Leading the Charge: City Codes and Electric Vehicles

Every year the number of drivers choosing electric vehicles (EV) grows, both nationally and here in Iowa. By including EV-specific building and zoning codes in city ordinances, communities can signal their readiness for EVs and help develop a robust charging infrastructure. Cities across the U.S. are using such codes as a low-cost means to incentivize EV charging, and there are a variety of approaches to doing so.

<table>
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<th>Terms</th>
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<td>EV – Electric vehicle; this includes by battery electric vehicles and plug-in hybrids</td>
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<td>EVSE – Electric vehicle supply equipment; another term for charging stations</td>
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<td>Level 1 – 120V charging, provides 2-5 miles of range per hour of charging</td>
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<td>Level 2 – 240V or 208V charging, provides 10-20 miles of range per hour of charging</td>
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<td>Level 3 – Also known as “DC Fast Charging,” 208/480V AC three-phase input charging, provides 50-70 miles of range per 20 minutes of charging</td>
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EV-Friendly Land Use and Zoning

Define what types of EVSE are allowable by land use type

By establishing compatible charging stations according to land use types, cities can eliminate confusion about what is and isn’t allowable while also affirming the desirability of EVSE within the community. Commonly, Level 1 and Level 2 charging stations are permitted in all areas, while Level 3 charging stations are restricted to areas zoned for commercial or industrial use.

Example: Kane County, Illinois. An update to county ordinances passed in 2012 permits Level 1 and Level 2 charging stations in every zoning district, restricts Level 3 charging stations to areas zoned as RB, B-1, B-2, B-3, B-4, LI, I, PUD and A2, and classifies parcels where the primary use is the retail charging of EV batteries as the equivalent of gasoline service stations.

Provide density bonuses for EVSE installations.

Much like allowing developers to add floors to a building project that incorporates design elements such as green space and energy conservation features, a density bonus can incentivize the inclusion of charging stations in a construction project. Incentives typically take the form of an increase in allowable floor area or a decrease in the total required parking stalls.

Example: Indianapolis, Indiana. Zoning updates adopted in 2016 reduce the number of required parking spaces for some developments if plans incorporate green amenities, including EV charging stations.

Within a comprehensive plan, set a target for EV charging stations in the city or region.

Discussing electric vehicles in the process of a comprehensive plan update can help clarify how they fit into the larger goals for a community and facilitate the adoption of EV-friendly zoning codes in the future.

Example: Broward County, Florida. In a section of the comprehensive plan addressing climate change, the county articulates goals to expand electric vehicle charging infrastructure. Strategies to achieve these goals include a phased growth plan and identifies targeted areas in which to establish EVSE.
Establish design criteria for EVSE installations
By articulating standards for EVSE design and installation, including setbacks and pedestal height for freestanding units, a community can facilitate a smooth construction permitting process.

Example: Auburn Hills, Michigan. Amendments to the zoning ordinance made in 2011 outline requirements for lighting, charging station setbacks, minimum and maximum heights for outlets, and signage that prohibits internal combustion engine vehicles from parking spots designated for EV charging.

EV-Ready Building Codes

Require new building stock or significant renovations to include wiring for EVSE
The cost to retrofit existing structures with wiring for EVSE can total many thousands of dollars, while wiring incorporated at the time of construction can cost a fraction as much. By requiring new construction to include electrical infrastructure for future charging stations, cities can build up a stock of EVSE-ready buildings while substantially reducing future installation costs.

Example: Palo Alto, California. An ordinance adopted in 2014 requires all new multi-family developments, office buildings, and hotels built in the city to install circuitry to support Level 2 charging stations.

Direct developers to install wiring for future EVSE in parking lots
Costs for trenching, resurfacing, and material disposal can add significantly to the cost of revamping a parking lot with wiring for EVSE. Just as in parking structures, cities can help keep costs for future EVSE projects low by requiring wiring be installed at the time a parking lot is built.

Example: Hartford, Connecticut. Parking lots with 35 stalls or more serving places of assembly, libraries, museums, stadiums, arenas, transit stations, retail and service locations are required to install wiring to support Level 2 charging for a percentage of the total parking spaces.

Set parameters for parking lots required to install EVSE
Some cities may choose to go a step farther and require charging stations to be installed as part of certain building projects. Establishing thresholds such as project size and property type can help distinguish between projects requiring EVSE wiring and projects requiring EVSE installation.

Example: Denver, Colorado. In 2013, the mayor issued an executive order mandating all new publically-accessible parking lots on city property that have 100 parking spaces or more must set aside at least one parking space for electric vehicles and equip it with a charging station.

Additional Resources
- Iowa Clean Cities Coalition/Iowa Economic Development Authority Advancing Iowa’s Electric Vehicle Market
- Des Moines Area Metropolitan Planning Organization Electric Vehicle Readiness
- Transportation Climate Initiative (TCI) Creating EV-Ready Towns and Cities: A Guide to Planning and Policy Tools
- Office of Planning and Research of the Governor of California Zoning Example for Installation of Plug-In Vehicle Charging Stations
- Auburn Hills, Michigan Comprehensive Electric Vehicle Infrastructure Ordinance

If you have questions you’d like answered, want more information, or would like to be part of the conversation about building Iowa’s EV infrastructure, the Iowa Clean Cities Coalition can connect you with the resources you need.

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Example Regulatory Language

Kane County, Illinois, Ordinance
Appendix E, Article I, Section 1.2.03: “If the primary use of a parcel is the retail charging of electric vehicle batteries, then the use shall be considered a gasoline service station for zoning purposes. Installation of charging stations shall be subject to Special Land Use approval and located in zoning districts which permit gasoline service stations.”

Auburn Hills, Michigan, Ordinance Amendment
Section 1834, Subsection 6D: “Battery charging station outlets and connector devices shall be no less than 36 inches and no higher than 48 inches from the surface where mounted. Equipment mounted on pedestals, lighting posts, bollards, or other devices shall be designed and located as to not impede pedestrian travel or create trip hazards on sidewalks.”

Indianapolis, Indiana, Zoning Ordinance
Chapter 744, Article IV, Section 03, Subsection A: “For each electric vehicle charging station provided, the minimum number of required off-street parking spaces may be reduced by two. Each charging station counts toward the minimum number of required parking spaces.” (Cumulative reduction cannot exceed 35%)

Palo Alto, California, Ordinance
Ordinance No. 5263, section 2c: “‘EVSE-Ready Outlet’ shall mean, at minimum: (1) a panel capable to accommodate a dedicated branch circuit and service capacity to install a 208/240V, 50 amperes grounded AC outlet; (2) a two-pole circuit breaker; (3) raceway with capacity to accommodate 100-ampere circuit; (4) 50 ampere wiring; terminating in (5) a 50 ampere NEMA receptacle in a covered outlet box.”

Broward County, Florida, Comprehensive Plan
Policy 19.2.5: “Broward County shall continue to work with the Department of Energy Florida Gold Coast Clean Cities Coalition to support initiatives which seek to diversify fuel options for public transit and fleet vehicles, expand infrastructure for charging electric and hybrid electric vehicles, and incentivize parking for alternative fuel vehicles.”

Hartford, Connecticut, Zoning Ordinance
Section 7.2.2. Subsection E: “New development shall provide for electric vehicle charging stations designed in accordance with 4.20.7.B in the following prescribed manner: 1) For Residential and Lodging Uses, Government/Higher Education/Hospital Uses, Police/Fire, Schools, Employment Uses, Parking as a Principal Use, and Industrial Uses with 35 or more parking spaces, 3 percent of the total number of parking spaces required shall have Level 1 or Level 2 charging stations. 2) For Assembly, Library/Museum, Stadiums/Arenas, Transit Station, Retail Uses, and Service Uses with 35 or more parking spaces, 3 percent of the total number of parking spaces required shall be wired to support a Level 2 charging station, if one is not installed initially, or shall have Level 1 or Level 2 charging stations. 3) Level 3 charging stations are not required, but may be installed to satisfy the electric vehicle charging station requirements described herein.”