



CITY OF FALLS CHURCH

DATE: June 2nd, 2021

TO: Council Members, City of Falls Church

FROM: ESC Energy Transition Subcommittee (ETS), Jon Ward, Chair
Environmental Sustainability Council (ESC), Andrew Young, Chair

SUBJECT: Recommendations for Electric Vehicle Infrastructure at Developments Seeking Zoning Special Exceptions

Summary

In adopting Chapter 5 of the Comprehensive Plan, Environment for Everyone, our community agreed to pursue a strategy of reducing the use of fossil fuels in the City, especially in transportation, by creating infrastructure for electric vehicle charging, and supporting and promoting the use of electric cars. At the request of members of City Council, the ESC Energy Transition Subcommittee would like to offer the following recommendations pertaining to electric vehicle (EV) charging infrastructure in future major developments in the City of Falls Church:

- 1) Developers should install at least level 2 EV charging stations in 5% of all parking spaces included in the proposed project; and
- 2) Developers should plan for future expansion of EV charging station requirements to at least 50% of the parking spaces in the building. This plan should be submitted to the City as part of its Special Exception review process.

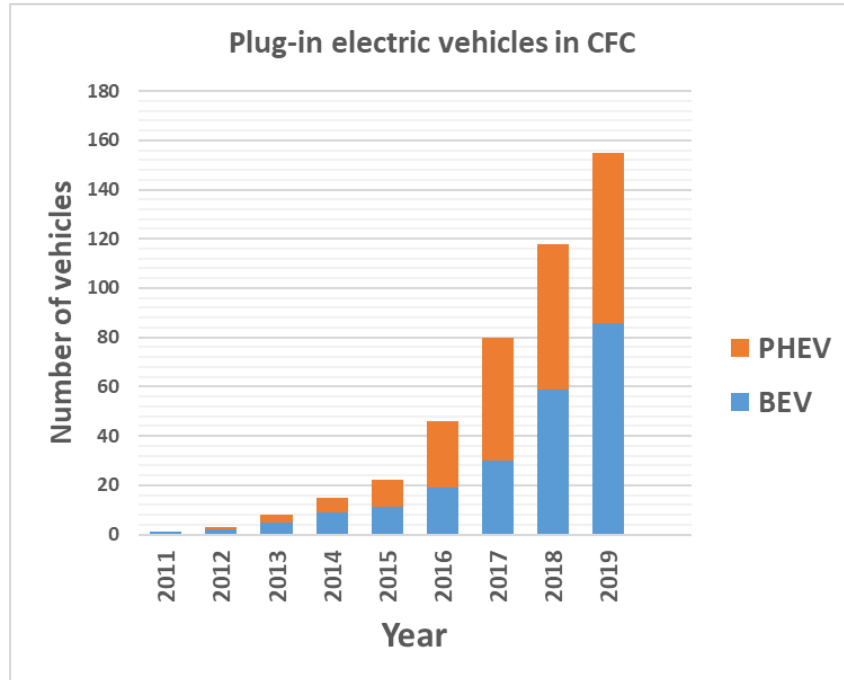
The ESC believes these steps will help reduce barriers to EV adoption, and as a result help the City better meet its goals for reducing greenhouse gas emissions and improving air quality.

The support of EV adoption should not detract from negotiations to support other vital strategies from Chapter 5 of the Comprehensive Plan, such as actively promoting and supporting changes in transportation use away from reliance on automobiles that include increased walking, cycling and transit options.

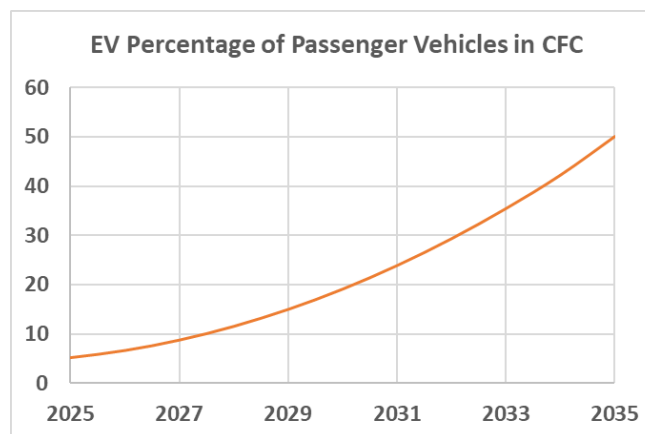
Supporting Information and Detailed Recommendations

EV Projections

As of 2019, EVs represent about 1.2% of registered motor vehicles in the City. The current EV population is split about evenly between plug-in hybrids (PHEVs) and pure battery vehicles (BEVs). Net growth has averaged 51% per year over the three years ending in 2019. At the current growth rate, EVs would represent about 4% of registered passenger vehicles by the end of 2024.



We expect that Virginia’s Low- and Zero-Emission Vehicle law (HB1965, 2021 session) will induce about 8% of statewide model year 2025 passenger vehicle sales to be EVs¹. EV sales are likely to concentrate in urban areas, so it is reasonable that Falls Church may see 12% of sales as EVs. By 2035, California and Massachusetts intend to eliminate the sale of new internal combustion passenger vehicles, and multiple automakers (e.g., General Motors) have announced plans to phase out gas and diesel cars in the same timeframe. With these policy and technology changes, it is possible that by 2035 the EV portion of new vehicle registrations in the City could grow to 80%. In this scenario, by 2035, 50% of all vehicles housed in the City could be EVs, as shown below. And by 2045, almost the entire population could be EVs.



¹ <https://ww2.arb.ca.gov/our-work/programs/zero-emission-vehicle-program/about> and <https://ihsmarkit.com/research-analysis/evs-on-the-rise-as-virginia-adopts-california-vehicle-standards.html#:~:text=At%20least%208%25%20of%20vehicles,the%20following%20year%20to%2022%25>

Therefore, it is important that new construction is prepared for the future addition of extensive EV charging infrastructure by residents, owners of commercial spaces, and third-party EV service providers. The goal should be to minimize future reconstruction and disruption to install conduit and wiring; unexpected expenses for future owners; and legal expenses in determining easements and owners' rights. With development construction beginning years after public hearings, a written plan is essential.

Recommendation #1: Initial EV Charger Installations

Under HB1965, roughly 5% of residents' vehicles may be EVs by 2026, and growth will accelerate. Therefore, we recommend that, at initial occupancy, at least 5% of parking spaces be equipped with at least a level 2 EV charge port. Since many charging stations provide two ports, each such station could service two adjacent parking spaces. We note that residents, potential residents, and customers will not likely be deterred from buying or leasing an EV because chargers are not available at their favorite retail sites, but they may be deterred if a charger is not readily available at their condo or rental residence. Focusing on availability for residential users is critical.

For comparison, Arlington County's voluntary Green Building incentives appear to require chargers at 4% of spaces, and at 10% to receive "extra" bonuses. The US Green Building Council's LEED v4.1 awards one point for EV charging infrastructure, with the option to install level 2 "smart chargers" for 5% of total parking spaces or make 10% of the spaces EV ready.

Recommendation #2: Plan for Expansion; Build to Support

Even if all vehicles are EVs, not every vehicle needs to charge every day/night, so it may be that not every space will require a charger. However, it is reasonable to expect that eventually 40% to 70% of spaces will require at least Level 2 (240V) chargers, or closer to 100% for slower Level 1 (120V) chargers (these supply up to 6 miles of range per hour of charging).

Rather than being prescriptive, we recommend that the City require developers to plan for future expansion of EV charging station requirements to at least 50% of the parking spaces in the building. This plan should be submitted to the City as part of its Special Exception review process. Developers should:

- Assume a trend in resident-owned EVs through 2045
- Engage with the electric utility to estimate the voltages and peak current demanded by this population, and
- Propose placement and routes for grid interconnections, transformers, breaker panels, meters, conduit and conductors that will minimize reconstruction and installation cost as EV-charger demand expands.

We note that common infrastructure upstream of the chargers, if installed early, will only gradually come to be utilized by all residents as EVs become more common. Therefore, building owners, homeowner associations and third-party providers may wish to add transformers and conduit incrementally. Developers should account for this in their plans or plan to install such infrastructure in advance.

We recommend that City Council and appropriate Boards & Commissions review each developer's plan for reasonableness. We recommend that a City building official assist in this review process.