Fire Rescue Department

Issue Paper

Ladder Truck Status and Replacement Recommendation

January 25, 2008

Problem Statement

The Evans Fire Department currently uses a 1990 LTI 105' tower ladder to provide aerial ladder service to the City of Evans. This apparatus also serves as one of the four pumpers required by the City's ISO rating. Experience and analysis over the last 18 months indicates that this apparatus cannot effectively or safely function in either of these roles. The specific problems with this ladder truck and its impact on the total fire apparatus fleet are listed below and discussed in detail latter in this issue paper.

- It does not fit the risk profile of the city or operational needs of fire department now or into the foreseeable future, as either an aerial ladder or pumper.

- It is obsolete as a first line apparatus. It is too old and has too many miles to be considered a first-line apparatus for its type. It was manufactured before 1991 which makes it particularly questionable as a first-line apparatus in accordance with NFPA safety standards.

- It is unreliable. In the last two years it has been out-of-service for extended periods of time on three occasions. In this same period it has been fully in-service only 12 months.

- It is unreasonably costly to maintain in relation to its limited potential of effective and safe use. Repair and maintenance costs in the last two years have been $78,359.

- It requires extensive and continuous driver operator training to operate effectively and safely. The fire department does not have the capability to maintain the needed level of training and experience given the size of the career workforce and the turnover of volunteer members.

- In combination with another obsolete pumper in the fire department's apparatus fleet it contributes to a significant shortfall in the total complement of major apparatus.

Preliminary Recommendation

This issue paper recommends that the current 1990 LTI ladder truck be replaced with a 75' Quint type apparatus and this new apparatus be operated by the career engine company as the fire department's first response engine. This recommendation is discussed in more detail later in this issue paper.

History

In the early and mid-2000's Evans experienced a period of rapid suburban growth. This growth and the likelihood of new multistory buildings precipitated the need for aerial ladder capability. At the time the only aerial apparatus in Evans was a 1985 50' Squirt pumper (this apparatus is still in-service as one of the four pumpers). This apparatus provided an elevated fire stream but no aerial rescue capability. Although the need was identified, the funding for a new ladder truck was not available. In 2003 the decision was made to purchase a used ladder truck. A 1981 American LaFrance ladder truck was purchased for $$98,000. Unfortunately this apparatus was damaged during transport and was never placed in-service. An insurance settlement was reached and the 1990 LTI was purchased through an independent used apparatus broker in 2004 and placed in service in 2005. The purchase price for the 1990 LTI was $145,000.

In the spring of 2006 during routine maintenance and repairs at the Parker Fire District shops, it was found that a previous owner had made alterations to the aerial ladder that voided its testing certification. This made it unusable as an aerial ladder. These alterations were not detected during pre-purchase inspections by fire department staff or an independent testing firm. After review by the City Attorney it was determined that it would be fiscally and procedurally infeasible to seek damages from

previous owners, the independent broker or the testing firm. In the fall of 2006 a decision was made to repair the ladder and the broker agreed to participate in its transportation to and from the LTI repair facility in Pennsylvania. These repairs were completed in early 2007 and the unit placed back in-service. The cost of these repairs was $55,000. Since then it has been in and out of service for a number of repair and maintenance issues.

Problem Details

It does not fit the risk profile of the city or operational needs of fire department now or into the foreseeable future, as either an aerial ladder or pumper.

This vehicle is a heavy duty tower ladder with a pump, water tank, small hose bed, ground ladders and aerial tower. It is designed to serve high risk and high density commercial districts with large multi-story buildings and high fire flow requirements. It weighs 69,100 pounds, is 62 feet long and has a turning radius of 70-75 feet. To be used effectively it should be operated on wide, paved streets. It is not suited for single family residential neighborhoods and high density multifamily residential complexes which comprise the majority of fire risk in Evans. While it can be classified as a Quint type apparatus it is not designed to be used as a first response engine company.

The risk profile of Evans for structure fires is low to moderate. There are currently two multi-family residential complexes with 13 three story buildings and one complex with 10 two story buildings that present a three story fire risk. All of the true three story buildings are equipped with fire sprinkler systems. There are a number of one and two story commercial buildings which would require at least one elevated fire stream. In the future it is reasonable to expect that more three story and possibly higher multi-family residential buildings will be built although these will be equipped with fire sprinkler systems. The same is true of new large commercial buildings. While there is a need for aerial ladder capability the fire risk in Evans does not require a heavy duty tower ladder. An apparatus with an aerial ladder that is smaller and more maneuverable is a better match for the Evans risk profile.

It is obsolete as a first line apparatus. It is too old and has too many miles to be considered a first-line apparatus for its type. It was manufactured before 1991 which makes it particularly questionable as a first-line apparatus in accordance with NFPA safety standards.

This apparatus is now 19 years old with 79,000 miles. In general ladder trucks have a useful service life of 15 years in front-line service and five to ten years in a reserve capacity. The cab and chassis of tower ladder apparatus are particularly susceptible to a shorter service life due to the weight of the tower ladder itself. Because the current apparatus was purchased through a broker we do not know the details of its service life although we believe it was used in a large urban county in Florida. We have no information on the repair and maintenance history prior to our ownership other than it had current certification of the ladder tower at the time of our purchase. As noted earlier this certification did not detect at least one major discrepancy.

It is unreliable. In the last two years it has been out-of-service for extended periods of time on three occasions. In this same period it has been fully in-service only 12 months.

To be reliable as a front-line unit a fire apparatus must be in service continuously throughout its service life with only occasional and brief periods of down time for maintenance and routine repairs. Based on our experience over the last two years our confidence that this apparatus can be kept in continuous service at any level of reasonable operational reliability is very low.

It is unreasonably costly to maintain in relation to its limited potential of effective and safe use. Repair and maintenance costs in the last two years have been $78,359.

Below is a table showing the repair and maintenance costs of our four major firefighting apparatus. The cost for the ladder truck is well in excess of the repair and maintenance costs of all other fire department apparatus combined. We cannot predict future maintenance costs and based on the previous two years we expect that these costs will continue to escalate. The repair and maintenance costs now exceed half the original purchase price for this apparatus.

	Engine 1 2000 American LaFrance	Engine 2 1995 E-One	Engine 3 1985 Ford Squirt	Truck 2 1990 LTI Ladder
Two year maintenance and repair costs (2006-2007)	$2,768	$468	$533	$78,359

It requires extensive and continuous driver operator training to operate effectively and safely. The fire department does not have the capability to maintain the needed level of training and experience.

This ladder truck requires two highly qualified operators to use effectively and safely for aerial operations. Due to its size, weight and length it also requires advanced skills to drive safely. Current staffing limitations of the career personnel and the lack of cumulative experience and specialized training of our volunteer workforce make it impossible to insure that a sufficient number of qualified driver operators are available. While it is possible to assign a career member to this apparatus on a 24/7 basis it would dilute the already low level of on-duty staffing needed for the vast majority of emergency calls and would further exacerbate the current mismatch of this apparatus to the fire risk of the city.

In combination with another obsolete pumper in the fire department's apparatus fleet it contributes to a significant shortfall in the total complement of major apparatus.

The City's current ISO rating requires three first-line and one reserve pumpers. Only two of the current four pumpers (2000 American LaFrance and 1995 E-One) can be considered front-line pumpers due to age and capability. One of these (1995 E-One) is nearing its front-line service life and should be placed in reserve within the next five years. As discussed above the 1990 LTI ladder truck in completely unsuited

as a first-line pumper. The current reserve pumper is the 1985 Ford Squirt is beyond its reserve service life and does not meet the NFPA apparatus safety standards. For these reasons the ladder truck can not be operationally relied upon to serve in either a front-line or reserve pumper capacity. Taken together the city is facing a major overhaul of its pumper fleet in the near future.

Recommendation

The recommendation is to replace the current 1990 LTI ladder with a new 75' Quint type apparatus and this new apparatus be operated by the career engine company as the fire department's first response engine. This type of apparatus can operate either as a pumper or as an aerial ladder. This approach is commonly used by smaller urban and suburban fire departments with only one on-duty fire company. The Cities of Federal Heights and Sheridan both operate Quints as their first response on-duty pumper. While a 75' Quint is longer and heavier then a standard fire pumper it can operate effectively within areas designed for standard fire pumpers. It would certainly be smaller and lighter than the current ladder truck. The advantages of this approach are:

- It provides an aerial ladder that is better matched with the city's fire risk. Its height would be adequate for the height of buildings not equipped with fire sprinklers and it would be more maneuverable within the street network and private parking lots in Evans now and in the future.

- It replaces the current aerial ladder that has low reliability and a questionable safety record with one fully in conformance with current operational and safety standards.

- It reduces the need train and maintain a large group of driver operators for a limited use specialized piece of apparatus. By integrating the ladder and pumper functions into one first-line apparatus the training would be centralized in the career staff that would operate this apparatus on a daily basis.

- It eliminates the current high and unknown future costs of maintenance and repair of the current ladder truck.

- It allows more flexibility in the total apparatus fleet in regard to long-term replacement. While it doesn't remove the need to purchase two pumpers within the near future it does allow a more flexible sequence.

The cost of a Quint is approximately $ 675,000. This is based on the average of new Quints purchased in northern Colorado and the Denver metro area in the last year. An alternative to a one-time purchase is a lease plan. The yearly lease on this type of apparatus would be approximately $ 75,000 per year for 10 years. If a decision is made to implement this recommendation in the 2009 budget year it would take up to 18-24 months for delivery. It is unlikely that the current ladder truck could be sold for any significant amount.