



November 4, 2017

Honorable Mayor Allison Silberberg and Members of City Council
City Hall
301 King Street
Alexandria, VA 22314

Re: DASH Clean Diesel Conversion Plan

Dear Mayor Silberberg and Members of Council:

The Alexandria Transit Company (DASH) has asked the Environmental Policy Commission (EPC) to support DASH's: 1) Short term plan to purchase 27 clean diesel buses (i.e. replacing approximately one-third of DASH's current fleet) using presently available capital funds (i.e. ~ \$13 million); and 2) Longer term Proposed Clean Diesel Conversion Plan ("Conversion Plan") that is intended to address future fleet needs. We have greatly appreciated the significant amount of time that DASH has spent answering EPC's questions and the spirit of collaboration that they have brought to this important investment decision.

DASH leadership and its Board have stated that a future goal is the "gradual transition to all electric (Battery Powered) buses as soon as it is technically and financially possible."¹ We commend and support this goal, but have not seen evidence that DASH has yet meaningfully evaluated how it would make such a transition. Until DASH evaluates the electrification of the bus fleet with the same detail and thoroughness as hybrid and clean diesel technologies, the Commission is unable to support DASH's full request.

Instead, the EPC supports the purchase of only seven (7) clean diesel buses to replace the oldest and dirtiest diesel buses in DASH's fleet (one 2000 Model Year (MY) and six 2002MY).² Doing so would reduce harmful emissions and move towards achieving State of Good Repair (SGR) in the short term, while preserving the majority of available capital funds until DASH and the City can make a well-informed decision on the feasibility of purchasing electric buses. As such, the EPC advises Council against any additional financial commitment to clean diesel or hybrid technology at this time.

It is worth noting that DASH has presented a well-reasoned and supportable argument that pursuing clean diesel in lieu of hybrid buses will yield better outcomes with respect to certain environmental, fiscal, and operational impacts over the operational life of the new buses. The

¹ DASH Board Resolution for Hybrid vs. Clean Diesel Proposal by General Manager, p. 17 (Handout from October 2017 DASH Board Meeting).

² DASH noted in an email dated October 30, 2017 that the 27 new clean diesel buses would replace those from the oldest buses in the fleet, presumably 1 2000MY, 6 2002MY, 14 2005MY, and 6 2007MY.

data appears to indicate that purchasing new hybrid buses no longer makes sense for the City.³ However, EPC's preliminary research on the feasibility of electric buses shows that transitioning to electric now may be feasible, even under current fiscal and operational constraints, and doing so would include significant ancillary benefits for the City and its residents.⁴

The Commission provides the following additional recommendations to DASH and Council.

1. **Request for Information.** Issue a Request for Information ("RFI") to solicit input on various topics associated with electrifying the bus fleet, including financing options for purchasing electric buses, costs and requirements associated with installing and maintaining associated infrastructure, and any implications for the local grid to support the new infrastructure. Ideally, DASH would establish connections and receive interest and input from electric bus manufacturers, electric utilities (i.e. Dominion), and other organizations with experience in electric bus systems.
2. **Financing Options.** Identify possible funding mechanisms for large-scale acquisition of electric buses and associated infrastructure upgrades.⁵ The upfront sticker price of an electric bus is significantly higher than either a clean diesel or hybrid, and the current strategy to purchase buses outright with capital funds is a hindrance in making electric buses a viable option to meet DASH's State of Good Repair requirements under current CIP funding levels. However, as noted in the Columbia University study (note 4), there are other ways to approach bus purchases, including factoring in savings from reduced lifetime operation and maintenance costs. Electric bus manufacturers are offering financing options through which electric buses are available for roughly the same upfront price as diesel buses, allowing transit agencies to fit electrification with their current capital and operating budgets by applying the operating cost savings vs diesel toward a battery lease payment. EPC encourages DASH to leverage expertise on City staff to explore these various calculation methods, discuss financing options with electric bus manufacturers or other organizations similarly situated via the RFI or by other means, to tailor existing analysis of these topics to DASH's specific constraints.
3. **Complete Cost/Benefit Profile.** Incorporate the positive externalities associated with electrifying the bus fleet (significant reduction in greenhouse gas emissions, elimination of particulate matter and NOx emissions leading to reduced impacts to human health and the local environment, etc.) when making this long term decision, with a particular focus on those factors that can be quantified as cost reductions or net benefits to the City. For example, the social cost of carbon – a measure, in dollars, of the long-term damage done by a ton of carbon dioxide emissions in a given year – is a way to quantify and compare this societal cost between clean diesel, hybrid, and electric buses. EPC would like an evaluation of greenhouse gas emissions impacts to factor into bus fleet and other decisions the City considers.

³ DASH's analysis is reinforced by external studies and decisions by other jurisdictions to move away from hybrid technology in favor of clean diesel as a bridge to electric buses.

⁴ See Aber, Judah, Columbia University, "Electric Bus Analysis for New York City Transit" (May 2016), concluding that conversion to an all-electric bus fleet, made possible by capitalizing the operations and maintenance cost savings associated with electric buses, "would provide an improvement in overall lifetime bus cost to the city, while reducing greenhouse gases appreciably, and significantly improving the health of NY City residents, and lowering their cost of healthcare."

⁵ Under the current Conversion Plan, DASH intends to pilot an electric bus program in 2020 by purchasing 6 electric buses with VW Mitigation funds awarded through Virginia DEQ. While certainly a worthy use of these funds, EPC cautions against characterizing the reliance on external, temporary funding sources like this when creating a long-term strategy for electrifying the bus fleet.

4. **Alexandria's Commitment to be an Eco-City.** Consider how the Conversion Plan fits within the City's broader Eco-City commitments, including the Environmental Action Plan (EAP), the Energy and Climate Change Action Plan (CCAP), and the City's recent pledge to uphold goals embodied in the Paris Agreement under the United Nations Framework Convention on Climate Change.
- a. As you know, this fiscal year the Commission and City staff are concentrating efforts to update the Environmental Action Plan (EAP). Adopted in 2009, the EAP is the City's blueprint to implement and achieve the goals established in the Eco-City Charter. Given advances in clean bus technology, the current Conversion Plan could be viewed as a step back from these commitments.
 - b. In its 2011 CCAP Alexandria cited DASH's hybrid bus purchases as case in which the City was leading by example to "accelerate the goal of reducing fossil fuel use, greenhouse gas and particulate matter emissions, and environmental noise pollution."⁶ Electrification poses an opportunity to recommit to those goals.
 - c. By signing onto the Mayor's National Climate Action Agreement (MNCAA) in 2017, Alexandria committed to "intensify efforts to meet [its] current climate goals" and "push for new action to meet the 1.5 degrees Celsius target".⁷ Accelerating electrification of the DASH fleet is a means by which the City can intensify its efforts and push for new actions.

EPC applauds the work that DASH has completed so far in this process and believes that with some additional work to examine the feasibility of electrifying the bus fleet, DASH, the City, and its residents will be in the best position to make a long-term commitment on the direction of the bus system. EPC would welcome the opportunity to collaborate closely with DASH and City staff during the Capital Improvement Plan process that will reopen next fiscal year to develop a common vision for the transition to an electric fleet.

Thank you for your continued leadership and steadfast commitment to the City's Eco-City Charter.

Sincerely,



Jim Kapsis
Chair
Alexandria Environmental Policy Commission

⁶ City of Alexandria Energy and Climate Change Action Plan, p.41 (2011)

⁷ 382 US Climate Mayors commit to adopt, honor and uphold Paris Climate Agreement goals.
<http://climatemayors.org/actions/paris-climate-agreement/>