

CITY OF ALEXANDRIA, VIRGINIA

**ALTERNATIVE FUEL  
FLEET POLICY  
DRAFT**



DEPARTMENT OF TRANSPORTATION AND  
ENVIRONMENTAL SERVICES  
FLEET SERVICES DIVISION

Effective [TBD]

# **City of Alexandria, Virginia**

## **Alternative Fuel Fleet Policy Draft**

### **PURPOSE**

The Fleet Services Division of the Department of Transportation and Environmental Services is responsible for the oversight, procurement, maintenance, fueling, and disposal of approximately 770 on-road assets including approximately 650 light vehicles and 120 medium and heavy-duty vehicles and pieces of equipment. In addition, Fleet Services maintains approximately 220 attachments, trailers and off-road pieces of equipment.

The purpose of this policy is to document the process for purchasing and managing the City's diverse vehicle fleet, which includes both vehicles and heavy equipment, in a manner that minimizes greenhouse gas emissions and considers life-cycle economics.

This Alternative Fuel Fleet Policy, beginning in fiscal year 2021, will help the City of Alexandria purchase the most cost effective, lowest emission, and fuel-efficient vehicles and fuel-using equipment possible that still meet the operational requirements of the intended use. To accomplish this objective, life cycle cost, fuel type, and fuel efficiency standards and mission/use of the vehicle are to be considered in procurement decisions. The Alternative Fuel Fleet Policy review process also includes "right-sizing" the fleet by reducing vehicle size and eliminating old and underused vehicles and equipment.

Through the implementation of this policy and the City Council-adopted Environmental Action Plan 2040 (EAP), the City will be a national leader with respect to how we as a city manage our diverse fleet of both vehicles and heavy equipment. In recognizing that fleet assets account for a significant contribution to the City's overall greenhouse gas emissions, and that these emissions can be reduced, along with vehicle fuel and maintenance costs, through the purchase of alternatively-fueled vehicles, the City adopts the following policy.

Through implementation of this policy, the City shall seek to decrease total vehicle emissions by 25 percent by fiscal year 2030, using 2020 as a baseline year. Current and future emissions targets will be developed and evaluated within the context of the City's overall greenhouse gas reduction strategies.

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### A. GOALS

1. The goal of City-owned and operated vehicle fleet management shall be to eliminate unnecessary vehicles and purchase and use the most cost-effective and lowest emission vehicles or equipment possible while still meeting operational requirements. Fleet assets shall be utilized in a manner that supports City operations through environmentally responsible fleet management.
2. The focus of fleet vehicle replacements will be primarily toward all-electric technologies and secondarily hybrid-electric technologies.
3. This plan supports three relevant goals from the Environmental Action Plan 2040 (EAP) including:
  - a. By FY2024, implement electrification of, at minimum, 25 percent of applicable nonelectric passenger City fleet vehicles consistent with Fleet Replacement Plan criteria and scheduled replacement. (Goal 2.2.5)
  - b. By FY2040, implement electrification of all City non-electricity energy use (City facilities, operations, and vehicles). (Goal 2.1.6)
  - c. By FY2040, implement electrification of all non-electric City vehicle fleets and include ACPS, DASH, rapid transit routes, heavy-duty equipment and vehicles. Provide necessary electric vehicle charging infrastructure at City facility locations. Hybrids will be used as an interim until electric vehicles can be substantially implemented. (Goal 2.2.8)

### B. OBJECTIVES

1. Increase the use of alternative fuel vehicles and equipment, with a focus on increasing the use of all-electric vehicles.
2. Reduce emissions of carbon dioxide (CO<sub>2</sub>), a critical greenhouse gas produced through combustion of fossil fuels and make reduced CO<sub>2</sub> emissions a critical purchase criterion.

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3. Reduce emissions of carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), and particulate matter (PM)—all pollutants produced by combustion of fossil fuels that endanger public health.
4. Optimize the fleet size by eliminating or redeploying unused or under-utilized vehicles and equipment through continuous review and evaluation of vehicle utilization and redundancy while promoting vehicle sharing across departmental lines.
5. Purchase non-public safety fleet vehicles that provide the best available net reduction in vehicle fleet emissions and increase in average fuel economy, including, but not limited to, the purchase of alternative fueled, all-electric, hybrid-plug-in and hybrid vehicles.
6. Purchase lower emission public safety fleet vehicles with comparable performance, safety, and fuel availability during emergencies as compared to conventionally powered public safety fleet vehicles including hybrid, hybrid plug-in and all-electric vehicles whenever possible.
7. Minimize vehicle miles traveled (VMT) through route optimization, trip elimination and shared utilization.
8. Reduce vehicle size, weight and other factors affecting fuel use when appropriate.

### C. MEASURES OF SUCCESS

The **primary measure** of the City's success in accomplishing the above objectives is the annual progress toward meeting the goal of reducing vehicle emissions by 25% by the year 2030-31.

A **secondary measure** of the City's success in accomplishing the above objective including a reduction in the amount of emissions of the following greenhouse gases from City-operated vehicles:

- 1) Carbon Dioxide (CO<sub>2</sub>);
- 2) Carbon Monoxide (CO);
- 3) Nitrogen Oxides (NO<sub>x</sub>); and

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### 4) Particulate Matter (PM)

A **third measure** of the City's success is the decrease in annual total gallons of gasoline and diesel fuel used.

A **fourth measure** of the City's success is a decrease in total fleet size, with an increase in the percentage of electric and hybrid-electric vehicles replacing internal combustion engine vehicles where opportunities exist and are deemed feasible.

### **D. FLEET STEERING COMMITTEE**

The multi-agency Fleet Steering Committee will include representation from all major user agencies including the Department of General Services (DGS), Transportation and Environmental Services (T&ES), Alexandria Police Department (APD), Code Administration, Recreation, Parks and Cultural Activities (RCPA), Department of Community and Health Services (DCHS), Office of the Sheriff, Fire, as well as the Office of Management and Budget (OMB) and Finance, Risk Management.

The Fleet Steering Committee, in addition to its current function of recommending and revising fleet policy and ensuring the efficient operation of the City's fleet, shall develop and monitor policies and procedures related to the purchase of City vehicles, metered equipment, and sustainable maintenance products and services to achieve the goals and objectives of the Alternative Fuel Vehicle Policy. The Committee will work with other agencies as required to develop and monitor policies related to this program. The Committee will report findings and progress annually to the City Manager's Office beginning in FY 2021.

### **E. FUNDING**

The Fleet Steering Committee, in conjunction with other City agencies as required, will be responsible for making recommendations on acceptable initial incremental costs for improved environmental performance compared with vehicle fuel savings and emissions reductions achieved over the service life of that vehicle. This life-cycle cost analysis, which will include fuel, maintenance, and operation costs over the projected life of the vehicle, along with the factors related to public safety fleet vehicles, will be performed prior to purchasing fleet replacements or additions and will be reflected in the corresponding purchase process as appropriate. Funding from outside sources such as Regional, State, and Federal incentives shall also be

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pursued to assist in the offset of the incremental costs of alternative fuel vehicles, if necessary.

### **F. FLEET INVENTORY**

The City has established and will maintain a complete inventory of the vehicles in its fleet. This inventory will include not only the type and number of fleet vehicles, but also the amount and types of fuel used, the costs associated with their use, and the corresponding emissions. This inventory is critical if goals are to be set and success measured for the fleet.

All City vehicles and metered equipment that operate on gasoline, diesel, electricity, or other energy sources are included in this policy.

### **G. BASELINE FOR EVALUATION OF EFFECTIVENESS**

The baseline year for determining the effectiveness of the Alternative Fuel Fleet program will be fiscal year 2019-20. This baseline will also be utilized for broader Greenhouse Gas (GHG) reduction initiatives the City is participating in, and to monitor specific emissions parameters that have been captured since then. The City's Fleet Services Division Chief shall develop a fiscal year 2019-20 fleet baseline to facilitate the evaluation of annual Alternative Fuel Fleet plans and performance. Baseline information shall include:

- 1) Vehicle unit number, year, make, model, class (e.g., sedan, light duty truck, heavy duty truck, etc.) and primary use;
- 2) Average miles per gallon per vehicle (or gallon equivalent);
- 3) Type of fuel used;
- 4) Average fuel cost per gallon (or gallon equivalent);
- 5) Annual miles driven per vehicle;
- 6) Total fuel consumption per vehicle per year;
- 7) Carbon dioxide (CO<sub>2</sub>) emissions based on gallons (or equivalent) of fuel consumed; and
- 8) Estimated emissions for each pollutant by vehicle class based on EPA tailpipe standards for carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), and particulate matter (PM).

General Services, Office of Energy Management and T&ES shall calculate items 7 and 8 above for the Fleet Steering Committee and shall be utilized to calculate the total amount of greenhouse gases being emitted by City operated vehicles.

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T&ES, Fleet Services Division, and DGS, Office of Energy Management shall be responsible for providing this baseline data in a reliable and verifiable manner to the Fleet Steering Committee and other City agencies as requested.

### H. GREEN FLEET STRATEGIES TO BE EMPLOYED BY THE CITY

#### 1. Optimize Fleet Size

- a) The vehicles considered for removal from the fleet or reassignment shall include the following:
  - 1.) Light duty vehicles (passenger cars, light duty pick-up trucks, sport utility vehicles and vans) that are driven less than 1,500 miles annually.
  - 2.) Metered equipment that is used less than 240 hours annually.
- b) Fleet reduction or reassignment will be performed according to the provisions of Administrative Regulation, 7-3, Use of City Vehicles. Vehicles identified for removal from the City fleet shall be disposed of by T&ES through the Department of Finance Purchasing Division in accordance with applicable City regulations. The determination of which vehicles are to be removed or reassigned shall be at the discretion of the Fleet Services Division Chief, working in cooperation with user agencies, and shall be performed according to the guidelines identified in Administrative Regulation 7-3, Use of City Vehicles and City purchasing regulations.
- c) No vehicle will be purchased to replace the removed vehicles. It shall be removed from the fleet database.
- d) Specialized vehicles may be exempt from removal if the user agency can justify retention and the Fleet Steering Committee approves this justification. Justification for exemptions must be presented in writing to the Team. It is expected that there will be exemptions with regard to some vehicles because of special uses. However, there may still be viable alternative fuel vehicle/equipment options to support some needs and functions. It shall be the policy of the City to purchase or lease vehicles that comply with the requirements of this section to the extent that the purchase or lease of such vehicles does not unacceptably reduce the ability to provide safe, effective, and quality services.

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### 2. Increase Average Fuel Economy or Equivalent

- a) When purchasing new vehicles, fuel efficiency targets (miles per gallon or mpg or gallon equivalent) shall be determined for each of four vehicle classes (sedan, light duty truck, passenger/cargo van, sport utility vehicle). Targets shall be above the average fuel economy.

### 3. Decrease Vehicle Emissions

- a) The City shall make every effort to obtain the “cleanest” vehicles possible as measured by available emissions certification standards and those published by the manufacturers.

- 1) Light Duty Vehicles: The City shall purchase only models of passenger vehicles, which are primarily electric with plug-in hybrid and hybrid technology as a fallback, where service levels are not negatively impacted.

- 2) Heavy Duty Vehicles and Equipment: The City shall purchase only Heavy-Duty Vehicles or Equipment whose engines are CARB certified as low-emission, when available for the given application and where service levels are not negatively impacted.

- b) Each replacement vehicle will achieve the greatest level of emission reductions possible, while still meeting the operational needs of the City. Alternative-fuel replacement vehicles should be procured only when there is fueling infrastructure in place at City operated fueling stations or at other City-owned locations to support the operation of these vehicles.

- c) Emission reduction targets shall be reviewed annually by the FSC and modified based on vehicles available for that model year.

- d) Vehicle purchase requests shall be reviewed, and minimum emission reduction targets will be employed when possible. Fleet Services will work with all user agencies to identify the most fuel-efficient vehicle with maximum emissions reduction available that can meet the operational needs of the department, while taking into account the vehicle’s life-cycle costs and fuel availability.



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- e) Request for exemptions to the Alternative Fuel Fleet Policy shall be submitted in writing to the City Manager through the Fleet Services Division Chief and the Office of Management and Budget with exemptions awarded only if there is sufficient justification (see Section I - Exemptions of this policy).

### 4. Reduce Vehicle Size

Encourage the selection of vehicles of a smaller class size whenever possible to achieve increased miles per gallon or gallon equivalent and lower emissions. Requests for new vehicle purchases must be supplemented with written justification addressing the need for a class or type. Fleet Services shall work with the applicable user agency to determine whether a proposed vehicle could be downsized and still fulfill its required function within the department.

### 5. Increase Use of Alternate Fuel Vehicles and Equipment

Alternate Fuel Vehicles and Equipment will be considered for procurement and utilization when their use is appropriate to the application and the life-cycle cost analysis demonstrates the procurement and utilization of the vehicle to be economically feasible.

All-electric, primarily, and Hybrid-electric vehicles, secondarily when an all-electric option is not available, shall be the preferred option for light duty vehicle replacements.

Fleet Services shall provide a list of alternative fuel vehicles to the Green Fleet Team to evaluate incremental progress of the policy.

As noted under the Funding section of this document, both appropriated City funding and incentives from outside agencies may be available to cover the potential incremental costs for an alternate fuel version of a fleet vehicle or piece of metered equipment. Incentives may be targeted for the procurement of specific fuel-using vehicles and will be factored into the life-cycle cost analysis.

Gasoline alternative fuels (such as low-sulfur diesel, ethanol and biodiesel) shall be considered when feasible if an all-electric, plug-in hybrid or hybrid

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alternative is not available and any negative environmental impacts from such fuels do not negate benefits.

Fleet Services shall provide a summary list of alternative fuel vehicles in the City's fleet (by fuel type) to the City Manager's Office as part of its annual report.

### 6. Best Practices to Minimize Vehicle Miles Traveled (VMT)

- 1) For vehicles that operate on fixed routes, such as maintenance routes and meter reading routes, route optimization should be employed. In general, all routes should be planned to optimize the route and trips chained together to reduce required travel time and distance.
- 2) Encourage meetings at centralized locations to reduce necessary travel.
- 3) Encourage and enable alternate meeting methods, such as teleconferencing and video conferencing to reduce the number of necessary trips.
- 4) The Administrative Regulation Anti-idling policy will remain in effect. Vehicles shall not be left idling unless a running engine is necessary to protect public safety, to prevent harm to contents of the vehicle, run auxiliary equipment in performance of a job, or to maintain health of occupants while performing duties. Vehicles are not to be left idling for extended periods.
- 5) Where applicable and/or appropriate, employees should use alternative modes of transportation, such as buses, light rail, carpools, vans, ridesharing or bicycles.

### I. EXEMPTIONS

The Fleet Steering Committee, by majority vote, may grant an exemption from the requirements of this Policy to an applicable user agency requesting an exemption under any one of the following circumstances:

- 1) Where there is no model of motor vehicle or motorized equipment available that will comply with the requirements of this Policy and still meet the specifications for its intended purpose.
- 2) Where the analysis demonstrates to the satisfaction of the FSC each of the following:

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- a) That any amortized additional incremental cost of purchasing a lower emission vehicle that complies with the requirements of this Policy cannot be recovered over the operating life of the vehicle or metered equipment through a reduction in fuel, maintenance, and other costs incurred during the operating life of such vehicle or equipment; and
  - b) That Fleet Services, or another City department, has unsuccessfully applied for, or attempted to identify incentives or alternative funding for the purchase of the vehicle or motorized equipment that complies with the requirements of this Policy from outside sources.
- 3) Where the requesting user agency demonstrates to the satisfaction of the FSC that the use of a vehicle or metered equipment that complies with the requirements of this Policy would significantly disrupt operations or reduce service levels.

In the case that the FSC grants an exemption, Fleet Services shall purchase the model of motor vehicle or metered equipment that will meet the specifications of the applicable departments and has the highest fuel efficiency and lowest available emissions ratings available for the type of vehicle or metered equipment specified provided the cost is within a reasonable range of the cost of a vehicle meeting the specifications but having higher emissions ratings.

### **J. VEHICLE MAINTENANCE**

All vehicles shall be inspected and emissions tested on a biannual basis consistent with State of Virginia guidelines. If the vehicle fails to pass inspection, the necessary emission related repairs will be made to make the vehicle/equipment compliant. Should a vehicle not comply with its certified emission standard, it shall be removed from the fleet.

As directed by the City's EAP 2040, ecologically sound products, such as coolants and re-refined oils, shall be used where available, when cost effective, and when they do not void the manufacturer's warranty.

Re-treaded tires shall be purchased for rear axles of large-wheeled or slow-moving vehicles, when applicable.

### **K. OPERATION OF BI-FUEL/ PLUG-IN HYBRID VEHICLES**

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No bi-fuel vehicle owned by the City may be powered by gasoline, diesel, or other petroleum-based fuel while operating within the City, except where the bi-fuel required is unavailable, or in case of emergencies. In such cases, the maximum recommended use of alternative fuel shall be required. Bi-fuel vehicles owned by the City shall bear a notice stating the requirements of this subsection, posted in one or more locations that are plainly visible to the vehicle operator.

Plug-in hybrid vehicles, upon purchase, are to have a charging station at their respective assigned overnight parking location. Employees responsible for operating these vehicles shall make sure they are properly charged and used as electric for all trips originating from this location, and where feasible for other useage.

### **L. REDUCING OTHER ENVIRONMENTAL IMPACTS OF VEHICLES**

In addition to tailpipe emissions, motorized vehicles and equipment may have other negative environmental impacts that can occur in their production, operation, and eventual disposal. Radiator fluids and other substances used in vehicles can have harmful consequences for the environment. Of particular concern are persistent, bio-accumulative, and toxic materials (PBTs), such as mercury, lead and arsenic, which can be released at the end of the life of a vehicle. When opportunities are identified, Fleet Services will continue to reduce the production, operation and end-of-life environmental impacts of the vehicles it purchases.

City vehicles that are identified for retirement shall be evaluated on age, mileage, mechanical condition and emissions in order to determine the most appropriate disposal option in accordance with applicable Fleet replacement criteria, City Code regulations and the EAP 2040.

### **M. ANNUAL REPORTING**

Fleet Services shall provide an annual report by November of each year, beginning in 2021, to the City Manager's Office for the prior fiscal year providing information to demonstrate compliance with this Policy.

This report shall include an update regarding progress against the 25% emissions reduction goal, the percentage of Alternative Fuel Vehicles in the City Fleet, and year-by-year performance for each of these measures.

Annual Reports shall be reviewed by the City Manager's Office, the Fleet Steering Committee and Fleet Services Division, and shall be used to determine

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program effectiveness and to target under-utilized vehicles for removal or reassignment.

Annual Alternative Fuel Fleet purchasing plans shall be developed using any/all of the options listed above, recommendations from the City Manager’s Office and/or the Fleet Steering Committee, conformity to the City’s EAP 2040, plus any other alternatives deemed appropriate to achieve the goals of this Policy.

Approved:

\_\_\_\_\_  
Mark B. Jinks, City Manager

\_\_\_\_\_  
Date

### DEFINITIONS

Alternate Fuel	Any fuel other than gasoline, diesel, and other substantially petroleum-based fuels that is less polluting than gasoline or diesel fuel. Alternate Fuel shall include, but is not limited to, natural gas, propane, ethanol (E-85), biodiesel (5 percent blend or above) and electricity.
All-Electric Vehicle	A vehicle operating exclusively on a battery charge and does not possess or require an internal combustion engine.
Alternate Fuel Vehicle (AFV)	Any motor vehicle powered in whole or in part by non-petroleum-based fuels.
Operating Departments	City of Alexandria departments that operate motorized vehicles or metered heavy equipment.
Bi-Fuel Vehicle	Any motor vehicle designed to operate on two distinct fuels (including “Flexfuel” vehicles), one of which is an alternative fuel.
Biodiesel	Fuel refined from agriculturally derived oils that is suitable for use in diesel engines. Often blended with traditional petroleum-based diesel in amounts connoted by the letter “B” and a number (e.g., B20 = 20% biodiesel and 80% petroleum diesel).
CO	Carbon Monoxide – a standard component of conventionally powered vehicle emissions
CO2	Carbon Dioxide - a standard component of conventionally powered vehicle emissions and a principal greenhouse gas

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Conventionally Powered Vehicles	Vehicles with gasoline or diesel-powered internal combustion engines.
Public Safety Fleet	Public Safety response vehicles used by the City of Alexandria Police and Fire Departments and Office of the Sheriff.
Fleet	The City of Alexandria's inventory of motorized vehicles and metered equipment.
Fleet Management	The City of Alexandria's Department of General Services, Fleet Services Division
GHG	Greenhouse Gas
Green	Vehicles that emit low or zero emissions; typically powered by fuels other than gasoline or diesel.

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### DEFINITIONS

Heavy Duty Vehicle	Any motor vehicle, licensed for use on roadways, having a manufacturer's gross vehicle weight rating greater than 8,500 pounds.
Hybrid Vehicle	A motor vehicle that draws propulsion energy from onboard sources of stored energy that are both an internal combustion / heat engine that runs on combustible fuel, and a rechargeable energy storage system.
Incremental Cost	The difference in the acquisition cost between a conventionally powered vehicle and a comparable alternative fuel vehicle
Light Duty Vehicle	Any vehicle with a gross vehicle weight of less than or equal to 6,000 pounds. Light duty vehicles include passenger cars, light duty trucks, sport utility vehicles (SUV), minivans and pick-up trucks. Light duty vehicles are currently subject to Tier 1 emissions standards under the Clean Air Act Amendments of 1990.
Medium Duty Truck	Any motor vehicle, with a manufacturer's gross vehicle weight rating of 8,500 pounds or more, which is designed primarily for purposes of transportation of property or is a derivative of such a vehicle or is available with special features enabling off-street or off-highway operation and use.
Low Emission Vehicle (LEV)	Any motor vehicle that meets or exceeds the standards set forth by the U.S. Environmental Protection Agency (EPA) for Low Emission Vehicles.
Metered Equipment	Any powered implement that is metered for hours of use.
NOX	Oxides of nitrogen.
Particulate Matter (PM)	Solid or liquid particles of soot, dust, smoke, fumes, aerosols or other airborne material; a standard component of conventionally powered vehicle emissions.
Passenger Vehicle	Any motor vehicle designed primarily for transportation of persons and having a design capacity of twelve persons or less.
Tier 1	Emissions standards enacted by 1990 amendments to the Clean Air Act that required a 40 percent reduction in emissions from the 1981 standard by 1994. Tier 1 light-duty standards apply to all light duty vehicles, permitting higher acceptable emissions levels for heavier light duty vehicles like trucks.