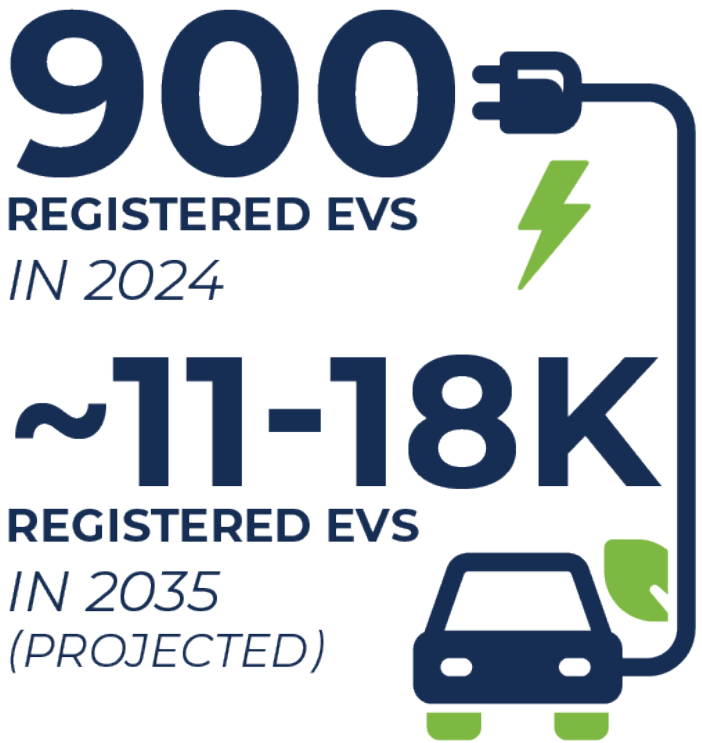
Picture Source: *Electric Vehicles and Zoning Laws*, Best Lawyers

Zoning and EVs

Introductions

Project Overview

Why think about EV Readiness?



- To accommodate growth in EVs, the Fargo-Moorhead region will require between 7,000-11,000 charging ports
  - 5,000-8,000 Single-Family
  - 900-1,300 Multi-Family
  - 1,600-1,900 publicly accessible ports

Why think about EV Readiness?

Most charging will likely occur at home, but publicly accessible chargers will serve residents who do not have access to at-home charging

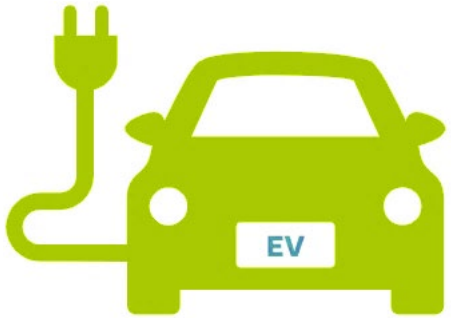
Project Goals

- Align regional goals with growing shift to EVs
- Engage city and regional leaders, utilities, business partners and the public
- Provide actionable recommendations

High-Priority Strategies

EV 101

Types of Electric Vehicles



Battery Electric (BEV)

- Battery power only
- Typical battery range 150-400 miles

Plug-In Hybrid Electric (PHEV)

- Battery power and internal combustion engine (ICE)
- Typical battery range 20-40 miles

Hybrid Electric (HEV)

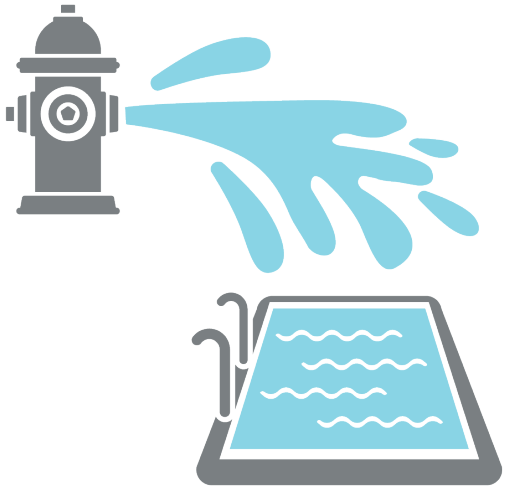
- Internal combustion engine (ICE) only
- Battery charges by regenerative braking or using engine as a generator
- Battery allows for smaller engine, powers auxiliary loads, and reduces idling

Charging Levels

Level 1

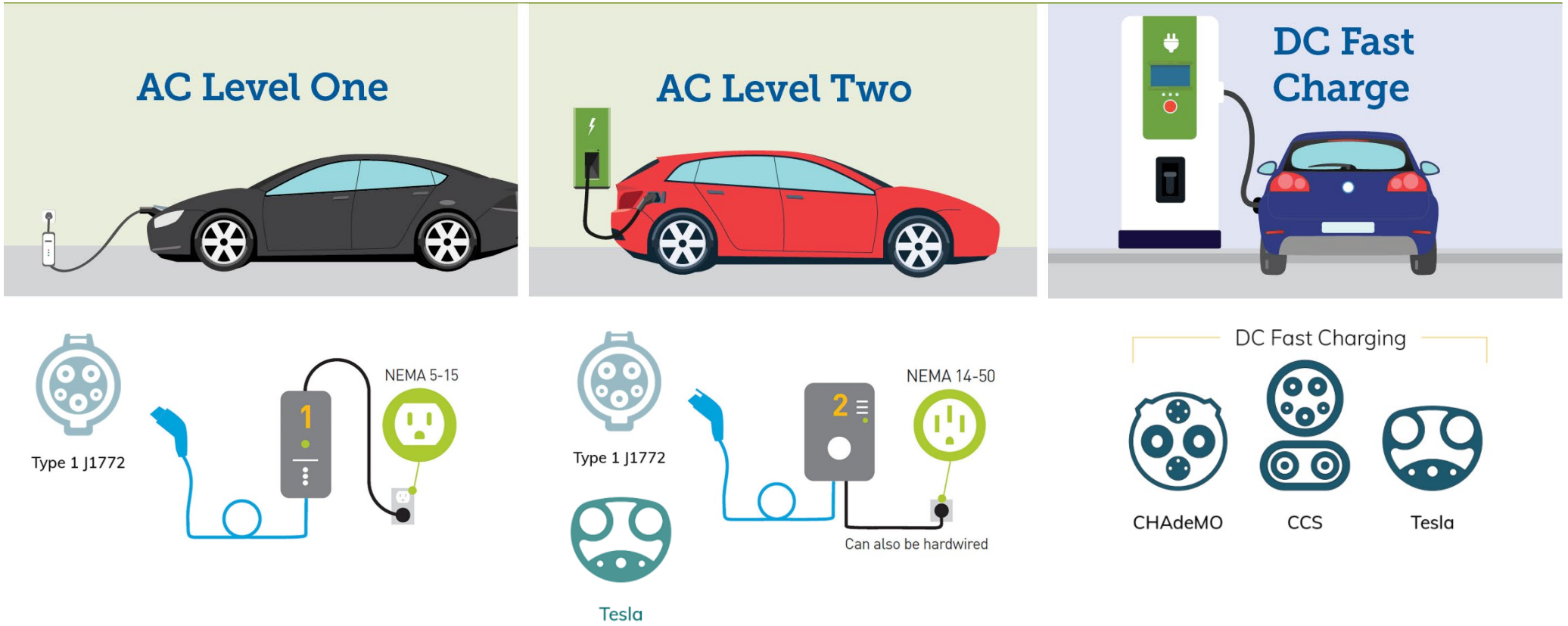
Level 2

Level 3



Note: The size of the pool depends on the vehicle.

Charging Connectors

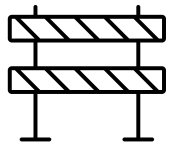


Level 2 Charging

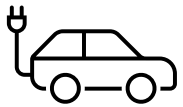
DCFC (Level 3) Charging

Zoning and EVs

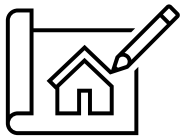
Topics



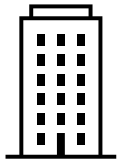
Remove Barriers in Zoning Code



Develop Charging Station Design Standards

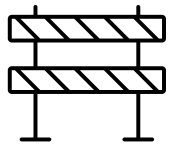


Make Building Codes EV Ready



Density Bonus Examples

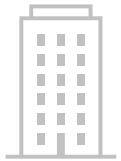
Topics



Remove Barriers in Zoning Code

Develop Charging Station Design Standards

Make Building Codes EV Ready



Density Bonus Examples

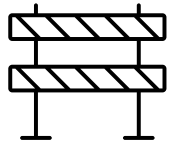
Remove Barriers in Zoning Code

- Language in most zoning codes does not classify EV charging stations separately from gas stations
- Charging stations would then fall under the same restrictions as gas stations

Top Picture Source: Petro Serve USA

Bottom Picture Source: PlugShare

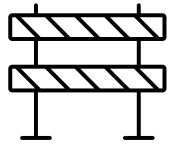
Remove Barriers in Zoning Code



Three key actions to update zoning code:

1. Define EV Charging Station Separately from Gasoline Fueling Station
2. Allow Charging Stations as a Permitted Use in Appropriate Zoning Districts
3. Allow EV Parking Spaces to Count Towards Minimum Parking Requirements

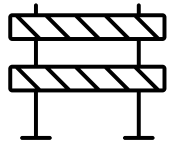
Remove Barriers in Zoning Code



Define EV Charging Station Separately from Gasoline Fueling Station

- Include definitions of charging stations by power level
  - Level 2 and Level 3 (Direct Current Fast Charging) OR
  - Alternating Current (AC) and Direct Current (DC)
- Include definitions of publicly accessible and private charging station

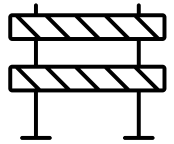
Remove Barriers in Zoning Code



Allow Charging Stations as a Permitted Use in Appropriate Zoning Districts

- Recommended to allow Level 2 charging as a permitted accessory use in all zoning districts
- Fast charging stations (Level 3) have higher vehicle turnover and generate more traffic than Level 2 stations
- In districts where reduced traffic is desired, Level 3 charging stations could be permitted as a conditional accessory use

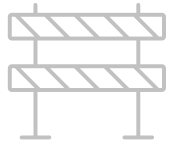
Remove Barriers in Zoning Code



Allow EV Parking Spaces to Count Towards Minimum Parking Requirements

- Public charging stations installed in parking lots can help catalyze EV adoption
- Stations are an extra cost for property owners, who may be less inclined to add charging if it will count against parking minimums

Topics



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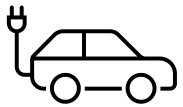
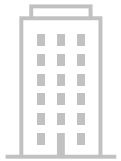


Develop Charging Station Design Standards

Make Building Codes EV Ready



Density Bonus Examples

Develop Charging Station Design Standards

- Key elements include:
  - Station accessibility
  - Safety

Top Picture Source: CNBC
Bottom Picture Source: PlugShare

Develop Charging Station Design Standards

Station Accessibility

- Proposed Rule:
  - At least one EV charging space per every 25 EV charging spaces should be accessible
  - When less than 25 EV charging spaces are provided, at least one space should be accessible

Picture Source: Nave Newell

Develop Charging Station Design Standards

Station Accessibility

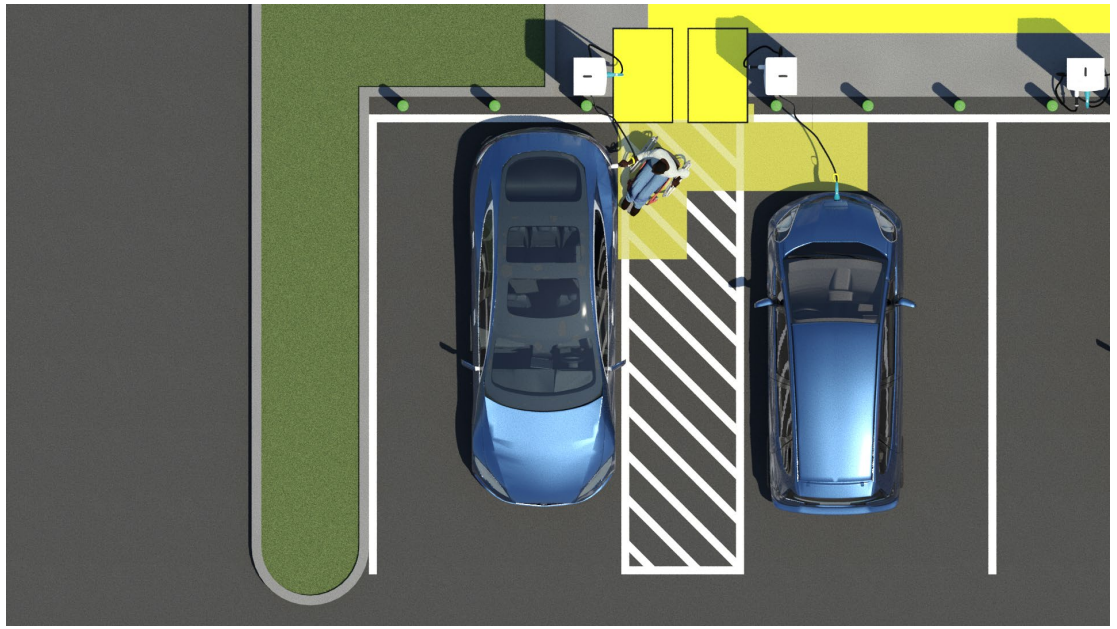
- Use Last Alternative:
  - Accessible EV charging spaces would not be restricted, but should be used last if no other spaces are available
  - Two accessible spaces must be provided when 2-25 charging spaces are provided; four accessible spaces when 26-50 are provided
  - If only one EV space is provided, it must be accessible

Picture Source: U.S. Access Board

Develop Charging Station Design Standards

Station Accessibility

- Accessible features include:
  - a vehicle charging space at least 11 feet wide and 20 feet long
  - adjoining access aisle at least 5 feet wide
  - clear floor or ground space at the same level as the vehicle charging space and positioned for an unobstructed side reach
  - accessible operable parts, including on the charger and connector



Picture Source: U.S. Access Board

Develop Charging Station Design Standards

Safety

- Stations should provide:
  - Dedicated lighting
  - Contact information for when station is non-operational
  - Details such as amperage and voltage of station
  - Bollards or other means of protection against vehicle collision
  - Emergency stop button/call button

Picture Source: McCue Corporation

SITE DESIGN ELEMENTS

INSTALLATION
These site design elements are considerations for initial site planning and design. They contribute to costs and determine what type of EVSE to install.

- CHARGE LEVEL
- PROXIMITY TO POWER
- MOUNTING APPROACH
- NUMBER OF CORD SETS
- PARKING SPACE DIMENSIONS
- ENVIRONMENTAL CONDITIONS
- TECHNOLOGY
- HAZARDS

ACCESS
Accessibility has many aspects and includes wireless connections to communications networks, as well as access to buildings. These site design elements relate to the user experience.

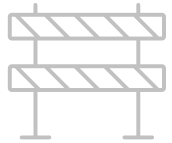
- NETWORK CONNECTION
- ACCESSIBILITY
- PROXIMITY TO TRAFFIC
- PROXIMITY TO BUILDING ENTRANCE
- PROXIMITY TO ELEVATOR
- LIGHTING
- SIGNAGE AND WAYFINDING
- PEDESTRIAN TRAFFIC

OPERATION
These elements of site design relate to day-to-day use of the EVSE as well as long-term goals of hosts and operators.

- HOST-OPERATOR AGREEMENTS
- VISIBILITY
- LOCATION IN LOT
- METERING
- LENGTH OF STAY
- FUTURE-PROOFING

Picture Source: *Siting and Design Guidelines for Electric Vehicle Supply Equipment*, NYSERDA

Topics



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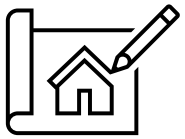
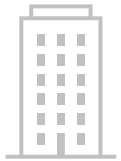


Make Building Codes EV Ready



Density Bonus Examples

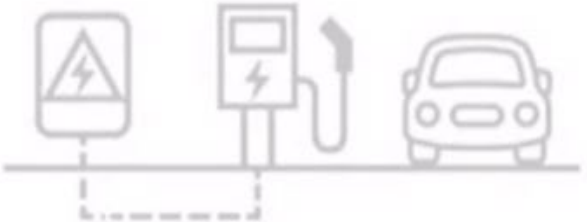
Make Building Codes EV Ready

EVSE-Capable

- Sufficient panel capacity installed and available to support future charging.
- Dedicated circuit and raceway from panel to parking stalls.

EVSE-Ready

- EVSE-Capable, plus:
- Wiring installed from panel to parking stall, terminating in a 240V outlet or junction box.



EVSE-Installed

- EVSE-Ready, plus:
- Level 2 charger installed.

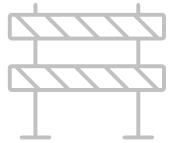
Image Source: Southern Alliance for Clean Energy

Make Building Codes EV Ready

- Recommended to prioritize a higher % of EV Capable spaces, rather than a lower % of EV Ready or EV Installed
- Building EV Capable parking spaces during new construction is significantly cheaper than redoing work at a later stage

Picture Source: SWEEP

Topics



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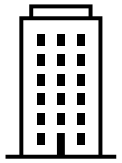

Density Bonus Examples

Density Bonus Examples

- For new development, offering a density bonus can help encourage additional investment in charging
- For existing development, some cities will offer financial incentives or rebates to help offset the cost of adding charging stations

Picture Source: AutoPacific

Density Bonus Examples

- Norcross, GA
- An additional 10 percent density bonus may be applied if providing EV charging stations for 5% of the parking spaces, with a minimum of 5 charging stations

Picture Source: ConsumerAffairs

Density Bonus Examples

- Quincy, WA
- Maximum bonus of 10% if EV charging is incorporated into the proposed development

Picture Source: ChargePoint

Justin Robbins – HDR
justin.robbins@hdrinc.com

Laura Lamboley – HDR
laura.lamboley@hdrinc.com