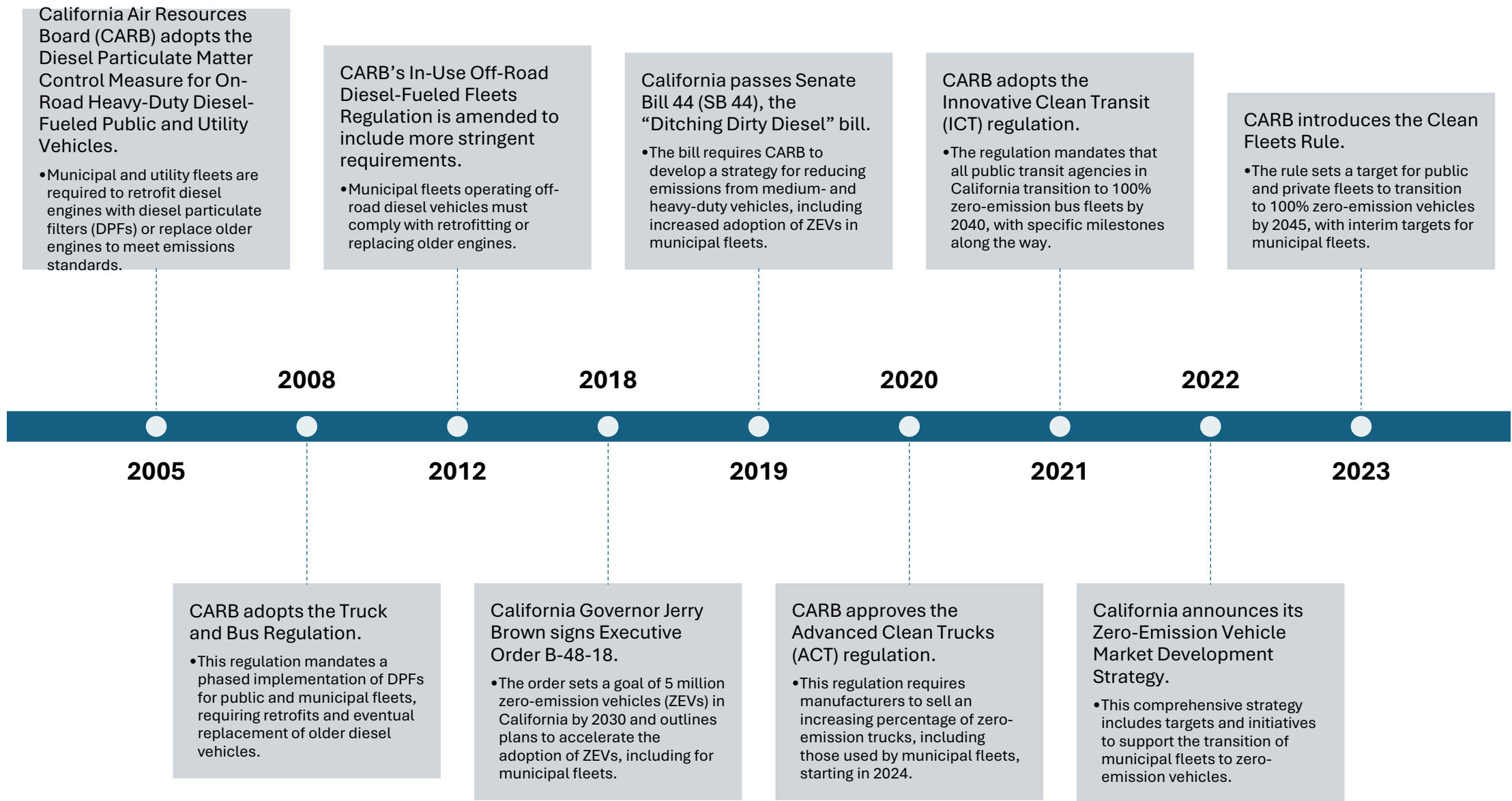


EVolution Moreno Valley

Fleet and Electric Utility Partnerships for EV Implementation





California's Emission Reduction Strategies

What does that mean for California Municipal Fleets?

- **50%** of all new motor vehicle purchases in each calendar year must be zero-emission starting **Jan. 1, 2024**.
- This number rises to **100% by January 2027** and includes all vehicle classifications, from class 2b to class 8.
- California's Advanced Clean Fleets (ACF) regulation requires that all new *medium- and heavy-duty* vehicles sold or registered in the state be zero-emission (ZEV) by 2036.



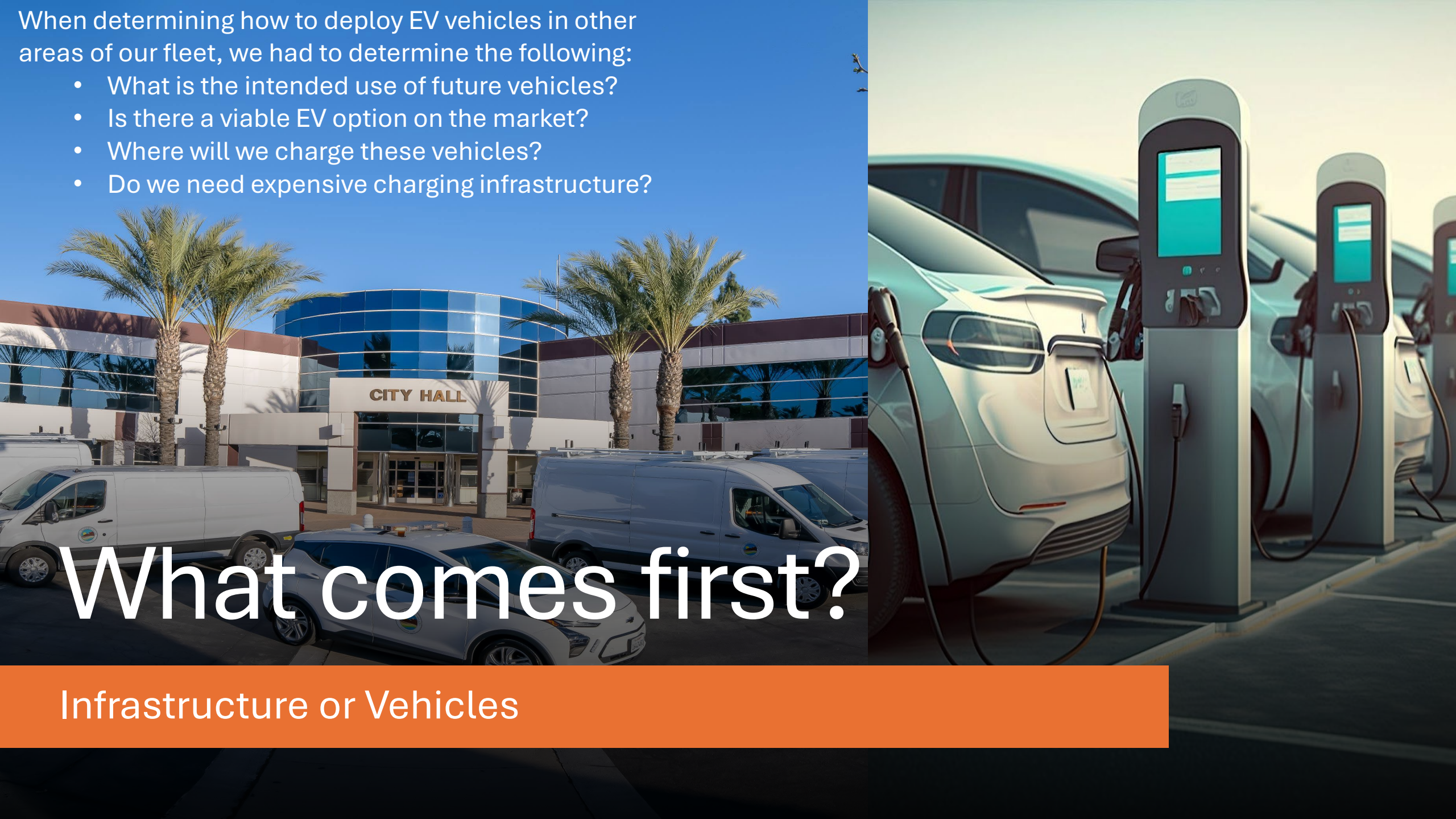
Will EV's work in our Fleet?

- We needed to determine:
 - Is there enough range?
 - Will the battery run HVAC all day?
 - How long will it take to charge?
- The answers to these questions determine EV viability in our fleet.
- We started with one used EV vehicle, a security guard, and standard 110v wall outlet.
- And the answer is...it worked great!
- Now how do we expand our EV fleet



When determining how to deploy EV vehicles in other areas of our fleet, we had to determine the following:

- What is the intended use of future vehicles?
- Is there a viable EV option on the market?
- Where will we charge these vehicles?
- Do we need expensive charging infrastructure?



What comes first?

Infrastructure or Vehicles



Let's talk vehicles first:

- Our fleet is approximately 85% trucks
- There were few, if any, EV pickup truck options available
- COVID, microchip shortages, and production delays have made inventory scarce with extreme lead times for orders.

We need to get creative...

- Do we really need trucks? Can the job be performed with a different vehicle type?
 - What programs may be supported by existing EV technology?
 - We focused on Parking Enforcement and Facilities Maintenance next.
-



The EVolution begins!

- We moved Parking Enforcement staff from Ford Rangers to Chevy Bolts
- Facilities Maintenance staff moved from service body work trucks to Ford e-Transit vans
- We are now implementing Ford Lightning pickup trucks as well
- All vehicles are fully outfitted with lighting packages, work bins, ladder racks, etc.



Zero Tailpipe Emissions

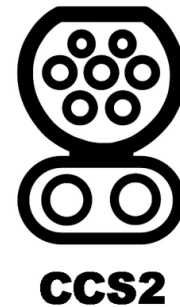
- Our Fleet and Facilities Maintenance Division has been operating entirely with Battery Electric Vehicles for over a year now.
- Staff have loved the EV driving experience, helping with acceptance of our EV adoption plan.



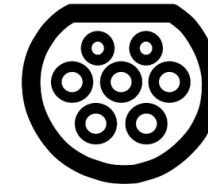


Time to take charge!

-
- Charging technology continues to change. We have already seen a transition from the SAE J1772 Combined Charging System (CCS) to the SAE J3400 North American Charging Standard (NACS) developed by Tesla.
 - If you invested in charging infrastructure early on, it may already be obsolete.
 - You don't have to spend huge on infrastructure when first starting out. We realized savings in fuel and maintenance from day one.
-



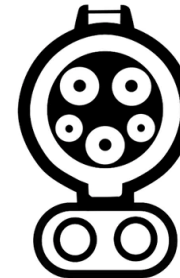
CCS2



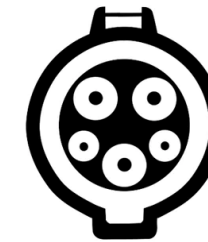
Type2



CHAdeMO



CCS1



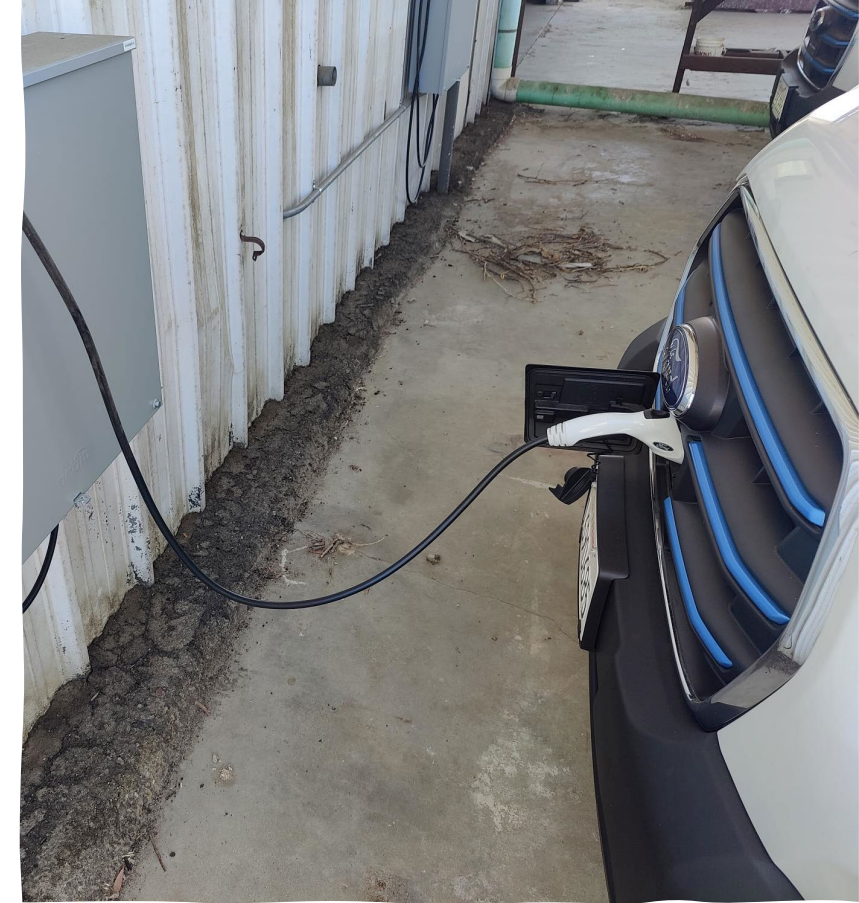
Type1



Tesla Supercharger

-
- NEMA 14-50 – the answer to your low(er) cost charging infrastructure needs.
 - Utilize the OEM supplied charging cable to deliver Level 2 charging capability.
 - This receptacle supports the various charging cables on the market (CCS, NACS, etc.)
 - Can be converted to a hardwired charger if desired in the future.
-





“It doesn’t have to be pretty; it just has to work.”

- Utilize available power where possible.
- Public facing charging can be an option.
- These are low-cost options to begin your electrification journey but engage your Electric Utility provider to plan your long-term needs.



Ford Lightnings at the Moreno Valley Corporate Yard





Parking Area Considerations

- Site Selection
- Site Ownership
- New Electrical Service or Feed from Building Service
- Proximity to Electrical infrastructure
- Number of total spaces



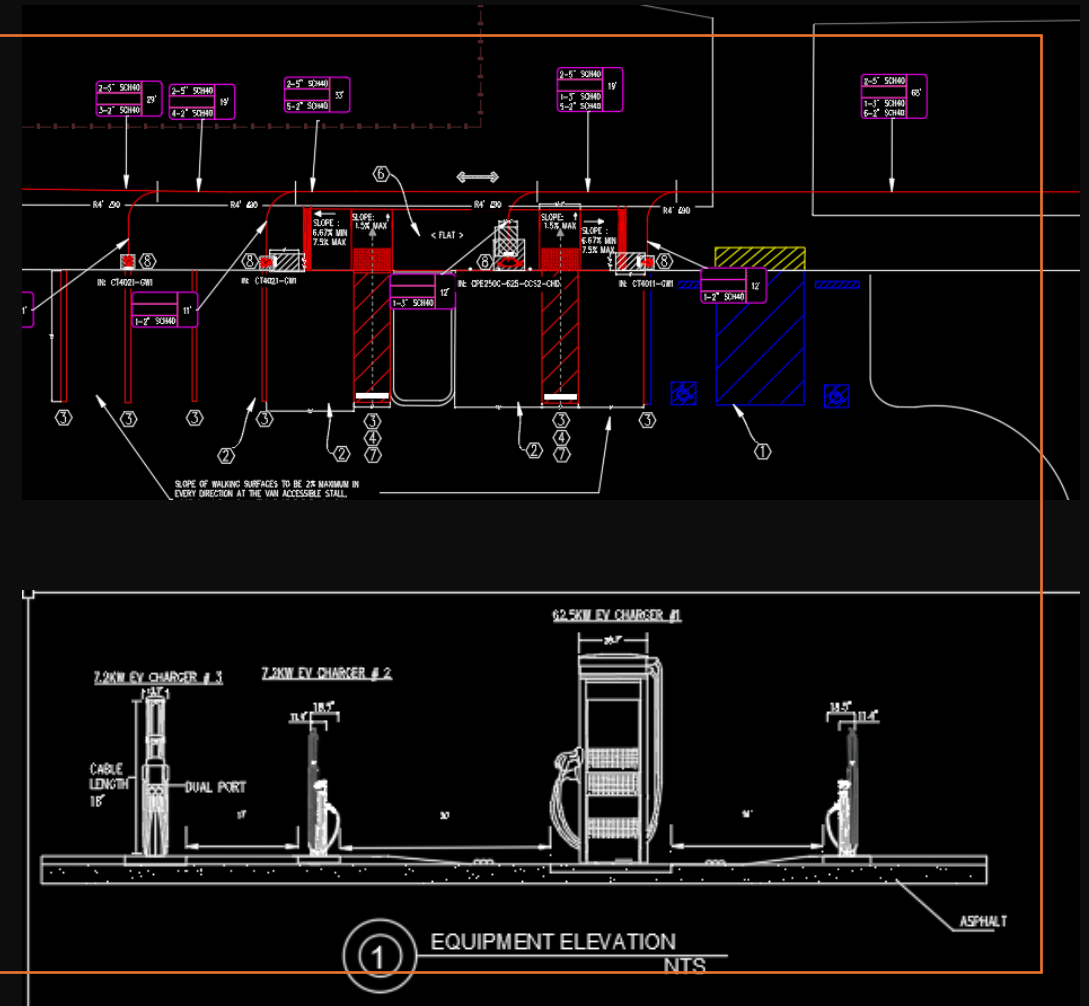


Public Parking

- Chargers must be able to take payments
- EV Charger Access
- Utility Served
- Facility Served
- ADA Modifications

ADA requirements

- When mixing level 3 and level 2 charging you must have spots for each type in ADA
- You have to add curb ramps for new accessible spaces
- May not be able to electrify existing ADA spots
- As the spaces increase you may need to add ADA only EV spaces



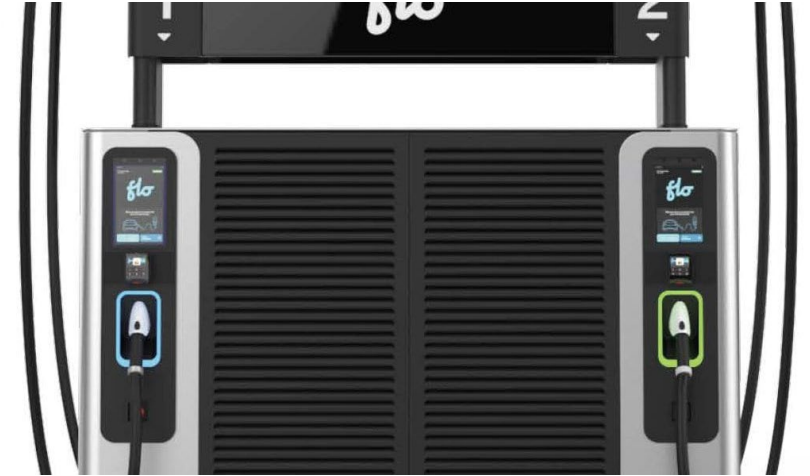
Restricted Access Parking

- Chargers don't need to take payments
- Doesn't require significant parking modification



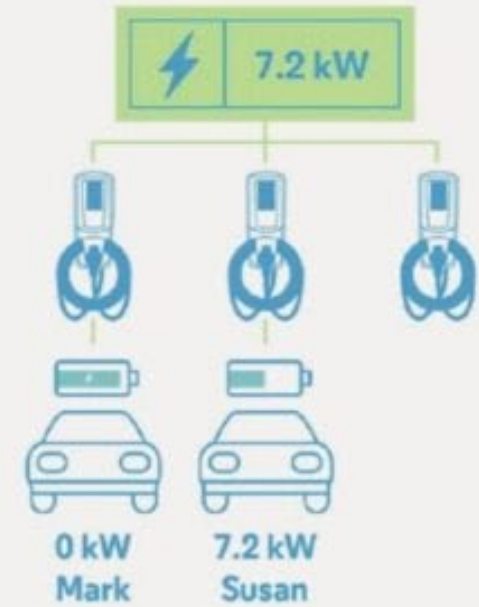
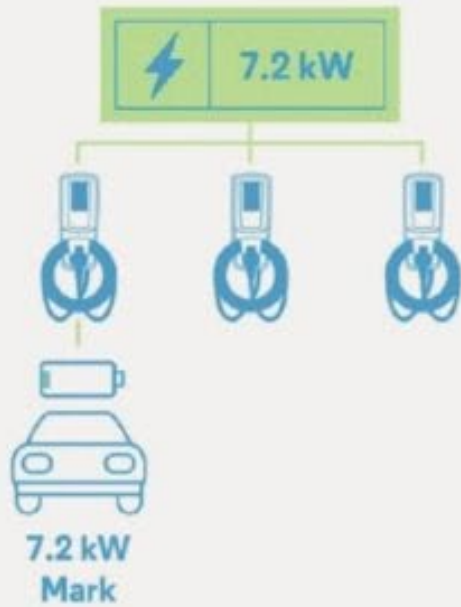
Charging Technologies

- Level 2 – Up to about 18kW, but most commonly around 7kW
- Level 3 – Up to about 300kW but can be as low as 50kW



Power Share

- Intelligently share charging capacity
- Less infrastructure cost per space
- Available in LVL 2 and LVL 3 charging





Costs

- Lvl 2 –
 - About \$9,000 / space if using power share
 - About \$15,000 / space if not using power share
- Lvl 3 –
 - About \$95,000 / space if using power share
 - About \$170,000 / space if not using power share



Grants

- US DOT Federal Highway Administration
 - Charging and Fueling Infrastructure Discretionary Grant
- US Environmental Protection Agency
 - Environmental and Climate Justice Community Change Grant
- US Department of Energy
 - Communities Taking Charge Accelerator
- State and Local Opportunities
- Electric Utility Incentives

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