MEMORANDUM

DATE: September 15, 2021

TO: Mayor and City Council

COPY: Jamal Fox, City Manager
Jessica Clarke, Deputy City Manager

FROM: Gina Mathias, Sustainability Manager

SUBJECT: FY22 Street Sweeper Purchase

Dear Mayor and City Council,

At the request of the City Manager, here is a brief summary of the environmental impact of the street sweeper purchase, and a comparison to other greenhouse gas emissions strategies.

An electric street sweeper will reduce annual diesel fuel use by 700 gallons. The equivalent greenhouse gas emissions of the fuel savings are about 6.7 metric tons of CO2 (MTCO2) annually, or 67 MTCO2 over the expected ten year life span of the sweeper. The city goal of reaching net zero emissions by 2035 means that there is one more replacement cycle before the “deadline” for net zero emissions.

Charging of the EV sweeper will be done with renewable electricity as the City purchases 100% renewable electricity for all municipal operations. The electric sweeper is comparatively quiet. Other environmental factors to consider are electric vehicles do not need oil changes or coolant, reducing the risk of leakage and environmental impact. Lastly, the large electric vehicle batteries can be recycled and repurposed once a vehicle is at the end of its useful life.

To put the greenhouse gas emissions of the street sweeper into context, the most recent inventory of the greenhouse gas emissions city wide as calculated by MWCOG for 2018 were 151,435 MTCO2. The on-road transportation emissions city-wide were 64,012 MTCO2. In 2015 a consulting firm calculated the city fleet alone contributes about 683 MTCO2 annually. An in-house analysis of the city fleet for 2020 shows a reduction in city

fleet emissions to 545 MTCO2 annually. The 20% decrease in city fleet emissions can be attributed to a combination of COVID-19 impact on fleet mileage, and the four electric vehicles and bicycles added to the City fleet between 2015 and 2020. In comparison to the street sweeper, the average police vehicle in Takoma Park uses 907 gallons of gasoline per year, contributing about 8.1 MTCO2 per year. Even though electric police cars are currently only available as custom builds, the incremental cost of an all electric police vehicle is a fraction of the cost of the electric street sweeper, and would result in greater greenhouse gas emission reductions.

There are other immediately available and comparatively more cost-effective ways the city can reduce emissions. Converting one average home in Takoma Park from natural gas to all electric could reduce emissions by 5.7 MTCO2 annually on average, and if the electricity is 100% renewable then the reduction grows to over 8.1 MTCO2 annually. The cost of converting an average home with a natural gas furnace, water heater, clothes dryer, and stove to mid-range equipment including an air source heat pump, heat pump water heater, heat pump clothes dryer, and an induction stove, including basic electrical panel upgrades would be about $25,000, according to the City of Berkeley's Existing Buildings Electrification Strategy. Even if serving an older home that has a boiler system and needs extensive repairs and electrical upgrades might increase the cost to $50,000, converting homes to electric could still be very cost effective.

Please let me know if you have any questions and/or require additional information.