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COMMITTEE MEMORANDUM

TO: Land Use and Sustainability Committee

FROM: Jimmy L. Morales, City Manager

DATE: February 18, 2020

SUBJECT: **DISCUSS THE MOTION MADE BY THE SUSTAINABILITY COMMITTEE TO MAKE THE REDUCTION OF CO_2 EMISSIONS A PRIMARY FOCUS OF THE FLEET ASSESSMENT**

At the July 17, 2019 City Commission meeting, Commissioner Mark Samuelian referred a discussion to the Land use and Sustainability Committee regarding the motion made by the Sustainability Committee to make the reduction of CO_2 greenhouse gas (GHG) emissions a primary focus of the fleet assessment.

HISTORY

The reduction of CO_2 emissions has been a primary focus of our three-pronged approach to improve the operating efficiency and greening of the City's fleet. The strategy encompasses right-sizing/down-sizing, vehicle standardization, and reducing the vehicle replacement cycle through more timely investments in fuel efficient vehicles, primarily hybrid-electric vehicles (HEVs).

Throughout the years, Fleet Management has worked with the various City departments to right-size, where appropriate, from full/mid-size sedans to mid-size/compact models. The Vehicle Utilization Study, completed in December of 2018 also supplemented on-going downsizing efforts by identifying 18 vehicles that could be eliminated from the City's fleet, representing capital savings of approximately $1,000,000 in avoided costs in future replacement cycles (per cycle), as well as annual maintenance and repair cost reductions of approximately $20,000. As a result of these on-going efforts, approximately 95% of staff sedans (excluding detective vehicles) are the more fuel-efficient compact vehicles. The compact vehicle fleet accounts for approximately 4% of the City's annual gasoline consumption.

HEVs are a proven, widely accepted technology. Twenty-two (22) HEVs (14 compact and eight mid-size models) placed into service in 11 City departments, within the past three and a half years, have logged nearly 600,000 miles of reliable service, with operating costs over 40% lower than that of comparable, mostly compact, gasoline models. The Hybrid Electric Vehicle Policy outlined in LTC #316-2019, dated May 31, 2019, identified the replacement of gasoline police patrol vehicles with the newly introduced Hybrid Police Utility Interceptor as the most cost-effective opportunity to significantly reduce GHG emissions in the City's fleet.

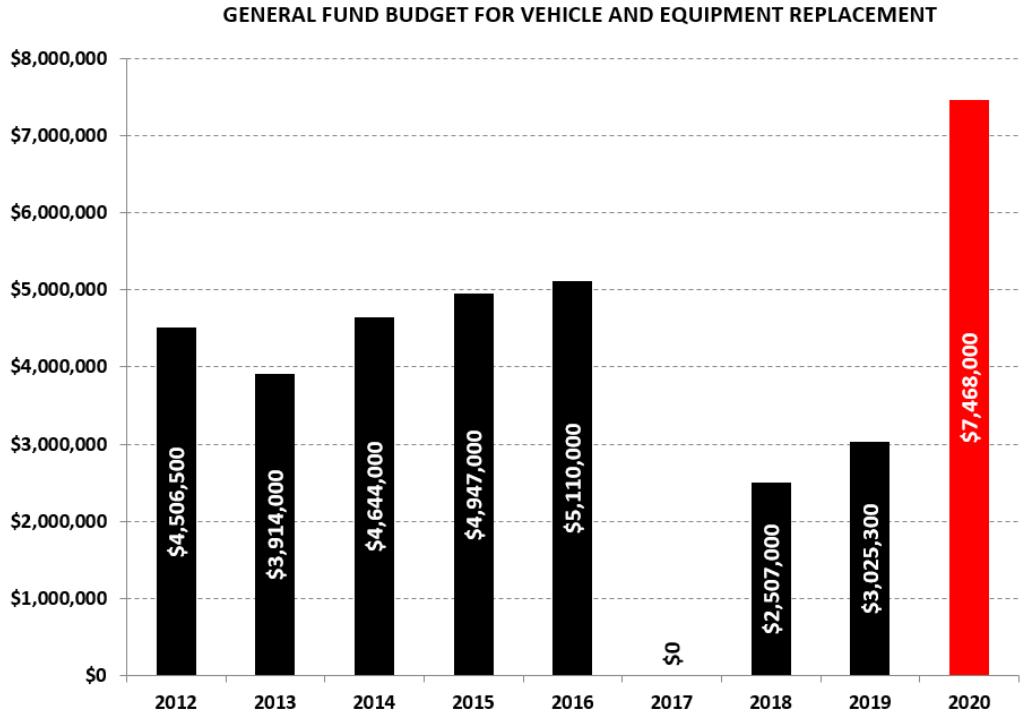
FLEET REPLACEMENT PLAN AND FUNDING

Key to continuing the greening of the City's Fleet will be securing adequate vehicle replacement funding, which has been a past challenge and contributed to an extended replacement cycle

during recent years. Failure to adequately fund vehicle replacements according to recommended replacement cycles has been shown to cause several problems, including higher maintenance and fuel costs, increased vehicle breakdowns, and a lower level of fleet readiness that impacts the ability of City departments to effectively conduct operations and deliver services.

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 (red bar) reflects improved funding levels for the purchase of over 250 vehicles and equipment, including 102 HEVs and two electric vehicles. The remaining units are primarily comprised of specialty trucks and vehicles and specialized equipment. This will effectively more than quadruple the City's hybrid vehicle fleet.

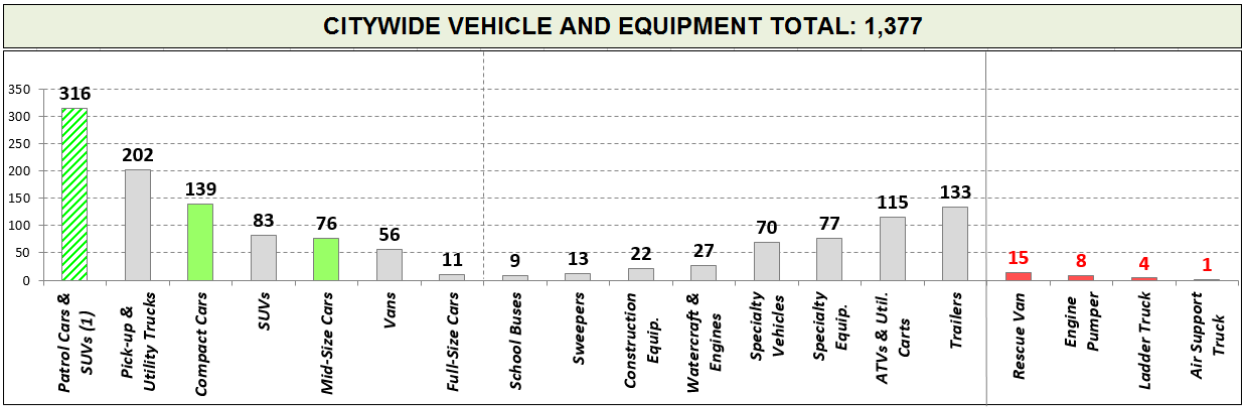
The chart below shows the General Fund budget for the replacement of vehicles and equipment for recent years through FY20.



CITYWIDE VEHICLE AND EQUIPMENT INVENTORY.

The City's inventory of standard vehicles, heavy-duty trucks, construction and specialized utility and landscaping maintenance vehicles, marine vessels, and other smaller specialized equipment such as trailers, light towers, pumps, compressors, generators, forklifts, compactors, wave runners, ATVs, and utility carts is approximately 1,300. This number fluctuates as units are added, retired, or not replaced.

The following chart and table reflect the distribution of the fleet inventory across the various vehicle and equipment classes:



	FLEET MANAGEMENT DEPARTMENT															FIRE & RESCUE DEPT.			
	SEDANS, SUVs TRUCKS & VANS 65%							SPECIALTY TRUCKS, VEHICLES & EQUIPMENT 35%								FIRE SUPPRESSION & RESCUE VEHICLES			
	883							466								28			
	1,349																		
VEHICLE CLASSES	316	202	139	83	76	56	11	9	13	22	27	70	77	115	133	15	8	4	1
	36%	23%	16%	9%	9%	6%	1%	2%	3%	5%	6%	15%	17%	25%	29%	54%	29%	14%	4%
	PI SEDAN	F150	FOCUS	EXPLORER	FUSION	TRANSIT	TAURUS	THOMAS	TENNANT	CRANE	WAVE RUNNER	SWAT VAN	SAND SIFTER	ATVs	UTILITY	TERNATIONAL	PIERCE	PIERCE	PIERCE
	PI UTILITY	F250	FOCUS ELEC.	ESCAPE	FUSION HEV	UTILITY	IMPALA	27-PASS.	STREET	CEMENT MIX	33-36 FT.	PADDY WAG	SWK VACS	UTIL CARTS	SIGN - SOLAR	FREIGHTLINER	LAFRANCE		
	CROWN VIC	F350	C-MAX HEV	EXPEDITION		MINI CARGO	MALIBU	72-PASS.	PARKING LOT	SKID STEER	32-FT.	STAKE BODY	GROOMERS	EZ-GO	ENCLOSED				
	IMPALA	CREW CAB	CRUZE	EQUINOX		MINI WAGON				EXCAVATOR	25-29 FT.	DUMP TRUCK	HYD. BREAKER		BOAT				
	CAPRICE	UTILITY BODY		ACADIA						LOADER	20-FT	LIQUID DISTRIB	COMPACTORS		LIGHT TOWER				
		FLAT BED								BACKHOE	18-FT.	TANKWAGON	PRESS. CLEAN		SKYWATCH				
										PAVER	ROW BOAT	SEWER CLNR	CONC. CUTTER		PORTABLE RR				
												VAC TRUCKS	STRIPER		LAWN				
												WRECKERS	SPEED RADAR		VACUUM				
												BUCKET	MOWERS		MOTORCYCLE				
												TRENCHER	FORK LIFTS		GENERATOR				
												STUMP GRIND.	ROLL-OFFS	COMPRESSOR	PRESS. CLNR.				
												CHIPPER	ZAMBONI	GENERATOR	CEMENT MIX				

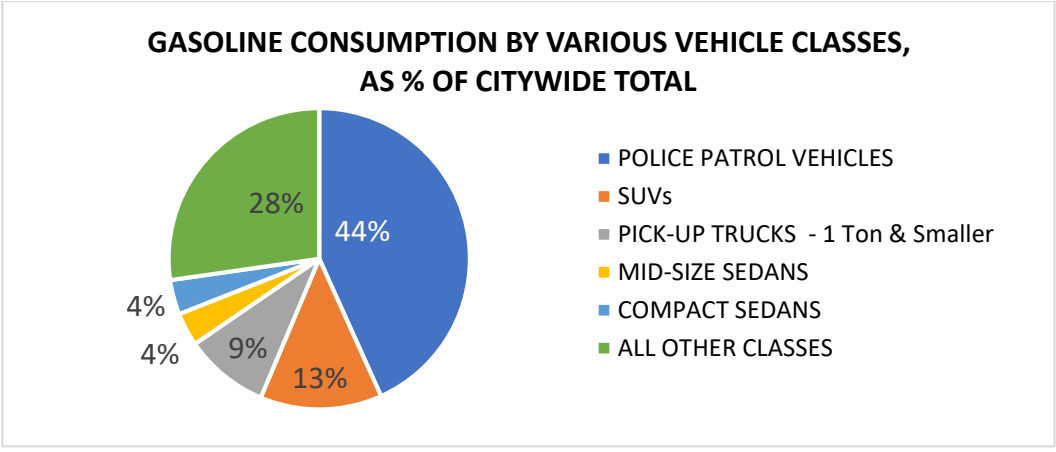
POLICE PATROL VEHICLES ACCOUNT FOR APPROX. 44.1% OF CITYWIDE GASOLINE USAGE. IN LATE 2019, FORD WILL ROLL OUT THE FIRST HYBRID ELECTRIC POLICE UTILITY INTERCEPTOR OFFERING POTENTIAL TO ACHIEVE AS MUCH AS 40% REDUCTION IN FUEL

THE CITY FLEET INCLUDES 22 HYBRID ELECTRIC VEHICLES (HEV) AND ONE FULLY ELECTRIC VEHICLE (EV)

Approximately 65% of the units are sedans, SUVs, light trucks and vans. The other 35% is comprised of specialty trucks, vehicles and specialized equipment.

GASOLINE CONSUMPTION AND GHG REDUCTION

The City fleet's gasoline consumption totals approximately 767,000 gallons per year. This is equivalent to approximately 13.5 million Lbs. of CO_2 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.



Our current strategy for greening the City's fleet will primarily focus on replacing gasoline powered vehicles with HEVs, in the five vehicle classes shown above, as part of the annual vehicle replacement cycle, and encompasses the following:

- Police Patrol Vehicles – This vehicle class presents the most cost-effective opportunity to reduce GHGs and is targeted for full conversion to Ford Motor Company's recently introduced Hybrid Police Interceptor Utility vehicle within the next five years. Over 60 gasoline units will be replaced with the new hybrid model in 2020. Upon full conversion to hybrid units, this vehicle class will have achieved a reduction of approximately 2.24 million Lbs. of CO_2 GHG emissions per year.
- SUVs (Non-Patrol) – This is a highly versatile vehicle class with a higher ground clearance that is popular with first responder and field operations departments. The compact SUV class has grown in popularity with various field operations departments and represents over 40% of the City's SUV fleet. The vehicle's wheelbase is comparable to that of compact sedans, with the added benefit of a larger cargo area for tools, plans and equipment, and improved driver visibility. A hybrid version of this small SUV is being reintroduced in 2020. The replacement rate to hybrids will pick up in 2021, in accordance with the vehicle replacement schedule. Upon full conversion to hybrid units, this vehicle class will have achieved a reduction of approximately 0.18 million Lbs. of CO_2 GHG emissions per year.
- Pick-up Trucks – The City's fleet includes (103) F150 pick-up trucks. The hybrid version of this truck is anticipated to be introduced in 2020 and conversion of this construction and utility operations vehicle class is projected to commence in 2021. The conversion to hybrid units in this vehicle class should achieve a reduction of approximately 0.32 million Lbs. of CO_2 GHG emissions per year by 2024.
- Mid-sized Sedans – The highly reliable hybrid vehicles in this class have an excellent track record with the City. They are mostly used by detectives in the Crime Investigation Division of the Police Department and conversion to the hybrid version should be mostly completed by 2023. Upon full conversion to hybrid units, this vehicle class will have achieved a reduction of approximately 0.19 million Lbs. of CO_2 GHG emissions per year.
- Compact Sedans – A wide range of hybrid replacement options are available for the 124 low-mileage vehicles that account for 4% of the City fleet's total gasoline consumption. This total includes over 40 vehicles in Police, Fire, Public Works, and other field operations departments for which a compact SUV hybrid vehicle would be more suitable. The compact sedans class is also the logical vehicle group within which to introduce the predominantly compact line of electric vehicles available in the marketplace. Some of the units in this group will not be replaced as a result of the vehicle utilization study, while others will be replaced with compact SUV HEVs. The remaining staff vehicles are projected to be replaced with compact SUV HEVs and 24 to 34 EVs by 2024. Gasoline vehicles replaced with EVs are projected to be primarily within the Building Dept. fleet, with additional units for the Planning, Code and other Departments. Upon full conversion to HEVs and EVs, this vehicle class will have achieved a reduction of approximately 0.31 million Lbs. of CO_2 GHG emissions per year.

CONCLUSION

If current levels of vehicle replacement funding remain available in the coming years, the City will continue to make significant reductions in its fleet gasoline consumption and CO_2 GHG emissions, building upon the progress that will have been achieved through the 104 HEVs and EVs being acquired with the FY20 budget. In addition to the 22 HEVs and 1 EV currently in the City fleet, these green vehicles are projected to achieve a reduction of approximately 0.67 million Lbs. of CO_2 GHG emissions per year BY 2021.

With an anticipated green fleet of 564 HEVs and 25 EVs by 2025, it's projected that a reduction of approximately 3.3 million Lbs. of CO_2 GHG emissions per year will be achieved from the decreased annual gasoline consumption of approximately 187,000 gallons, equivalent to a 24.4% reduction.

Our vehicle replacement strategy will adjust in accordance with technology innovations in the rapidly-evolving HEV and EV industry. We will continue to implement the most cost-effective options to minimize GHG emissions.

JMT/JC