

Memorandum  
City of Lawrence  
Finance Department

To: Mark Bradford, Fire Department Chief  
From: Brian Watson, Assistant Finance Director  
Date: September 5 2013  
Subject: Lease vs. Purchase: Fire Department Vehicles

**Background**

Fleet replacement is a complex and multi-faceted subject that involves a significant expenditure of funds. In the past, the City's decision to replace fire department vehicles was made based on scoring system from the Central Maintenance, stated need for the vehicle, and available funds approach.

An alternative to purchasing capital assets outright or deferring capital asset replacement is the use of a lease-purchase agreement. A lease-purchase agreement is a contract that enables the City to acquire essential-use assets, such and public safety equipment and vehicles.

The lease-purchase agreement includes a non-appropriation clause which allows the City to terminate the lease at the end of the fiscal year if funds have not been appropriated for future payments.

A lease-purchase agreement provides the following benefits:

- A fixed interest rate for the term of the lease
- Annual fixed lease payment obligations are lower than traditional purchasing expenditures.
- Lease payments are considered an operating expense and not a long-term debt obligation.
- Payment costs correspond with revenue.
- Payments are structured to meet the City's cash flow and budgetary requirements by integrating into the annual budget the County's share of these vehicle costs.
- Can choose to buy instead of lease at any time
- Reduces fluctuations/spikes in annual equipment costs

In a lease-purchase program, the equipment procurement will be identical to existing procurement processes, only the payment mechanism changes. The City would select several banks and or leasing companies by competitive RFP. Successful proposers must agree to use a single master lease agreement that will be included as part of the RFP. Once the equipment is procured, "mini bids" will be sent to the approved lessors for each equipment type.

The draw backs from a lease-purchase program include:

- A higher interest rate being charged than the city's cost of capital

- The replacement of vehicles prior to the need
- Loss of benefit from a well-maintained fleet
- Loss of revenue from selling or trading in a vehicle
- Difficulty in determining the useful life value of a vehicle and its residual value

Because of our ability to issue tax-exempt debt, the city's cost of financing will almost always be less than that provided by a vendor. Currently, the city maintains vehicles so that their useful lives often exceed manufacturer's expectations. This extends the replacement period for vehicles or allows them to be transferred to another department with less demanding needs. Under a lease-purchase agreement, the cost of the vehicle is based upon its initial cost less the residual value. The city can take advantage of government contracts to buy vehicles at reduced cost and is able to maintain its vehicles so that the useful life is longer.

The focus of this analysis is to determine if a lease-purchase program would be more cost effective and beneficial over time versus purchasing outright new vehicles by looking at the essential cost factors of owning and providing maintenance for the 8 Fire Medical Administration vehicles in question for replacement based on 2012 data.

### **Summary of Analysis – Cost Factors**

#### 1.) Cost of Vehicle – Purchasing Versus Leasing

<b>Fire Department Lease Purchase Summary - Cost of Vehicle</b>									
Option - Lease Vehicles	Fiscal Year	Number of Vehicles	Cost per Vehicle	Budgeted Cost for All Vehicles	Lease Payment	Short-Term Annual Cash Savings	Total Lease Payments (Payment Tail)	Life Cycle Difference - Lease vs. Buy	Cost % of Lease Over Purchase
3-Year Lease	2013-2016	1	\$ 31,193.97	\$ 31,193.97	\$ 10,397.99	\$ 20,795.98	\$ 31,193.97	\$ 1,920.87	6.16%
5-Year Lease	2013-2018	1	\$ 32,817.40	\$ 32,817.40	\$ 6,563.48	\$ 26,253.92	\$ 32,817.40	\$ 3,544.30	10.80%
3-Year Lease	2013-2016	8	\$ 31,193.97	\$ 249,551.76	\$ 83,183.92	\$ 166,367.84	\$ 249,551.76	\$ 15,016.92	6.02%
5-Year Lease	2013-2018	8	\$ 32,817.40	\$ 262,539.20	\$ 52,507.91	\$ 210,031.29	\$ 262,539.56	\$ 28,004.72	10.67%
Option - Purchase Vehicles	Fiscal Year	Number of Vehicles	Cost per Vehicle	Interest Rate	Budgeted Cost for All Vehicles				
Buy 3-Year Pay	2013-2016	1	\$ 29,171.00	0.35%	\$ 29,273.10				
Buy 5-Year Pay	2013-2018	1	\$ 29,171.00	0.35%	\$ 29,273.10				
Buy 3-Year Pay	2013-2016	8	\$ 29,171.00	0.50%	\$ 234,534.84				
Buy 5-Year Pay	2013-2018	8	\$ 29,171.00	0.50%	\$ 234,534.84				

\* Does not include resale value for vehicles purchased

For this comparison a standard vehicle was selected, 2014 Ford Interceptor Utility – Road Ready Package, to which purchase and leasing pricing was obtained. A standard interest rate of 0.35% for 3 years and 0.50% for five years was added to the purchase vehicles based on the City's last bond sale.

It was determined that the cost of lease over the cost to purchase calculated to be 6.16% or \$1,920.87 additional cost per vehicle for a 3-year lease and 10.80% additional cost per vehicle or \$3,544.30 for a 5-year lease.

Caution: Interest rate environment can change. Lease decisions must be made on an annual basis.

2.) Cost of Vehicle – Fuel Savings

<b>Fire Department Lease Purchase Summary - Fuel Savings</b>						
Option	Number of Vehicles	Average MPG	Average Cost of Gas per Galloon	Total Fuel Cost per Mile of Operation	Total Fuel Cost per Option (3,795 Miles/Year)	Cost Savings of Lease vs. Buy
<b>Year 3</b>						
Current Fleet	1	16.78	\$ 3.42	\$ 0.20	\$ 2,320.42	
Lease or Purchase	1	21.00	\$ 3.42	\$ 0.16	\$ 1,854.13	\$ (466.29)
<b>Year 5</b>						
Current Fleet	1	16.78	\$ 3.42	\$ 0.20	\$ 3,867.37	
Lease or Purchase	1	21.00	\$ 3.42	\$ 0.16	\$ 3,090.21	\$ (777.16)
Current Fleet	8	16.78	\$ 3.42	\$ 0.20	\$ 30,938.97	
Lease or Purchase	8	21.00	\$ 3.42	\$ 0.16	\$ 24,721.71	\$ (6,217.26)

For this comparison, the average miles driven per year and average MPG for all 8 Fire Medical Administration vehicles was averaged out to be 3,795 miles/year at 16.78 MPG in 2012. The average gas price per gallon paid by the City was determined to be \$3.42 in 2012. The new 2014 Ford Interceptor Utility combined fuel economy is 21 MPG.

It was determined that the City could realize a cost savings of \$155.43 per vehicle per year by replacing the existing fleet cars with new more fuel efficient vehicles. This estimate is based on the assumption that the trend in rising fuel costs will continue in forth coming years.

3.) Cost of Vehicle – Cost of Labor and Parts Savings

<b>Fire Department Lease Purchase Summary - Cost of Labor</b>					
Option	Number of Vehicles	Average Number of Labor Hours per Year (FTB)	Average Mechanic Hourly Rate	Total Cost of Labor	Cost Savings of Lease vs. Buy
<b>Year 3</b>					
Current Fleet	1	\$ 22.55	\$ 30.93	\$ 2,092.41	
Lease or Purchase	1	\$ -	\$ 30.93	\$ -	\$ (2,092.41)
Current Fleet	8	\$ 22.55	\$ 30.93	\$ 16,739.32	
Lease or Purchase	8	\$ -	\$ 30.93	\$ -	\$ (16,739.32)
<b>Year 5</b>					
Current Fleet	1	\$ 22.55	\$ 30.93	\$ 3,487.36	
Lease or Purchase	1	\$ -	\$ 30.93	\$ -	\$ (3,487.36)
Current Fleet	8	\$ 22.55	\$ 30.93	\$ 27,898.86	
Lease or Purchase	8	\$ -	\$ 30.93	\$ -	\$ (27,898.86)

<b>Fire Department Lease Purchase Summary - Cost of Parts</b>				
Option	Number of Vehicles	Average Cost of Parts & Repairs per Year (No PM)	Total Cost of Parts	Cost Savings of Lease vs. Buy
<b>Year 3</b>				
Current Fleet	1	\$ 318.46	\$ 955.38	
Lease or Purchase	1	\$ -	\$ -	\$ (955.38)
Current Fleet	8	\$ 318.46	\$ 7,643.04	
Lease or Purchase	8	\$ -	\$ -	\$ (7,643.04)
<b>Year 5</b>				
Current Fleet	1	\$ 318.46	\$ 1,592.30	
Lease or Purchase	1	\$ -	\$ -	\$ (1,592.30)
Current Fleet	8	\$ 318.46	\$ 12,738.40	
Lease or Purchase	8	\$ -	\$ -	\$ (12,738.40)

Typically, older vehicles will require more maintenance in terms of parts and labor dues to wear and tear. These costs of labor and parts were related to non-routine maintenance repairs that would not be included in the standard lease program free of charge under warranty. Any labor and parts costs for tires, oil changes and preventative maintenance items was excluded from the calculations since these costs would exist for the current fleet as well as newly purchased and leased cars.

It was estimated that each existing fleet vehicle requires on average 22.55 labor hours for repairs at an average mechanic hourly rate of \$30.93. It was determined that the City would save approximately \$2,092.41 per vehicle for the first three years in labor savings by replacing the existing fleet with either newly purchased vehicles or new leased vehicles.

Labor costs are soft costs that savings can only be realized through either the reallocation of resources to shift the costs to other departments or through a reduction in workforce program

It was estimated that each existing fleet vehicle incurs on average \$318.46 per year in repair parts less of labor. These costs for parts were related to non-routine maintenance repairs that would not be included in the standard lease program free of charge under warranty.

Overall, labor and parts cost savings shows no difference in preference between leasing and buying because all costs for the first three years would be covered under the manufacturer's warranty.

**Summary of Analysis – Total Cost Savings**

Fire Department Lease Purchase Summary - Estimated Total Cost Savings								
Option	Additional Cost of Vehicle	Additional Lease vs. Buy Costs	Fuel Savings	Parts Savings	Labor Savings	Total Estimated Cost Savings Over Current Fleet	Total Estimated Cost Savings	
<b>Year 3 (Under Warranty Period)</b>								
Lease	1	\$ 1,920.87	\$ (466.29)	\$ (955.38)	\$ (2,092.41)	\$ (1,593.21)		
Purchase	1	\$ -	\$ (466.29)	\$ (955.38)	\$ (2,092.41)	\$ (3,514.08)	\$ (1,920.87)	
<b>Year 5</b>								
Lease	1	\$ 3,544.30	\$ (777.16)	\$ (1,592.30)	\$ (3,487.36)	\$ (2,312.52)		
Purchase	1	\$ -	\$ (777.16)	\$ (1,592.30)	\$ (3,487.36)	\$ (5,856.82)	\$ (3,544.30)	
Lease	8	\$28,354.40	\$ (6,217.28)	\$ (12,738.40)	\$ (27,898.88)	\$ (18,500.16)		
Purchase	8	\$ -	\$ (6,217.28)	\$ (12,738.40)	\$ (27,898.88)	\$ (46,854.56)	\$ (28,354.40)	

When taking into consideration all the cost factors, both purchasing and/or leasing new vehicles would both be cost effective and beneficial to the City over time. Each vehicle purchased or leased would be estimated to save the City \$1,171.36 per year in fuel, parts, and labor costs over use of the existing aging fleet. Though both purchasing methods will have equal savings in terms of fuel, labor and parts, the cost of capital for leasing is slightly higher than purchasing outright in the current low interest rate environment. Over a standard 3-year period, the City could potentially save \$3,514.08 by purchase or \$1,593.21 by lease per each vehicle.

If Fire Medical was to replace their entire outdated fleet of 8 administration vehicles, a cost savings of \$28,112.64 could be realized within 3 years or \$46,854.56 over 5 years by purchasing outright as compared to \$12,745.68 within 3 years or \$18,500.16 over 5 years by leasing.

Both leasing and purchasing options would allow the 8 Fire Medical administrative vehicles to be repurposed. If taken to auction, the approximate Kelly Blue Book value of all 8 vehicles in good condition is \$55,000.

Overtime, cost savings is expected to decline with vehicle age due to wear and tear on the vehicles and lost fuel efficiency. Once the leased or purchased vehicles were out of warranty, it is expected that they would incur an increasing portion each year of the average yearly costs of \$697.47 for labor and \$318.46 for parts.

The residual value for both purchased and leased vehicles is expected to be the same. At the end of either the 3 or 5 year purchase or lease life, both vehicles will be valued at fair market value. The current lease option shows no trade-in value at the end of the lease. It is also assumed that both purchased and leased vehicles would incur the same level of routine vehicle maintenance treatment and have approximately the same numbers of miles driven over the 3 or 5 year period if purchased or leased by the City.

## **Recommendation**

It is recommended by the Finance Department that Fire Medical further pursue discussion of purchasing or leasing new vehicles with the City Manager in a cost savings effort to the City. Either method of purchasing or leasing vehicles should result in a cost savings to the City over the use and upkeep of the Fire Medical Administration's existing outdated fleet of vehicles. It is estimated that the greatest cost savings may arise from purchasing and completely replacing all 8 Fire Medical Administration vehicles. However, in a tight budget year with an already elevated debt ratio, purchasing may not be the best course of action for now.

A cost savings may still be recognized through a leasing program for Fire Medical Administration vehicles. It is Finance's recommendation that a more conservative approach be taken through the initiation of pilot program by which a single vehicle would be leased. This pilot program will allow the City to realize a cost savings while at the same time test the estimated figures used in this report for further review and analysis. At the conclusion of the first year of the pilot program, this analysis should be calculated again and updated for best accuracy of cost savings. Fire Medical and Finance will meet again to discuss the cost savings and pros/cons of the pilot program and make a recommendation to the City Manager as to if additional vehicles should be leased or the leased program terminated and vehicles purchased.