

Recommended Bylaw Updates for Electric Vehicle Charging

CCRPC Electric Vehicle Planning Study – Phase II

June 2014

Municipal development regulations should include language to clarify permitting requirements for new electric vehicle charging installations and support the ongoing development of this infrastructure.

Recommendations below cover the following areas:

- A. **Accessory Uses** – treating EV charging as an accessory use is generally the simplest permit procedure for development of new installations.
- B. **Parking** – spaces set aside for EV charging should be included in the calculation of parking requirements.
- C. **Signage** – wayfinding and parking restriction signage should be treated similar to other small traffic control device permit procedures, such as signage on Americans with Disabilities (ADA) required spaces.
- D. **Fee collection** – charging station owners should be free to set pricing for charging services as market conditions warrant without affecting the land use classification of the property.
- E. **Definitions** – unified definitions of EV-related issues will help property owners and municipal staff apply the recommended language consistently.

Each area includes sample reference language as well as potential use cases based on the South Burlington Land Development Regulations and the Williston Unified Development Bylaw.

A. Accessory Use

While specific language and requirements will vary by municipality, the goal of defining EV Charging Stations as Accessory Uses is to streamline the permitting process. In some municipalities, this classification may not require a permit; in others, it will enable permits to be issued administratively. If Accessory Uses require significant review, municipalities may wish to consider other less restrictive classifications which may be available under their local bylaws. For example, they could be listed as an exemption in which no review or permit would be needed.

Recommended Accessory Use Language:

All EVSE Charging Stations shall be considered an ACCESSORY USE and allowed and encouraged in all districts, subject to the provisions listed in [Section number for Accessory Uses].

Residential v. Non-Residential

In some cases, Accessory Uses may be addressed in Residential and Non-Residential sections of the Bylaws separately. In these cases, it will be beneficial to explicitly state that EV Charging Stations are allowed Accessory Uses in each section.

Example and Potential Language for the City of South Burlington Land Development Regulations

Chapter 3.10 General Provisions, Accessory Structures and Uses (p. 3-19)

- A. General Requirements. Customary accessory structures and uses are allowed in all districts, as specifically regulated in that district, under the provisions that follow below.
- B. Poolhouse.
- ...
- G. Electric Vehicle Charging Stations [proposed additions in red text]. EV Charging Stations shall be considered accessory structures and allowed and encouraged in all districts, subject to the requirements of this chapter.

Example and Potential Language for the Town of Williston Unified Development Bylaw:

Chapter 17 Accessory Uses and Structures, Temporary Uses and Structures (p. 93):

Customary accessory structures and uses are permitted in all zoning districts. This chapter clarifies the meaning of those terms by providing standards for some common nonresidential accessory uses. Residential accessory uses are addressed in Chapter 20.

17.1 Accessory Dwellings

...

17.16 Electric Vehicle Charging Stations

All EVSE Charging Stations are permitted as accessory uses and structures in all zoning districts.

17.16.1 Is a permit required to install EV charging stations? An administrative permit is required for all development that is not specifically exempted by WDB 4.2.1.

17.16.2 Do EV Charging Stations impact the minimum required parking spaces? No, EV Charging Stations do not impact the number of minimum or maximum vehicle spaces required, as provided by WDB 14.2.

17.16.3 Do other requirements of this bylaw apply to EV Charging Stations? Yes. EV Charging Stations must comply with all relevant standards of this bylaw. Some particularly relevant standards are cited below.

17.16.3.1 Signs/Public Art. Chapter 25 of this bylaw sets standards for signs and public art that apply to EV Charging Stations.

17.16.3.2. Outdoor Lighting. Chapter 24 of this bylaw sets standards for outdoor lighting that apply to EV Charging Stations.

Chapter 20 Residential Improvements (p. 113):

20.2 Accessory Structures. For the purposes of this chapter, an accessory structure is located on the same lot or parcel as a dwelling and serves a purpose that supports and is clearly subordinate to the residential use of the property. Accessory structures that are permitted for dwellings include detached garages, play structures, ~~and~~ sheds, and EV Charging Stations.

B. Parking

To provide clarity on the impact on parking levels, EV Charging Stations should also be addressed in the parking section of the Bylaws.

Recommended Parking Language:

EV Charging Stations are to be included in the calculation for both the number of minimum and maximum vehicle spaces required, as provided by [Section number for Parking Requirements].

It is strongly encouraged, but not required under these bylaws, that a minimum of one accessible EV Charging Station be provided. Accessible EV Charging Stations should have a barrier-free route of travel and be in close proximity to the building. It is not necessary to designate the accessible EV Charging Station exclusively for disabled users. Separate from these regulations, the Americans with Disabilities Act (ADA) may require EV Charging Stations to meet accessibility requirements.

The Parking Requirements of Bylaws can also be used to encourage or require EV Charging Station readiness or installations.

[Optional Language for] Required Charging Station Installations:

Development of each of the land uses identified in Table 1 - EV Charging Requirements for Development Projects, shall be required to install EV charging equipment and provide capacity for future charging station installations at the time of development. The requirements in Table 1 will apply when one of the following conditions is met:

- 1) the development includes a new off-street parking facility with more than 10 spaces; or*
- 2) the parking capacity of an existing building, site, or parking facility with 20 or more total spaces is increased by 30 percent or more (expressed as $[\text{number of additional spaces}]/[\text{number of existing spaces}] \times 100$).*

The number of EV charging ports required to be installed at the time of development is stated as a percentage of the total number of new or additional parking spaces in Column A of Table 1 below. Requirements will be rounded to closest whole number, but will always be a value of at least one EV charging port to be available at the time of development occupancy.

To meet anticipated demand for EV charging stations as the technology becomes more widespread Column B of Table 1 specifies the required electrical capacity to enable future EV charging station installations by providing a cabinet, box or enclosure connected to a conduit linking parking spaces with 120V, 208/240V or higher voltage AC electrical service for the suitable for the number of ports identified. Capacity requirements will be rounded to the closest whole number.

Table 1 - EV Charging Requirements for Development Projects

Land Use Type	A. Number of Charging Ports Required at the Time of Development (Expressed as a minimum % of New or Added Parking Spaces)	B. Electrical Capacity for Future Charging Ports (Expressed as a minimum % of New or Added Parking Spaces)	C. Total Percent of EV Ready Parking
Multi-household residential	2%	8%	10%
Lodging	2%	3%	5%
Retail, eating and drinking establishment	2%	2%	4%
General office, medical	2%	2%	4%
Industrial	1%	1%	2%

C. Signage

Because EV Charging Stations will include signage and pavement markings, this section of the Bylaws should also address EV Charging Stations. It should be clarified that EV Charging Station signage be considered and handled in the same manner as small regulation signs (e.g. No Parking).

In some cases, Signage may be addressed in a separate ordinance. In these cases, language exempting EV Charging Station signage from additional permitting requirements should be included in this ordinance.

Recommended Signage Language:

Each electric vehicle charging station should include guide signage identifying spaces as restricted parking “EXCEPT FOR ELECTRIC VEHICLE CHARGING”. For purposes of this section, “charging” means that an electric vehicle is parked at an electric vehicle charging station and is connected to the electric vehicle supply equipment port. If time limits or vehicle removal provisions are to be enforced, regulatory signage including parking restrictions shall be installed immediately adjacent to, and visible from the electric vehicle charging station.

Example and Potential Language for City of South Burlington:

Chapter 13.19 Signs of the Land Development Regulations.

A. *General Requirements. No signs shall be erected or maintained except in conformance with the Sign Ordinance of the City of South Burlington.*

[Sign Ordinance of South Burlington](#)

Section 12. Incidental and Directional Signs

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(b) Directional Signs.

(1) Directional signs shall generally be exempt from the provisions of this Ordinance, in accordance with Section 23.

Section 23. Exemptions

(a) Memorial signs or tablets

...

(v) Informational signs for EV Charging Stations

Example and Potential Language for Town of Williston Bylaw:

Chapter 25 Signs, Public Art (p. 157)

*25.7.9 (p. 166) Directional signs may be of any permitted type. They convey direction (e.g. Restrooms ->), regulations (e.g. No Parking, **EV Only Parking**), and similar information. No permit is required for the placement or posting of up to four directional signs that have an area of less than two square feet and do not include a logo larger than one-half SF or a commercial message.*

D. Electric Vehicle Charging Station Fees

EV Charging Station owners should have the option to charge a fee to users to cover their capital and operating costs and potentially profit from providing this service. The following sample language is recommended to ensure property land use classifications will not change as a result of instituting a fee structure.

Recommended Fee Collection Language:

The property owner is not restricted from collecting a service fee for the use of an electric vehicle charging station made available to residents, employees and visitors to the property. Collection of charging station fees shall not affect the zoning land use classification of properties where EV charging stations are installed as accessory uses.

E. Definitions

Electric Vehicle Supply Equipment (EVSE)

The protective system which communicates with electric vehicles and monitors electrical activity to ensure safe charging, inclusive of all of the components: the conductors; the ungrounded, grounded, and equipment grounding conductors; electric vehicle connectors; attachment plugs, and all other fittings devices, power outlets, or apparatus installed specifically for the purpose of delivering energy from the grid to an electric vehicle.

There are three types, or levels, of EVSE:

Alternating Current (AC) Level 1 EVSE

EVSE which uses a 120V AC connection to a standard residential/commercial electrical outlet typically supplying 15 amps of current, for a power draw around 1.4 – 1.8 kW when charging. All EVs come equipped with Level 1 chargers from auto manufacturers.

Alternating Current (AC) Level 2 EVSE

EVSE which uses a 208/240V AC connection to supply increased power to EVs, reducing the amount of time required to charge the EV battery. Level 2 EVSE can provide up to 80 amps of current and 19.2 kW of power, although most current EVs use only 3.3 to 6.6 kW as determined by the vehicle's onboard charger. Current Level 2 EVSE equipment typically uses 208/240V 40-50 amp supply circuits.

Direct Current (DC) Fast Charging EVSE

EVSE which delivers high voltage (typically 200-450V) DC power directly into the EV's battery system, enabling rapid charging. Typically, an 80% charge can be provided in 30 minutes or less for many all electric vehicles, compared to several hours for Level 2 charging. There are three available standards for DC fast charging, the CHAdeMO format used by Nissan and Mitsubishi vehicles, the SAE Combined Charging System (CCS) format used by several United States and European automakers and the Supercharger proprietary system used by Tesla electric vehicles. As of early 2014, the majority of vehicles equipped for DC fast charging in the USA are CHAdeMO compatible, but SAE models are starting to become available. DC fast charging equipment may include ports for one or more of these standards depending on the model.

Electric Vehicle Charging Station

The public or private parking space(s) served by EVSE, including all signs, information, pavement surfaces, surface markings, fee collection systems, and protective equipment, in which a vehicle is recharged.

Charging

Occurs when the connector from the EVSE (or standard outlet) is inserted into the EV inlet, and electrical power is being transferred for the purpose of recharging the battery on board the EV.

Charging Levels

Standardized indicators of electrical force, or voltage, at which an EV's battery is recharged. EVSE is classified into categories by the rate at which batteries are charged: AC Level 1; AC Level 2; and DC Fast Charging.

Electric Vehicle Charging Port

The EVSE component which connects to vehicle charging inlets. One EVSE unit may contain multiple charging ports, which are also referred to as "plug connectors" or "heads". Level 1 ports include connectors supplied by level 1 EVSE as well as any standard 120V outlets able to supply 15 or more amps of current to be used with the level 1 EVSE supplied by vehicle manufacturers.

Electric Vehicle (EV)

A class of automobiles that use electric motors powered by energy drawn from the grid or off-grid electric sources into a battery system for propulsion.

All Electric Vehicles (AEVs) also known as Battery Electric Vehicles (BEVs)

Electric vehicles powered solely by energy stored in the vehicle's battery system. There is no gasoline or backup power generation in the vehicle, so when the battery runs out of charge it requires recharging before operating again.

Plug-in Hybrid Electric Vehicles (PHEVs)

Electric vehicles capable of operating solely on electric energy for a certain distance after which an auxiliary internal combustion engine is engaged to offer additional range. PHEV's are often categorized according to their range in electric mode. For example, the battery system of a PHEV-10 has approximately a 10 mile electric range. Certain models of PHEVs are sometimes referred to as Extended Range Electric Vehicles (EREV) if the internal combustion engine is used primarily as a generator for the battery system.

Neighborhood Electric Vehicle (NEV)

Electric vehicles which are designed to be, and are, operated at speeds of up to 25 miles per hour (mph) and conform to the minimum safety equipment requirements as adopted in the Federal Motor Vehicle Safety Standard Number 500, Low Speed Vehicles (49 C.F.R. 571, 500). NEVs may only be used on roads that have a posted speed limit of 35 mph or less. (Reference Vermont Statutes Title 23, Chapter 1, Section 4, and Chapter 13, Sections 1007a and 1043).