Boulder County

Land Use

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BOARD OF COUNTY COMMISSIONERS
AGENDA ITEM

March 22nd, 2018 – 9:00A.M.
Hearing Room, Third Floor
Boulder County Courthouse

PUBLIC HEARING
Request for Approval of the Electric Vehicle Charging Fund Standards

Staff: Sinead O'Dwyer, Planner I, Land Use
Nicole Wobus, Planning Manager, Land Use

AGENDA

1. Staff presentation
2. Questions for staff
3. Public Comment (3 minute allowance per individual speaker)
4. Board of County Commissioners Discussion and Decision

INTRODUCTION

Pursuant to the text amendments approved by the Board of County Commissioners at a Public Hearing on November 28, 2017 (DC-17-0002), Electric Vehicle Supply Equipment (EVSE), commonly referred to as a charging station, must be provided for new or expanded parking lots with a total of 15 or more parking spaces. If the Director determines that there is a more suitable location for Electric Vehicle Supply Equipment, the applicant is subject to the Electric Vehicle Charging Fund (EVCF) standards. The Land Use Code text amendments and the Electric Vehicle Charging Fund Standards will be implemented concurrently. Staff is requesting approval of the Electric Vehicle Charging Fund Standards presented in Attachment A.

ACTION REQUESTED

Staff requests that the BOCC approve the proposed *Electric Vehicle Charging Fund Standards* in Attachment A.

CONTENTS

I. BACKGROUND

As part of the Code text amendment to parking regulations, staff researched the environmental and health impacts of parking lots, including air and water quality. A summary of these findings is contained in the report titled, "Electric Vehicles and Charging Infrastructure in Boulder County," and included as Attachment B to the November 2017 Staff Recommendation to Board of County Commissioners for Docket DC-17-0002. The report also summarizes that electric vehicle charging station installation can help directly offset parking lot impacts through reduced vehicle emissions and emissions deposition.

Based on staff research, the approved charging station requirement and the proposed payment structure contained in the EVCF standards is proportional to the impacts of development. A University of California Berkeley life-cycle assessment of parking lots found that each parking space in the U.S. causes associated air pollutant based environmental and health impacts which cost $6 to $23 dollars per parking space, each year.[1] Additional research, including conversations with the Regional Transit District and assessment of the average lifespan of a building, concluded that the average lifespan of a parking lot is 30 years. The cumulative impacts of a parking lot with 15 spaces over a 30 year lifespan would therefore be in the range of $2,700- $10,300. For reference, the cost to obtain and install a Level 2 charging station is currently between $2,000 and $23,000.

The approved Land Use Code text amendment, DC-17-0002, requires the installation of at least a Level 2 charging station to proportionally offset the impacts of new or expanding parking lots of 15 spaces or greater. As noted, for cases in which the installation of a charging station is not suitable on site, the applicant is subject to the Electric Vehicle Charging Fund Standards.

The location of a charging station can greatly impact installation costs, and some locations may not be desirable from a market perspective based on the character of the area and use of the parking lot. The installation of Level 2 charging stations may require new electrical service or upgrades to existing service to accommodate the energy demand of charging a vehicle. In some locations, the installation of a Level 2 charging station may have a greater land use impacts due to the extensive length of new electrical connections. Where the location of a parking lot is not appropriate for the installation of equipment, the Electric Vehicle Charging Fund Standards entrusts staff with the evaluation of appropriate sites for installation that will offset the impacts of development while still meeting strategic goals of the County.

II. ELECTRIC VEHICLE CHARGING FUND STANDARDS

[1] Chester et al, (2011) Parking Infrastructure and the Environment, UC Berkeley, http://uctc.berkeley.edu/access/39/access39_parking.pdf

Attachment A, attached, is the proposed Electric Vehicle Charging Fund Standards. The proposed standards outline payment, fund management, and disbursement preferences. The payment structure is based on the research which indicates a $6-$23 impact per parking space. The study indicates that the higher $23 amount corresponds with a more urban setting, and the lower $6 amount corresponds to a more rural setting.[1] This research informs the payment structure specified in the standards, which represents a reasonable range of payments to offset impacts. Staff proposes that the fund reflect these differences in impacts by requiring a higher payment in those areas identified as Urbanized in the most recent Census data. It is proposed that the Sustainability Office manage the collection and disbursement of the funds. The disbursement factors ensure that the EVCF will, to the greatest extent possible, be used to offset the localized impacts of parking lots while still meeting strategic goals of the county. Some of these goals include creating connectivity between existing charging locations, encouraging charging for multi-family housing, and increasing the overall visibility and accessibility of charging stations to encourage electric vehicle use, thus decreasing transportation sector emissions.

Attachment B is a preliminary assessment of optimal charging station sites, prepared by Southwest Energy Efficiency Project, consultant to Boulder County. This preliminary assessment may be used as a guide while determining preferred locations for disbursement of funds, and updated as new information becomes available.

Electric Vehicle Charging Fund Standards

BACKGROUND

New development in Boulder County has demonstrated impacts to air quality, water quality, and energy consumption which can be offset by increasing utilization of electric vehicles and associated infrastructure. The Land Use Code text amendments approved by the Board of County Commissioners on November 28, 2017, require one electric vehicle charging station for new or expanding parking lots with a total 15 or more parking spaces, and one additional charging station for each additional 25 parking spaces. In certain cases, on-site installation is not required, and the applicant is subject to the Electric Vehicle Charging Fund Standards.

SUMMARY

The Electric Vehicle Charging Fund payment will be collected prior to construction. In most cases, the fees will be collected prior to building permit issuance. Where expansion or construction does not require a building permit, the property owner will pay prior to commencement of construction. The Fund will support the installation and upgrade of electric vehicle charging stations, prioritizing investment in installations that will directly offset land use impacts in Boulder County caused by the development, and reduce fossil fuel consumption.

PAYMENT

Eligibility

Applicants for land use processes involving new and expanding parking lots with a total of 15 or more spaces are required to either install electric vehicle charging equipment or pay into the Electric Vehicle Charging Fund. For cases in which another location is more suitable than the applicant's site, the applicant will make a payment into the Fund in-lieu of installation.

Payment Structure

Research has demonstrated that the environmental and health impacts of air pollutants from parking lots in the US are $6 to $23 per parking space each year, with the lower end of the range representing low-density rural areas.[1] This research informs the payment structure specified in the standards, which represents a reasonable range of payments to offset impacts. Utilizing a 30 year life-cycle for a parking lot,[2] the formulas below will be used to determine the amount of a payment into the Fund.

Urbanized Area Impact Calculation

Projects in an Urbanized Area[3], those areas designated as urban through the most recent US Census, will be subject to a payment of $12/ parking space for the average 30 year lifespan of the parking lot.

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[1] *See, for example*, Chester et al, (2011) Parking Infrastructure and the Environment, UC Berkeley, http://uctc.berkeley.edu/access/39/access39_parking.pdf

[2] Based on estimates from RTD and average building life

[3] Boulder County Land Use Code Article 18-209C Urbanized Area https://www.colorado.gov/pacific/sites/default/files/wq%202010%20boulder.pdf

$12 x 30 years x Total # of parking spaces on-site = $ Urbanized Area Payment to EVCF

Rural Area Impact Calculation

Any area outside an Urbanized Area will be considered Rural Area and subject to a $8/parking space for the average 30 year lifespan of the parking lot.

$8 x 30 years x Total # of parking spaces on-site = $ Rural Area Payment to EVCF

FUND MANAGEMENT

A dedicated Electric Vehicle Charging Fund account will be created by the Finance Office. The Sustainability Office, with the support of Finance, will be responsible for implementing the Fund, including collection of payment and disbursement of funds. The Sustainability Office will notify the Building Division when payment has been received. Funds will be disbursed to support installation of charging stations, based on the disbursement system presented here.

DISBURSEMENT

The disbursement of funds will be used to mitigate the impacts of the development of parking lots in Boulder County. The Electric Vehicle Charging Fund may be used to support the following:

- Upgrading a proposed Level 2 charging station to a Level 3 charging station
- Installation of a Level 2 or Level 3 charging station
- Upgrading a charging station to have network capabilities

Disbursement Criteria and Decision Making

Funds will be distributed in a manner that most effectively reduces development impacts from contributing properties. EVSE locations proposed for the disbursement of funds will be subject to evaluation under the factors listed here.[4] As resources permit, Boulder County will make an effort to streamline the decision making process by creating a list of optimal electric vehicle charging equipment sites in Boulder County, developed with the support of a consultant.

Factors for Evaluating EVSE Locations

- The recipient installation is within a 15- mile radius of a contributing property, and therefore within a radius of a typical EV charge.
- The recipient installation is within the watershed of a contributing property, and therefore will offset impacts to water quality.
- The location is projected to have a high level of use and a significant need for Electric Vehicle Service Equipment.
- The location has strategic value for facilitating use of Electric Vehicles (e.g., creating connectivity between charging station locations or popular destination).

[4] A contributing property is a property which has paid into the Electric Vehicle Charging Fund.

- The charging station will be accessible to the public or provide charging opportunities to multi-family housing.

AMENDMENT TO THE STANDARDS

The Board of County Commissioners may revise these standards from time to time after a duly-noticed public hearing.

Southwest Energy Efficiency Project (SWEEP) recommended priority locations for installation of charging infrastructure

LOCAL ELECTRIC VEHICLE STUDIES

There have been 2 studies conducted specific to Boulder County and one specific to the broader Denver metropolitan area that provide analysis and recommendations on the installation of charging infrastructure:

Electrifying Transportation: Boulder County's Clean Future , 2018

Opportunities for Vehicle Electrification in the Denver Metro area and Across Colorado, 2017

Boulder Electric Vehicle Infrastructure And Adoption Assessment, 2015

THEMES

There are a number of themes from these studies:

• Most charging takes place at home. While it is fairly straightforward for most residents of single family homes to install charging equipment, the availability of charging is a major obstacle to EV adoption by residents of multifamily housing;

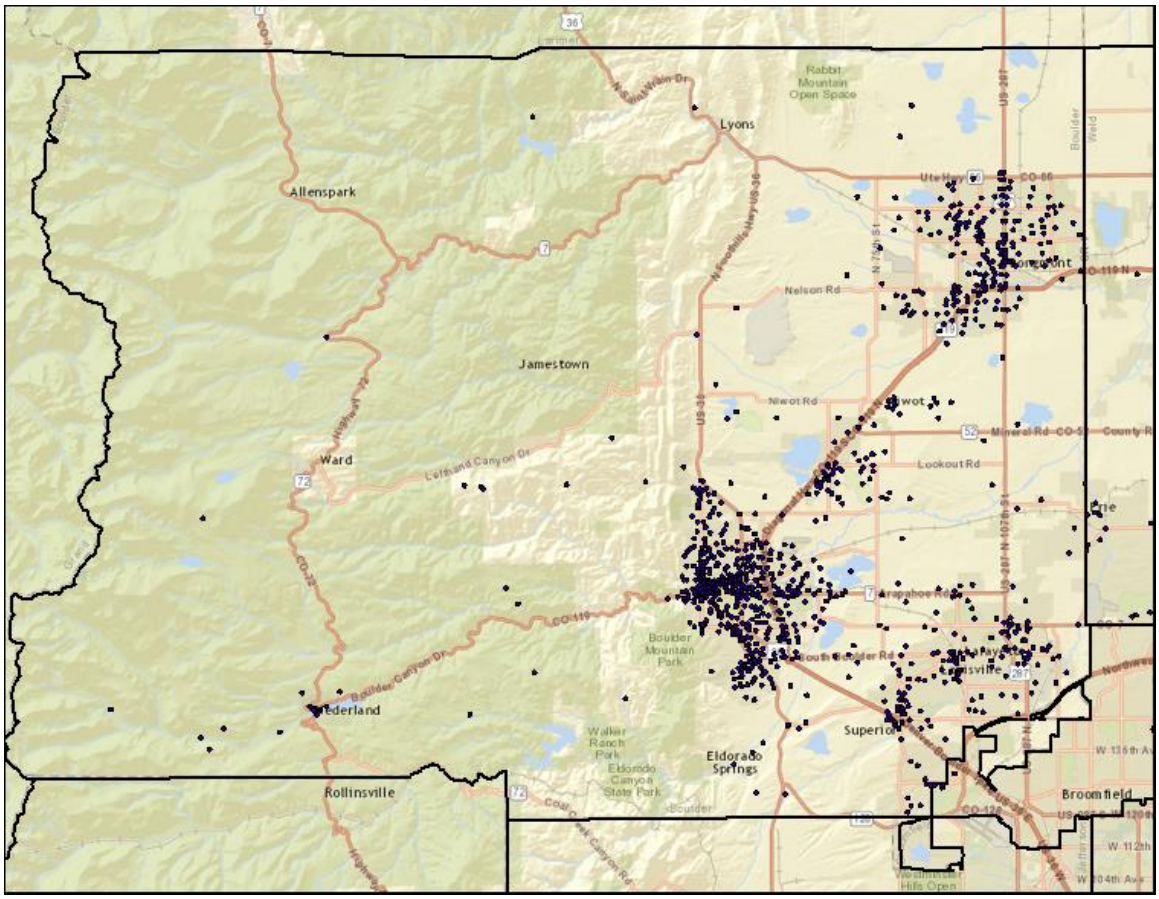
• Providing charging at workplaces leads to substantial increases in the number of employees who switch to electric vehicles;

• Fast charging along corridors is very important to giving consumers range confidence, allowing them to be comfortable switching to an electric vehjcle;

• For level 2 public charging, it is important to locate the chargers in places where many vehicles will be parked for 2 hour or longer periods, including RTD park'n'rides and recreational destinations such as trailheads and ski areas.

POPULAR DESTINATIONS

Figure 1 (below) shows all of the destinations for light duty vehicles in Boulder County recorded as part of DRCOG's 2011 Household Travel Survey, excluding people's homes as a destination. The dots represent nearly 5,000 vehicle trips with Boulder County destinations. As one might expect, destinations are focused in the County's urbanized areas, with the city of Boulder having the highest concentration of destinations.



RECOMMENDATIONS

Based upon the mapping and the findings above, priority locations for disbursing funds from the EVCF should include:

Fast chargers located along corridors and serving major nodes

- SH 119 in Gunbarrel and Niwot
- SH 119/Peak to Peak Highway in Nederland
- US 36 in Lyons

Fast charging serving major clusters of multifamily housing in the unincorporated county (primarily located in the Gunbarrel area)

Level 2 charging at key recreational destinations

- Eldora Ski Area
- Brainard Lake (if adequate electricity is available)
- Nederland High School (serving Hessie trailhead)
- Open space trailheads where electricity is available
- RTD park'n ride locations including along SH 119, US 36, and US 287