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The following document provides recommendations in accordance with the appropriate NFPA Standards for procedures on when emergence apparatus should be replaced. Actual replacement of apparatus will be based on various decisions to include the financial capabilities. It is recognized that the Lower Valley Fire Protection District may at times be forced to exceed the recommendations of this Apparatus Replacement Program based on available funding.



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Apparatus Replacement Program Proposal

Introduction

It is the intent of this document to introduce the importance of the Apparatus Replacement Program and to identify and assess the condition of our fleet of emergency apparatus and to implement a reasonable and fiscally sound replacement program. It is intended to establish when apparatus should be considered for replacement based on one of three life cycles:

Service Life: The service life of an apparatus is when a specific piece of equipment is capable of performing its intended duty. The service life of an apparatus is determined on various factors such as; mileages, number of responses, overall wear and tear, pumping capacity and operational capability.

Technological Life: The technological life of an apparatus is based on its capability to continue serving in the role it was initially designed and purchased for. It is given that older apparatus may still be capable of performing the various tasks they were designed for, they often cannot match the performance requirements of new apparatus such as; acceleration and braking ability, traction control, rollover prevention, personnel safety devices, occupant protection, and mechanical over rides that ensure apparatus are not put in situations that become dangers for the operator.

Economic Life: The economic life of an apparatus is based on its total expense over a given period of time. Costs such as; depreciation, operating costs, fuel, oil, maintenance, repairs, downtime and operator training play a role in determining the economic life of apparatus. The cost to maintain a specific apparatus increases over time until it reaches its point of diminishing return or it become more expensive to operate than maintain.

Background

The Lower Valley Fire Protection District is an all hazard emergency response organization providing service to the community of Fruita, Loma, Mack and all areas in-between, along with our neighboring communities through mutual aid.

The apparatus required for an all hazard emergency response organization varies based on the nature of the emergency, be it a medical call where an ambulance responds, a brush truck for a brush fire in the wildland/urban interface area, or a structural engine for residential and/or commercial fires. Each of these emergencies provides unique challenges for the emergency responder and therefore the apparatus which respond need to be able to carry the sufficient personnel and the specific equipment and supplies to mitigate the situation.

In the last decade the fire service has expanded its service delivery and as such the role of the emergency apparatus has significantly changed. Not only are fire apparatus used to extinguish structure fires but now they are expected to carry equipment for; medical emergencies, rescue situations, hazardous materials events and anything else that will

decrease the deployment time and reduce loss to the taxpayer. Additionally due to numerous deaths and injuries of emergency responders the safety standards for emergency apparatus have become ever increasingly stricter.

The NFPA has developed recommended standards for apparatus replacement based on various factors such as age, cost of ownership, and compliance to safety standards. These recommendations can be found in NFPA 1911 *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus* 2012 Edition.

The Fire Protection District maintains a fleet of emergency apparatus consisting of the following:

- 2005 Chevrolet Trailblazer Command Vehicle
- 2008 Chevrolet Trailblazer Fire Prevention Vehicle
- 2000 Ford Brush Truck
- 1999 Ford Brush Truck
- 2005 Pierce Dash Pumper
- 2006 Pierce Dash Rescue/Pumper
- 2007 Sterling Water Tender
- 2000 International Water Tender
- 1984 Simon Ladder Truck
- 2014 GMC 350 Ambulance
- 2009 Dodge 4500 Ambulance
- 2015 GMC 350 Ambulance
- 2013 Dodge 2500 Pick-Up
- 1997 Grumman OMC Boat

The average age of our emergency apparatus fleet is 14 years old.

The Purpose

Each year operational budgets get tighter and tighter. With increasing costs and decreasing revenues it has become more important than ever to ensure we are basing financial decisions on what is best for both the community and the organization. These financial decisions need to be based on actual need versus wants and desires. To ensure these decisions are based on actual needs a systematic approach has been taken to develop an apparatus replacement program specific to the Lower Valley Fire Protection District.

Evaluation Method

The method selected for the apparatus replacement program is based on a point system. This method will take into consideration the recommendations of the following NFPA Standards;

- NFPA 1901 *Standard for Automotive Fire Apparatus*
- NFPA 1904 *Standard for Aerial Ladder and Elevating Platform Fire Apparatus*
- NFPA 1906 *Standard for Wildland Fire Apparatus*
- NFPA 1911 *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus*
- NFPA 1912 *Standard for Fire Apparatus Refurbishing*
- NFPA 1917 *Standard for Automotive Ambulances*

Guidelines

The following is a breakdown of how the point system is utilized for determining if an apparatus needs to be replaced. It is important to keep in mind that if an apparatus is refurbished, a 15 year old apparatus still requires 15 year old parts. The importance of this comes when impending repairs and maintenance must take place for apparatus and if the parts will even be available or if they have to be fabricated which in itself violates all NFPA Standards. While age alone cannot be a factor in whether or not an apparatus needs to be replaced it is one of the more significant factors.

Reliability of apparatus also needs to be a determining factor. If apparatus spend more time in the shop than they do being available for response then it is simply a drain on the organizations maintenance and repair budget.

As far as maintenance and repair (M&R) if it costs an organization more money to repair the apparatus than it does to simply maintain it then it has outlived its usefulness. With this the lifelong maintenance costs need to be a determining factor as at some point the apparatus will exceed its point of diminishing return.

The condition of the apparatus is about more than how it simply looks but how that condition may affect things such as future maintenance and repair costs. It also affects public image of the organization which in turn impacts the public's confidence in the organization

Functionality of apparatus is a factor that is commonly overlooked when determining apparatus replacement. The functionality of an apparatus may no longer be in accordance with NFPA Standards which in itself possess a significant liability factor for the organization. Functionality also takes into consideration the apparatus's ability to continue performing the tasks it was originally designed for and it's needed use currently.

Point Scale

The point system is the most widespread methodology used for Fire Service Apparatus Replacement Programs.

<u>Factor</u>	<u>Points</u>
Age	1 point for every year of chronological age
Miles/hours	1 point for each 10,000 miles or 1,000 engine hours
Type of Service	1, 3, or 5 points are assigned based on the type of service the unit is exposed to. For example, structural engines would be given a 5 because it is classified as severe duty service where a staff vehicle would only be given a 1
Reliability	Points are assigned as 1, 3, or 5 depending on the frequency that the vehicle is in the shop for Maintenance and Repair. A 5 would be assigned to an apparatus that is in for Maintenance and Repair two or

more times per month on average while a 1 would assigned to an apparatus that is in for Maintenance and Repair an average of once every three months or less

Maintenance and Repair Costs 1 to 5 points are assigned based on total life Maintenance and Repair costs (not including repair of accident damage). A 5 is assigned to a vehicle with life Maintenance and Repair costs equal to or greater than the vehicle’s original purchase price, while a 1 is given to a vehicle with life Maintenance and Repair costs equal to 20 percent or less than its original purchase cost.

Condition This takes into consideration body condition, rust, interior condition, accident history, anticipated repairs, etc. 1, 3, and 5 are used with 5 being very poor condition.

Functionality This takes into consideration whether or not the apparatus design still meets the intended use of the apparatus. 1, 3, or 5 points is assigned based if the apparatus design with a 5 indicating that the apparatus design no longer meets current NFPA Standards and its design no longer meets the intended design without significant alterations while a 1 indicates that the apparatus still meets all NFPA Standards and it still meets all intended uses for its design with no alterations needed.

Point Ranges	Fewer than 20	Condition I	Excellent/No Action Needed
	20 – 25	Condition II	Good/Consider Planning
	25 – 29	Condition III	Qualifies for Replacement
	30 or more	Condition IV	Needs Immediate Consideration

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Unit Number	Unit Type	Year	Age	Mileage	Life Expectancy
Engine 31	Class A Pumper	2005	13	20930	10 - 15
Engine 32	Class A Pumper	2006	12	33709	10 - 15
Ladder 31	75' Aerial Quint	1984	34	76436	15 - 20
Boat 31	Shallow Water Rescue	1997	21	N/A	15 - 20
Ambulance 31	ALS/BLS Transport Ambulance	2014	4	57296	10
Ambulance 32	ALS/BLS Transport Ambulance	2009	9	25899	10
Ambulance 33	ALS/BLS Transport Ambulance	2015	3	40748	10
Brush 31	Type 6 Brush Truck	2000	18	71498	10 - 15
Brush 32	Type 6 Brush Truck	1999	19	36656	10 - 15
Chief 31	Staff/Command Vehicle	2005	13	118998	10 - 15
Squad 31	Staff/Fire Prevention	2008	10	86323	10 - 15
Utility 31	Pick-Up Utility Truck	2013	5	36643	10-15
Tender 31	Water Tender	2007	11	11883	10-15
Tender 32	Water Tender	2000	18	27123	10-15

Current Scoring of Apparatus

Unit	Age Points	Mile/Hour Points	Type of Service Points	Reliability Points	M & R Points	Condition Points	Functionality Points	Total Points	Condition	Recommendation
Engine 31	13	2	5	1	1	1	1	25	III	Qualifies for Replacement
Engine 32	12	3	5	1	1	1	1	24	II	Good/Consider Planning for Replacement - Reserve
Ladder 31	34	7	5	1	1	1	3	52	IV	Needs Immediate Consideration - Replacement
Boat 31	21	0	5	1	1	2	1	31	IV	Needs Immediate Consideration - Replacement
Ambulance 31	4	5	5	1	0	1	1	17	I	Excellent
Ambulance 32	9	2	5	1	1	1	1	20	I	Excellent/Good
Ambulance 33	3	4	5	1	0	1	1	15	I	Excellent
Brush 31	18	7	5	1	1	1	3	36	IV	Needs Immediate Consideration for Replacement
Brush 32	19	3	5	1	1	1	1	31	IV	Needs Immediate Consideration for Replacement
Chief 31	13	10	1	1	0	0	1	25	II	Good/Consider Replacement
Squad 31	10	8	1	1	0	0	1	21		Good
Utility 31	5	3	1	1	0	0	1	11	I	Excellent
Tender 31	11	1	5	1	1	1	4	24	II	Good
Tender 32	18	3	5	1	1	1	1	31	IV	Needs Immediate Consideration for Replacement

Recommendation

One of the most important capital assets of the Lower Valley Fire Protection District is the fleet of emergency apparatus. All members of the organization depend on the safety, reliability, and capabilities of these apparatus to help keep them safe while they are performing their duties and to meet the mission statement of the organization. In order to decrease the risk of injury to them and the community while ensuring quality service to the community it is vital that the emergency apparatus our personnel respond on have the proper tools, safety features, and functional design.

Emergency apparatus can and are extremely expensive and if not planned for carefully can cost the organization significantly as apparatus can cost over \$1,000,000.00 depending on function and design.

The cost of apparatus will only continue to increase from year to year so theories of waiting on replacing apparatus ultimately result in higher costs to the organization. The theory of refurbishing apparatus if viable but keep in mind a 15 year old apparatus will still require 15 year old parts that may no longer be available. And the apparatus may no longer be compliant with the NFPA standards of the time.

It is recommended that the Lower Valley Fire Protection District immediately adopt a formal apparatus replacement program. The adoption of a formal program will allow us as an organization to make sound fiscal decisions as it pertains to capital purchases for emergency apparatus that are based on actual data versus opinion. In doing so the Lower

Valley Fire Protection District can ensure the taxpayers that the organization is making educated and informed decisions as it pertains to the replacement of emergency apparatus.

It is further recommended that the Lower Valley Fire Protection District immediately begin the planning and implementation for the replacement process of those apparatus that qualify for immediate replacement consideration. It is not recommended that all apparatus be replaced in the same year as this will result in the organization having to replace more apparatus than can be afforded. Rather a phased approach at apparatus replacement is recommended.

Phased Approach

Through the use of a phased approach to apparatus replacement, the Lower Valley Fire Protection District will be able to implement a reasonable apparatus replacement program. This approach is not a quick fix and will take several years to get the organization on track with where it should be as it pertains to apparatus replacement.

Current budgeting allows for \$50,000 - \$100,000 annually in infrastructure/capital project which can be used for apparatus replacement. Provided the budget remains level and there is no significant decrease, we can provide a positive balance to use toward vehicle, station upgrade and large purchases in the future. Although this is a good start with forward thinking by this administration, it is not enough to sustain us in the future. Provided revenues are sufficient to sustain it, a line item under the Capital Reserve section of the budget will be allocated for Apparatus Replacement and funded at \$100,000 annually.

Estimated Cost: \$885,000 (as of today)

- Brush Truck = \$140,000 (x2) = \$280,000
- Tender = \$250,000
- Ladder (replace with newer used) = \$300,000
- Boat = \$30,000
- Chief Vehicle = \$25,000