

Accessible Design Guidelines and Use Policy for Electric Vehicle Charging Stations

The City of Brampton is committed to implementing, maintaining and enhancing accessibility with respect to employment and the use of all City goods and services, programs and facilities for all persons with disabilities in a manner that:

- ✓ Respects their dignity and independence and is sensitive to their individual needs;
- ✓ ensures reasonable efforts are made so that service outcomes are the same for persons with disabilities as those without disabilities; and,
- ✓ allows persons with disabilities to benefit from the same services as those without disabilities, in the same location and in a timely and similar manner considering the nature of the service accommodations.¹

The City is committed to enhancing electric vehicle charging station accessibility and ease of use for persons with disabilities - including but not limited to the use of mobility aids and wheelchairs, limb differences, limited to no hand dexterity, upper extremity amputations, vision and hearing loss, and neurodiversity.

Consultants and contractors designing and installing City owned charging infrastructure shall apply universal design principles and apply the following Accessible Design Guidelines and specifications to the best their ability. Where novel circumstances result in challenges to apply these guidelines, the following resources shall be reviewed to determine a solution that best promotes unhindered access and use of charging equipment for everyone.

1. [British Standards Institution – EV – Accessible - Charging Specification](#)
2. [CSA Group – B651:23 - Accessible Design for the Built Environment](#)
3. [BC Hydro – EV Fast Charging – Design & Operational Guidelines](#)
4. [US Access Board - Design Recommendations for Accessible Electric Vehicle Charging Stations](#)
5. [ADA Requirements for Workplace Charging Installation](#)

¹ Source: [Peel Region 2022 Accessibility Status Report](#)

1.1 Number of Accessible Chargers

For new charging station installations, where design is initiated from 2025 onwards, the greater of one (1) or 5 per cent of parking spaces with AC (Level 2) chargers, and the first parking space with a DC Fast (Level 3) charger, with 50 kilowatts or higher power output, per site will be accessible for persons with disabilities, wherever feasible. This applies for all new City-owned EV charging installations for use by the general public and/or staff. This does not apply for chargers designated for fleet vehicles.

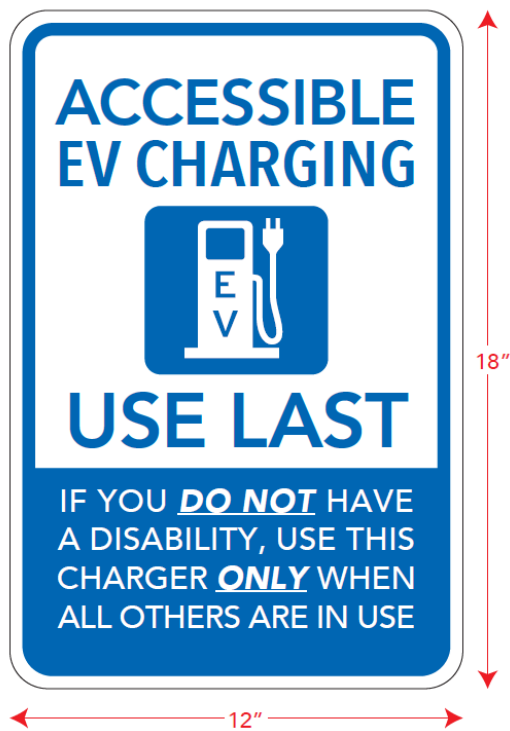
1.2 Use Last Policy

The City will manage the use of public and staff charging stations via a 'Use Last' Policy, where parking spaces with accessible EV chargers should only be used by persons without disabilities if all other non-accessible EV charging spaces are in use.

1.3 Signage

The following signage must be installed to communicate the 'Use Last' policy. The height of the sign from the bottom edge to the top of grade/surface is minimum 1,000 mm to maximum 1,500 mm.²

Figure 1: 'Use Last' Policy Signage



² Adapted from: [Accessible Parking Manual \(brampton.ca\)](https://www.brampton.ca/accessible-parking-manual)

³ Adapted from US Access Board - Design Recommendations for Accessible Electric Vehicle Charging Stations

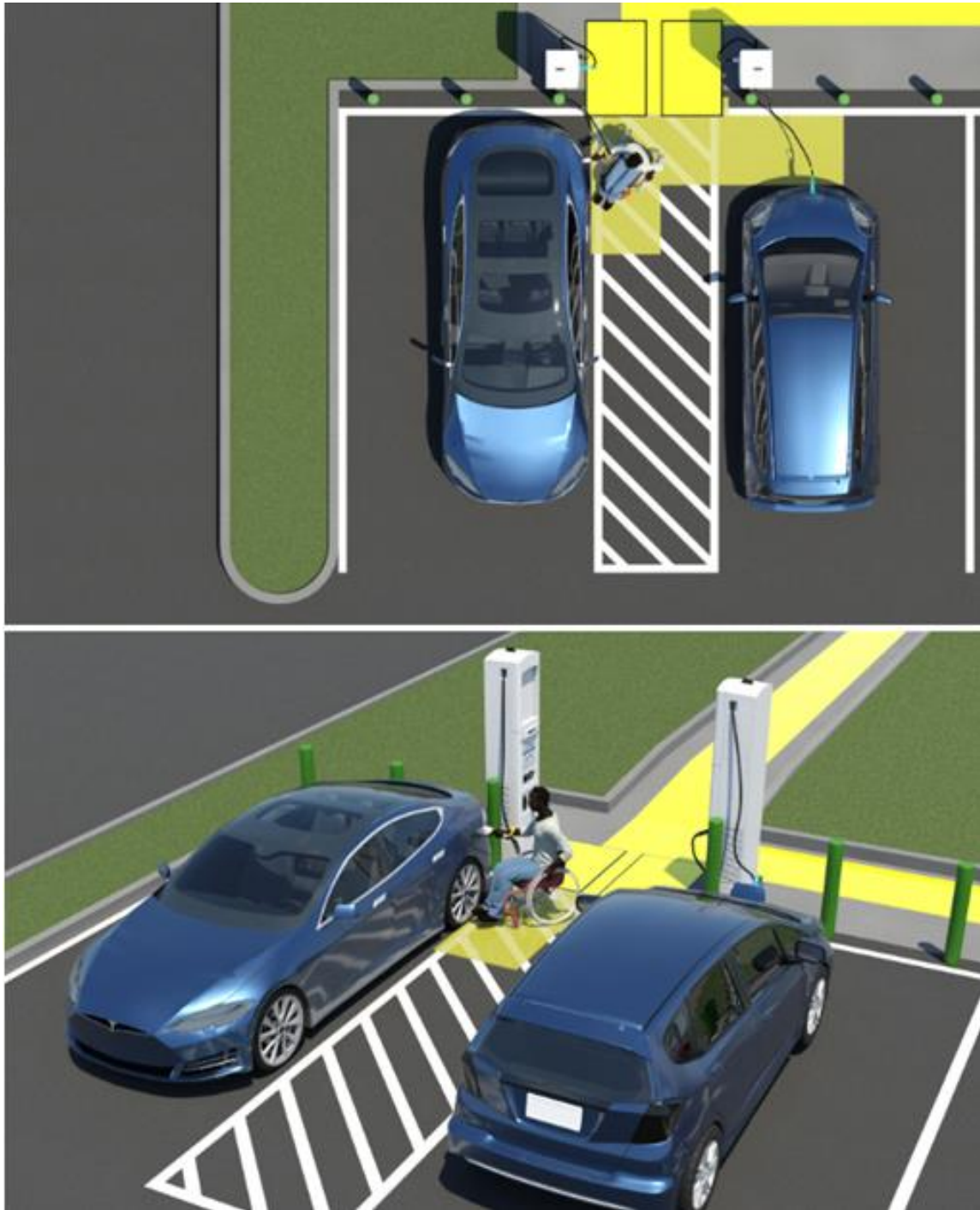
1.4 Spatial and Mobility Requirements and Best Practices

- Parking spaces with accessible EV chargers should follow a consistent guideline criterion for accessibility as outlined in Accessibility for Ontarians with Disabilities Act, 2005, S.O. 2005, c. 11 and local by-laws⁴. However, additional spatial allocations as outlined in ‘*CSA/ASC B651:23 - Accessible design for the built environment*’ should be applied where reasonable, including but not limited to wider access aisles targeting 2,000 mm and sufficient clear ground space targeting 2,100 mm around all sides of the charger with Operable Parts for turning mobility devices.
- The access aisle shall be clearly indicated by high colour contrast diagonal pavement markings to indicate vehicles are prohibited from encroaching. It must not have a slope greater than 1:20 or a cross slope greater than 1:48. It must support ramps or curb cuts between level changes as needed to allow access to the charger, and connect directly to a marked path of travel to facility or amenity entrances. One access aisle may be shared by two parking spaces (see *Figure 2*).
 - Given the location of an electric vehicle’s charging adapter and accessible egress may vary by vehicle model, in a scenario where an access aisle would not be shared between spaces (e.g. *only one accessible charger is being installed*), isolating the access aisle from the parking space via pavement markings may not be required. This can enhance flexibility on parking configuration to best maneuver personal mobility devices around the vehicle and charger. Multiple or longer curb cuts may be necessary in this circumstance if the charger is mounted on pathway that’s elevated from the parking space’s grade.
- The clear ground space must be level and not sloped more than 1:48.
- All surfaces should be firm and slip resistant. Gravel must not be used.
- There must be a minimum vertical height clearance of 2,100 mm. This is important if canopies or other infrastructure is installed for weather protection.
- Chargers should be flush with grade if possible. and have an unobstructed side reach. If an elevated concrete pad is required for mounting charging equipment, the edge of the pad shall not extend outward more than 250mm from any side with Operable Parts (*connectors, RFID card reader, buttons, etc.*).
- Should bollards and/or impact protection barriers be installed adjacent to chargers, they must not impede access or reach to the charger’s operable parts.

⁴ [CITY OF MISSISSAUGA ACCESSIBILITY PARKING ACCESSIBILITY PARKING BY-LAW 10-16](#) and [Accessible Parking Manual \(brampton.ca\)](#)

- If there are multiple locations for charging equipment on a site, accessible chargers should be distributed to allow drivers with disabilities to park near as many accessible entrances as possible.
- Where space is available, pull-in configurations, with chargers located beside the vehicle and between parking stalls, are encouraged as cable reach is less of an issue and chargers are installed at the same grade as parking spaces (see *Figure 3*).
- Where space is available, pull-through configurations, analogous to fuel pumps at a gas station, are encouraged as they can accommodate larger electric vehicles and the driver can easily align the car's charging port with the appropriate connector (see *Figure 4*).
- Best practices for accessible streetside chargers⁵ include:
 - Locating chargers near the closest curb ramp
 - Siting chargers carefully to avoid obstructing entry and exit from parked vehicles
 - Providing chargers on both sides of a one-way street
 - Installing street level access aisles

Figure 2: Example Layout of Pull-in Fast Chargers with Shared Access Aisle



⁶ Source: [US Access Board - Design Recommendations for Accessible Electric Vehicle Charging Stations](#)

Figure 3: Example Layout - Pull-In with Fast Chargers between Parking Spaces⁷



Figure 4: Example Layout - Pull-through with Fast Chargers between Parking Spaces⁸



⁷ Source: [BC Hydro – EV Fast Charging – Design & Operational Guidelines](#)

⁸ Source: [BC Hydro – EV Fast Charging – Design & Operational Guidelines](#)

1.5 Operable Parts

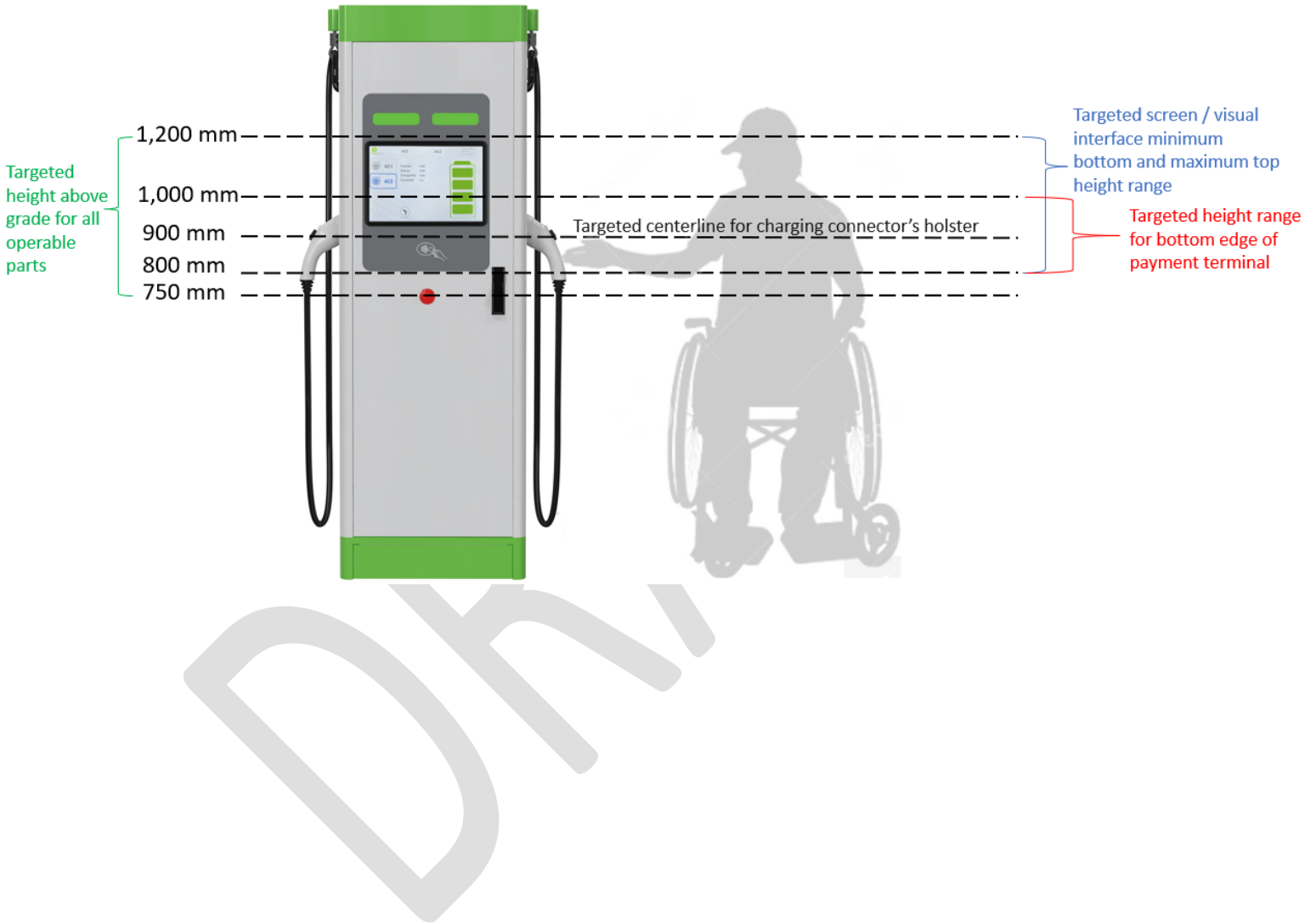
Specified chargers should be designed with parts that are operable by the widest range of users with disabilities.

- Operable Parts shall be located in a range between 750 mm and 1,200 mm in height from grade.
- Reach distance for Operable Parts should not exceed 250mm.
- The centerline for the charging connector's holster should target 900 mm from grade.
- Connectors should be operable with one hand and a closed fist, and should not require tight grasping, pinching, twisting of the wrist, or more than 60 Newtons of activating force to use.
- Straps, loops and cable management systems should be added to connectors to assist with moving them to the vehicle's charging port
- Cables for connectors should never block access aisles when plugged into a vehicle
- The screen/visual interface should have a minimum bottom height of 800 mm and a maximum top height of 1,200 mm.
- Display screens must be visible from 1,000 mm above grade. If a screen is located below 1,000 mm, it is recommended it is tilted at an angle between 10° and 20° upwards from the vertical plane towards the user⁹
- Text on a screen or visual interface must be easily readable in an outdoor setting for those with vision impairments and colour blindness. Adjustable text sizes or a minimum character height of 4.75 mm is recommended. Internal lighting within the screen or visual interface is recommended for illumination in darker conditions. Using anti-glare coatings and/or installing overhead canopies is recommended for sufficient shading in sunny conditions.
- The bottom edge of the payment terminal should be between 800 mm and 1,000 mm
- There should be at least 70% colour contrast between the labels on keys and controls and their background

⁹ User testing has shown that tilting at an angle of between 10° and 20° for a touchscreen or other interactive elements below 1,000 mm can enable usage of the screen or visual interface from both a standing and seated position.

- QWERTY keyboard and standard numerical layout should be used if applicable

Figure 5: Recommended Reach Heights Above Grade for Accessible Charger Operable Parts¹⁰



¹⁰ Adapted from Source: [British Standards Institution – EV – Accessible - Charging Specification](#)

1.6 Websites and Mobile Applications

Specified charging equipment should have proven integrations with an EV Charging Station Service Provider's website and mobile application that promotes enhanced communication features for accessibility.

- Websites should adhere to Web Content Accessibility Guidelines (WCAG 2.0)¹¹
- Mobile applications should facilitate contactless payments, enable speech output that's coordinated with information on the chargers' display screen, and provide a platform for two-way text messaging support.

1.7 Lighting¹²

Lighting around charger should be sufficient for those with visual impairments to read signage, instructions and controls, and navigate routes to nearby building entrances or amenities.

- Light levels should be 108 lux from the charger's face extending out a distance of 1,500 mm
- From 1,500 mm up to 18,000 mm from the front and back of the charger, lighting should be at least 32 lux.
- Bright and rapid flashing lights greater than three flashes per second must be avoided.

¹¹ [Web accessibility statement for content providers - Regional Government - Region of Peel \(peelregion.ca\); How to Meet WCAG \(Quickref Reference\) \(w3.org\)](#)

¹² Source: [BC Hydro – EV Fast Charging – Design & Operational Guidelines](#)