



City of Burlington
Department of Public Works
645 Pine Street
Burlington, VT 05402
802.863.9094 P
802.863.0466 F

Chapin Spencer
DIRECTOR OF PUBLIC WORKS
Martha Q. Keenan
Capital & Asset Mgmt. Program Manager
Lee Perry
DPW Division Director Maintenance Division

Date: June 22, 2021

To: Transportation, Energy, and Utilities Committee

From: Fleet Committee – Chapin Spencer, Martha Keenan, Lee Perry, Katherine Schad, Dave Hammond, Cindi Wight, Deryk Roach

Subject: FY22 Fleet Replacement Schedule

BACKGROUND:

The Fleet Committee, with DPW staff support, coordinates fleet purchases for the General Fund and several enterprise / special revenue funds in order to realize cost savings and provide management oversight. The Department of Public Works Fleet Maintenance Manager has identified (35) pieces of equipment which are to be replaced on the FY22 Fleet replacement schedule. We are able to defer replacement of eight pieces of equipment to maintain fiscal responsibility without compromising the services we provide. The list of the replacement vehicles is in Attachment A. Wherever possible, we are replacing gas and diesel vehicles/equipment with hybrid or electric power.

As per the City of Burlington, fleet policy, the Fleet Maintenance Manager and the Division Director of Maintenance Division, met with each Department Head to review the recommended replacements and receive input. With that information, the Fleet Maintenance Manager researched electric and hybrid options for each item, calculated the carbon pricing on fossil fuel options, and made his recommendations to the Fleet Committee. Department representatives and BED subsequently reviewed these recommendations. BED provided further recommendations and available incentives resulting in further refinement of the recommendations before you. The proposed equipment was reviewed by the Fleet Committee, Departments, BED, and the Administration, for approval and the basis for each equipment recommendation.

The Fleet Manager provided written specifications and requested bids from at least three vendors for each vehicle, and piece of equipment. The Fleet Committee is recommending the best option's available to move the City toward our Net Zero goals and provide reliability for the work designated for each piece of equipment. On some EV purchases, the cost comparison between conventional fossil fuel with added carbon cost, and electric options were not feasible, as in the case of the two Ford F150 Lightning pickups. With a purchase price ~\$60K for the fully electric F150, compared to the purchase price of \$30,200 for a conventional F150 with the cost of carbon factored in, we are paying ~49% more for the electric truck. Taking this into consideration, the Fleet Committee, still decided to go with

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the fully electric option. The Committee feels this will enable us to get an early start on understanding operational considerations as we look to substantially increase EV's in the future. Given this approach, and with more viable electric options each year, we have been able to substantially increase the percentage of EVs in our annual purchasing recommendation over the past 3 years. See chart below.

Other factors that need to be considered when assessing electrification of the fleet, are the additional cost of electric over conventional/hybrid vehicles, Should the committee set a threshold amount in the Fleet Purchasing Policy, that justifies the purchase of the EV over conventional/hybrid vehicle (10%-20%, above cost of conventional/hybrid)? We are finding that the additional costs of some electric options do not outweigh the benefits, and are going to challenge our finances, and this will need to be addressed for FY23 purchases.

Fiscal Year	Hybrid	Electric	Total Equipment Purchased	%Hybrid	%Electric
19	5	0	13	38	0
20	3	1	16	19	6
21	4	6	28	14	21
*22	5	9	24	21	38

*Proposed FY22 Fleet Replacement.

FY22 EV Cost with chargers: ~\$615,200
 FY22 Hybrid Cost: ~\$396,200
 FY22 Premium paid for EV over conventional: ~\$295,464

The current percentage of EV/hybrid vehicles within our fleet of 271 powered vehicles is 4.43% hybrid, and 3.30% EV. This includes Water Resources, and Traffic Departments, and does not include trailers, bicycles, or other non-powered equipment.

As we move forward with our initiative to move our fleet toward electrification, it is key to develop the infrastructure required to maintain the fleet and allow the users to feel confident the vehicle will be available and usable when required. The Fleet Committee is working with BED to determine the best locations for chargers and looking to fund this infrastructure through monies available from the State of Vermont for Climate Change and future Capital Bonding. To create this infrastructure will take time and we do not wish to purchase vehicles that we cannot use because we have not created the means to charge them. The Committee is working with the various departments, such as Police, to determine need and with BED where the best locations are within their power matrix. Once the upgrades are completed, and infrastructure are in place, then the Fleet Committee can have discussions on broadening our EV fleet to include the possibility of EV patrol cars, or other fleet type vehicles that necessitate a shorter re-charging period.

The Clerk/Treasurer's Office will seek competitive pricing from financial institutions to ensure the most advantageous lease terms are obtained for these vehicles with a rate not to exceed 4% for both lease terms of 5 years for some equipment and 7 years for the longer-term equipment, dependent on the expected life of the equipment, and what availability, or technology in regard to electric vehicles may improve before the end of the lease term. Members of the Fleet Committee, and our partners at Burlington Electric have had conversations with other communities of similar size to discuss the electrification of their fleet. See Appendix B for details.

FUNDING:

The payment of the lease is from the approved FY22 Fleet Budget, which is part of the Capital Budget. This is within the newly created Fleet Reserve Fund, which was created through collaboration by merging Department vehicle line items approved as part of the FY20 budget.

ATTACHMENTS:

- FY22 FLEET CAPITAL SUMMARY

MOTIONS:

Transportation Energy and Utilities Committee:

1. "To approve and recommend that the Board of Finance, and City Council authorize the Director of Public Works, to purchase 35 pieces of equipment for a total value of \$2,620,314 with lease financing determined by the Clerk/Treasurer's Office at a rate not to exceed 4% for terms of 5 or 7 years, subject to review and approval by the City Attorney."

Attachment A - FY22 FLEET CAPITAL SUMMARY

Department	Division	Vehicle ID	Vehicle	Recommendation	Lease Duration Years	Vehicle Units	Cost of Carbon		Total Cost			
							Fossil Fuel	Hybrid	Fossil Fuel	Hybrid/CNG(after rebates)	Electric	Rebate
Fire		FC1	FC1 Mustang Mach E	Electric	7	1	\$3,395	\$2,205	\$57,132	\$42,132	\$54,200	\$1,800
Police		PD45	PD45-Car	Electric	7	1	\$300		\$30,000		\$45,000	\$1,800
Police		P1605	P1605-Car	Electric	7	1	\$2,500		\$20,000		\$35,000	\$1,800
Parks	Rec/Waterfront	PR77-PR78	PR77,78Car	Electric	7	2	\$5,000		\$44,000		\$72,000	\$3,600
Parks	Rec/Waterfront	PR79 - PR87	PR79-87Bicycles	Electric	5	8					\$35,000	\$1,600
Parks	Cemetery	PR5Cagg	Walk Behind Mower	Electric	7	1	NA		\$13,500		\$25,000	\$3,500
Parks	Ledy	PR30	PR30-Zamboni	Electric	7	1	NA		\$100,000		\$152,000	730/550
DPW	Streets	S01	F150 Pick Up	Electric	7	1	\$2,440	\$1,320	\$27,810	\$42,200	\$50,000	\$1,800
Police		P1502-P1602	Line Cruiser/Supervisor	Hybrid	5	5	\$21,510	\$15,415	\$371,200	\$399,200		
Fire		FA5	Ambulance	Fossil Fuel	7	1	\$25,820		\$315,000			
Parks	Cemetery	Mower	Walk Behind Mower	Fossil Fuel	5	1			\$6,500			
Parks	Cemetery	C30	Backhoe	Fossil Fuel	7	1			\$70,000			
DPW	Streets	S35	Sweeper	Fossil Fuel	7	1	\$10,895		\$236,500			
DPW	Streets	S35	Sidewalk Tractor	Fossil Fuel	7	1	\$5,097		\$159,835			
DPW	Streets	S59	Small Dump Truck	Fossil Fuel	7	1	\$7,477		\$55,750			
DPW	Streets	S74	Flow Truck	Fossil Fuel	7	1	\$7,088		\$175,429			
DPW	Recycling	G01	Recycling Truck	Fossil Fuel	7	1	\$36,491	\$24,463	\$235,000	\$347,110		
Parks	Rec/Waterfront	PR54	Trailer	N/A	5	1			\$9,500			
DPW	Streets	S51	Trailer	N/A	5	1			\$9,500			
Traffic	Traffic	T02	Service Truck	Fossil Fuel	7	1	\$5,500		\$73,200			
Water	Water Distribution	W19	F150 Pick Up	Electric	7	1	\$2,440	\$1,320	\$27,810	\$42,200	\$50,000	\$1,800
Waste Water	Water Distribution	W21	Waste Water Tanker	Fossil Fuel	7	1	\$14,179		\$201,500			
Chargers				Electric	5	1					\$75,000	
Total						35	\$142,348	\$54,925	\$1,275,368	\$569,842	\$615,200	\$15,900

Lease	FY22 Lease Budget	Value	Number of Leases
5-Year	\$32,580	\$452,900	17
7-Year	\$308,302	\$2,157,414.00	18
Total Lease Payments	\$400,782	\$2,620,314	35

Deferred Equipment				
Department	Division	Year	Vehicle	Cost To Replace
Police		2001	Trailer	\$7,500
Police		2015	Taurus	\$41,200
Police		2016	Taurus	\$41,500
Parks	Rec	1980	Tractor	\$25,000
Parks	Rec	2014	Chipper	\$57,414
Parks	Rec	2000	Flail Mower	\$36,000
DPW	Streets	2009	Soil Screen	\$48,960
DPW	Streets	1997	Trailer	\$9,888
Total				\$257,574

If you have any questions, please contact me at lperry@burlingtonvt.gov or 802-316-7568.

Appendix B – Community Conversations

- **Freemont, Ca.** -Members of the Fleet Committee, and our partners at Burlington Electric, have had conversations with members of the Freemont, Ca. Police Department, to discuss their two year pilot program with the Tesla model S patrol cars. This was very helpful as they were able to discuss how the implementation went, and how it suits the departments needs. The tesla is used once per 11 hr shift, or 60-70 miles, and then charges during the next scheduled shift. Freemont has 60-70 PD vehicles in their fleet. 15-20 are hybrid, 2 electric, and the rest are internal combustion engines.
- **Boulder, Co.** -Boulder Colorado has given us some information on their fleet for comparison. Their electrification work on their fleet of ~430 on road vehicles, included excluding some certain police vehicles and pick up trucks for which there have not been suitable electric models available. This included ~235 trucks, and ~90 police vehicles of various types (e.g. Ford 150-350, Chevy Colorado, Ford Interceptor). Once these vehicles were excluded from the total amount of fleet vehicles, they

were left with ~100 vehicles on which they did a detailed electrification analysis. So of the ~100 vehicles, 30 are EV. They consist of Nissan LEAF, Chevy Bolt, Toyota Prius PHEV and Mitsubishi Outlander PHEV. They will also be exploring options for electric pickups with the addition of the soon to be available Ford F150, and Rivian