

Electric vehicle charging principles in Lahti



Lahti

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Instructions for planning and implementation

The City of Lahti offers charging stations for electric vehicles in the city centre and surrounding areas. In addition to the locations identified by the City, charging operators may suggest other suitable locations of charging stations. This guide summarises the basics of how charging stations are to be built and implemented and which locations are well-suited for them.

Models to be used

Type 2 charging stations | 11–22 kW, AC

A single charging station may include:

-  A device for charging one or two vehicles at a time
-  Alternatively, a charging device with a switchboard
-  If necessary, a separate switchboard associated with the charging station
-  A payment terminal (if any), preferably integrated into the device

Users are required to bring their own charging cables.

High-power charging stations | yli 100 kW, DC

A single charging station may include:

-  A central unit or several charging devices integrated into a central unit
-  Several satellite chargers, if necessary
-  An electrical switchboard for the charging station
-  A payment terminal (if any), preferably integrated into the device

High-power charging stations may include fixed charging cables.

Technical requirements

- Insofar as this is possible, the different components of the charging device (such as socket outlets, hatch handles, and readers, must be placed at a height of 1.0 to 1.4 metres.
- Any indicator lights included in the station must not dazzle passers-by or otherwise disturb the environment. Charging points that are located in on-street parking areas must not include red or green indicator lights. The maximum intensity for all indicator lights is 20 W/100 lm.
- Installing external light fixtures on the charging post is forbidden.
- The foundations of the equipment must be covered. The top surface of the foundations must not extend higher than the surface of the surrounding structure.
- DC charging stations must have a fixed charging cable. The charging cable must

be installed in a way that ensures it does not cause dangerous situations or other harm to persons or vehicles on the street, in traffic or when maintenance is being conducted. For example, the cable must not hang loose in a way that may hinder maintenance efforts or disturb other traffic.

- The length of the charging cables used at DC charging stations may not exceed 5 metres.
- The elements of a DC charging station must form a functional piece of equipment. The central unit and switchboards of the station should be placed as close together as possible.
- The installation must take into account the maintenance clearance required by the manufacturers of each component.



Charger device appearance

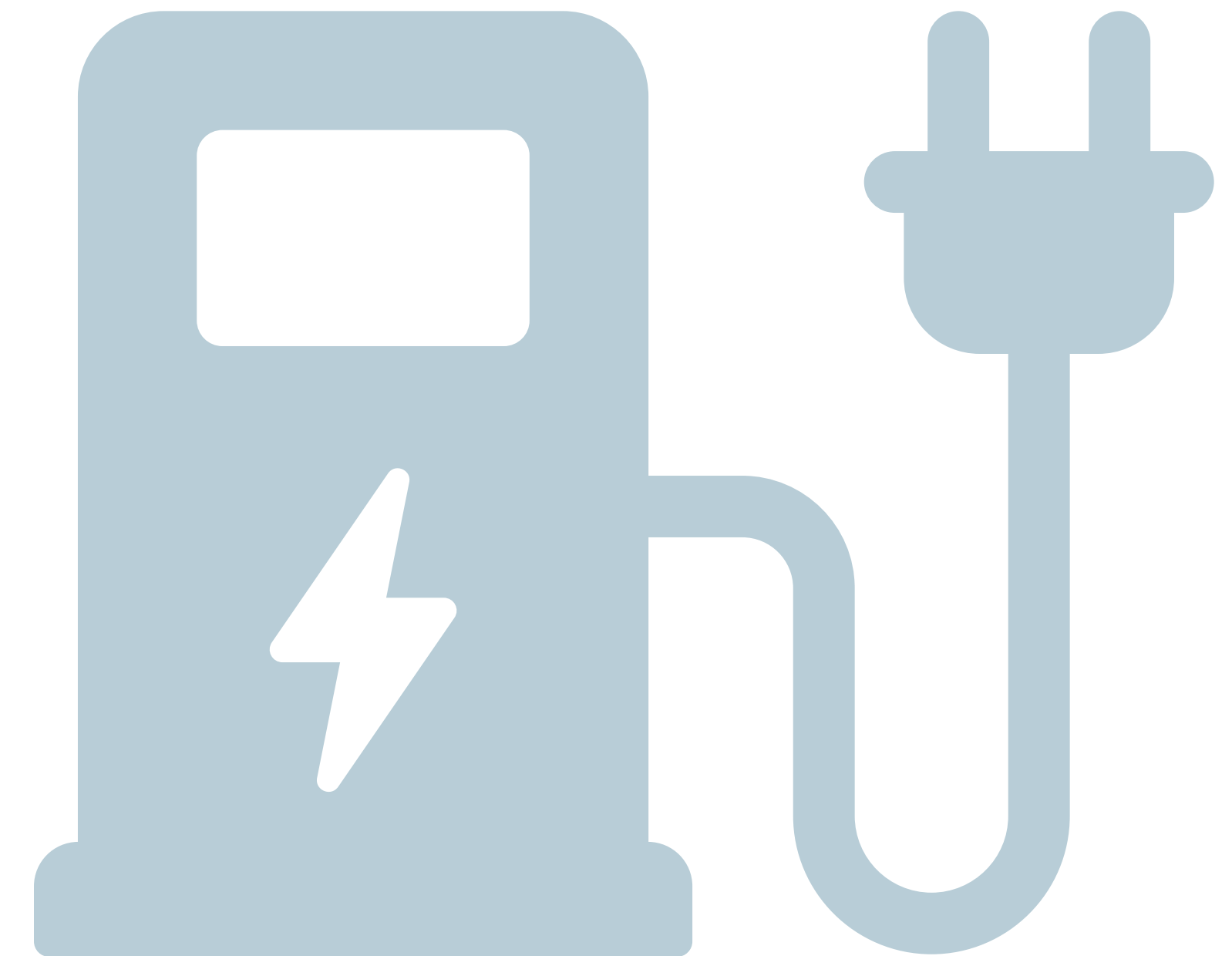
- The charging device and its placement must be well-suited for the installation environment and the surrounding cityscape.
- The design of the charging device should be simple and understated with a pillar-like form.
- The different devices of the charging point must be designed to form a unified whole. This should be taken into account in aspects such as colour scheme, dimensioning and placement.

Charging stations must include clear operating instructions in at least Finnish and English. The instructions must be placed at an easily visible height, either as labeling or on a digital display.

User manuals and identifiers

- Charging devices must feature clear instruction for users.
- Insofar as this is possible, the instructions should be placed at a height of 1.0–1.3 metres.
- They may be, for example, taped onto the device or displayed on a digital screen.
- The instructions must be provided at least in Finnish and English.
- Depending on the device and how the operating instructions are realised, the equipment manufacturer may propose dimensions or placements that differ from what is stated above.
- The stations may not feature advertising materials. However, this does not apply to the logo of the company providing the service.

- The logo or emblem of the company must be placed at the top of the device
- The maximum height for the logo or any letters included in the logo is 5 cm. The size of a company emblem is determined by the specific characteristics of each emblem.





Placement in the urban environment

AC and DC charging stations can be placed on-street parking spaces and in public parking lots. When considering the right location for the equipment, special attention must be paid to the surrounding cityscape and traffic safety.

Placing charging stations in locations where they would affect valuable parts of the cityscape should be avoided. For example, stations should not be installed near facades of buildings, walls and other structures protected under the Act on the Protection of the Built Heritage.

- When deciding on the exact placement of charging stations, operators should take into account all charging elements, such as charging devices, central units, switchboards and payment terminals.

- If the station utilises a device with a switchboard, operators must make full use of the connections of the preexisting device before installing any new devices with switchboards.
- As a rule, charging devices must be installed in a separator strip.
- Insofar as this is possible, devices associated with charging stations must not be placed on sidewalks or bicycle lanes.
- In all cases, pedestrians must always be afforded at least 2.5 metres of free space.
- Charging points are marked with traffic signs and road markings in accordance with the traffic signing plan.
- The maximum parking time is determined by the City.
- The decisions on the exact locations of charging equipment is finalised in collaboration with experts from the City of Lahti's Urban Environment Service Area

On-street parallel parking

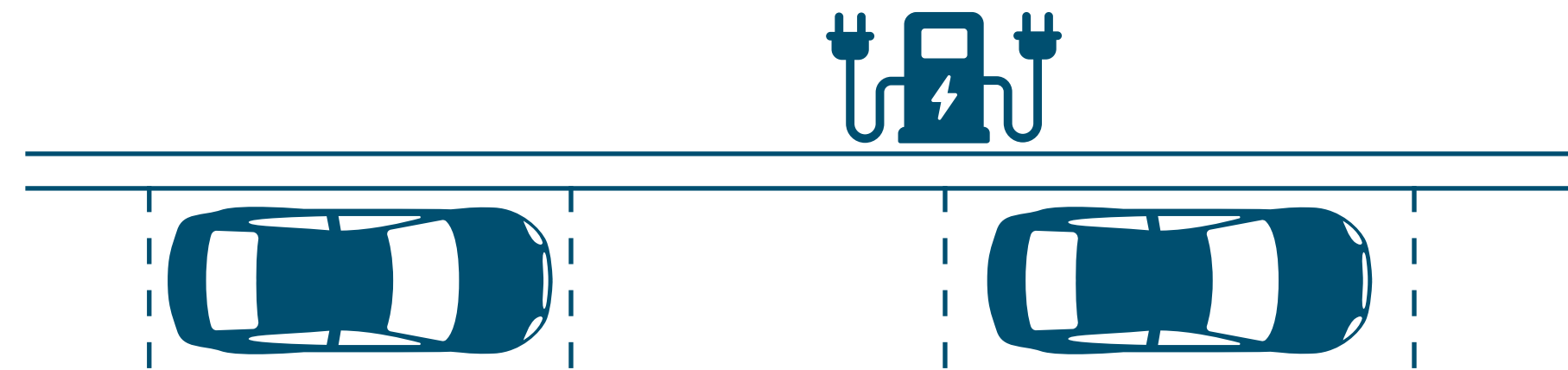
As a rule, two-vehicle charging devices are placed between every other parking space, behind the curb.

Perpendicular and angled parking and public parking areas

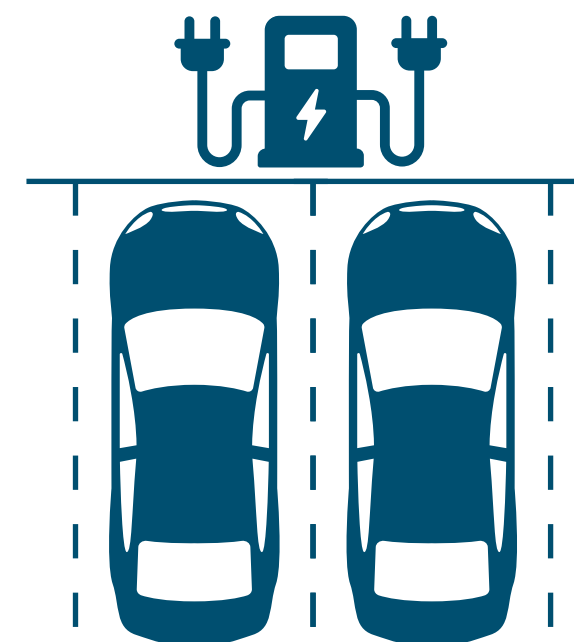
- As a rule, two-vehicle charging devices are placed between every other parking space.
- One-vehicle charging devices are placed in the middle of the front of the parking space.
- Charging devices may also be installed on a separate platform in a single parking space. However, this method should only be used if the options mentioned above are not possible.

The exact placement is always determined on a case-by-case basis.

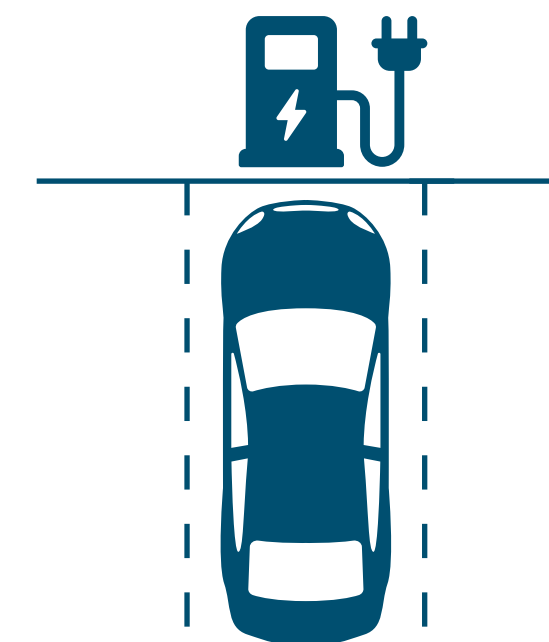
Charging device for on-street parallel parking



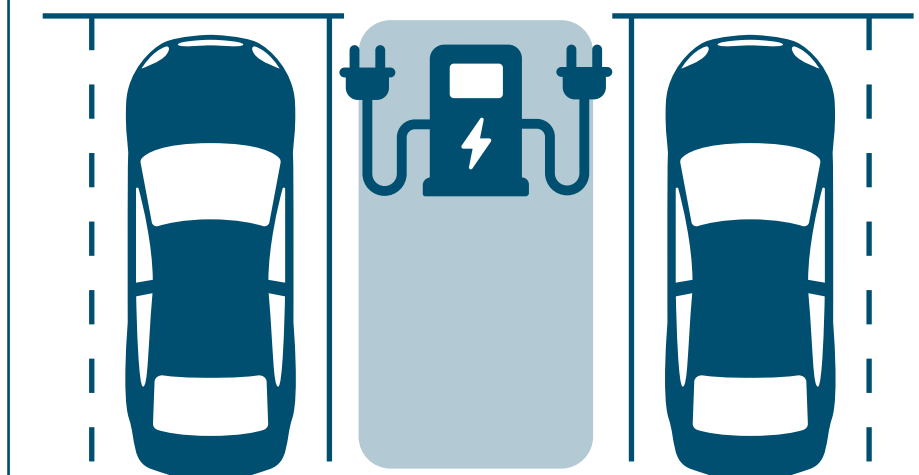
Two-vehicle charging device



One-vehicle charging device



Charging devices on a separate platform



Collision safety

- If the charging device is located on the pavement, it must be surrounded with collision protection barriers. The barriers must remove the risk of collision for both vehicles stopping in front of the device and maintenance vehicles driving behind it.
- For installations where charging devices are installed on a separate platform in a single parking space, collision protection barriers may not be necessary if the platform is raised and the risk of collision is low.
- Charging devices must be equipped with collision detection or tilt detection sensors that cut off the electricity supply if necessary.

Safety clearances

- If there are any trees in the installation area, a protective zone of 2.5 metres must be ensured around them. No excavation work may be carried out inside this zone. The same applies to any electrical and other cables routed to the charging point.
- No charging station elements may be

placed directly on top of underground wires, cables, or pipes.

- A distance of no less than 0.5 metres should be ensured between the base plate of the charging device and other fixed obstacles, unless this is not possible due to technical reasons.
- For a permanent placement permit, underground wires and cables must be identified and their respective owners contacted.

Cityscape and environment

The placement of each piece of equipment must take into account environments valuable to the cityscape, as well as any existing land use reservations. Placing separate outdoor advertising materials on the devices is forbidden.

Placement should always take into account:

- Sight lines and their endpoints
- Protected sites, even if these sites are located on plots bordering the charging station
- Valuable parks and green areas

- Landmark buildings
- Valuable surface materials and larger built entities
- Squares
- Reservations in detailed plans and street plans
- Known changes in land use and upcoming construction projects

Charging points may not be placed:

- In emergency access routes
- In service traffic routes
- Directly in front of an entrance to a residential or commercial building in a manner that may interfere with or impede maintenance or rescue operations
- At intersections where they may obstruct drivers' field of vision or otherwise impede traffic safety
- Within the stopping distance preceding a pedestrian crossing in a manner that would interfere with pedestrians' visual perception
- In locations where the charging device covers a traffic control device or obstructs its visibility



Traffic safety

Visibility splays

The central units and switchboards of charging points must not be placed in visibility splays.

Pedestrian crossings, bus stops and driveways

- When deciding on the placement of equipment, operators must take into account pedestrian crossings, bus stop areas, driveways and other routes leading to plots.

- Charging point devices may not be placed on a pedestrian crossing or within five metres of a pedestrian crossing, bus stop or in a driveway.
- Satellite chargers without a central unit may be placed after a pedestrian crossing and around a driveway. In the placement, special attention must be paid to traffic safety, street dimensioning and visibility splays.

Right of use and responsibilities

Design, implementation and costs

The holder of the right of use permit accepts responsibility for all design, electricity connections, construction, commissioning, operation, maintenance, servicing, repairs and customer service efforts related to the charging devices, as well as all related costs.

The holder of the right of use permit shall also draw up the required traffic signing plans at its own expense. These plans are subject to the City's approval.

The charging equipment must be built and commissioned within 12 months after the operator has been granted the right of use. If the right of use remains unfulfilled beyond this period, it may be revoked.

Duration and extension of the right of use

The maximum duration of the right of use permit for a charging point location is 10 years.

After it has expired, the permit holder may apply for a new use permit. If the City has no other need for the area and there is no other obstacle to granting a new permit, the City may grant a new permit to the operator.

A new permit application must be submitted to the City no later than nine months before the expiry of the current permit.

The terms and conditions for the new permit, as with any fees, will be determined on the basis of the rules and regulations, charges and decisions that are in force at the time of processing.

Operational condition and maintenance

The holder of the right of use permit is responsible for the operational condition

of the charging point throughout the entire validity period. Any detected defects must be remedied without undue delay.

The device must be operational for at least 95% of a three-month monitoring period. The permit holder shall be responsible for this monitoring.

The permit holder shall submit a report of the operational condition of the device to the City every three months. When compiling the report, any disturbances beyond the permit holder's control must be removed from the results.

If the device is not operational for at least 95% of the three-month monitoring period, the permit holder must pay the City a negligence fee in accordance with the charges currently in force.

If the charging point remains unused for a period exceeding three months, the right of use may be revoked.

The permit holder shall remedy any traces of vandalism without undue delay.

Safety and insurance

The permit holder shall ensure that the equipment meets all applicable safety, accessibility and regulatory requirements in force at any given time.

The charging arrangements must not pose a danger to pedestrians, cyclists or maintenance staff.

The permit holder must acquire liability insurance with sufficient coverage considering the nature of its operations.

Changes and inspections

Any significant changes to a charging point, equipment or area reservation are subject to the approval of the City.

The City is entitled to inspect the area and equipment to ensure compliance with the terms and conditions of the right of use permit.

The right of use may not be transferred to another operator without the approval of the City.

Parking and use of the area

Parking spaces with charging points shall remain a part of the City's parking system, but the parking spaces will only be allocated to vehicles being charged.

The City is responsible for parking enforcement in the area.

The users of the charging service shall pay a charging fee to the charging point operator and a parking fee to the City in accordance with the currently valid parking fees.

During the period for which the right of use is granted, the City may make changes to the parking conditions, pricing zones, time limits, traffic signs and parking fees applied for the area in question.

Charging spaces are intended only for vehicles that are being charged. Charging fees are paid to the operator and parking fees to the city according to the applicable parking rates.



Temporary use and maintenance restrictions

The City has the right to temporarily restrict the use of the area due to events, maintenance work, construction work or other reasons related to the use of a public area.

Any aforementioned restrictions do not entitle the permit holder to compensation or a reduction in rent.

The City is responsible for the maintenance of the area in accordance with the applicable maintenance classification. The areas in which charging points are located are subject to the same maintenance classification as all other street areas.

If the use of the area is temporarily restricted due to maintenance activities, the weather or any reasons related to City operations, the permit holder is not entitled to compensation.

Termination of the right of use

At the end of the period for which the right of use is granted, the permit holder shall be responsible for removing all equipment, foundations and other structures in the area and returning the area to a condition that meets with the City's approval.

The City is entitled to terminate the right of use before the expiry of the predetermined time period due to public interest, implementation of a local detailed plan or street plan, municipal engineering work or another justified reason related to the use of a public area.

The permit holder shall be notified of the termination at least 24 months prior to its entry into force.

The City may, at its discretion, indicate a new location for the operator to use. The permit holder is not entitled to demand a replacement location.

- If the right of use is terminated due to a reason related to the needs of the City and a new location is indicated, the City shall reimburse the operator for all reasonable costs accrued due to dismantling, transportation and installation of the equipment.
- Costs related to construction of electricity network connections, connection fees, losses due to business interruptions, lost revenue or other indirect costs are not reimbursed.
- After the contract has expired or has been terminated, the permit holder shall transfer the electricity connection associated with the charging station to the City.

Charging spaces are intended only for vehicles that are being charged. Charging fees are paid to the operator and parking fees to the city according to the applicable parking rates.

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