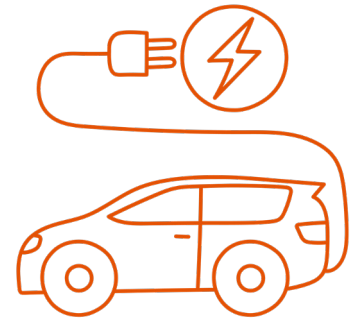


# Electric Vehicle-Ready Parking 101 for Policy Makers

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

Minimum electric vehicle-ready building codes and ordinances support the expansion of electric vehicle charging infrastructure, which is critical to reducing range anxiety and spurring electric vehicle deployment. Installing infrastructure during new construction also prevents the need for costly retrofits, including breaking and repairing walls, installing longer electric wires and conduits, and using more expensive methods of upgrading service panels. When included in initial construction, they can significantly reduce installation costs.



## Examples of cost savings from new construction vs. retrofits

Numerous studies have explored 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 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.<sup>1</sup> The city estimated 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 <sup>2</sup>	\$916	\$3,460
Electric Power Research Institute – Electric Vehicle Supply Equipment Installed Cost Analysis <sup>3</sup>	\$2,619	\$4,160
Electric Vehicle Infrastructure Cost Analysis Report for Peninsula Clean Energy & Silicon Valley Clean Energy <sup>4</sup>	\$1,410	\$4,443

<sup>1</sup> 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](https://www.orlando.gov/files/sharedassets/public/departments/edv/acc-ev-ready-commissioner-briefings_updated.pdf).

<sup>2</sup> City of Orlando, “EV Ready Code,” 30.

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

<sup>4</sup> 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\\_SCVE-EV-Infrastructure-Report-2019.11.05.pdf](https://bayareareachcodes.org/wp-content/uploads/2020/03/PCE_SCVE-EV-Infrastructure-Report-2019.11.05.pdf).

# Electric Vehicle-Ready Parking 101 for Policy Makers

## State and local government roles

The state Department of Labor and Industry's Construction Codes and Licensing Division administers the building code in partnership with the local government. While the department regularly updates the code, the legislature can also amend it by creating new regulations or changing how the existing codes apply within Minnesota.<sup>5</sup>

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.

## Benefits of expanding access to electric vehicle charging

Incorporating electric vehicle infrastructure benefits many different users, including but not limited to



Residents



Employees



Tourists

As stated in The Washington Post, 80 percent of electric vehicle charging happens at home.<sup>6</sup> This makes it challenging for residents without access to home charging. The National Renewable Energy Laboratory estimates that only half of all vehicles in the United States belong to residents of single-family or duplex homes with dedicated parking appropriate for overnight electric vehicle charging.<sup>7</sup>

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.<sup>8</sup>

<sup>5</sup> Anna Scholin, "State Building Code - 83rd Minnesota Legislature," Minnesota House Research, October 2022, <https://www.house.leg.state.mn.us/hrd/pubs/ss/ssmnb.pdf>.

<sup>6</sup> 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/>.

<sup>7</sup> Shanti Pless, Amy Allen, Lissa Myers, David Goldwasser, Andrew Meintz, Ben Polly, and Stephen Frank, *Integrating Electric Vehicle Charging Infrastructure into Commercial Buildings and Mixed-Use Communities: Design, Modeling, and Control Optimization Opportunities* (National Renewable Energy Laboratory, September 2020), <https://www.nrel.gov/docs/fy20osti/77438.pdf>.

<sup>8</sup> 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>.

