

MIAMI BEACH

City of Miami Beach, 1700 Convention Center Drive, Miami Beach, Florida 33139, www.miamibeachfl.gov

COMMITTEE MEMORANDUM

TO: Land Use and Sustainability Committee

FROM: Jimmy L. Morales, City Manager

DATE: February 18, 2020

SUBJECT: **Discussion On Requiring All New City Vehicles Purchased After 2020 To Be 100% Electric (Except Emergency Vehicles).**

At the May 28, 2019, Sustainability Committee meeting, the following motion was made: "Motion to support all efforts to make the reduction of CO₂ emissions a primary focus of the fleet assessment, including providing appropriate funding, considering total cost of ownership, and prioritizing the use of electric vehicles". At the Sept. 11, 2019 City Commission meeting, Commissioner Michael Gongora referred a discussion to the Sustainability and Resiliency Committee, which has been merged and renamed the Land Use and Sustainability Committee, regarding requiring that all new City vehicles purchased after 2020 be 100% electric (except emergency vehicles).

HISTORY

Gasoline-powered sedans, SUVs and light trucks, represent the vehicle classes, within the City's fleet, that are primarily targeted for replacement with hybrid electric vehicles (HEVs), as well as with fully electric vehicles (FEVs). These vehicle classes account for approximately 72% of the total gasoline consumed by the City's vehicle and equipment inventory and the corresponding CO₂ greenhouse gas (GHG) emissions.

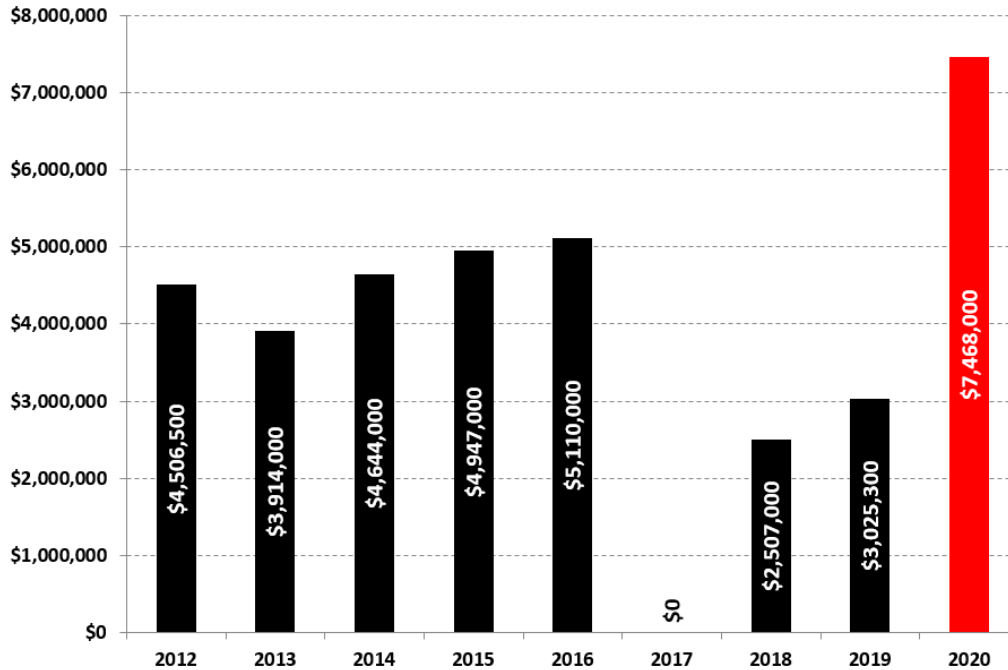
Presently, the City's vehicle fleet includes 22 HEVs and one FEV. The GHG emissions reduced by these "green" vehicles exceed 50,000 Lbs. of CO₂ per year. Key to continuing the greening of the City's Fleet will be securing adequate vehicle replacement funding. A Vehicle Replacement Study (VRS) completed in May of 2018, by the Matrix Consulting Group, recommended a five-year funding plan that would improve the vehicle replacement cycle, and supported improved funding levels used to increase the number of energy-efficient vehicles in the City's fleet.

In line with the VRS recommendations, the adopted FY20 budget reflects improved funding levels for the purchase of over 250 vehicles and equipment, including 102 HEVs and two electric vehicles. This will effectively more than quadruple the City's hybrid vehicle fleet.

Over 60% of the FY20 vehicle replacement budget is earmarked for the replacement of gasoline-powered vehicles with HEVs and FEVs. The remaining units are primarily comprised of specialty trucks and vehicles and specialized equipment – such as utility, maintenance, construction and fire suppression vehicles - for which no HEV or FEV replacements are presently available.

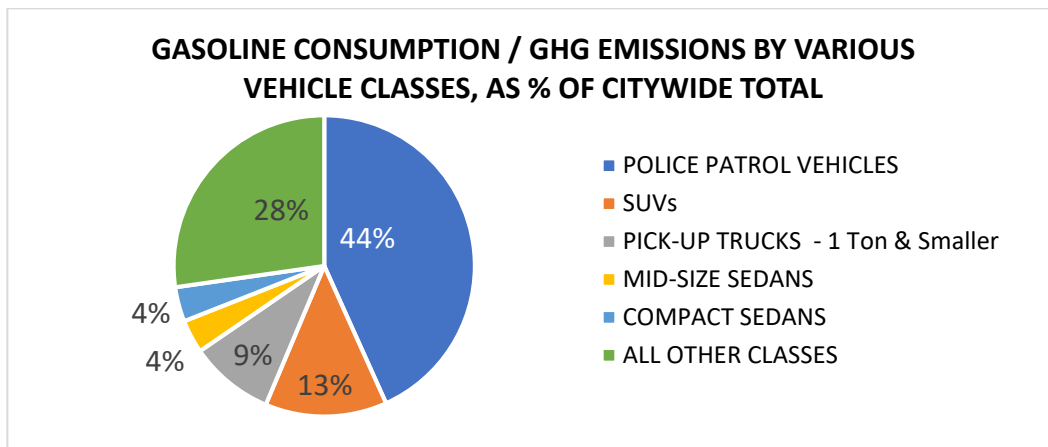
The chart below shows the General Fund budget for the replacement of vehicles and equipment for recent years through FY20 (red bar).

GENERAL FUND BUDGET FOR VEHICLE AND EQUIPMENT REPLACEMENT



ANALYSIS

The City fleet’s gasoline consumption totals approximately 767,000 gallons per year. This is equivalent to approximately 13.5 million Lbs. of CO₂ GHG emissions per year. Police Department vehicles, marine vessels, and specialty equipment account for nearly 64% of citywide gasoline usage. Police patrol vehicles (316) consume approximately 338,000 gallons of fuel annually, or 44.1% of the City’s total gasoline volume. The chart below illustrates five major gasoline vehicle classes that account for 72% of the city’s annual gasoline consumption that are being targeted for replacement with primarily hybrid, as well as electric vehicles.



These vehicle classes represent approximately 730 vehicles, of which 124, or 17%, fall in the compact sedan category. These compact vehicles, with the highest miles-per-gallon ratings are also, typically, the ones with the least miles driven, when compared to the other vehicle classes. For this reason, they only account for approximately 4% of the City's total gasoline consumption.

Electric vehicles are predominantly available as replacements within the compact vehicle class. This makes the compact sedan class the logical vehicle group to target for replacement with EVs.

The scheduled replacement of compact sedan vehicles includes the following projections and considerations:

- The entire compact sedan fleet is scheduled for replacement by 2024.
- Seven (7) vehicles will not be replaced as a result of the VRS study recommendations and other downsizing opportunities.
- Approximately (50) of these older vehicles in the Police, Fire, Public Works, and other field operations, will be primarily replaced by compact hybrid SUV vehicles that will more suitably meet their current operational needs. In some cases, these may include light trucks. The versatility of the compact SUV class has grown in adoption by various field operations departments and represents over 40% of the City's SUV fleet.
- As part of a pilot EV program with the Building Dept., approximately two-thirds of their compact vehicles (18) will be replaced with FEVs and (9) will be replaced with compact hybrid SUVs.
- Six (6) vehicles assigned to the Planning, Public Safety Communications Division, and Community Services will be replaced with FEVs.
- Given the round-the-clock and cross-department support operations of the Code Compliance Department, four (4) vehicles will be replaced with FEVs and (15) will be replaced with a combination of hybrid compact SUVs and hybrid compact sedans. This number may change with further analysis.
- Of ten (10) compact vehicles in Parking Dept. operations, five (5) are being replaced with small pick-up trucks and the rest will be a combination of HEVs and one or two FEVs pending further analysis of their shift operations.
- The four (4) vehicles in the Parks Dept. are shared by multiple employees across various park facilities where the overnight parking location may not offer the level of security preferred for an electric charging station. For this reason, these vehicles will be likely replaced with compact HEVs (EPA combined 52 MPG rating).
- FEVs require the installation of charging stations. This involves the planning, design and permitting needed for the modification of existing electrical facilities and the extension and installation of electrical conduit, wiring, and switches to safely provide power to the charging pedestal. A cross-departmental team has been actively evaluating these options to ensure that the most cost-effective options to charge City FEVs at the most convenient location(s) are implemented.

CONCLUSION

As the City aggressively pursues the greening of its vehicle fleet with the most cost-effective options to reduce CO₂ GHG emissions, a balanced approach needs to be followed as various HEV and FEV options are considered. Relevant considerations include: client department needs, vehicle operating requirements and specifications; the sustainable challenges of operating in a low-elevation barrier island; continued availability of vehicle replacement funding; and the cost of electrical infrastructure installations.

The City's gasoline-powered compact sedan fleet – the target vehicle class for replacement with EVs – only accounts for approximately 4% of the City's total gasoline consumption. As the FEV industry evolves, electric battery technology is improved, FEV ranges increase, and new fully electric vehicle classes are introduced, the size of the City's FEV fleet will grow.

Annual GHG emission reductions, from the replacement of gasoline vehicles with HEVs and FEVs, is expected to grow from approximately 50,000 Lbs. of CO₂ in 2020 to 3.3 million Lbs. by 2025. The City's electric vehicle fleet is projected to grow to at least 30 vehicles by 2025, representing approximately 11% of the non-patrol vehicle classes targeted for HEV and FEV replacement. These FEVs will account for approximately 324,000 Lbs. of CO₂ GHG reductions per year.

JMT/JC