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Fire Apparatus – To purchase or Lease?

Taner W. Drake

Odessa Fire Department

Odessa, Texas

CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

Signed: _____

Abstract

The problem that prompted this research is that the Odessa Fire Department (OFD) was at a cross-road for implementing a proactive apparatus replacement program. The OFD has not implemented or adequately funded a replacement program for apparatus.

The purpose of this research was to determine the most cost effective approach for adequate replacement of apparatus that could be duplicated over time. The research used evaluative methodologies and asked the following questions:

1. Are other fire departments leasing apparatus? If not, Why?
2. How can the OFD justify an anticipated budget increase to adequately fund an apparatus replacement program?
3. What are the financial options for an apparatus purchase or lease?

A literature review was performed at the Learning Resource Center (LRC) at the National Fire Academy in Emmitsburg, Maryland. A survey was sent to 36 fire departments to gather information on apparatus replacement. The survey provided that only 17% were currently leasing and 71% had an adequate replacement program in place.

The recommendation was to purchase the balloon on an existing lease and properly fund a replacement program for future purchases at increments of 12 years.

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Introduction

The fire service continues to stretch the previously traditional boundaries of service delivery. Fire departments no longer respond to fires only. Fire departments have to think outside of the box so to speak to enhance their worth in their communities. As the run volume for fires decreases, the delivery of other service opportunities will continue to emerge. Fire departments have crossed into Emergency Medical Services, Hazardous Materials Response Teams, High Angle Response Teams, Fire Prevention Programs, Public Education, and other valued service opportunities.

The fire service therefore is providing a better service but without the necessary funding to purchase or lease an updated apparatus fleet. The dilemma is not exclusive to any one particular region of the country, but is more widespread throughout the entire country. Fifteen or twenty years ago, it would not be uncommon for a fire pumper to be in service for twenty to twenty-five years. This same piece of equipment would accumulate about 50,000 miles in a twenty year span. Trucks did not leave the stations except to respond to fires, fuel, or training. Today the trucks are on the road more than in the stations and can easily put 10,000 -15,000 miles a year on a truck.

Today the Insurance Services Office (ISO) steers most departments in relation to their value in the community. The ISO helps define the training, maintenance of water supplies, equipment carried on the apparatus, and personnel used to respond to fires in the community. To achieve the highest score, departments are spending more time in their districts flowing and painting fire hydrants. Building surveys are conducted semiannually on target hazards in the community. All of these valued components of the

daily routine take its toll on the fire apparatus and creates increased maintenance issues that have not been previously addressed.

The problem is that fire apparatus continue to rise in cost at a rate that is next to impossible to match with current budgeted monies. There has not been a commitment to adequately fund an equipment replacement program. With the rising cost of fire pumpers fast approaching \$325,000 and aerial apparatus approaching \$750,000, fire departments really have to be creative in apparatus replacement.

The problem is the Odessa Fire Department (OFD) is at a cross-road for implementing a proactive apparatus replacement program.

The purpose of this research is to determine the most cost effective approach for apparatus replacement in the OFD.

Evaluative research methodologies were used to answer the following questions:

1. Are other fire departments leasing fire apparatus? If not, Why?
2. How can the OFD justify the anticipated budget increase to adequately fund an apparatus replacement program?
3. What are the financial options for an apparatus purchase or lease?

Background and Significance

The OFD was established in September of 1927 and provides service to a county area of 904 square miles. The area of incorporated city coverage is 37 square miles. The city population is approximately 91,000 and with the county the population grows to approximately 124,000. The OFD provides service from eight fire stations strategically positioned around the community. The front line fleet consists of five engines, three quints, and four front line medics. The engines and quints are Advanced Life Support

(ALS) units that carry four firemen, one of which is a certified Paramedic. The medic units are staffed with two Paramedics. There are also two tankers, a regional (17 county) hazardous materials unit, air truck and rescue truck (high angle rescue, swift water rescue and confined space rescue). The reserve fleet consists of two engines and four medics. The department consists of 162 full time employees of whom 150 are full time paid firefighters and 12 administrative staff. The primary industry in the community is oil and gas.

A previous effort to address the ageing fleet was addressed by the previous Fire Chief, Steve Pollock. This ARP is testing the original theories established by Chief Pollock. In 2001, the OFD leased three engines and one quint on a seven year lease. The options at the end of year seven are to re-lease the four units, pay the balloon note of \$511,385 or turn the apparatus back to the manufacturer and walk away. Although the previous lease addressed the needs of the department at the time; have those needs changed? And if so, how does the department replicate a replacement program over time?

The city currently operates an equipment replacement fund that is used by all departments within the city. There is not a dedicated budget line item account for the fire department. In fact, the city quit funding any kind of replacement program for the fire department in 2002. In budget year 07/08', essentially the department will be starting over from scratch in relation to an allotted amount of monies for the expenditures of fire apparatus. Pollock (2000) states that "funding for replacement was based on purchase price divided by anticipated years of service" (p. 6). It is also apparent that fire department monies paid into the replacement fund have not accounted for inflation and

the escalating future cost of fire apparatus. Therefore establishing a program that can be duplicated over time is of the utmost importance to ensure an adequate delivery of service to the citizens of the community.

Past Impact

The past impact to the OFD has been an aging fleet with 20-25 year replacement and no adjustment for inflation, increased maintenance cost or escalating apparatus cost. Equipment Services Director Doug Hildebrand (personal conversation, November 9, 2005) states “fire trucks older than eight years start to increase in maintenance cost at an average of 20% per year over projected maintenance cost.” (See Appendix A)

Hildebrand (personal conversation, November 9, 2005) also states “that the hardness of the water sitting static in the pumps starts to erode the pump components in the fire trucks after about eight years.” Therefore the maintenance cost to operate the fleet increases at an average of 20% per year on the trucks that are 8-10 years and older.

Present Impact

The present impact to the OFD is an aging fleet with no replacement program or time table for their replacement. By December 2005, the OFD will have to decide how to address a current lease mandate. In 2001, the department leased three engines and one quint. This particular lease will expire in 2007. The OFD will have three options: 1.) turn the equipment back in to the manufacturer and re-lease new equipment, 2.) pay the balloon note of \$511,385 and acquire ownership in the four pieces of equipment, 3.) purchase an new entire fleet. However daunting the decision will be, the fact remains that the OFD does not have a replacement program that can be duplicated over time.

Future Impact

The City has not appropriated adequate funds for apparatus replacement that would ensure a timely replacement of equipment. Therefore the department has to examine creative and unique ideas to replace vehicles. Medical runs alone have created additional stress on the apparatus that was not previously accounted. The way the OFD does business is not going to decrease but increase as more service opportunities come into play. Gone are the days of keeping an engine for 25 years. The ever escalating maintenance costs are creating a dilemma that has to be addressed. The solution for the present and future is to identify a cost effective program that can be duplicated. It is important for the future of the OFD to establish an effective replacement program that will ensure adequate equipment replacement.

This research was conducted according to the requirements of the National Fire Academy's Executive Fire Officer Program for the Executive Development curriculum. This research is specifically related to the Executive Development Course foreword that explains that "Executive traits must include the leader as a learner, one who can anticipate future trends" (NFA, 2002, p. iii). It is important to be able to take a step back and get a broader perspective of the environment. Heifetz and Linsky (2002) state "getting off the dance floor and going to the balcony", an image that captures the mental activity of stepping back in the midst of action and asking, "What's really going on here?"(p. 51). In Unit 10 (Service Quality) Dr. W. Edward Deming's Total Quality Management credo: "If you can't measure it, you can't manage it" (p. 10-7), deals with the ability to effectively measure a problem and then be able to manage the problem.

My research will investigate initiatives by other departments in relation to lease/purchase options for apparatus. The information provided from the surveys will hopefully provide the framework from which the OFD can initiate an effective replacement program.

I plan to carry out this investigation by utilizing evaluative research methods, as discussed in Module 2. This research will provide the OFD with the research information needed to present to the city council. The city council will ultimately make the final determination based on the recommendation of the Fire Chief for the apparatus replacement.

Literature Review

A literature review was done for this project to focus on two areas: apparatus leasing programs and service delivery opportunities that have greatly increased the need to rotate vehicles on a timelier basis. The review was done by exploring fire service journals, a fire service book, and Applied Research Projects from the National Fire Academy (NFA).

The first area for review will focus on the various leasing opportunities for municipal fire departments. The second area of review will examine the increased service delivery methods that have facilitated the need to have a true apparatus replacement program.

Leasing

Traditionally, a city, town, or district would acquire equipment in one of two ways: either appropriate available funds and buy outright, or float a bond and buy (Lynch/Marshall, 1988). Today, leasing has given local fire departments an opportunity

to acquire assets with tomorrow's budgeted dollars. In its simplest terms, a lease is a rental agreement (Carter, 1999). There are also several different leasing possibilities that can be structured to each individual fire department.

Local Banking

One of the more attractive features of a local bank lease is that the department is dealing with someone they know (Steffens, 2000). The local bank can get a feeling of community assistance by providing a valuable service to the local fire department. A tax-exempt loan can also be extremely attractive to the bank from a business point of view. It is not uncommon for a local bank to finance apparatus at a rate equal to or below the prime rate (Steffens, 2000).

Independent Leasing

Independent leasing companies match public agencies with investors to develop a finance program that meets the needs of both parties (Steffens, 2000). The independent organization usually charges a fee that is commensurate with the size of potential lease and the complexity of the arrangement. This type of arrangement can generally lead to very attractive interest rates.

Apparatus Manufacturer

Apparatus manufacturers offer a variety of leasing options:

1. Tax-exempt municipal leasing – referred to as a tax-exempt installment sale. Annual payments are made for five, seven or nine years, usually paid in arrears. For a small fee, the vehicles are usually purchased at the end of the lease, sometimes as low as one dollar. They also have a non-appropriation

clause that allows for the return of the vehicle in the event the department does not budget for the lease payment (Steffens, 2000).

2. Taxable lease – the interest rate is usually two or three points higher, because the leasing company does not get the advantage of federal tax-exempt income (Steffens, 2000).
3. Turn-in lease – has a balloon payment due at the end of the lease, so the annual payments are lower. The department will also have the option of turning in the vehicle at the end of the lease for credit towards another vehicle from the same manufacturer. The apparatus manufacturer guarantees the turn-in value at the end of the lease, provided certain terms and conditions are met (Steffens, 2000).
4. Walk-away lease – is typically an eight or nine year lease (sometimes referred to as a 102-month lease) that will allow the department to “walk-away” at the end of the lease with no requirement to purchase (Steffens, 2000). Provisions will allow for the department to purchase for an early termination value, usually at the five and seven year points of the lease (Steffens, 2000). The optimum time to turn the vehicle in with this lease is at five years. At this time the principal balance payoff most closely matches the real perceived value of the apparatus (Haase, 2000).

Benefits and Drawbacks

The choice to lease or purchase is one that will have to be examined very closely.

The positives and negatives for each department will vary.

Positives

1. Maintain a newer fleet.
2. Creation of an expense budget to pay the lease.
3. Costs remain constant throughout the term of the lease.
4. If the truck no longer fits the needs of the department, at the end of the lease, the truck can be relinquished (Carter, 1999).

Negatives

1. The department may never own the piece of equipment.
2. The department is reminded once a month when the check is sent that someone else owns the truck.
3. People do not seem to take as good of care of things they do not own.
4. If payments are defaulted, possession of the apparatus goes back to the owner (Carter, 1999).

In its simplest form, a lease/purchase is an installment purchase contract much like one would use to purchase a new car (Lynch/Marshall, 1988). Under the standard lease/purchase contract, the lease payments each month or year are part principal and part interest. Therefore building equity in the equipment until the last payment, at which time the department owns the equipment outright (Lynch/Marshall, 1988).

The most important advantage of the lease/purchase is the flexibility of the contract. It also offers the municipality a more realistic opportunity to adopt payments suited to its budget realities (Lynch/Marshall, 1988). The bond process can be very lengthy and the term for the note cannot usually exceed five years. The lease/purchase can range from three to ten years in length. Up to five percent, in bond arrangements, are lost in legal fees and transaction costs (Woods, 1988). The interest rate on a

lease/purchase is firm from the date of order till the date of delivery. The bond rate is set on the day of bond closing and is subject to increase by the time of delivery (Lynch/Marshall, 1988).

When lease/purchase payments are made on an annual basis, no debt is created. This is important to communities whose bond indebtedness may already be heavy (Lynch/Marshall, 1988). There are no deposits, down payments, or closing expenses and payments are fixed for the life of the contract. The first payment is usually not due until the department takes delivery of the apparatus (Lynch/Marshall, 1988). Another advantage of the lease/purchase is that costly “loose” equipment can be obtained, and payments spread out over the years of the contract (Woods, 1988).

A distinct advantage of the lease/purchase process is that once the resolution or transaction is completed by a governing body, the remaining procurement process is in the hands of the fire department (Woods, 1988). If the apparatus does not meet the departments standard, then the company is not paid until a certificate of acceptance is signed (Woods, 1988).

The second part of this literature review will focus on the ever changing role the traditional fire departments are facing as budget decisions have to be made. Is the fire service today still considered a “fire” department? Or, are they more inclined to be called a “rescue” department? Whatever the case, the ever changing role of fire departments in providing services to their communities, is taking precedence over traditional delivery methods. As 95% of most responses do not involve a major fire, most departments are evolving into broader emergency service providers (Saulsbury, 2005).

The fact remains that fire departments have to be more creative in service delivery opportunities due to the lower call volume of fires. How does a fire chief justify an \$11 million dollar budget to the city council when they only make 100 fires annually? The answer lies in the ever expanding role of rescue and emergency medical services.

In 1997, the OFD had a reorganization that actually decreased the number of ambulances available as front line medics. However, in doing so, the OFD converted all of the engines and quints into Advanced Life Support (ALS) units. In council chambers, this transition was made to improve the overall delivery of Emergency Medical Services (EMS) to the community. The practical look at the reorganization has been extremely successful with positive results in the area of EMS. But what was not taken into consideration was the increased wear and tear on the present fire apparatus. The transition of placing an engine or quint on every EMS scene is not unique to Odessa, but a necessity to most departments around the country.

Faced with tight budgets and other pressures, elected and appointed officials frequently ask how their local fire departments can deliver fire services more effectively and efficiently. A city or county may consider changing the way it provides fire protection services for many reasons. Some of the more popular reasons are listed:

1. Growth in demand for services, especially ambulance and rescue services
2. Municipal budget constraints and/or contractual labor demands
3. Pressures to improve the productive use of paid firefighter “downtime”
4. Economics of scale (some cities are served by as many as six fire departments) (Hoetmer, 1988, p.418).

Fully paid departments that have to deal with local officials, who are increasingly reluctant to spend more money on fire protection, face a dilemma. How can efficiency be improved without affecting performance (Hoetmer, 1988 p.423)? A further difficulty is quantifying the total cost of fire to a community, which will cover both the dollars expended to deliver fire services and the costs associated with fire losses (Hoetmer, 1988, p.424). The efficient delivery of fire protection to a community therefore depends not only on the cost-effectiveness of the delivery system itself, but also on how effective the system is in reducing fire losses (Hoetmer, 1988, p.424).

Fire departments have to focus on performance and results. This author overheard one prominent city official say “the fire department is just a necessary evil.” It would be easy, as a politician, to view the fire department in terms of dollars and cents. It probably seems that “money” is all the fire department ever wants. Its unfortunate but most fire departments across the nation are not revenue generating entities. Their justification for increased budgetary requests has to come in the way of measurable performance and results.

The states of Michigan and Texas have attempted to set standards for evaluating fire protection by establishing criteria for judging a fire department’s effectiveness.

Adopted in 1982 by Michigan’s legislature, Act 494 provides for the following:

1. Development of a method of evaluating a fire service delivery system
2. Establishment of a fire service classification scale
3. Review of each fire service delivery system every eight years and the establishment of a grade

4. Provision of assistance, upon request of a municipality, for the purpose of improving the capabilities of the fire service delivery system so as to improve life safety and reduce fire losses
5. Utilization of the fire service classification system by an insurance company (Hoetmer, 1988, p.424).

The fire service continues to be asked to do more with less. The policy makers and stakeholders are quick to explore new opportunities and fulfill new government mandates, but are reluctant to release money to fund these opportunities. All the stakeholders in the community must be involved in the determination of services. These stakeholders are firefighters, fire officers, citizens, and elected and appointed local leaders. At the same time it's the obligation of the fire chief to inform the authority having jurisdiction and the community about the ability and wherewithal of the department to perform such services, keeping in mind the training and time demands required to deliver these services (Chiaramonte, 2003). This analysis helps make communities safer, increases firefighter safety, reduces liability and allows more efficient use of resources. It aids the department in establishing a practical and workable vision, mission, values, goals and objectives. Operational planning also helps with the efficient day-to-day running of the fire department while effectively using the resources of the department to provide a comfortable and acceptable level of service (Chiaramonte, 2003).

Procedures

The purpose of this research is to determine the best financial option for the acquisition of and timely replacement of fire apparatus for the Odessa Fire Department.

The research procedure used in the preparation of this paper began with a literature review at the Learning Resource Center (LRC) at the National Fire Academy (NFA) in Emmitsburg, Maryland. A personal interview was also done with the Equipment Services Director for the City of Odessa and a survey was mailed to other fire departments.

To answer the first question of this research paper, a survey was mailed to other fire departments in Texas for their feedback on leasing and equipment replacement timetables. (see Appendix B) The purpose of the survey was to see how other departments are addressing the same concerns the OFD is facing. The survey was developed with several questions in mind; did their department have a replacement program, if they did not lease, why, what is the average length of time they kept their frontline engines in service and who performed the maintenance on their trucks?

The survey sample was randomly selected from the Texas Fire Commission web site. The web site provided crucial contact information and whether the department was fully paid or volunteer. The author felt it important to survey departments that were of similar structure. The surveys were mailed to the Chiefs of the departments in hopes that they would respond honestly and in a timely manner. Thirty-six surveys were sent and twenty-four were returned for a 67% respondent rate. The author of this research confined the research geographically to Texas to better determine if there were regional trends. The survey consisted of 15 questions, but only five pre-determined questions were used for this research. The other 10 questions were open-ended questions that the author felt was useful information, but would not create measurable data.

The second question this research is trying to answer asks how the OFD can justify the anticipated budget increase to adequately fund replacement apparatus. The question is necessary due to the fact that the city has under funded the fire departments apparatus fleet. There has been no considerable increase in replacement dollars for the future acquisition of apparatus. The literature review showed the author the importance of placing a worth on the services provided. The literature review also showed ways to measure performance and results for the fire service. As 95% of most responses do not involve a major fire, most departments are evolving into broader emergency service providers (Saulsbury, 2005). The author of this research feels it is important to be able to justify the demand for increases for the acquisition of apparatus. It is the responsibility of the Fire Chief of the OFD to put together a package that includes justification for the anticipated increase. The fact that fire departments are providing more valuable services to their communities is undeniable. What is deniable is that the city has not increased operational costs to cover the increase in service demands.

The third question dealt with the financial costs associated with an apparatus purchase or lease. The literature review revealed many options for leasing. The actual purchase is just a capital expenditure that does not require any additional research. However, leasing provides the city with a variety of options that may have not been previously considered. The literature review also examined the advantages and disadvantages of leasing and the alternatives to the various leasing arrangements.

This research is very limited in that the research only examined a very small percentage of the total number of fire departments in Texas or the United States. It was also assumed that the respondents would answer honestly and provide enough feedback

to formulate valid data. It is also the author's opinion that the research questions may have been too narrow and not specific enough to draw inconclusive results.

Results

Research Question #1

Are other fire departments leasing apparatus? If not, Why?

A survey (see Appendix C) was sent to thirty-six departments throughout Texas. The departments ranged in size from small communities of 3000-4000 people to large communities of over 300,000 people. The departments were all fully paid departments.

Of the thirty-six surveys sent out, twenty-four were returned, which gave a participation rate of sixty-seven percent. The departments that participated in the survey indicated the following:

1. Seventy-one percent currently have an apparatus replacement program in place.
2. Seventeen percent actually use leasing as an option for acquisition of fire apparatus.
3. Twenty-one percent do not lease because they have an adequate replacement program that allows them to purchase their apparatus. Fifty percent indicated they do not lease because city management does not think leasing is a good option for their department.
4. Twenty-five percent indicate that they are currently considering leasing as an option for future replacement of apparatus.
5. The average length of time apparatus are kept in front line status averaged fifteen years.

Research Question #2

How can the OFD justify the anticipated budget increase to adequately fund an apparatus replacement program?

Fire departments are still one of the few departments that do not generate any monies to justify their existence. All the stakeholders in the community must be involved in the determination of services. These stakeholders are firefighters, fire officers, citizens, and elected and appointed local leaders. At the same time it's the obligation of the fire chief to inform the authority having jurisdiction and the community about the ability and wherewithal of the department to perform such services, keeping in mind the training and time demands required to deliver these services (Chiaramonte, 2003).

This analysis helps make communities safer, increases firefighter safety, reduces liability and allows more efficient use of resources. It aids the department in establishing a practical and workable vision, mission, values, goals and objectives. Operational planning also helps with the efficient day-to-day running of the fire department while effectively using the resources of the department to provide a comfortable and acceptable level of service (Chiaramonte, 2003).

Fully paid departments that have to deal with local officials, who are increasingly reluctant to spend more money on fire protection, face a dilemma. How can efficiency be improved without affecting performance (Hoetmer, 1988, p.423)? A further difficulty is quantifying the total cost of fire to a community, which will cover both the dollars expended to deliver fire services and the costs associated with fire losses (Hoetmer, 1988 p.424). The efficient delivery of fire protection to a community therefore depends not

only on the cost-effectiveness of the delivery system itself, but also on how effective the system is in reducing fire losses (Hoetmer, 1988 p.424).

For fire departments to receive their piece of the pie, so to speak, they must focus on all of the good they do in the community. The emphasis needs to point to the fact that fire departments are providing more services, but have not seen adequate increases in equipment replacement dollars to keep up with the increased apparatus cost and inflation.

Research Question #3

What are the financial options for an apparatus purchase or lease?

An apparatus purchase is simply putting out a bid sheet, with the specifications listed for a fire apparatus, and then appropriating the necessary funds for the acquisition of the piece of equipment. This option requires a capital outlay to purchase and then an estimated time table for future replacement.

Today, leasing has given local fire departments an opportunity to acquire assets with tomorrow's budgeted dollars. In its simplest terms, a lease is a rental agreement (Carter, 1999). Some of the more popular leasing arrangements are listed:

1. Tax-exempt municipal leasing – referred to as a tax-exempt installment sale. Annual payments are made for five, seven or nine years, usually paid in arrears. For a small fee, the vehicles are usually purchased at the end of the lease, sometimes as low as one dollar. They also have a non-appropriation clause that allows for the return of the vehicle in the event the department does not budget for the lease payment (Steffens, 2000).

2. Taxable lease – the interest rate is usually 2 or 3 points higher, because the leasing company does not get the advantage of federal tax-exempt income (Steffens, 2000).
3. Turn-in lease – has a balloon payment due at the end of the lease, so the annual payments are lower. The department will also have the option of turning in the vehicle at the end of the lease for credit towards another vehicle from the same manufacturer. The apparatus manufacturer guarantees the turn-in value at the end of the lease, provided certain terms and conditions are met (Steffens, 2000).
4. Walk-away lease – is typically an eight or nine year lease (sometimes referred to as a 102-month lease) that will allow the department to “walk-away” at the end of the lease with no requirement to purchase (Steffens, 2000). Provisions will allow for the department to purchase for an early termination value, usually at the five and seven year points of the lease (Steffens, 2000). The optimum time to turn the vehicle in with this lease is at 5 years. At this time the principal balance payoff most closely matches the real perceived value of the apparatus (Haase, 2000).

The positives and negatives for each department will vary.

Positives

1. Maintain a newer fleet.
2. Creation of an expense budget to pay the lease.
3. Costs remain constant throughout the term of the lease.

4. If the truck no longer fits the needs of the department, at the end of the lease, the truck can be relinquished (Carter, 1999).

Negatives

1. The department may never own the piece of equipment.
2. The department is reminded once a month when the check is sent that someone else owns the truck.
3. People do not seem to take as good of care of things they do not own.
4. If payments are defaulted, possession of the apparatus goes back to the owner (Carter, 1999).

In its simplest form, a lease/purchase is an installment purchase contract much like one would use to purchase a new car (Lynch/Marshall, 1988). Under the standard lease/purchase contract, the lease payments each month or year are part principal and part interest. Therefore building equity in the equipment until the last payment, at which time the department owns the equipment outright (Lynch/Marshall, 1988).

The most important advantage of the lease/purchase is the flexibility of the contract. It also offers the municipality a more realistic opportunity to adopt payments suited to its budget realities (Lynch/Marshall, 1988).

Discussion

No one particular method of acquiring fire apparatus will work for every department. It is important for each department to develop a situational analysis depending on their particular need. It is evident to this author that there is not a fix all method to acquiring apparatus. It is also evident to this author that not being a fire administrator, severely limited the author's ability to acquire information internally.

Instead of viewing the research as an opportunity for the department to have an independent view of acquiring apparatus, the author was frowned upon by some administrators as not being “on the same page” in the pursuit of a recommendation to present to city management.

The study indicated that seventy-one percent of the departments surveyed have an adequate apparatus replacement program. It seems that by those having a replacement program in place, developing a program to acquire apparatus was not that big of an issue. This is not to say that the rising cost of apparatus will not place additional constraints on future acquisitions. The author was astounded that only seventeen percent of those surveyed were actually leasing their fire trucks. There was an assumption made by the author that given all of the positive aspects of leasing, that most departments were acquiring their fleet in this way.

According to Doug Hildebrand (personal conversation, November 9, 2005) “fire trucks older than eight years start to increase in maintenance cost at an average of 20% per year over projected maintenance cost.” Hildebrand also states (personal conversation, November 9, 2005), “That the fire department is not going to be able to afford what I will charge them for maintenance on fire trucks older than 10 years.” Previous replacement costs were figured on fire trucks responding to fires and no account had been given to the increased service delivery that the fire department is currently providing. The survey provided that the average length in years for front line fire engines was 15 years. The OFD is using a 25 year replacement plan for the same piece of apparatus. The invariable might be that, each of the other departments that responded to the survey does not use their apparatus in the same way as that of the OFD.

Consider what the economic impact on our nation was the month after 9/11 versus the replacement costs of the buildings. The indirect financial impact on the nation's economy was far greater than the specific disaster. Government officials now realize the cost of services or fire apparatus is an immeasurable fraction of the total potential related to an incident. This potential will drive apparatus acquisition in the future (Saulsbury, 2005).

Funding new apparatus is going to continue to be a hot issue in the fire service. It is the author's view that we have to really think about the apparatus that deliver the firefighters to an emergency scene. It might be a good time to examine an alternative vehicle to respond to an EMS run rather than driving an \$850,000 aerial apparatus to that same scene.

While leasing certainly provides clear advantages and disadvantages, it may not be the best financial option for every department. The clear point is that it offers an attractive way to acquire apparatus in a timelier manner and gives a multitude of options to the fire department.

Recommendations

The Odessa Fire Department has traditionally used cash to purchase capital equipment. Leasing was introduced to the OFD in 2000 by former Fire Chief Steve Pollock. He also initiated a research project on leasing apparatus for the Odessa Fire Department. The seven-year lease is due a decision by March 2006. However it is necessary to examine the previous research and see if the results can be duplicated over time. The answer is that each time frame examined has to be measured against the financial strength of the city. When the city does not have good financial strength, the

leasing program would certainly create relief in the reduction of overall capital outlay.

However when the city is in an incline, the option would more closely be associated with a capital purchase. The following are recommendations based on the research presented:

1. The results indicate that the Odessa Fire Department needs to continue to emphasize all of the services provided for the community. There is a need to replace apparatus and justification for the acquisition is going to be imperative. By the time the current lease expires, two front line engines and two front line quints will be older than ten years. The two engines in reserve status will be older than 22 years.
2. My recommendation will be to purchase the balloon note on the 4 apparatus currently being leased in 2007. (see Appendix D) These four trucks will be 6 years old and have been rotated around the city to keep close tabs on the mileage. That will leave us with having to replace six apparatus, one of which will have to be a quint. The defunct equipment replacement fund has the necessary funds to pay the balloon note without any additional cost to the city. The two best trucks that need to be replaced should be kept for reserve trucks and the remaining four sold. The four apparatus scheduled for replacement should be purchased bringing the total apparatus back to ten (eight front-line and two reserves). Although leasing creates some solid advantages over traditional purchases, the fact remains that a replacement program properly funded will produce the same results without having to pay interest. The capital purchase will require \$1.7 million (see schedule, appendix b?) and will leave a six year gap between the leased purchase and the capital purchase. The survey indicated that the average lifespan of front-

- line apparatus was 15 years. I would propose a 12 year replacement and the two best remaining trucks rotating into reserve status. In order for the replacement program to work, the city has to fund the replacement dollars on an annual basis. If the purchase is made in 2007, the next purchase will not be necessary for six more years or year 2013. The replacement fund will need \$300,000 annually to be able to purchase the next four apparatus.
3. The benefits I expect are that the trucks will rotate every 12 years and the OFD will not be using front-line apparatus that are 20+ years of age. The members of the OFD should have the safest and most up to date equipment to perform their daily jobs. By rotating equipment at 12 years, the OFD should be able to keep up with technology and provide a more standardized fleet. Standardization of the fleet will also help equipment services with stocking replacement parts.
 4. Additional research needs to take a closer look at the concept of a “ladder tender.” With aerial apparatus quickly approaching the \$1million mark, their use in responding to EMS incidents needs to be examined. The “ladder tender” concept is in placing an additional response vehicle at the same station that an aerial is kept. The firemen then respond to EMS runs in the alternative vehicle. Hence buying some additional years of service for the very expensive aerial truck.
 5. The changes should be implemented immediately. As long as the city continues to under fund the replacement fund, the fire department will always be trying to determine how to buy apparatus. If the city will place \$300,000 into the fund, there will be roughly \$1.8 million available every six years for replacement costs and a large capital outlay will not be necessary. The fire department will need to

- make a sell to the city administration and council to get them on board with the needs of the fire department. Once again focusing on increased services provided and a lack of adjusted dollars for inflation and increased apparatus cost.
6. A follow-up evaluation will need to be made from time to time to check the status of the replacement fund. It will also be imperative that the replacement fund remain a true replacement fund and not used for other capital purchases. The dollars may need to be adjusted every couple of years based on inflation and future increases in apparatus cost.
 7. Other researchers wanting to duplicate some of this study will need to be more focused and deliberate in the information they are seeking with the survey. This author was not specific enough in some of the questions provided to the other departments. It would also be important to be more focused and not so general. Apparatus acquisition is a very important and should be addressed as such in providing the very best service to the citizens of the communities we serve.

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Appendix A**Maintenance Cost (Fleet) - Life to Date (LTD)**

Unit #	Year	Maintenance	Fuel	Total	Average Maintenance per Year entire Dept.
E1	1999	\$97,661	\$20,000	\$117,661	\$13,951.57
E2	2001	\$55,000	\$18,000	\$73,000	\$11,000.00
E3	1996	\$98,342	\$21,000	\$119,342	\$9,834.20
E4	1996	\$94,220	\$18,000	\$112,220	\$9,422.00
E5	1994	\$111,000	\$14,000	\$125,000	\$9,250.00
E6	2001	\$50,000	\$19,000	\$69,000	\$8,333.33
E7	2001	\$78,800	\$10,000	\$88,800	\$13,133.33
E8	2001	\$53,000	\$15,000	\$68,000	\$8,833.33
	Totals	\$638,023	\$135,000	\$773,023	\$83,757.77

The total is \$773,023 and the average maintenance cost annually is \$83,757.77

Appendix B**Time Tables**

Current Fleet	Year Model	Own/Lease	Replacement Cost?	Replacement Year
E5 - Quint	1994	Own	\$325,000	2007
E4 - Engine	1996	Own	\$325,000	2013
E3 - Engine	1996	Own	\$325,000	2013
E1 - Quint	1999	Own	\$690,000	2007
E16 - Reserve	1984	Own	0	2007
E26 - Reserve	1984	Own	0	2007
E2 - Engine	2001	Lease	\$325,000	2013
E7 - Engine	2001	Lease	\$325,000	2013
E8 - Engine	2001	Lease	\$325,000	2013
E6 - Quint	2001	Lease	\$690,000	2013

Appendix C

Apparatus Replacement

1. Does your dept. currently have an apparatus replacement program? _____
2. If yes, what is the length of years for the following:
 - a. Engine _____
 - b. Quint _____
 - c. Ladder _____
 - d. Fire Medic _____
3. If no, are you currently working to develop a program? _____
4. What do you perceive as obstacles to replacing apparatus in a timely manner?
5. How do you justify the anticipated budget increase to rotate apparatus?
6. Does your dept. have any revenue generating programs in place? _____
7. If yes, are the extra monies used for apparatus replacement? _____
8. Does your city/dept. perform maintenance on apparatus or is that service provided by a private organization? _____
9. Do you currently lease any or all of your apparatus? _____
10. If you do lease, what leasing agency do you use?
 - a. Bank Lessor _____ Why? _____
 - b. Independent Lessor _____ Why? _____
 - c. Manufacturer Lessor _____ Why? _____
11. What length of years has/would appeal to your organization in terms of a lease?
 - a. 5 yrs _____
 - b. 7 yrs _____
 - c. 9 yrs _____
 - d. Other _____
12. Would you consider leasing or purchasing reserve apparatus? _____
13. If you do not lease, are you considering a lease in the future? _____
14. What are the pros and cons of a lease in your opinion?
15. Do you feel the way the fire service is being stretched to do more with less has changed the way departments approach apparatus replacement? _____
Why?
16. Additional comments?

Appendix D**Recommendation - 2007**

Sell	Value	Replacement Cost	Budget Year	Replacement Dollars
E5*	\$150,000	\$325,000	2007	\$0
E1	\$250,000	\$690,000	2008	\$300,000
E16	Donate	\$325,000	2009	\$300,000
E26	Donate	\$325,000	2010	\$300,000
Reserve Trucks			2011	\$300,000
E3 - Reserve	Own	\$0	2012	\$300,000
E4 - Reserve	Own	\$0	2013	\$300,000
	\$400,000	\$1,665,000	Capital Purchase (2013)	\$1,800,000
		\$400,000		
	Capital needed for purchase 2007	\$1,265,000		

*Replace with an Engine

Recommendation - 2013

Sell	Value	Replacement Est. Cost	Budget Year	Replacement Dollars
E2	\$80,000	\$400,000	2014	\$10,000
E6	\$80,000	\$750,000	2015	\$300,000
E7	Reserve	\$400,000	2016	\$300,000
E8	Reserve	\$400,000	2017	\$300,000
Total	\$160,000	\$1,950,000	2018	\$300,000
	Asset from Sale	\$160,000	2019	\$300,000
	Capital Needed for purchase in 2013	\$1,790,000	2020	\$300,000
	Cash in Hand	\$1,800,000	Replacement Balance 2020	\$1,810,000
	Balance 2013	\$10,000		