



Fleet Replacement Program

11.17.20





Agenda

- Overview
- History
- Mercury Report Summary
- Vehicle/Equipment Replacement Fund (VERF)
 - CIP
- Enterprise Lease Option
- Summary
- Next Steps



Overview

The City's fleet assets are a critical tool in many departments successfully delivering services to the community.

- Our fleet consists of everything from snow plows to sewer maintenance trucks, to road paving equipment, and police and fire vehicles.
 - In total, Topeka's Fleet consists of more than **1,050 vehicles and pieces of equipment**



Overview

The challenges that the City's fleet is facing today is very similar to a number of the City's assets. They are largely past their useful life.

- As a result, we are experiencing higher operational costs, decreased reliability, and increased downtime of these assets.
- Our Fleet Services department has increasingly become more of a repair stop vs a PM shop, as intended, as a direct result of our aging fleet.
 - Over the past year, Nov 19-Nov 20, they only spent **27% of the time on preventative maintenance and repairs from these services** compared to the industry recommendation of **~80%**.

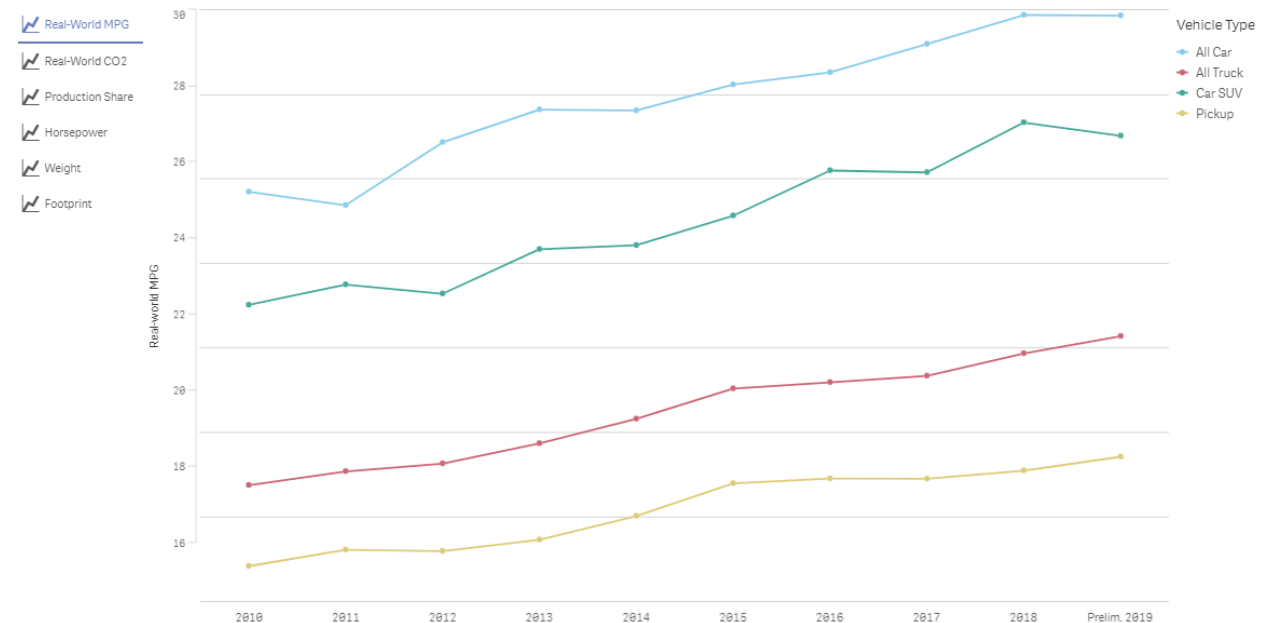


Overview

*The concerns of the City's aging fleet isn't limited to maintenance and reliability. It is also related to **fuel efficiencies** and employee safety standards.*

- Fuel efficiency has had large increases over the past 20 years
- Cars: +~16% (25.7 to 29.9) increase MPG*
- Trucks: +~19% (18.8 to 22.3) increase MPG*

**EPA's real world MPG report*





Overview

*The concerns of the City's aging fleet isn't limited to maintenance and reliability. It is also related to fuel efficiencies and **employee safety standards**.*

- Out of the 229 med/light duty fleet, excluding emergency response vehicles
 - 48% are 2012 or older predating Electronic Stability Control standardization
 - 87% are 2018 or older predating back up camera standardization



Fleet Replacement History

The City has historically left the replacement cycle management up to the individual departments to act upon.

- Fleet provides an annual Equipment Replacement report to recommend replacement based upon age, mileage, and maintenance costs
- Department's are responsible for securing funding and act upon the recommendations
 - Has resulted in an average of 47 new vehicles/equipment purchased annually totally ~\$2.5m
 - City with an average fleet age of 10.7 years
- This decentralized approach was not recommended and was identified as **inconsistent with industry best practices** in the 2015 Mercury Fleet Replacement Practices Review



Fleet Replacement History

In the past, there have been a couple departments that have tried lease programs.

- Fire has participated in lease to own programs for the apparatuses
- Police participated in a program for their patrol cars for 3 years
 - Resulted in a large number of new Ford Explorers infused into the fleet
 - ~30 per year
 - Pulled out of by decision of a past Police Chief
 - This example illustrates one of the **risks of a decentralized fleet replacement program**, without a City-wide strategy on fleet management **change in departmental leadership can have a long lasting impact on the department**



Mercury Summary

In 2015 Mercury Associates was engaged to develop a high level, long-range fleet replacement plan. This report was to be used to guide the future decisions of the City.

2015:

Department	# of Assets	Average Age
Communications	1	19.1
Fire	54	9.1
Information Technology	1	14.1
Municipal Court	1	16.1
Neighborhood Relations	39	11.0
Police	236	6.2
Planning	1	0.1
Public Works	453	10.0
Zoo	7	13.7
Grand Total	793	8.9

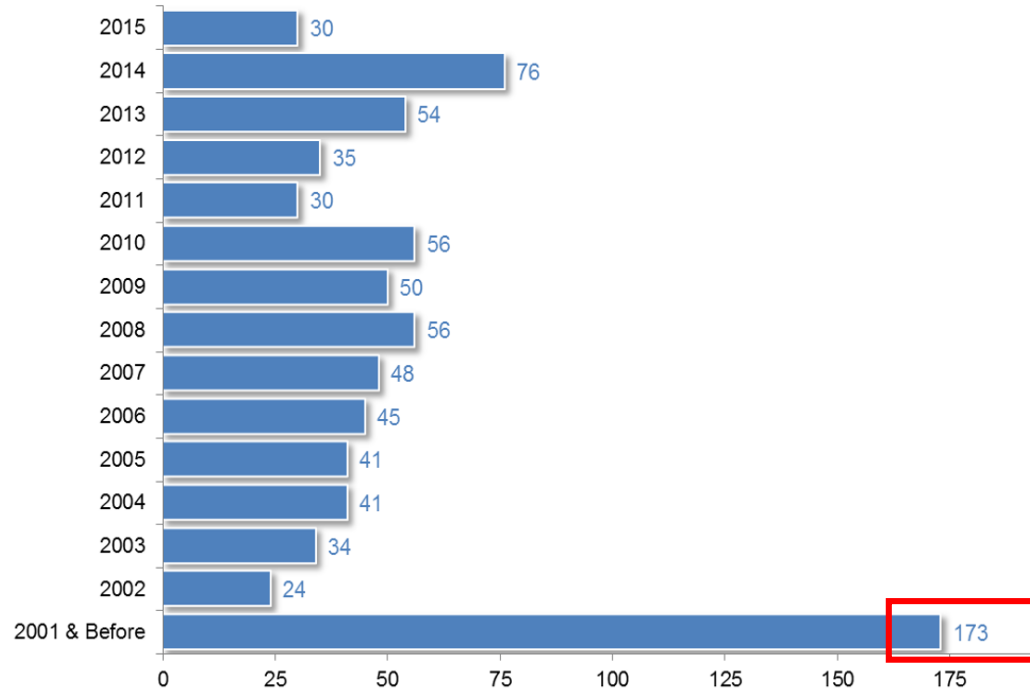
2020:

Dept	# of Assets	Average Age
Communications	2	9.0
Fire	53	12.4
Information Technology	1	0.0
Neighborhood Relations	35	10.3
Planing	13	7.6
Police	238	6.6
Zoo	26	19.7
Public Works/Utilities	422	12.3
Grand Total	790	10.7

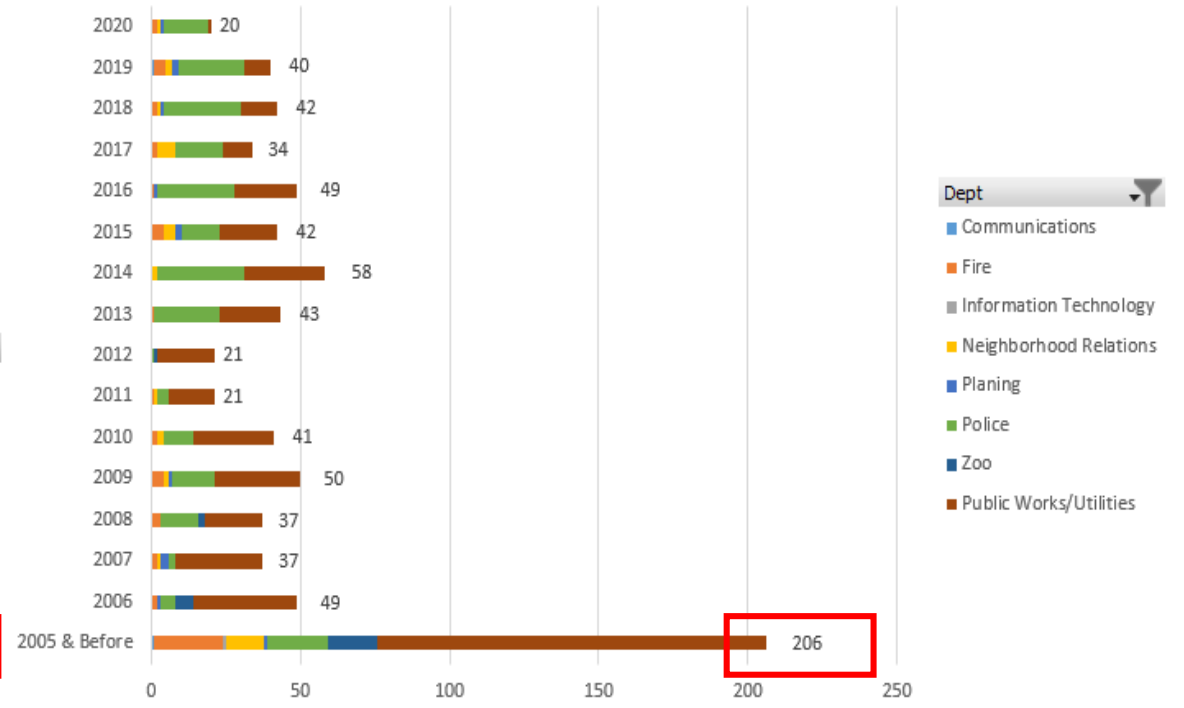


Mercury Summary

2015:



2020:

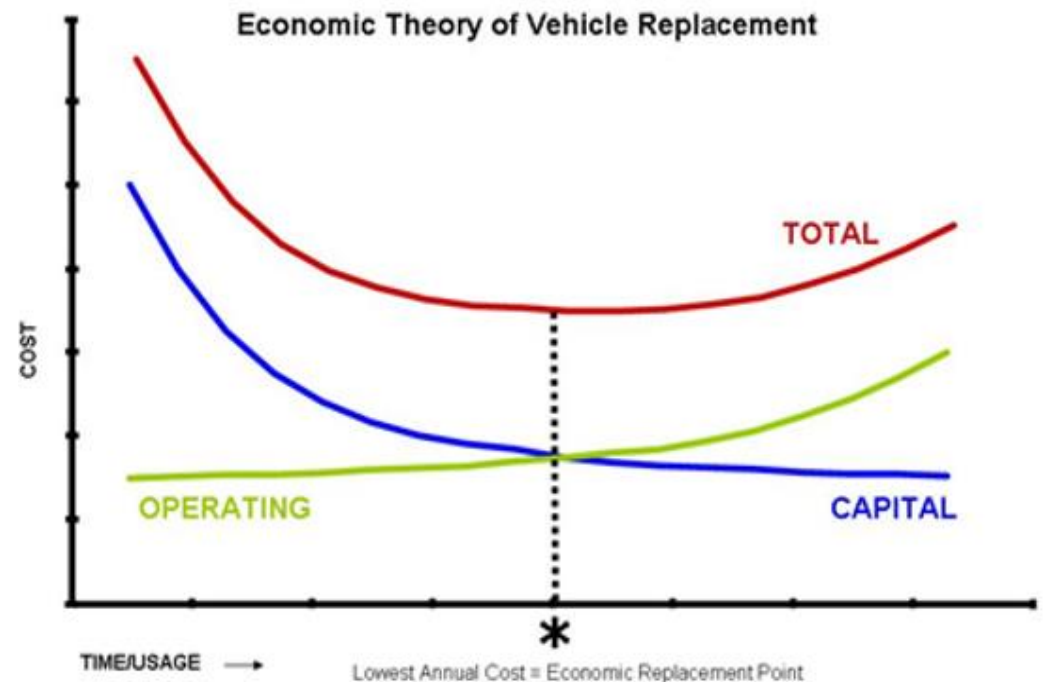




Mercury Summary

*The overall make up of our fleet has not materially changed since the time of this study so it should be safe to assume the recommendations made regarding **average fleet age (4.8 years)** and **weighted replacement cycles (8.9 years)** should still hold true.*

- The recommendations were based on the Economic Theory of Vehicle Replacement
 - Targets to replace vehicles at the point of minimum cost of ownership
- Mercury divided the City fleet into 189 different replacement classifications
 - Based not only upon the vehicle/equipment type but also their intended use
- For example:
 - Generic use SUV-Midsize would be recommended to replace at 120 months or 110k miles
 - SUV-Midsize for Law Enforcement would be recommended to replace at 48 months or 85k miles





Mercury Summary

Per the Mercury study, this gap in the actual age of the City's fleet against the industry best practices recommendation is likely due to a lack of funding allocated to the replacement of fleet assets consistently over time.

- This is likely resulting in a **tradeoff between low fleet capital costs and higher operating costs**, including both direct and indirect costs.
 - Direct costs are inclusive of items such as higher maintenance, repairs, and fuel costs and the
 - Indirect costs are inclusive of items such as increased downtime/reduced employee productivity, reduced vehicle safety, and likely a larger fleet than needed to allow for back-ups

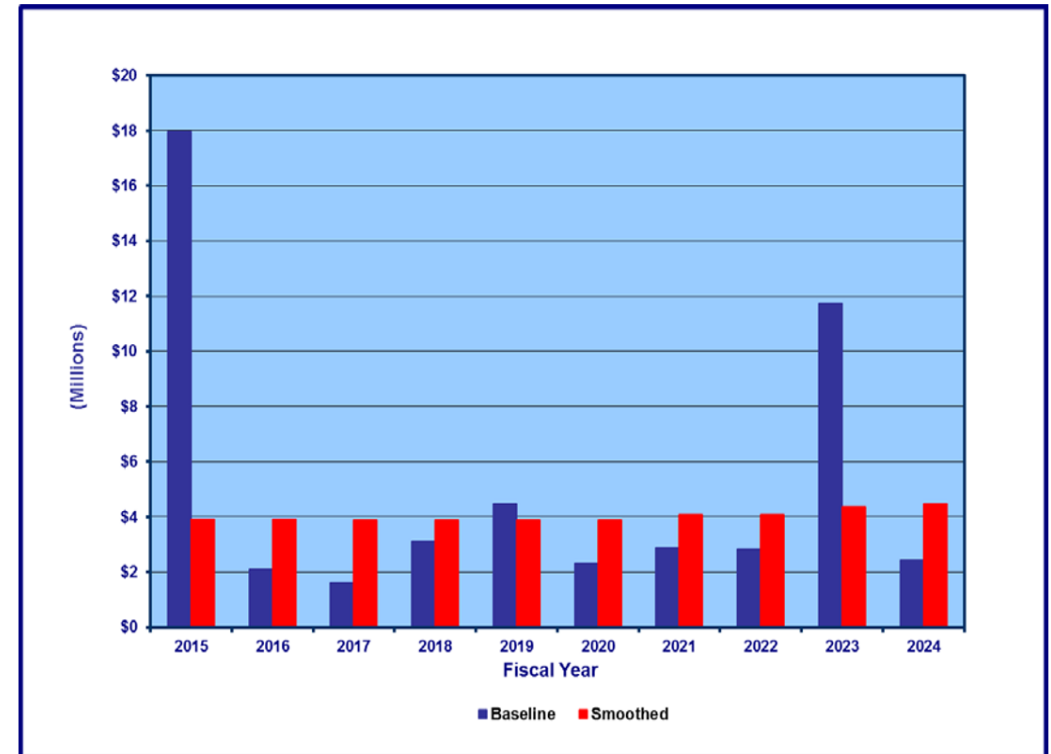


Mercury Summary

The recommendation out of the Mercury report was that the City establish a centralized Fleet Replacement Program.

- Baseline program would adjust funding from year to year to meet the ideal replacement needs of the specific fleet.
 - Pitfalls: large swings in year to year budget needs and current needs of the City's fleet.
- “Smoothed” funding program would hold flat calculated off of long term needs
 - Gross replacement value of total fleet at \$43m¹ divided by the recommended weighted average replacement cycle of 9.5 years² equals average of **\$4.6m per year** for fleet renewal
 - For comparison purposes, the City has spent an average of \$2.6m annually over the last 5 years

¹ In 2015 dollars; ² Weighted against a 20 year future forecast





Mercury Summary

Mercury laid out 4 different financing options with advantages and disadvantages of each to help guide the City in a recommended approach:

Outright Purchase with Ad Hoc Annual Appropriations of Cash

- Advantages:
 - Widely used in the public sector so generally accepted
 - Simplest capital financing methods to administer
 - No out-of-pocket interest expense
- Disadvantages:
 - Almost always **leads to sub-optimal replacement decision making** from the inherent conflict between short-term budget needs and vehicle total cost of ownership minimization



Mercury Summary

Debt Financing

- Advantages:
 - Allows organizations to **spread out the capital cost over the service lives** of the vehicles eliminating most of the year-to-year volatility in funding requirements
 - **Reduces the likelihood that funds will be diverted to meet other conflicting priorities**
- Disadvantages:
 - Creates **competition for the use of limited borrowing capacity** with capital improvement projects that typically have stronger political support than routine replacement of vehicles



Mercury Summary

Reserve Fund and Charge-Back System

- Advantages:
 - Funding can **incorporate smooth and predictable funding increases** to help satisfy the gradual needs of inflation and insure fund health,
 - **Reserve funds are often less of an annual target** for decision makers who sometimes equate capital appropriations with discretionary or quasi discretionary spending needs
 - **Payments of regular charges for the use of each vehicle encourages departments to pay attention to how many vehicles are needed** to meet their business needs
- Disadvantages:
 - **Requires rigorous and administratively complex fund management procedures** to ensure appropriate charge backs are in place to keep from depleting or inflating the fund balance
 - **Cash in a reserve fund is susceptible to being diverted to meet other spending needs when budgets are tight**
 - **Financing the program is somewhat expensive to get started** as it would require a large upfront cash infusion or require departments to purchase an asset and immediately start payments for the replacement charges



Mercury Summary

Lease Programing

- Advantages:
 - Typically require **minimal capital investment** to start
 - **Not likely to have funds diverted from the program** during the contractual term
 - Keeps the fleet on a tight replacement cycle
- Disadvantages:
 - **Additional costs are incurred as part of the overhead** increasing the total cost of the asset
 - **Price to exit from a lease program is often very costly** and you are required to purchase the remaining value of the assets at time of exit
 - Potential challenge to find programs that span the entire need of the City fleet so would likely have **multiple lease programs to fulfill all needs**



Vehicle/Equipment Replacement Fund (VERF)

Using the Mercury Fleet Replacement Practices report as a guide the Fleet department created a Pilot program, the Vehicle/Equipment replacement program (VERF) starting in 2019.

- This pilot program has been leveraged by 9 of the City's departments across 75 total assets
 - Between 2019 and 2020 the VERF is estimated to replace 19 vehicles
 - Across 7 departments
 - Valued at ~\$1.2m

2019-20 VERF Vehicle Replacements

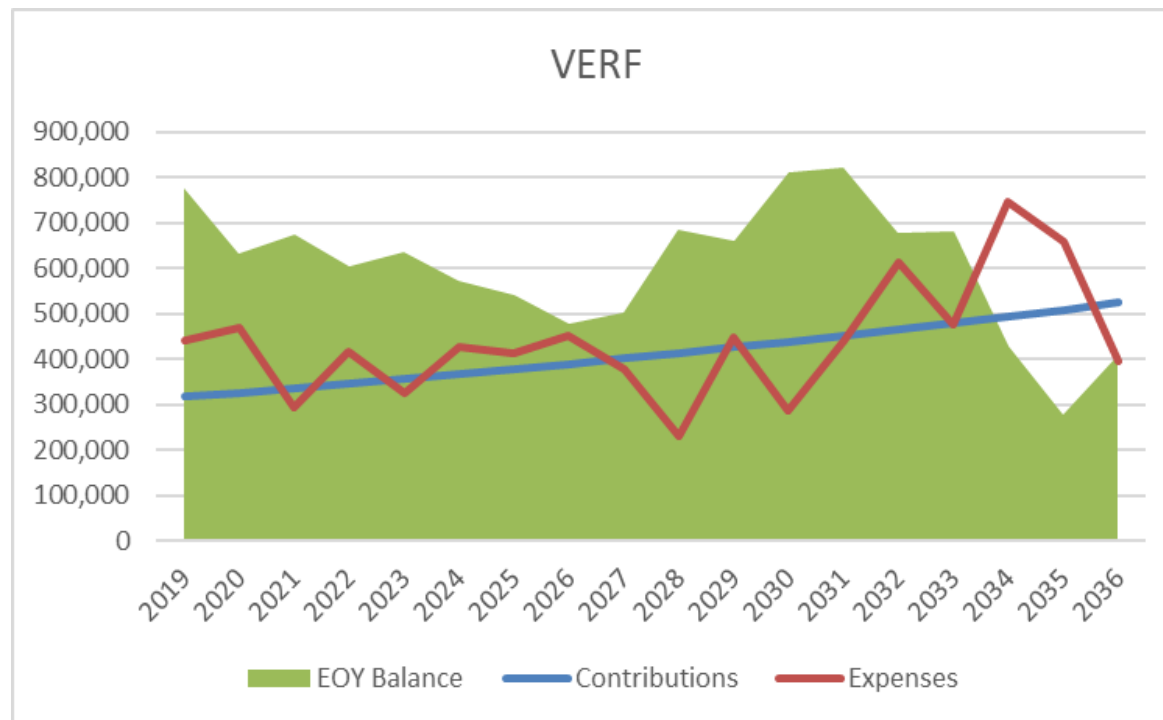
<u>Department</u>	<u>Type</u>	<u>Purchase price</u>	<u>2019 Purchase</u>	<u>2020 Purchase</u>
Fire	Brush truck	\$117,029	X	
Fire	Command truck	\$45,713		X
Fire	Training truck	\$33,421		X
Fire	Training truck	\$30,811		X
Fire	Brush truck	\$119,369		X
Fire*	SUV	\$36,500		X
Dev. Services	Truck	\$20,223	X	
Dev. Services	Car	\$17,620	X	
Dev. Services	Car	\$17,788		X
Communications	Van	\$30,163	X	
Facility	Van	\$30,163	X	
Facility	Truck	\$27,626		X
Facility*	Van	\$44,000		X
Facility*	Truck	\$32,000		X
Facility*	Truck/van	\$36,000		X
IT	Truck	\$20,523		X
Fleet	Truck	\$23,567		X
Street	Sweeper	\$300,365	X	
Street*	Sweeper	\$224,000		X
Total cost		\$1,206,882		

*Vehicles that should still be ordered this year, the cost are estimates only.



Vehicle/Equipment Replacement Fund (VERF)

Based on the current projected replacement needs and anticipated contributions (+3% annual increases) the fund balance remains healthy.





CIP

The funding that is currently in the CIP starting in 2024 is for \$4.5m annually out of the cash funding source. This amount would be intended to fund the VEF citywide based on the recommended “smoothed” plan funding need.

Estimated Life of Item (years):
Varies
Year of Estimate:
2017
Source of Estimate:
Mercury and Associates report

Estimated Operating Cost:
The operating cost will vary by the type of vehicle and equipment that is purchased. Operating cost would include fuel, maintenance, repairs and insurance.

Account by Source of Financing

	2021	2022	2023	2024	2025	5 year totals
Cash	\$0	\$0	\$0	\$4,500,000	\$4,500,000	\$9,000,000



Enterprise Lease Option

Enterprise's program for mid and light duty vehicles covers the acquisition, maintenance, and disposal of vehicles based on their recommended replacement cycle. They provide a dedicated, local account team to support the program and adjust recommendations as needed.

- Replacement cycles are built around optimizing the resale value while realizing the benefits of lower maintenance and fuel costs immediately
 - Based on the current used car market Enterprise is recommending:
 - 12 month lease programs for Trucks and non-emergency SUV's
 - This is based on the low acquisition price we can get against the current market's high resale on these classes
 - 60 month lease terms for sedans, vans, and hybrids



Enterprise Lease Option

As part of the cost of ownership calculation Enterprise offers a maintenance plan for each of their leased vehicles, excluding emergency response vehicles.

- Predictive repairs are excluded in the offered maintenance plan
 - Items such as tires and breaks
- Cost of this plan varies based on the make, model, expected annual mileage, and lease term
 - For example the annual cost of the maintenance plan:
 - Chevy Malibu on a 60 month lease with 7,500 annual mileage max is \$348
 - GMC Sierra 1500 on a 12 month lease with 7,500 annual mileage max is only \$240



Enterprise Lease Option

While the cost to start the program is relatively minimal the risk is at the cost to exit.

- Year 1 recommendation is to replace 111 vehicles
 - Year 1 estimated net cash is \$250k (total cost \$671,916 – equity from sell of current vehicles \$423,500)
 - 5 year projection cost is estimated at \$3.36m with an “equity” of \$3.5m for a net savings of \$570k.
 - Cost to exit upon completion of 5 year lease cycle would require \$2.3m

Non-Police Fleet	
Estimated Equity in Non-Police Replacements	\$423,500
Total Annual Cost Including Maintenance (111 units)	\$671,916
Total Cost Over 60 Months (111 units)	\$3,359,580
Estimated Equity over 60 Months (111 units)	\$3,507,959
Total Budget Including Replacements at 60 Months (111 units)	-\$571,879
Estimated "Reduced book value" at 60 Months (111 units)	\$2,278,173

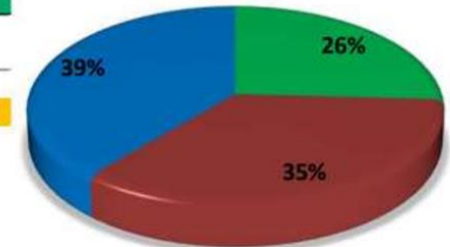


Enterprise Lease Option

If the City were to stay with the Enterprise Lease Program over the 10 year period within Enterprise's proposal this would show the City net positive with a rough "projected" savings of ~\$3m

Current Fleet	229	Fleet Growth	-0.80%	Proposed Fleet	221
Current Cycle	15.27	Annual Miles	8,800	Proposed Cycle	2.50
Current Maint.	\$121.00			Proposed Maint.	\$36.01
Maint. Cents Per Mile	\$0.165	Current MPG	10	Price/Gallon	\$1.80

Fleet Costs Analysis



Fiscal Year	Fleet Mix			Fleet Cost					Annual			
	Fleet Size	Annual Needs	Owned	Leased	Purchase	Lease*	Equity (Owned)	Equity (Leased)	Maintenance	Fuel	Fleet Budget	Net Cash
Average	229	15.0	229	0	365,143	0	-30,000		332,508	243,198	910,849	0
'21	221	111	110	111	0	626,754	-520,000	-217,188	207,679	218,768	316,013	594,837
'22	221	85	77	144	0	980,857	-364,650	-430,797	174,021	211,505	570,936	339,913
'23	221	124	40	181	0	1,155,072	-478,450	-412,016	136,283	203,362	604,251	306,598
'24	221	117	14	207	0	1,222,918	-311,025	-646,665	109,765	197,640	572,633	338,217
'25	221	142	0	221	0	1,242,950	-145,800	-980,309	95,486	194,558	406,885	503,964
'26	221	156	0	221	0	1,242,950		-807,642	95,486	194,558	725,352	185,497
'27	221	148	0	221	0	1,242,950		-663,498	95,486	194,558	869,496	41,353
'28	221	130	0	221	0	1,242,950		-753,709	95,486	194,558	779,286	131,563
'29	221	143	0	221	0	1,242,950		-578,046	95,486	194,558	954,949	-44,100
'30	221	123	0	221	0	1,242,950		-1,161,468	95,486	194,558	371,526	539,322

10 Year Savings	\$2,937,164	Avg. Sustainable Savings	\$170,727
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Summary

*To continue to support teams in successfully delivering services to the community, the City needs to deploy a strong Fleet Management Program that spans **all vehicles and equipment**.*

*The continued choice between short term budgetary savings vs purchasing vehicles based on total cost of ownership models has **resulted in an old, unreliable, and unsustainable fleet**.*



Summary

The fleet replacement sinking fund is the most desirable from a comprehensive and consistent approach as well as a low cost option as there is not a profit margin built into the pricing as there is with lease options.

- With this approach there would need to be a sizable influx of cash to jump start the fund for sustainable success
- Would require a strong commitment from the City to support this fund long term



Summary

The lease program is an appealing option as it would quickly improve the health of the City's mid to light duty vehicles.

- This would allow the fleet to take an agile approach to changing needs and would require little upfront cash
- The two major risk areas in a lease agreement is the cash requirement at time of exit and overhead rate increases impacting long term lease obligations



Next Steps

- Guidance from Infrastructure Committee on desired path forward
 - Scope of Fleet Replacement Fund
 - Lease vs Self-Funded Sinking Program