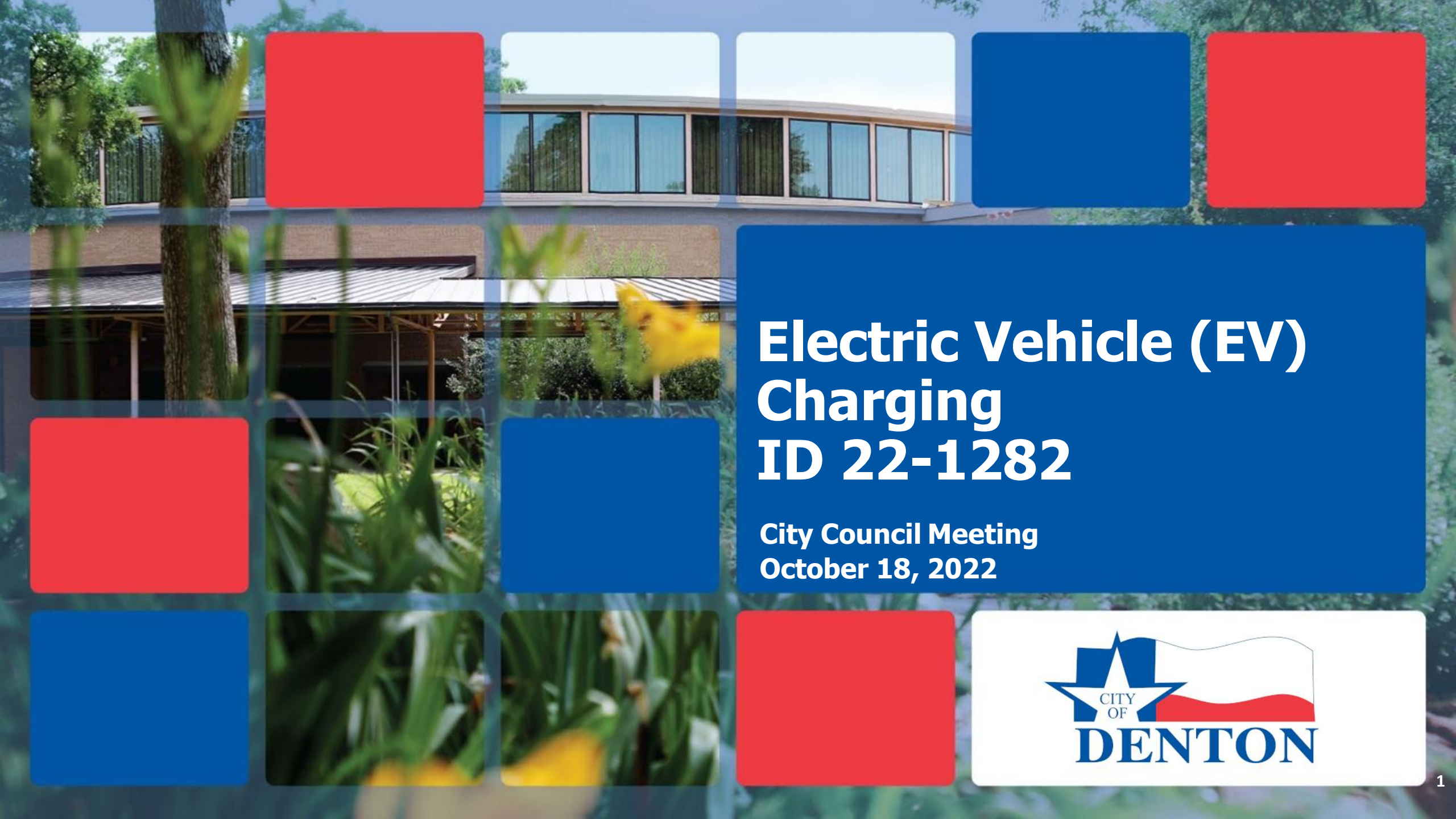
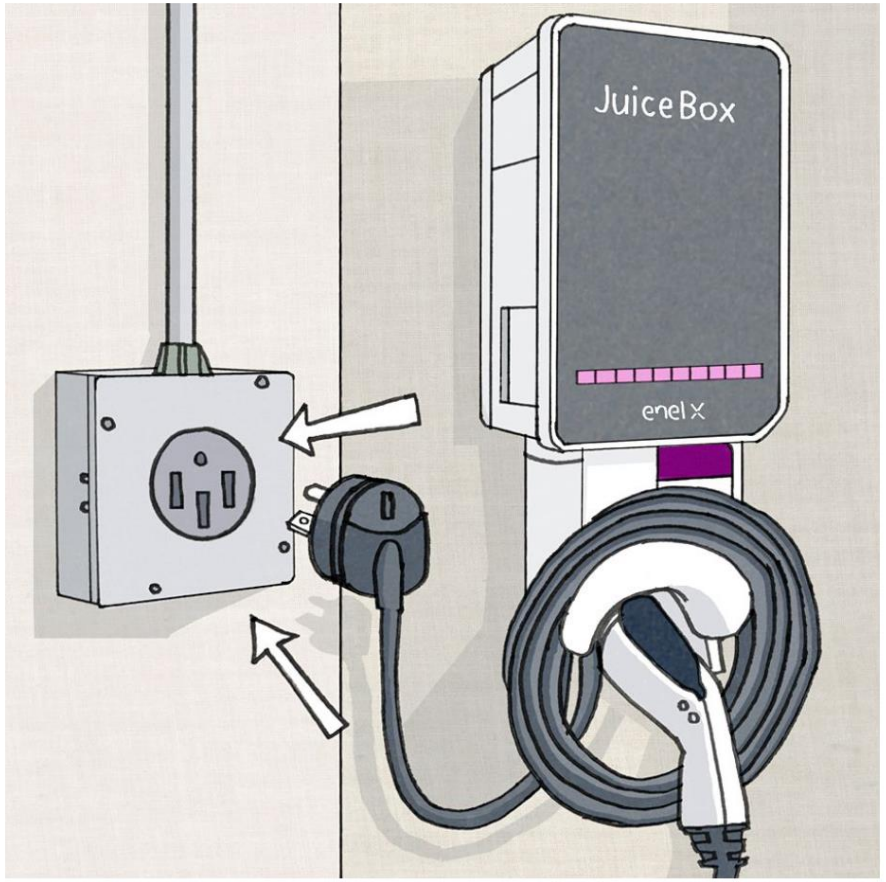


Electric Vehicle (EV) Charging ID 22-1282

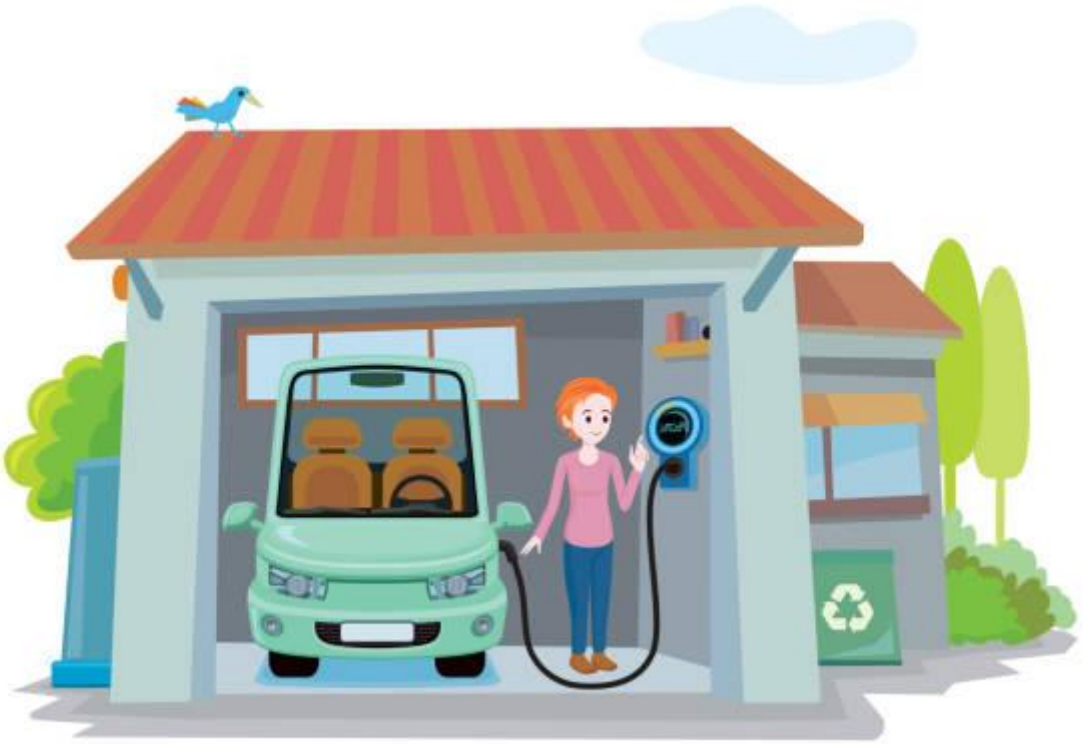
City Council Meeting
October 18, 2022

CITY OF DENTON

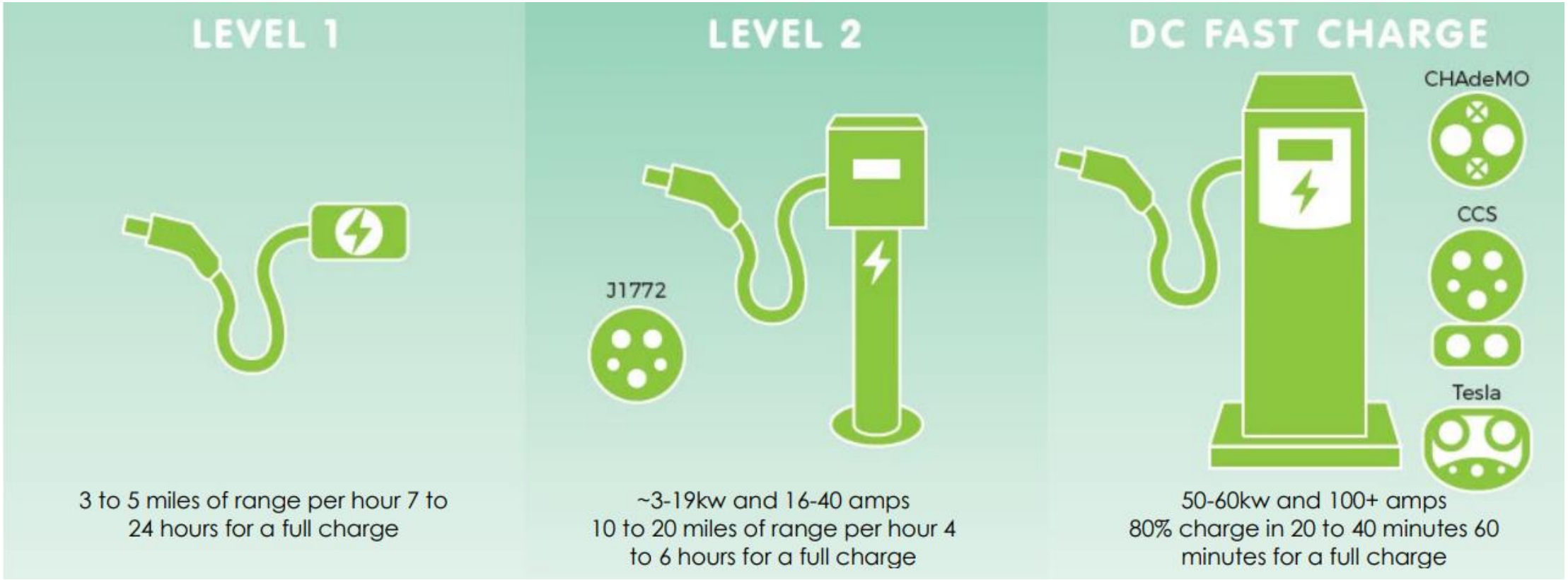
What is an Electric Vehicle Charging Station



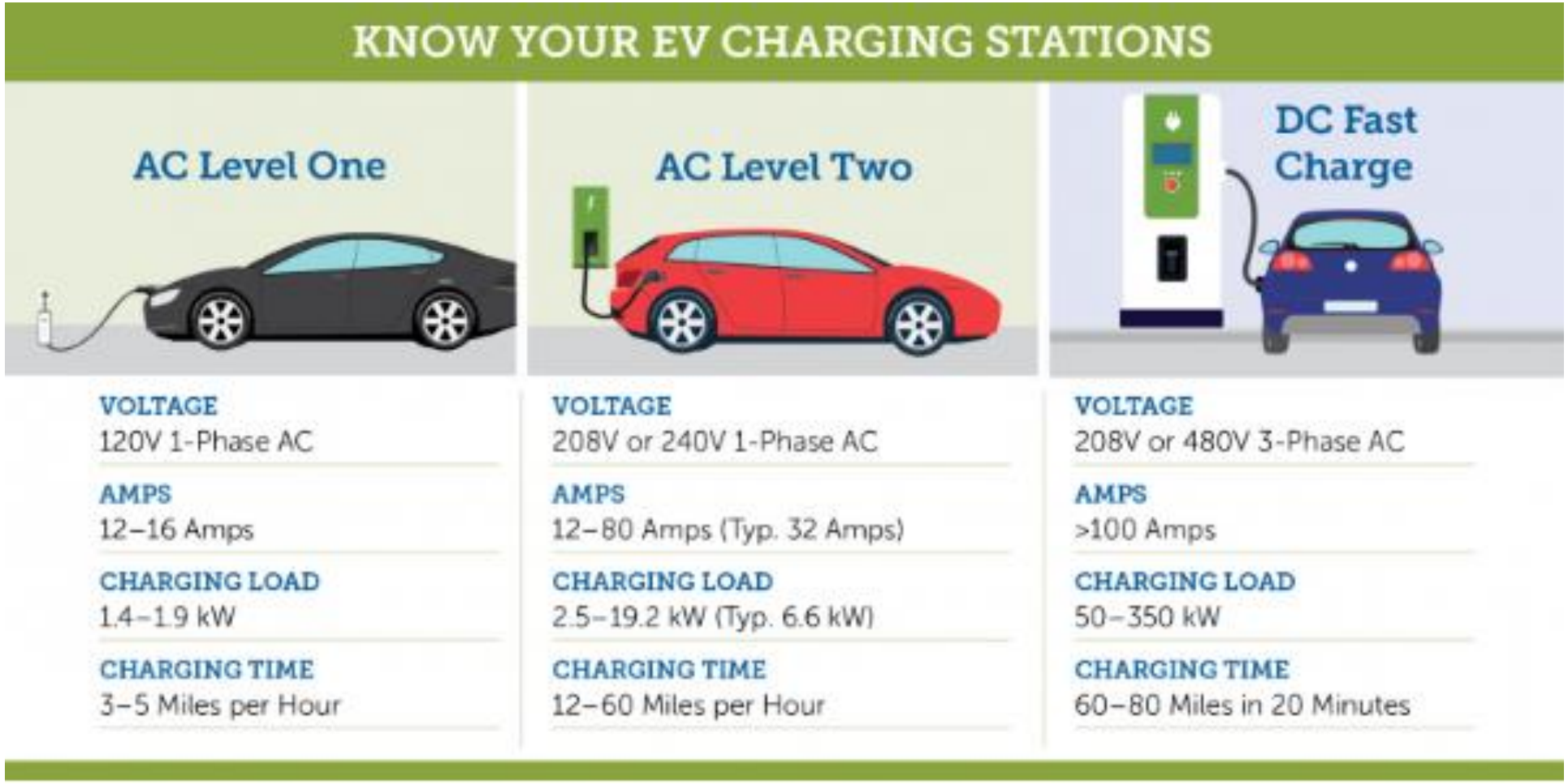
ILLUSTRATIONS BY DANIEL ZALKUS | CAR AND DRIVER



Charging Equipment Variations

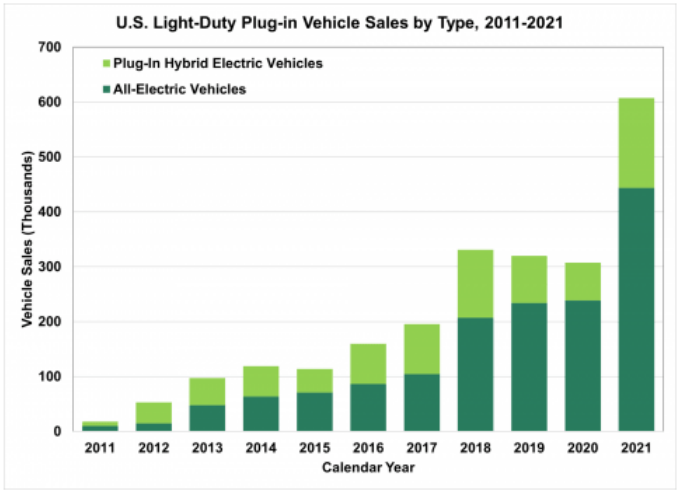


What are the different EV Charging Rates



energy saver

Sales of new light-duty plug-in electric vehicles, including all-electric vehicles (EVs) and plug-in hybrid electric vehicles (PHEVs), nearly doubled from 308,000 in 2020 to 608,000 in 2021. EV sales accounted for 73% of all plug-in electric vehicle sales in 2021. EV sales grew by 85% from 2020 to 2021, while sales of PHEVs more than doubled, with an increase of 138% over the previous year. The rapid growth in plug-in electric vehicle sales from 2020 to 2021 is remarkable in the context of overall light-duty vehicle sales, which increased by only 3% during the same period.



Source: U.S. Department of Energy 3/1/2022

CITY OF DENTON

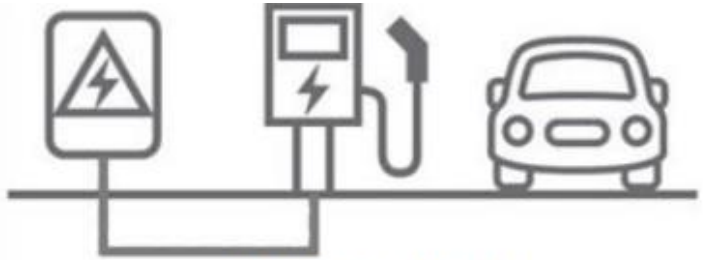
EV-Integration - Options

EV Capable

Installation of "raceway" (the enclosed conduit that forms the physical pathway for electrical wiring to protect it from damage) and adequate panel capacity to accommodate future installation of a dedicated branch circuit and charging station(s).

EV Ready

EV Capable plus installation of dedicated branch circuit(s) (electrical pre-wiring), circuit breakers, and other electrical components, including a receptacle (240-volt outlet) or blank cover needed to support future installation of one or more charging stations.



EV Installed

EV Ready plus installation of a minimum number of Level 2 electric vehicle supply equipment (EV chargers)

Approximate Costs for EV Integration

NEW CONSTRUCTION

Single Family Residential

- EV Capable - $100-$250
- EV Ready - $300-$1500 (50A Circuit)
- EV Installed – $900-$3,500 (Ranges based on the equipment)

Multifamily

- EV Capable
- EV Ready
- EV Installed;
  - Level 1 $
  - Level 2 $1,700 -$5,000 (Level 2, Single Charger)
  - Level 3 $10,000-$40,000 (DC Fast Charger)

RETROFIT EXAMPLES

Table 3. Cost of EV Charging Infrastructure – Single Family

	New[a]	Avg. Retrofit[b]	Avg. Max. Retrofit[b]
Single Family Home	$860-920	$1,354	$4,000

Notes: (a).Source PG&E 2016, (b) Source Francfort et al. 2015

Table 2-1. Cost Estimates to Retrofit Multi-Family and Commercial Properties for a Charging Station

	Average Cost Estimate without Charging Stations
CARB	$6,975
RMI	$5,300-$10,150
RAQC	$5,200

Source: City & County of Denver, Dept. of Environmental Health

Examples of Other Communities

2019-21 Progress

SWEEP
SOUTHWEST ENERGY EFFICIENCY PROJECT

Municipality	State	Year	Location	Single-family	Multi-family	Commercial
Denver	CO	2019	International Building Code (IBC) / International Revenue Code (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
Boulder	CO	2019	IBC / IRC	1 EV-Ready space per dwelling unit	5% EV-Installed, 10% EV-Ready, 40% EV-Capable (25+ spaces)	5% EV-Installed, 10% EV-Ready, 10% EV-Capable (25+ spaces)
Avon	CO	2021	Ordinance	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)
Fort Collins	CO	2019	IBC / IRC	1 EV-Capable space per dwelling unit	10% EV-Capable	
Madison	WI	2021	Ordinance	1 EV-Ready space per dwelling unit	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)
San Jose	CA	2019	Ordinance	1 EV-Ready space per dwelling unit	10% EV-Installed, 20% EV-Ready, 70% EV-Capable	10% EV-Installed, 40% EV-Capable
St Louis	MO	2021	Ordinance	1 EV-Ready space per dwelling unit	2% EV-Installed, 5% EV-Ready (increases to 10% in 2025)	2% EV-Installed, 5% EV-Ready
2024 IBC (proposed)	International	2021	IBC / IRC	-	2% EV-Installed, 18% EV-Ready	2% EV-Installed, 8% EV-Capable

Source: Southwest Energy Efficiency Project

Incentives / Incentive Ideas

- ✓ The Inflation Reduction Act provides federal tax credit to install a home EV charging station, the tax credit under the Inflation Reduction Act is 30% of the cost of hardware and installation, up to $1,000.

- ✓ The Sustainability Framework Advisory Committee has discussed Electric Vehicle Adoption as a key component of Greenhouse Gas Reduction. Charging infrastructure is an area where the Sustainability Framework Fund may be utilized to offset the expenses associated with installation of charging infrastructure in existing multifamily properties, and single family residential. The Fund could also incentivize installation of infrastructure to make new construction single family and multifamily properties EV ready. The Sustainability Framework Advisory Committee will meet October 28, 2022 to consider adoption of the 2022/2023 workplan and a presentation to council is currently scheduled for November 15, 2022.

Questions?