

Planning Commission Staff Report



Subject: Sustainability
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Executive Summary

This work session outlines potential Land Management Code amendments regarding Electric Vehicle Charging Stations and provides an overview of two Sustainability team projects in process that aim to incentivize reductions in energy use and carbon emissions from the built environment.

Acronyms

DCFC	Direct Current Fast Charging Station
EV	Electric Vehicle
LMC	Land Management Code

Terms that are capitalized as proper nouns throughout this staff report are defined in LMC § [15-15-1](#).

Background

The International Panel on Climate Change stated that [civilization must achieve carbon neutrality by 2030 to avoid catastrophic effects](#). To address this, Park City set North America's most ambitious sustainability goal to be net-zero carbon and running on 100% renewable electricity by 2022 for City operations and 2030 communitywide ([Resolution No. 32-2018](#)). The Sustainability team's strategy for meeting these goals has [four pillars](#): (1) Energy Efficiency, (2) Electrification, (3) Renewables, and (4) Regeneration.

Part of the work towards carbon neutrality includes converting combustion-based transportation to electric transportation powered by renewables. To promote electric transportation, Park City has accomplished the following: waived all building permit fees for installation of EV Charging Stations and renewable energy systems, committed to electrifying public transit, and installed 14 EV Charging Stations on municipal properties with an additional 28 to be installed this spring/summer (City Council May 21, 2020 [Staff Report](#)). Rocky Mountain Power committed to cover fifty percent of the EV Charging Station installation costs for this project.

To incentivize additional EV Charging Stations, Park City was awarded a grant from the Utah Clean Air Partnership to distribute four grants of \$5,000 each to private lot owners to install EV Charging Stations for public use.

To incentivize reductions in energy use and carbon emissions from the built environment, the City Sustainability team worked with the Building and Planning

departments to modify the Municipal Code and Land Management Code to be the most permissible towards solar energy systems in Utah. As a result, [Park City achieved the highest designation given by the U.S. Department of Energy](#) – SolSmart Gold. Additionally, Park City is working with Utah Clean Energy on a project focused on Deep Decarbonization of the Built Environment, with funding from [Park City Community's Climate Fund](#) and a [Partners for Places grant](#).

The General Plan outlines land use strategies that can help the City achieve these goals. This work session explores (I) opportunities to support electrification of transportation by requiring Electric Vehicle Charging Station Infrastructure for new development, (II) implementation of a voluntary Stretch Code to incentivize developers to achieve highly energy efficient buildings running on renewables with net-zero energy development, and (III) an energy benchmarking and transparency code for commercial buildings to incentivize existing building owners to be aware of their building's energy uses and carbon emissions in order to improve their building's energy efficiency.

(I) ELECTRIC VEHICLE CHARGING STATION INFRASTRUCTURE

Electric Vehicles (EVs) produce no tailpipe emissions like nitrogen oxides and other harmful pollutants or greenhouse gases and generally have lower life cycle emissions from production to disposal than vehicles fueled by gasoline.¹ EVs are becoming more widespread, EV battery capacity is increasing, and EV purchase costs are decreasing. Utah Clean Energy's [Electrified Transportation Roadmap](#) estimates that low electricity rates in Utah means that EV owners pay around \$1.50 for 50 miles and save on oil changes and other maintenance costs required for vehicles fueled by gasoline. Some project that EVs will account for more than half of new car sales by 2040.²

The [General Plan Community Planning Strategy 5.7](#) suggests requiring dedicated parking and Charging Stations to support EVs within new development and redevelopment. There are opportunities within the Land Management Code to implement this strategy and now may be the time to do so. EV Charging Station networks are being developed at a regional, state, county, and city level (See Exhibit A for an outline of current plans to expand the network).

There are three EV Charging Station levels. Level 1 can generally be accommodated through a typical household outlet, but requires many hours to fully charge an EV battery. Level 2 and Level 3 (DC Fast Charging or DCFC) Charging Stations provide many more miles per charging hour, but require additional infrastructure.

¹ [Cleaner Cars from Cradle to Grave: How Electric Cars Beat Gasoline Cars on Lifetime Global Warming Emissions](#), Union of Concerned Scientists (November 2015).

² [Electric Models to Dominate Car Sales by 2040, Wiping Out 13m Barrels A Day of Oil Demand](#), Mike Scott, Forbes (June 10, 2019).

Charging Level	Vehicle Range Added per Charging Time and Power	Supply Power
AC Level 1	4 mi/hour @ 1.4kW	120VAC/20A <i>(12-16A continuous)</i>
	6 mi/hour @ 1.9kW	
AC Level 2	10 mi/hour @ 3.4kW	208/240VAC/20-100A <i>(16-80A continuous)</i>
	20 mi/hour @ 6.6kW	
	60 mi/hour @ 19.2 kW	
DC Fast Charging	24 mi/20minutes @24kW	208/480VAC 3-phase <i>(input current proportional to output power; ~20-400A AC)</i>
	50 mi/20minutes @50kW	
	90 mi/20minutes @90kW	

Energy Costs Associated with Non-Residential Electric Vehicle Supply Equipment, U.S. DOE Energy Efficiency & Renewable Energy (2015)

The cost for these chargers spans a vast range:

EVSE Unit Costs

EVSE Type (single port)	EVSE Unit Cost Range
Level 1	\$300-\$1,500
Level 2	\$400-\$6,500
DCFC	\$10,000-\$40,000

Energy Costs Associated with Non-Residential Electric Vehicle Supply Equipment, U.S. DOE Energy Efficiency & Renewable Energy (2015)

The State and Rocky Mountain Power have established grants and other incentives to help finance the installation of EV Charging Stations (See Exhibit A).

To support EV charging locally, the LMC may be amended to require that developers of non-residential Buildings and Multi-Unit Dwellings install EV Charging Station Infrastructure in Parking Areas, meaning that the Parking Areas will have the conduit in place for the eventual installation of Level 2 EV Charging Stations. This requirement will save money and time in the long term. The electrical load of a building is established

when the building is constructed. Retrofitting existing structures and Parking Areas to accommodate EV Charging Stations can require trenching or boring to connect to conduit, an expensive and disruptive process.

To promote adequate EV Level 2 Charging Stations within the community, as well as the potential for Level 3 (DCFC) Charging Stations, staff recommends creating a new Section within Land Management Code (LMC) Chapter 15-3, *Off-Street Parking* (1) to define EVs, EV Charging Stations, and EV Charging Station Infrastructure, (2) to allow Level 2 EV Charging Stations as an Accessory Use in all Zoning Districts and Level 3 EV Charging Stations as a Conditional Use in certain Zoning Districts, (3) to require EV Charging Station Infrastructure for new development and redevelopment, (4) to outline uniform design, installation, maintenance, and signage standards for EV Charging Stations, and (5) to potentially require EV Charging Station installations for new development.³

(1) DEFINE EVs, EV CHARGING STATIONS, AND EV CHARGING STATION INFRASTRUCTURE

Staff proposes amending LMC § 15-15-1, *Defined Terms*, and LMC § 15-15-2, *List of Defined Terms*, to include the following definitions:

Electric Vehicle (EV). Any motor vehicle registered to operate on public roadways that operates either partially or exclusively on electric energy.

Electric Vehicle (EV) Charging Station. A public or private parking space with Electric Vehicle supply equipment that consists of the conductors, including the ungrounded, grounded, and equipment grounding conductors, and the Electric Vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus, installed specifically for the purpose of transferring energy between the premises wiring to a battery or other energy storage device in an Electric Vehicle.

Level 1 – slow charging, operates on a 15 to 20 amp breaker on a 120 volt AC circuit.

Level 2 – medium charging, operates on a 40 to 100 amp breaker on a 208 or 240 volt AC circuit.

Level 3 (DCFC)⁴ – fast charging, operates on a 60 amp or higher breaker on a 480 volt or higher three phase circuit with special grounding

³ In preparation for this work session, staff reviewed the EV codes of [Lancaster, California](#); [Long Beach, California](#); [Los Angeles County, California](#); [Pacifica, California](#); [Marin County, California](#); [Richmond, California](#); [San Francisco, California](#); [Boca Raton, Florida](#); [Coral Gables, Florida](#); [Miami Beach, Florida](#); [Miami-Dade, Florida](#); [Surfside, Florida](#); [Atlanta, Georgia](#); [Clayton County, Georgia](#); [Ferndale, Michigan](#); [New York, New York](#); [League City, Texas](#); [Salt Lake City, Utah](#); [Powhatan County, Virginia](#); [Arlington, Washington](#); [Coupeville, Washington](#); [Seattle, Washington](#)

⁴ EV technology is evolving and [Extreme Fast Charging \(XFC\)](#) is already being developed. To keep up with these developments, this terminology may need to be refined and amended over time.

equipment.

Electric Vehicle Charging Station Infrastructure. Development designed and constructed to include a fully-wired circuit for an EV Charging power outlet with 208/240 volts and 40-amps, including conduit and wiring with the electrical service capacity necessary to serve the power outlets to allow for the future installation of Level 2 EV Charging Stations.

(2) ALLOW EV CHARGING STATIONS AS AN ACCESSORY OR CONDITIONAL USE

Staff recommends amending the LMC to allow Level 2 EV Charging Stations as an Accessory Use to Parking Areas in all Zoning Districts and to allow Level 2 EV Charging Stations associated with a Single-Family Dwelling, Duplex, or Multi-Family Dwelling for occupant use.⁵

Staff recommends amending the LMC so that Level 3 (DCFC) EV Charging Stations are a Conditional Accessory Use in all Zoning Districts. While Level 3 Charging Stations can provide a significant charge in 15 to 30 minutes, they are rare because they can be expensive. Staff recommends the Conditional Accessory Use Permit for Level 3 Charging Stations because there may be additional considerations to provide parking spaces for those waiting to use the charger, traffic considerations, and utility capacity to mitigate impacts on the surrounding properties.

(3) REQUIRE EV CHARGING STATION INFRASTRUCTURE FOR NEW DEVELOPMENTS

Some cities require EV Charging Station Infrastructure for a certain percentage of total Parking Spaces for non-residential and Multi-Unit Dwellings. Other jurisdictions require EV Charging Station Infrastructure based on a range of required Parking Spaces. A conservative baseline for EV Charging Station Infrastructure may be sufficient. For example, requiring that 10% of Parking Spaces have EV Charging Station Infrastructure provides baseline conduit at the time of construction. Once the conduit is installed, future expansion can generally be accommodated and is less costly than retrofitting a Parking Area with no conduit.

New developments and redevelopments that trigger additional Off-Street Parking could be required to:

- Incorporate EV Charging Station Infrastructure into the load calculations of all new or existing electrical services.
- Have a dedicated space for conduit to support the future installation of Level 2 EV Charging Stations in the electrical equipment room, identified on all construction documents submitted for review.

⁵ Level 1 Charging Stations generally do not require any additional infrastructure beyond an existing electrical outlet. Some residences may require electrical upgrades to accommodate these plug-in chargers and the Building Department issues these upon an electrical inspection and Electrical Permit.

- For developments with a Homeowners Association or Masters Association, include information about the EV Charging Station Infrastructure in the CC&Rs to put future property owners on notice of the potential to install EV Charging Stations.

Safety Considerations – The Park City Fire District reviewed the proposed code and recommends that—while the Fire Code does not address EV Charging Stations specifically—the City address the location of fire extinguishers, EV Station location in relation to flammable materials, and ensuring that access to and egress from buildings is not blocked by the Charging Station or cords and cables on the ground. Staff included clear access in the standards in the next section and will continue working with the Park City Fire District to determine appropriate fire extinguisher placement and distance from flammable materials.

(4) ESTABLISH STANDARDS FOR EV CHARGING STATIONS

Staff recommends establishing the following standards for EV Charging Stations:

- EV Charging Stations shall meet standard LMC Parking Space criteria.
- Signage that meets the requirements of the Federal Highway Administration *Manual on Uniform Traffic Control Devices* shall (1) direct EV drivers to EV Charging Stations at the Parking Area entrance and at each decision point; and (2) indicate that the EV Charging Station parking space is for EV charging only.
- EV Charging Stations shall notify users of safety information, voltage and amperage levels, usage fees, hours of operation, charging time limits, the contact information to report malfunctioning equipment or other issues, and cord management.
- EV Charging Stations shall not obstruct Building access.
- EV Charging Stations shall contain a retraction device or a place to hang cords, cables, and connectors and to store cords, cables, and connectors at least 12 inches above the ground surface. Cords, cables, and connectors shall not obstruct Building access, pedestrian or bicycle traffic, parking spaces, or the Rights-of-Way.
- EV Charging Stations mounted to a building shall not adversely affect the building and shall not obstruct Building access.
- Wheel stops, concrete-filled bollards, or other approved device shall be installed to protect EV Charging Stations from damage by vehicles.
- EV Charging Station connectors shall be no less than 36 inches or no higher

than 48 inches from the top of the surface where mounted.

- EV Charging Stations shall not be located within or obstruct the dimensions of any Parking Space.
- EV Charging Stations shall be designed to be safe for use in inclement weather.
- EV Charging Station Lighting shall comply with LMC § 15-3-3(C).
- EV Charging Stations shall be maintained in good condition, appearance, and repair.

(5) POTENTIALLY REQUIRE LEVEL 2 EV CHARGING STATION INSTALLATIONS FOR NEW DEVELOPMENTS.

Some cities require installation of Level 2 EV Charging Stations for a certain percentage of parking requirements. However, imposing required EV Charging Stations with new developments may lead to challenges. The EV Charging Stations require management, maintenance, and a determination regarding hours of operation and user fees. Allowing developers and property owners some flexibility on when and where to install EV Charging Stations and how many Charging Stations best suit their user's needs may help the City's EV Charging Station network develop in an organic manner.

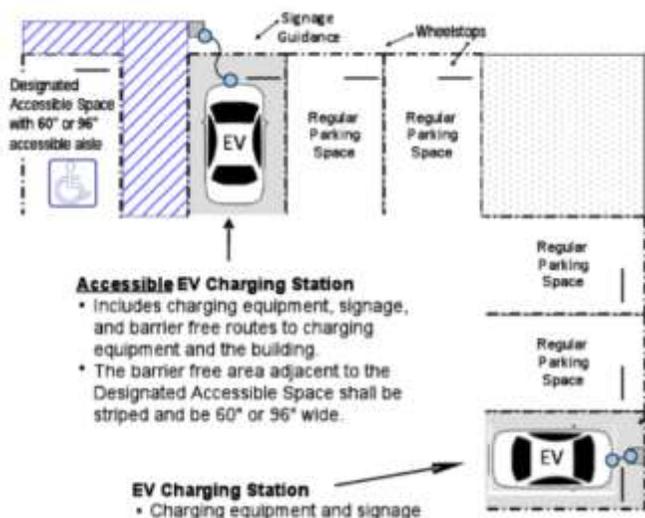
For example, some cities require EV Charging Station installations that are located as close to business entrances as possible. However, for businesses where customers are in and out relatively quickly, the EV Charging Stations are rarely used. Locating the EV Charging Stations in the employee parking area of such businesses may mean the EV Charging Stations are more frequently used. Providing flexibility on when, where, and how many EV Charging Stations are eventually installed allows for site-specific planning to potentially maximize use.

However, if the Commission recommends pursuing a requirement for the installation of EV Charging Stations for new development, staff would like to conduct developer and community outreach to determine the appropriate percentage of EV Charging Stations that could be required for each use.

Another consideration will be the percentage of EV Charging Stations that are accessible to people with disabilities. There are no federal requirements regarding ADA EV Charging Stations yet, but the [State of Utah Electric Vehicle Master Plan](#) recommends considering ADA accessibility for EV Charging Stations.

Some states have created best practice standards for ADA EV Charging Stations. For example, in [Electric Vehicle Infrastructure: A Guide for Local Governments in Washington State](#), Washington recommends that the first of any EV Charging Station be ADA accessible and that the number of ADA accessible Parking Spaces increase as EV Charging Stations increase.

Washington recommends that accessible EV Charging Stations be located in close proximity to the building or facility entrance, but does not require exclusive ADA use of the EV Charging Station. For new accessible EV Charging Stations, the state recommends at least a 60” barrier-free area, which may be adjacent to an ADA Parking Space:



Electric Vehicle Infrastructure: A Guide for Local Governments in Washington State

(II) THE STRETCH CODE FOR NET-ZERO ENERGY BUILDINGS

[General Plan Community Planning Strategy 5.8](#) – Encourage energy efficiencies in construction including: infill, preservation, adaptive reuse, and redevelopment.

Commercial and Residential Buildings account for fifty-seven percent (57%) of [Park City's community-wide carbon footprint](#). Therefore, particular focus on reducing carbon emissions coming from buildings' energy use is of particular importance with respect to meeting the goal of net-zero carbon by 2030. On October 12, 2017, the City Council adopted [Resolution 28-2017](#), *Net Zero Energy Performance Requirements*, which outlines the standard required for all City buildings and buildings funded by the City.

Since 2019, the Sustainability team has been developing a Stretch Code to incentivize net-zero energy design and performance for non-municipal developments. The Stretch Code will also include elements that address water conservation, active transportation, and social equity. This work is being undertaken in partnership with Park City's Sustainability team, the Park City Community Foundation, and Utah Clean Energy.

Development of the Stretch Code will be included in the project "Deep Decarbonization of the Built Environment" with funding from the [Park City Community Foundation's Climate Fund](#) and [Partners for Places grant](#). This project is to develop policies and

programs to reduce carbon emissions coming from Park City's built environment. The policies and programs will be developed with extensive community engagement, and will be finalized in May 2021.

A Stretch Code is an alternative, voluntary compliance path that is more aggressive than base code, resulting in buildings that achieve higher energy savings. When base codes are not keeping up with advances in technology and design practices, a voluntary Stretch Code can delineate a more stringent standard of energy performance and provide incentives for developers to choose to build for above-Code energy performance. The desired outcome is that the Stretch Code pulls the market forward, above and beyond existing State Energy Code, towards more energy-efficient design and construction. Setting a high standard of expectation will help developers and builders understand Park City's Energy goals and what it means for new developments. In essence, it sets the sustainability goal and defines the desired performance for new developments and redevelopments.

The Stretch Code will eventually live in the realm of the Sustainability and Building Departments. However, there may be opportunities through the planning approval process to incentivize developers to consider the Stretch Code. For example, through developer outreach, the Sustainability team learned that developers may choose to comply with the Stretch Code if they qualify for a streamlined review process.

As a mechanism to monitor the long-term performance of developments that take advantage of the Stretch Code, and as a tool to incentivize existing buildings to become more efficient, the Sustainability team is also working on an Energy Benchmarking & Transparency Code.

(III) ENERGY BENCHMARKING & TRANSPARENCY CODE

The saying goes, "you can't manage what you don't measure." Therefore, the Sustainability team, in partnership with Utah Clean Energy and community stakeholders, is working to develop mechanisms to improve transparency on buildings' energy performance. For commercial buildings, a disclosure ordinance for non-residential buildings similar to Salt Lake City's [Commercial Building Benchmarking and Market Transparency](#) Code is being explored. The purpose of this is to promote energy use benchmarking and transparency to track energy (both electricity and natural gas) and water consumption. Measuring and benchmarking is a fundamental step to develop a program to manage and improve energy efficiency in buildings.

For residential buildings, Park City will be a pilot community to implement a [Home Energy Labeling program](#) to inform potential buyers or renters of the annual energy use and cost of the building.

The Park City Community Foundation awarded Utah Clean Energy a \$75,000 grant to work with Park City Municipal Staff throughout 2020-2021 to develop and implement the

energy benchmarking and transparency code. The Sustainability Department anticipates bringing this code forward later this year.

Recommendation

Staff recommends that the Commission review and provide feedback on the proposed Land Management Code EV Charging Station amendments and incentive programs.

Exhibit

Exhibit A – EV Charging Station Networks