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City of Alexandria, Virginia

MEMORANDUM

DATE: APRIL 21, 2021

TO: THE HONORABLE MAYOR AND MEMBERS OF CITY COUNCIL

FROM: MARK B. JINKS, CITY MANAGER /s/

DOCKET TITLE:
Receipt and Endorsement of the City of Alexandria Electric Vehicle Charging Infrastructure Readiness Strategy.

ISSUE: Consideration of a City of Alexandria Electric Vehicle Charging Infrastructure Readiness Strategy.

RECOMMENDATION: The City Council receive and endorse the City of Alexandria Electric Vehicle Charging Infrastructure Readiness Strategy (Attachment 1).

BACKGROUND: The purpose of the Alexandria Electric Vehicle Charging Infrastructure Readiness Strategy (EVRS) is to identify strategic recommendations for the City to support deploying electric vehicle charging infrastructure in the Alexandria community. The development of the EVRS is an action identified in the City's Environmental Action Plan 2040 to achieve the City's greenhouse gas emission targets and goals. Moreover, the EVRS supports advancing many of the smart mobility goals under consideration in the City's Alexandria Mobility Plan. City staff have worked closely with a consultant team to develop the EVRS to accomplish the

following objectives:

- Evaluate projections for current and future electric vehicle charging infrastructure needs;
- Recommend locations for publicly-accessible charging infrastructure with integration into a broader regional electric vehicle charging infrastructure network;
- Recommend charging infrastructure options, including hardware, business ownership, operation models, interoperability, and operations and maintenance solutions;
- Review the City's zoning, codes, permitting, and inspection codes, along with development processes and requirements, to recommend updated or new language to promote and anticipate electric vehicle charging needs; and
- Recommend policies, approaches, and synergies for locating electric vehicle charging infrastructure at businesses, multifamily dwellings (MFD), single-family homes, right-of-way (ROW) areas, and other locations.

The EVRS development process launched in February 2020 with meetings with various City staff, and research and data collection on the City's existing policies, plans, and initiatives. In April 2020, City staff provided a pre-recorded presentation and the opportunity for the Alexandria community and interested stakeholders the opportunity to provide input and feedback on electric vehicle charging infrastructure priorities. In July 2020, the City invited further community input via an online questionnaire that sought to evaluate charging needs and to help evaluate locations for publicly-accessible chargers.

In October and November 2020, City staff presented a draft EVRS to the Environmental Policy Commission, the Traffic and Parking Board, and the Transportation Commission while concurrently receiving additional community input through an online feedback form.

The resulting EVRS, including recommendations, is based on a combination of City staff engagement, virtual public engagement surveys, spatial analysis, literature review, engagement with domestic and international peer cities, and expert input.

DISCUSSION: The Alexandria Electric Vehicle Charging Infrastructure Readiness Strategy (EVRS) provides a framework for advancing electric vehicle charging infrastructure in Alexandria.

In 2019, electric vehicles accounted for approximately 5 percent of new passenger vehicles sales in Alexandria compared to about 2 percent nationally. At that time, among all registered passenger vehicles in Alexandria, about 500 in total were electric vehicles. Although these numbers are modest today, they represent a higher market share than most U.S. cities. Alexandria's electric vehicle population is growing. In the long term, electric vehicles are an important element of the City's efforts to mitigate the impacts of climate change and reduce greenhouse gas emissions by 80 to 100 percent by 2050 as identified in the Environment Action Plan 2040.

As the electricity supply shifts toward greater renewable and clean energy electricity sources, electric vehicles will further lower greenhouse gas emissions relative to gasoline vehicles. Electric vehicles lack tailpipe emissions and therefore improve local air quality. As such, in addition to being an important climate change action, they also provide a significant local public health benefit, particularly among populations vulnerable to poor health outcomes resulting from poor air quality.

Most automakers are investing heavily in releasing a diverse set of electric vehicle models in the next few years. As Alexandria's electric vehicle population grows, its useful to understand plausible future vehicle adoption rates and associated infrastructure needs. While not meant to provide precise forecasts, the EVRS

considers three future electric vehicle adoption scenarios to address questions around potential charging infrastructure needs. The three scenarios are:

- **No Policy Scenario** - Electric vehicle adoption continues to grow at similar rates as the years 2015 to 2020 and reaches approximately 30 percent of new vehicle sales by 2050.

- **Strong City Policy Scenario** - Describes a future in which the City supports many local policies and practices that support increases in charging availability, and supports an increase in electric vehicle sales, but state and federal action is limited. In this scenario, electric vehicle sales reach approximately 70 percent of new electric vehicle sales by 2050.

- **Strong Multilevel Policy** Scenario - All levels of government are working together on aggressive transportation electrification policies. In this scenario, electric vehicle sales reach 100 percent of new vehicle sales by 2050.

Charging infrastructure needs are evaluated for each scenario, including potential residential, workplace, and publicly-accessible charging infrastructure requirements over time. The strong city policy scenario aligns with the implementation of many of the recommendations provided in the EVRS.

As the pace of electric vehicle adoption accelerates due to increasing vehicle availability, decreasing costs, and significant technology and policy advancements, the City is in a position to support the adoption of electric vehicles through promoting, coordinating, leading, and advocating for policies and programs to advance electric vehicle charging infrastructure. Many cities, communities, and states across the United States are in the process of developing similar electric vehicle charging infrastructure strategies and considering the implementation of best practices. As such, there is still much to be learned, and the body of evidence supporting best practices, policies, and programs continues to emerge and evolve. This EVRS is based on information currently available at the time of its development, including:

- The adoption rate of electric vehicles, and the existing and potential demand for electric vehicle charging infrastructure needs in Alexandria;
- The City's transportation, land use, and related policies, practices, and plans;
- The status of electric vehicle policies around the Metropolitan Washington DC region, in the Commonwealth of Virginia, and through federal support;
- The resources and evidence underlying best practices, policies, and programs available to cities to advance electric vehicle adoption and support related charging infrastructure; and
- An evolving electric vehicle and charging infrastructure industry and marketplace with numerous actors (such as battery and car manufacturers, automobile dealers, charging infrastructure companies, utilities, etc.), as well as evolving technology advancements, business models, building and electric codes-all within an overall trend of a disruptive technology environment advancing multimodal transportation, alternative mobility options, and enhanced bikeability and walkability.

While supporting the adoption of electric vehicles in Alexandria includes more than just charging infrastructure, the City's support and facilitation of these community's needs provides an effective way to support electric vehicle adoption in Alexandria. The City can indirectly support purchase decisions by supporting policies and programs at the state and federal levels that make electric vehicle charging infrastructure available and accessible. The EVRS discusses current initiatives, technologies, and public perceptions related to electric vehicle charging in Alexandria, as well as provides a set of recommendations to support a thriving electric vehicle ecosystem in the city over the long term.

COMMUNITY PERSPECTIVES ON CHARGING INFRASTRUCTURE

City staff conducted two public engagement surveys to solicit insights about community members thoughts about charging infrastructure, and to elicit ideas about where charging infrastructure may be considered to meet public-accessibility needs. City staff and the consultant utilized six evaluation factors, combined into a single weighted score, and paired this analysis with results of the public engagement survey responses to identify potential charging sites of interest for publicly-accessible charging station locations. The six evaluation factors include (1) density of apartments and condominiums, (2) density of renters, (3) density of car commuters, (4) density of early adopters, (5) density of existing electric vehicle charger access, and (6) density of single-family housing with no access to a driveway or alley for overnight parking. These six factors have been demonstrated to be important criteria when considering identifying locations for publicly-accessible charging infrastructure. A list of sites of interest, including public and privately-owned locations, where identified for potential publicly-accessible charging station opportunities. Public input in the survey responses identified many City-owned and public facility locations as most desirable for electric vehicle charging infrastructure. Various privately-owned retail locations were also identified as desirable for publicly-accessible charging infrastructure.

EQUITY CONSIDERATIONS

The EVRS takes into account various equity considerations to reflect the City's ALL Alexandria commitments as set forth in Alexandria City Council Resolution 2794 <https://alexandria.legistar.com/LegislationDetail.aspx?ID=4754027&GUID=C436116D-9E05-47F4-BE1A-1FD8BA16300D> throughout its analysis and recommendations, including ensuring that race and social equity is incorporated in matters of planning; recommending implementation considerations that advance race and social equity; finding alignments and recommending implementation of policies designed to advance race and social equity goals; and ensuring accountability mechanisms related to the progression and transparency of work to advance race and social equity.

RECOMMENDATIONS

The EVRS is built around a set of 31 recommendations (detailed in Chapter 1 of Attachment 1 pages 9-37) - including potential near- and long-term actions-that support the Alexandria community's electric vehicle charging infrastructure needs. The recommendations address six key areas:

- **Meeting Charging Demand.** Actions that remove charging availability as a barrier for segments of the population like vehicle owners without private parking.
- **Enhancing Communications and Awareness.** Actions that inform and build capacity among the general population.
- **Strengthening Zoning, Building Codes, and Permitting.** Actions that remove barriers to installing new charging infrastructure.
- **Advocating in State Government or with Dominion Energy.** Actions for which City staff can advocate at the state level or with Dominion Energy that will strengthen the region's electric vehicle ecosystem.
- **Building Successful Business Models for Chargers.** Actions that improve the business case for publicly accessible charging stations.
- **Establishing an Inter-departmental Implementation Working Group.** A single action to form a group that oversees the implementation of the EVRS's recommendations.

LIMITATIONS AND OPPORTUNITIES

As previously noted, the pace of electric vehicle adoption is accelerating, and the landscape of electric vehicle and electric vehicle charging infrastructure best practices, policies, and programs is similarly evolving rapidly.

Many of the EVRS's recommendations are based on the best available literature or examples, as well as thoughtful consideration by City staff. There is ongoing research to more fully understand the impacts and costs of some of the best practices, policies, and programs currently available to support electric vehicle adoption and electric vehicle charging infrastructure support. In addition, the modeling conducted in the EVRS is for informational purposes only. The modeling results provide information on *possible* future scenarios of charging infrastructure needs and how the City can support more widespread adoption of electric vehicles and electric vehicle charging infrastructure given implementation of various policies and programs at the local, state, and federal levels. The modeling completed for this EVRS is based on a relatively small electric vehicle population in Alexandria and uses the best techniques currently available to provide the City with as much useful information as possible for future planning and policy decision-making. As more policies and programs emerge and advance supporting adoption of electric vehicles and electric vehicle charging infrastructure, there will be a need to reevaluate and refine many of the recommendations. This EVRS document should be used to help inform other relevant planning, policy, and programmatic efforts, including the Alexandria Mobility Plan, small area planning and relevant comprehensive plans, development planning and review, zoning, parks and open space planning, affordable housing plans, economic development plans, EAP 2040 implementation, Energy and Climate Change Action Plan development and implementation, the City's Capital Improvement Program, and the City's annual budget process.

The electric vehicle and electric vehicle charging infrastructure industry is likely to continue an accelerated pace of evolution over the next several decades. The City will continue to watch and consider evaluating for opportunities. Some of the more near-term opportunities the City may wish to consider include vehicle-to-building and vehicle-to-grid technology opportunities; electrification of local freight, delivery vehicles, and emergency vehicles; and evolving utility business models and rates.

IMPLEMENTATION

The EVRS is not intended to be a completely standalone planning document for electric vehicle charging infrastructure needs or associated planning efforts, policy and program development. There are various recommendations that do lend themselves to independent implementation, but many recommendations should be considered in context of informing other relevant planning, policy, and programmatic efforts. To aid implementation, the City Manager plans to establish an inter-departmental implementation working group with members from relevant City departments, and as appropriate, external stakeholders. This working group should consider how to undertake the equitable implementation of EVRS's recommendations, including conducting further evaluation and prioritization of the EVRS's recommendations for benefits, impacts, and costs and resource requirements. The inter-departmental implementation working group participants would collectively prioritize recommendations, identify lead and supporting departments for each recommendation, develop resourcing and implementation plans, and monitor and report on implementation progress. Moreover, the group could develop a longer-term implementation plan to meet City electric vehicle charging infrastructure needs as technology and needs evolve.

FISCAL IMPACT: Each of the EVRS's recommendations, if implemented, will have differing fiscal impacts. In several cases, recommendations could be accommodated by existing resources through existing processes without direct financial investment, or through private sector investment. Others may necessitate consideration of additional staffing, capital or operating budget considerations, or both. The plan to establish an interdepartmental implementation working group would further evaluate and prioritize EVRS recommendations according to the benefits, fiscal impacts, and resource requirements of the various recommendations.

The most pressing need in order to start implementing the EVRS would be the funding in FY 2022 of the Electric Vehicle Navigator position (i.e., the program manager who would lead the implementation of the

EVRS recommendations. If the EVRS had been completed a few months earlier, I would have recommended it for funding in the FY 2022 proposed budget. The funding cost would be about $140,000 per year. Given that this EVRS position was not funding in the proposed budget and did not make the add/delete list of possible amendments, the FY 2022 budget when adopted will not likely include an Electronic Vehicle Navigator position. As a result, staff would need to look within the adopted budget to reallocate resources to get the EVRS initiated.

ATTACHMENTS:
Attachment 1: City of Alexandria Electric Vehicle Charging Infrastructure Readiness Strategy
Attachment 2: Presentation
Attachment 3: Factsheet

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