## STAFF REPORT

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| **Agenda Item:** | 6 | **Name:** | Jake Tracy |
| **Proposed No**.: | 2020-0417 | **Date:** | March 23, 2021 |

**SUBJECT**

Proposed Ordinance (PO) 2020-0417 would amend King County Code to require electric vehicle (EV) infrastructure in association with certain development activities in unincorporated King County and would set standards for the installation and placement of that infrastructure.

**SUMMARY**

The proposed 2020 Strategic Climate Action Plan (SCAP)[[1]](#footnote-1) includes a performance measure target relating to electric vehicle adoption. The target would be that, in 2035, 100% of light-duty vehicles, 50% of medium-duty vehicles, and 28% of heavy-duty vehicles sold in the county are EVs. According to the proposed 2020 SCAP, 7% of all new vehicles sold in 2018 were EVs.

In 2020, the King County Council adopted Ordinance 19052 to accelerate the adoption of EVs. In addition to goals for King County-owned vehicles and charging stations at County facilities, the ordinance included a requirement that the executive produce a report evaluating options for increasing electric vehicle infrastructure associated with multifamily development and new or expanded parking areas, and to transmit an ordinance that would establish requirements to ensure that new parking areas are designed to include some amount of electric vehicle charging infrastructure.

The executive transmitted the report and PO 2020-0417 to implement EV infrastructure requirements in unincorporated King County. The regulations would set minimum amounts of EV infrastructure for a variety of development proposals, which would result in most new paved parking areas and all new detached single-family homes and townhouses in unincorporated King County having some level of EV infrastructure.

Striking amendment S2 would make a number of changes to match executive intent, and would remove EV requirements for single family detached, cottage housing, and certain types of common-wall development, and would reference requirements in state code.

Amendment 1 would allow EV-ready spaces to replace EVSE spaces for apartment, group residential, temporary lodging, and noncommercial uses where the total number of parking spaces required is six or fewer.

**BACKGROUND**

The executive's proposed 2020 SCAP lists "increase adoption of electric vehicles" as one of its nine strategies needed to meet King County's targets of a 50% reduction in greenhouse gas (GHG) emissions by 2030 and an 80% reduction in GHG emissions by 2050.[[2]](#footnote-2)

The proposed 2020 SCAP includes a performance measure target relating to electric vehicle adoption. The target would be that, in 2035, 100% of light-duty vehicles, 50% of medium-duty vehicles, and 28% of heavy-duty vehicles sold in the county are EVs. According to the proposed 2020 SCAP, 7% of all new vehicles sold in 2018 were EVs.

In 2020, the King County Council adopted Ordinance 19052 to accelerate the adoption of EVs. In addition to goals for King County-owned vehicles and charging stations at County facilities, the ordinance included the following requirement:

*The executive shall transmit a report on options to require, incentivize or otherwise ensure electric vehicle charging infrastructure in new multifamily construction and other development proposals that include expansion of parking areas in the unincorporated area and an ordinance that would establish requirements to ensure that new parking areas are designed to include some amount of electric vehicle charging infrastructure to account for increased use of electric vehicles in the future. The report and ordinance shall be developed in consultation with stakeholder groups, including representatives of the building and electric vehicle industries and utilities. The executive must transmit the report and recommendations by September 14, 2020, in the form of a paper original and an electronic copy with the clerk of the council, who shall retain the original and provide an electronic copy to all councilmembers, the council chief of staff and the lead staff for the local services committee or its successor.[[3]](#footnote-3)*

This requirement was also included in a budget proviso on the Local Services Administration fund.[[4]](#footnote-4)

**ANALYSIS**

In response to the proviso and code requirement discussed above, the executive transmitted an Electric Vehicle Charging Infrastructure Options Report and proposed ordinance containing EV charging requirements for some development activities in unincorporated King County.

**Electric Vehicle Charging Infrastructure Options Report.** The Executive's Electric Vehicle Charging Infrastructure Options Report reviews the history of electric vehicles (EVs), barriers to EV acquisition, current and projected EV ownership, potential benefits to historically disadvantaged communities, and both current and projected charging patterns. The report also reviews different EV charging types, tiers of EV infrastructure provision and their cost implications, and EV incentives and requirements used by other local governments. The report concludes with recommendations to increase EV infrastructure in King County.

*Context.* The following bullets summarize key points provided as context in the report:

* Although King County has the highest number of EVs in the state, EVs still make up a small proportion of total vehicles.
* One identified barrier to increased EV adoption is lack access to charging stations.
* Seventy to eighty percent of EV drivers in the US charge their vehicles at home, and those with access to home charging are more likely to own EVs.
* Buildings constructed today will likely still be around in 2035 and beyond, when, if SCAP goals are met, 100% of light-duty vehicles sold in the county are EVs.
* Increased EVs result in less GHGs and other pollution, which can contribute to positive health outcomes.
* Despite a higher initial cost, the annual cost to charge an EV in King County is estimated to be a third of the cost to fuel a gas-powered vehicle in Washington.

*Electric Vehicle Charging Levels.* The report discusses the three levels of charging currently available for electric vehicles. Each level requires a different level of power and therefore can provide a faster or slower rate of charging. The three charging levels are summarized in Table 1 below:

**Table 1: EV Charging Levels and Statistics**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Level 1** | **Level 2** | **Level 3**  DC Fast Charge |
| Electric/Power Needs | 120 Volt  20 Amp | 240 Volt (R)  208 Volt (C)  30-40 Amp typ. | 480 Volt |
| Miles of Range Per Hour of Charging (RPH) | 5 RPH | 12 RPH (3.7 kw)  *Range 2.9 – 7.7 kw* | 100 RPH (24 kw)  200 RPH (40+ kw) |
| Time to Charge an  80-mile Battery | *Overnight* 16 hours | *Longer Stop*  3.5 Hours | *Quick Stop*  0.5 Hours |

The report states that Level-1 chargers, due to their longer charge times, are less suitable for multifamily and commercial charging than the other levels. Additionally, the report states that, while Level-2 chargers are largely standardized across vehicles, there is no one accepted Level-3 charger at this point. The report concludes that targeting installation of Level-2 charging should be the County's priority.

*Electric Vehicle Supply Equipment.* The report discussed three types of EV parking spaces, each with a different level of EV infrastructure:

* EV-Capable Space: Electrical panel capacity and space to support a minimum 40-ampere, 208/240-volt branch circuit for each EV parking space, and the installation of raceways, both underground and surface mounted, to support the EVSE.
* EV-Ready Space: A parking space that is provided with a minimum 208/240-volt dedicated branch circuit for electric vehicle supply equipment that is terminated at a receptacle, junction box or electric vehicle supply equipment within the parking space in order to allow for future installation of electric vehicle supply equipment.
* Electric Vehicle Supply Equipment (EVSE) Parking Space: The conductors, including the ungrounded, grounded, and equipment grounding conductors, and the electric vehicle connectors, attachment plugs, personnel protection system, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises' wiring and the electric vehicle.

As the bullets above show, an EVSE space is a parking space that has all EVSE installed, and which a person can immediately pull into and charge their vehicle. EV-Ready spaces, on the other hand, have the electrical infrastructure for the space installed, but do not have an actual charger installed. EV-capable would designate that the electrical system has capacity to add EVSE, and enclosed conduit raceways that can later be wired, but no wiring in place.

The report states that, because EV-capable spaces pass the majority of the cost on to future actors, the Executive recommends focusing on EVSE and EV-ready spaces, and that these should be installed at the time of construction to avoid the increased costs that would be involved in retrofitting existing development with EV infrastructure. Further discussion of cost considerations is found on pages 17-19 of the report.

*Incentive Options.* As required by K.C.C. 18.22.010.F.2., the report discusses both incentive and code requirement options to increase EV infrastructure in unincorporated King County. According to the report, most fiscal incentive options that executive staff found during their research were provided either by the federal government, state government, or municipal-owned utilities. These often take the form of rebates or grants for installation of EVSE installation, sometimes with larger incentives for certain types of sites, such as affordable housing and schools.

In addition to fiscal incentives, the report notes that some jurisdictions provide non-fiscal incentives. These include allowing an EVSE space to count as two spaces for the purpose of calculating parking minimums, or other parking reduction incentives. The report does not include information on the relative success of other entity's incentive programs. The report also considers the theoretical possibility of other incentives such as density bonuses or expedited permitting review, which were not found to be used in other jurisdictions but could potentially be applied.

The report concludes that voluntary incentives would result in uneven deployment of EVSE, and that many developers would likely "continue the current market standard of deferring costs to a later date, where the higher cost of retrofits could still act as a barrier to increased EV charger installation." The report also notes that an uneven deployment might perpetuate inequities in access to EV charging.

*Code Requirement Options.* The report states that the Executive's review of other local governments' programs found that more local governments require installation of EV infrastructure at the time of development rather than offering rebates. Due to the predominance of home charging, the report states that expanding EV charging at residential uses should be a priority. Tables 3 and 4 below show required EV infrastructure for multifamily residential and nonresidential development in several other jurisdictions. These are not exhaustive.

**Table 3: Multifamily Residential EV Parking Requirements in Other Jurisdictions**[[5]](#footnote-5)

| **Jurisdiction** | **EVSE Installed** | **EV Ready** | **EV-Capable** |
| --- | --- | --- | --- |
| San Jose, CA | 10% Installed | 20% EV Ready  1 EV Ready/unit | 70% EV Capable |
| Menlo Park, CA | 15% Installed | 1 EV Ready/unit | - |
| Marin County, CA | - | 1 EV Ready/unit | 20% EV Capable |
| Golden, CO | 7% Installed (15+ units) | - | 15% EV Capable |
| Denver, CO | 5% Installed (10+ units) | 10% EV Ready | 15% EV Capable |
| Boulder, CO | 5% Installed (25+ spaces) | 10% EV Ready | 40% EV Capable |
| Summit County, CO | 5% Installed (10+ spaces) | 10% EV Ready | 40% EV Capable |
| Lakewood, CO | 2% Installed | - | 18% EV Capable |
| Salt Lake City, UT | 4% Installed | - | - |

**Table 4: Nonresidential EV Parking Requirements in Other Jurisdictions**[[6]](#footnote-6)

|  |  |  |  |
| --- | --- | --- | --- |
| **Jurisdiction** | **EVSE Installed** | **EV Ready** | **EV-Capable** |
| San Jose, CA | 10% Installed | - | 40% EV Capable |
| Menlo Park, CA | 10% Installed | 15% EV Ready | - |
| Marin County, CA | - | 10% EV Ready | 20% EV Capable |
| Denver, CO | 5% Installed (10+ spaces) | 10% EV Ready | 10% EV Capable |
| Boulder, CO | 5% Installed | 10% EV Ready | 10% EV Capable |
| Summit County, CO | 5% Installed (25+ spaces) | 10% EV Ready | 40% EV Capable |
| Lakewood, CO | 2% Installed | - | 13-18% EV Capable |
| Mountlake Terrace | 1-3% Installed (10,000 SF) | 2-6%EV Ready | - |
| Washington State | 5% Installed OR added EV-Capacity (20+ spaces) |  | 20-25% EV Capable  Group B & Hotel-Motel (20+ spaces) |

The report recommends that, in light of the SCAP goal of 100 percent EV market share for light duty vehicles sold in King County by 2035, a need to reduce EV charging inequities, especially for limited-English speaking communities, communities of color, and individuals with low-incomes, and to support EV adoption in the workplace and among commercial customers, the County adopt code amendments to require EV infrastructure to be installed with certain types of development.

*Public Outreach and Engagement.* According to the report, the executive consulted with the regional code collaboration, the Master Builders Association of King and Snohomish Counties, the Seattle King County Realtors Association, and other industry stakeholders. A public comment period was also held prior to transmittal of the ordinance. Feedback was received on several topics, described on page 30 of the report. Changes included requiring one EV-ready spot per unit in a duplex, in line with other proposed townhouse requirements, as well as allowing load management to be used. Load management is a technique by which multiple EVSE can share a single circuit. This would allow for more vehicles to charge with less total infrastructure, therefore reducing the cost of installation but potentially increasing charge times by some amount.

**Proposed Ordinance.**  PO 2020-0417 would amend King County Code Title 21A to implement the recommendations contained in the Executive's Electric Vehicle Charging Infrastructure Options Report.

*Residential Requirements.* Table 5 below shows the number of EVSE spaces and electric-vehicle-ready spaces that would be required for new and/or substantially improved[[7]](#footnote-7) residential buildings, as well as the minimum total parking already required by code.

**Table 5: Proposed EV Requirements for Residential Buildings**

|  |  |  |  |
| --- | --- | --- | --- |
| **Development Type** | **# of EVSE spaces** | **# of EV-ready spaces** | **Total parking spaces required** |
| New Single Detached | 0 | 1 per unit | 2 per unit |
| New Townhouse | 0 | 1 per unit | 2 per unit |
| New Cottage Housing | 0 | 1 per unit | 1 per unit |
| New or Substantially Improved Apartment | 10% of total spaces[[8]](#footnote-8) | 25% of total spaces | 1.2 to 2 per unit, depending on number of bedrooms |

For townhouse developments with nine or fewer dwelling units, the proposed ordinance would allow the number of EV-ready spaces to be reduced if the applicant could prove that the electrical load needed would require an on-site transformer. The director could first reduce the number of EV-ready spaces required, and then, if necessary, reduce the circuits from 208/240 volts to 120 volts, which would only support Level-1 charging.

The proposed ordinance does not require EV infrastructure for other residential uses, such as accessory dwelling units, group residences[[9]](#footnote-9) and temporary lodging.[[10]](#footnote-10) Executive staff state that the intent was to require these uses to meet the same standards as nonresidential uses, shown in Table 6 below.

Additionally, executive staff state that the proposed ordinance was intended to include a requirement that, whenever an apartment building expanded its parking area by 50% or more, that the parking area would need to meet the EV infrastructure requirements shown in the table above.

*Nonresidential Requirements.* Table 6 shows the number of EVSE spaces and electric-vehicle-ready spaces that would be required for nonresidential development.

**Table 6: Proposed EV Requirements for Nonresidential Buildings and Parking/Garage Uses**

|  |  |  |  |
| --- | --- | --- | --- |
| **Development Type** | **# of EVSE spaces** | **# of electric-vehicle-ready spaces** | **Total parking spaces required** |
| New or Substantially Improved Nonresidential Building | 5% of total spaces | 10% of total spaces | Varies |
| New Surface Parking Lot or Garage Use | 5% of total spaces | 10% of total spaces | N/A |

The terms "surface parking lot" and "parking garage" are not defined in code. Executive staff state that their intent is to require commuter parking lots (i.e. park-and-rides) and automotive parking (i.e. commercial paid parking lots) to meet the standards shown in that row of the table above. Commuter parking lot and Automotive parking are defined terms in the code.

Accessible Parking. Whenever EVSE spaces were required, the proposed ordinance would require that at least 5% of all EVSE spaces, but no less than one space, would be accessible. The proposed ordinance does not clarify whether the required accessible EVSE spaces are in addition to the accessible spaces required by state law, or whether a single space could be counted toward both requirements. Because state law only allows EVSE spaces to be used by someone actively charging their vehicle, and accessible spaces can only be used by a person with a disability, if these requirements were overlapping accessible EVSE spaces could only be used by a person with a disability who was actively charging their vehicle. Executive staff state that the intent is that accessible EVSE spaces are in addition to accessible spaces required by state law and have recommended that this be clarified in the ordinance.

*Calculation Methods.* The proposed ordinance specifies that an applicant would need to provide the required percentage of EVSE spaces as well as the required percentage of electric-vehicle ready spaces. Therefore, for instance, 10% of all parking spaces for an apartment building would need to have EVSE and an additional 25% of spaces would need to be electric-vehicle ready. However, the code would allow EVSE spaces provided over the minimum requirement to count as electric-vehicle ready spaces. Any fractions resulting from the percentage calculations above would be rounded up to the nearest whole number.

*Load Management.* Load management allows for multiple electric vehicles to be served from a single branch circuit. The proposed ordinance would allow for load management, meaning that fewer circuits could be provided to support the same number of EVSE or EV-ready spaces. As mentioned above, this would reduce installation costs but could also increase charging times.

*Policy Issues for Council Consideration.* There are number of policy issues for Councilmembers to consider.

* The Electric Vehicle Charging Infrastructure Options Report recommended that the Council pass code changes to mandate EV infrastructure rather than pursue incentive programs to encourage EV infrastructure. The report states that incentive programs were not recommended because of their relative rarity at the local government level and that executive staff believed incentives would result in uneven distribution of EV infrastructure. However, the effectiveness of incentives used by other entities was not discussed, and an assessment of how incentives might further increase the amount of EV infrastructure in an environment where a minimum amount was already required was not provided. Councilmembers may wish to pursue incentive options in addition to or instead of code requirements.
* The proposed 2020 SCAP sets a target that, by 2035, 100% of light-duty vehicles, 50% of medium-duty vehicles, and 28% of heavy-duty vehicles sold in the county are EVs. Executive staff state that the rate at which development is occurring in the unincorporated areas would not be enough so that these regulations alone would satisfy the demand for EV charging were this SCAP goal met. Councilmembers may wish to consider different development actions that would trigger EV requirements or different percentages or ratios of EV infrastructure required with development.
* As discussed above, the executive has recommended changes to clarify that any accessible EVSE parking spaces are in addition to, not in place of, state-mandated accessible spaces. This would mean that any development with EVSE spaces would have at least one regular accessible space and at least one accessible EVSE space. However, this would still mean that, in small lots that only require one EVSE space, one could only charge their vehicle in the space if they also had a permit to park in an accessible space. The proposed ordinance does allow for load management, so in theory two charging ports could be attached to a single circuit so that an adjacent, non-accessible space could also charge, but this would not be required. Councilmembers may wish to consider changes to the requirements for EVSE provided in this scenario.
* Related to the bullet above, in scenarios where a small amount of parking is provided, availability of parking for non-EVs would be limited. For instance, if a business was required to provide three parking spaces, one space would be required to be reserved for accessible parking, a second space would be required to be reserved for accessible parking of EVs, and a third space would be EV-ready but available for anyone to park in (unless the space was later converted to an EVSE space, in which case only EVs could park there. Councilmembers may wish to consider alternative requirements for these small-lot scenarios.

**AMENDMENTS**

**Striking amendment S2** would make the following changes shown in underline/strikethrough below:

|  |  |  |
| --- | --- | --- |
| **Development Type** | **# of EVSE spaces** | **# of EV-ready spaces** |
| New Single Detached | 0 | ~~1~~0 per unit |
| New Townhouse | 0 | 1 per unit |
| New Cottage Housing | 0 | ~~1~~0 per unit |
| New or Substantially Improved Apartments, or apartment paved parking expanded by 50%+ | 10% of total spaces | 25% of total spaces |
| Group Residential and Temporary Lodging Uses | 5% of total spaces | 10% of total spaces |
| New or Substantially Improved Nonresidential Building or nonresidential paved parking expanded by 50%+ | 5% of total spaces | 10% of total spaces |
| New ~~Surface Parking Lot or Garage Use~~ Commuter Parking Lot, Automotive Parking, or expansion of these by 50%+ | 5% of total spaces | 10% of total spaces |

Under state law, there are certain parameters around a local government’s ability to make changes to aspects of state building codes for single family and multifamily residential buildings.[[11]](#footnote-11) Multifamily residential buildings are defined narrowly in state law as "common wall residential buildings that consist of four or fewer units, that do not exceed two stories in height, that are less than five thousand square feet in area, and that have a one-hour fire-resistive occupancy separation between units."[[12]](#footnote-12) They are a small subset of townhouses, apartments, and other shared-wall residential uses.

The amendment would remove requirements for single family and cottage housing and clarify that the multifamily residential buildings described above are required to meet the electric vehicle standards in state law, rather than a separate standard in County code.

Other changes in S2 to match executive intent:

* Clarify that, for new buildings and substantial improvements to existing buildings, the parking area is required to meet the EV infrastructure standards regardless of whether parking is being added.
* Clarify that accessible EVSE spaces are in addition to any state-required accessible spaces
* Clarify that the intent of load management technology is to serve multiple EVSE spaces simultaneously.

**Amendment 1** would allow EVSE spaces to be replaced with EV-ready spaces for apartments, group residential, temporary lodging, or nonresidential uses subject to the EV requirements of this ordinance when six or fewer total parking spaces are required. If the property owner voluntarily exceeded the minimum parking requirements, EVSE spaces would be required.

**INVITED**

* Jim Chan, Permitting Division Director, Department of Local Services
* Nicole Sanders, Green Building Principal Planner, Permitting Division

**ATTACHMENTS**

1. Proposed Ordinance 2020-0417
2. Striking Amendment S2
3. Striking Amendment S2 (Redline Version)
4. Amendment 1
5. Electric Vehicle Charging Infrastructure Options Report
6. Plain Language Summary
7. Regulatory Note
8. Transmittal Letter
9. Fiscal Note

1. Proposed Motion 2020-0288 [↑](#footnote-ref-1)
2. Compared to a 2007 baseline. [↑](#footnote-ref-2)
3. K.C.C. 18.22.010.F.2. [↑](#footnote-ref-3)
4. Ordinance 19021, Section 46, P8. [↑](#footnote-ref-4)
5. Percentages apply to the number of total parking spaces that must meet the requirement. [↑](#footnote-ref-5)
6. Percentages apply to the number of total parking spaces that must meet the requirement. [↑](#footnote-ref-6)
7. As defined by K.C.C. 21A.06.1268. To paraphrase, a substantial improvement is an improvement to a structure that equals or exceeds fifty percent of the market value. [↑](#footnote-ref-7)
8. At least 5% of EVSE spaces, but no less than one, would be required to be accessible. [↑](#footnote-ref-8)
9. Community residential facilities, dormitories, and senior citizen assisted housing. [↑](#footnote-ref-9)
10. Hotels, Motels, Bed and Breakfast Guesthouses, and Organizational Hotel/Lodging Houses. [↑](#footnote-ref-10)
11. RCW 19.27.060.1.a. [↑](#footnote-ref-11)
12. RCW 19.27.015 [↑](#footnote-ref-12)