INFORMAL STAFF REPORT

MEMORANDUM

To: **Margie Rose, City Manager** MR

Through: **Sylvia Carrillo-Trevino, Assistant City Manager** SCT

From: **Jim Davis, Director Fleet Maintenance** JD

Date: **5/25/2017**

Subject: **Fleet Replacement Program**

Issue/Problem

Purchasing procedures for the acquisition of rolling stock for the City of Corpus Christi are complex, expensive, and must be accomplished with extreme care. The attached report is a discussion that addresses procedures and acquisition methods to ensure timely and effective fleet replacement.

Background & Findings

The Fleet Replacement Program was created in conjunction with Mercury Associates, Inc. We asked Mercury to generate a study addressing fleet replacement procedures. This was accomplished in conjunction with this Department and the result is in the attached report.

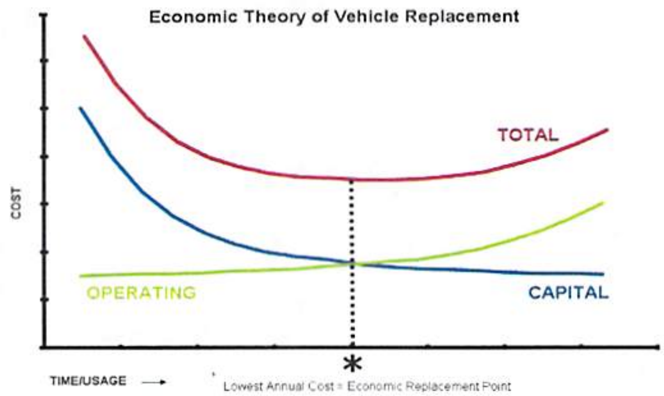
The City of Corpus Christi Fleet Replacement Program envisions a planned vehicle/equipment replacement cycle executed in consonance with the City's Annual Budget. The Fleet Replacement Program will take its direction from and have as its basis the ongoing ten year vehicle replacement plan maintained by Fleet Maintenance. The ultimate goal of the Fleet Replacement Program is to permit Departments to plan, program and budget vehicle replacements annually in a systematic manner based primarily on the Service Life of the vehicle.

Conclusion

The City has several options regarding vehicle/equipment purchasing. These options are Outright Cash Purchase, Lease Purchase Financing and use of the Sinking Fund (Future Fund). Which method is used depends upon the circumstances extant surrounding the purchase of equipment. The attached report provides a more detailed analysis.

Fleet Replacement Program (discussion)

Vehicles should be replaced in accordance with the economic theory of optimal vehicle replacement. That is, as a vehicle ages, its capital cost (value) depreciates and its operating costs increase. The combination of these two costs produces a U-shaped total cost curve as seen below. Ideally, a vehicle or piece of equipment should be replaced around the time the rise in annual operating costs begin to outweigh the decline in annual capital costs, i.e., when the two cost curves intersect and the total cost curve begins to turn upward.



The total cost curve is different for every type of vehicle and, indeed, for every individual vehicle of a given type. This variability is caused by differences in the design and engineering of different types of vehicles, in operating environments, in the quality of care vehicles receive, and a variety of other factors. In recognition of this fact, we have developed recommended replacement cycles for both classes and types of vehicles. This is known as "service life" and defines the approximate optimal replacement cycle for most of the units in our fleet. Our service life data was derived from industry standards for virtually all our vehicles.

Principles of Effective Fleet Replacement:

The key components of an effective fleet replacement program are:

1. Empirically validated vehicle replacement cycle guidelines (published vehicle service life information) that identify when specific types of fleet assets generally should be replaced in order to minimize their life cycle costs (i.e. total cost of ownership).
2. A long term fleet replacement plan (ten year plan) that pinpoints anticipated replacement dates and costs of individual assets based on the application of recommended replacement cycles and quantifies year-to-year, fleet wide replacement costs and future variations therein.
3. A capital financing approach that facilitates securing sufficient funds each year to acquire replacement vehicles in accordance with the established and updated replacement plan by making such funding requirements smooth, predictable, and, to the fullest extent possible, invulnerable to competition from other capital funding requests.

4. A short-term replacement prioritization and earmarking process for designating specific vehicles and pieces of equipment to be replaced in the coming fiscal year.

Below is a budgeting and funding process discussion that will assist our organization in securing the amount of funds needed each year to execute the replacement plan based on a selected financing approach:

This City uses the following methods for financing fleet capital costs:

- Outright purchase with cash from appropriations;
- Outright purchase with cash accumulated in a Sinking Fund (Future Fund);
- Lease purchase financing.

An overview of each of these financing methods is detailed below, to include the associated "Advantages" and "Disadvantages".

Outright Cash Purchase

Using annual, appropriations of cash is a "pay before you go" approach. By this, we mean that the entire capital cost of each asset in the fleet is paid at the beginning of the asset's service life.

Advantages

- This is an approach that is widely used in the public sector; therefore it is generally accepted in all branches of government and by the public.
- There is no out-of-pocket interest expense.

Disadvantages

- It is difficult – usually impossible – to accommodate the annual fluctuations in replacement funding requirements and capabilities that are typical of almost all fleets.
- The use of this financing approach almost always leads to sub-optimal replacement decision making. If the marginal cost of replacing a vehicle is the full purchase price of a new vehicle, repairing an old vehicle will always appear to be cheaper than replacing it.
- Continually deferring the replacement of vehicles results in an old fleet whose direct total cost of ownership is higher than necessary and whose deteriorating safety, availability, and reliability affect the cost, productivity and safety of operations supported by the fleet.
- Continually deferring the replacement of vehicles results in large replacement cost backlogs that become increasingly difficult to overcome and manage.

Sinking Fund (Future Fund)

Although replacement spending requirements under a sinking fund approach are similar to those required if lease purchase financing is used, replacement funding requirements are different. This is because using a sinking fund permits vehicles' capital costs to be paid for incrementally (after a vehicle is first added to the fleet; the first-time purchase of a vehicle must be paid up front under this financing approach). That is, each year users are charged for a portion of the vehicle's replacement cost (i.e. depreciation plus a replacement surcharge) and this is put into "savings" to pay for the replacement vehicle when the time comes (service life is expired). Fleet users are charged a monthly capital replacement rate to fund the eventual replacement of each vehicle in the fleet. Additions to the fleet (e.g., Police Department adds another patrol vehicle) will be purchased with funds from outside the Future Fund. This Department maintains and administers this City's sinking fund. It should be pointed out that Future Fund purchases are always outright purchases and do not involve lease purchase financing, that is, the incremental payments have already been made.

Advantages

- Funding requirements do not fluctuate significantly from year to year because using a sinking fund permits the capital costs of vehicles to be paid for incrementally.
- Sinking funds are often less of an annual target for decision makers who sometimes equate requests for capital appropriations with discretionary or quasi-discretionary spending needs.
- Payment of regular charges for the use of each vehicle in the fleet encourages fleet user organizations to pay attention to the vehicle type and utilization levels. (In contrast to the cash financing approach where this cost is "hidden" for end users).

Disadvantages

- Requires rigorous and administratively complex fund management procedures, including proper development and execution of charge-back rates, to ensure reserve fund inflows and balances are sufficient to meet replacement spending outflows and schedules.
- The cash in the sinking fund to purchase replacement vehicles is subject to being "raided" (or simply not used, usually out of an overabundance of caution) when budget dollars get tight.
- Sinking funds are prohibitively expensive to establish where no fleet currently exists or if there already is a large backlog of fleet replacement needs. This is because a large amount of cash must be deposited in the fund up-front, or internal lease rates must be set artificially high to generate the working capital needed by the fund to start paying for the purchase of replacement vehicles. Fleet growth (additions to meet service demands) may also produce similar needs for up-front capital.

Despite the negatives cited above, sinking funds are superior to the cash approach in terms of sustaining replacement programs in the public sector and they work well for many government jurisdictions.

Lease Purchase Financing

Like a sinking fund, lease purchase financing allows organizations to spread the capital costs of fleet replacement purchases over the service lives of the vehicles in the fleet. However, rather than accumulating cash in a sinking fund to pay for replacement vehicle purchases, this approach involves borrowing money from a financial institution and repaying it after vehicles have been placed in service.

This pay-as-you-go approach frees up cash to meet other needs and eliminates the need to develop a fleet-replacement reserve fund. While spending requirements may vary, lease purchase financing makes year-to-year funding requirements predictable by spreading the capital cost of each asset in the fleet over its useful life or match the financing to the terms of the loan. It also eliminates most of the year-to-year volatility in replacement funding requirements. As a result, the likelihood that fleet replacement spending will be subordinated to other priorities and needs, particularly during lean budget years, is dramatically reduced.

Advantages

- As with a sinking fund, lease purchase financing allows organizations to spread out the capital costs of fleet replacement purchases over the terms of the loan (usually five years).

This eliminates most of the year-to-year volatility in replacement funding requirements, and reduces the likelihood that fleet replacement spending will be subordinated to other priorities and needs, particularly during lean budget years.

- Allows the cost of money (i.e., interest charges) to be passed on appropriately to all programs.
- If loan or lease payments are made by fleet user agencies directly or via an internal cost charge-back system, greater attention to vehicle selection and utilization will occur.
- Provides flexibility to respond to programs' needs for additional vehicles without requirement of up front capital.
- Moves the financing of fleet vehicles into the business arena and out of the political arena where fleet replacement must compete with other priorities for capital funds.

Disadvantages

- One of the perceived drawbacks of lease purchase financing is the cost of borrowing money; i.e., real or imputed interest charges. There is no question that interest charges increase the total capital cost of a vehicle. However, to the extent that lease purchase financing enables an organization to replace vehicles that it otherwise would keep in service for excessive periods of time, interest payments actually result in lower vehicle life-cycle costs.
- Another perceived drawback involves ownership of the vehicle. With some debt instruments, clear title to the vehicle does not occur until the loan has been paid off. In practical application, there is no disadvantage to this. Holding the title does not provide any operational advantage.

Lease purchase financing is starting to appear more and more in the public sector, and offers a promising alternative for jurisdictions that have the ability to incur long term debt for this purpose. Given the current economic climate and the value of timely vehicle replacement, we believe that for many public-sector jurisdictions lease purchase financing will continue to grow, and become the generally accepted and preferred mechanism to finance vehicle replacement.