

# Fleet Study Scope – DRAFT

For Town Council reference – February 8, 2022

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## Overview – Project Purpose

The Town of Carrboro's vehicle fleet represents a significant sector of direct municipal greenhouse gas emissions. The [Energy and Climate Protection Plan](#) outlines a goal for the Town to reduce 2010 levels of municipal greenhouse gas emissions 80% by 2030. In order to reach this goal, the Town is pursuing a fleet transition to alternative fuel vehicles.

The Town of Carrboro active fleet consists of 105 heavy-, medium-, and light-duty vehicles. Of these vehicles there are twelve hybrid SUVs and three hybrid sedans. In 2019, the vehicles in the fleet used 92,885 gallons of fuel, producing 890 metric tons of carbon dioxide equivalent (CO<sub>2</sub>e).

The fleet study is intended to result in a report detailing alternative fuel options to allow the Town to fully understand the available alternative fuel vehicles and equipment, infrastructure needs, facility capacity, maintenance needs, projected costs and returns on investment, and available financing mechanisms to transition the municipal fleet and equipment and meet the Town's greenhouse gas emissions reduction goal by 2030.

## Analysis Components

The analysis will detail the potential for alternative fuels for all municipal vehicles as well as all equipment that utilizes fuel e.g. chainsaws and mowers.

The analysis will include the following:

### **1. Available Alternative Fuel Vehicle and Equipment Review**

The firm will review currently available and soon to be available alternative fuel vehicles and equipment to replace the vehicles and equipment used by the Town. The firm will include efficiency technology and fleet rightsizing options relevant to fleet operations in their analyses. The firm can explore potential retrofits for current Town vehicles and equipment if appropriate. The fuels, technology, and strategies analyzed will at a minimum include:

1. Battery Electric Vehicles (BEV); electric equipment
2. Hybrid Electric Plug-in Vehicles (PHEV)
3. Hybrid Electric Vehicles (HEV)
4. Biodiesel for vehicles and equipment
5. Renewable compressed natural gas (rCNG) from a local supply (potential partnership with OWASA) for vehicles and equipment
6. Alternative vehicle and equipment types, e.g., electric bicycles, shuttles
7. Anti-idling technology
8. Adjustments to Departmental procedures/fleet rightsizing

**2. Infrastructure Needs Assessment**

The firm will include an assessment of the fueling and other infrastructure investments needed to implement each of the technology options in their written reports.

**3. Facility Capacity Analysis**

The firm will calculate each facility's capacity to support electrical load demand from charging operations, identify potential grid impacts, and note backup generators or other energy storage methods needed for emergency response or to lighten the load from the additional impact to the electrical grid.

**4. Maintenance Needs Assessment**

The firm will include maintenance requirements for alternative fuel vehicles and equipment in their written reports.

**5. Projected Greenhouse Gas Emissions Reduction Scenarios**

The firm will develop estimates for greenhouse gas emissions reductions for each of the alternative fuel types analyzed.

**6. Projected Costs and Return on Investment (ROI) Scenarios**

The firm will develop estimates for the projected cost of fleet and equipment conversion to reduce fleet greenhouse gas emissions 80% (from 2010 levels) by 2030.

**7. Financing Mechanisms and Strategies to Accelerate the Conversion of Fleet and Equipment to Alternative Fuel Vehicles and Equipment**

The firm will identify and analyze financing mechanisms and strategies that could accelerate the transition of municipal vehicles and equipment to alternative fuel vehicles and equipment.

**8. Draft Phased Fleet and Equipment Conversion Strategies**

The firm will develop several alternative phasing and implementation strategies for fleet and equipment conversion. The strategies will allow the Town to reach its greenhouse gas emissions reduction goals by 2030 while also considering life cycle cost effectiveness and feasibility.