



ALBERNI-CLAYOQUOT
REGIONAL DISTRICT



Beaver Creek Volunteer Fire Department

Asset Management Plan
Version 1



DATE OF ADOPTION: MAY 13, 2020



Contents

1	EXECUTIVE SUMMARY	2
1.1	Purpose of the Plan.....	2
1.2	Asset Description.....	2
1.3	Levels of Service.....	2
1.4	Future Demand.....	2
1.5	Lifecycle Management Plan.....	2
1.6	Financial Summary.....	3
1.7	Asset Management Practices	4
1.8	Monitoring and Improvement Plan.....	4
2	INTRODUCTION	4
2.1	Background.....	4
2.2	Asset Inventory.....	5
2.3	Emergency Preparedness	5
2.4	Levels of Service.....	7
2.5	Required Replacements	9
3	CURRENT STATE OF BCVFD INFRASTRUCTURE	10
3.1	Inventory.....	10
3.2	Replacement Costs and Dates	10
3.3	Condition Assessments	12
3.4	Current Operations and Maintenance Costs	12
3.5	Future Demands	13
3.6	Risk Management Plan.....	15
4	ASSET MANAGEMENT IMPROVEMENT PLAN	15
4.1	Infrastructure Replacement Priority Ranking	15
4.2	Improvement Plan	17
5	REFERENCES	19



1 EXECUTIVE SUMMARY

1.1 Purpose of the Plan

The Beaver Creek Volunteer Fire Department (BCVFD) Asset Management Plan (AMP) is part of the ACRD Asset Management Program to facilitate informed decision-making and effective allocation of resources for infrastructure. The purpose of an AMP is to deliver sustainable, cost effective services to ACRD communities in a socially, economically, and environmentally responsible manner, while providing the Level of Service (LOS) agreed upon by the Board. Estimates and projections included in this AMP are derived using available information with updates and changes expected with the release of each new version. AMPs are intended to be living documents, reflective of current asset conditions and data.

1.2 Asset Description

The Beaver Creek Volunteer Fire Department assets include:

- Hall, parking lot, septic system and generator
- Firefighting apparatuses and equipment
- Self-Contained Breathing Apparatus (SCBA) Equipment
- Electronics

1.3 Levels of Service

The present funding levels are insufficient to continue to provide the existing services at current levels in the medium-term. The main service consequences will be more frequent service interruptions, a decline in service quality or loss of service.

1.4 Future Demand

The main demands for new services are created by:

- Growth rate
- Education programs
- Board of Directors and resident level of service expectations
- Legislative and industry regulations

These will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices include non-asset solutions, insuring against risks and mitigating failures.

1.5 Lifecycle Management Plan

Asset Management assists in conscious and calculated decisions for all assets covered in AMPs from acquisition, operation, maintenance, disposal and renewal or upgrade. During the course of an assets life, the replacement value is known along with an estimated date of replacement based on age and condition. Annual contributions required are calculated for each component in each service to

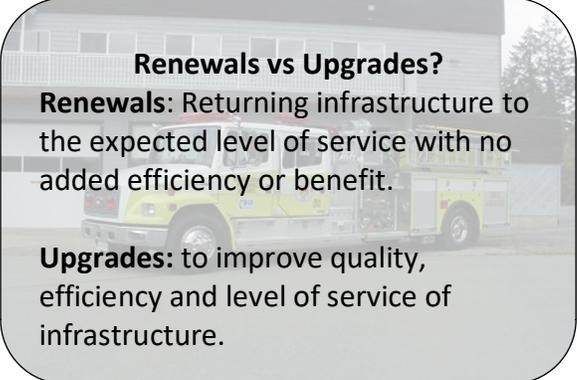


measure the funding gap between current and future levels of service in order to align funding and service expectations. The AM Program achieves responsible and reliable lifecycle management practices.

The Asset Management Coordinator has created the Beaver Creek Volunteer Fire Department AMP with the assistance of the Fire Chief, Deputy Chief and operations staff. Asset Management systems will continue to be maintained once this position expires by ACRD staff. Estimated service life (ESL) and replacement cost of the infrastructure were determined using historical data, industry standards and requirements. The BCVFD Chief provided risk assessments and goals.

1.6 Financial Summary

The BCVFD assets have a total current replacement value of \$6.3 million in 2020 dollars. With an estimated inflation rate of 1.5% (CPI 10-year average), estimated future replacement costs are \$8.1 million for current infrastructure at the end of the components estimated service life. Not included in the estimates are projections for future demand and projected capital upgrades. Beaver Creek hasn't grown since the system was first established so future growth is not expected unless the fire service boundaries were extended.



Renewals vs Upgrades?
Renewals: Returning infrastructure to the expected level of service with no added efficiency or benefit.
Upgrades: to improve quality, efficiency and level of service of infrastructure.

Beaver Creek has an assessed converted value of \$51.5 million with a converted residential tax rate of \$0.612 to cover all fire department expenditures. In 2020, \$315,236 will be collected through property taxes. The current funding levels are sufficient for the short term but do not allow for adequate capital reserve contributions. Large expenditures such as a new hall or fire apparatus aren't within the current financial means of BCVFD. Without adequate requisition levels, debt may need to be used to maintain levels of service in the future. Renewal of assets will occur in cycles based on asset life, legislative renewal requirements and according to their condition and use. The Fire Underwriters Survey (FUS) also dictates the replacement of key firefighting apparatuses based on asset age.

The first significant capital renewal project is in 2020 at \$640,000 for a new Pumper Fire Apparatus from Fort Garry Fire Trucks to replace the current First Line response apparatus. The apparatus has been partially paid for and is due to arrive late Spring 2020. Based on age regulations





from the FUS, a second new fire apparatus is also required in 2025 to stay in compliance with First and Second Line apparatus maximum age restrictions; BCVFD is currently considering applying for an exception with FUS. Due to financial constraints, the Fire Chief estimates the next apparatus purchase will be in another 15 years.

1.7 Asset Management Practices

Assets are managed using a combination of FirePro2, Microsoft Office and Vadim. Registries and AMPs will be reviewed and updated on an annual basis prior to the release of the following version.

1.8 Monitoring and Improvement Plan

At the end of this AMP there will be an Improvement Plan intended to improve Asset Management practices within Beaver Creek Volunteer Fire Department and the Asset Management Program as a whole. Generally included in Improvement Plans are suggested changes or additions to documented inspections and condition assessments, monitoring of asset-specific operational and maintenance procedures and giving present risks a numerical rating in order to measure mitigation success.

2 INTRODUCTION

2.1 Background

This AMP encompasses all Beaver Creek Volunteer Fire Department assets, including fleet. The purpose of the plan is to facilitate the strategic management of the system infrastructure and the services provided by it, giving guidance on new and existing infrastructure to maximize use of financial resources long term, reduce risk and provide a prioritized view for service continuity and improvements over a 20-year planning period and beyond.

The ACRD AM Program follows the advice of the Asset Management BC Framework; Plans are designed to be living documents that change with the organization to reflect progress made while continuously striving for sustainable service delivery. Consideration of community priorities and an understanding of trade-offs between resources and desired services is the foundation of sound AM practices.

The AMBC Roadmap guides organizations through basic, intermediate and advanced Asset Management Practices. It is the goal of the ACRD to achieve a basic to intermediate level of understanding.

This AMP should be read in the context of the ACRD's Asset Management Policy and Strategy. The Beaver Creek Volunteer Fire Department AMP is a living document and will develop with AM practices and with the influence of the following corporate documents:

- Annual strategic priorities
- Short-term and long-term financial plans
- Maintenance policies and industry regulations
- Grant applications and funding



Asset Management Plans are designed for several reasons. First, to guide Fire Chiefs, Management and the Board in planning and decision-making. Second, to aid in the creation of short term and long term financial plans as well as operational plans. Last, to spark community engagement for the service.

As the ACRD moves through the AM program, knowledge and understanding of the AM program increases and it is expected that this plan will evolve further, solidifying assumptions made and filling in any present information gaps where further research or information is required.



2.2 Asset Inventory

The Beaver Creek Volunteer Fire Department consists of many components including:

- Fire Trucks including pickup trucks
- Fire Hall including septic system
- Larger or Specialized Electronics
- SCBA Equipment
- Rescue Equipment
- Storage containers

Current replacement costs were estimated by the Fire Chief and Asset Management Coordinator using historical costs plus inflation. Unit costs include all installation and remediation activities. Remaining useful life estimates were based on installation dates and expected service life based on knowledge and experience.

Any land associated with the BCFVD is not included in this AMP as there are no future plans for expansion, revival or rejuvenation of the current land.

2.3 Emergency Preparedness

The BCFVD does not have a formal Emergency Response Program but operates under 5 simple principles aimed towards firefighters:

1. Take care of your family (shelter at home if safe to do so)
2. Take care of your neighbours
3. Communicate your situation to BCFVD if possible
4. Respond to the BCFVD when safe to do so, otherwise report to the nearest firehall
5. Prepare for deployment as required

All of this is with the expectation that the BCFVD Fire Hall will survive the emergency event. The Hall is powered by a 150kW generator that is large enough to power the entire building and is stocked with fuel to last several days. There are no food supplies at the Hall and firefighters are expected to bring



whatever food they can from home before reporting during an emergency. BCVFD has both fire department and amateur radio communications available as needed.



2.4 Levels of Service

Levels of Service (LOS) are defined using two terms, customer levels of service and technical levels of service.

Customer LOS: measure how the resident receives the service and measure of value provided.

Technical LOS: technical measures of performance relating to the resources of service activities to achieving the desired outcomes and demonstrate effective performance.

- Operations – ongoing activities, day-to-day operations
- Maintenance – activities enabling an asset to provide service for its planned life
- Renewal – activities that return the service capability to near original capacity
- Upgrade – activities that provide a higher LOS

For the purposes of this report, customer's LOS expectations are set upon the annual adoption of the financial plan and strategic priorities as it is a reflection of the values, policies, and priorities of the Board of Directors with input from committees and public engagement sessions. Because residents' expectation of a Fire Department is quite simple, for the purposes of this AMP, only Technical LOS have been included.

The current and expected Technical Levels of Service detailed in Table 2.1 shows the expected levels of service based on resource levels in the current financial plan. Organizational objective measures are measures of fact related to the service delivery outcome.



Table 2.1 - Technical Levels of Service

Service	Service Objective	Objective Measure	Current Performance	Desired Outcome
Operations \$106,240 Average Budget	Safe and reliable equipment and equipment training to facilitate prompt fire response times	Firefighters are trained to use and regularly exercise equipment during practice times to ensure proper function at fire scenes	Truck checks performed after every use by Duty Crew Small equipment is tested monthly and hoses annually Currently no access to a hose tester	All equipment aside from hoses tested on a weekly basis by a Duty Crew Hose tester available for efficiency with annual tests
Maintenance \$22,860 Average Budget	Reliable, consistent fire services without interruption or delay of service	Regular maintenance and condition assessments	Regular annual inspections on major equipment No documented condition assessments	Condition assessments built through FirePro2 using bar codes and iPads with synchronization to AM Program
Renewal No Renewal Budget	Fire Service assets meet needs to provide quality services to customers	Renewals are performed where required, without sacrifice to quality when upgrade is a more suitable option Equipment and apparatuses are safe and in good running order	Seismic upgrades on building completed in 2014 to extend service life and functionality in the event of a seismic emergency	Renewals are proactive rather than reactive Aging equipment is renewed before it fails
Upgrade/ New \$645,000 Budgeted for 2019-2020 for a new First Line fire apparatus	Newer fire apparatus at the First and Second Line response positions for reliable service delivery	Fire apparatuses are kept in compliance with the Fire Underwriters Survey guidelines	A new First Line fire apparatus arriving Spring 2020 The next fire apparatus purchase is due in five years; however, another truck will not be budgeted for 15 years BCVFD to apply for exception with FUS	All fire apparatus are budgeted and replaced within the timeline specified by the Fire Underwriters Survey

It is important to monitor the service levels provided regularly as these will change as regulations and expectations change. The current performance is influenced by work efficiencies, technology, and Fire Underwriters Survey regulations that will change over time. Review and establishment of the agreed position that achieves the best balance between service, risk and cost is essential.



2.5 Required Replacements

The Fire Underwriters Survey (FUS) dictates replacement schedules for fire apparatuses. Table 2.2 shows the guidelines for First Line, Second Line, and Reserve. Based on population, Beaver Creek is designated as a Medium Size community and as such is required to adhere to these guidelines to retain recognition. One consequence in the loss of recognition would result in a large spike in residential fire insurance rates. During discussion with the Regional Director at the FUS, it was mentioned that many small communities are having financial difficulty maintaining these standards given the increasing cost to build a fire apparatus (fire engine) and the current tax bases. While First and Second Line have a maximum age on the chart, apparatuses can be up to 25 years old in these positions. In addition, only one apparatus per department can be applied to have an age exception applied; only special circumstances will allow for two apparatuses being considered for exception. Leniency for these rules may change in the future but for the purposes of this AMP, a maximum apparatus age of 25 was applied in order to determine replacement dates and contribution levels.

In April 2020, BCVFD received their new First Line fire apparatus. The Second Line apparatus, Truck #51, will be due for replacement in 2025 and the Reserve, Truck #53, will be due for replacement or exception in 2020.

Table 2.2 - Fire Underwriters Survey Fire Apparatus Age Guidelines

Apparatus Age	Major Cities ³	Medium Sized Cities ⁴ or Communities Where Risk is Significant	Small Communities ⁵ and Rural Centres
0 – 15 Years	First Line	First Line	First Line
16 – 20 Years	Reserve	2 nd Line	First Line
20 – 25 Years ¹	No Credit in Grading	No Credit in Grading or Reserve ²	No Credit in Grading or 2 nd Line ²
26 – 29 Years ¹	No Credit in Grading	No Credit in Grading or Reserve ²	No Credit in Grading or Reserve ²
30 Years +	No Credit in Grading	No Credit in Grading	No Credit in Grading

¹ All listed fire apparatus 20 years of age and older are required to be service tested by recognized testing agency on an annual basis to be eligible for grading recognition. (NFPA 1071)

² Exceptions to age status may be considered in a small to medium sized communities and rural centres conditionally, when apparatus condition is acceptable and apparatus successfully passes required testing.

³ Major Cities are defined as an incorporated or unincorporated community that has:

- a populated area (or multiple areas) with a density of at least 400 people per square kilometre; AND
- a total population of 100,000 or greater.

⁴ Medium Communities are defined as an incorporated or unincorporated community that has:

- a populated area (or multiple areas) with a density of at least 200 people per square kilometre; AND/OR
- a total population of 1,000 or greater.

⁵ Small Communities are defined as an incorporated or unincorporated community that has:

- no populated areas with densities that exceed 200 people per square kilometre; AND
- does not have a total population in excess of 1,000.



3 CURRENT STATE OF BCVFD INFRASTRUCTURE

3.1 Inventory

Table 3.1 - Assets covered by this Plan

Asset Category	Quantity	2020 Replacement Value
Electronics (server, tablets)	6	39,600
Fire Engines & Rescue Vehicles	6	2,791,600
Hydraulic Rescue Tools	5	50,200
Generator – 150kW	1	83,900
Main Building & Septic	1	2,976,500
SCBA Backpack Frames	18	173,500
SCBA Fill Station	1	15,200
SeaCans	2	74,300
Parking lots	2	111,500
TOTAL		\$6,316,300

Assets that are part of operations and expensed at the time of purchase are not included in Table 3.1. Small equipment such as desktop computers, pagers, turnout gear, SCBA tanks, ladders, hoses, fittings and hand-held tools were not included in the asset listing as they did not meet the ACRD’s capitalization threshold.

3.2 Replacement Costs and Dates

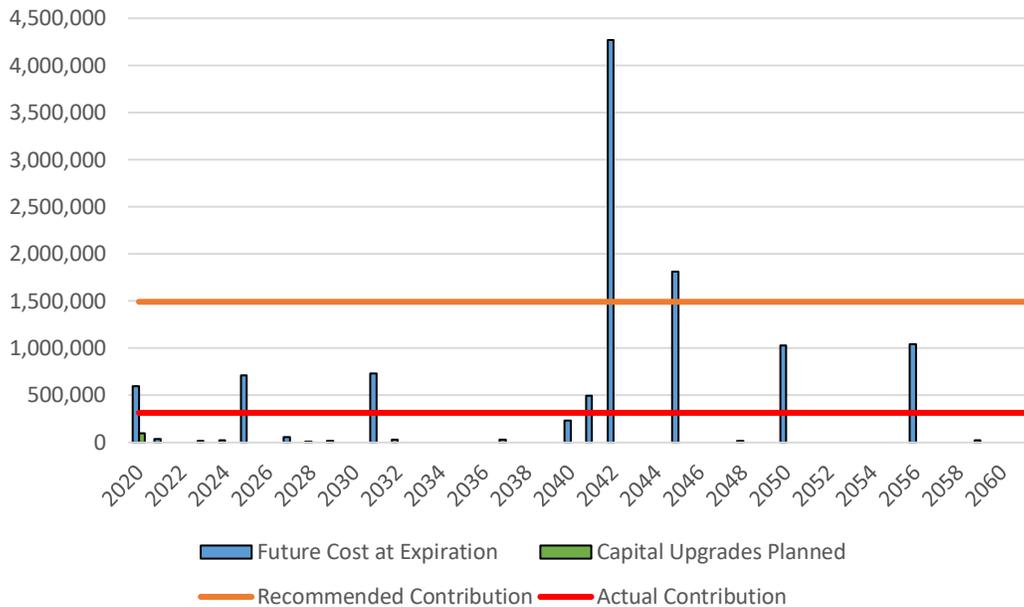
Asset management changes the financial focus from historical cost and annual amortization included in the ACRD’s financial statements to estimated replacement value, estimated service life, and annual capital investment required. Replacements dates were determined using industry standards and historical evidence. All assets included in AMPs are deemed to have a finite life based on this evidence. The purpose of the AMP is to facilitate adequate financial preparation and projection for large capital expenditures. Actual replacement dates and costs may vary from estimates.

Nearly a third of the BCVFD assets are due for replacement within 10 years based on expected service life alone. Table 3.2 summarizes suggested infrastructure replacement dates and estimated costs by year until 2060.





Table 3.2 - Projected Timing for Capital Renewal



Renewals in approximately 2042 will make up over \$4.3 million in component replacements costs alone, stressing the need for a capital renewal plan now to meet future financial gaps. Collecting the recommended annual contribution from users shown in Table 3.2 of \$1.49 million, or a residential tax rate of \$3.156, will alleviate these spikes in capital, operational and maintenance costs. These amounts are intended as a financial depiction of the state of the assets and funding gap at BCVFD as it would be challenging for the taxpayers in Beaver Creek to support such a large increase from the current residential tax rate of \$0.612. Contribution rates are at the discretion of the Board and the recommended contribution rates will fluctuate as contributions and demands change. Recommended residential tax rates included in this plan also include the 5-year average operating and maintenance expenditures as the only revenue stream for BCVFD is through tax requisition.

The BCVFD Fire Hall received seismic upgrades in 2014; however, every building’s lifespan is finite and after upgrades the expected service life has been extended to 65 years, well beyond the 40-year amortization period applied to buildings within the ACRD. It is entirely possible that future upgrades will extend the service life beyond this timeframe but the buildings integrity will be questionable at such time. Quaticum Beach, for example, recently replaced their aging Fire Hall at 65 years old. Comparable seismic buildings of scale were used to determine the replacement cost of the building based on the current square footage, with required replacement projected to occur in 2042. Using an inflation rate of 1.5% and interest savings on reserve balances of 2%, it is expected a new Hall will cost over \$4 million at expiry.



3.3 Condition Assessments

Major pieces of equipment receive annual inspections, trucks are inspected after every use, small pieces of equipment are tested monthly and hoses are tested annually. Currently, these condition assessments are logged into FirePro2 with hopes for a more automated barcode system being implemented in the future. Currently there is no hose tester available for BCVFD; access to a hose tester would increase efficiencies. Major assets that don't adhere to replacement guidelines under FUS such as buildings, generator, exterior surfaces, SCBA fill station and septic system also received condition ratings by the Fire Chief and assisting members to better estimate their expected replacement requirements. Rankings were determined by multiplying weighted estimated useful lives by weighted physical condition assessments to determine an overall ranking. Based on the rankings, 25% of the BCVFD assets assessed have a poor to very poor physical condition. Table 3.3 shows the current cost to replace assets based on the percentage of estimated useful service life remaining.

Table 3.3 – Current Replacement Cost by Percentage of ESL Remaining



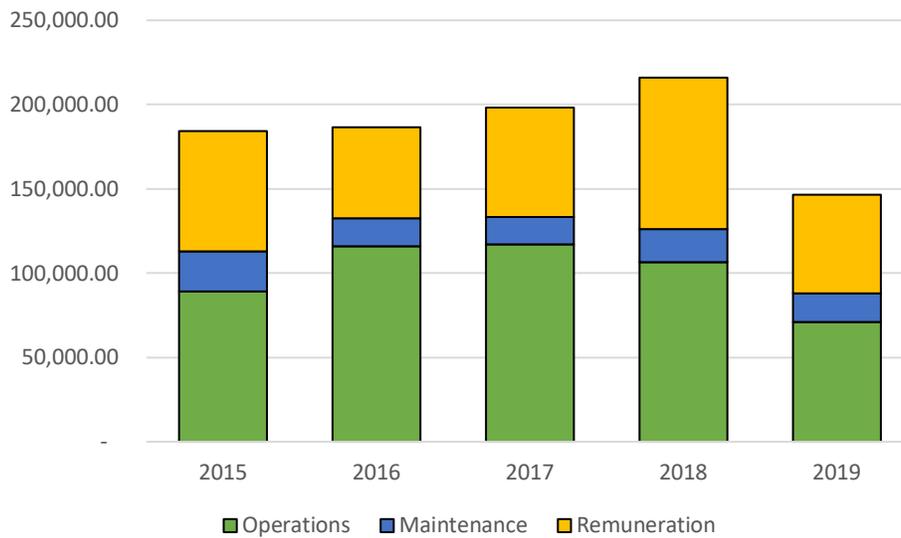
The Fire Chief and assisting members have given the septic system a Very Poor rating and it is likely that this is the original septic system installed at construction. A septic inspection should be conducted to ensure reliability and future annual budgets should include replacement costs for the system if the inspection isn't favourable. It has also been noted that the roof of the Hall has approximately five years left before replacement is required. The current roof is approximately 20 years old and replacement costs are estimated to be at least \$30,000 in 2020 dollars based on historical costs plus inflation and contractor estimates.

3.4 Current Operations and Maintenance Costs

A key function of Asset Management is to track maintenance costs separate from operations costs to identify areas that are requiring more repairs as an indication of failing infrastructure. Table 3.4 shows the trend in combined operations and maintenance costs since 2015.



Table 3.4 – Operations and Maintenance Cost Trends



Average operation and maintenance costs total \$186,400 per year, including remuneration and firefighter expenses. Operations costs are associated with day-to-day expenses aimed at achieving levels of service goals while maintenance costs are associated with repairs and keeping equipment in good running order.

Seismic upgrades totalling approximately \$248,000 were performed in 2013 and 2014 to make it more likely for the building to withstand an earthquake; however, these upgrades were extensive and also caused some damage to existing infrastructure and further repairs continue to be required in order to keep the Hall in good condition.

3.5 Future Demands

It should be noted that there are areas within the Beaver Creek Fire Protection area that are not serviced with hydrants. In these areas, the Department relies on the Automatic Mutual Aid agreement that has been signed with neighbouring Fire Departments with access to tenders. Tenders are able to transport large amounts of water to areas where access to hydrants aren't available. BCVFD currently does not have a tender in the fleet. If future demand for fire services increases or the boundaries for BCVFD expand into areas not currently covered under fire protection, a tender will be





required to be certified to service these areas. Similar to Sproat Lake Volunteer Fire Department, tenders would fill up using an on-site hydrant and bring the water to the fire scene either as a designated Standard Tanker Shuttle Service or Superior Tanker Shuttle Service (STSS). BCVFD is also considering the option to not sell their aging apparatuses after the arrival of their new apparatus in Spring 2020 to avoid potential future financial spikes resulting from changes in LOS or FUS requirements because of possible boundary expansions or growth. This apparatus cannot be considered a First or Second Line apparatus but is appropriate as a reserve vehicle. Expansion of service boundaries would depend on several aspects; fire coverage for insurance purposes cannot be offered if certain grading factors aren't met through FUS such as tender capacity, flow rates and response times. These factors should be considered in detail if neighbouring communities were to reach out to BCVFD for fire protection to determine if adequate value can be provided.

BCVFD is trained in auto extrications and therefore carry hydraulic tools on apparatuses capable of cutting and spreading hardened steel in vehicles. In order to facilitate continued education, safety and environmental conservation, there has been expressed interest in the construction of an auto extrication pit for training purposes with drainage and filters to prevent petroleum products from leaching into the ground or nearby watercourses. This project could cost upwards of \$30,000 but has not been built due to budgetary constraints.

All hoses are only inspected on an annual basis due to time constraints and the lack of a hose tester. Access to a hose tester would allow for multiple hoses to be tested at a time and would facilitate increased frequency of inspections to identify failing hoses. If future demand on the Fire Department rises, it is expected the increased strain on equipment will require more frequent inspections to ensure functionality. Sproat Lake Volunteer Fire Department recently reached out and offered to lend their hose tester after hearing of BCVFD's need through the AM Program.





3.6 Risk Management Plan

Risk management is a key objective set out in our Asset Management Policy. With acceptable Levels of Service in mind, we have adopted a risk management framework to assess and rank criticality of the ACRD's infrastructure assets. One of the outcomes of implementing risk management is the ability to prioritize required capital expenditures based on criticality for the BCVFD.

The goal in adopting a framework is to have a consistent accurate understanding of the state of the BCVFD's infrastructure. The framework includes a standardized grading system that is easily repeatable and enables comparison of the status of infrastructure condition over time and across municipalities for comparison. A risk matrix has been prepared and will be used for risk ratings throughout the ACRD. This matrix will also be used in conjunction with regular condition assessments to properly evaluate new and existing risks.

The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks. Critical risks are those assessed with 'Very High' or 'High' risk ratings identified in the assessment process and may or may not require immediate mitigation.

According to the BCVFD Fire Chief, the following are credible risks that could create a "High" risk rating at this time:

1. Structure fire at Hall or wildfire impacting Fire Department operations and response, causing further destruction
2. Ground disturbance event causing a gas line rupture or break at Hall
3. Major disaster or seismic event causing damage to critical assets and access bridges

The seismic upgrades in 2014 are intended to make the structures more resistant to seismic activity, ground motion or soil failure. While this does mitigate some risks in the event of an earthquake, it will not be known unless an event occurs as to the success of the upgrades. The Alberni Valley is more likely to experience earthquakes than other regions due to the proximity to the Cascadia Subduction Zone and, therefore, all services within the ACRD are deemed to have some level of seismic risk.

4 ASSET MANAGEMENT IMPROVEMENT PLAN

4.1 Infrastructure Replacement Priority Ranking

Table 4.1 lists the components within the BCVFD in order of their required estimated replacement. This information can be used to aid in creating a Long-Term Financial Plan (LTFP) for this class of assets.

When budgeting for future projects, it is recommended that a 30% general contingency and a 30% allowance for construction, engineering, financial, legal and admin costs be added to total project costs. It is important to note the volatile prices of fire apparatuses. Many factors can change the costs



of materials required for projects and while the actual costs may differ, only the most current and available costs are used.

Table 4.1 – Infrastructure Replacement Priority Ranking

Asset	Current Replacement Cost Estimate	Risk
2 nd New Fire Apparatus per FUS Guidelines	600,000	High
Aging SCBA equipment replacement	188,800	High
Replacement Cost – High Risk	\$ 788,800	
Septic replacement	25,400	Moderate
Roof resurfacing	30,000	Moderate
Concrete in front of truck bays replacement	18,300	Moderate
Replacement Cost – Moderate Risk	\$ 73,700	
Aging hydraulic tools replacement	50,200	Low
Hall replacement	2,951,100	Low
Replacement Cost – Low Risk	\$ 3,001,300	
Total	\$ 3,863,800	

Not all assets at BCVFD have been included in this listing. Only those assets that have exceeded approximately half of their expected service lives or assets with poor condition ratings have been included.

Table 4.1 is intended as a guide for replacements based on ages and known conditions. Circumstances, grant funding availability, taxpayer funding availability, governing bodies priorities, levels of service and changes in fire service boundaries will all have influences on priority replacement. This listing will be updated during each revision of the AMP.



4.2 Improvement Plan

The tasks identified in the Table 4.2 are required to achieve the BCVFD asset management objectives, manage risks, and close the gap between current and targeted levels to achieve within the AMBC Road Map. The table also identifies the integration of these tasks into the organization as recommended by the AMBC Framework.

Table 4.2 – Improvement Plan

Task#	Task	Responsibility	Timeline
1	Implement a Department-wide numerical condition grading system to be used for projecting replacements for non-regulated assets	Fire Chief, Asset Management Coordinator	Spring 2020
2	Consult with FirePro2 technicians about adding a barcode system for increased accuracy and efficiency during inspections	BCVFD	Spring 2020
3	Aging equipment is identified and slated for replacement or renewal	BCVFD	Spring 2020
4	Regional asset identification system for specific assets to record expenses at the asset level, when appropriate	Asset Management Coordinator	Spring 2020
5	Increase frequency of equipment testing and inspections by Duty Crew, aiming to assess all equipment aside from hoses on a weekly basis	Fire Chief, Duty Crew	December 2020
6	Update and monitor asset specific operations and maintenance costs	Fire Chief, ACRD Finance Department	Ongoing
7	Update inventory for additions, disposals and changes in useful life	Fire Chief, Asset Management Coordinator	Ongoing



8	Identification of funding for capital projects	BCVFD, Asset Management Coordinator as applicable	Ongoing
9	Annually review Risk Framework for changes	Fire Chief, Asset Management Coordinator	Annually
10	Financial budgets for fire apparatus purchases align with Fire Underwriters Survey minimum guidelines	Fire Chief, ACRD Finance Department	2021
11	Large assets, such as buildings, are broken into smaller components where value is provided to better determine replacement timelines and capital costs	BCVFD, Asset Management Coordinator	Ongoing



5 REFERENCES

Asset Management BC

- 2011, “Asset Management for Sustainable Service Delivery: A BC Framework”
- 2011, Roadmap Project: A guide for using the Asset Management BC Road Map, Opus International Consultants Ltd, https://www.assetmanagementbc.ca/wp-content/uploads/Guide_for_using_the_Roadmap-AMBC-Sept_23_2011.pdf
- 2014, Canadian Infrastructure Report Card “Asset Management Primer”, https://www.assetmanagementbc.ca/wp-content/uploads/Asset_Management_Primer-CIRC-October_2014.pdf

NAMS Canada Certificate Program

- 2006, “International Infrastructure Management Manual”, Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM.
- 2008, “NAMS.PLUS Asset Management”, Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/namsplus.
- 2015, 2nd edition, “Australian Infrastructure Financial Management Manual”, Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/AIFMM.
- 2015, 3rd edition, “International Infrastructure Management Manual”, Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM.

Fire Underwriters Survey

- 2014, ‘Technical Service Bulletin, Insurance Grading Recognition of Used or Rebuilt Fire Apparatus’, <https://fireunderwriters.ca/media/2267adb9-17b4-49bf-96c0-3b86038b9f29/2Z6AYQ/FUS/Resources/FUS-TechnicalBulletin-InsuranceGradingRecognitionofUsedorRebuilt.pdf>