

Electric Vehicle-Ready Parking 101 for Local Governments

Local governments can enforce zoning ordinances to ensure that new construction in their jurisdiction meets the anticipated needs of users. While the local zoning ordinances can influence development in many ways, including determining permitted land uses, setting minimum requirements for construction, and setting safety and signage requirements, they cannot supersede the Minnesota building code. The Minnesota building code currently does not cover electric vehicle readiness.



Electric vehicle-ready building codes and ordinances help expand charging infrastructure

Minimum electric vehicle-ready parking standards have numerous benefits for cities. Installing infrastructure during new construction avoids the retrofit costs of breaking and repairing walls, installing longer electric wires and conduits, and using more expensive methods of upgrading service panels. Electric vehicle-ready building codes and ordinances support the expansion of electric vehicle charging infrastructure in cities. When included in initial construction, it can save cities millions of dollars in installation costs.

Examples of cost savings from including electric vehicle chargers in new construction vs. retrofits

Numerous studies have been conducted regarding the cost difference between new construction vs. retrofits regarding electric vehicle infrastructure. The City of Orlando, Florida, highlighted a local electric vehicle-ready building cost example prior to the passage of the city's electric vehicle-ready ordinance in 2021. It found that including 20 percent electric vehicle charger-capable and 2 percent electric vehicle charger-installed parking spots contributed to .0009 percent of total new construction project costs for a 116-unit affordable multi-family housing dwelling.¹ The city estimates that efforts to include electric vehicle infrastructure in new construction can save 75 percent compared to retrofit costs to make parking electric vehicle-ready.

Studies showing the cost difference between new construction and retrofits for electric vehicle charger installation

Study	Construction cost per charger	Retrofit cost per charger
City of Orlando – EV Ready Code ²	\$916	\$3,460
Electric Power Research Institute – Electric Vehicle Supply Equipment Installed Cost Analysis ³	\$2,619	\$4,160
Electric Vehicle Infrastructure Cost Analysis Report for Peninsula Clean Energy (PCE) & Silicon Valley Clean Energy (SVCE) ⁴	\$1,410	\$4,443

¹ City of Orlando, “EV Ready Code” (presentation, March 17, 2021), 33, https://www.orlando.gov/files/sharedassets/public/departments/edv/acc-ev-ready-commissioner-briefings_updated.pdf.

² City of Orlando, “EV Ready Code,” 30.

³ Electric Power Research Institute, “Electric Vehicle Supply Equipment Installed Cost Analysis,” (technical report, December 2013), B-9, <https://www.epri.com/research/products/000000003002000577>.

⁴ Tim Minezaki, Cassidee Kido, and Ed Pike, *Electric Vehicle Infrastructure Cost Analysis Report for Peninsula Clean Energy (PCE) & Silicon Valley Clean Energy (SVCE)*, Energy Solutions, November 20, 2019, https://bayareareachcodes.org/wp-content/uploads/2020/03/PCE_SVCE-EV-Infrastructure-Report-2019.11.05.pdf.

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Local government role

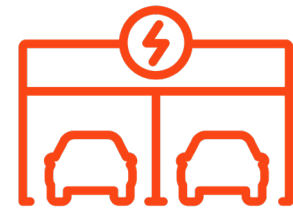
Cities are uniquely positioned to accelerate electric vehicle infrastructure build-out and ensure long-term savings by optimizing commercial parking requirements and parking area designs. The Great Plains Institute has created an ordinance summary document that aggregates, by best practice category, the inventoried municipal electric vehicle ordinances. You can access the guide, [Summary of Best Practices in Electric Vehicle Ordinances](#), for ideas on creating a successful electric vehicle ordinance.⁵

Benefits of expanding access to electric vehicle charging

Incorporating electric vehicle infrastructure benefits many different users, including but not limited to residents, employees, and tourists.

As stated in The Washington Post, 80 percent of electric vehicle charging happens at home.⁶ This means multi-unit dwelling residents and other people with no access to garages will require access to electric vehicle chargers in and close to residential buildings. Furthermore, employees who do not have access to chargers at their residences have the opportunity to charge their vehicles at their workplaces, where the vehicles often stay parked most of the day.

Publicly accessible electric vehicle charging at city centers, shopping plazas, and parking ramps can provide tourists and residents with convenient vehicle charging locations in these high-traffic areas. This can attract tourists and elevate cities and towns to electric vehicle road trip destinations. The City of Red Wing, Minnesota, installed a free public-facing fast charger to cater to tourists.⁷



Accessibility considerations

The Americans with Disability Act requires that site developers installing electric vehicle charging stations follow special design guidelines to accommodate people with disabilities. While the Americans with Disability Act does not provide design standards for charging station-equipped parking spots, the Minnesota Pollution Control Agency has issued guidance on the minimum standards that should be kept in mind when installing infrastructure to avoid expensive retrofits later.⁸

Tesla, ChargePoint, and California Electric Transportation Coalition conducted a study that found that retrofitting for accessibility requirements added between \$11,500 to \$32,500 in demolition and repair costs to remove and repair 100 to 300 linear feet of surface parking.⁹

⁵ Claire Cooke and Brian Ross, “Summary of Best Practices in Electric Vehicle Ordinances,” (Great Plains Institute, June 2019), https://betereenergy.org/wpcontent/uploads/2019/06/GPI_EV_Ordinance_Summary_web.pdf.

⁶ Shannon Osaka, “It’s common to charge electric vehicles at night. That will be a problem,” *The Washington Post*, September 22, 2022, <https://www.washingtonpost.com/climate-environment/2022/09/22/its-common-charge-electric-vehicles-night-that-will-be-problem/>.

⁷ Joe Cella, “Case Study: The Red Wing, MN DC Fast Charger” (Drive Electric Minnesota, March 2019), <https://driveelectricmn.org/wp-content/uploads/2019/06/Red-Wing-DCFC-Case-Study.pdf>.

⁸ Minnesota Pollution Control Agency, “Installation Requirements for Electric Vehicle Charging Stations” (January 2021), <https://www.pca.state.mn.us/sites/default/files/p-gen4-20.pdf>.

⁹ Ed Pike, Cassidee Kido, Evan Kamei, and Kate DoVale, *Plug-In Electric Vehicle Infrastructure Cost Analysis Report for CALGreen Nonresidential Update*, Energy Solutions, 2019.



Facilitated by the Great Plains Institute, Drive Electric Minnesota is a partnership of electric vehicle champions, including automakers and auto dealers, utilities, charging companies, environmental groups, and state and local government. The coalition paves the way for the deployment of electric vehicles and charging infrastructure through public-private partnerships, financial incentives, education, technical