
- San Jose, CA (2019)

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Single-Family

1 EV-Capable Space per Dwelling Unit:

- Honolulu, HI (2020)
- Lakewood, CO (2019)
- Sedona, AZ (2019)
- Fort Collins, CO (2019)
- Atlanta, GA (2017)
- Aspen, CO (2017)
- Palo Alto, CA (2017)
- California (2010)

Multi-Family

Southwest Energy Efficiency Project Research

Municipality	State	Year	Multi-family
Avon	CO	2021	5% EV-Installed, 10% EV-Ready, 15% EV-Capable (7+ spaces)
St. Louis	MO	2021	2% EV-Installed, 5% EV-Ready (increases to 10% in 2025)
Madison	WI	2021	2% EV-Installed, 10% EV-Ready (increases by 10% every 5 years)
Washington DC	DC	2021	20% EV-Ready (3+ spaces)
Summit County	CO	2020	5% EV-Installed, 10% EV-Ready, 40% EV-Capable (10+ spaces)
Dillon	CO	2020	5% EV-Installed, 10% EV-Ready, 40% EV-Capable (10+ spaces)
Breckenridge	CO	2020	5% EV-Installed, 10% EV-Ready, 40% EV-Capable (10+ spaces)
Frisco	CO	2020	5% EV-Installed, 10% EV-Ready, 40% EV-Capable (10+ spaces)
Salt Lake City (pending)	UT	2020	20% EV-Capable
City of Boulder	CO	2020	5% EV-Installed, 15% EV-Ready, 40% EV-Capable (25+ spaces)
Denver	CO	2020	5% EV-Installed, 15% EV-Ready, 80% EV-Capable
Honolulu	HI	2020	25% EV-Ready (8+ spaces)

Commercial

Southwest Energy Efficiency Project Research

Municipality	State	Year	Commercial
Avon	CO	2021	5% EV-Installed, 10% EV-Ready, 15% EV-Capable (10+ spaces)
St. Louis	MO	2021	2% EV-Installed, 5% EV-Ready
Madison	WI	2021	1% EV-Installed (increases by 1% every 5 years), 10% EV-Ready (increases by 10% every 5 years)
Washington DC	DC	2021	20% EV-Ready (3+ spaces)
Summit County	CO	2020	5% EV-Installed, 10% EV-Ready, 40% EV-Capable (25+ spaces)
Dillon	CO	2020	5% EV-Installed, 10% EV-Ready, 40% EV-Capable (25+ spaces)
Breckenridge	CO	2020	5% EV-Installed, 10% EV-Ready, 40% EV-Capable (25+ spaces)
Frisco	CO	2020	5% EV-Installed, 10% EV-Ready, 40% EV-Capable (25+ spaces)
Salt Lake City (pending)	UT	2020	
City of Boulder	CO	2020	5% EV-Installed, 10% EV-Ready, 10% EV-Capable
Denver	CO	2020	5% EV-Installed, 10% EV-Ready, 10% EV-Capable
Honolulu	HI	2020	25% EV-Ready (12+ spaces)

Commercial / Multi-Family

Southwest Energy Efficiency Project Research

Municipality	State	Year	Multi-family	Commercial
Chicago	IL	2020	20% EV-Ready (5+ spaces)	20% EV-Ready (30+ spaces)
Lakewood	CO	2019	2% EV-Installed, 18% EV-Capable (10+ spaces)	2% EV-Installed, 13% - 18% EV-Capable (10+ spaces)
Flagstaff	AZ	2019	3% EV-Ready	3% EV-Ready
Massachusetts	MA	2019		1 EV-Ready space (15+ spaces)
Seattle	WA	2019	100% EV-Ready up to 6 space, 20% for parking lots with 7+ spaces	10% EV-Ready
Sedona	AZ	2019		5% EV-Capable
Golden	CO	2019	1 EV-Installed Space per 15 parking space, 15% EV-Capable	
San Jose	CA	2019	10% EV-Installed, 20% EV-Ready, 70% EV-Capable	10% EV-Installed, 40% EV-Capable
Fort Collins	CO	2019	10% EV-Capable	
Vancouver	BC	2019	100% EV-Ready	10% EV-Ready
Oakland	CA	2018	10% EV-Ready, 90% "Raceway Installed", 20% total panel capacity	10% EV-Ready, 10% "Raceway Installed", 20% total panel capacity
Atlanta	GA	2017	20% EV-Capable	
Aspen	CO	2017	3% EV-Capable (240V individual circuit branch with EV CAPABLE labelling)	

Commercial / Multi-Family

Southwest Energy Efficiency Project Research

Municipality	State	Year	Multi-family	Commercial
San Fransisco	CA	2017	10% EV-Ready, Panel Capacity for 20%, Raceway for 100%	
Palo Alto	CA	2017	1 EV-Ready Space per Unit, 20% EV-Capable for Guest Parking with 5% EV-Installed	20% EV-Capable, 5% EV-Installed
Oregon	OR	2017	5% EV-Ready	
Boulder County	CO	2015	2% EV-Ready (for new construction and 50% or 5,000 SF additions)	
Washington	WA	2015	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	20% EV-Capable	
California (CalGreen)	CA	2010	10% EV-Capable	

Comments
Questions
Feedback

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Email

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