

## THOMPSON-NICOLA REGIONAL DISTRICT



## Loon Lake Volunteer Fire Department 2<sup>nd</sup> Hall Construction Capital Investment Analysis

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# TABLE OF CONTENTS

1.0 Executive Summary .....	3
1.1 Summary of Recommendations .....	7
2.0 Overview .....	8
3.0 Methodology .....	10
4.0 Scope of Project .....	11
4.1 Assessing the Community Need for a Second Fire Hall .....	11
5.0 Capital Requirements, Including Cost Benefit Analysis of Constructing a New Fire Hall Versus Expanding the Existing Hall .....	17
5.1 Cost Benefit Analysis of Constructing a New Fire Hall .....	21
6.0 Assess and Make Recommendations of Fire Apparatus Required .....	22
6.1 Water Supply .....	25
7.0 Assessment of the LLVFDS Operating Budget .....	26
8.0 Assessment of the Current Taxation Model .....	27
8.1 Funding Equality .....	32
9.0 Review of Fire Underwriter’s Survey Rating for Loon Lake .....	35
10.0 Volunteer Recruitment and Retention Strategies .....	38
11.0 Assess the Overall Administrative and Operational Readiness of LLVFD .....	40
11.1 LLVFD Inspection and Audit .....	40
11.2 Bylaw .....	41
11.3 Policies .....	41
11.4 Declared Level of Service .....	42
11.5 Fire Protection Area .....	43
12.0 Closing Thoughts .....	44
Glossary .....	46
Appendix “A” New Tender Specification and Cost .....	47
Appendix “B” Operating Budget .....	79
Table 1 Business Mortgage Options .....	19
Table 2 Estimated Tax Based on Assessed Values .....	20
Table 3 Advantage – Disadvantage of Moving from Society to TNRD .....	29
Table 4 Loon Lake Tax Rates Other Services .....	33
Table 5 FUS Ratings TNRD Communities .....	35

# 1.0 EXECUTIVE SUMMARY

The Thompson-Nicola Regional District (TNRD) sought a qualified consultant to undertake an analysis of the feasibility of constructing a 2<sup>nd</sup> fire hall for the Loon Lake Volunteer Fire Department Society (LLVFDS) service protection area and issued a Request for Tenders for this project. FireWise Consulting Ltd. (FWC) was named the successful proponent and a service agreement was signed on May 4, 2016.

The submission submitted by FWC included, in the study, an analysis of the Loon Lake Volunteer Fire Department's (LLVFD) capacity to provide current and future fire protection services to the community of Loon Lake. Two reports were proposed by FWC. The first report was an Inspection and Audit of the LLVFD as recommended by the Chief Provincial Coroner that each fire department in the province be regularly inspected and audited to ensure compliance with industry standards, regulations, and best practices. The Loon Lake Volunteer Fire Department Inspection and Audit report is simply a status report of the organization, administration and operational readiness of LLVFD noting any deficiencies found with a narrative and recommendations on how to address or correct the noted deficiencies.

The second report is entitled Loon Lake Volunteer Fire Department 2<sup>nd</sup> Fire Hall Construction and Capital Investment Analysis. Section 4 of this report contains the scope of the project noted in the service agreement between the TNRD and FWC.

This report makes 10 recommendations but also contains considerable commentary on the issues.

In British Columbia, there is no legislated requirement to have a fire department. It is purely a local government service that residents choose to have. The property owners of Loon Lake and area formed the Loon Lake Volunteer Fire Department Society to administer and provide oversight for this purpose and to receive some funding from the TNRD.

Once a fire department has been established by the Authority Having Jurisdiction (AHJ), in this instance the LLVFDS is the AHJ, through their Bylaw and then through the LLVFDS Constitution and Bylaws, they are obliged to meet a Duty of Care and simultaneously a Standard of Care.

It is the responsibility of the property owners financially supporting the service to advise the AHJ what services they expect to receive from the local fire department. It is also their responsibility to tell the AHJ what services they do not wish the local fire department to provide.

Funding for a fire department is usually provided by the local government who, through the enabling legislation, the *Local Government Act*, which establishes a local service area to collect taxes from the property owners who will derive a benefit from the service.

In 1999 the TNRD Board passed Bylaw No. 1756 entitled “A Bylaw to Establish a Local Service Area Within a Portion of Electoral Area “E” for the Purpose of Providing a Contribution For Fire Protection”. Additionally, the Loon Lake Fire Protection Financial Contribution Agreement between the TNRD and LLVFDS was updated and signed in 2015. This agreement has a list of definitions including “**Fire Protection Services**”. This definition “includes the organization, management, operation, supervision and delivery of all fire safety services, including, without limitation, all fire prevention, first responder, rescue, firefighting, fire suppression and control, pre-fire planning, fire cause inspections and investigations and fire prevention and community education, together with the provision, maintenance and operation of all staff, premises, equipment (including without limitation, all 9-1-1 fire dispatch signal receiving equipment) machinery and vehicles necessary or desirable for such services”.

In Section 2 of the agreement it goes on to say under the heading “**Provision of Fire Protection Services**” that “During the term of this Agreement, the Society will be solely responsible for providing Fire Protection Services to the property owners within the Local Service Area”. It would appear that the TNRD has contracted the LLVFDS to be the sole provider but has somewhat restricted them in the organization, administration and delivery of the service by the amount of funding which is through a parcel tax capped at \$22,000.00 per year.

The delivery of the service is also somewhat hampered by the fact that the **Local Government Act** is very specific about who may enter private property to suppress a fire. A fire department usually receives this authority through a bylaw from the AHJ. In this case, that bylaw would need to come from the TNRD. A society would not have the authority to create such a bylaw. We understand there is some reluctance on the part of TNRD because creating a bylaw such as this would involve the TNRD taking more responsibility for LLVFD.

It is suggested the property owners in the fire protection area may wish to consider the administration and oversight of LLVFD be provided by the TNRD. A table showing the pros and cons of going to a TNRD run fire department is included in Section 8 of this Report.

One of the most important objectives of this report was to assess the community need for a second fire hall. LLVFD does need a second fire hall. It has more equipment than it has space to house it. Having a community asset such as fire apparatus outside and exposed to the elements is not a good situation. In the winter months, it is inoperable because it needs to be drained of water. In order to be operationally ready to respond, fire apparatus should be kept inside a warm building, fully loaded with water and equipment ready to respond. That is reason number one why a second fire hall is justified.

Another reason is because of the size of the fire protection area and where the volunteer fire fighters’ residences are located. The current fire hall located at 1705 Loon Lake Road is almost central in the fire protection area from east to west and is at the west end of Loon Lake.

Firefighters who reside at the east end of Loon Lake, therefore, must travel almost the entire distance of the Lake or over 14 kilometers, to get to the fire hall to respond to a fire. If a fire hall was located at the 3049 Stevens Road several of the firefighters who live in that area would be much more effective if they could respond to a fire hall on Stevens Road.

The proposed location is suitable for a variety of reasons. One is that it was donated to the community for community use. Another is that it has easy access to Loon Lake Road. The lot is on community water and should not require much to prepare it for the construction of a small fire hall.

The cost of a new 2000 square foot fire hall is estimated to be \$600,000.00 and the effect on property tax estimates are provided using different interest rates and loan terms.

There would be no benefit to be gained by renovating the existing fire hall. It is barely adequate as it is but it is the location more than any other reason why no benefit would be gained. The travel distance for firefighters is simply too great, for half the volunteer firefighters, to be effective.

LLVFD has three pieces of fire apparatus. Two of them are full size pumpers that were originally built for metropolitan fire departments. They are in good operating condition but are large and do not carry much water. The third fire apparatus is a 26-year-old mini-pumper with a small pump and water tank. This unit is kept at the residence of one of the firefighters on Stevens Road. A recommendation is made that, in the future, LLVFD should plan to purchase a water tender with a small fire pump when it comes time to replace one of the large pumpers. Water is critical to the successful outcome of any fire and a water tender will increase the effectiveness of LLVFD by having a mobile water supply.

Other water supply issues are discussed and a recommendation is made to install some dry hydrants so water from Loon Lake can be accessed more efficiently.

As previously mentioned funding for LLVFD is not adequate. Changes to the budget are discussed but more importantly a recommendation is made to switch from the parcel tax to a system using a tax requisition rate based on assessed property values. Currently, large lots on one title pay one parcel tax even though they may have multiple residences on the lot. More expensive homes are being built but they currently pay the same parcel tax as a small modest cabin would for fire protection.

Property owners are hopeful that some relief from high insurance rates may be possible if improvements are made. This is a possibility and the report has some commentary on how improvements made to the funding and equipment may result in an insurance premium reduction, offsetting an increase in property tax.

Volunteer firefighter recruiting and retention strategies are discussed and having volunteer firefighters is absolutely essential to the provision of the service. It has been proven many times over in other jurisdictions that an interesting and challenging training program is the best retention strategy for volunteer firefighters. In any volunteer fire department, volunteers can be given other responsibilities such as maintenance or record keeping. Older firefighters can still have an important role to play but they must also realize the world has changed and the way things were done in the past may not work today. The use of the internet is essential in training firefighters today and a minimum of basic computer skills is essential.

Provincial legislation is impacting the fire service local government including the TNRD. LLVFD must comply with WorkSafeBC Regulations and is required to have operating guidelines, good record keeping of all training, maintenance of equipment and Occupational Health and Safety (OH&S) issues.

The Office of the Fire Commissioner has stated all fire departments and their AHJ must declare their Level of Service as defined in the British Columbia Fire Service Minimum Training Standards Structure Firefighters Competency and Training Playbook. It is recommended that for LLVFD the declared level of service should be the Exterior Operations level.

Emphasis on the importance of an adequate bylaw and policies from the AHJ is discussed.

Finally, it is recommended that the Fire Protection Service Area boundary be reviewed to see if it needs to be amended or re-drawn. Time and travel distances to properties in the west of the district are too far for the fire department to have any effect. If the property owners in this area wish to receive fire protection they should perhaps encourage the TNRD to enter into an agreement with Cache Creek or Clinton to provide fire protection.

The members past and present of both the LLVFDS and LLVFD are to be commended for their commitment to the community. Their hard work over the last 27 years has laid the foundation for LLVFD leading up to where it is now. They have much to be proud of. Fortunately, there are new people who are committed to building on that foundation and making the service even better as the old guard retires or is no longer physically able to be a firefighter.

It hoped that this report will provide more information for the stakeholders so they can partake in meaningful dialogue so decisions can be made regarding fire protection to Loon Lake and area.

## 1.1 SUMMARY OF RECOMMENDATIONS

**4.1.1 Recommendation:** *It is recommended that the LLVFDS confirm with the property owners in the Loon Lake Fire Protection Area the services they wish the LLVFD to provide.*

**5.0.1 Recommendation:** *It is recommended that the LLVFDS construct a simple two bay fire hall adequate in size to accommodate two full size apparatus with room to safely work on them while inside. The building should also have additional storage capacity and be positioned and constructed for future expansion if required.*

**6.0.1 Recommendation:** *It is recommended that the LLVFDS plan to purchase a 1500-gallon mobile water supply, preferably with a fire pump and portable water tank.*

**6.1.1 Recommendation:** *It is recommended that the LLVFDS plan for the installation of some dry hydrants accessing Loon Lake to establish a reliable source of water for firefighting.*

**8.0.1 Recommendation:** *It is recommended that the LLVFDS be dissolved and TNRD assume administration and oversight responsibilities for LLVFD.*

**8.1.1 Recommendation:** *It is recommended that funding for fire protection services be derived from a tax requisition rate based on assessed property values.*

**11.2.1 Recommendation:** *It is recommended that a well crafted bylaw for LLVFD is created granting authority for LLVFD to provide fire protection services.*

**11.3.1 Recommendation:** *It is recommended that the AHJ create policies for LLVFD especially for the level of service for all fire protection services provided.*

**11.4.1 Recommendation:** *It is recommended that the declared level of service for structural firefighting for LLVFD be the Exterior Service Level as defined in the Playbook.*

**11.5.1 Recommendation:** *It is recommended that the fire protection service area is analyzed to see if it is practical for the reality of LLVFD and the service area gaps be addressed in a bylaw and through policy from the AHJ*

## 2.0 OVERVIEW

The Thompson-Nicola Regional District and the Loon Lake Fire Department Society (LLVFDS) have agreed that the LLVFDS will be solely responsible for providing Fire Protection Services to the property owners within the defined Local Service Area of TNRD Electoral Area “E” (Bonaparte Plateau). By bylaw, the TNRD has established the Fire Protection Service Area Loon Lake Fire Protection Financial Contribution Agreement. In addition to providing an annual financial contribution to the LLVFDS, this agreement provides detail on the responsibility resting on LLVFDS with respect to training, record keeping, selecting and declaring the level of service for fire fighting and other services provided by LLVFD.

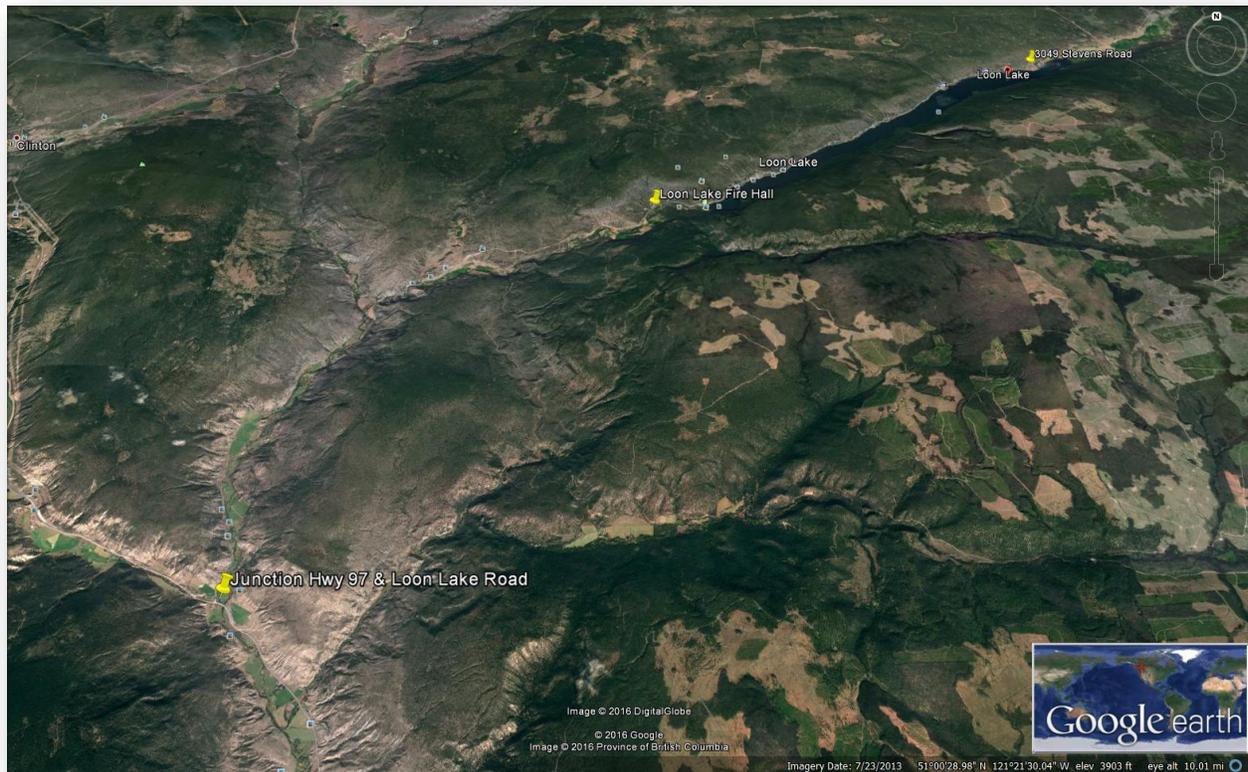
This relationship between TNRD and LLVFDS and the property owners who contribute financially to the service by a parcel tax levy establishes that a Duty of Care now exists and simultaneously, a Standard of Care for the services provided by LLVFD. The parcel tax collected contributes \$22,000.00 annually to LLVFDS.

The starting point for any fire department is an establishing bylaw enacted by its Governing Authority which states the services it will be authorized to provide. As a registered Society, LLVFDS has the authority conferred to it by agreement from the TNRD to enact a bylaw specifying what services LLVFD will provide taking into consideration the wishes of the community and the ability of the community to support the service financially and in other ways.

LLVFD had its origins prior to 1999 but TNRD Bylaw No 1756, passed in that year, formalized the establishment of a Local Service Area with some funding from a parcel tax collected to help pay for the service. What started off as a neighbor helping neighbor type of service has evolved into a service with a fire hall, fire apparatus, and related equipment. This progression also means the LLVFD must comply with WorkSafeBC Regulations.

From a two bay fire station located at 1705 Loon Lake Road, LLVFD provides fire protection in the form of fire suppression of structures, vehicles, boats, ATV’s etc. and initial attack on bush fires. The LLVFD recently acquired an automatic external defibrillator but does not provide other first medical response. The department has two full size fire engines and one mini-pumper in its fleet. The two larger engines are housed in the fire hall whereas the mini pumper is kept at a firefighter’s residence at the east end of Loon Lake.

The location of the fire hall is approximately half the distance between Highway 97 and the east end of Loon Lake and just west of the west end of the lake. The Fire Protection Service Area straddles Loon Lake Road from just west of Highway 97 until Loon Lake at which point it extends along the north side only, of Loon Lake for 14.4 kilometers (9 miles) but not continuously. The



Fire Protection Service Area does not include all of Loon Lake Road; the largest service area gap being from 2547 Loon Lake Road to 2625 Loon Lake Road. The gaps in the service area could be an issue for LLVFD if they respond to a fire outside their Fire Protection Area.

LLVFD currently has 15 members on the roster. Many of them are not permanent residents but do enjoy recreational property on Loon Lake. The addresses of the current roster of firefighters are split between east and west of the Loon Lake fire hall. Because the firefighters are volunteers, when a call for assistance is sent out to the LLVFD, the firefighters must travel from wherever they are to the fire hall at 1705 Loon Lake Road. This could mean a distance of 10 or 15 kilometers to get the necessary fire apparatus and equipment. That distance could double if the call for assistance is in the area from which the responding firefighters just came.

At 3049 Stevens Road, there is a vacant lot that is owned by the TNRD. This lot was donated to the community for public use. LLVFDS has identified this lot as a suitable location to construct a second facility to store or house fire department apparatus and equipment. Steps were taken by LLVFDS to construct a building at this location but were put on hold by the TNRD until more community consultation took place and it was determined what type and size of the building should be constructed or if other options should be considered.

The TNRD was able to obtain some grant money to hire a consultant to explore options and make suggestions and recommendations for the residents to consider. A competitive request for tender was issued with a scope of the project defined. FireWise Consulting Ltd. was the successful proponent and a contract was signed.

On June 12, 2016, the consultants attended a public meeting of property owners facilitated by the LLVFDS to explain the process, provide information and to listen to comments from those in attendance.



### 3.0 METHODOLOGY

Once the Scope of the Project had been defined, checklists were sent out to the Fire Chief and LLVFDS so an assessment of how the department is organized and administered could be completed. The checklists were developed by the Office of the Fire Commissioner, as the result of a line of duty death of a Clearwater volunteer firefighter in 2004, on a recommendation from the Chief Provincial Coroner. These checklists formed the basis of a separate Inspection and Audit Report of LLVFD providing them with a guide for actions they should take to be compliant with industry standards, best practices, and WorkSafeBC Regulations.

A request for documents was sent to the TNRD and the directors of the LLVFDS. These documents were received and analyzed. FireWise Consulting associates met with the LLVFD members at the fire hall where the building and equipment were viewed and information shared.

On June 12, 2016, a public meeting was held at the Community Hall. Officials from the TNRD were in attendance as was the Electoral Area Director. A good discussion was held and a better understanding of the community wishes was obtained along with an opportunity to provide information to those in attendance.

Several telephone and email conversations took place on matters of relevance to this project. The information was assimilated and a draft report prepared with the final report released to the public.

## 4.0 SCOPE OF THE PROJECT

1. Assess the community need for a second fire hall.
2. Evaluation of the proposed site at 3049 Stevens Road providing insight with respect to its suitability for the Loon Lake Volunteer Fire Department (LLVFD).
3. Identify the capital cost requirements, including cost benefit analysis of constructing a new fire hall vs expanding the existing fire hall.
4. Assess and make recommendations on fire apparatus required.
5. Assessment of the operating budget with a view to the level of service declared by the authority having jurisdiction (AHJ).
6. Assessment of the current taxation model.
7. Review the current Fire Underwriters Survey's fire rating for the community and make recommendations on improving the rating for fire insurance premium reduction.
8. Recommendations for volunteer recruitment and retention strategies.
9. Assess the overall administrative and operational readiness of the fire department with recommendations for improving or enhancing the provision of fire protection including bylaws, policies of the AHJ pertaining to the LLVFD and compliance with regulations, fire service standards, and best practices.

## 4.1 ASSESSING THE COMMUNITY NEED FOR A SECOND FIRE HALL

LLVFD has one fire hall located at 1705 Loon Lake Road. This location is approximately at the centre point of the fire protection area which extends from just west of Hwy 97 to the eastern end of Loon Lake a distance of approximately 19 kilometers.

One of the reasons this location was chosen was because of its central location within the fire protection area and where the volunteer firefighters live. The fire hall itself is a two bay hall with

a second floor meeting room above the apparatus bays. This fire hall is functional and with routine maintenance, should serve the community for many more years.

The two apparatus bays are narrow making it difficult to walk around the trucks when parked inside. A stairway at the rear of one bay decreases the bay length as compared to the other bay but LLVFD has managed the space well.

The issues for consideration are; first, the third apparatus in the LLVFD fleet is currently kept outside exposed to the elements at the residence of former Fire Chief Norm Dixon on Stevens Road which, is almost directly across from the site suggested to construct another fire department facility. During the cold winter months, this fire apparatus will need to have the water tank and fire pump drained to prevent it from freezing, rendering it virtually useless for firefighting purposes.

The second issue is that firefighters residing on the east end of Loon Lake must travel up to 14 kilometers (9 miles) to the existing fire hall if a fire call is received. The map on the following page provides an overview of the Loon Lake Fire Protection Area indicating where the existing fire hall is located and where the proposed additional fire department facility may be located.

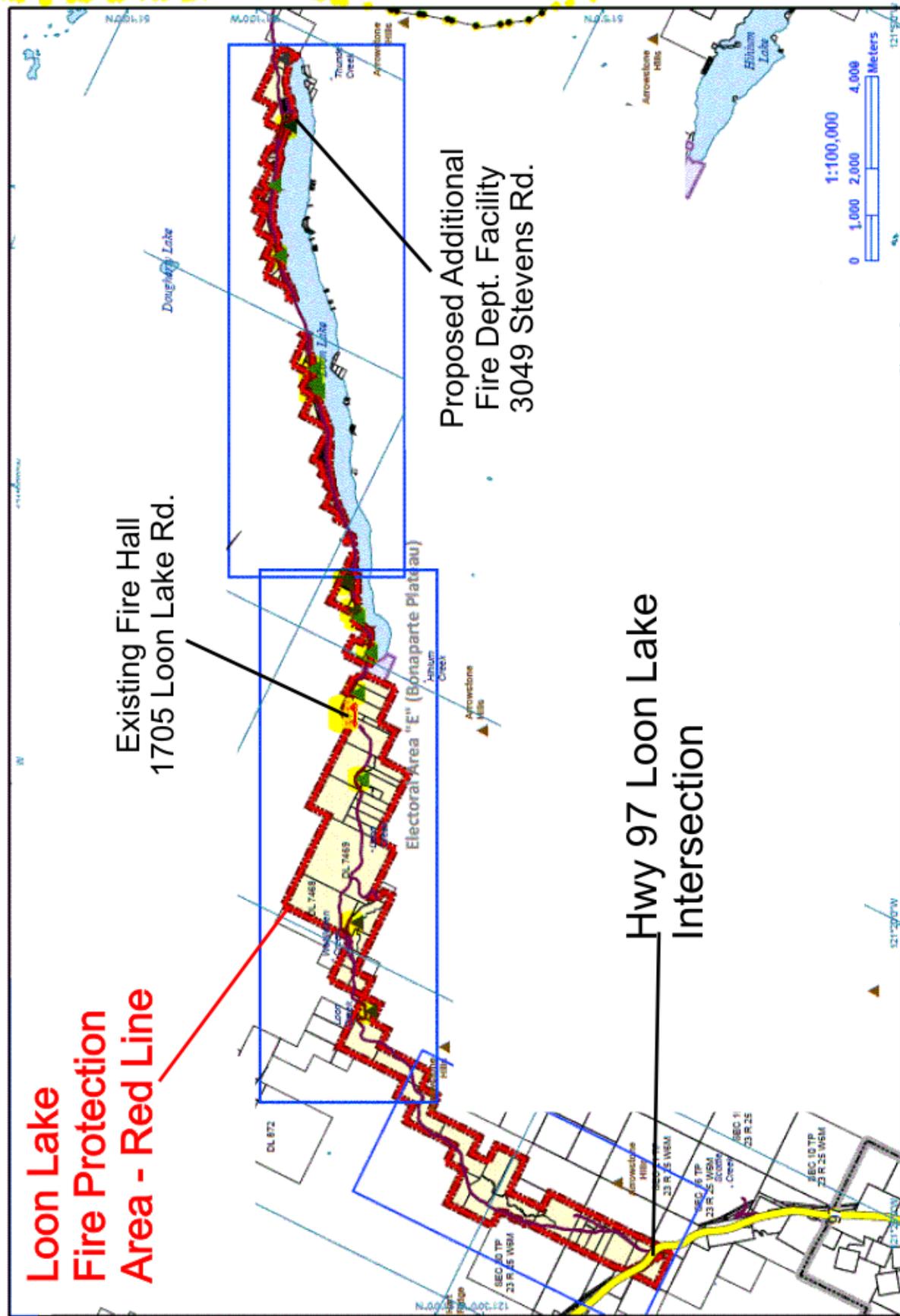
In practical terms justifying the need for a second fire department facility can be based on two points. The first one being that having a critical piece of equipment outside exposed to the elements and unsecure is not a good situation. A piece of fire apparatus is a community asset which should be secured and protected just like the Community Hall is.

The second justification would be that several volunteer firefighters' own property reasonably close to the Stevens Road location proposed for a second facility. A key factor in emergency response is efficiency and in the volunteer fire service, having firefighters located close to the equipment is crucial. It is not efficient for firefighters to have a long drive from their residence to where the fire apparatus is located.



***A fire department does not exist for what it does.***

***It exists for what it may have to do.***



In the case of Loon Lake, a firefighter residing on the east end of the Lake could conceivably, be required to drive 14 kilometers to the existing fire hall, put on his/her personal protection equipment then, board the fire apparatus to respond to a fire. If the fire is in the east of the fire protection area, the overall response time for the fire department could almost be doubled. In terms of a response to a fire, this is not acceptable and well beyond the response standard.

A second facility of some type where the third piece of apparatus is now currently kept would make sense since there are many residences in the area where volunteer firefighters could be drawn from.

Three performance measuring tools used to gauge the performance of a fire department are:

1. **Efficiency**
2. **Effectiveness**
3. **Equity**

**Efficiency** measures how efficient the fire department is when responding to a call for assistance. For the reasons described above, overall LLVFD is not going to be very efficient due mainly to the long travel distances involved.

**Effectiveness** measures how effective the fire department actually is once they commence operations. Effectiveness measures how well the firefighters used the equipment and applied their training. For example, was the fire contained to the building of origin or better still was the fire confined to the room of origin. Fires grow exponentially rapidly doubling in size if left unchecked. Early detection and intervention is the key to saving lives and protecting property.

In this particular situation, however, effectiveness to structure fires may not be a valid performance measuring tool. Perhaps a better performance tool would be to understand that LLVFD has over the years been quite effective at preventing a small bush fire from growing large and destroying property.

**Equity** measures the value property owners receive from the money they expend in supporting the fire department financially. Section 6 of the report expounds more on the current taxation model but with the current \$74.06 annual parcel tax rate levied on each property within the fire protection area, it can be argued that the residents do indeed receive great value for the money expended.

In purely financial terms, the justification for another facility is not so easy. The third section in the scope of this project addresses cost requirements and in the end, this may be the deciding factor for many property owners to support another facility. Depending on what type of facility is considered will determine if the community will support it financially.

Fire departments do more than just fight structure fires. Approximately forty people attended a public meeting on June 12, 2016, at the Loon Lake Community Recreational and Agricultural Society hall. It was asked of the people in attendance what their expectations of the LLVFD were

and what services they wished the fire department to provide. It was clearly stated that the first and prime expectation the public had of LLVFD was to respond to fires. The question was raised about first medical response due to the long response time of BC Ambulance Service from Clinton or Cache Creek.

The public clearly indicated that first medical response was not an expectation and should not be considered. There seems to be a conflict in this regard within the community because the LLVFD had an external defibrillator at the meeting. The implementation and use of this life saving device require some training in CPR and other basic first aid.

It was expressed by the people present at the meeting that by improving the LLVFD the desired outcome would result in savings in property insurance premiums by achieving a better Fire Underwriters Survey (FUS) grading for the community.

There is no requirement to have a fire department within British Columbia. It is purely a local government decision by residents indicating to the local government they wish to have and support the service. It is, therefore, critical that the people let their elected officials (TNRD and Loon Lake Volunteer Fire Department Society) know what services they wish LLVFD to provide. Once that has been decided, authorized in a Bylaw and through policy statements, it will become clear as to what equipment and training and facilities are required.

***4.1.1 Recommendation:*** *It is recommended that the LLVFDs confirm with the property owners in the Loon Lake Fire Protection Area the services they wish the LLVFD to provide.*

The proposed site for the suggested fire hall is suitable for another facility for the following reasons.

1. It is TNRD public land, zoned and intended for public use. While a fire hall may be an allowed use of the property, confirmation should be obtained from the TNRD Development Approval Officer.
2. It is adequate in size.
3. It is in close proximity to where volunteer firefighters would likely be recruited from.
4. It is cleared land with a gentle slope rising up off Stevens Road.
5. It appears to be suitable from a geo-technical perspective and should not require extensive site preparation fill or other geo-technical work to be done.
6. It is on the Loon Lake Waterworks system so obtaining sufficient water for domestic and firefighting purposes should not be too expensive to install.
7. It has good access to and from Loon Lake Road.
8. The density of the subdivision where it is located is such that a fire hall facility should not impact the neighbors.
9. The site allows for future expansion if or when it is needed if zoning permits.

Another option not explored but worth mentioning would be to look for a Crown land grant or lease. One such site is the abandoned Loon Lake Provincial Park between 2488 and 2511 Loon Lake Road. This site is approximately half way along Loon Lake meaning that it would be within 8 kilometers of most residential properties in the fire protection service area and approximately 10 kilometers from the canyon on Loon Lake Road where the old fish hatchery is located.

Although this may make sense at first blush, it would take careful scrutiny with respect to its suitability. First, the process to apply for Crown Land is laborious but can be done.



On the lake side of Loon Lake Road, the land slopes steeply down to the lake. Above Loon Lake Road there may not be adequate land to build a fire hall. The steep slope may require additional site preparation and concrete but a fire hall could be built into a steep bank taking advantage of the elevation for ground level access from the different levels typical of many residences seen at Loon Lake.

If, this land was determined to be suitable in size and the other site servicing costs were not excessive, constructing a fire hall at this location would result in a single facility to serve the Loon Lake Fire Protection Area resulting in lower long term operating and maintenance costs over having two buildings.

There may be other Crown Land options in the area we are not aware of but having one single facility that is properly designed would have many advantages concerning capital and operational expenses and from a personnel management perspective.

Depending on decisions made by the property owners with respect to the recommendations made in this report, securing a Crown Land grant or lease and having a centrally located fire hall built would be a valid option worthy of consideration in the long term.

## 5.0 CAPITAL COST REQUIREMENTS, INCLUDING COST BENEFIT ANALYSIS OF CONSTRUCTING A NEW FIRE HALL VS EXPANDING THE EXISTING FIRE HALL

With respect to meeting the needs of the community it is our opinion there is no benefit to be realized by expanding the existing fire hall. The existing fire hall is barely adequate as it is. The bays are very narrow and not deep enough. Expanding the existing fire hall to just house additional equipment would not be worth the expense and would not improve the efficiency of the department.

As explained in Section 4.0 of this report, the need for a second facility is to; a) protect and secure a critical piece of equipment and; b) increase the efficiency of the department by having an emergency response vehicle located close to where the volunteer firefighters would be located.

The type and purpose of the new fire department facility need to be determined.

Using the existing fire hall as the main fire hall for administrative purposes, meetings and training, the second facility could simply be a two bay building with a washroom and additional storage space to house the current fire apparatus which is now kept outside, but with an allowance for fleet expansion. Consideration should also be given to positioning and constructing the new building allowing for expansion if the need for further space is required in the future.



**5.0.1 Recommendation:** *It is recommended that the LLVFDS construct a simple two bay fire hall adequate in size to accommodate two full size apparatus with room to safely work on them while inside. The building should also have additional storage capacity and be positioned and constructed for future expansion if required.*

With the respect to the size and features of a fire department facility being built at this location, the suggestion proposed by FWC would be for a basic and functional structure that would be large enough to house two full-sized fire engines with space around the apparatus to allow firefighters to access them easily for emergency response, training and maintenance purposes.

To achieve this functionality, the size of the building should be approximately 40 feet wide and 50 feet deep. A 2000 square foot structure would also comfortably accommodate space for washrooms and for firefighters' personal protection equipment. It is believed that there would also be space for the storage

of equipment and supplies that would complement the apparatus located there. Such items as spare hose, SCBA bottles, and a back-up base radio could be considered initially, depending on funds available to cover the costs of acquiring items of this nature.

For the purposes of the capital cost requirements, research of new fire department buildings in the province indicates that a price of \$300.00 per square foot would provide the Society and the LLVFD with everything they need in a secondary hall at this time. As stated, this cost estimate includes everything required in a small fire station including gear storage racks, vehicle exhaust extraction system (often required by WorkSafeBC) and other special features not typically found in a work shop.

## Overview

The Capital Regional District (CRD) and the North Galiano Fire Commission are completing the construction of a new fire hall located at 19400 Porlier Pass Road.

The fire hall is a post-disaster rated structure and will provide reliable long-term emergency response and fire protection services to the residents of North Galiano. It will also serve at the communities Emergency Operations Centre (EOC) in the event of a disaster and will contain all communications, supplies and materials for providing disaster relief to the residents of North Galiano.



The fire hall is approximately 2,000 square feet and includes two truck bays, a washroom and laundry facility, radio dispatch room, meeting room and a training room. An emergency generator will provide back-up power to the facility in the event of power loss.

## Building Cost

In December 2012 the taxpayers of North Galiano voted in a referendum to borrow up to \$670,000 to pay for the construction of a new fire hall. Capital Regional District (CRD) staff issued a tender for construction of a new fire hall in June 2013. The initial tender resulted in all the bids exceeding to project's capital budget.

With the agreement of the North Galiano Fire Protection Society (NGFPS) the project team redesigned the project and following an additional tender and subsequent negotiation awarded the construction of the fire hall. The total construction cost of the fire hall is expected to be less than \$600,000.

## Debt servicing information

\$570,000 was borrowed over 15 years at an interest rate of 3.85%. The estimated annual debt servicing cost is \$50,000.

It is appreciated that if the Society chooses to proceed with the development of the site at 3049 Stevens Road, many decisions would have to be made, all of which will impact the final cost of construction. The suggested cost of \$600,000.00 is deemed to be realistic for the financial information following. FWC believes the details will provide the Society with an appropriate starting point for their deliberations. It is understood that the cost of construction materials, the possible donation of both materials and skilled labour to manage and assist in the construction process plus the cost of borrowing funds may reduce the overall costs.

One important thing for the public to understand is that because this would be an Emergency Services Facility, the BC Building Code requires it to be built to a Post Disaster Standard. This standard adds to the cost as compared to constructing a similar building not built to this standard.

The news release to the left is one example of a recently constructed new fire hall for the North Galiano Fire Department that is very similar to what might be envisioned for Loon Lake.

## CAPITAL COST FOR NEW FIRE DEPARTMENT BUILDING CONSTRUCTION

New 2,000 sq foot fire department building built to a Post Disaster Standard estimated cost \$600,000.00

**Note:** *The suggested cost is based on the assumptions that the cost of the land, site services, provision of water, septic, power and other contingencies can be paid as part of the suggested total cost.*

### Business Mortgage Options \$600,000.00 Loan

*(All amounts are rounded up for the ease of comparison)*

Interest Rate	Term	Annual Amount
3%	25 years	\$34,000.00
3%	20 years	\$40,000.00
3%	15 years	\$50,000.00
3.5%	25 years	\$36,000.00
3.5%	20 years	\$41,500.00
3.5%	15 years	\$51,500.00
4%	25 years	\$38,000.00
4%	20 years	\$43,500.00
4%	15 years	\$53,000.00

Table 1 Business Mortgage Options

**Note:** *It is assumed that the Society members will have experience with a number of lenders and FWC makes no recommendation as to preferred financial institution other than to indicate that if LLVFD was to operate under the administration of the TNRD, access to long term borrowing funding through the Province may be an option worthy of consideration.*

To demonstrate reasonable annual debt servicing costs for the project the amortization rate of 20 years with interest at 3.5% has been used.

### Total estimated annual capital and operating cost:

Annual debt servicing	\$ 41,500.00
Annual operating cost ***	\$ 78,500.00
<b>Total annual tax requisition for fire protection</b>	<b>\$ 120,000.00</b>

\*\*\* *The operating cost is based on the suggested operating budget discussed elsewhere in this report and makes the assumption that added operational and maintenance costs for the new building, such as phone, hydro, cleaning supplies, etc. will be paid from within this suggested budget.*

The tax requisition rate for fire protection is determined by dividing the annual budget for fire protection by the assessed value of all the land and improvements in the specified service area to determine the cost per \$1000.00 of assessed value.

**Proposed annual budget for Loon Lake Volunteer Fire Department Society \$120,000.00** (see appendix “B”)

**Assessed value of all land in the LLVFD protection district \$ 95,134,388.00**

*Note: The Assessed value of all land and improvements were calculated on the basis of information provided by the TNRD and the BC Assessment Authority.*

**Tax Requisition Rate Formula:**

**120,000.00 ÷ 95,134,388.00 = \$0.001261 or \$1.26/\$1000 of assessed value including the Province and TNRD collection fees.**

The following table 2 shows the estimated amount of tax a property owner would expect to pay for the improved fire protection assuming a change to an assessed value Tax Requisition rate system based on the assessed value of their property and improvements is approved by the property owners. The implications of the improvements on fire insurance savings are discussed elsewhere in the report and offer the potential that may help offset the increased tax burden. There is no guarantee of fire insurance premium savings but a modest property tax offsetting reduction may be realized if a properly funded, staffed, equipped, and trained fire department within recommended travel distances to an insured property is established in the Loon Lake area.

**Estimated Tax for Fire Protection Based on Assessed Value Tax Requisition Rate System  
Less Parcel Tax**

Property Assessed Value	Tax Requisition Rate	Estimated Annual Tax Less Existing Parcel Tax
\$200,000.00	\$1.26/1000	\$ 252.00 - \$74.06 = \$ 177.94
\$250,000.00	\$1.26/1000	\$ 315.00 - \$74.06 = \$ 240.94
\$300,000.00	\$1.26/1000	\$ 378.00 - \$74.06 = \$ 303.94
\$350,000.00	\$1.26/1000	\$ 441.00 - \$74.06 = \$ 366.94
\$400,000.00	\$1.26/1000	\$ 504.00 - \$74.06 = \$ 429.94
\$500,000.00	\$1.26/1000	\$ 630.00 - \$74.06 = \$ 555.94

Table 2 Estimated Annual Tax for Fire Protection

Information provided by the TNRD suggests that at present 322 properties are paying a parcel tax for fire protection in Loon Lake. If the parcel tax approach was to be retained, the approximate cost for each property owner to participate in the upgraded fire service would be approximately \$372.00 per parcel per year based on the suggested \$120,000.00 annual capital and operating budget. The current tax being collected is understood to be \$74.06 per parcel but would no longer be collected if the more equitable funding method was implemented.

Section 8 of this report comments on the current taxation model and provides more information on this subject.

## 5.1 COST BENEFIT ANALYSIS OF CONSTRUCTING A NEW FIRE HALL

From a cost benefit analysis, the costs used to provide an example of the potential cost to construct a second building to accommodate two full size apparatus, if projected at approximately \$36,000.00 per year (over 25 years) would be off-set by a number of potential benefits to both the Society and the land-owners.

The following benefits have the potential to be realized by the addition of the second building:

- Reduced costs of maintenance of equipment by having the apparatus protected and secured in an appropriate, weather protected and heated facility.
- Increased efficiency and effectiveness of LLVFD.
- Improved response times to properties at the east-end of the lake.
- A contingency to off-set a “failure to respond” if Loon Lake Road should be blocked or become impassable as a result of an incident such as a motor vehicle crash or a slide.
- Improved management of the department resources both equipment and personnel.
- An increased profile for the LLVFD resulting in improving the recruitment and retention of volunteer firefighters.
- Accommodation of growth by constructing a building that is designed for expansion.
- Possible reduction in fire insurance premiums for some property owners.

## 6.0 ASSESS AND MAKE RECOMMENDATIONS OF FIRE APPARATUS REQUIRED

LLVFD currently has three fire apparatus. There are two full size fire engines (pumpers) and one mini-pumper on a one-ton chassis.

Engine 31 is a 1979 International chassis with fire apparatus by Hub Fire Engines with a diesel engine and air brakes. It has a 1050 imperial gallon per minute (IGPM) pump and carries 525 gallons of water. There is seating capacity for 5 firefighters and it carries a complement of ladders and fire hose. When this pumper was first put in service it was ULC certified.



Engine 33 is a 1981 Hendrickson chassis with the fire apparatus built by Anderson Engineering. Engine 33 also has a diesel engine, air brakes and a 1250 IGPM with a 400-gallon water tank. It has ground ladders, fire hose and seating capacity for 5 firefighters. It also was a ULC approved pumper when first put in service.

The third LLVFD apparatus Engine 35 is a 1990 Ford F350 mini-pumper. It has a 200-gallon water tank and small capacity fire pump. It has seating capacity for two firefighters. Mini-pumpers are considered rapid response vehicles usually because of their size and agility as compared to a large full size pumper. This unit could be used as an initial attack unit on wildland-interface fires. It is limited in its ability for larger fires because of the small water tank and pump but is a vital piece of equipment in protecting Loon Lake and area.



The fire apparatus all appear to be in good operating condition but are all well beyond the recommended age. The fire apparatus has all had one or more homes in their history and it is obvious each community that has owned them have maintained them well. Both were originally built as metropolitan pumpers most likely serviced by fire hydrants ensuring a constant reliable supply of water for firefighting. Having two large pumpers does provide redundancy for LLVFD but neither of them has large water tanks and neither of them are configured to act as a mobile water supply. Neither of the pumpers has a large water discharge chute for discharging the tank water into a “drop tank” to service another pumper. Filling the water tanks from a hydrant or static water source will take time since neither pumper has a direct fill line into the tanks.

It is understood that when LLVFD was in its formative years, any operating fire apparatus or firefighting equipment would have been appreciated. Undoubtedly the pumpers LLVFD has were relatively inexpensive to purchase. In planning for the future as the equipment needs to be replaced, purchases should be made with the understanding of not only what the fire risks are but what type of equipment is required to address the risks, what the level of service set by the LLVFD board will be and how will the department be staffed.

A mobile water supply (water tender) would be an asset to LLVFD. Most rural fire departments have a water tender in their fleet. Without a reliable supply of water, the effectiveness of firefighting efforts will be negatively impacted. There is no timetable established for this purchase because there is only so much taxpayer capacity. However, the two large pieces of fire apparatus are aging and will not last forever. A replacement vehicle should be a tender with a pump.

**6.0.1 Recommendation:** *It is recommended that the LLVFD plan to purchase a 1500-gallon mobile water supply, preferably with a fire pump and portable water tank.*

Any fire that LLVFD is summoned to will require water to extinguish it. A small 1500-gallon tanker with a small fire pump 425 gpm for example, could take the place of one of the current apparatus. LLVFD has limited manpower resources so the chances of staffing up two large pumpers is probably not a possibility. It is realistic that if 7 firefighters turned out to a fire, 4 could man the first engine, one or two on the mini-pumper and if a tender was in the fleet, one person could drive the tender to the fire, discharge its load of water into the portable water tank and go to refill quickly returning to the fire scene. This scenario is typical for any type of fire, whether the fire is a structure fire or wildland fire.

Used tenders do come up for sale occasionally but they tend to sell quickly. Many fire departments have re-purposed fuel oil delivery trucks and added portable pumps to them for filling the tank. There are problems with re-purposing tankers. The first problem is driver training. Most fuel trucks have standard transmissions and air brakes. This requires considerable driver training and repetitive skills maintenance in order to be safely operated. Automatic transmissions are preferred with some type of supplemental braking systems such as a compression brake or driveline retarder.

Milk tankers should be avoided due to the extensive work required to add baffles to the inside of the water tank.

Appendix "A" is attached for information purposes showing a simple basic new modern water tender design and features.



A fire department does not generally gear up for the worst case scenario but neither should it ignore it. Analyzing the fire protection needs of the community involves determining the risk of



what is most likely to occur. During our tour of the community, we did not see any very large residential buildings. There may be a few homes that are estimated to be up to 4,000 square feet and there may be larger structures on some of the farms and ranches. The building stock in the LLVFD fire protection area is primarily residences built with ordinary construction, some log cabins, and recreational vehicles.

Providing the firefighting equipment is working properly, a reliable water source is established and there are enough trained volunteer firefighters available to operate it, the existing roster of equipment should be able to extinguish a structure fire in the community.

The community fire risk is greater during the warm months when more people are in the community enjoying the many outdoor activities. Loon Lake is located in a wildland interface zone. That is one of the qualities that attracts people to the area. The Loon Lake fire protection area, at the west end, is forested and the fuel load is denser. Further east, the fire protection area along the lake has a southern aspect and the fuel load is less dense. In 2014 TNRD did a 16.6-hectare fuel treatment and management project along the lake. The community is aware of



and practicing the FireSmart<sup>1</sup> fire prevention concepts but fuel reduction and FireSmart risk reduction takes ongoing maintenance. The threat from a wildland fire in the community is a concern. LLVFD is not well prepared for this type of firefighting. Large structural fire pumpers are not well suited to off road forest fire fighting.

Frontline fire apparatus is routinely replaced at the 20-year mark. Compared to new apparatus, used fire apparatus is inexpensive to purchase. In certain circumstances older apparatus up to 30 years old can be acknowledged as

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<sup>1</sup> FireSmart Home Owners Manual, BC Edition published by the BC Forest Service – Protection Program

long as it passes all the prescribed annual tests but older apparatus can be problematic. Older apparatus presents reliability problems as well as excessive down time due to replacement parts being difficult to find. A unit will often appear to be in very good condition and have very low mileage but looks can be deceiving. Older equipment can have a significant number of running hours on the engine and pump etc. and it will be a buyer beware situation. Fire apparatus deteriorates due to the fact they sit idle but fully loaded. This causes stress on the frames and suspension.

Having a reliable water supply is critical for a successful outcome to any fire suppression effort.

## 6.1 WATER SUPPLY

As previously mentioned, water supply is critical. Loon Lake is a large water source ready to be tapped and used for supplying water for firefighting.

There is a small water system servicing some properties along the north east end of the Lake with some fire hydrants benefiting the properties in that area.



LLVFDS should consider installing either some dry hydrants into the lake where a fire pumper or tender could draft water from the lake or other water sources including rivers and streams. Many fire departments in communities not fully serviced by fire hydrants successfully use dry hydrants as a primary source of water.

They are relatively inexpensive to install and maintain. Once suitable locations for installing a dry hydrant have been identified a formal agreement should be signed giving LLVFD access to the dry hydrants. Dry hydrants can be used year-round if installed properly.

Other types of water supply could be above ground tanks. These may not be as convenient for Loon Lake since tank heaters would need to be installed to prevent freezing and the tanks would require increased maintenance.





**6.1.1 Recommendation:** *It is recommended that the LLVFDS plan for the installation of some dry hydrants accessing Loon Lake to establish a reliable source of water for firefighting.*

## 7.0 ASSESSMENT OF THE LOON LAKE VOLUNTEER FIRE DEPARTMENT SOCIETY OPERATING BUDGET

The LLVFDS and the LLVFD are very fortunate to have accounting expertise at their disposal to assist in both the development and the management of a meaningful budget. Many volunteer fire departments, which operate under the direction of a volunteer board of directors or board of trustees, fail to maintain proper financial records resulting in a lack of compliance with agreements they have entered or adequate oversight which leads to issues that may suggest inappropriate fidelity.

A review of the line items contained in the 2016 Budget and in the 5-year Budget plan reflects sound fiscal management of the limited funds at the disposal of the LLVFDS and the LLVFD.

The commitment of the members of the Society to supplement the parcel tax levied and collected by the TNRD through fund-raising efforts is applauded. However, the experience of FWC when visiting other communities where the fire department is reliant on fund-raising to survive is that firefighters who chose to join to serve their community, often do not have the time or the inclination to be fund-raisers as well and step away from the fire department altogether. It is suggested that the management of LLVFD firefighters takes this into consideration when they recruit members.

In order for the LLVFD to raise the level of service and the level of training, an increase in the revenue generated to support the fire department must be considered.

The tolerance of the land-owners will determine what revenue can be generated in the future and this topic is addressed in another part of this report.

In order for the LLVFD to achieve its' desire to have its' firefighters trained to a recognized standard and to maintain that standard will require an increase in the annual budget.

It is also evident that firefighter safety is critically important to all stakeholders of the LLVFD and assurance that the firefighters have the compliant personal protective equipment, and the appropriately equipped apparatus to deliver the level of service they are committed to, will also require additional annual funding.

A third aspect of the budget review is the expense of providing the volunteer firefighters with the appropriate indemnity coverage. While this represents good risk management, if the firefighters were part of the TNRD group of fire departments, the volunteer firefighters would be covered under the *Local Government Act* section 738 (1)(o).

The suggested changes to the Operating Budget, as outlined in Appendix "B", are designed to provide guidance to where the LLVFDS may wish to consider setting additional funds aside to improve the overall effectiveness of the LLVFD.

The suggested addition of firefighting foam allows firefighters to use far less water than would normally be needed to extinguish the same fire. With the threat of wildland fire being a major consideration, the addition of foam to the resources of the LLVFD would be a good investment.

As stated at the outset of this section of the report, the proposed budget and the suggested budget plan is realistic and practical for the current financial status of the LLVFDS. Any adjustments to the Budget will require careful consideration of what significant capital costs the LLVFDS may wish to undertake and will require careful planning to ensure it reflects the best interests of the Society and the community as a whole.

## 8.0 ASSESSMENT OF THE CURRENT TAXATION MODEL

As previously mentioned LLVFDS receives its funding from the TNRD by means of a Financial Contribution Agreement with a parcel tax levied on each title. This parcel tax raises \$74.06 per parcel totaling \$22,000.00 being paid to LLVFDS for the capital and operating costs of LLVFD.

In 1999 the TNRD enacted Bylaw No. 1756, entitled A Bylaw to Establish a Local Service Within a Portion of Electoral Area "E" for the purpose of Providing a Contribution for Fire Protection. This Bylaw enables the TNRD to contribute financially to LLVFD, defines the service area boundary where the parcel tax will be collected and limits the amount to \$75.00 per parcel.

In 2015 an updated Loon Lake Fire Protection Financial Contribution Agreement was signed by the TNRD and the Loon Lake Volunteer Fire Department Society which has an elected board of directors and is registered with the BC Registry of the Province. The directors are bound by the **Societies Act** and Regulation. The Agreement states that LLVFDS will be solely responsible for

providing fire protection service to the property owners within the Local Service Area. It also defines “Fire Protection Services” as to *“include the organization, management, operation, supervision and delivery of all fire safety services, including, without limitation, all fire prevention, first responder, rescue, fire fighting, fire suppression and control, pre-fire planning, fire cause inspections and investigations and fire prevention and community education, together with the provision, maintenance and operation of all staff, premises, equipment, (including, without limitation, all 9-1-1 fire dispatch signal receiving equipment) machinery and vehicles necessary or desirable for such services.”*

There are some fundamental issues that need to be understood.

First, there are very few fire departments left in the province with oversight provided by societies.

Second, the authority necessary for a fire department to operate is not automatically conferred to a Society. For example, a Society would not be able to enter private property to fight fires with authorization usually granted in a Bylaw. A Society would not be able to pass a Bylaw giving the fire department the right to enter private property to suppress a fire. It is our understanding that the TNRD prefers not to include this authority in a Bylaw as it then could implicate the TNRD to taking more responsibility for LLVFD.

Third, most fire departments in the province are funded by a tax requisition based rate on assessed values. In the Loon Lake example, a parcel tax is not fair since properties may, and do, have multiple residences on a property but pay only one parcel tax.

The Province would prefer to see societies out of the business of providing oversight to fire departments, in favour of it being in the hands of a local government. Societies have encountered issues with director liability insurance and maintaining enough directors, accounting problems, elections, board meetings etc. Currently, there is an actively engaged group of directors and members involved with LLVFDS but that is always subject to change.

Fire Protection Services and all it entails as defined in the Financial Contribution Agreement, is fraught with risk. The TNRD would like to keep responsibility for a society run fire departments at arms-length and avoid the risk.

The directors of the LLVFDS have chosen to manage the risk as best as they can and have purchased Director Liability Insurance from a private carrier. Firefighting, in particular, is a dangerous activity that involves low frequency, high consequence events especially when things go wrong. Other societies, who previously provided oversight to a local fire service in the province, have disappeared citing the risk to the society directors as being too great. In most of those cases, the regional district took on the responsibility for the fire department.

An alternative to having a society providing oversight for LLVFD would be for the TNRD to assume that responsibility. There are many regional districts in British Columbia that have assumed responsibility for the local fire departments. To the east Columbia-Shuswap Regional District

provides oversight to 12 volunteer fire departments. To the north, Cariboo Regional District provides oversight to 14 volunteer fire departments.

The table following shows the advantages and disadvantages that may be realized or lost by having the TNRD providing oversight for LLVFD.

## PRO'S and CON'S of TNRD OVERSIGHT of LLVFD

ADVANTAGE FROM MOVING FROM SOCIETY TO RD FIRE DEPARTMENT	DISADVANTAGE IF STAYING AS FINANCIAL CONTRIBUTION LOCAL SERVICE AREA
Reliable and predictable funding	Society loses autonomy if turned over to TNRD unless a local resident commission or advisory board is established
Authority for fire protection services granted through TNRD Bylaw	Certain authority for fire protection services not automatically granted to a Society (right to enter)
Management would move from society to RD, this is better because of the complex, litigious nature of where the fire service is moving	Disposition of assets if society disbands would be to crown (this is not the case should the society go to the TNRD)
No risk of liability to Society directors as they would no longer be required	Difficult to manage responsibility with restrictions in place from existing Bylaw No. 1756 and Loon Lake Financial Contribution Agreement
TNRD Insurance coverage access will occur and increased indemnity for volunteers through Provincial legislation.	Property and liability insurance expensive for LLVFDS to provide (currently 17% of parcel tax money received)
Allows for accessibility to Municipal Finance Authority	Opportunities to borrow money for projects are limited
Higher capacity in TNRD for building maintenance	Maintenance is done by LLVFDS members
Become part of TNRD long range asset management program	Difficult to fund and maintain a capital asset replacement plan
Advantageous to standardize fire services throughout the region, better training opportunities, OG's, OH&S etc.	LLVFDS obligated to create policies and OG's, develop training program
Reduces reporting requirements for societies as everything would be centralized in Kamloops	LLVFDS required to submit annual reports to BC Registry with accurate minutes and financial records
Fundraising could go toward perks or special purchases instead of necessities	Fundraising takes time on the part of volunteers which could be used for training
Centralized procurement and purchasing power	Time consuming researching best price
New <i>Fire Safety Act</i> responsibilities assumed by TNRD	Unclear how LLVFDS would carry out certain <i>Fire Safety Act</i> responsibilities

Table 3 Advantages – Disadvantages of Moving from Society to TNRD Department

To the casual observer there appears to be a conflict in the relationship with the TNRD and LLVFDS. The TNRD is collecting taxes to financially support the service but is also aware that the LLVFDS may have difficulty providing the service because the LLVFDS will not be able to get authority to enter private property to fight a fire. The Loon Lake Financial Contribution Agreement uses language that does not seem to offer options to LLVFDS for the fire protection services they may provide. The agreement defines the services as previously listed and although it does not specially say LLVFDS **shall** provide the defined services it leaves one with the impression LLVFDS is **expected** to provide those services and states in article 2.1 of the agreement *“**Provision of Fire Protection Services. During the term of this Agreement, the Society will be solely responsible for providing Fire Protection Services to the property owners within the Local Service Area.**”*

The right to enter is derived through legislation, the **Local Government Act** and current **Fire Services Act**.

Following are excerpts from each Act:

**Local Government Act- Part 9 – Division 2**

**Division 2 – Fire, Health and Hazard Protection**

**Special fire protection powers**

303 (1) Subject to the [Fire Services Act](#) and the regulations under that Act, a board may, by bylaw, do one or more of the following:

(a) authorize the fire chief to

(i) enter on property and inspect premises for conditions that may cause a fire, increase the danger of a fire or increase the danger to persons or property from a fire,

(ii) take the measures described in the bylaw to prevent and suppress fires, including the demolition of buildings and other structures to prevent the spreading of fire, and

(iii) exercise some or all of the powers of the fire commissioner under section 25 of the [Fire Services Act](#), and for these purposes that section applies;

(b) require the owners or occupiers of real property to remove from a building or yard anything that, in the opinion of the fire chief, is a fire hazard or increases the danger of fire;

(c) if property is endangered by debris caused by a lumbering, land clearing or industrial operation, require the person who is carrying on or who has carried on the operation, or the owner or occupier of the land on which the debris exists, to

(i) dispose of the debris, and

(ii) undertake any other actions for the purpose of removing or reducing the danger

as directed by the bylaw or by the fire chief;

(d) deal with any matter within the scope of the [Fire Services Act](#) in a manner not contrary to that Act or the regulations under it.

(2) The authority of the fire chief under a bylaw under subsection (1) may be exercised by a person under the authority of the fire chief or by another person designated in the bylaw.

#### **Fire Services Act- Part 1 – Clause 10**

#### **Authority to enter**

10 (1) The local assistant, the fire commissioner and the commissioner's inspectors have authority at all times, by day or night, to enter and to examine a building, premises, motor vehicle, vessel or railway rolling stock where a fire has occurred, and, if necessary, those adjoining or near the fire.

(2) An investigator may exclude a person from the building, premises, motor vehicle, vessel or railway rolling stock where the fire has occurred

No fire department in Canada has the right to enter private property without property authority. That right is enshrined in the Canadian Constitution. However, as noted in the *Local Government Act*, authority to enter can be granted by means of a bylaw passed by the board. The board in this case would be the TNRD board. Without this authority, LLVFD is somewhat hamstrung and could easily over step their authority if they take action on a fire without permission from the property owner. This would expose LLVFDS to an extraordinary liability risk.

The matter is further complicated by what is found in the newly passed *Fire Safety Act*. The new Act has received Royal Assent and is waiting for an Order in Council from the cabinet before becoming law. The

accompanying Regulation will need to be written which will provide more clarity and definitions but the essentials of the Act as passed will remain. In the new Act there are provisions for evacuations, both tactical and preventative. It is assumed that societies providing oversight to fire departments would not be given authority to order evacuations. Part 5 – Evacuations Division 1 and 2, of the *Fire Safety Act* has specific information on the subject with provisions for a Regional District to recover cost for things like securing evacuated premises. A society would not likely have that opportunity for cost recovery incurred in securing an evacuated property. More importantly, to a society, would be immunity from prosecution if legal action is taken for ordering an evacuation and property is lost or a business loses revenue.

***8.0.1 Recommendation:*** *It is recommended that the LLVFDs be dissolved and TNRD assume administration and oversight responsibilities for LLVFD.*

## 8.1 FUNDING EQUALITY

Funding LLVFD through a tax requisition rate on assessed values can be justified as a more equitable method of funding a local service such as a fire department. In the end most people will want to know how much of a tax increase it will mean if a switch from a simple parcel tax to a tax based on assessed values.

A simple explanation of how taxation using assessed values is necessary to show how property taxes will be affected to raise \$100,000.00 to fund a local service.

The Province has organized taxation as follows:

**Tax Value (VAC)** – What the assessed value the tax rate is calculated using.

A – Provincial Rural Tax (General) – land and improvements

S – Provincial School – land and improvements

D – School/hospital – land and improvements

F – School/hospital – land only

G – School/hospital – improvements only

**Property Classification (OIC)** – What type of property (classification) the tax rates apply to.

1– Residential

2– Utilities

3 – Supportive Housing

4 – Major Industry

- 5 – Light Industry
- 6 – Business Other
- 7 – Managed Forest Land
- 8 – Recreational Property, Non-profit Organization
- 9 – Farm Land

Regarding other applicable property taxes for properties within the Loon Lake fire protection service area only, some are taxes relating too other TNRD services and of course some taxes relate to other things the Province collects from most or all properties in the Province. Information from the Province’s website for a sample property within this service area, the 2016 rates being assessed are detailed as follows:

Tax	2016 Class 1 Rate per \$1000 of Assessment
<u>Provincial:</u>	
School	\$ 3.3524
Rural RES	0.5600
Police	0.1268
BC Assessment Authority	0.0543
Municipal Finance Authority (MFA)	0.0002
Hospital District	0.4574
<u>TNRD:</u>	
Area E TNRD services (area-wide)	1.5912
Cemetery services	0.0147
<b>TOTAL (before fire protection services parcel tax)</b>	<b>\$ 6.1570</b>

Table 4- Loon Lake 2016 Tax Rates Other Services

The table above show the tax collected on a VAC type A, OIC Class 1 Residence. Other OIC Class properties would pay at a tax rate which is a multiplier of the Class rate. OIC Class 6 (Business other) would expect to pay 2.45 times the Class 1 rate or  $\$6.1570 \times 2.45 = \$15.08465$  per \$1000.00 of assessed value. OIC Class 8 and 9 are both the same as OIC Class 1.

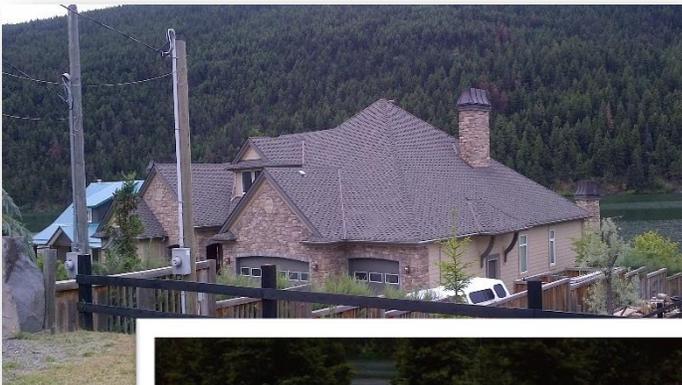
Based on the 2016 assessments and property classifications within the service area, in order to raise \$100,000 of taxes, the blended rate for all classes would be approximately \$1.0511 per \$1000 of assessed

value. This works out to approximately \$1.0271 for Class 1 residential properties which is the most common property tax classification. These rates are based purely on the 2016 Revised Roll assessment values and property classification reported by BC Assessment and subject to change as these factors change in 2017 or later years. These figures should not be relied upon as being absolute but have been stated for discussion purposes only based on information supplied to us by the TNRD and BC Assessment Authority. Representatives from the TNRD and others should be consulted to confirm tax implications.

*To raise \$100K annual budget for fire protection, the average residence would be taxed \$333.00 per year or \$1.13 per \$1000.00 of assessed value.*

The estimated average assessed value for a Class 1 Residential property in the service area is approximately \$288,000 (dividing total assessment by number of properties). Applying this, raising \$100,000 in taxes works out to approximately \$303.00 in additional tax per property.

On top of that, the Province takes a collection fee of 5.25%. There is a difference between taxing \$100,000 and taxing enough funds to receive \$100,000 to work with. To receive \$100,000.00, the Province would have to collect \$105,250 in taxes (ignoring any TNRD administration charges, which would also have to be taken into account). Likely it would be closer to \$110,000 that would have to be collected in order to have \$100,000 to spend on the LLVFD. That increases the new taxes per property to approximately \$333.00 or a rate of approximately \$1.13 for residential class 1 properties.



Having reliable funding and administrative oversight of LLVFD would be looked on favorably by insurance companies whether they subscribe to the Fire Underwriters Survey or not. It is indeed possible that with TNRD oversight the FUS Grading could be set at 3B like other communities in the TNRD and result in lower fire insurance premiums. The next section provides more detail on that topic.



**8.1.1 Recommendation:** *It is recommended that funding for fire protection services be derived from a tax requisition rate based on assessed property values.*

Decisions purely based on financial considerations usually win the day in a situation like this. We believe the decision should also consider what type of community do the residents want. People

have made a decision to locate at Loon Lake for various reasons. The natural beauty and abundance of outdoor recreational opportunities have been at the top of the list in many cases. Now, expensive homes are being built and services added such as a community water system at the east end of the lake where a new subdivision has been approved.

Decisions need to be made by the property owners on what level of public safety they want.

## 9.0 REVIEW OF FIRE UNDERWRITER’S SURVEY RATING FOR LOON LAKE

The Fire Underwriters Survey (“FUS”) is a national organization which provides data on public fire protection for fire insurance statistical work and underwriting purposes of subscribing insurance companies. Subscribers of FUS represent approximately 85 percent of the companies in Canada that provide fire insurance in Canada.

FUS provides fire insurance classifications for most communities across Canada in the form of the Public Fire Protection Classification (“PFPC”). The PFPC (Public Buildings) is expressed on a scale of 1 to 10. The fire insurance industry recognizes these classifications as "town grades" with Class 1 representing the "ideal" or highest level of public fire protection while Class 10 reflects the absence of any effective public fire protection, in the opinion of FUS. The insurance industry will often simplify the "town grades" into the categories of Protected, Semi Protected and Unprotected, which they use when calculating the insurance rates, they apply to requests for fire insurance coverage.

In addition to the PFPC, FUS also provides its’ member companies with a secondary classification referred to as the Dwelling Protection Grade (“DPG”). The DPG (residences) is a numerical system scaled from 1 to 5. One (1) is the highest grading possible and 5 indicates little or no recognized public fire protection. This grading reflects the ability of a community, in the opinion of FUS, to handle fires in small buildings (e.g. single family dwellings).

The following table, provided by the TNRD, outlines the PFPC and DPG for a number of the rural fire protection areas (the “FPA”) in the TNRD, including Loon Lake. The complete table is provided to place the classifications assessed to Loon Lake in the context of similar communities in the region.

FPA	DPG	PFPC	Last Grade Update
Vavenby	3B	9	1980-02-01
Blackpool	3B	9	1980-05-01
Little Fort	5	10	2010-04-09
McLure	3B	5	2013-12-23
Tobiano	4	7	2011-12-15
South Green	4	9	2010-09-08
Pritchard*	3A 3B	8 9	1994-03-01
Loon Lake	4	10	1989-11-01

Table 5 FUS Ratings for other TNRD Communities

\*Split grades may exist in each of the fire protection areas. Personal Lines insured risks beyond 8 km in road travel distance from a responding fire hall in the DPG system would be considered DPG 5 (unprotected) and Commercial Lines insured risks beyond 5 km in road travel distance, from a responding fire hall, in the PCPC system are considered a 10.

It is noted that it is over 25 years since a formal evaluation of fire protection in Loon Lake was completed.

To determine the classifications, FUS measures the ability of a community's fire department to prevent and control structure fires by evaluating the adequacy, reliability, strength and efficiency of the fire department. The level of protection is then measured against the level of fire risk associated with typical dwellings and commercial establishments.

The net result is the better the FUS ratings, it will generally result in lower insurance premiums.

It is important, therefore to FUS, that fire departments strive to be equipped and trained to meet the highest standard achievable based on a combination of cost effectiveness and the willingness of land-owners to pay for such a fire service. To do that requires steady reliable funding.

The importance of maximizing firefighter capabilities and minimizing their risk of injuries is addressed in other parts of the two reports stressing that the LLVFDS and the LLVFD must train their firefighters to accepted standards and provide equipment and apparatus that enhances safety.

A key factor in attaining or maintaining an acceptable rating from the FUS is the requirement to operate only equipment and apparatus that is within specified age parameters. Rated engines are generally limited to 20 years of age regardless of their hours of use or mileage driven. At the present time, the age of current LLVFD apparatus does not meet this requirement.

Approximately 40% of the determination of the FUS classifications is based on issues relating to the fire department's profile with respect to such aspects as their apparatus, staffing profile, training program and officer development.

The next most important issue that FUS assesses in a community is water supply. Approximately 30% of the evaluation addresses the reliability of the community's emergency water supply capacity and storage. Evaluation of hydrant systems, including fire flow testing and distribution are a significant factor. Suggestions of how Loon Lake might enhance their water supply system are outlined elsewhere in the report.

FUS also evaluates Fire Safety Control and Fire Communications when determining classifications. Fire Safety Control refers to fire inspection, pre-fire planning and fire and life safety public education programs.

With respect to the FUS fire rating for the community and making recommendations on improving the rating for fire insurance premium reduction, the preceding explanation of how FUS calculates their classifications is intended to outline the daunting, and costly, task that faces Loon Lake to attain a level of fire suppression service that will impact the current ratings. The following link [http://www.fireunderwriters.ca/thegradingschedule\\_e.asp](http://www.fireunderwriters.ca/thegradingschedule_e.asp) will provide more information on how the FUS Grading system works.

As stated at the public meeting in Loon Lake on June 12, 2016, the issue of achieving the best possible fire insurance premiums for Loon Lake land-owners is best approached on an individual basis. Each land-owner is encouraged to “shop the fire insurance market place” either through one broker who can assess the needs of the property-owner and can select the insurance company whose products are best suited or by talking to a selection of insurance brokers in an effort to find one who will provide the level of service desired.

It is important when seeking fire insurance coverage, to be familiar with the location of the responding fire hall and the closest fire hydrant, if applicable, to the property for which coverage is being sought.

It is recommended that land-owners, served by the LLVFD, who wish to see an improvement in the FUS fire rating, leading to a reduction in their current fire insurance premiums, consider how they can best invest in their local fire service while at the same time seeking the best service possible from their chosen insurance broker.

## 10.0 VOLUNTEER RECRUITMENT AND RETENTION STRATEGIES

Volunteers who are willing to step up and want to be part of the LLVFD are essential to its overall success. Without volunteers, it will be impossible to deliver the service.

LLVFD currently has 15 members on the roster. Some have had previous firefighting experience and have been instrumental in getting the department established, equipped and operational. A few of the members are not permanent residents but are very committed to the community and more specifically to LLVFDs and LLVFD. Having “recreational residents” may actually be a recruiting opportunity.

A study done in 2007 by Caitlin Myers, Jeffery Carpenter of Middlebury College, Vermont and the Institute for the Study of Labor, IZA of Bonn, Germany determined that people will volunteer as firefighters for three main reasons. They are, Altruism, Reputation, and Incentives, in that order<sup>2</sup>. Our experience would bear this out as well.

In the application of Psychometrics,<sup>3</sup> we have found that the main reason people want to be involved in any emergency service discipline is to simply help people. The Myers, Carpenter, IZA study concluded that *“volunteer labor supply is determined more by tastes for prosocial activities than by income and costs. In addition, government spending appears to at least partially crowd out volunteering, suggesting that volunteers care both about the level of provision of their product as well as about the act of giving itself”*. In other words, firefighters put a significant amount of importance on the quality of service they provide.

The reputation firefighters enjoy in society is another reason that a person would want to be a firefighter. Firefighting will provide opportunities for a person to realize the “idealized persona bias”; i.e., through the training and operational responses, they will start to become the person they would like to be. It is interesting to note that generally speaking, the public is always grateful when firefighters arrive at an incident to take care of business.

It is possible that recreational property owners who live in other communities may not be presented with the opportunity to volunteer as a firefighter at the fire department where their principal residence is, but may be interested in how they could help LLVFD. They may simply want to get involved, learn some new skills and become self-actualized in the process. Other

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<sup>2</sup> Why Volunteer? Evidence on the Role of Altruism, Reputation and Incentives, IZA DP No. 3021 Jeffery Carpenter, Caitlin Knowles Myers, September 2007, Middlebury College, VT and IZA, Bonn, Germany

<sup>3</sup> **Psychometrics** is the field of study concerned with the theory and technique of psychological measurement, which includes the measurement of knowledge, abilities, attitudes, personality traits, and educational measurement, Psychometric Society, University of North Carolina-Greensboro, Greensboro, NC 27402-6170, USA

people, like we see on the roster now, may have had property at Loon Lake and are looking at spending more time there. They do not wish to give up absolutely every service they may enjoy where their permanent residence is and have stepped up to help, using the skills and talents they possess. Others may have had gained useful experience in other disciplines and are looking for opportunities to apply their experience at Loon Lake. Volunteering in this fashion is an



exceptionally rewarding way to get to really know people in the community and to show how much they care.

Once a person applies and is accepted as a volunteer, they have expectations. The first expectation is that they are going to be trained to do a job. Having a robust and challenging training program is a key incentive in volunteer retention. Online training on the theory component of the Job Performance Requirements (JPR) is one way

LLVFD firefighters can receive training in the basic JPR, wherever they are if they have an internet connection. A Training Officer could give assignments to firefighters and monitor their progress over the internet by email. Practical skills evaluations could happen when firefighters are at Loon Lake. The International Fire Service Training Association (IFSTA) is an industry leader in training materials. IFSTA has excellent on line training opportunities as found at the following link <https://www.ifsta.org/> .

Incentives are not always monetary and are not usually a reason that a person will volunteer. Incentives in a volunteer fire department can be training opportunities where personal growth and job satisfaction are sought. Recognition is also a strong incentive where years of service, special awards and other personal goals are attained with respect to their individual effort.

Most volunteer fire departments rely on their officers and members to do more than emergency responses and training. They expect members to be involved in new truck committees, equipment purchases, maintenance, truck checks, membership interviews, fire hall janitorial duties, and other team building or social events for example. As stated earlier in the report, if too much is demanded of the members beyond the critical training, they burn out and tend to move on.

There are many reasons why volunteer firefighters will stop volunteering. Some are economic, family pressures, age, physical limitations etc. Some firefighters leave because their expectations of being trained are not being met. Another is a change of leadership. It is not uncommon in the volunteer fire service to see a large turnover of firefighters when a new Fire Chief is appointed. Old loyalties are not automatically passed on to the new Fire Chief. A new Fire Chief will want to

put his mark on the department and make changes usually in an attempt to make things better. These changes are not always accepted by members who have been on the department for a while and may decide to leave.

Personality conflicts are another reason a firefighter will stop volunteering. It takes a strong leader with extraordinary people skills to manage a highly motivated group of volunteer firefighters. Mutual respect is paramount as is trust. That respect and trust must also be evident from the AHJ. The Fire Chief in any department sets the tone for the department. The membership will take their “cues” from the Chief with regard to how their opinions are formed on many issues especially political decisions affecting the fire department if he or she is their primary source of that information. The Fire Chief, therefore, must not get too political and understand that he or she heads up the delivery team for fire protection in the community.

The AHJ also must understand that the volunteers are there primarily to help their community. The Chief Officers often “bubble” to the top because of their abilities as leaders, technical proficiency, and organizational skills. It takes patience and understanding on the part of the Administration to provide the support and sometimes training to fire department staff how to properly provide the required administration of even a small volunteer fire department. It has to be a team effort based on mutual respect and consideration.

## 11.0 ASSESS THE OVERALL ADMINISTRATIVE AND OPERATIONAL READINESS OF LLVFD

### 11.1 INSPECTION AND AUDIT

An inspection and audit of LLVFD was performed to assess the overall administrative and operational readiness and compliance with industry standards and best practices. A separate report is part of this overall project. The Loon Lake Volunteer Fire Department Inspection and Audit will provide the AHJ with a guide to prioritize any deficiencies noted. It is simply a status report not critical or judgmental and based on a checklist developed by the OFC on a recommendation from the Chief Provincial Coroner.

In the case of LLVFD, the deficiencies are as found in most communities, lack of operational guidelines, lack of records on training and maintenance.

Other matters identified worthy of note are covered and discussed in this report.

## 11.2 BYLAW

Having authority to exist in a bylaw with the fire protection services defined is essential. Without the authority to exist and provide specific services the LLVFDS Directors and Volunteers are attracting liability. The Loon Lake Fire Protection Financial Contribution Agreement states that LLVFDS will be the sole provider of fire protection services to the property owners of the specified area but a formal bylaw should be created by TNRD and LLVFDS.

**11.2.1 Recommendation:** *It is recommended that a well crafted bylaw for LLVFD is created granting authority for LLVFD to provide fire protection services.*

## 11.3 POLICIES

Policies from the AHJ are a guideline for the LLVFD to follow in making decisions in the provision of fire protection services. Policies provide a framework for the delegation of decision making, eliminates misunderstandings, reduces uncertainties and enables goals and objectives to be met. Policies should be outcome focussed with considerable latitude exercised in decision making, dependent upon circumstances, otherwise they will simply be procedural rules. In making decisions, however, the intent of the policy must be understood and followed. Many policies have been created after an action was taken which seemed like the “right thing to do at the time” but the decision may have been called into question later resulting in a policy.

The purpose of policies is intended to:

- promote a common understanding of the AHJ’s policy objectives
- provide direction to allow Administration to meet AHJ’s policy objectives
- facilitate better and more timely decisions
- ensure uniformity in the interpretation and implementation of policy
- allow personnel to know what is expected of them
- ensure that similar situations are handled consistently
- promote delegation of decision making to the level that must face the problem or situation when it arises
- encourage coordination and integration of actions and plans within and across the functional area and departments
- address problems or situations that are repetitive or recurring

The AHJ policies for the fire department are often inadvertently overlooked and there is often an expectation that the fire department is doing things appropriately. Financial policies are

generally in place to ensure financial accountability but more policies are required to provide the necessary direction from the AHJ to LLVFD. The provision of fire rescue services requires considerable preparation before any emergency response is made. Fire and rescue incidents are high risk, low frequency events often with severe consequences when things go wrong. It is, therefore, important that the AHJ policies for the fire department are in place. Without clear policies from the AHJ, a fire department will self-assign which may be contrary to the wishes of the AHJ or expose the AHJ to unnecessary liability.

The AHJ policy should provide the framework for the fire rescue service to operate including a clearly defined list of services, limitations of service, geographic response areas, partnerships and training standards.

**11.3.1 Recommendation:** *It is recommended that the AHJ create policies for LLVFD especially for the level of service for all fire protection services provided.*

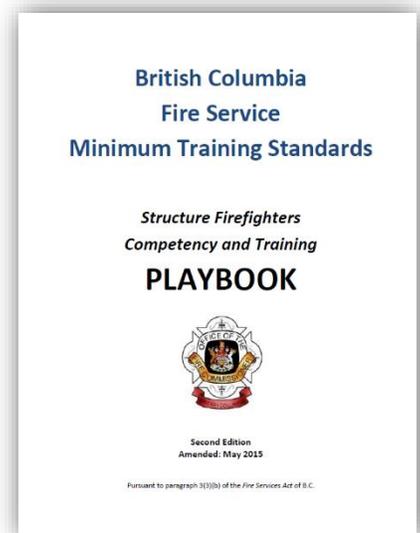
## 11.4 DECLARED LEVEL OF SERVICE

In May of 2015, the Office of the Fire Commissioner (OFC) for British Columbia released the Structure Firefighters Competency and Training Playbook. The Fire Commissioner is mandated to establish minimum standards of training required for fire service personnel in British Columbia. The Playbook document attempts to do that by suggesting three levels of service based on National Fire Protection Association (NFPA) standards for firefighting. The Authority Having Jurisdiction (AHJ) is required to select and declare its firefighting service level taking into consideration its community fire risk, financial capacity, fire service staffing model, plus other considerations.

The three levels of service are:

- Exterior Service Level
- Interior Service Level
- Full Service Level

There is no mandated requirement in B.C. to have a fire department. It is purely a local government process that residents determine the outcome, either for or against. There are eighteen occasions in the Playbook where we are reminded of that.



The report recommends that as per the JPR's in the Playbook, LLVFD as the AHJ for LLVFD, should, declare that the minimum standard for LLVFD to be the Exterior Level. Given the size of the community and the fire risk there, this level should be achievable. This level of service is explained in detail in the Inspection and Audit report but a few general comments are warranted to support the recommendation made on this matter. Given the number of volunteer firefighters, the limited funding and fire risk, the Exterior Level of service as defined in the Playbook will, however, be difficult at times to deliver. As a risk management strategy, this should be explained in the bylaw.

**11.4.1 Recommendation:** *It is recommended that the declared level of service for structural firefighting for LLVFD be the Exterior Service Level as defined in the Playbook.*

## 11.5 FIRE PROTECTION AREA

As previously described in Section 4 of this report, the fire protection service area for LLVFD is long and narrow with gaps along Loon Lake Road. It has not been explained what benefit the property owners west of the "canyon", where the old fish hatchery is located, receive or expect from LLVFD. The obvious expectation would be that LLVFD would respond if a bush fire started or a structure caught fire and other structures, equipment and property could be saved. In reality, LLVFD may not be able to offer much in the way of assistance due the limited number of firefighters and the travel distance involved.

The lack of cell phone service and other communication aids such as radio repeaters mean that when LLVFD is operating so far from the radio system base station, radio communications will be affected due the distance involved, the terrain and nature and logistics of radio communication transmission and reception.

At the very least, the service area gaps along Loon Lake Road should be addressed in the bylaw and through policy so LLVFD is authorized to take action on any fire that may be just outside their service area boundary.

**11.5.1 Recommendation:** *It is recommended that the fire protection service area is analyzed to see if it is practical for the reality of LLVFD and the service area gaps be addressed in a bylaw and through policy from the AHJ.*

## 12.0 CLOSING THOUGHTS

LLVFDS has a good solid base of support in the community. The members of the Society bring considerable and varied skills, talents and abilities to the Society. They are committed not only to LLVFDS but also to the community of Loon Lake. It because of the contribution that each member makes that LLVFD exists and is able to function.

The community itself seems to be at a crossroads. New development is occurring and with that comes the expectation of more services. Some members of LLVFD who have contributed so much as volunteer firefighters are now at the age that they may not be able to contribute in the same way they have in the past. However, there seem to be new volunteers becoming involved and willing to take on the challenge of making the fire department sustainable.

There is new fire service legislation coming into force that will have some impact on LLVFD as well as expectations that training standards for firefighters will be met. What started out as neighbours wanting to help neighbours has grown beyond a simple service and must comply with industry standards and best practices. Time has caught up to LLVFDS.

LLVFD has acquired more equipment and has outgrown the existing fire hall. The TNRD has increased its presence by taking its responsibilities seriously and are working to make the TNRD a better place for residents through the many services they provide such as financial contribution agreements, development and building permits, water system upgrades, fuel management strategies etc.

Fire departments whose oversight and administration is the responsibility of a society are becoming rarer. In today's litigious world, many societies have dissolved and responsibility for local fire protection has been taken over by a level of local government. The exposure to risk by the society directors and the volunteers have been cited as reasons for this change. Reliable funding is another. Yet another is the administrative burden volunteer fire departments must meet.

Fire departments are expensive to establish and they are expensive to maintain. Fortunately, in small fire departments like LLVFD, there is no labour cost. The service is delivered by highly motivated volunteers. One hundred percent of the budget goes to the organization, administration, and operational costs. In large metropolitan centres with career firefighters, most of the budget is allocated to labour costs. In any community with a volunteer fire department, it will be difficult to find a comparable service, the local government provides, with

such high community equity. But it seems the TNRD prefers to keep LLVFD at arms length. The TNRD has created a bylaw to collect funding to support the contract entered into with the LLVFDS to provide fire protection. If that arrangement is to continue, it must also provide authority through proper bylaws allowing LLVFDS to deliver the service.

It will be up to the people of the Loon Lake fire protection service area to determine what type of funding formula they want, to provide LLVFDS with an adequate budget. Property owners will need to tell their elected officials what types of services they want in Loon Lake. The second fire hall that is needed to address immediate needs cannot happen without an increase in funding. The parcel tax is not an equitable funding formula for fire protection.

In the reality of the world today, training for firefighters is easier due to the internet. Even though cell phone service is spotty or non-existent in the Loon Lake area, some residences do have internet access. A training program can be set up so new recruits can do training and complete assignments at their convenience using the internet. Practical skill evaluations can be organized when the volunteers are at Loon Lake and available. Cell phone service and the internet will eventually be part of life in Loon Lake because these are services people are expecting. The new development occurring at Loon Lake seems to have been developed to take advantage of the natural beauty and recreational opportunities but also provide people with some of the services found in most communities.

The Loon Lake Fire Protection Area property owners and the TNRD have important parts to play in the provision of fire services. It is our desire that this report has provided information that will assist in understanding the issues and that meaningful dialogue on the issues will take place going forward.

It has been our pleasure to be involved, to learn about LLVFD and to offer recommendations and comments.

Respectfully submitted,

Glen Sanders  
Dave Ferguson

## GLOSSARY

<b>AHJ</b>	Authority Having Jurisdiction
<b>BCAS</b>	British Columbia Ambulance Service
<b>CPR</b>	Cardio Pulmonary Resuscitation
<b>DPG</b>	Dwelling Protection Grade – Private Dwellings
<b>EMBC</b>	Emergency Management BC
<b>FSA</b>	Fire Services Act - Fire Safety Act
<b>FUS</b>	Fire Underwriters Survey
<b>FSAC</b>	Fire Safety Advisory Council
<b>FWC</b>	FireWise Consulting Ltd.
<b>GPM</b>	Gallons per minute
<b>IFSTA</b>	International Fire Service Training Association
<b>JPR</b>	Job Performance Requirements
<b>LAFC</b>	Local Assistant to the Fire Commissioner
<b>LGA</b>	Local Government Act
<b>NPFA</b>	National Fire Protection Association
<b>OFC</b>	Office of the Fire Commissioner
<b>OG</b>	Operational Guideline
<b>OH&amp;S</b>	Occupational Health and Safety
<b>PEP</b>	Provincial Emergency Program (EMBC)
<b>PFPC</b>	Public Fire Protection Class – Public Buildings not Private Dwellings
<b>PPE</b>	Personal Protection Equipment
<b>PSI</b>	Pounds per square inch
<b>SAR</b>	Search and Rescue
<b>SCBA</b>	Self Contained Breathing Apparatus
<b>TNRD</b>	Thompson Nicola Regional District
<b>TO</b>	Training Officer
<b>ULC</b>	Underwriters Laboratory Canada
<b>WMB</b>	Wildfire Management Branch – Ministry of Forests



All-Poly Series 2000 Gallon Tanker  
Specifications



Prepared for:

Loon Lake Fire Department / Fire Wise Consulting
Date: 7/18/16
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## Table of Contents

Section 1: Booster tank .....	53
1.00 "T" Tank with a Lifetime Warranty from Its Manufacturer .....	53
1.01 Tank Size .....	53
1.01.02 All-Poly Series 2000 gallon .....	53
1.02 Rear Fill Tower .....	53
Section 2: Hydrant Fills and Tank Level .....	54
2.01 Curb Side Hydrant Fills .....	54
2.01.04 Curb Side 4" Storz .....	54
2.02 Tank Level Gauge .....	54
2.02.01 One (1) Innovative Controls SL Series 14 Tank Level Gauge .....	54
2.03 Spanner Wrenches .....	54
2.03.99 Custom Location <> .....	54
Section 3: Dump Valves and Chutes .....	54
3.00 Manual Dump Valves .....	54
3.00.01 12" flip chute installed on the rear dump valve. ....	54
3.00.03 36" telescoping chute installed on the street side dump valve. ....	54
3.00.04 36" telescoping chute installed on the curb side dump valve. ....	54
Section 4: Portable Tank Carrier .....	54
4.00 Manual Tip-down Portable Tank Carrier .....	54
4.00.04 2100 gallons, curb side .....	55
4.01 Manual Carrier Enclosure Options .....	55
4.01.02 Portable tank carrier enclosed on (three (3) sides in aluminum Tread-brite. ....	55
4.06 Portable Tank .....	55
4.06.04 2100 Gallons, Aluminum Frame .....	55
Section 5: Body and Components .....	55
5.00 Fenderettes .....	56
5.01 Rub Rail .....	56
5.02 Tow Eye .....	56
5.02.01 Tow eye located ahead and below the rear step on curb side. ....	56
5.03 Cradle .....	56
Section 6: Body Compartments .....	56
6.00 Street Side Compartments .....	56

6.00.01	Street Side Front Low Compartment.....	57
6.01	Curb Side Compartments.....	57
6.01.01	Curb Side Front Low Compartment.....	57
Section 7:	Running Boards, Catwalks, and Rear Step .....	57
7.00	Running Boards.....	57
7.01	Catwalk.....	57
7.02	Rear Step .....	57
Section 8:	Grab Rails and Foot Steps.....	57
8.00	Grabs Rails .....	57
8.00.01	Tank Grab Rails.....	57
8.00.03	Control Panel Grab Rails.....	57
8.00.04	Tank Grab Rail - Street side .....	58
8.00.05	Tank Grab Rail - Curb side .....	58
8.01	Folding Access Steps .....	58
8.01.02	Front Folding Steps - Street side .....	58
8.01.03	Front Folding Steps - Curb side .....	58
8.01.04	Lower Level Rear Folding Steps.....	58
8.02	Access Ladders.....	58
8.02.03	Hose Bed Access Ladder .....	58
Section 9:	Electrical Equipment .....	58
9.00	Electrical System.....	58
9.01	DOT Lighting Details .....	60
9.02	Lower Level Rear Lighting .....	60
9.02.01	Quad-cluster Tail Light Package .....	60
9.03	.....	60
Section 10:	Emergency Siren and Lighting Equipment .....	60
10.00	Apparatus Control Center.....	60
10.01	Light Bars: .....	61
10.01.01	Whelen model JE2NFPA Justice Series light bar.....	61
10.02	Sirens: .....	61
10.02.01	Whelen Siren .....	61
10.04	Lower Level Lights .....	61
10.04.03	Front/Rear Whelen 600 Series .....	61

10.05	Intersection Lights .....	61
10.05.02	Intersection, Red, 600 Series, Three (3) each side .....	62
10.06	Upper Level Rear Warning Lights .....	62
10.06.01	Side/Rear Whelen 600 Series Upper Flashers .....	62
10.07	Scene lights .....	62
10.07.06	Six (6) Whelen LED Scene Lights .....	62
10.09	Ground Lights .....	62
10.09.01	Four (4) ground lights .....	62
10.10	Accessory Lights.....	62
10.10.02	Whelen Traffic Advisor model TAL65 .....	62
10.10.03	Whelen Pioneer model PFP1P1 telescoping lights .....	62
Section 11: Painting, Lettering, Striping, and Signs .....		62
11.00	Painting process.....	62
11.00.01	Color Matched Red .....	63
11.01	ID plate .....	63
11.03	Vinyl Lettering.....	63
11.03.01	Provided on the chassis doors.....	63
11.03.03	Provided for the customer unit number on the street and curb side chassis fenders. ...	63
11.05	Reflective striping .....	63
11.05.01	4" wide white reflective stripe with a 1" wide white reflective stripe spaced approximately 1/2" above. ....	63
11.05.03	White reflective tape inside chassis doors- Per NFPA 1901 standards any door designed to allow persons to enter or exit has a minimum of 96 square inches of retro-reflective material affixed to the inside of the door. ....	63
11.06	Rear Chevron .....	63
11.06.04	Diamond Grade Chevron 100%.....	63
Section 12: Corrosion Protection and Mud Flaps.....		64
12.00	Corrosion Protection .....	64
12.01	Mud Flaps .....	64
Section 13: Pump and Plumbing .....		64
13.00	Pump House .....	64
13.00.01	Side Control Pump House .....	64
13.03	PTO Driven Pumps .....	65
13.03.07	Hale AP50 PTO Pump.....	66

13.05	Primer Pump Options .....	66
13.05.01	Rotary Vane Primer Pump.....	66
13.06	Suction Intakes .....	66
13.06.02	Non-Gated Master Intakes.....	66
13.07	Discharges .....	66
13.07.01	Side Control Pump Panel Discharges .....	66
13.07.03	Side Control Pump, Rear Discharge, Curb Side.....	66
13.09	Tank Fill/ Tank to Pump .....	67
13.09.01	Tank Fill Valve 2" .....	67
13.09.03	Tank to Pump 3" .....	67
13.11	Pump House Heat Control.....	67
13.11.02	Pump house heater 29,380 BTU/Hr .....	67
13.11.04	Pump Compartment Heat Pan .....	67
13.11.05	Pump Compartment Heat Shield .....	67
Section 14: Hose Trays, Pre-connects and Cross Lays .....		67
14.08	Hose cross lay .....	67
14.08.01	Hose cross lay above Side Control Pump.....	67
14.09	Pre-connected cross lays .....	67
14.09.02	Two (2) 1 ½ " NST male pre-connects, 2" valve.....	67
14.10	Cross-Lay Options .....	67
14.10.01	Cross Lay Divider.....	67
14.10.04	Cross Lay Vinyl Cover .....	67
14.11	Hose bed .....	68
14.11.01	Hose Bed Divider .....	68
14.11.02	Hose Bed cover .....	68
Section 15: Equipment Storage and Mounting .....		68
15.00	Suction Hose Trays and Ladder Carriers .....	68
15.00.04	Two (2) trays located on street side catwalk.....	68
Section 17: Chassis Accessories .....		68
17.01	Hub and Lug nut covers .....	68
17.01.02	Single axle chassis. ....	68
17.03	Shoreline Connection, Kussmaul HO Series.....	68
17.03.01	Manual shoreline connection, front sill of front street side locker.....	68

17.10	Accessories .....	68
17.10.01	Tire Pressure Indicators.....	68
17.11	Chassis Exhaust.....	69
17.11.01	Standard Chassis Exhaust Modifications .....	69
Section 18:	Loose Equipment.....	69
18.08	Wheel Chocks .....	69
18.08.01	Two (2) Wheel Chocks, with Holders, Placed into Spare Compartment.....	69
18.10	PVC flexible hard suction hoses .....	69
18.10.03	Two (2) 4"x 10' .....	69
Section 19:	Chassis.....	69
19.00	Midwest Fire Equipment furnished per specification attached: .....	69

## Section 1: Booster tank

### 1.00 "T" Tank with a Lifetime Warranty from Its Manufacturer

The All-Poly Series features a polypropylene "T" style tank. The top of this tank may be used as a hose bed, with optional dividers (see section 14). Hose beds stretch the full width and full length of the tank.

"T"-style tank fabricated from non-corrosive, stress-relieved virgin copolymer polypropylene thermoplastic material. All exterior tank joints and seams are extrusion welded. All welds conform to DVS and AWS standards. All joints, seams, and welds tested for integrity and leaks and are certified to be free from defects. The top of the tank is white with a textured finish and is fitted with removable lifting eyes designed with a 3-to-1 safety factor to facilitate easy removal

The upper rear of the tank has a transverse internal bulkhead isolated from the water carrying portion of the tank. This area may be used for wiring connections and for installing lights and grab handles. The use of external blocks for mounting equipment will be kept to a minimum providing a pleasant appearance. Wire tubes will be installed inside the tank, originating in the transverse bulkhead and terminating at the bottom of the tank. Wires for lights and equipment will not be visible from the outside of the tank.

The material thickness will be dependent upon its function. The sides, top and ends will be 3/4" (.75) thick. The baffles and fill tower will be 3/8 to 1/2" (.50) thick.

The transverse swash partitions extend approximately 4" off the floor to just under the cover. The longitude swash partitions extend from the floor to the tank through the cover to allow for positive welding and maximum integrity. All partitions are equipped with vent and air holes to permit movement of air and water between compartments. The partitions are designed to provide maximum water flow. All swash partitions interlock with one another and are welded to each other as well to the walls of the tank. This baffling system will be fully compliant with NFPA and the DOT regulations.

3" minimum removable clean out plug at bottom rear and bottom front of the tank.

Tank fill couplings backed with flow deflectors to disperse the stream of water entering the tank, and capable of withstanding sustained fill rates of up to 1.000 G.P.M. at 100 PSI maximum.

All auxiliary outlets and inlets must meet NFPA 1900 guidelines in effect at the time of manufacture.

### 1.01 Tank Size

1.01.02 All-Poly Series 2000 gallon

### 1.02 Rear Fill Tower

Tank has an overhead fill tower with lid, located at the rear center of tank. Fill tower is constructed of 1/2" polypropylene with minimum dimensions of 16" square. The tower has a 1/4" removable Poly screen and a polypropylene hinged-type cover. The vent overflow is a minimum of schedule 40 Poly pipe with a minimal I.D. of 6" that is designed to run through the tank.

## Section 2: Hydrant Fills and Tank Level

### 2.01 Curb Side Hydrant Fills

Hydrant fills provided at the rear of the apparatus are all equipped with an integral 30-degree elbow and a ¾" bleeder valve. All direct fills will be equipped with a valve (butterfly for valves greater than 4"), cap, and chain. (Cap holder for 3" and below)

2.01.04 Curb Side 4" Storz

### 2.02 Tank Level Gauge

- Pressure transducer mounted on the outside of the tank in an easily accessible area. Sealed foam tanks (if so equipped) will require zero pressure vacuum vents.
- Super bright LED display viewable from 180 degrees with a visual indication at multiple accurate levels.
- Weather resistant connectors to connect to the digital display, the pressure transducer, and the apparatus power. Additional displays are easily integrated and will receive data from the same source as the Master Display; no additional transducers required.
- Tank level gauge indicates the liquid level on easy to read LED display.

2.02.01 One (1) Innovative Controls SL Series 14 Tank Level Gauge

2.02.01.01 Installed on the street side pump panel. –Tanker/Pumper Master

2.02.01.03 Installed at the rear street side. –Additional

### 2.03 Spanner Wrenches

One adjustable hydrant wrench and two (2) spanner wrenches with holder.

2.03.99 Custom Location <>

## Section 3: Dump Valves and Chutes

All dump valves will be Newton 10" square stainless steel Kwick-Dump Gate style (full flow). Flip chutes and telescopic chutes to be Stainless steel. For improved water flow, the dump valve is attached directly to the tank and not by use of a rear manifold system.

### 3.00 Manual Dump Valves

Manual dump valves will have a locking control handle.

3.00.01 12" flip chute installed on the rear dump valve.

3.00.03 36" telescoping chute installed on the street side dump valve.

3.00.04 36" telescoping chute installed on the curb side dump valve.

## Section 4: Portable Tank Carrier

### 4.00 Manual Tip-down Portable Tank Carrier

One (1) manual tip-down portable tank carrier for loading/unloading of a folding water tank located above the catwalk and designed to fold down over the body side. When in the up position the tank carrier will be secured with heavy duty locking DeStaco latches. The tank carrier is constructed of 1 1/4" 14-gauge stainless steel square tubing.

A red "Carrier down" flashing LED warning light visible to the driver will illuminate when the portable tank carrier is not in the stowed position.

4.00.04 2100 gallons, curb side

#### 4.01 Manual Carrier Enclosure Options

All portable tank carrier enclosure options are enclosed on four sides and are equipped with two grab rails, except for the wind deflector. The wind deflector option is installed on the tank carrier towards the front, and only has one grab rail.

4.01.02 Portable tank carrier enclosed on (three (3) sides in aluminum Tread-brite.

#### 4.06 Portable Tank

Fol-Da-Tank® portable tank with frame. The tank liner is constructed of nylon -coated material, 23 oz. side walls and a 30 oz. floor with handles installed in the floor for ease of folding. All portable tanks will have two outlets. The portable tank will be red in color and furnished with a capacity of:

4.06.04 2100 Gallons, Aluminum Frame

## Section 5: Body and Components

### Sub-frame

Construction includes a dedicated body sub-frame which is:

- Integral to the tank cradle and constructed using extruded .25" thick aluminum tubing.
- Designed to support the body structure and to provide maximum support for the weight of the body and all stored equipment.

### Body

- The body will be attached to the sub-frame using rigid fasteners isolated by fitted rubber bushings.
- The mounting system provides secure attachment of the body to the sub-frame while allowing sufficient range of movement between the two assemblies.
- The body will be enclosed on all sides and incorporate closed wheel wells and finished storage compartments.
- Stainless steel corner guards to protect from damage on road and fire scene.
- Front lower vertical surface of body protected with aluminum Tread-brite.

### Tank

- The tank is held front and rear as well as side-to-side by additional cradle structures to prevent the tank from shifting during vehicle operation.
- The tank is affixed to the cradle utilizing hat channel mounting brackets constructed of ¼" thick stainless steel. The channels are mounted beneath the center of the tank before and after the cross members of the cradle. The channel is surrounding these members and is bolted directly to the bottom of the tank thereby securing the tank to the cradle.
- This mounting system provides a free-floating connection of the tank to the cradle which allows the chassis frame's normal movement and twist to introduce no stress upon the tank or body.

## Fenders

- Fenders will be integral with the side of the body.
- Fender wells are constructed with full circular copolymer polypropylene thermoplastic inner liners for ease of cleaning and maintenance.

## Materials

- The entire body is fabricated from non-corrosive, stress-relieved virgin copolymer polypropylene thermoplastic material.
- All exterior body joints and seams are extrusion welded.
- All welds will conform to DVS and AWS standards.
- All joints, seams, and welds will be tested for integrity and are certified to be free from defects.
- All joints and are 100 percent welded inside and out; no skip welding is permitted.

### **THE BODY WILL CARRY A LIFETIME WARRANTY FROM ITS MANUFACTURER**

## 5.00 Fenderettes

Bright polished aluminum fenderettes are installed on the wheel wells to prevent splash and enhance appearance. The fenderettes extend approximately 1" beyond the body side and are designed to be replaced. All fasteners will not be exposed to the exterior of the fenderettes or body.

### 5.01 Rub Rail

The bottom edge of the entire apparatus will have an aluminum rub-rail installed to give the body, pump house, and rear step a pleasing appearance. The rub-rail is replaceable, made from solid extruded aluminum and features a reflective stripe at the rail center.

### 5.02 Tow Eye

The tow eye will have a 3 ½" thru hole, made from 1" thick steel, powder-coated black, and bolted directly to the frame with 8 cadmium plated bolts.

5.02.01 Tow eye located ahead and below the rear step on curb side.

### 5.03 Cradle

An all-aluminum cradle is engineered and constructed to connect the chassis frame with the copolymer tank and body, and is constructed using extruded aluminum tubing .25" thick and extruded aluminum flats .375" thick. Cradle cross members are spaced to restrict unsupported portions of the tank between cross members to a maximum of 550" squared. There are cushioned rubber extrusions placed over all tank support areas to isolate the tank from the aluminum cradle.

## Section 6: Body Compartments

### 6.00 Street Side Compartments

- A sweep-out style compartment provided on the street or curb side, integral to the body, constructed using white copolymer material.

- Each compartment will have a R-O-M anodized aluminum roll-up door, door activated LED compartment lights, corrosion resistant vents, black Turtle Tile plastic dry decking, and floor drains.

#### 6.00.01 Street Side Front Low Compartment

Standard Compartment is located on the street side, ahead of the rear wheels. Approximate inside dimensions are 72" wide by 32" tall by 26" deep. (60" ROM door based on 150" CA)

### 6.01 Curb Side Compartments

- A sweep-out style compartment provided on the street or curb side, integral to the body, constructed using white copolymer material.
- Each compartment will have a R-O-M anodized aluminum roll-up door, door activated LED compartment lights, corrosion resistant vents, black Turtle Tile plastic dry decking, and floor drains.

#### 6.01.01 Curb Side Front Low Compartment

Standard Compartment is located on the curb side, ahead of the rear wheels. Approximate inside dimensions are 72" wide by 32" tall by 26" deep. (60" ROM door based on 150" CA)

## Section 7: Running Boards, Catwalks, and Rear Step

### 7.00 Running Boards

A 12" wide running board is located at the base of the pump house and is made from Diamondback® deck plate and includes a replaceable extruded aluminum rub rail.

### 7.01 Catwalk

Catwalks are located above the street and curb side compartments, made of polished aluminum Tread-Brite and bent at a 30-degree angle to provide a drip rail.

### 7.02 Rear Step

The 12" deep rear step is NFPA compliant and made of top of the line Diamondback® extruded aluminum deck plate with a 7" tall kick plate. Rounded polished aluminum castings installed on the corners of the step.

## Section 8: Grab Rails and Foot Steps

### 8.00 Grabs Rails

The grab rails are made of 1 ¼ " diameter extruded aluminum tubing with knurled finish and chrome plated stanchion brackets.

#### 8.00.01 Tank Grab Rails

There are two (2) vertical grab rails provided at the rear, one each side.

#### 8.00.03 Control Panel Grab Rails

There are two (2) horizontal grab rails provided, one on each side, above the pump control panels, and below the cross lays for ease of loading and unloading the hose cross lay.

#### 8.00.04 Tank Grab Rail - Street side

There is one (1) grab rail located on street side of tank in the upper front corner for ease of loading and unloading hose cross lays.

#### 8.00.05 Tank Grab Rail - Curb side

There is one (1) grab rail located on curb side of tank in the upper front corner of tank for ease of loading and unloading hose cross lays.

### 8.01 Folding Access Steps

As per NFPA 1901 standards, all steps are a minimum of 35" square with polished stainless steel kick-plates

#### 8.01.02 Front Folding Steps - Street side

Large chrome plated illuminated folding steps are provided at the front on the street side, for access to the catwalk area. The steps are a minimum of 35" square with polished stainless steel kick-plate.

##### 8.01.02.01 Quantity one (1)

#### 8.01.03 Front Folding Steps - Curb side

Large chrome plated illuminated folding steps provided at the front on the curb side, for access to the catwalk area. The steps are a minimum of 35" square with polished stainless steel kick-plate.

##### 8.01.03.01 Quantity one (1)

#### 8.01.04 Lower Level Rear Folding Steps

Large chrome-plated illuminated folding steps provided at the rear for access to the catwalk area. The steps are a minimum of 35" square with polished stainless steel kick-plates. Other locations available below.

##### 8.01.04.01 One (1), Curb Side

##### 8.01.04.02 One (1), Street Side

### 8.02 Access Ladders

#### 8.02.03 Hose Bed Access Ladder

An aluminum access ladder, located at the rear of tank above the dump valve for over-head access, featuring 1 1/4" diameter knurled tube rails and serrated rungs.

## Section 9: Electrical Equipment

### 9.00 Electrical System

- The electrical system will utilize Class1 Inc. ES-Key™ technology, UltraView™ displays and 1Touch switch modules, where applicable.
- The apparatus is equipped with a Class 1 ES-Key Management System for controlling electrical system devices. This management system is capable of performing load management functions, system switching, monitoring and reporting, and be fully programmable for a standardized electrical system utilizing the ES-Key Professional software program.

- The ES-Key system utilizes a Controller Area Network (J1939) protocol to provide multiplexed control signals for "real time" operation. The system consists of a main control module (Universal System Manager or Supernode II) and the appropriate combination of Power Distribution Module(s) (PDM), Switch Input Module(s) (SIM), and other I/O modules as required for the application.
- Optional system enhancements may include the UltraView™ 700 display, the UltraView 450 display and 1Touch switch modules for increased graphic user interface.
- Supernode II™

The apparatus is equipped with a Class1 ES-Key™ system with a Supernode II™ high density input output node. The Supernode II™ has (24) inputs, (24) outputs, a Universal System Manager, a data logger, programmable special utilities, and select J1939 engine and drive train message reception with ES-Key™ I/O association. It must be sealed to IP-67 and have integrated power connections.

The Supernode™ has (18) positive and (6) negative outputs. Each positive output is capable of 13 amps continuous duty. The negative outputs are capable of 2 amps continuous duty. Supernode II™ outputs contain features such as digital circuit breaker, flash capability, PWM capability and open load detection.

The Supernode II™ special utility functions include timers (delay on/off and one shot), counters, bi-stable switches, and select J1939 broadcast messages. The Supernode II™ has an integrated USB port to allow for direct connection to the ES-Key system without additional interface devices.

The Supernode II™ has an integrated Load Manager. The Load Manager sequencer assures that loads are applied and removed gradually, thus eliminating the possibility of inducing failures in the vehicle's equipment.

The load manager is a precision, solid state controller which sequentially switches "ON" multiple circuits at 1/2 second intervals. Individual switches enable the user (Driver) to select output "ON or "OFF" status, at any time. The sequencer is initiated by the "Emergency Master" switch. The sequencer priority is programmed based on option content.

The aforementioned Load Manager monitors the vehicles battery voltage. Loads may be shed at any voltage at one tenth of volt increments. A low voltage warning may be set at any set point (usually 11.5 volts). The load manager can shed any output that is controlled by the system (there is no limit to the number of loads that may be managed by the network).The load shed priority is set by the circuit significance, followed closely by circuit draw. The Load Manager sheds loads until the voltage level begins to rise.

- Voltage Monitor: A voltage monitor is built into the ES-Key electrical system. It activates a warning when the alternator output voltage falls below any desired voltage (usually 11.5 volts).
- UltraView™ 700 Display

The apparatus is equipped with the UltraView™ 700 display (UV700). The UV700 is a 7 inch, full color LCD display, with (14) buttons and touch screen capability with (2) J1939 CAN Bus connections and (3) NTSC/PAL video inputs. It is bonded for direct sunlight viewing, sealed to IP67 and mounted in either the flush, pedestal or rear-mount position.

The UV700's switches is configured to allow for the control of emergency master and non-emergency master functions and are completely configurable via the ES-Key™ Professional software. Switches are set to act as momentary, maintained or three-way switches without any physical hardware change. All switches and or indicators may be configured as touch screen inputs into the ES-Key™ system. The (14) buttons are blue LED backlit.

- 1Touch Switch Modules

The apparatus is equipped with the appropriate quantity of 1Touch switch modules for enhanced device activation. The 1Touch switch module has a 4-button, configuration to accommodate specific apparatus requirements. Individual switches are backlit with multiple colored and textured switch caps and printable labels. Switch panels are sealed to IP67 and have dual LED indicators. Each switch position's back light may be individually controlled allowing for the specific switch position to be used as an indicator. Each switch pair can be configured to momentary, maintained, toggle or a dimmer. Panels can be included in network dimming.

## 9.01 DOT Lighting Details

A total of nine (9) LED clearance lights and seven (7) red LED lights installed at the rear.

Two (2) amber LED lights are installed on the front street and curb sides.

Reflectors are installed per DOT specifications.

A red warning light visible to the driver in the chassis cab that illuminates when a compartment door is ajar/open.

An illuminated license plate bracket installed at rear.

## 9.02 Lower Level Rear Lighting

### 9.02.01 Quad-cluster Tail Light Package

Two (2) LED Quad-Cluster combination red LED stop/tail, clear halogen backup light, amber LED arrow type turn signal, and red LED warning light, installed at the rear. Light assemblies provided in chrome plated housing.

#### 9.02.01.01 Whelen 600 Series Quad-Cluster

## 9.03

# Section 10: Emergency Siren and Lighting Equipment

## 10.00 Apparatus Control Center

All emergency lighting, options, and accessories are controlled at a master control center in the cab.

The apparatus control center:

- Controls all warning lights and scene lights
- Includes the "Master On" and "Open Door" and other optional indicator lights
- UV700 Multiplex display – If equipped.
- Controls other optional functions if equipped. (I.E. Electric Dump Valves, Pump Shift)
- Mounted Electronics, Sirens, and Radios – If equipped.
- Features lighted identification plates on a non-glare panel face that clearly identify each switch and its function.
- Top plate bolted on for maintenance and adding additional items.

All warning packages are fully NFPA compliant and certified by the lighting component manufacturer to meet all requirements.

### 10.01 Light Bars:

The light bar is mounted on the cab roof.

#### 10.01.01 Whelen model JE2NFPA Justice Series light bar

Whelen model JE2NFPA Justice Series, Super-LED low-profile, 56" long. Covers front and front side zones. The light bar has four (4) linear corner modules with nine (9) Super-LED light heads per module, and six (6) CON3 modules with three (3) CON3 Super-LED light heads per module.

### 10.02 Sirens:

#### 10.02.01 Whelen Siren

Whelen model 295SLSA1 Siren 200 watt, six (6) function Class A electronic siren, mounted in the chassis cab in a location convenient to the driver. The electronic siren includes full function, 17 Scan-Lock siren tones, and hard wired microphone. The siren control is lighted for easy night operation. Available with three (3) siren mounting locations.

#### 10.02.01.02 Cast Products siren speaker flush mounted street side

### 10.04 Lower Level Lights

#### 10.04.03 Front/Rear Whelen 600 Series

Two (2) Whelen 600 series lights mounted to the grill of the chassis and two (2) mounted on the rear of the body in the quad-cluster with a chrome trim ring.

#### 10.04.03.01 Front/Rear Flashers, Red, 600 Series

### 10.05 Intersection Lights

All lights mounted above 18" from the ground, and no higher than 60", (preferably centered in the reflective striping if present). One (1) positioned as far forward on the hood as possible, one (1) positioned behind the cab but in front of the rear wheels if three (3) lights per side are requested, and one (1) positioned as close to the rear of the truck as practical. Lights will include a chrome bezel.

10.05.02 Intersection, Red, 600 Series, Three (3) each side

## 10.06 Upper Level Rear Warning Lights

10.06.01 Side/Rear Whelen 600 Series Upper Flashers

One (1) Whelen 600 Series Flasher is on each side of the tank, positioned behind the rear scene light, and two (2) on the rear of the tank, below the scene lights (if equipped). If front flashers are requested, one (1) light per side will be installed behind the front scene light (if equipped) on each side of the tank.

10.06.01.02 Side/Rear Flashers, Red, 600 Series, Two (2) each side with two (2) on the rear of the tank. (Six (6) Total)

## 10.07 Scene lights

Lights are controlled from individual switches on the control center located in the chassis cab.

10.07.06 Six (6) Whelen LED Scene Lights

There are two (2) Whelen 600 LED Scene Lights on the street side of the tank, two (2) Whelen 600 LED Scene Lights on the curb side of the tank, and two (2) Whelen 600 LED Scene Lights on the rear.

## 10.09 Ground Lights

10.09.01 Four (4) ground lights

There are four (4) LED ground lights installed to illuminate the area below the apparatus. Two (2) lights are installed below the front body, and two (2) lights are installed below the rear step area. Grounds lights will be activated when parking brake is applied.

## 10.10 Accessory Lights

10.10.02 Whelen Traffic Advisor model TAL65

There is one (1) Whelen Traffic Advisor model TAL65, supplied. Traffic Advisor is 36" wide, with six (6) LED lamps mounted on the upper rear of the tank and activated by a control head in the cab.

10.10.03 Whelen Pioneer model PFP1P1 telescoping lights

One (1) Whelen Pioneer model PFP1P1, 12V LED telescoping light with individual switches on the light head.

10.10.03.01 Street side front corner of pump house

10.10.03.05 Curb side front corner of pump house

## Section 11:Painting, Lettering, Striping, and Signs

### 11.00 Painting process

The entire tank, body, and components will be washed, sanded, prepped for primer, cleaned and primed with PPG urethane primer filler. The body will be hand sanded and color match painted using a PPG Deltron base coat/clear coat paint. After paint is applied and properly cured the apparatus will be color sanded and buffed to a high gloss. The paint process is approved by PPG.

A two (2) ounce container of matching touch-up paint, with applicator brush, will be supplied for each color of the finished apparatus.

11.00.01 Color Matched Red

11.00.01.02 Color Matched Red, 2000 gallon  
10-YEAR WARRANTY ON PAINTED BODY PARTS

### 11.01 ID plate

There is a permanent plate located in the center top chassis cab with the following information:

Quantity and type of fluids used in the vehicle. This plate includes:

- Engine oil, quantity.
- Engine coolant, quantity.
- Chassis transmission fluid, quantity.
- Pump transmission fluid, quantity.
- Drive axle lubrication fluid, quantity.
- Air conditioning refrigerant, quantity.
- Air conditioning lubrication oil, quantity.
- Power steering fluid, quantity.
- Front and rear cold tire pressure
- Number of personnel the vehicle is designed to carry located in an area visible to the driver.
- Height and length of the vehicle in feet and inches
- Gross vehicle weight rating (GVWR) in pounds

### 11.03 Vinyl Lettering

11.03.01 Provided on the chassis doors.

11.03.03 Provided for the customer unit number on the street and curb side chassis fenders.

### 11.05 Reflective striping

The apparatus body and chassis will have a reflective stripe on each side and the front per NFPA 1901 standards.

11.05.01 4" wide white reflective stripe with a 1" wide white reflective stripe spaced approximately 1/2" above.

#### 11.05.01.01 Single Axle

11.05.03 White reflective tape inside chassis doors- Per NFPA 1901 standards any door designed to allow persons to enter or exit has a minimum of 96 square inches of retro-reflective material affixed to the inside of the door.

### 11.06 Rear Chevron

11.06.04 Diamond Grade Chevron 100%

Per NFPA 1901 standards, 100 percent of the rear will include red and fluorescent yellow/green diamond grade chevron retro-reflective striping installed, with each stripe a minimum of 6" wide.

## Section 12:Corrosion Protection and Mud Flaps

### 12.00 Corrosion Protection

The All-Poly Series body has a number of features which prevent corrosion.

- All fasteners are stainless steel.
- All fasteners which are used in aluminum are plated with Magnaguard 560 to prevent galvanic corrosion resulting from dissimilar metals.
- All contacts of dissimilar metals are insulated with 3M products to prevent galvanic corrosion.
- Rub rails are Type II bright dip anodized.
- Tow rings are cadmium plated steel.
- The Poly body material eliminates the need for undercoating and sprayed on coating inside storage lockers.
- The Poly body material is non corrosive and is frequently used for storing acids.
- The Poly body material eliminates many possibilities of dissimilar metal contact caused by galvanic reaction.
- The pump house frame is made from 304 series Stainless steel which resists corrosion better than aluminum.
- All seams are 100% welded inside and outside, eliminating rust between panel flanges.

### 12.01 Mud Flaps

There are two mud flaps installed behind the rear wheels.

- The mud flaps are ¼ inch thick black rubber.
- The bottom of the mud flaps are fitted with chrome weights.

## Section 13:Pump and Plumbing

### 13.00 Pump House

#### 13.00.01 Side Control Pump House

The pump compartment features:

- The superstructure frame is made from .125" wall X 2.00" square type 304 brushed 4B finish stainless steel tubing.
- The front and a portion of the rear of the pump compartment is made from type 304 brushed 4B finish stainless steel sheets to enclose the perimeter of the water pump.
- The street and curb sides of the pump compartment are equipped with side running boards. The running boards extend along the width of the pump compartment from the rear of the chassis cab to the forward end of the body module. The running boards are constructed of Diamondback® deck plate.

- Running boards include extruded aluminum rub rail extending the length of the running boards.
- The step surfaces are in compliance to applicable sections of NFPA 1901 requirements.

#### 13.00.01.02 Pump House 30" wide

### 13.03 PTO Driven Pumps

PTO Pumps have the following standard features:

- All PTO driven pumps have pump-and-roll capability.
- Helical design and precision-cut gears to reduce noise and minimize wear
- Double seal ring design solid bronze impeller
- Stainless steel pump shaft
- Maintenance free mechanical seal
- The street and curb side pump panels and access doors are constructed entirely of aluminum and be covered with black protective material.
- The pump compartment has full width vertically hinged access doors located on the upper portion of the street and curb side pump compartment.
- A latch is furnished to hold the doors closed and have a retainer attached to prevent over extension of the opened door.
- The pump operator panels are to be completely "bolted" or hinged in place for ease of removal.
- A full panel width LED light hood is provided to illuminate the street and curb side pump panels. A service light is provided to illuminate the interior of the pump compartment. Lights are controlled by the operator's panel light switch.
- The operator's panel include the following gauges:
  - Fire Research "Pump Boss 400 Series Auto Governor"
- Features:
  - Discharge pressure in PSI.
  - Pump adjustment back idle.
  - Engine monitoring of oil pressure, water temperature, battery voltage, and engine RPM.
  - Preset function for instant and reliable operation.
  - Overheat pump protection system.
  - "Innovative Controls" 2 1/2" 400# liquid filled stainless steel individual discharge pressure gauges and control handles.
  - One (1) 3 1/2" Master Discharge Gauge and one (1) 3 1/2" Master Pump intake gauge.
  - Color-coded pump panel identification labels are provided for all gauges, controls, connections, switches, inlets, and outlets.
  - The intakes have a removable strainer provided and chrome plated caps.
  - Pump shift is electric operated and incorporates standard automotive shifting mechanism for ease of maintenance.
  - The pump shift switch is mounted in the cab and identified as "PTO Engagement". The pump shift assembly includes an indicating light to show when the PTO has been engaged.
  - A master manifold type drain valve is provided with all pump drains connected to it and operate from the pump operators panel so the entire pump system may be drained by a single control.
  - Per NFPA 1901 standards there shall be pump system test ports mounted on the pump panel.

- All discharges and pre-connects with an 1 ½" or larger valve, per NFPA 1901 standards, shall have drains or bleeder valves, having a minimum ¾" pipe thread connection, for bleeding off pressure from the hose connection to the outlet.
- Per NFPA 1901 standards there shall be a suction relief valve installed on the intake sides of the pump, terminated with a NST male threads.
- A 4" tank to pump line provided from the water tank to the pump. The line has a 3" Elkhart Unibody swing out valve with PVC. The flex connections installed between the pump and water tank give the plumbing system flex, thus minimizing stress on the line. The valve is controlled by a "tee" handle control provided on the pump panel.

#### 13.03.07 Hale AP50 PTO Pump

##### Pump Ratings:

500 GPM @ 150 PSI  
 350 GPM @ 200 PSI  
 250 GPM @ 250 PSI

### 13.05 Primer Pump Options

#### 13.05.01 Rotary Vane Primer Pump

The rotary vane primer is a 12-volt electric, positive displacement, rotary vane type, oil-less primer for 20' to 30' suction lifts. Priming system includes a bronze push-pull valve with electric switch.

### 13.06 Suction Intakes

On all pumps, an intake suction relief shall be provided per NFPA 1901 standards. It will be terminated with a 2 ½" NST male adapter.

#### 13.06.02 Non-Gated Master Intakes

Master intakes are plumbed out both sides of the pump house and capped with a chrome long handled cap.

##### 13.06.02.01 Two (2) 4" intakes

### 13.07 Discharges

Discharges include:

- Tee Handle Control
- "Innovative Controls" 2 ½" 400 PSI Liquid Filled Stainless Pressure Gauge
- 30 Degree Elbow, cap and chain

#### 13.07.01 Side Control Pump Panel Discharges

13.07.01.01 One (1) 2 ½" Discharge, Street Side

13.07.01.03 One (1) 2 ½" Discharge, Curb Side

#### 13.07.03 Side Control Pump, Rear Discharge, Curb Side

13.07.03.04 One (1) 2 ½" Discharge, Through Tank

### 13.09 Tank Fill/ Tank to Pump

#### 13.09.01 Tank Fill Valve 2"

A 2" tank fill/pump re-circulating line provided from the pump to the water tank, with a 2" valve and a 2" high-pressure flexible hose.

#### 13.09.03 Tank to Pump 3"

A 3" tank to pump line provided from the water tank to the pump, with a 3" valve and tee handle controls, and 4" plumbing with flexible connection.

### 13.11 Pump House Heat Control

#### 13.11.02 Pump house heater 29,380 BTU/Hr

A 29,380 BTU/HR pump house heater is installed in the pumphouse, controlled by a switch on the pump panel.

#### 13.11.04 Pump Compartment Heat Pan

A removable aluminum heat pan installed below the pump compartment.

#### 13.11.05 Pump Compartment Heat Shield

A removable vinyl heat shield installed over the opening at the rear of the pump compartment.

## Section 14: Hose Trays, Pre-connects and Cross Lays

### 14.08 Hose cross lay

- The hose cross-lay provides an area for pre-connected hose cross-lays and/or hose storage.
- The cross-lay is constructed of a 1" thick polypropylene/polyethylene floor designed to provide drainage and ventilation to the cross lay area.
- Front and rear are constructed of 1/8" aluminum.

#### 14.08.01 Hose cross lay above Side Control Pump

### 14.09 Pre-connected cross lays

- Cross lay is pre-connected via NST swivel male gated with a ball valve.
- Pre-connect has a "Innovative Controls" 2 ½ " 400psi liquid filled stainless steel individual pressure gauge and control handle.

#### 14.09.02 Two (2) 1 ½ " NST male pre-connects, 2" valve

### 14.10 Cross-Lay Options

#### 14.10.01 Cross Lay Divider

Hose cross-lay is equipped with adjustable divider constructed of 1/8" aluminum.

##### 14.10.01.02 Two (2) Cross Lay Dividers

#### 14.10.04 Cross Lay Vinyl Cover

Heavy-duty flame retardant black vinyl cover with mesh ends is supplied and custom fitted to the apparatus cross lay. The cover is attached with shock cord to retain the cover during travel as required by NFPA.

#### 14.10.04.01 Black Crosslay Cover

#### 14.11 Hose bed

Hose bed runs the full length and width of the tank, and is approximately 10" tall to accommodate NFPA hose loads. The floor of the hose bed is grooved to allow the loaded hose to drain and provide ventilation. The floor is fabricated from UV stable white polypropylene. Inverted T slot are machined into the floor at three points to accommodate adjustable hose dividers.

##### 14.11.01 Hose Bed Divider

The hose bed has adjustable divider made out of copolymer. The rear of the divider will have slot cut in that can be used for a hand grip

##### 14.11.01.02 Two (2) dividers

##### 14.11.02 Hose Bed cover

Heavy-duty black vinyl hose bed cover is supplied and custom fitted to the apparatus hose bed. The cover is attached across the front of the hose bed with a rail and bead system to prevent wind from getting under the cover, with a flap to cover the back of the hose bed, and has a quick release elastic rope to retain the hose in the bed during travel as required by NFPA. Cover is fabricated from 100 % polyester. Operating temperature is -40F to 180F.

##### 14.11.02.01 Black Hose Bed Cover for 2000

### Section 15: Equipment Storage and Mounting

#### 15.00 Suction Hose Trays and Ladder Carriers

15.00.04 Two (2) trays located on street side catwalk.

##### 15.00.04.01 Fits 2 ½"-4" Suction Hose.

### Section 17: Chassis Accessories

#### 17.01 Hub and Lug nut covers

Stainless steel hub and lug nut covers are installed on front and rear aluminum wheels

17.01.02 Single axle chassis.

#### 17.03 Shoreline Connection, Kussmaul HO Series

One 115 Volt Kussmaul HO, air and battery conditioner system installed.

17.03.01 Manual shoreline connection, front sill of front street side locker.

#### 17.10 Accessories

17.10.01 Tire Pressure Indicators

Tire pressure indicators installed to allow for inspection of pressure at the tire.

17.10.01.01 Tire Pressure Indicator for Single Axle Chassis

17.11 Chassis Exhaust

17.11.01 Standard Chassis Exhaust Modifications

Chassis exhaust is modified to exit passenger side ahead of the rear wheels and to the edge of the body. A heat shield will be fabricated from aluminum and installed between the body and the exhaust pipe.

Section 18: Loose Equipment

18.08 Wheel Chocks

18.08.01 Two (2) Wheel Chocks, with Holders, Placed into Spare Compartment.

18.10 PVC flexible hard suction hoses

18.10.03 Two (2) 4"x 10'

Section 19: Chassis

19.00 Midwest Fire Equipment furnished per specification attached:

Chassis Summary			
Manufacturer	Freightliner	Cab To Axle (in.)	150"
Model	M2-106	Wheel Base (in.)	216"
Engine Manufacturer	Cummins	Front Axle Rating (Lbs.)	14,600
Engine Model	ISL 9	Rear Axle Rating (Lbs.)	27,000
Horsepower	350	Paint Color Code	Med Red Elite

FREIGHTLINER SPECIFICATION PROPOSAL

Vehicle Configuration

M2 106 CONVENTIONAL CHASSIS

2017 MODEL YEAR SPECIFIED

SET BACK AXLE - TRUCK

General Service

FIRE/EMERGENCY SERVICE

MEDIUM TRUCK 2 YEAR WARRANTY

EXPECTED FRONT AXLE LOAD: 14000 lbs

EXPECTED REAR DRIVE AXLE LOAD: 27000 lbs

EXPECTED GROSS VEHICLE CAPACITY: 41000 lbs

## Engine

CUM ISL 350 HP @ 2000 RPM, 2200 GOV RPM,  
1000 LB/FT @ 1400 RPM

## Engine Equipment

ONBOARD DIAGNOSTICS/2010  
EPA/CARB/GHG17

NFPA COMPLIANT EMBER SCREEN AND FIRE  
RETARDANT DONALDSON AIR CLEANER

DR 12V 275 AMP 40-SI QUADRAMOUNT PAD  
ALTERNATOR WITH REMOTE BATTERY  
VOLTAGE SENSE

(2) ALLIANCE MODEL 1231, GROUP 31, 12 VOLT  
MAINTENANCE FREE 2250 CCA THREADED  
STUD BATTERIES WITH POSITIVE JUMPSTART  
POST

BATTERY BOX FRAME MOUNTED

WIRE GROUND RETURN FOR BATTERY CABLES  
WITH ADDITIONAL FRAME GROUND RETURN

POSITIVE LOAD DISCONNECT WITH CAB  
MOUNTED CONTROL SWITCH MOUNTED  
OUTBOARD DRIVER

CUMMINS TURBOCHARGED 18.7 CFM AIR  
COMPRESSOR WITH INTERNAL SAFETY VALVE

CUMMINS EXHAUST BRAKE INTEGRAL WITH  
VARIABLE GEOMETRY TURBO WITH ON/OFF  
DASH SWITCH

RH MTD HORIZONTAL AFTERTREATMENT  
SYSTEM

HORTON DRIVEMASTER ON/OFF FAN DRIVE

AUTOMATIC FAN CONTROL WITHOUT DASH  
SWITCH

CUMMINS SPIN ON FUEL FILTER

COMBINATION FULL FLOW/BYPASS OIL FILTER

1100 SQUARE INCH ALUMINUM RADIATOR  
WITH SENDURE HEAT EXCHANGER

ANTIFREEZE TO -34F, OAT (NITRITE AND  
SILICATE FREE) EXTENDED LIFE COOLANT

GATES BLUE STRIPE COOLANT HOSES OR  
EQUIVALENT

CONSTANT TENSION HOSE CLAMPS FOR  
COOLANT HOSES

ELECTRIC GRID AIR INTAKE WARMER

DELCO 12V 38MT HD STARTER WITH  
INTEGRATED MAGNETIC SWITCH

#### **Transmission**

ALLISON 3000 EVS 5 SPD AUTOMATIC  
TRANSMISSION WITH PTO PROVISION

#### **Transmission Equipment**

MAGNETIC PLUGS, ENGINE DRAIN,  
TRANSMISSION DRAIN, AXLE(S) FILL AND DRAIN

PUSH BUTTON ELECTRONIC SHIFT CONTROL,  
DASH MOUNTED

TRANSMISSION PROGNOSTICS

WATER TO OIL TRANSMISSION COOLER

TRANSMISSION OIL CHECK AND FILL WITH  
ELECTRONIC OIL LEVEL CHECK

SYNTHETIC TRANSMISSION FLUID (TES-295  
COMPLIANT)

#### **Front Axle and Equipment**

DETROIT DA-F-14.7-3 14,700# FF1 71.5 KPI/3.74  
DROP SINGLE FRONT AXLE

MERITOR 16.5X5 Q+ CAST SPIDER CAM FRONT  
BRAKES, DOUBLE ANCHOR, FABRICATED SHOES

FIRE AND EMERGENCY SEVERE SERVICE, NON-  
ASBESTOS FRONT LINING

HALDEX AUTOMATIC FRONT SLACK ADJUSTERS

TRW TAS-85 POWER STEERING

#### Front Suspension

14,600# TAPERLEAF FRONT SUSPENSION

MAINTENANCE FREE RUBBER BUSHINGS

FRONT SHOCK ABSORBERS

#### Rear Axle and Equipment

27,000 LB FIRE/EMERGENCY SERVICE SINGLE  
REAR AXLE

IRON REAR AXLE CARRIER WITH STANDARD  
AXLE HOUSING

MXL 17T MERITOR EXTENDED LUBE MAIN  
DRIVELINE WITH HALF ROUND YOKES

DRIVER CONTROLLED TRACTION DIFFERENTIAL

MERITOR 16.5X7 P CAM REAR BRAKES, DOUBLE  
ANCHOR, CAST SHOES

FIRE AND EMERGENCY SEVERE SERVICE NON-  
ASBESTOS REAR BRAKE LINING

HALDEX AUTOMATIC REAR SLACK ADJUSTERS

#### Rear Suspension

30,000# FLAT LEAF SPRING REAR SUSPENSION  
WITH HELPER AND RADIUS ROD FOR  
FIRE/EMERGENCY

SPRING SUSPENSION - 1.00" AXLE SPACER

CUSTOM AXLE CLAMPING GROUP

FORE/AFT CONTROL RODS

#### Brake System

AIR BRAKE PACKAGE

WABCO 4S/4M ABS WITH TRACTION CONTROL  
& ESC

STANDARD AIR SYSTEM PRESSURE PROTECTION

BW AD-9 BRAKE LINE AIR DRYER WITH HEATER  
CUSTOM STEEL AIR BRAKE RESERVOIRS  
BW DV-2 AUTO DRAIN VALVE WITH HEATER -  
WET TANK

#### Electrical Connections

UPGRADED CHASSIS MULTIPLEXING UNIT  
UPGRADED BULKHEAD MULTIPLEXING UNIT

#### Wheelbase & Frame

(216 INCH) WHEELBASE / (150 INCH) CA  
11/32X3-1/2X10-15/16 INCH STEEL FRAME  
120KSI  
(74 INCH) REAR FRAME OVERHANG

#### Chassis Equipment

THREE-PIECE 14 INCH CHROME STEEL BUMPER  
WITH COLLAPSIBLE ENDS AND CUTOUT FOR  
SPEAKER  
FRONT TOW HOOKS - FRAME MOUNTED  
FENDER & FRONT OF HOOD MTD FRONT  
MUDFLAPS  
GRADE 8 THREADED HEX HEADED FRAME  
FASTENERS

#### Fuel Tanks

50 GALLON POLISHED ALUMINUM FUEL TANK  
6 GALLON DIESEL EXHAUST FLUID TANK  
ALLIANCE FUEL FILTER/WATER SEPARATOR  
EQUIFLO INBOARD FUEL SYSTEM

#### Tires

MICHELIN XZE 12R22.5 16 PLY RADIAL FRONT  
TIRES

MICHELIN XZY-3 12R22.5 16 PLY RADIAL REAR  
TIRES

#### Hubs

CONMET PRE-SET BEARING IRON FRONT HUBS

CONMET PRE-SET BEARING IRON REAR HUBS

#### Wheels

22.5X8.25 10-HUB PILOT POLISHED ALUMINUM  
DISC FRONT WHEELS

22.5X8.25 10-HUB PILOT POLISHED ALUMINUM  
DISC REAR OUTER WHEELS

#### Cab Exterior

106 INCH BBC FLAT ROOF ALUMINUM  
CONVENTIONAL AIR RIDE CAB WITH  
COMPOSITE EXTERIOR SUNVISOR

NFPA COMPLIANT EXTERIOR GRAB HANDLES

HOOD MOUNTED CHROMED PLASTIC GRILLES

DUAL 25 INCH ROUND STUTTER TONE HOOD  
MOUNTED AIR HORNS

DUAL ELECTRIC HORNS

DOOR LOCKS AND IGNITION SWITCH KEYED  
THE SAME

INTEGRAL HEADLIGHT/MARKER ASSEMBLY  
WITH CHROME BEZELS AND DAYTIME  
RUNNING LIGHTS

WIG-WAG ALTERNATING FLASHING LOW BEAM  
HEADLAMPS WITH DASH SWITCH

LED AERODYNAMIC MARKER LIGHTS

DUAL 102" WEST COAST BRIGHT FINISH  
HEATED MIRRORS WITH LH AND RH REMOTE

LH AND RH 8 INCH BRIGHT FINISH CONVEX  
MIRRORS MOUNTED UNDER PRIMARY  
MIRRORS

RH AND LH ELECTRIC POWERED WINDOWS  
63X14 INCH TINTED REAR WINDOW  
TINTED WINDSHIELD & DOOR GLASS LH AND  
RH WITH TINTED NON-OPERATING WING  
WINDOWS  
2 GALLON WINDSHIELD WASHER RESERVOIR  
WITHOUT FLUID LEVEL INDICATOR, FRAME  
MOUNTED

#### Cab Interior

OPAL GRAY VINYL INTERIOR  
MOLDED PLASTIC DOOR PANELS WITH  
ALUMINUM KICKPLATES LOWER DOORS  
BLACK MATS WITH PREMIUM INSULATION  
WOODGRAIN INSTRUMENT PANELS  
FORWARD ROOF MOUNTED CONSOLE WITH  
UPPER STORAGE COMPARTMENTS WITHOUT  
NETTING  
IN DASH STORAGE BIN  
AM/FM/WB DASH MTD RADIO WITH  
BLUETOOTH AND MICROPHONE, USB PORT,  
AUXILIARY INPUTS  
(2) CUP HOLDERS LH AND RH DASH  
HEATER, DEFROSTER AND AIR CONDITIONER  
MAIN HVAC CONTROLS W/ RECIRCULATION  
SWITCH  
SOLID-STATE CIRCUIT PROTECTION AND FUSES  
12V NEGATIVE GROUND ELECTRICAL SYSTEM  
DOME LIGHT WITH 3-WAY SWITCH ACTIVATED  
BY LH AND RH DOORS  
CAB DOOR LATCHES WITH MANUAL DOOR  
LOCKS  
(1) 12 VOLT POWER SUPPLY IN DASH

SEATS INC 911 UNIVERSAL SERIES HIGH BACK  
AIR SUSPENSION DRIVER SEAT NFPA  
COMPLIANT

SEATS INC 911 UNIVERSAL SERIES HIGH BACK  
NON SUSPENSION PASSENGER SEAT WITH  
UNDERSEAT STORAGE NFPA COMPLIANT

LH AND RH INTEGRAL DOOR PANEL ARMRESTS  
BLACK CORDURA PLUS CLOTH SEAT COVERS

3 POINT HIGH VISIBILITY ORANGE RETRACTOR  
DRIVER AND RH FRONT PASSENGER SEAT BELTS  
NFPA COMPLIANT

ADJUSTABLE TILT AND TELESCOPING STEERING  
COLUMN

4-SPOKE 18 INCH STEERING WHEEL

DRIVER AND PASSENGER INTERIOR SUN VISORS

#### Instruments & Controls

BLACK GAUGE BEZELS

LOW AIR PRESSURE LIGHT AND BUZZER

2 INCH PRIMARY AND SECONDARY AIR  
PRESSURE GAUGES

ENGINE COMPARTMENT MOUNTED AIR  
RESTRICTION INDICATOR WITH GRADUATIONS

97 DB BACKUP ALARM

ELECTRONIC CRUISE CONTROL WITH SWITCHES  
IN LH SWITCH PANEL

ICU3S, 132X48 DISPLAY WITH DIAGNOSTICS, 28  
LED WARNING LAMPS AND DATA LINKED

FIRE AND EMERGENCY SERVICE VEHICLES  
ENGINE WARNING

2 INCH ELECTRIC FUEL GAUGE

ELECTRICAL ENGINE COOLANT TEMPERATURE  
GAUGE

2 INCH TRANSMISSION OIL TEMPERATURE GAUGE

ENGINE AND TRIP HOUR METERS INTEGRAL WITHIN DRIVER DISPLAY

ELECTRIC ENGINE OIL PRESSURE GAUGE

ELECTRONIC MPH SPEEDOMETER WITH SECONDARY KPH SCALE

ELECTRONIC 3000 RPM TACHOMETER

DIGITAL VOLTAGE DISPLAY INTEGRAL WITH DRIVER DISPLAY

WINDSHIELD WIPER MOTOR WITH DELAY

MARKER LIGHT SWITCH INTEGRAL WITH HEADLIGHT SWITCH

ONE VALVE PARK BRAKE SYSTEM WITH DASH VALVE

WARNING SYSTEM FOR PARK BRAKE NOT SET WITH DOOR OPEN AND ALL IGNITION KEY POSITIONS

SELF CANCELING TURN SIGNAL SWITCH WITH DIMMER, WASHER/WIPER AND HAZARD IN HANDLE

INTEGRAL ELECTRONIC TURN SIGNAL FLASHER WITH HAZARD LAMPS OVERRIDING STOP LAMPS

**Paint Design**

ONE SOLID CUSTOM BASE/CLEAR COAT ORANGE

BLACK, HIGH SOLIDS POLYURETHANE CHASSIS PAINT

**T O T A L V E H I C L E S U M M A R Y**

**Weight Summary**

Weight	Weight	Total
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	<b>Front</b>	<b>Rear</b>	<b>Weight</b>
Factory Weight <sup>+</sup>	7306 lbs	4589 lbs	11895 lbs

(+) Weights shown are estimates only.

## Appendix “B”

Budget Item	Misc	LLVFDS 2016 Budget	Suggested 2017 LLVFDS Budget
Fuel for vehicles		500	500
Truck repairs & maintenance		1000	2000
Truck 31 Hendrickson			
Truck 33 International			
Truck 35 Ford F350			
Fire Prevention (Note 1)			500
Office Related Supplies & Expenses		300	300
Utilities incl. Hydro, Telephone		4500	4500
Total Insurance		8567	8567
Building Insurance	3763		
Firefighter Insurance	1281		
Society Board	850		
Auto Insurance	2673		
Workers Compensation			1000
Radios, Pagers		8000	8000
Radio License (Note 2)			320
Hall Maintenance (Note 3)		500	500
Training		6000	10000
Memberships (Note 4)			500
First Aid		1000	1000
Member Incentive (Note 5)		1200	1200
Clothing			
Turnout Gear		7500	10000
Equipment		7310	7310
Hoses & Nozzles			
SCBA			
Lighting			
Fire Extinguishers			
Foam			500
Rural Water Supply (Note 6)			5000
<b>Total Operating Expenses (Note 7)</b>		<b>46377</b>	<b>61697</b>
Debt-Servicing (Note 8)			41,500
Capital Asset Replacement Reserve Fund (Note 9)			7703
Total Operating Budget			110,000
Provincial Collection Fee (Note 10)			5,775
TNRD Administration Charges (Note 10)			4,225
<b>Total Budget (Tax Requisition)</b>			<b>120,000</b>

## Appendix "B" Notes

Note 1: It is recommended that the department set a modest amount aside each year to support fire and life safety public education activities.

Note 2: It is recommended that the Society create a line item to pay for the annual licensing costs of its' radio equipment.  
The current fee from the Government of Canada is \$41.00 per unit.

Note 3: It is assumed that all costs of supplies, maintenance and repairs of the fire hall are included in this budget item.

Note 4: It is suggested that consideration be given to joining a provincial fire association such as the Fire Chiefs' Association of British Columbia to expand networking opportunities and to access information.

Note 5: It is assumed that the Member Incentive is designed to provide the volunteer firefighters with modest benefits. It is further assumed this includes hats & t- shirts and that the firefighter insurance outlined above is for "while-on-duty" coverage as an added benefit.

Note 6: It is recommended that, if the concept of dry hydrants being installed at access points along the lake shore is adopted, funds should be set aside annually to cover the cost of installation and maintenance of any dry hydrants that are installed.

Note 7: The 2016 Total Operating Expenses reflects the budget proposed by the LLVFDS. Income is projected to come from the Parcel Tax collected by TNRD - \$22,000.00, Fundraising - \$6,500.00 and Funds on Hand - \$ 17,877.00 to cover the amount of \$ 46,377.00

Note 8: This amount represents the approximate annual debt-servicing required if the amount of \$600,000 is borrowed at a rate of 3.5% on a 20-year amortization

Note 9: It is a recommended best practice to establish a capital asset replacement reserve fund for the replacement of equipment such as apparatus, self-contained breathing apparatus and other expensive equipment. This capital asset replacement reserve fund should also include fire hall expansion or expensive building maintenance items such as roof replacement, etc.

Note 10: The Province assesses a fee of 5.25% on the amount required to be collected. The amount used for the TNRD's administration charges is an estimate.