Cariboo Regional District
VOLUNTEER FIRE DEPARTMENT REVIEW

Report prepared for the

Cariboo Regional District

by

RESPONSE SPECIALTIES
CONSULTING

Evidence-based Innovation and Advancement of Public Safety
ResponseSpecialties@shaw.ca

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Final Report

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EXECUTIVE SUMMARY

This Fire Service Review of regional volunteer fire departments (VFD's) was completed by Response Specialties under contract to the Cariboo Regional District (CRD). In its Request for Proposal (RFP), the CRD identified concerns related to legislative compliance, governance, financial management, and operations of its 14 VFD's. To identify, validate and document these challenges, comprehensive reviews of each of the 14 CRD VFD's, as well as the CRD Protective Services department. were conducted.

Both the CRD and its VFD's demonstrated excellent cooperation and integrity during the review process. The 14 VFD's generally provide remarkable service despite challenges with the CRD's administrative oversight for many years. Each department strives to make their budget allocation stretch and provide the best services possible within that budget. The current CRD Protective Services organization recognizes the strengths brought forth by each department, and they want to expand upon that relationship and provide enhanced support into the future. A strong relationship exists between the CRD Protective Services and each VFD and this is apparent through the willingness demonstrated by many to speak honestly and act professionally. Response Specialties is pleased to have been selected to lead this exciting project, and to present a comprehensive report with recommendations to guide the CRD and its VFD's forward for many years to come.

Special thanks must go to a few specific individuals:

- Kathy Ferguson, CRD Regional Fire Services Supervisor, demonstrated superior professionalism and an unwavering commitment to the project. Her extra efforts to answer all questions, obtain and provide information, and liaise with each fire department, regardless of day or time, are greatly appreciated.
- Stuart Larson, CRD Manager of Protective Services, was a beacon of honesty. Through his own personal knowledge and experience, he provided the vision to initiate the project and empower it to make a difference for the CRD and its member volunteer fire departments.
- Cody Braaten, CRD Protective Services Assistant, displayed great enthusiasm and commitment to the project at a level far beyond his job title.
- The Fire Chiefs, Officers, and Firefighters from each community who participated in the review and provided frank and detailed insight. Their dedication, skill and enthusiasm are the backbone of fire protection for every citizen and visitor to the Cariboo.

Fire services in BC are a discretionary service for regional government. However, once created, fire services are governed by numerous, and sometimes complex, legislative requirements. As the regional district, the CRD performs the role of Authority Having Jurisdiction (AHJ) over the 14 VFD's in its regional fire service. The AHJ role requires significant oversight as compliance with mandatory requirements, which can prove challenging, must be ensured. In addition, many internal organizational challenges exist for any volunteer fire department, and especially ones that are in smaller communities.

This report identifies 93 recommendations, covering four major management topic areas of governance, compliance, finance and operations, which should be implemented over the next 4-5 years. Refer to Appendices K & L for a list of the recommendations and their associated topic areas and priority for completion.

The primary findings of this review reveal that the CRD should enhance its governance, legislative compliance, and financial management over the VFD's. These will help to both evolve the fire services as well as reduce liability exposure. The review identified numerous risk and regulatory compliance shortfalls, as well as operational challenges, many of which can be addressed quickly by implementing many of the recommendations in this report.

The CRD and its VFD's have worked very hard to progress, including: standardization of bylaws and Operational Guidelines (OG's); centralized administration of many legislatively required maintenance and testing functions; installation of exhaust extraction and Personal Protective Ensemble (PPE) cleaning equipment in firehalls; initiation of standard procurement procedures for apparatus; and purchasing of new Self-Contained Breathing Apparatus (SCBA) mask fit-testing and hose testing equipment. Compliance with the firefighter training Playbook requirements to implement appropriate service levels, and applicable training programs, has been very positive.

The principle action items for the CRD, as identified within the recommendations of the report are:

1. Increased CRD oversight of the 14 VFD's and their adherence to Occupational Health & Safety (OH&S) compliance requirements identified within legislation. Principally, the replacement of PPE, fit testing for breathing apparatus masks, and proper organization and function of Joint OH&S Committees.
2. Standardization of apparatus specification, procurement, and deployment throughout the CRD for all apparatus types and all VFD's.
3. Initiation of an Automatic Aid response model for structure fires and advancing wildland-interface fires.
4. Development of Fire Chief education programs focused on financial management and governance that will be delivered by the CRD to all chief officers and interested others.
5. Regionalization of Procurement and management of critical equipment and resources including PPE, SCBA, and other equipment.
6. Enhancement of relationships with the municipal VFD's to utilize their training grounds more fully for VFD firefighter training.
7. Enhanced utilization of electronic documents management programs for compliance with records management requirements of various pieces of legislation.

The benefits of implementing the recommendations put forward include, but are not limited to:

- Greater compliance to legislation affecting fire service safety, operations and administration resulting in reduced risk exposure and a safer workplace.
- Enhanced CRD Protective Services organization, reporting structure and relationships with VFD's, leading to long-term increased operational efficiency and effectiveness.
- A strategic planning focus on essential core services and utilization of centralized procurement of core service items to enable cost savings and minimize departmental discretionary autonomy in spending.
- Long-term financial planning for each VFD and the CRD that is grounded in strong data and justified objectively through business case development.
- Justifiable, if any, taxation increases to citizens of the 14 fire protection areas in the next 2-3 years.
- Improved response capability and training through enhanced regional resource allocation and partnerships.

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Table of Contents

CONTEXT

The purpose of this engagement was to complete, for the Cariboo Regional District (CRD), a comprehensive review of regional fire services as part of a coordinated effort to support its 14 volunteer fire departments (VFD's). The review was completed through a series of interviews with CRD staff and VFD officers, a review of documentation, and an analysis of operations and administration. to identify of areas of strength and areas requiring improvement. Through this, identification of areas of opportunity, principal challenges, and the generation of potential solutions and recommendations were developed. A key component of the review was a broad analysis of the overall governance and support provided by the CRD Protective Services department.

The CRD has a dual role in terms of regional fire services: first, in a governance and oversight capacity, as the entity responsible for the delivery of fire protection and emergency response services to residents; and second, in an administrative role to provide support as needed and requested by the VFD's. This duality presents several challenges to the CRD. It must balance the need for oversight and legislative compliance, while recognizing and enabling the VFD needs for an appropriate level of autonomy and independence to manage the day-to-day operations of their fire department and retain and promote the essential elements which characterize volunteer departments. To ensure the continued success of a volunteer-based service delivery model, the CRD must strike a balance both in establishing control and enabling an appropriate level of autonomy.

The review was to evaluated volunteer fire department services, CRD governance, legislative compliance, records, equipment and finance. Multiple site visits were conducted at each of the 14 VFD's from May – July by the consultant and/or Protective Services staff. These visits focussed on review of department operations and administration, as well as an assessment and inventory of physical resources.

The scope of this project required assessment of all aspects of VFD operations as well as CRD oversight and governance. This included:

- Governance,
- Legislation compliance
- Services

- Training
- Recruitment and retention
- Records management organizational structure
- Finance
- Resource acquisition and allocation, and
- Incident response

The 14 CRD volunteer fire departments that participated in this review are:

- 108 Mile VFD
- 150 Mile VFD
- Barlow Creek VFD
- Bouchie Lake VFD
- Deka Lake VFD
- Forest Grove VFD
- Interlakes VFD
- Kersley VFD
- Lac la Hache VFD
- Lone Butte VFD
- Miocene VFD
- Ten Mile VFD
- West Fraser VFD
- Wildwood VFD

Historically, these 14 individual fire departments have either self-initiated, or become absorbed, under the evolving entity of a regional fire service within the CRD. This helps explain the wide-ranging autonomy and practices of some VFD's. Several Society-based fire departments still exist in the region outside of the CRD's jurisdiction as the Authority Having Jurisdiction (AHJ).

The CRD Protective Services have undergone significant change and turmoil within the past 5 years, including a full transition in leadership. The CRD does well to govern and maintain the 14 fire departments despite a small staff. Each of the 14 fire departments run semi-autonomously, some more than others, and the individualism exhibited by some departments challenges the CRD regional service model and the Protective Services staff.

This fire department review is timely for several reasons:

- There are growing needs for fire service compliance with WorkSafe BC, the Office of the Fire Commissioner of BC, and other regulatory agencies.

- The CRD Protective Services acknowledge struggling to maintain their mandate of administrative and operational oversight. They have repeatedly expressed frustration with the challenges they face to simply "operate properly".

- The CRD identified concerns regarding their level of liability in the relationship to VFD operations.
- Fire services and related resources are expensive and require careful and strategic planning to manage costs and maintain compliance with regulatory requirements.
- Local operation of small fire services using volunteers is particularly challenging, both in terms of time and expertise.
- There is a deep-seated reluctance toward increased taxation within areas of the CRD and its governing body. Fire services are sometimes viewed as little empires unto themselves lacking in appreciation of their cost.
- The Cariboo region is increasing in popularity for both seasonal/recreational and permanent residents. There is an exceptionally large fire service coverage area involved with vast expanses unprotected by CRD fire services.
- Residents, especially seasonal ones, expect emergency services at, or near, the same level as their home community. This is a major challenge for smaller communities in the CRD where tax bases are low.

Why is a Fire Department so valuable?

Firefighters play a special role in communities. Firehalls themselves are often a community gathering place. Membership as a firefighter is frequently seen as one of the highest levels of community volunteerism and firefighters are generally regarded with much respect and admiration. However, functionally these plaudits do not adequately describe the value of a fire service to the community, especially a small one with volunteer firefighters. A few unique aspects of the fire service are noted below:

- Fire and related services demand highly specialized training, equipment and planning.
- If a small fire is not managed promptly and effectively, it can quickly spread.
- Having qualified and well-trained firefighters, as well as the equipment and apparatus they need, can significantly reduce property loss and prevent human suffering.
- A volunteer firefighter typically devotes extensive time, and endures significant hardship on personal life, in their preparing to act and in serving the community. They take personal risk while asking for little, if any, remuneration in return.
- Over time, firefighters, through their service, their example, and fire safety education messaging, make the community and its residents safer.

Why is a Volunteer Fire Department Review important?

Rural fire departments and volunteer firefighters (including paid-on call) should be commended for the time they provide to the community. They receive minimal, if any, compensation and often operate on minimal funding and strength of community spirit. It is relatively recent that the efficiency and effectiveness of fire services are being examined and regional boards are requiring business cases in support of funding requests and day-to-day spending activity. The unfortunate truth is that some fire services, and their leaders, have developed entitlement attitudes beyond what the community can, or is willing to, support.

A traditional fire service review is a comprehensive document detailing the strengths, challenges, vision, strategies, recommendations, and associated action plans for an AHJ and/or fire department. It generates approaches for rationalizing changes or evolution to budget, administration, governance, operations, and/or resources.

A fire services review begins at the assessment level of simple governance including fire department autonomy, authority gaps, absence of key records, operational capabilities, legislative non-compliance, as well as occupational safety & health concerns. Analysis should be undertaken utilizing interviews, records review, objective assessment of operational functions, and appropriate comparison with other jurisdictions.

To ensure compliance with required legislation, and to close the compliance gaps, a review must also prepare a comprehensive set of recommendations directed at both the department and the AHJ.

Financial management and budget allocations must appropriately reflect the necessary governance, operational needs and legislative compliance requirements expected of a VFD. Political and community expectations may differ from those within the fire service, so the objective rationalization of budget and resources through business case development is critical.

There is a lot to be proud of with the CRD Volunteer Fire Departments

Volunteer fire services are unique organizations that have existed for over a century with little change. The basic premise of providing fire suppression and other emergency services to a local community using a low cost and highly effective organization is laudable. However, creation and continued operation of volunteer fire services comes with many challenges that stress the ability of the department to remain functional. Some are identified in the Exhibit below.

Exhibit 1. Organizational Challenges to BC Fire Services

It is truly remarkable that the 14 VFD's within the CRD have been able to provide the services they do given the financial and resource limitations many have. Every firefighter, past and present, is to be commended for their dedication, ingenuity, and perseverance. The fact they are satisfied with the budgets they receive and that they strive to make every dollar work toward providing exceptional service to their community is a testament to their selflessness. The

firefighters clearly take great pride in the services they provide and the work they perform. Despite limitations, they treat everything they have with respect.

The current leadership of the CRD Protective Services recognizes that they are fortunate to have such a dedicated and ambitious group of departments under their guidance. They are very engaged and want to represent the CRD regional government well. Each person interviewed promptly, frankly, and honestly answered every question posed by the interviewer, even if it identified challenge or non-compliance. Everyone clearly recognizes the needs they have with relation to meeting provincial expectations and they are willing to work hard to achieve those goals. Their highest priority is the safety of their community, even over themselves. They deserve the respect and admiration of the CRD and every citizen and visitor within their fire response area boundaries.

As a consultant, this review was an incredibly positive experience. The CRD and its VFD's demonstrate superior professionalism as a rule and have much to offer to other BC jurisdictions toward establishing and maintaining efficient and effective volunteer-based fire services.

LEGISLATION DIRECTING BC FIRE SERVICES

Unlike police and ambulance services, fire departments are a discretionary optional community service, with no legal requirement to exist in any manner whatsoever, anywhere in British Columbia under either Canadian or Province of BC Legislation.

However, regional and local government entities regularly do create and operate fire departments in the interest of public and community safety. Fire departments only have the power and authority granted under local bylaw. These bylaws must create and define the fire departments operations. In the case of a service established by a regional district, the operating boundaries of the department are the boundaries of the local service area. A fire department has no authority to act at, or to respond to, an incident outside that defined service area unless specific instructions exist in the bylaw or separate agreement. Care must be taken to ensure that the department bylaw provides the full range of powers needed to respond effectively to incidents within its jurisdiction.

Regardless of the organizational or governance model, or the services offered, a series of significant and prescriptive regulatory and legislative requirements must be met to provide fire services. Exhibit 2 below shows the various legislative, regulatory and performance assessment frameworks within which a fire department must operate. The CRD, and its individual communities, having made the decision to provide local fire protection, are thus obligated to comply with the requirements as set out.

Exhibit 2. Compliance Challenges for BC Fire Services

All fire departments in British Columbia, except wildland, must comply with the BC Structure Firefighter Competency and Training Playbook, WorkSafeBC, and other federal, provincial and local legislation. Governance of fire department performance and expectations in any jurisdiction takes place in the form of bylaws, policies, and operational guidelines. In the case of the CRD, all 14 member VFD's have been required to adopt similar bylaws and a single set of CRD policies and operational guidelines (OG's).

These comprehensive and diverse compliance requirements on fire service operations and performance are in place to:

- Protect and improve firefighter safety;
- Ensure that fire services can meet community needs;
- Increase the safety of fire service "customers"; and
- Improve fire service performance.

Like the empowerment to exist, there is no standard range of services defined for a fire department. A department is authorized to provide only those services which are stipulated in its service establishment and operational bylaws. Since fire departments typically respond to a very wide range of incident types, it is important that any bylaw or empowering document facilitate such breadth of potential service and not be unwittingly restrictive.

Relevant Federal Legislation

CRIMINAL CODE OF CANADA SECTION 217.1

Section 217.1 of the Criminal Code, also known as Bill C-45 or the "Westray Bill", became law on March 31, 2004. Bill C-45 (2003) established new legal duties for workplace health and safety and imposed serious penalties for violations that result in injuries or death. The Bill provided new rules for attributing criminal liability to organizations, including corporations, their representatives and those who direct the work of others. The Criminal Code Section reads as follows:

> "**217.1** Every one who undertakes, or has the authority, to direct how another person does work or performs a task is under a legal duty to take reasonable steps to prevent bodily harm to that person, or any other person, arising from that work or task."

The amendment also added Sections 22.1 and 22.2 to the *Criminal Code* imposing criminal liability on organizations and its representatives for negligence (22.1) and other offences (22.2).

The main provisions of Section 217.1 are as follows:

- Creates rules for establishing criminal liability to organizations for the acts of their representatives.
- Establishes a legal duty for all persons "directing the work of others" to take reasonable steps to ensure the safety of workers and the public.
- Sets out the factors that courts must consider when sentencing an organization.

- Provides optional conditions of probation that a court may impose on an organization.

To date, there are eight cases where individuals were charged under the new provisions in the *Criminal Code*. These provisions of the *Criminal Code* affect all organizations and individuals who direct the work of others, anywhere in Canada.

Relevant Provincial Legislation

There are several critical pieces of provincial legislation that dictate how and why fire services perform specific actions.

LOCAL GOVERNMENT ACT (2015) and BRITISH COLUMBIA *COMMUNITY CHARTER (2003)*

The *Local Government Act* applies to the CRD. Both the *Local Government Act* and *Community Charter* allow for the creation and management of local or regional areas within the province at the discretion of the AHJ. Both documents describe the powers transferred from the province, and the authorities that regional or local government may initiate. One of the authorities conferred is the ability to constitute and manage a fire department.

SOCIETIES ACT (2015)

The *Societies Act* allows for the creation of an organization for numerous lawful purposes, one of which being a local fire department. The *Societies Act* describes the requirements and powers of the Society Board and stipulates that the Society may not carry on activities restricted by its bylaws and policies or contrary to its stated purpose. The Society Board is responsible for the establishment and compliance with said bylaws and policies.

BRITISH COLUMBIA *FIRE SERVICES ACT (1996)*

The BC *Fire Services Act* identifies the services and actions to be undertaken by a governing body related to specific aspects of local fire safety. The Province does not fund local fire service delivery costs. The Office of the Fire Commissioner of BC (OFC) does provide guidance and advice, particularly related to education and prevention, and will support fire investigations under certain circumstances.

The power and authority of the *Fire Services Act* is typically transferred to the Local Assistant to the Fire Commissioner of BC (LAFC), as designated by the AHJ, which in this case would be the regional district. In the absence of a designated LAFC, the powers and authority are conferred upon the local police force having jurisdiction.

Anticipated replacement legislation, identified as the BC Fire Safety Act, received 3rd Reading in the Legislature in 2016, but has yet to receive Order in Council (OIC) and come into force. The new Fire Safety Act is undergoing further review and once amendments are complete, and the necessary associated regulations are approved, the information will be disseminated. The new Fire Safety Act is likely to eliminate the LAFC role and transition more responsibility to regional government.

BRITISH COLUMBIA FIRE SERVICE MINIMUM TRAINING STANDARDS - STRUCTURE FIREFIGHTER COMPETENCY AND TRAINING PLAYBOOK (2015)

The Playbook, considered a benchmark document when completed in 2014 and amended in 2015, sets the industry recognized minimum standard in BC for firefighter competency and training levels and is expressly tied to the established fire service delivery level identified by the AHJ. The AHJ may be a local government, regional government, Society, Improvement District or other entity as permitted by legislation. The only fire services legally exempt from this standard are BC Wildfire and First Nations fire services, although many are voluntarily working to comply. The key component to the Playbook is the explicit requirement for the AHJ to determine, train to, and maintain compliance with their identified service level. The AHJ must establish a minimum service delivery level for a community through bylaw or policy from the three options provided in the Playbook: Exterior, Interior or Full-Service. The fire department must train, equip and perform to that service level, as a minimum. Detailed records management of training, personnel, and response is a central component of the Playbook Standard. These requirements for Playbook compliance reinforce the existing requirements of the WorkSafe BC *Workers Compensation Act* and OH&S Regulations. The Playbook core skills are derived from the *National Fire Protection Association (NFPA) 1001 – Standard for Fire Fighter Professional Qualifications* and *NFPA 1021 – Standard for Fire Officer Professional Qualifications.*

It is important to recognize that the Playbook is not all-encompassing in relation to the breadth of fire service activities and delivery of services. The Playbook provides direction only in regard to structural firefighting. It does not address additional services such as driver/operator, incident command, incident safety, technical rescue, vehicle rescue or first responder medical, many of which are provided by CRD fire services. The AHJ must research and apply additional training and operational procedures – such as NFPA Standards - to ensure functions, in addition to those covered by the Playbook, are performed safely and effectively.

In general, the AHJ will typically provide governance, oversight, and ensure compliance with the Playbook, while training and implementation will largely occur within the local fire department.

BRITISH COLUMBIA *WORKERS COMPENSATION ACT (2019)* and OCCUPATIONAL HEALTH AND SAFETY (OH&S) REGULATION

All fire services must operate within the stringent safety requirements of the WorkSafe BC, *Workers Compensation Act* regardless of the department governance type or staffing model. In addition to the numerous requirements within the *Act* and the WorkSafe BC OH&S Regulation that apply to fire services, Part 31 of the Regulation expressly identifies fire service-specific safety program requirements. Areas include firefighter protective clothing, equipment maintenance and testing, safety committees, documentation, and safe work procedures. Full compliance with all components of both the *Act* and the Regulation is expected given the risk inherent within firefighting operations. The *Act* and Regulation apply without exception to all firefighters, career or volunteer, as well as fire departments and AHJ's.

BRITISH COLUMBIA *MOTOR VEHICLE ACT (1996)* and REGULATION

Fire services must operate within the requirements of the *Motor Vehicle Act,* and its Regulations, and all drivers of emergency vehicles must be educated on, and exercise the responsibilities identified within the *Act* and Regulation. Driver licensing and training, vehicle pre- and post-trip inspections, commercial vehicle inspections, vehicle maintenance documentation, and apparatus design and function must all meet the legislative requirements regardless of the department governance type or staffing model.

EMPLOYMENT STANDARDS ACT (1996) and REGULATION *(2020)*

Portions of the *Employment Standards Act* and its accompanying Regulation apply to all volunteer and paid-on-call firefighters in the CRD. It is important that the CRD, and specifically the Protective Services department, be aware of the application of this legislation in volunteer fire departments. CRD Human Resources personnel should be consulted on areas of concern or conflict to avoid potential liability risk. Specific attention should be paid to Parts 10-14 which describe processes and regulations related to complaints, investigations and enforcement.

Local Legislation and Regulation

BYLAWS

As stated earlier, in BC there is no legislated requirement for a community to offer fire protection services. Under the *Local Government Act* the Regional Board, through bylaw, may establish and make regulations for a fire department. It is a voluntary optional service provision for regional government to offer fire protection, as well as to identify the level and mix of services provided. If the AHJ does not choose to provide the service in a specific area, fire departments may still arise under the umbrella of a Society, Fire Brigade or Improvement District. All fire departments must meet the legislative requirements as described above.

The *CRD Bylaw 5014 – A bylaw of the Cariboo Regional District to provide for the operation of Fire Departments* describes overall roles, services, jurisdiction, rules, and regulations for VFD operations. Additionally, the CRD has recognized each of its 14 VFD's under a unique Bylaw for the designated fire protection area. Each bylaw is current and has undergone revision over time. Each details the financial and administrative requirements for both parties.

Recommendation 1: That the CRD review all bylaws upon provincial adoption of the new *Fire Safety Act.*

OPERATIONAL GUIDELINES

The CRD requires adoption and adherence by each VFD to the CRD fire service Operational Guidelines (OG's) and Policies. OG's are required by WorkSafeBC for all activities, training, safety programs, and some administration in fire departments.

The CRD completed a comprehensive review and refresh of all fire department OG's in 2019. Each fire department has been provided with a signed official copy of all CRD OG's. There are a small number of internal OG's written and maintained by individual departments that the CRD has reviewed and approved.

LEGISLATION COMPLIANCE

Each piece of legislation described above, plus others, have compliance requirements directed at fire service delivery. Each specifically identifies expectations related to the legislative framework involved.

- WorkSafeBC compliance requirements are extensive and complex. Respective compliance expectations and status are reviewed in detail in the section following on Occupational Health & Safety.
- Compliance with the OFC's Playbook is specific and varied at the same time. It addresses multiple service provision levels while also requiring adherence to specific requirements for all levels.
- The *Motor Vehicle Act* and the *Fire Services Act* have smaller, but critically important requirements that must be complied with to manage a fire scene effectively and safely operate fire apparatus.

The breadth of requirements is daunting, and compliance can be a significant challenge for even the largest and most sophisticated of departments. However, full compliance is nonetheless required of all departments, regardless of size, to safely and effectively perform the duties and responsibilities the public expects.

While the CRD has documentation respecting the requirements for legislative compliance by each department and itself, review findings reveal a lack of meaningful enforcement with various legislation. The recent CRD OG refresh, completed in 2019, brought all activities and administrative processes up to date with legislative requirements. However, implementation has been spotty or inconsistent across the CRD and there are several specific areas that are currently exposing the CRD to significant risk. Appendix A lists critical legislative compliance items applicable to fire services, and Exhibit 3 below identifies those areas of the legislation which have significant non-compliance within the CRD.

Recommendation 2: That the CRD develop and distribute a comprehensive list of all legislatively required compliance items for each VFD and actively enforce compliance annually, as required and feasible.

WorkSafeBC penalties for non-compliance can be significant. A recent public sector WorkSafeBC penalty of $327,000 was brought against the City of Fort St. John for violations related to exposure control and respiratory protection including mask fit-testing. Penalties are based upon nature of violation, repeat offense history, and payroll of the organization. Higher-risk offenses, such as in firefighting, bring forward penalty multipliers. Given the size of the CRD (approx. 112 employees) similar penalties to Fort St. John could be anticipated in the CRD.

Playbook penalties arise solely from any criminal or civil charges that may be laid by a third party against the AHJ for non-compliance resulting in harm or injury.

Compliance violations that result in injury or death could also be subject to BC Coroner Service Recommendations or Criminal Code of Canada charges under Section 217.1 (Bill C-45).

Exhibit 3. Areas of current significant liability exposure in CRD due to legislative non-compliance

Workers Compensation Act	
and OH&S Regulation	
	Joint OH&S Committee composed of a min. 4 members (with 1 each from employer and worker)
	Committee members must be selected by their peers
	Joint OH&S Committee member training (8 hours annually per member)
	Young or New Worker orientation program in place
	WHMIS training for all workers annually presented
	Availability of SCBA for all firefighters who may be exposed to smoke or hazardous atmosphere
	Annual fit-testing of every worker who may use SCBA masks and equipment
	Written and documented procedures for the maintenance, cleaning and removal from service of firefighting PPE
	Presence of compliant PPE for all suppression firefighters
	Personal Alert Safety System (PASS) Devices must be tested prior to every use of SCBA and at least weekly
	Physician certification of fitness to use SCBA for any FF with a known cardiorespiratory condition or shortness of breath
Playbook	
	Comprehensive records management system for training records
Motor Vehicle Act	
and Regulation	
	Completion of comprehensive pre-trip inspections prior to any non-emergency use, and at least monthly
	Completion of a comprehensive post-trip inspection immediately following any emergency response use
Fire Services Act	
	Presence of a Local Assistant to the Fire Commissioner in order to use the powers and authority of the Act

FIRE UNDERWRITERS SURVEY (FUS) COMPLIANCE

The Fire Underwriters are a national organization administered by Opta Information Intelligence. It has operated under a variety of names in the past (including SCM Risk Management Services Inc.), but in each instance, the organization remains heavily influenced by the insurance industry.

The following description of the FUS organization and the issuance of fire protection classifications for jurisdictions is synthesized herein from comprehensive documents created by FUS and found at their website https://fireunderwriters.ca/Downloads.

Fire insurance grades are one of the most influential aspects of fire protection and prevention in Canada but they are also one of the most misunderstood. The grading system used by commercial lines insurers in Canada is the Public Fire Protection Classification (PFPC) system; the system used by personal lines insurers is the Dwelling Protection Grade (DPG) system. The DPG system is derived from the PFPC system with several simplifications and corollaries.

Fire insurance grades are a measure of the capacity of the community to provide an effective level of response to structure fires (and conflagrations) that can be expected to occur based on the level of fire risk in the built environment. Numerous variables are considered in determining the fire

insurance grades but the factors are generally broken down into the five broad categories: risk level; fire department; water supplies; fire safety control (including prevention and education); and emergency communications. Fire insurance grades are determined by quantitatively measuring the level of fire risk (or fire potential) in the built environment, using this benchmark to determine the maximum credible effective response characteristics, then measuring all components of fire protection capacity against this benchmark.

Insurance companies use fire insurance grades to determine appropriate property insurance rates, although each insurance company uses its own specific criteria and calculation method to determine appropriate premiums for insurance coverage. Other influential factors outside of fire insurance grades (such as loss experience in a specific geographic area or within a specific type of business such as industrial) are also considered. Importantly, insurers rely on the fire insurance grade of a community to determine that community's capability to respond effectively to structure fires. Personal lines insurers are interested only in the capacity to respond to detached dwellings (and duplexes) whereas commercial lines insurers are interested in the capacity to respond to fires in all types of buildings and the potential for multi-building conflagrations. As each insurance company uses its own formula to set property insurance rates, it is not possible to specifically quantify the difference in property insurance rates from one fire insurance grade to the next, unless only a single insurance company is considered and all potential variables are taken to be the same. However, it can be said that as fire insurance grades improve, insurance companies consider the level of risk of loss to be lower, therefore increasing capacities and making the insurance market more competitive. This results in lower insurance rates for property owners.

Notably, the PFPC for commercial lines is intricate and complex while the DPG for personal lines is simplified and makes a number of key assumptions. One of the most important assumptions of the DPG system is that the level of fire risk inherent to detached dwellings (and duplexes) can be considered a constant when measuring adequacy of fire protection response. The level of risk is measured in terms of required fire flows and largely depends on the size and construction of the building considered. Many insurance companies also simplify the fire insurance grades to a three-tier system, interpreting the fire insurance grades as being Table 1, Table 2, Table 3 or protected, semi-protected and unprotected respectively. These are derivations of the DPG and PFPC systems; each insurance company has its own specific criteria for interpreting the fire insurance grades but they are generally similar.

Fire insurance grades allow Canadian communities to improve their fire protection levels incrementally in a measured fashion that can provide cost savings to property owners through reduced insurance premiums. Although these cost savings may not entirely offset the fire protection costs, this is one of the few government service areas that does result in a return on investment.

All 14 VFD fire protection areas were reviewed and graded by FUS in recent years, the results of which are on record at the CRD offices and shown below in Exhibit 4.

Exhibit 4. Current FUS grades for each VFD fire protection area

Department Fire Protection Area	Population (2016 Census)	DPG Grade	PFPC Grade
108 Mile	2356	3A, 3B, 5 *	8, 9, 10
150 Mile	1168	3B, 5	9, 10
Barlow Creek	1327	3B, 5	9, 10
Bouchie Lake	2074	3B, 5	9, 10
Deka Lake	881	3B, 5	9, 10
Forest Grove (2 FH's)	892	3A, 3B, 5 *	8, 9, 10
Interlakes (3 FH's)	1352	3B, 5	9, 10
Kersley	1087	3B, 5	9, 10
Lac la Hache	1055	3A, 3B, 5 *	9, 10
Lone Butte	869	3B, 5	9, 10
Miocene	614	3B, 5	9, 10
Ten Mile	741	3B, 5	9, 10
West Fraser	697	3B, 5	9, 10
Wildwood	879	3B, 5	9, 10

* 108 Mile, Lac la Hache, and Forest Grove are all partially protected by fire hydrants

The comprehensive requirements for Fire Underwriters Survey compliance to the Dwelling Protection Grade classification of volunteer fire departments is illustrated in Appendix B.

Within the CRD the population bases for each fire protection area are evenly split between over, and under, 1000. The FUS uses the cut-off of 1000 population per firehall to determine the replacement interval for front-line fire apparatus, with less than 1000 requiring replacement at a 25-year interval and over 1000 requiring replacement at a 20-year interval.

Currently eight of the 14 VFD's come under the 25-year replacement interval. However, Deka Lake, Wildwood and Lone Butte all have populations nearing the cut-off and may exceed it under the next Census in 2021. As a result, consideration should be given to transitioning apparatus replacement schedules for these communities to the 20-year interval if population increases are anticipated. While both Forest Grove and Interlakes also have populations nearing 1000, they will remain at the 25-yar interval because they have multiple firehalls, thus keeping the population served by each firehall at less than 1000.

The CRD should consider the upcoming 2021 Census with respect to both Wildwood, Lone Butte, and Deka Lake. Each fire protection area is approaching the 1000 population benchmark and may pass it in 2021. As such, the CRD should consider pro-actively altering their apparatus replacement schedule to move to 20-year instead of the current 25-year. The other communities approaching 1000 population are Interlakes and Forest Grove, however, unlike the previous three they have multiple firehalls. The existence of multiple halls enables the population to be divided "per firehall" thus keeping them both well below 1000 per firehall.

As shown in Exhibit 5 below, Barlow Creek VFD, Interlakes VFD, and Lac la Hache VFD are all currently non-compliant with the FUS apparatus replacement interval assigned.

Exhibit 5. VFD fire protection area populations, personnel numbers, and apparatus age and capacity as of July 1, 2020.

			# active firefighters		Apparatus					
Department Fire Protection Area	**2016 Census population**	**Apparatus age of retirement for given population**	**FDM [1] records**	**self-reported**	# engines	# tenders	# other	Total water capacity	Total pump capacity	FUS compliant for apparatus ages and # of personnel
108 Mile	2356	20 yr	17	15	1	2	3	3450 igal	1700 igpm	y
150 Mile	1168	20 yr	23	31	3	1		3300 igal	3500 igpm	y
Barlow Creek	1327	20 yr	20	25	1	1	1	2150 igal	880 igpm	**N**
Bouchie Lake	2074	20 yr	24	28	1	2	1	6000 igal	840 igpm	y
Deka Lake	881	25 yr	20	22	2	2		3600 igal	2100 igpm	y
Forest Grove (2 FH's)	892	25 yr	27	25	3	2		4800 igal	2550 igpm	y
Interlakes (3 FH's)	1352	25 yr	45	35	3	3		7075 igal	3120 igpm	**N**
Kersley	1087	20 yr	27	27	3	1		4500 igal	3150 igpm	y
Lac la Hache	1055	20 yr	13	19	2	2		5100 igal	2750 igpm	**N**
Lone Butte	869	25 yr	15	16	2	2	1	5300 igal	1875 igpm	y
Miocene	614	25 yr	23	23	1	2	2	7000 igal	2050 igpm	y
Ten Mile	741	25 yr	12	28	1	2		4300 igal	840 igpm	y
West Fraser	697	25 yr	1	26	1	1	1	3100 igal	840 igpm	y
Wildwood	879	25 yr	19	19	1	3	1	5250 igal	1150 igpm	y

[1] FDM reporting is highly inaccurate, as a number of departments have either not categorized members, or not updated records.

GOVERNANCE

The volunteer-based service delivery model is necessary for the CRD in terms of economic viability. Currently only one department, 108 Mile VFD, operates as a paid-on-call fire department with the rest being purely volunteer organizations.

The 14 VFD's in the CRD fire service were established at different points in time and evolved separately in terms of services provided as well as their respective legislative frameworks. The 14 departments are now local service areas / fire protection areas which are funded separately through taxation and historically have operated with significant, yet varying, degrees of autonomy and independence. The 14 departments operate out of 17 individual firehalls situated throughout the CRD.

The CRD, as a recognized regional district within British Columbia, is a self-governing entity with an elected Board of Directors who represent the AHJ. Through bylaw, the CRD Board of Directors have created the CRD regional fire service and its respective 14 volunteer fire departments. Each service area is represented by one or more Directors on the Regional Board.

CRD Protective Services is staffed by three career positions who provide oversight and management of the 14 VFD's as illustrated in Appendix C.

Historically, the CRD leadership allowed significant autonomy to be exercised by each fire department and fire chief. The CRD simply provided some oversight but little in the way of AHJ authority requiring adherence to regional expectations. The new leadership in the CRD Protective Services has identified concerns that, in practice, the CRD has in fact been negligent in performing its AHJ role in a number of areas. The CRD Board, for its part, has also had differing viewpoints of the working relationship between the district and its fire departments. The CRD Protective Services leadership is not satisfied with its internal performance capabilities, as they acknowledge that the departments under their oversight "must" meet the requirements of legislation, but many do not.

For the 14 VFD's to operate as a cohesive group under the CRD's AHJ requirement, they need to be organized and managed as a cohesive group. Cohesion is currently not a strong component of the CRD's oversight and should be enhanced through improved administration, communication, and staffing.

Recommendation 3: That the CRD Protective Services transition to a face-to-face communication model with VFD chiefs and departments where staff visit each department 2-4 times annually.

A few fire chiefs stated that they report directly through to the Manager of Protective Services. As identified in the current organizational chart, this behavior is incorrect and demonstrates a lack of acknowledged chain of command, and a historic pattern of local autonomy within the CRD fire service. In fact, the fire chiefs all report through the Regional Fire Services Supervisor, who in turn reports to the Manager. The history of this misinterpretation or confusion traces

back to the previous Protective Services administration which had a reportedly contentious relationship with many chiefs around direction, control and authority.

Recommendation 4: That the CRD confirm its managerial reporting lines and organizational structure to all VFD fire chiefs and senior officers.

Most fire chiefs support the developing regionalization of the CRD fire service and understand the current reporting structure. Several chiefs identified that Protective Services staff are not available enough and appear over-worked. Many fire chiefs are tiring of the expanding administrative burden being placed upon them by legislation and CRD regulation. It was voiced repeatedly and strongly that a continuation of this will result in resignations or non-compliance with required documentation. Other chiefs however, strongly indicated that they prefer the autonomous role as chief and being solely responsible for most operational and administrative functions that take place. Functionally, they are not incorrect in many ways under the current management model. Due to a lack of engagement from the Protective Services team, along with limited contact with other CRD departments such as finance and procurement, some chiefs have evolved their department in isolation and have taken on a personal ownership to advance their organization in unique ways.

The CRD currently employs a single administrative assistant within Protective Services. This position performs 99% of work time on fire services, whereas two to three years ago it was less than 80%. Additionally, the Regional Fire Services Supervisor spends a great amount of time performing general administration in support of the Assistant. Projects, such as iPad implementation and FDM utilization for records management, are only being provided very basic introduction to the VFD's as a result of time limitations on the Protective Services Assistant and Fire Services Supervisor. Unfortunately, their workload is further impacted by later follow-up questions and training from chiefs. Regularly, the Protective Services staff receive additional workload due to new compliance requirements, expectations from chiefs, and regional board directives. Examples of necessary work not being initiated or completed include fire protection boundary requests from public; fire chief contract compliance monitoring; FDM incident and training documentation monitoring; and purchasing and budget monitoring and assistance. Further challenge is expected with the transition to the Laserfiche records management system at the CRD. Work that was previously done by CRD clerical staff (filing, naming, metadata) will now be expected to be completed by Protective Services staff. Overall, the current and expected administrative burden cannot be met by the existing Assistant, even with help from supervisors.

Part of the job description for the Regional Fire Services Supervisor position is to conduct regular site visits to individual VFD's to enhance communications and ensure oversight. These necessary visits are not occurring regularly because of increased general administrative burden that requires daily attention. Additionally, VFD's frequently are not providing to the CRD comprehensive documentation, as required. This necessitates additional administrative work, communication, and documentation. An example of this frustration was seen first-hand by the consultant when many VFD's did not complete the inventory spreadsheets sent to them over a month prior to the consultant firehall site visits. Some VFD's just very recently completed this important document after frequent "hounding" and site visits by CRD staff.

For organizational improvements to occur related to expenditure of funds, procurement of resources, standardization of training, maintenance of vital equipment, and compliance to legislation and records management requirements, a change to the Protective Services organizational model is required.

A recommended series of three steps toward a more appropriate and effective CRD Protective Services organizational model is attached to this report as Appendix C. It includes renaming of existing positions and addition of new positions. Costs for the transition to Step 1 of the proposed enhanced organization are estimated to be $175,500, including benefit burden. This cost should be allocated proportionally between all taxpayers who benefit within the 14 fire protection areas resulting in an estimated increase of $12.30 per property folio.

There is a need for active response by CRD staff to serious incidents to provide mentorship and guidance to VFD officers. This should be a uniformed duty officer from the CRD career staff.

Recommendation 5: That the CRD Manager of Protective Services be given an unencumbered mandate to enhance regionalization of the fire service.

Recommendation 6: That the CRD implement Step 1 of the proposed Protective Services reorganization (Appendix C) for fiscal 2021/22.

As a result of previous individualism and autonomy, the CRD is facing acute strategic shortfalls in critical equipment, apparatus and facilities. Many departments are far from compliant in maintaining all active PPE at less than 10 years of age. Many departments have excessive numbers of apparatus, many of which are very old, and are limited in capability. A number of firehalls are in disrepair and/or require renovation to allow for appropriate numbers of washrooms, showers and secure offices areas as well as to meet the general compliance requirements of the BC Building, Electrical and Fire Codes.

Regionalized coordination and equipment management is necessary to improve governance for the CRD. Items such as PPE, SCBA, apparatus, and large equipment should be managed regionally and be centrally distributed. Processes such as apparatus inspections and maintenance, SCBA fill station air quality testing, SCBA cylinder hydrostatic testing, SCBA mask fit testing, and hose/ladder testing should all be managed regionally for guaranteed legislative compliance.

As the AHJ, the CRD is as the responsible organization for provision of fire services in participating communities. In the northern areas around Quesnel, each department proudly displays their department logo alongside the CRD fire service logo outside their facility. In the other two sub-regions however, this is not the common practice.

Recommendation 7: That the CRD confirm prominent display of the CRD Fire Services logo outside every firehall under their jurisdiction.

FINANCIAL MANAGEMENT

One of the benefits of regionalization of fire services is the ability to seek economies of scale, increase capacity through shared resources and aid agreements, and improve administration and oversight. However, unlike local government municipalities, each VFD's budget and cost allocations must be funded independently through taxation from the benefitting area only and funds may not be transferred or shared across services or service areas. These financial restrictions result in departments with smaller tax bases being burdened with higher tax impacts for the same resource or activity. Occasionally, residents in these smaller impacted areas may decline to support tax increase and changes in service or activity types. Funding for CRD fire services is almost exclusively provided through direct taxation with little opportunity for use of alternative funding models such as donations or grants specific to fire services.

Unfortunately, within the CRD fire services, the financial management aspect of regional government administration is poorly understood by most fire chiefs. In fact, many complaints heard from chiefs during the review identified their perceived lack of support from the CRD to make their VFD projects happen when they want and how they want it. In past, it appears that chiefs viewed their budget as entirely discretionary, when in fact certain allocations were directed for specific purchases. A good example is that the review identified many departments where many sets of their PPE were well out of date. The CRD has provided directed funds toward PPE replacement for quite a few years. However, it is readily apparent that some chiefs have redirected the PPE funding toward other purchases. The CRD should not permit any chief to reallocate specified funds in a discretionary manner.

Recommendation 8: That the CRD Finance department develop a "non-discretionary" list of budget GL accounts within VFD budgets that the fire chief can see but cannot exercise management of. These GL's would specially apply to items requiring legislative compliance.

Specifically, the use of reserve funds is a challenging topic for many. Many chiefs believe that the reserve funds associated with their department should exist for use when and how they determine. When the CRD Finance staff do not facilitate such an independent use of the funds, the chiefs become confused and lose trust. There is a high degree of misunderstanding on how the budget and procurement functions of regional districts apply to the VFD's. Fire Chiefs desperately need to be educated on these components of their administrative duties by finance personnel themselves to ensure full understanding and facilitate question/answer dialogues to improve relations. A particularly good model for improving this relationship and fire chief knowledge is through development of specific training modules that should be required attendance for all fire chiefs, new and tenured.

Recommendation 9: That CRD Finance and Purchasing departments develop a Finance and Procurement 101 program for all new and existing fire chiefs that outlines budget basics, financial rules, purchasing rules, and provides education of operating, capital, and reserve allocations and limits.

Another strategic initiative that would assist in smoothing relations between the VFD's and CRD Finance Department would be development of a "calendar-type" document that lists all

important dates and deadlines within the budget cycle and reporting year. Chiefs would benefit from this significantly as many are not from a business or government background, and do not intuitively understand the importance of carry forward deadlines, reporting cycles, purchase agreements, and business planning dates. In discussions with finance personnel during the review, there was recognition that a document of this type could help significantly, and they offered to look at creating one immediately.

Recommendation 10: That CRD Finance department develop a Finance/Budget "calendar" for fire chiefs that identifies benchmark dates for important actions and budget management.

Regionalized procurement is necessary to improve financial management for the CRD. Items such as PPE, SCBA, and apparatus should be purchased regionally and centralized for distribution. Appendix D illustrates the financial benefits that could be attained through regional procurement of major capital items. Processes such as apparatus inspections and maintenance, SCBA fill station air quality testing, SCBA cylinder hydrostatic testing, SCBA mask fit testing, and hose/ladder testing should all be managed regionally for best fiscal management, and to ensure compliance with legislation and policy. To facilitate these changes some modifications to the CRD financial management structure may be required. Currently, there is no capacity for creation of a centralized inventory that can be distributed as needed. The current budgeting process requires direct allocation of funds to specific VFD budget GL's. This current process does not enable a centralized model and creation of a centralized inventory account, which can retroactively be re-allocated to VFD's upon asset disposition. A restructure will allow CRD Purchasing personnel to research group buying opportunities to save money on inventory. The equipment can then be inventoried and managed by Protective Services annually for distribution to VFD's.

Recommendation 11: That CRD Finance department develop a modified financial structure to allow for creation and management of a centralized CRD inventory account for group purchasing related to VFD's that can be reallocated, as needed, to individual department budgets.

In some cases, CRD VFD's have maintained local Societies or Associations independent of the official VFD organization. This has allowed them to fundraise or attract donations that would otherwise be unavailable. Once received, these funds, or assets, are then "donated" to the local VFD as a community service. This type of "alternative procurement model" while appearing to be a viable and positive solution to keeping taxes low, can lead to longer-term problems. Larger assets such as defibrillators, tools, or even apparatus/vehicles that arrive via donation or fundraising do not immediately impact operating funds or reserves. However, the inevitable replacement and on-going repairs do impact CRD budgets; sometimes dramatically. The CRD should carefully consider their support of donated and alternatively funded assets. Consideration should be given as to whether the CRD will/can support long-term asset take-over, or rather, should the CRD identify these assets as "non-CRD" thus forcing the VFD to find alternative funds to maintain and replace them in the future. This can be a very difficult and unpopular conversation and results, either way, are likely to elicit lasting resentment. Careful management of this issue is essential to maintaining administrative and fiscal efficiencies, as well as fire department morale and operations.

Recommendation 12: That the CRD carefully consider the issue of "alternatively funded" assets and their long-term interjection into CRD budget and operations.

At present, only the fire training ground at the City of Quesnel is part of a partnership with local VFD's and the CRD. Initial site creation and annual use funding contributions were/are made by all 5 neighboring VFD's around Quesnel. This model has proven highly successful as the VFD's feel ownership and a rightful sense that they can use the facility regularly and without conflict. In the central and south regions however, such an arrangement has not been formalized. In these regions VFD's typically contact either 100 Mile House or Williams Lake VFD's to request use of their facilities, which they in turn pay for. Use is haphazard, coordination lacking, and relationships not as strong as in Quesnel. The CRD would greatly benefit from exploring a similar financial partnership in 100 Mile and Williams Lake as it has in Quesnel to facilitate greater availability and enhanced VFD firefighter training throughout the district.

Recommendation 13: That the CRD engage in formal financial and operating partnerships with the municipal fire departments in 100 Mile House and Williams Lake to utilize their certified training centers for enhanced VFD training. Model should be like existing relationships between local CRD VFD's and Quesnel VFD.

Fire Chiefs are currently identified as contractors by the CRD. This appears to be an error as the fire chiefs are provided with benefits that are typically associated with employees, including an issued cellular phone, a stipend, WorkSafeBC and liability insurance coverage. Given the Fire Chief also responds to incidents like other volunteer firefighters, who are identified as "employees" by both WorkSafe and the *Employment Standards Act*, there appears to be clear evidence that fire chiefs are more accurately identified as an "auxiliary employee" rather than as a contractor.

Recommendation 14: That the CRD consider the identification of VFD fire chiefs as auxiliary employees, instead of contractors.

During the review process there were few complaints from fire chiefs that their current department funding envelope does not meet their operational requirements. However, in a number of circumstances, a chief did indicate that the funding does not allow them to pursue additional services or equipment. When rationalized to the existing mandate and its objective requirements it appears that the many funding models in use across the 14 fire districts are adequate. This is not to say that further review and possible changes are not something to be considered or are even potentially warranted. The fact that there are funding models that do, and do not, include flat rate parcel taxes would indicate that some consideration should be undertaken for a regional "one size fits all" model of taxation. Given the discrepancies in population size, and especially total assessed values variations between the fire protection areas, the complex challenge of rationalizing this process was not undertaken during this review.

VOLUNTEER FIRE DEPARTMENT OPERATIONS

The following commentary and recommendations generally apply to the majority of all fire departments in the CRD. With few exceptions, the names of individual VFD's are avoided in the main body of this document to preserve departmental integrity. Detailed individual VFD report cards are attached separately to the Final Report and provide analysis and recommendations of each department's operation and administration.

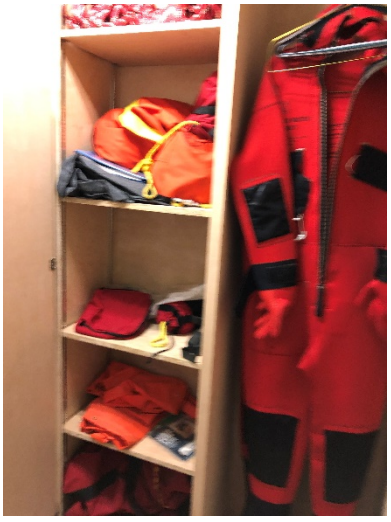
Incident Response

Fire service response is typically described as either "core" or "discretionary". Core services address the legislated mandate of the AHJ for the fire department. For the CRD, the core services established by bylaw are Exterior Operations Service Level fire suppression, wild-land-interface fire suppression, Emergency Scene Traffic Control, and attendance at numerous assist-type incidents (eg. alarms, wires down, open fires, MVI's). A few VFD's practice discretionary services such as ice rescue and first responder. These are specific to individual departments and are not part of the CRD-wide cadre of core services.

The CRD authorizes, by bylaw, a basic response profile to fire suppression activities at the Exterior Firefighter Service Level under the Playbook for all but one department (150 Mile VFD). This is a very appropriate service level for CRD departments. Even still, some are currently struggling to comprehensively maintain compliance with this minimum standard. As such, no additional services should be contemplated in these areas.

Several VFD's undertake discretionary service delivery through provision of first responder and/or technical rescue. Many other chiefs expressed a desire to include one or more of these services to their departments service delivery profile. However, when directly questioned, none of the chiefs could provide defensible statistical evidence to support such a decision, and for many it appears to simply be either passing fancy, or an attempt to "improve morale through increased training".

Decisions by VFD's to add discretionary services should be resisted by the CRD until, and only if, a comprehensive and statistically supported business case can be presented to support the change. It is further suggested that VFD's already providing discretionary services be required to retroactively produce supporting business cases in order to maintain CRD support and funding for them.



Recommendation 15: That CRD Protective Services should require comprehensive business cases and objective statistical facts to support any additional service request by a VFD beyond the identified "core" CRD services. This should include consideration and provision of first responder medical response.

Recommendation 16: That CRD Protective Services should require a comprehensive business case to support continued involvement in any discretionary service being performed by a VFD.

Recommendation 17: Specific service delivery activities should be identified, or excluded, within any new empowering bylaw or other policy document between the CRD and the VFD.

Currently no VFD provides motor vehicle rescue or dangerous goods/hazmat operations level response. These serious and not infrequent incident types are managed by outside agencies through contract or jurisdiction. Vehicle rescue is performed either by a municipal VFD on contract, or through the CRD search and rescue organization. CRD VFD's attend MVI scenes, perform emergency scene traffic control, and assist with non-extrication procedures. Carriers (commercial transport operators) and provincial ministries are responsible for mitigation and clean-up of hazmat/environmental spills of any significant size. CRD VFD's provide only awareness level response to safely cordon off the area and identify the product, if possible.

The CRD has an expansive response area. This area size, combined with geography, road quality, seasonal weather, and responder availability, results in regular response times of 10-20 minutes, or more. This reality validates the Exterior Service Level. Firehalls in the expansive sections of the CRD fire protection areas are challenged with providing prompt response, but the lack of call volume, minimal resources (firefighters) available, and fiscal realities preclude consideration of more secondary facilities. Currently the CRD has 14 VFD's operating out of 17 firehalls.

Response attendance by CRD firefighters is only to come on fire apparatus, with no use of personal vehicles to respond to incidents unless no fire apparatus remains at the firehall and additional personnel are required and requested by the incident commander. Recent CRD decisions regarding elimination of personal vehicle response, principally for first responder calls, has met with much opposition in some areas but the decision is sound and defensible as a means to ensure firefighter safety and minimize liability risk for the CRD.

Call volumes of the 14 VFD vary widely from an annual average low of 15-20 at West Fraser, to a high of approx. 175 at 108 Mile. This large discrepancy contributes heavily to differences in operational capability and services provided. Exhibit 6 on page 26 provides incident data comparisons for each VFD.

Consideration to adjusting fire protection area boundaries to facilitate improved coverage, equalization of call volume, or both include:

1. Moving the southern tip of the Deka Lake VFD response area to Interlake, which is much closer. The current jurisdictional boundary historically occurred because Deka Lake was a CRD department and Interlakes was not, thus providing the commercial property with better insurance coverage and costs. A move would transfer protection of a large commercial facility (RONA). Incorporation of Automatic Aid protocols will likely result in Interlakes arriving first at incidents in this area anyways and thus fire protection jurisdiction should be rightly transferred. A political concern, however, is that this facility provides a significant tax base for Deka Lake VFD which would be eliminated. The CRD will need to address this concern if transfer is considered.

2. Moving of the Goldpan and Dugan Lake area from 150 Mile into the Miocene VFD fire protection area. This transfer would recognize the far closer proximity the area has to the Miocene firehall, as well as providing a bit of call volume equalization (150 Mile averages approx. 3X the call volume of Miocene).

3. Moving the northwest corner of the Barlow Creek fire district into that of Ten Mile VFD. Better road access appears to exist, a move may provide a bit of call volume equalization (Barlow Creek averages approx. 2X the call volume of Ten Mile).

4. Expansion to a two firehall model for Lone Butte to allow for increased coverage to the south-west (currently covered on contract by 100 Mile House VFD) and incorporation of growing and unprotected residential development at the southeast corner of Horse Lake. This would also enhance automatic aid to the western section of Interlakes.

5. Rationalization for the existence of the Wildwood response area. Given its geographic shape, isolated location of the firehall, existence of the airport, and provision of service by Williams Lake VFD to numerous areas adjacent to Wildwood's response zone, consideration should be given to incorporation of the entire Wildwood fire protection area into Williams Lake fire protection, with the possible re-allocation of the existing Wildwood firehall as a satellite to Williams Lake VFD. Given the hazards at the airport, and the service level of Wildwood VFD, it is inappropriate to consider transfer of jurisdiction of airport response to Wildwood from Williams Lake.

   Undoubtedly, this would be politically and financially challenging, however, there are aspects of the current service area that are difficult to justify from a service delivery perspective alone.

Recommendation 18: The CRD undertake a comprehensive review of all response areas with the goal of minimizing response times, equalizing call volumes, sharing risk, facilitating automatic aid response, and maintaining sustainable tax base funding for each department.

Exhibit 6. VFD call volume profiles from 2017 - 2019

CRD VFD incident data comparison 2017-2019

		108 Mile	150 Mile	Barlow Creek	Bouchie Lake	Deka Lake	Forest Grove	Interlakes	Kersley	Lac la Hache	Lone Butte	Miocene	Ten Mile	West Fraser	Wildwood	CRD Totals
Admin	(admin call, dispatch test, forestry notif, police notif, etc)	40	23	15	14	10	16	30	10	12	13	17	5	8	17	230
Medical	(lift assist, ambul notif, medical aid)	213	161	14	145	26	164	97	9	17	136	43	7	6	81	1119
MVI		43	46	35	33	7	29	37	37	47	31	14	23	7	67	456
Fire - minor	(vehicle fire, chimney fire, pole fire, item fire, elect fire, etc)	17	14	9	15	8	11	9	2	8	11	5	6	6	15	136
Fire - structure		11	19	12	15	2	10	10	6	3	15	3	7	8	10	131
Fire - wildland		81	53	9	9	6	27	22	10	11	11	26	5	3	49	322
Hazmat		1	4	3	6	1	5	3	4	0	3	1	1	1	2	41
Nuisance	(assist, burn complaint, lines down, smoke report, open air fire, etc)	88	31	36	30	22	36	61	10	18	36	17	11	4	16	416
Alarms	(CO alarm, Fire Alarms, etc)	7	19	13	6	3	6	9	7	5	12	2	4	4	3	100
		505	370	146	273	85	304	278	95	123	268	128	69	47	260	2951
	2017 call volume	225	130	66	103	43	111	117	40	38	89	60	24	12	100	1158
	2018 call volume	136	118	34	78	15	98	79	28	45	95	37	19	19	70	871
	2019 call volume	114	104	40	80	27	88	71	22	36	76	21	21	13	73	786
	% medical calls (>40%)	42%	44%	10%	53%	31%	54%	35%	9%	14%	51%	34%	10%	13%	31%	
	% MVI (>25%)	9%	12%	24%	12%	8%	10%	13%	39%	38%	12%	11%	33%	15%	26%	
	% Nuisance (>20%)	17%	8%	25%	11%	26%	12%	22%	11%	15%	13%	13%	16%	9%	6%	
	% wildland fires (>15%)	16%	14%	6%	3%	7%	9%	8%	11%	9%	4%	20%	7%	6%	19%	
	% admin calls (>10%)	8%	6%	10%	5%	12%	5%	11%	11%	10%	5%	13%	7%	17%	7%	
	% of CRD total calls	17%	13%	5%	9%	3%	10%	9%	3%	4%	9%	4%	2%	2%	9%	
	Avg # responders per incident	6.8	7.7	4.8	5.0	8.4	6.9	7.8	6.8	7.9	6.2	6.8	5.5	7.4	7.5	6.8

Records management of incidents is not adequate. Part of the concern (which is discussed in depth in the Records Management section of this report) is that the lack of appropriate tools and training to record incident details accurately and comprehensively on scene. Paper incident record worksheets were observed to lack a place to record response details. Further, these critically important details are not regularly being entered later into the FDM dispatch/records management database by all but a very few departments. While responder names, and other tombstone data usually exists, little detail is provided on scene observations, statements of witnesses, department activities, strategies and tactics used, outcomes, other agencies involved, and any concerns remaining. These are all vital pieces of information for every call and provide the department and CRD with a significant level of legal protection. Failure to document these facts may result in liability or criminal risk should the actions be contested, or a complaint arise. The responsibility to ensure full documentation of every call lies directly with the incident commander and should be verified for each incident by the fire chief or designate.

Recommendation 19: That a specific incident response worksheet template be created by the CRD to facilitate data collection at incident scenes, and that the FDM incident record database will be populated with comprehensive incident details for every incident.

Very few formal target hazard assessments have been performed on any identified high-risk or operationally challenging property in the CRD. A few departments have had conversations with

site operators (eg. training sessions with Enbridge related to pipeline compressor stations), but no documented pre-incident response plans were produced by any department during the review process. No department identified specific plans with any mill or large industrial facility exists. This is genuinely concerning as high-risk facilities – fortunately there are relatively few – pose a high risk to firefighter safety during an incident, as well as to the CRD and its economy should a disaster occur. Pre-incident assessments and plans aid in rapid, coordinated, safe, and effective response to specific challenges and are to be encouraged for locations of concern.

Recommendation 20: The CRD Protective Services lead a comprehensive review of all high-risk properties within its jurisdiction and develop pre-incident plans and training for associated VFD's in all cases.

There is a lack of experienced and highly qualified oversight by the CRD at high profile or high-risk incidents. Unlike some other regional districts, the Protective Services staff are non-uniform and perform no operational role whatsoever. In other areas uniformed duty officers respond alongside local VFD's to provide guidance, oversight and mentorship. They do so on a rotational basis using an appropriate emergency vehicle dedicated to the duty officer

The lack of a duty officer response within the CRD is unfortunate and prevents the local VFD from benefiting from the knowledge and expertise of CRD career staff in support of their incident. Response from a CRD "Duty Officer" would provide the CRD with a greater assurance of liability and risk protection during the most serious of incidents, regardless of location. It would also facilitate greatly improved communications between the CRD and VFD's as well as providing incredibly valuable learning and mentorship opportunities. The duty officer could also attend any after-action/tailgate briefings to answer questions and provide insight.

Further, and without prejudice, it was observed that some fire chiefs are significantly lacking in firefighting experience and/or operational command and control experience. Inadequacies in decision-making and incident action planning are widely recognized to be precipitating factors in most firefighter injuries and major fire losses. Providing experienced and highly trained support, even if delayed, can provide enhanced protection from risk through consultation and mentorship.

Recommendation 21: That CRD Protective Services staff become uniformed personnel and that senior operational staff assume a rotating "duty officer" role for response to high-profile or high-risk incidents throughout the district. Further, that the duty officer be provided an appropriate emergency vehicle with which to respond promptly.

Personal Protective Ensemble (PPE) for firefighters

CRD VFD's issue a Personal Protective Ensemble (PPE) to all firefighters. It includes a turn-out coat and pants, a helmet, firefighting boots, fireproof hood/balaclava, and firefighting gloves. In addition, each firefighter is issued a set of red Nomex coveralls, used primarily for wildland-interface firefighting and occasionally for MVI response. Structural firefighting PPE comes under the regulatory requirements of the WorkSafe BC OH&S Regulation Part 31.10 - 31.18 and use of it is specifically identified in the Playbook Standard.

Though WorkSafe BC does not specifically reference it, NFPA 1851 (2020) – Standard on Selection, Care and Maintenance of Protective Ensembles for Structural Firefighting and Proximity Firefighting states that PPE jackets, pants and helmets shall be replaced after 10 years from date of manufacture. Consensus within the BC fire service is that this requirement is expected despite no specific WorkSafe BC reference.

Until such time as a ruling from WorkSafeBC suggests otherwise, the CRD should proceed forward with the expectation of replacement of all firefighter PPE within the 10-year retirement requirement and institute an evergreen replacement schedule for all PPE that is based upon district-wide asset management processes.

Recommendation 22: That CRD Protective Services institute and enforce expectation that all active duty firefighters will have appliable PPE (Coat, pants and helmet) that is less than 10 years of age from date of manufacture.

Upon review of all 14 CRD VFD's it was found that the majority had PPE more than 10 years of age in active service. Additionally, virtually all "spare" PPE in the CRD is expired. As PPE is the most critical piece of safety equipment in the fire service, this is an alarming discovery.

As previously noted, many CRD VFD's have operated autonomously with little real oversight to ensure compliance with legislation. This is particularly visible regarding PPE.

It became apparent through the discussions with fire chiefs and officers that financial management of budget was discretionary for the most part. While budget was allocated to ensure that a departments PPE inventory remained compliant, it was frequently re-allocated to other needs identified by the chief as more pressing or desirable. Most VFD's are budgeted for 2-4 sets of PPE to be replaced annually. Unfortunately, when that funding is redirected for other "priorities" the effect of insufficient replacement PPE purchases compounds out as years progress. The review found that some departments had a small number of expired PPE in use, but a significant number had extensive inventories of 40-50%, or more, expired PPE in active use.

The deficit in compliant PPE inventories must be rectified quickly. An injury attributable to expired PPE could expose the CRD and its officers to a serious liability risk. This problem cannot be solved overnight, but it cannot be deferred over many years either. Priority has to be given to immediately replace as many active duty sets as possible with principle focus on departments that perform interior fire suppression and ones with higher numbers of expired gear. A basic inventory of the number of PPE sets requiring replacement can be determined from Exhibit 7 which shows a very high degree of non-compliance for the virtually all VFD's.

Exhibit 7. Current PPE compliance status reported by each VFD

	# PPE jackets		# PPE pants		# helmets	
Department	compliant	non-compliant	compliant	non-compliant	compliant	non-compliant
108 Mile	19	0	19	0	13	5
150 Mile	19	7	18	8	17	9
Barlow Creek	19	0	19	0	13	7
Bouchie Lake	11	27	11	6+	3	22
Deka Lake	19	7	17	6	25	many
Forest Grove (2 FH's)	13	29	13	29	6	26
Interlakes (3 FH's)	17	28	18	27	11	16
Kersley	24	0	24	0	7	9
Lac la Hache	7	12	8	11	9	15
Lone Butte	14	22	13	21	5	14
Miocene	23	0	21	2	21	2
Ten Mile	13	18	12	18	20	multiple
West Fraser	11	21	13	22	20	6
Wildwood	17	24	12	22	13	25

* Data as reported by VFD's. Full validation of numbers not complete

Strategically, the management of PPE should become regional in nature. In addition to expired PPE being found, the review identified excessive numbers of "spare" PPE that exist in virtually every fire hall. On average, each department has between 15-25 active members requiring PPE and had at least 1.5 times as many sets of PPE as required. These extra sets exist to provide for new members who need proper sizing, for existing members who add/decrease weight, and for existing members who damage their original PPE. It is unrealistic to expect that each department should stock PPE that will fit every potential new member or replace gear from existing members. Fire chiefs are often required to purchase new "odd sized" gear for new members and these purchases always come from the PPE budget allocation designed to meet the replacement age legislation. A myriad of challenges appears related to budget impact, proper fit of PPE, adequate replacement numbers, etc. Currently this is all managed at the departmental level and is extremely inefficient.

The CRD should institute a regional long-term ("evergreen") purchasing program, as well as a regional asset control program for PPE coats, pants and helmets, an example of which is shown in Exhibit 8.

A regionalized approach would allow for rapid compliance with legislation and the potential for large cost savings. A committee composed of 4-5 chiefs, in conjunction with the Protective Services staff, should determine the specifications required and these will apply to all VFD's; no exceptions for personalized or department specific standards should be permitted. The CRD Purchasing staff should, with assistance from Protective Services staff, negotiate competitive pricing over a multi-year agreement for supply of the PPE items.

Exhibit 8. Example evergreen replacement schedule for PPE

Personal Protective Equipment - PPE
Evergreen Replacement Schedule

2015 - 2025 Personal Protective Equipment (PPE) set replacement schedule

Current inventory of 32 active + 13 spare sets of PP (Need inventory of at least 38 active + 18 spare into future as POC numbers increase)

2008	3	Securitex
2009	9	Morning Pride
2010	7	Morning Pride
2011	7	Morning Pride
2012	5	4- Morning Pride; 1 - Fire Dex
2013	6	Morning Pride
2014	4	Fire Dex
2015	8	Morning Pride

All units purchased from 2005 - 2007 have already failed inspection/repair and have all been removed from service and replaced.

The following evergreen schedule meets the required and/or anticipated inventory requirements, as well as industry lifespan standards
6 sets per year to be replaced starting in 2016

	current	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
2008	3	2									
2009	9	9	8	7							
2010	7	7	7	6	5						
2011	7	7	7	7	6	5					
2012	5	5	5	5	5	4	3				
2013	6	6	6	6	6	6	5	4			
2014	4	4	4	4	4	4	4	3	2		
2015	8	8	8	8	8	8	8	8	7	6	
2016		6	6	6	6	6	6	6	6	5	4
2017			6	6	6	6	6	6	6	6	5
2018				6	6	6	6	6	6	6	6
2019					6	6	6	6	6	6	6
2020						6	6	6	6	6	6
2021							6	6	6	6	6
2022								6	6	6	6
2023									6	6	6
2024										6	6
2025											6
TOTAL		54	57	61	58	57	56	57	57	59	57

On this cycle a consistent replacement schedule will be achieved for the PPE to meet their required operational life time of 10 yrs.
As well, allowances are made for early replacement of damaged sets within this cycle. The cycle is flexible and dynamic to meet current needs.

To become compliant with the 10-year replacement requirement in an efficient and effective manner the CRD should undertake the following:

- Identify exactly how many active sets of PPE are required for each department
- Identify how many sets of PPE are expired and do not meet WorkSafeBC requirements
- Identify how many sets of new gear are required to achieve compliance for all active members
- Purchase at least 50-75% of the required sets in the next 2 years to reach a critical mass
- Establish an “evergreen” replacement schedule for all active sets which identifies how many are required to be purchased annually to maintain compliance
- Add a 30% contingency for spare PPE (of all sizes) to the replacement schedule and recalculate the long-term replacement number annually

Storage and distribution of the “spare” PPE sets should be managed by Purchasing and Protective Services staff, respectively. As spare equipment is distributed, the CRD should re-

acquire unused sets from the department receiving the spare. In this system, PPE will continuously remain active and sets will not sit on shelves unused for extended periods because they are odd sized. With a firefighter base of approximately 325 the total inventory should account for all potential sizes. Importantly, the PPE coats and pants should be purchased in somewhat generic sizing to improve opportunities for fit, as well as increase cost savings over custom garments.

Recommendation 23: That CRD institute and enforce a regionalized procurement and asset management program for PPE jackets, pants and helmets, at minimum.

A formal checklist for inspecting personal PPE is not in use in all departments, despite the CRD Protective Services supplying one some time ago. Few departments provide inspection of all PPE annually by a designated individual. Both are required by WorkSafeBC OH&S Reg. Part 31.11 and 31.12.

Regular deep cleaning of coats and pants are required by WorkSafeBC. Each set should be disassembled and thoroughly cleaned every 6 months, or at minimum annually, regardless of use or contamination. After each use, each firefighter is required to visually inspect all of their PPE to ensure that it is clean, undamaged, and not out of date.

Recommendation 24: That inspection, maintenance and testing checklists and records for all PPE, and in compliance with all applicable legislation and regulation, be created and retained as per CRD best practice.

Self-Contained Breathing Apparatus (SCBA)

SCBA within the CRD is highly incompatible. VFD's have historically purchased SCBA of their own liking, often as a result of a "good deal" being found on new or used equipment. As a result, there is little capability for interoperability within CRD department. This is further compounded by a similar purchasing pattern by the three larger municipal fire departments (100 Mile House, Williams Lake and Quesnel) who all provide mutual or automatic aid to CRD VFD's at larger incidents and fires. Ironically, each municipal department has different SCBA than each other as well.

The lack of compatibility is less of a critical item under an Exterior Service Level delivery model. Under the Exterior mandate, there is no entry into burning structures and thus no requirement for a Rapid Intervention Team (RIT). With Exterior fire departments there is little chance that departments operating together will need to share SCBA equipment. Under the Interior firefighting service level the problem is more acute. Currently one VFD operates at the Interior Level (150 Mile) and several others have expressed a desire to move to that level of service. As a result, it would be prudent of the CRD to work towards standardization of all SCBA across all 14 VFD's. If the municipal departments could also be incorporated into the standardization, the benefits would be significant.

Regionalized standardization of SCBA will assist in delivery of critical core training for each firefighter and will standardize repair and maintenance where a set of technicians could be trained to service all SCBA across the district. Regionalization of SCBA would also ensure that

adequate numbers will be purchased and maintained; spare equipment can be distributed quickly without need for a change in training on use; legislated compliance requirements related to fit-testing, air quality and cylinder testing are met; and cost savings can be achieved through bulk purchasing of complete sets, as well as a comprehensive parts inventory.

Recommendation 25: That CRD institute and enforce a regionalized procurement and asset management program for SCBA and other respiratory protection equipment.

Given the current existence of SCBA spanning both old and new, the complete regionalization of SCBA should be expected to take approximately 10 years or more to complete. However, establishment of a universal system and product in the short-term will facilitate progressive standardization annually for the long-term.

Not all SCBA in use within the CRD have integrated Personal Alert Safety Systems (PASS devices) for firefighter safety. There are departments where a separate stand-alone battery-operated device must be worn along with the SCBA. SCBA without PASS devices are considered to be nearly obsolete. Integrated PASS devices undergo an internal test and activation as the SCBA air flow is activated when the air cylinder is opened. This meets WorkSafeBC OH&S Part 31.18. However, it is readily apparent that the same requirements of Part 31.18 (tested weekly and prior to every use) are not being met by departments using stand-alone PASS alarms.

Recommendation 26: That CRD institute and enforce a regionalized standardization of SCBA equipment for all VFD's. Municipal VFD integration should be encouraged.

Concerningly, virtually all departments have the capacity to deploy more firefighters on scene than they have the capacity to provide SCBA for them. Firefighting is inherently dangerous and smoke and toxic atmosphere are an integral hazard for all types of fire incidents. As such, each firefighter on scene requires the proper SCBA equipment available to them and should be trained in its use and meet application requirements. Use of SCBA is required by all Exterior firefighters whenever smoke or toxic fumes may impact them, even if entry is not performed.

Recommendation 27: That all future apparatus purchases, regardless of vehicle type, have equal numbers, or more, SCBA than firefighter sitting positions to ensure every firefighter on a fireground has respiratory protection available.

SCBA inspection, maintenance and testing is haphazard across the CRD. While many departments are invested and conscientious in applying inspection, maintenance and testing requirements for SCBA and fill stations, some do not exercise the same level of compliance. A lack of compliance with regard to respiratory protection requirements is especially concerning. The CRD should be alarmed that any respiratory protection requirement goes unmet, and should immediately require rectification, under threat of discipline.

Further, it is suggested that all future required maintenance and testing of respiratory protection equipment be managed by the CRD Protective Services to ensure compliance.

Hydrostatic testing, air quality testing and air fill station maintenance should all be performed by 3rd party technician vendors. However, at least one department has not had their fill station air quality tested for many years.

SCBA mask fit-testing, as per WorkSafe OH&S Regulation Part 31.22, has occurred annually for many VFD's, but not all. Failure to perform annual fit testing is a serious compliance violation. The CRD is purchasing fit-testing equipment and will train testers. This is a major improvement that is long overdue.

Air cylinder filling occurs at each department. Given call volume and frequency of SCBA use, there should be a maximum of one SCBA fill station per department, and consideration should be given to centralizing these expensive items sub-regionally.

Recommendation 28: That inspection, maintenance and testing checklists and records for all SCBA, including compliance with all applicable legislation and regulation, be created, and retained as per CRD best practice.

Recommendation 29: That the CRD confirm compatibility challenges and opportunities between neighbouring fire services related to SCBA types and training.

Recommendation 30: That the CRD centralize all management of OH&S required inspection, maintenance and testing related to respiratory protection equipment.

Major Equipment

Each CRD VFD maintains an adequate, if not modest, cadre of firefighting equipment. The equipment is stored primarily on apparatus as there is limited storage capability in the majority of firehalls. No current and comprehensive inventory of equipment for each VFD was available. As a result, the review process included a comprehensive inventory assessment and cataloguing component for each department which is provided to each department individually.

Unlike apparatus, a replacement schedule for major equipment does not exist in each VFD. Ad hoc replacement occurs when needed and when funds are available. Generally, this has not been a concern, but the failure or loss of a significant piece of equipment could hamper department operations or negatively impact budget. Given the lack of reserve equipment in each VFD, this is a challenge and therefore strategic planning must occur for establishment of reserve replacement pieces of equipment to ensure on-going operational readiness. This should be undertaken and managed by the CRD regionally through both the Procurement and Protective Services departments.

Recommendation 31: That a complete inventory of each VFD's equipment and apparatus be regularly undertaken to ensure items are known, functional, safe, and ready for use, and that required items that are not available are identified for purchase.

Formal equipment inspection, maintenance and testing programs are generally good with some exceptions. There are basic safety requirements expected of all firefighting equipment, including some legislatively required testing and inspections. All equipment must be visually inspected, maintained, repaired, or replaced as required by legislation. If not legislated this should be performed monthly, or less.

Recommendation 32: That a formal equipment inspection, maintenance and testing program be initiated by the CRD for all life safety, firefighting, and power equipment. A formal checklist should be created and regularly utilized by all VFD members.

Recommendation 33: That inspection, maintenance, and testing records for all fire department equipment be retained as per CRD records management practices and kept accessible to CRD Protective Services at the firehall for a period not less than 2 years.

Firefighting ladders are regulated by WorkSafeBC OH&S Reg. Part 31.37 – Ground Ladders. This requires that all ground ladder use, storage, inspection, maintenance, and testing be done in accordance with NFPA 1932, Use, Maintenance, and Service Testing of Fire Department Ground Ladders, 1989 Ed. The CRD currently administers annual ground ladder inspection and testing through contract with a 3rd party vendor for all CRD VFD's. Visual inspections by members before and after use appear to be common practice throughout the VFD's in accordance with WorkSafeBC requirements.

Fire hose is not regulated by WorkSafeBC. Standardization of fire hose does not appear to be a current consideration as VFD's have a variety of hose types, sizes, colours and couplings. Some department are still utilizing cotton-jacket hoses despite having minimal capability of properly drying it after use. Cotton jacket inventories should be replaced as soon as possible. Hose couple compatibilities are a concern. A number of departments utilize quick connect, forestry-type, hose couplings on their attack line hose, while the majority have transitioned to the common BAT thread format. Standardization should occur for all attack line hose throughout the CRD, thus enabling compatibility and ensuring interdepartmental operations are seamless. Similar challenges exist for supply line (large diameter) hose. Most utilize BAT thread couplings, but several have Storz quick-connect because of local hydrants or requirement for them during aid with municipal departments. Standardization should have BAT on all supply line with Storz adapters for use when required.

The CRD should institute bulk purchase, stocking and distribution of standardized hose types and sizes for all VFD's. This will enhance cost reduction and improve interoperability, especially under an Automatic Aid model. Future purchases should be of synthetic jacket hose that does not require hanging to dry, is mold resistant, has an extended lifespan, and it more resilient to damage. Every hose should be identified by an inventory number to facilitate accurate annual hose testing and recording of all hose lengths. The CRD is purchasing a number of hose testing machines that will facilitate an annual comprehensive district-wide testing program. This program should be administered and conducted regionally and not left to individual VFD's to manage.

Recommendation 34: That the CRD permanently remove from service all cotton-jack hose in VFD inventories.

Recommendation 35: That the CRD undertake an inventory of all firehose in each VFD to ensure functionality, compatibility, and number of each are known.

Recommendation 36: That the CRD provide the VFD's with visual inspection checklists for hoses and manage annual testing of all hoses at each department.

Recommendation 37: That the CRD and VFD's identify and resolve compatibility challenges and opportunities between regional fire services related to fire hose and coupling types.

Each VFD has multiple portable water drafting ponds/tanks. All are carried on apparatus, primarily tender units, except for numerous spares at 150 Mile VFD. Rationalization of the number required for each department should be done, with consideration to meeting the requirements of FUS that a minimum capacity of 1000 imperial gallons be present. There is little justification for numerous units unless large numbers of supply apparatus are involved. Explanations centered around availability for BC Wildfire use should be considered but are unlikely to be valid unless BC Wildfire staff themselves confirm the benefit/need.

Recommendation 38: That the CRD undertake an inventory of all portable drafting ponds/tanks to ensure capacities meet FUS requirements and operational need without being excessive.

Each VFD has portable fire pumps in their inventory. For the most part, department have both volume and pressure pumps at their disposal. These two pump types have different uses and specifications. Volume pumps are best utilized for drafting during structural fire suppression incidents, or similar, where pumping distances are relatively short. Pressure pumps are critical resources during wildland-interface response where significant distances between water source and suppression activities exist, and where water penetration into the upper soil/duff layer is required.

Some departments appear to be stockpiling portable pumps, water ponds/tanks and other wildland equipment acquired through provincial grant funding and wildfire response funding. This utilization of available funding is commendable on the surface, but as identified in the Financial Management section of this report there is a future financial cost related to these purchases. The CRD must carefully consider their support of such acquisitions as they will result in a need to repair and replace the equipment in future, at the expense of the VFD/CRD.

Recommendation 39: That the CRD undertake an inventory of all portable pump equipment to ensure numbers, capacities and types are appropriate to departmental uses.

Apparatus & Fleet

Rationalization and "right sizing" of the entire CRD apparatus fleet needs to be undertaken soon in order to accelerate a long-range plan for capital replacement and fleet management. Each fire department appears to determine both the number and type of apparatus it desires. This is a

historic and inefficient practice. Some departments have up to seven vehicles, while others have a much more realistic fleet of three or four. Intuitively, a fire department with an autonomous fire chief will consciously build up their fleet to meet any perceived eventuality in terms of emergency situations. While laudable in theory, this methodology is flawed and cannot be justified objectively, let alone financially. An improved strategic fleet procurement system should involve the identification of a standardized fleet profile and distribution pattern.

The CRD VFD's, with few exceptions perform the following core services: Exterior Service Level structural fire suppression; wildland interface firefighting, Emergency Scene Traffic Control and assist-type response. A few VFD's perform first responder medical; a few perform some form of technical rescue specialty (vehicle, ice, or low-bank rope); and one operates at the Interior Service Level. Given the overwhelming uniformity in service delivery, it is rational to identify a standardized fleet composition that meets those needs without adding expensive additional units with little value other than as "people movers".

A barrier to common specifications, common purchase contracts, and pooled purchasing can be a sense of exclusion on behalf of the fire departments if they are not provided an opportunity to participate in the process. Fire services should have an opportunity to participate in the process to offer advice and ensure that department specific requirements are identified. In general, common, or pooled purchase specifications should form the baseline requirements for the apparatus and should not preclude individualization of minor components that a department deems necessary for their specific circumstances. However, large scale deviation from the standardized specification should not occur, and no alteration should be a barrier or cause a delay in schedule.

With relatively small populations, low levels of community risk in terms of structural fire load, and regionalized groupings of departments, a prudent solution would be to employ the following standardized minimum fleet strategy.

Each department will require:

- One triple combination engine/pumper with the following **minimum** characteristics:
  - 4 door conventional cab chassis with diesel fuel and air brakes
  - Single rear axle with automatic transmission and air brakes
  - 750 imperial gallon (3400 L) water tank,
  - 1050 imperial gpm (4775 LPM) fire pump
  - Class A foam capability
  - seating for 5 (minimum)
  - SCBA for 5 (minimum)
  - 1.75" (44mm) and 2.5" (65 mm) firehose with BAT couplings

- One tender engine apparatus with the following **minimum** characteristics:
  - 4 door conventional cab chassis with diesel fuel and air brakes
  - Single rear axle with automatic transmission and air brakes

- 1250 imperial gallon (5680 L) water tank
- 700 imperial gpm (3180 LPM) fire pump
- seating for 5 (minimum)
- SCBA for 5 (minimum)
- 1.75" (44mm) and 2.5" (65 mm) firehose with BAT couplings
- Soft and hard suction hose (4 inch minimum)
- Portable volume and pressure pumps
- 1000 imperial gallon (4500 L) portable tank/bladder

❖ One quick attack mini-pumper for wildland interface firefighting and utility use with the following **minimum** characteristics

- 4 door 4X4 pick-up one-tonne+ chassis with utility box and wildland pump
- 250 imperial gallon (1150 L) water tank
- 350 imperial gpm (1600 LPM) fire pump
- seating for 5 (minimum)
- SCBA for 5 (minimum)
- Storage compartments in truck bed
- 1.75" (44mm) firehose with BAT couplings
- 1" hose reel
- Soft suction hose (3 inch minimum)
- Portable volume and pressure pumps

As illustrated in Appendix E, transition to the above proposed fleet model, in conjunction with implementation of Automatic Aid as described in the next section, will result in tangible operational and financial benefits to the CRD, the VFD and the taxpayer.. Overall fleet size reduction, using the 3-apparatus model, will result in 12 fewer apparatus requiring replacement. Even if additional units are determined to be necessary, there will still be substantial replacement and operating cost reductions for fleet in most communities. Compliance will be achieved with the presence of enough SCBA for all firefighters who respond on apparatus. In conjunction with use of automatic aid for serious calls, water capacity and pumping capacity will be increased in virtually all situations and can quickly be expanded if necessary.

Recommendation 40: That CRD standardize fleet composition and deployment across the district using a three-apparatus model (engine, tender-engine, wildland utility) for each VFD.

A department may request, through a comprehensive business case, additional apparatus to meet any specific service delivery needs. For example, departments performing rescue skills may require another smaller utility type apparatus to carry equipment, and a department more remote from others, or with very limited access to water, may require an additional tender unit. Consideration should be given to departments with response volumes over 300 calls annually for an additional tender/engine apparatus.

Recommendation 41: That CRD consider, on an individual department basis, and as supported by a strong business case, the addition of specific apparatus.

There should be no requirement for multiple engines and tenders at the majority of firehalls, especially if Automatic Aid is instituted by the CRD for all suspected working structure and advancing wildland-interface fires. This reduction ("right-sizing") of the overall fleet, combined with institution of automatic aid for larger incidents will improve the CRD's economic outlook regarding fleet management as well as improving and rationalizing the operational capabilities of each department and the CRD as a whole. Appendix F describes a potential evergreen capital fleet replacement schedule for the proposed new fleet composition (any additional apparatus that could be identified are not included).

An interesting observation is that newer apparatus arriving have truck mount master stream monitors. In the CRD, there is very limited hydrant protection and water conservation at scenes is stressed due to the need to rely on tender apparatus. Master streams require large volumes of pressurized water to be effective and this is challenging outside hydrant protected areas. For the majority of CRD VFD's a truck-mounted monitor appears unnecessary. Alternatively, the CRD should evaluate portable ground monitors, such as the Blitzfire® which can still flow larger volumes of water than standard hose line nozzles.

Pump testing is required annually by FUS to maintain fire protection grades and ensure functionality and performance. Within the CRD the annual testing of pumps in all apparatus has been maintained by the CRD Protective Services office and displays a positive long-term record of compliance and functionality.

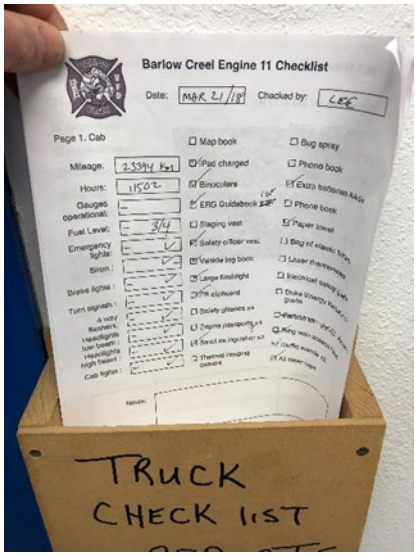
Fuel for apparatus is usually obtained from a local fueling facility year-round. A couple of VFD's have on-site fueling depots at their firehalls. Either methodology is effective if access can be guaranteed 24/7/365. The CRD should work with VFD's to ensure that local access can be obtained 24/7/365 in cases where no on-site fueling capability exists. Agreements with vendors, including potential use of mobile vendors, is encouraged with the VFD having priority over all other clients. Evaluation of records and discussions with fire chiefs should occur to determine if contract agreements should be pre-established. These would require some up-front administration and budget but, in the event of emergency need for fuel, will pay off. During the review process there were no reported occurrences where fuel was not available.

Recommendation 42: That CRD Protective Service and Finance departments ensure that a guaranteed 24/7/365 fuel access program is in place for every VFD, including use of firehall fuel depots or mobile delivery vendors if required.

In a small number of cases, primarily where large tandem axle apparatus is in use, only a limited number of department members habitually operate these vehicles. This limitation translates into potential limited availability of important apparatus to respond. In general, no apparatus should be operational in a volunteer fire department that most members cannot drive and operate. Consideration should be given to standardizing the fleet to single rear axle apparatus with automatic transmissions to reduce the driver licensing requirements for firefighters to a minimum of a Class 5 with airbrake endorsement.

Recommendation 43: That all CRD firefighters be appropriately licensed by the Province of BC to operate all apparatus in their firehall. Alternatively, that all VFD's only operate apparatus that their full membership can drive.

While pre- and post-trip inspections are regularly performed across the CRD, they are occasionally not occurring as required. Post-trips must immediately occur after an apparatus is used on an emergency call, as per the *Motor Vehicle Act* Regulation Section 37.22. The post-trip must encompass ALL aspects of a pre-trip inspection. Many departments are performing "modified" post-trips inspections after calls to avoid the time necessary to complete the full required inspection. Compliant pre-trips must occur prior to any non-emergency use and should be done weekly at training night if the apparatus has not been used. At minimum, a full pre-trip must occur monthly without exception, for every apparatus.



Recommendation 44: That all CRD firefighters who may operate any apparatus regularly perform pre- and/or post-trip inspections on the apparatus on a regular basis as per the requirements of both their airbrake endorsement and commercial vehicle regulations.

Annual Commercial Vehicle Inspections (CVI's), required by the *Motor Vehicle Act* Regulation, are performed on all major apparatus. The process is administered and managed directly by the CRD Protective Services.

The issue around existence and use of chief officer duty vehicles was raised several times during the review. Within the fire service generally, they are often operated for a significant amount of personal use. This is not permitted by either CRD policy or Canada Revenue Agency (CRA) regulation unless personal use is documented meticulously, and a taxable benefit is claimed by the user/chief. In CRD VFD's, with generally low call volumes and entirely volunteer staffing, duty vehicles are rare and make little sense.

Recommendation 45: That the CRD undertake rationalization of any chief officer duty vehicle to ensure compliance with CRD policy and CRA regulations.

Aid Agreements & Service Contracts

There are a number of functional and cooperative aid agreements and service contracts between CRD VFD's and other entities. They range from regional Mutual Aid agreements, to service agreements with First Nations, to contract services with private organizations or businesses. The CRD is well protected through these agreements and contracts to provide for coverage over most of the property and structures within the populated corridor along Highway 97. Automatic Aid agreements exist related to provision of vehicle rescue in each region by either a municipal fire department or search and rescue. Absent from existence, however, are

comprehensive Automatic Aid agreements for response to structural fires and wildland-interface fires.

Mutual Aid agreements are a traditional tool for providing enhanced response aid between departments, as required, and do not infringe upon the sense of departmental autonomy. They permit the sharing of resources and services as circumstances dictate for major incidents or where specialized services are needed. Mutual aid agreements are based upon the need for a specific request for assistance from the department with jurisdiction before another department may respond. Under Mutual Aid a department will receive a call for an incident, they will respond to the firehall, don their protective gear, respond to the incident, perform a size-up and then begin fireground activities. This entire process takes at least 10 – 15 minutes for any VFD. If additional assistance is required, the incident commander calls dispatch and requests mutual aid. At that point, the entire process begins again for the aid department, with an additional increase in time due to travel distance for another community. Significant delays typically exist before arrival of the aid department. Additionally, there is never a guarantee how many firefighters will respond to an alarm in any VFD.

The CRD is a party to a regional Mutual Aid agreement between all its VFD's as well as the municipal VFD's within its boundaries. Use of the Mutual Aid agreement provision is relatively frequent, and all reports are that it works well, and that each department has received benefit.

Automatic Aid agreements are a similar arrangement except that participating departments agree that they will be automatically dispatched and respond without specific request from the VFD with jurisdiction. Most Automatic Aid agreements apply to a specific set of call types, or other conditions. Under an Automatic Aid model, dramatic time savings can occur, and greater assurances of increase numbers of firefighters are provided.

In Automatic Aid, when dispatch takes a 911 call that meets the criteria for an Automatic Aid response, they will initiate call-out of all applicable fire departments within the Automatic Aid requirement for the location of the incident. As the notification, response to the firehall, and donning of PPE occur simultaneously, the only difference in response time between all the departments results from the distance they need to travel. This elimination of at least 5-10 minutes at the start of a call can have a significant impact on safety and incident outcome.

Automatic Aid should involve response from at least one, and preferably two, neighbouring departments to incidents where dispatch believes the conditions for Automatic Aid activation exist. Automatic Aid from neighbouring departments should include at least two tenders and one engine.

Use of an Automatic Aid agreement brings several significant benefits. First, guaranteed additional response of personnel and equipment improves firefighter safety exponentially. Automatic Aid will typically provide at least two to three times as many firefighters as a single department response. Second, the capability to successfully mitigate the event in a faster time because of additional personnel, water capacity and pumping capacity (all of which are likely to exceed a single local departments capability to deliver). Third, enhanced interaction between

fire departments and firefighters at incidents should facilitate improved training opportunities and sharing of knowledge. Fourth, significant reductions in fleet size and cost can be realized. Fifth, automatic aid agreements can enhance FUS grades in some circumstances through recognition of Superior Tanker Shuttle System (STSS) accreditation (only within 8km of the fire station). This specific benefit may, in turn, decrease costs of residential and commercial insurance within sections of the fire protection zone that would be defined by FUS.

Important, though not critical, to the success of automatic aid in the CRD is the participation of the three larger municipal departments. Currently, all three participate in Mutual Aid with surrounding VFD's, and even already provide automatic aid for some response types in specific areas. CRD Protective Services should work closely with Fire Chiefs in 100 Mile House, Williams Lake and Quesnel to ensure participation and to illustrate benefits for them, such as enhanced response capability to their communities during mid-week business hours when many of their volunteer firefighters may not be available. Consideration for monetary support from the CRD may be appropriate for the municipal departments who will see larger response number increases solely because of their central locations to the VFD's around them.

Automatic Aid programs are virtually always "win-win-win". Increased cooperation, integration and operational capacity outweighs any perceived negative impact that might occur. Traditionally, some departments and chiefs perceive participation in Automatic Aid to indicate that their department is weak and unable to "do it all themselves". This prehistoric attitude must, and likely will, change when the benefits are seen first-hand. The CRD too will benefit as their fire departments will become more integrated and their capability of rapidly mitigating emergencies will significantly improve.

Recommendation 46: That the CRD immediately institute a district-wide Automatic Aid system, that includes one engine from the nearest aid department and two tenders from the two closest aid departments, to respond to all reported working structure fires or advancing wildland-interface fires.

Additional "move up" requirements may be necessary from other departments as part of Automatic Aid to "backfill" and cover a fire protection area while their home apparatus is assigned and committed to the original incident. If, once on scene, the primary department determines that additional assistance is not required, they may either cancel the aid response or request area coverage for a short period until local resources can become available again.

Recommendation 47: That the CRD define and standardize back-fill requirements for aid departments responding to another jurisdiction under an Automatic Aid request.

The CRD should consider implementation of Automatic Aid for all working structure fires and advancing wildland-interface fires across the district. When assessed using the recommended new fleet composition (see Fleet & Apparatus Section) the Automatic Aid model would provide total water responding to the initial alarm for a structure fire or advancing wildland-interface fire of, at minimum, 5500 igal with 3200 igpm of pumping capacity (2 tenders and 1 engine in

primary automatic aid response, plus local units). These capacities exceed almost all current individual VFD capabilities.

Call volume increases will occur slightly because of automatic aid response. However, given the low number of structure fires and significant wildland-interface fires in each jurisdiction, the relative increases should not unduly stress VFD response capabilities. Conversely, increasing the number of responses to working fire events has been widely recognized as a positive driver for firefighter recruitment, retention, and overall department morale. Anticipated increases in call volume per department are identified in Exhibit 9.

Exhibit 9. Estimated changes to VFD call volumes with Automatic Aid response to working structure fires and advancing wildland-interface fires

Department Fire Protection Area	2017 call volume	2018 call volume	2019 call volume	2020 call volume (to July 1)	*Estimated* 2020 call volume	*Estimated* future annual increase with Automatic Aid
108 Mile	225	136	114	48	110	+10
150 Mile	130	118	104	29	80	+8
Barlow Creek	66	34	40	17	35	+8
Bouchie Lake	103	78	80	31	70	+8
Deka Lake	43	15	27	7	20	+6
Forest Grove (2 FH's)	111	98	88	30	70	+6
Interlakes (3 FH's)	117	79	71	21	55	+4
Kersley	40	28	22	16	35	+5
Lac la Hache	38	45	36	16	35	+4
Lone Butte	89	95	76	26	65	+6
Miocene	60	37	21	13	25	+4
Ten Mile	24	19	21	7	20	+3
West Fraser	12	19	13	4	15	+6
Wildwood	100	70	73	19	50	+8

❖ Admin Call type records are not included in these total

Mutual Aid should remain available to all departments in the CRD, when required, if Automatic Aid is not applicable. Examples of this would be when a department cannot muster an adequate number of responders to an incident, or when there is a need for specific apparatus or equipment. With a transition to include Automatic Aid the current CRD and VFD bylaws, policies and OG's must be reviewed to ensure appropriate and applicable terminology is used for each document, based upon their intent.

Recommendation 48: That the CRD define and standardize all terminology related to aid agreements and contract services and apply this terminology to all existing and future documentation.

Facilities

The CRD has 17 firehall facilities located centrally within the response areas of the 14 VFD's. Most are quite small and older facilities that simply meet the basic needs or requirements of a fire station. Parking and access for responding members is good for all facilities, except for Forest Grove #1 where the site bed is heaving and resulting in uneven and pot-hole laden conditions. All facilities are well located to eliminate or minimize risk to the buildings from flood, fire, or snow accumulation. Each area has cleared defensible space between the building(s) and woodland.

All facilities can accommodate the existing and projected fleet for each department. Each facility has an office area, some storage, a training/meeting room, and washrooms. Most facilities have at least two washrooms and showers which effectively accommodates a diverse staff. Several fire departments, however, have only one washroom and/or one shower which is not ideal for the type of work and personnel involved. Few halls have hose storage/drying capability, and few have space for spare ladder storage. Many do not have adequate storage for either SCBA or PPE that is in reserve. Primary PPE for each firefighter is typically stored in a locker in the apparatus bay area. These locations appeared to adequately accommodate all the necessary PPE in a safe and effective manner. While certainly not ideal, storage of active duty PPE within the apparatus bays is necessary within the small firehalls that exist in the CRD. Ideally a separate ventilated room would exist where the gear would not be exposed to vehicle exhaust emissions, but this is not fiscally or operationally possible at this time.

Recommendation 49: That the CRD identify urgent requirements for renovations to existing firehalls to increase the number and type of washrooms as well as shower facilities to at least two each per facility.

The apparatus bay doors in all but one facility are powered and most have remote control. This is a valuable feature, particularly in a colder climate. The heating, ventilation, and air conditioning (HVAC) systems in a few firehalls appear inadequate with an absence of air conditioning and less than ideal heating for large apparatus bays. Several halls have incomplete renovations or damaged interior carpentry/drywall with some exposed electrical wiring present. These must be addressed as they may be a safety issue and in violation of various BC Codes.

Of highest concern was a water supply to at least one firehall that is contaminated and appears to have been for an extended period, as well as unsafe exit stairs at another. These are unacceptable defects for a public safety building and require prompt attention.

Recommendation 50: That the CRD assess all existing facilities for Building, Electrical and Fire Code compliance. Further, that HVAC systems, utilities, communications, and water/sewer be made safe immediately without exception.

A separate structural assessment, including utilities, is being undertaken by the CRD in parallel to this review. As a result, commentary and recommendations are limited here.

Water Supply

Much of the CRD has no public water supply system nor are they likely to be installed in most areas. Lac la Hache, 108 Mile and Forest Grove have portions of their response area covered by municipal fire hydrants. This provides each VFD with provision of firefighting water supply that is both readily accessible, and consistently available. For the other 11 VFD's in the CRD, they must rely on obtaining water from either water bodies or dedicated reservoir tanks.

Drafting water from a water body is a challenging endeavor at the best of times and is especially difficulty when lakes or rivers are frozen over. Those VFD's that need to do it are generally very proficient at it. Access must be obtained via cutting a hole through the ice surface and introducing a drafting supply hose. This can be time consuming and dangerous for firefighters. A solution that is gaining popularity and is somewhat affordable is the placement of "dry" hydrants in proximity to good water supply sources. The dry hydrant is placed into the ground like a standard "wet" hydrant, but the pipe underground goes well out under the surface of a water body instead of connecting to water pipes. The dry hydrant can be attached to a fire apparatus and the truck then drafts water through the hydrant as opposed to having to get it out into deep enough water or through ice. Appendix G provides information on Dry Fire Hydrant specifications.

Dry hydrants would dramatically improve safety, speed, and guaranteed access to a clean water supply even when a water body is frozen over. Dry hydrants could be installed in areas that have public access and could also be positioned away from known traffic areas and obstructions. They can assist in deployment of the Superior Tanker Shuttle and potentially lower insurance costs. The CRD has a number of dry hydrants in place in a couple of communities thanks to the efforts of the local VFD's. Consideration should be given to expanding their installation and use.

Recommendation 51: That CRD Protective Services consider standardization of dry hydrant installations at multiple water body/lake access points for all VFD's without a public water supply system. The locations should be done in close collaboration with local fire departments.

Recommendation 52: That the CRD explore funding, including grants, to install dry hydrants around the perimeter of the major lakes in each jurisdiction.

Most departments are good about identifying known lake access points for drafting on firehall and apparatus maps. However, not all fire departments do so and this needs to be corrected. Unfortunately, no department has secured, identified with signage, or maintained for access any lake access point in any meaningful way. Consideration should be given to erecting signage at good drafting locations identifying them as firefighting water supply access points. While inappropriate to prohibit local parking, signage would hopefully encourage community-minded

lake users to keep access to the location available. Unfortunately, many, if not all, of the best access points are through either private property or driveways, or via boat launch ramps, and thus are subject to restriction and impediment without warning.

Other than lake access, there are a number of fixed water supply/storage reservoirs available to some CRD VFD's. These reservoirs have been designed and installed with local fire department consultation, or leadership. The CRD should identify, map, and ensure maintenance of these existing important assets. Each reservoir should have a large diameter drafting port with which to attach a drafting hose from a fire apparatus. Installation and access to these types of storage containers would facilitate better water supply during freezing weather if they are installed properly underground.

Underground water supply tanks, installed at each firehall, would ensure apparatus can always be filled. Filling of the underground tanks should be a trickle-fill system off the firehalls domestic water supply line.

Recommendation 53: That the CRD explore, as part of any firehall upgrade and ongoing capital improvements, the installation of a large underground reservoir tank at each firehall that does not already have one in place. Further, that the CRD should inspect, upgrade and maintain existing underground tanks, as required.

Recommendation 54: That CRD Protective Service consider standardization of the installation of firehall underground water tank/reservoirs at 10,000 gallons.

Communication and Dispatch

All VFD's in the CRD are part of the regional 911 system, except Deka Lake. Participation in this service ensures timely emergency phone activation, and professional fire dispatch services from the Prince George Fire Operations Control Center (FOCC), which is operated by the Regional District of Fraser-Fort George. All departments, except Deka Lake are dispatched via the regional radio network with back-up systems including cellular App's and a satellite back-up connect.

During the review process there were no voiced concerns regarding the services provided by the FOCC to the CRD VFD's. All chiefs appear to have good relations and high regard for their dispatch provider which is very positive and demonstrates a mutual respect of the role of dispatch/communications in firefighter safety. The Prince George FOCC operates utilizing the NFPA Standard 1221 - Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems and provides dispatch service to other regional districts and municipalities outside the CRD. By all accounts, the services provided by the FOCC are excellent.

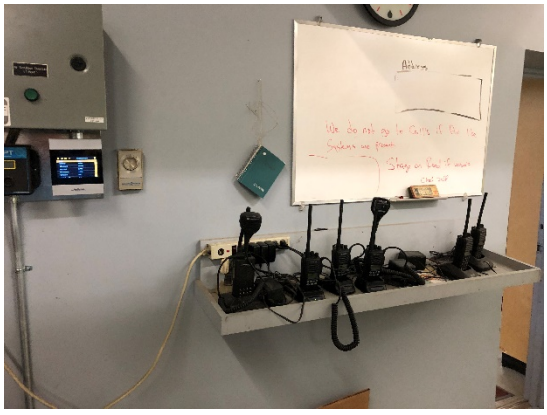
Currently there are three cellular-based Apps in use by CRD VFD's to enhance firefighter dispatch. They include, "I am Responding", "Active 911", and "FFRS". All are effective and were complemented by their users. However, each department purchases, maintains and manages their App individually, creating excess work, added costs, and a lack of standardization.

Current procedures for 911 calls received by the FOCC for a specific response area identify that the FOCC will enter the call into their FDM CAD system and then immediately transfer the call to the 3rd party App used by the VFD of jurisdiction. Each vendor provides an on-line "app" to emergency responders to assist in simplified dispatch and tracking of incidents within their response area. Once an incident has been transferred to the App, the FOCC no longer has control or access to it. All three Apps in use have head offices in the USA. As USA-based companies that require an annual subscription and user enrollment, *Freedom of Information and Protection of Privacy Act* (FOIPPA) concerns for Canadian residents certainly apply. These concerns apply to both firefighters and the department as well as citizens who call 911. Use of these App's has been identified elsewhere as concerning and could violate personal rights.

Recommendation 55: That CRD Protective Services coordinate with all VFD's to research, identify and implement a single cellular-based App for provision of enhanced firefighter dispatch that meets all requirements of Federal and Provincial Privacy legislation.

Currently there are three providers in use for satellite back-up connect services: GlobalStar, MSAT, and Xplornet. Each department has a contract with the vendor for the service. Standardization of both the type of equipment and the vendor would benefit all parties and allow for group purchasing cost benefits.

Recommendation 56: That CRD Protective Service consider standardization of a satellite back-up connect system provider for all VFD's.



Each department manages and purchases its own radio communications equipment. This has led to a diverse inventory across the CRD that is managed by multiple individuals and serviced by multiple vendors, yet all are licensed by only one organization, the CRD. The CRD manages and allocates payment for all radio licenses issued by the Government of Canada.

Of concern, however, is that the radio licenses appear to be out of date with actual numbers and types of equipment being used. Radio licenses are based upon two factors – the frequency type and the number of devices accessing it. In the CRD's case the frequencies all appear to be licensed but the number of devices allocated to each license may be incorrect, and potentially well below actual use. Rectification of the license requirements is likely to result in significant cost increases for each department should the device numbers identified currently be low.

Recommendation 57: That CRD Protective Service identify all radio equipment in use in each VFD and cross-reference this information against the allocated number of devices for radio licenses issued for each department. Radio licenses must be updated accordingly.

Recommendation 58: That CRD Protective Service develop an inventory of all radio equipment in the CRD.

Presently, departments individually decide weather to issue portable radios or pagers to members. The actual costs of the two devices are quite similar to purchase, and repair costs are comparable as well. Radios always allow for two-way communication, while pagers are simply a one-way notification device. Multiple portable radios allow for the exchange of important information at all times, including during initial response to the firehall, while pagers only allow for dispatch to provide updates with no individual firefighter communication possible.

If portable radios are determined to be the preferred solution, and there is good justification to do so, increased cost and rigid protocols for use must be prepared and adhered to. While some VFD's clearly see radios as the preferred solution, there are two significant drawbacks to the personal radio issuance practice which should be considered. First, when portable radios are issued to each firefighter, they introduce much higher licensing costs, which are not present when pagers are issued. Each portable radio must be attached to a radio license and as the number of portable radios increases so does the license cost. Second, with the capability of message transmission by a large number of individuals comes the potential for excessive radio traffic and the missing of important, or even critical, messaging.

Recommendation 59: That CRD Protective Service consult with all VFD's and other jurisdictions to reach a standardization of whether firefighters will be issued personal radios or pagers, and then account for the decision within the budget process of each department.

Recommendation 60: That CRD Protective Service consider standardization of all radio equipment (brands, types, capabilities) across all VFD's to ensure interoperability, and benefit from group purchasing opportunities.

There is no radio communication capability between the Deka Lake VFD and the fire dispatch at Prince George FOCC. The current dispatch system employs a direct phone call from the FOCC to one of the Deka Lake VFD internal "dispatchers" who then initiate a phone fan out to members to respond. This is a rudimentary system that does not utilize the many enhanced services of the 911 system. It is also a significant safety concern for responding firefighters and operational fireground activities. For all other CRD fire services, as well as in the Regional Districts of Fraser-Fort George and Bulkley-Nechako, the FOCC utilizes an interconnect "radio" system with a satellite system back-up. Both the FOCC and users report strong system performance and resiliency.

The back-up dispatch system for the Deka Lake VFD involves use of the "I am Responding" App interface. There currently is no satellite back-up connect service like all other CRD VFD's. Should Deka Lake VFD join the regional 911 dispatch network it will greatly improve safety, incident status keeping, operational redundancy and resiliency.

Recommendation 61: That the CRD urgently coordinate with the RDFFG and Prince George FOCC to bring Deka Lake VFD on-line with the FOCC 911 system and dispatch radio communication system utilized by the other CRD fire services.

The CRD, and all member VFD's, are clients of the FOCC FDM dispatch and records management system (RMS). FDM is a robust, comprehensive, if not at times challenging, data management system dedicated to the fire service. Each VFD is a client and fully authorized to use the system. Unfortunately, and despite some initial training, many CRD VFD's do not utilize the FDM system as it was intended and thus has resulted in significant shortfalls in the recording of important, if not critical, information related to incidents, training, and personnel. Some chiefs reported that they struggle with its use and require more training. Other chiefs more openly stated they preferred to use paper and that it took too long to enter the information in FDM because it was too complex. Inadequate and/or inappropriate use of FDM seriously limits the departments capability of meeting the reporting and records management requirements of the Playbook, WorkSafeBC, and the CRD.

Recommendation 62: That the CRD coordinate enhanced training in the use of FDM and institute improved oversight to ensure reporting compliance levels.

The VFD's currently have maps of the response area posted at each firehall. Most are particularly good. Some of these maps should be updated and/or, enlarged and all should be plasticized and placed such that responders can easily annotate on the plastic sheet with dry erase pen any information necessary about the incident, such as best access, and any location details for all responding members to see. Further, identification of dedicated target hazard properties, water supply access points, reservoirs and fire hydrants should be readily identified on each map.

Human Resources

The current CRD model for fire department organization includes provision for a Fire Chief, Deputy Fire Chief, Training Officer, Clerk, Dispatcher, other Officers and Firefighters. This model appears to work well, is extensively applied, and no concerns were expressed.

The CRD currently has 14 VFD's. Each department manages their own human resources function through the Fire Chief or designate. The CRD Human Resources Department is not involved with VFD personnel matters, including Fire Chief selection.

In conversations with most chiefs and other officers it was readily apparent that no succession planning program, or chief training program exists within the CRD. The current challenges identified by experienced chiefs all centered around time burden for administration, increased responsibility and liability. Many chiefs do not come from business backgrounds and are therefore challenged with the administration aspects of the role. Many, unfortunately, often end up in a chief role simply because there is no-one else when a new chief is needed. Recently, more new chiefs find themselves in the role with little operational experience or fire command training and as a result decision-making at incident scenes can be problematic, something that the municipal fire chiefs all noted that they had seen when their department arrived in support.

The CRD needs to acknowledge and plan for this. Development of succession planning steps that include education, mentorship and training are essential. Regardless, whether the individual selected as chief is ambitious or ambivalent, they all require specific skills and training in order to carry out the administrative duties involved as a Fire Chief.

Recommendation 63: That the CRD initiate a Fire Chief Succession Plan and Selection Process that focusses on education, skills and experience as the key factors.

Recommendation 64: That the CRD initiate a Fire Chief training program entitled Fire Chief 101 – Legislation and Management of a VFD.

Turn-over within the VFD's is low for the most part, with a couple of exceptions that can be attributed to leadership transition and internal department politics. Most departments report losses of only 2-3 firefighters annually which is positive for both skill retention and morale. Generally, departments are not reporting serious recruitment and retention challenges secondary to a depressed economy in the resource sector - important within the Cariboo.

Despite the positive retention, the fact remains that a number of departments maintain a total roster that barely meets, or doesn't meet, the requirements to maintain the Fire Underwriters Survey (FUS) grade for the protection area. FUS requires an active and trained roster of at least 15 firefighters who can respond in a single firehall protection area. A few departments, most notably Lac la Hache, Lone Butte, Wildwood, and 108 Mile have rosters that are at, or near, the FUS required 15, and at times may go below.

In the case of both Forest Grove and Interlakes, where multiple firehalls exist, the FUS grade requires the minimum of 15 firefighters at the main firehall and at least 10 firefighters at each satellite firehall. Both departments are dangerously close to this requirement. Special attention from Protective Services will need to be given to all of the identified departments to assist in recruitment of additional members to ensure that the FUS grade can be maintained.

Recommendation 65: That the CRD Protective Services meet and strategize with the fire chiefs at Lac la Hache, 108 Mile, Forest Grove, Interlakes, Wildwood and Lone Butte to develop a rapid recruitment process for their protection areas.

Most VFD's report high enthusiasm and attendance at training. However, there are departments where some members may not be attending regular training at an acceptable frequency. This identifies a potential safety issue. Not all VFD's have documented minimum training attendance standards and even fewer conscientiously enforce them. WorkSafeBC requires that all workers must be fully trained and evaluated in the work they perform. Realistically, members who infrequently attend training cannot be anticipated to be compliant with this expectation.

Recommendation 66: That the CRD explore and implement an appropriate minimum training attendance requirement for all VFD's.

Volunteer firefighter recruitment is a challenge in virtually every jurisdiction of BC and Canada. It becomes an even greater challenge in communities with smaller population bases and where

potential members are required to work outside the jurisdiction. Family commitments have always taken precedence, but in recent years recognition of the need for balanced lifestyles is further challenging recruitment. Volunteerism has been declining for a number of generations but has sharply declined within the past 10-15 years.

Few, if any, formal recruiting tools are used within the CRD. Widespread use of BC-focused tools such as "Answer the Call" does not appear to occur. Rather, departments appear to recruit locally using historical methods as a rule, with a few departments being the exception and exploring newer ideas. The CRD Protective Services need to become increasingly engaged in firefighter recruitment if the CRD fire service is going to continue to operate well. Time, effort and cost of recruiting is placing increased stress on already overworked department leaders and they require assistance. Development of a CRD-wide recruiting program, complete with tools for local application would greatly assist VFD's.

Recommendation 67: That the CRD research and work with a small team of VFD officers to implement a comprehensive firefighter recruitment program. This should include a toolbox for use by VFD's locally.

There does not appear to be a universal recruit firefighter training program. Both the CRD and each department are in possession of the Playbook training materials, and evaluation instruments package. It would be beneficial for the CRD to develop a regional recruit firefighter training program that could be attended by recruits from multiple departments simultaneously. This would facilitate standardized training, regional knowledge, instructor development, and use of regional training facilities. It is critical to recognize that the *Workers Compensation Act*, Part 3.22 identifies that a comprehensive "Young or New Worker" program must be implemented that far exceeds simple Exterior Firefighter training. Protective Services staff and VFD chiefs must be conversant with this critical requirement as it applies to any new firefighter, or any firefighter under the age of 25.

Recommendation 68: That the CRD develop and implement a recruit training program, compliant to both WorkSafeBC and the Playbook, that will be delivered at the regional level and attended by new recruits from departments within that region. Delivery of instruction would be from recognized trainers from across the CRD VFD's.

Except for 108 Mile VFD, and each Fire Chief, firefighters are not directly remunerated in any form. 108 Mile is the only paid-on-call fire department in the CRD fire service. All fire chiefs are provided a stipend, via a contractual agreement, to compensate for the additional administrative duties of the position. Neither the leadership of the respective departments, nor the Protective Services staff of the CRD, believe that the volunteer-based service model has any negative impact on recruitment or retention given the demographics and culture of the communities. There were no reported requests to implement widespread paid-on-call systems raised during the review process. Current funding models would not provide for any discretion in implementing such a program.

The CRD, as a recognized fleet manager, has been annually requesting regular Driver Abstract reports from ICBC and forwarding the results to individual fire chiefs. This ensures that administrators and chiefs are aware of any violations or prohibitions placed against an individual firefighters' license, at least annually. However, two concerns have been identified. One, there does not appear to be a formal process for driving restrictions for excessive demerit points, and two, there is currently no requirement for a firefighter to immediately disclose to their fire chief any new violation or prohibition. As a result of this disconnect, potential exists for a firefighter to continue driving fire apparatus while under prohibition or restriction without the knowledge of the department. This is a significant liability risk that can be rectified by requiring immediate notification of any serious offense or prohibition.

Recommendation 69: That a formal discipline process be identified for application in the event a firefighter has excessive points, or a restriction or prohibition on their drivers' license.

Recommendation 70: That a requirement be established requiring immediate notification to the fire chief, or designate, of any restriction or prohibition from driving.

Enhanced Criminal Background Checks are requested on initial hire by most, but not all, VFD's. With few exceptions they are not requested again during member tenure unless there is a specific occurrence or request. This is insufficient to ensure ongoing public safety. As firefighters regularly have direct contact with citizens, including vulnerable persons, their conduct must be assumed to be exemplary. Further, with potentially unlimited access to personal property through powers of the *Fire Services Act* during emergency situations, firefighters must not only be, but also appear to be, fully law abiding.

Recommendation 71: That an RCMP Enhanced Criminal Background Check, including Vulnerable Sector, be implemented for all firefighters upon hire, and every 3-5 years thereafter at department expense.

No recruit in any department was subject to any form of initial medical exam by a physician to become a firefighter. Rather, departments almost exclusively utilize a questionnaire on the application form that asks a potential recruit to voluntarily disclose any significant health issues. This methodology is flawed in that an interested party may either not disclose a health issue voluntarily, or they may be unaware of an undiagnosed health concern. In both cases, should the individual join the department and then be negatively affected, or even succumb to their condition, department morale will be negatively affected at best, and liability may be incurred at worst. Initial medical evaluations, as well as on-going medical examinations or fitness proficiency assessments, will ensure safe and effective firefighters and may save an individual's life. For these reasons, medical and/or fitness evaluations should be implemented prior to any "hire" of a volunteer firefighter. Additionally, if a member has been away for a prolonged period - whether from illness, injury, work or leave – they should be subject to a health and fitness review by a physician prior to returning to duty. Encouragingly, a number of VFD's have implemented such a procedure internally. An example Medical Fit for Duty Assessment for is attached as Appendix H.

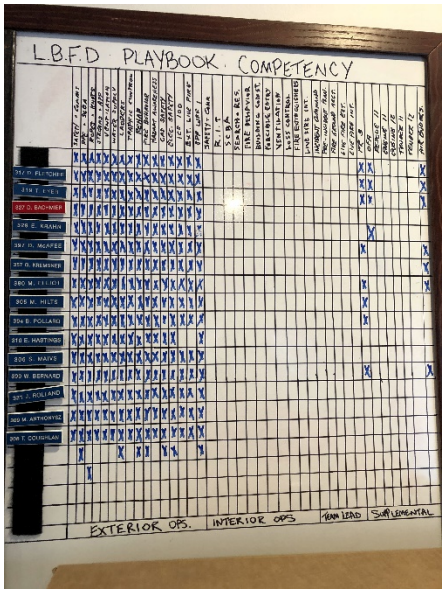
Recommendation 72: That all new CRD recruits obtain a certificate of fitness (mental and physical) from a registered physician identifying they are clear to assume the duties of a firefighter in the CRD. Costs for this request must be reimbursed by the fire department on hire.

Recommendation 73: That regular general fitness assessments be made a component of the annual training program for all CRD firefighters, with attendance being compulsory.

Recommendation 74: That any CRD firefighter who has been absent from training or responses due to injury or illness for a period exceeding 3 consecutive months, or who has missed their compulsory annual fitness assessment, be made to undergo a full medical evaluation by a registered physician and be cleared of any associated health concerns prior to returning to active duty. Costs for this request must be reimbursed by the fire department.

Recommendation 75: That any healthy CRD firefighter who has been absent from training or responses for a period exceeding 6 consecutive months, regardless of reason, be made to undergo a full Exterior Firefighter skills assessment and medical exam before returning to active duty.

Training



There are several levels of training that must be successfully completed for firefighters, officers, and trainers. There is significant evidence that, historically, many of the 14 VFD's independently determined the type of courses to be attended, and the location. The CRD Protective Services has resolved the issues surrounding basic firefighter training via institution of required compliance with the BC Structure Firefighter Training Playbook Standard. However, standardization and compliance related to other training programs is still largely decentralized and individually managed by each VFD.

Training should be coordinated regionally, with input from the VFD Fire Chiefs and Training Officers, and it should be commensurate with the needs of the protected area. Officer training should also be determined centrally. Where possible, training should occur with multiple departments present to encourage cooperation and expose firefighters to new ideas and processes.

Planning for regional training programs should take place during budget deliberations and be scheduled to ensure there are few possibilities of short notice training courses at greater expense than necessary. It is understood that occasions exist when a training course may become available on short-term notice, and that because of scheduling volunteers there could be occasions when individuals will either cancel or be sent to training on short notice.

Compliance with the BC Structure Firefighter Training Playbook is generally very strong and each VFD should be commended for adopting and embracing the Playbook requirements. Every department was found to be utilizing the official training materials provided free of charge by the Office of the Fire Commissioner (OFC) and the BC Fire Training Officers Association (BCFTOA). While nearly all departments have instituted a compliant training program for new firefighters, which is very positive, some are not undertaking maintenance training on a 1-2 year cycle that ensures all Playbook skills are refreshed and re-evaluated for each firefighter at the Service Level identified for the department. Additionally, many are not adequately evaluating existing members, on an on-going basis, to ensure skill competency, as required by the Playbook.

The annual training schedule used by each VFD is not consistent across the CRD, but the majority are comprehensive and address training for all service areas. Generally, regular member training occurs weekly on training night. Infrequently, additional training sessions are provided as opportunity and interest presents itself.

Currently, all but one department (150 Mile) train to the Exterior Firefighter Service Level and utilize the Office of the Fire Commissioner (OFC) – BC Fire Training Officers Association (BCFTOA) Playbook instructional and evaluation instruments which are provided to each department free of charge. 150 Mile VFD trains to the Interior Service Level and utilizes the OFC-BCFTOA Playbook materials for that level which are also free of charge.

Training in other aspects of fire service operations outside of the Playbook is equally essential for effective and efficient performance. This includes training in Incident Command, rehab, driver/operator, vehicle rescue, technical rescue, first responder, Emergency Scene Traffic Control and many other skills. Each skill has identified competencies and procedures that are described within curriculum materials available to the CRD and departments from outside vendors. The CRD Protective Services should maintain a current library of applicable training materials to standardize operations and reduce costs for individual departments.

During the review process several departments disclosed that they perform extra "discretionary" services such as vehicle rescue, ice rescue, low embankment rope rescue and others. Outside of Driver/Operator, Wildland firefighting, First Responder and Emergency Scene Traffic Control, certified training curriculums could not be produced for review. While this does not mean they do not exist, or are in department libraries, it could indicate that departments are not providing services or training to meet a recognized industry standard. The CRD should research and ensure that VFD's performing discretionary additional services are meeting certification or competency requirements, or they should be stopped from performing the activity.

Recommendation 76: That the CRD Protective Services and VFD Training Officers cooperatively develop and implement a documented multi-year training program covering all services delivered and the associated training requirements.

Recommendation 77: That the CRD Protective Services review all core and discretionary services delivered by CRD VFD's and ensure that recognized training programs are utilized and comply with applicable legislation and best practice.

As stated previously, there is no universal training attendance standard for firefighters in the CRD. In fact, according to some chiefs, significant numbers of firefighters do not regularly attend training. Some chiefs take this issue very seriously and attempt to enforce an internal standard, but consistency is difficult and personalities, tenure and other factors often come into play. The review elicited a couple of reports that some firefighters receive little or no training annually and yet they may still be permitted, or even encouraged, to respond to emergency incidents and perform active duties because they are seen as either "valuable" or "really experienced". This identifies a serious liability risk related to firefighter safety and performance due to minimal training exposure.

The CRD has many qualified instructors at multiple service levels from within the ranks of the 14 VFD's. This strength should be built upon with regional programming and increased numbers of training opportunities.

Recommendation 78: That the CRD identify at least six qualified instructors from within the VFD ranks to immediately begin development and instruction of regional training programs specific to both the Playbook as well as other skills and services.

Training records within the CRD do not meet the full requirements of either the Playbook or WorkSafeBC. Many departments have incomplete records, both personal and departmental. FDM entry of training sessions is incomplete and often lacks specific descriptions of activities, evaluations, and training. Many FDM records do not individually identify firefighters or the skills they each performed during training, as required by both the Playbook and WorkSafeBC. Most departments have a posted departmental training plan outlining all training program components and the timeline annually.

Recommendation 79: That CRD Protective Services provide to the VFD Training Officers training record document templates for use in recording individual and departmental training. Additionally, enhanced FDM training for electronic recording and storage of detailed and legislation compliant training records should be a priority.

All CRD departments utilize 3rd party formalized training materials and evaluation instruments for first responder, apparatus driver/operator, emergency scene traffic control, and wildland-interface fire suppression. The vendors utilized vary between departments and should be standardized throughout the CRD for consistency and bulk cost benefits.

Recommendation 80: That CRD Protective Services standardize the training provider/vendor for first responder, emergency scene traffic control, driver/operator, and wildland-interface firefighting training programs.

Several VFD's have established the presence of a "training ground" near their firehalls. None of these training grounds have been created utilizing existing standards for fire props or burn

buildings. It is quite apparent that the design and construction of these facilities was largely ad hoc in nature and devoid of engineering design or site assessment. As a result, they are likely unsuitable for significant use as live fire training equipment. The 150 Mile facility, in particular, has old buildings of questionable construction, as well as a rudimentary set of shipping containers that are being added to. At Wildwood, there is a better container building with proper safety rails and stairs, but the department is Exterior Service Level only and thus should not be entering any structure, including training buildings, for actual fire suppression activity. Forest Grove has a number of gas props that appear to be very infrequently used and should be assessed for safety by a gas technician.

Overall, the continued development of ad hoc training grounds at individual firehalls should cease in order to avoid potential risk of injury. It makes far more sense to fully utilize the properly designed and operated facilities located at each of the major municipal departments. Additionally, these facilities are safely constructed, and the instructors are specifically trained in the facility and live fire instruction. Agreements exist for their use and should be enhanced as identified earlier in this report. Historically, each VFD has at least semi-annually sent firefighters to one of these facilities for training. The use of regional facilities also provides opportunity for recruit training and joint training, which should become a regular part of each VFD's annual training program. Local props and containers currently at VFD's could be reallocated to the municipal sites or sold as applicable. Finally, the budget allocations going toward development of these discretionary facilities at individual VFD's would be more effective if applied to core service delivery and especially purchase of legislatively compliant PPE.

Recommendation 81: That local VFD training ground use be discontinued unless the site can be certified to be safe by a registered professional/technician.

Occupational Health and Safety (OH&S)

The major statutory requirements for occupational health and safety (OH&S) programs within BC is found in the *Workers Compensation Act* and the Occasional Health and Safety Regulation. The complex and highly prescriptive components of these documents are a challenge for any industry to interpret and remain compliant with. It is especially so for VFD's with chiefs without previous experience or expertise in the field. While overwhelmingly safety conscious as a rule,

VFD's are often challenged to both understand and implement the necessary OH&S requirements. As OH&S programs are frequently more compliant with legislation when they are managed centrally by trained and experienced personnel, this is a role the CRD Protective Services should assume in a larger manner.

Recommendation 82: That CRD Protective Services engage themselves fully in VFD OH&S Committee administration to ensure that programs are established properly, meeting and reporting regularly, and undertaking all requirements including member training.

Recommendation 83: That CRD Protective Services facilitate regular OH&S workshops for committee members from all VFD's to learn and share knowledge.

Under WorkSafeBC, VFD members are considered "employees". The fact they receive no remuneration is not relevant to WorkSafeBC. Each firefighter must be afforded WorkSafeBC coverage for injury and illness as a condition of employment. The CRD provides this for all firefighters. Additionally, as the overall AHJ, or "employer", the CRD is responsible for ensuring safe workplaces and safe work practices for all firefighters.

Section 3.3(1) of Part 3 of the OH&S Regulations requires an employer to initiate and maintain an OH&S program when it has a workforce of 20 or more workers and a workplace that is determined to create a "moderate or high risk of injury," or by every employer which has 50 or more employees. The "moderate or high risk of injury" should be assumed to apply to fire department operations. Based upon this wording, all CRD VFD's should have operational OH&S programs with Joint OH&S Committees. Under Section 33 of the *Act* a Joint OH&S Committee must include at least four members with at least one management (chief) and one worker (firefighter or officer) representative at minimum. Each member of the Joint OH&S Committee must receive a minimum of eight hours of specific OH&S training as per Section 3.27 of Part 3 of the OH&S Regulations. CRD Protective Services does appear to have internal competencies that could facilitate rapid implementation of a functional OH&S program in each department and it is recommended that this be completed.

Occupational Health & Safety (OH&S) compliance within the CRD VFD's is generally lacking. This has been compounded by the Covid-19 pandemic over the past months. Occupational Health and Safety programs, as well as Joint OH&S Committees are not comprehensively in place, or operating, in all departments. This is a violation of WorkSafeBC regulations. In many cases there is a functioning committee, but it is not 100% compliant due to infrequent inspections and a lack of committee member attendance at required OH&S training annually.

No single department is compliant with all WorkSafeBC related compliance items. In fact, there is not one single OH&S item that every department is compliant with that is not fully

administered by the CRD itself. This is problematic and illustrates both a lack of effective oversight and enforcement by the CRD Protective Services, as well as a lack of understanding of the need for a safe work environment by fire chiefs.

Annual Workplace Hazardous Material Information System (WHMIS) training was found to occur in only one VFD. It is required annually by Section 5.5 of the OH&S Regulations.

A comprehensive list of all required WorkSafe BC and OH&S compliance items is attached to this report as Appendix A. Specific areas of high concern that exist in many departments are: failure to maintain personal protective equipment (PPE) inventories that meet WorkSafeBC lifespan requirements (10-years maximum); failure to ensure face mask fit-testing requirements for use of SCBA equipment; failure to ensure annual WHMIS training; and, failure to provide for adequate numbers of SCBA on scenes. Non-compliance with OH&S safe work practices can potentially lead to a Criminal Code charge against an organization, or supervisor, if an "employee" is seriously injured or killed because of criminal liability resulting from inadequate training or supervision.

Recommendation 84: That the CRD immediately activate and support a functioning OH&S program within each5member VFD with support from CRD Protective Services.

Recommendation 85: That the CRD create a comprehensive checklist of all required OH&S functions and records for reference use by all fire departments.

Education and Prevention Programs

In general, no CRD VFD engages in, nor are they responsible for, any significant public education programming or fire and life safety inspections. Many perform local public relations/education at community events or schools where they distribute pamphlets and talk to citizens. However, there are no examples of proactive engagement by specific firefighters. Of particular absence is the lack of engagement in FireSmart and Home Smoke Alarm programs. Both programs could have a direct and immediate impact on community safety should they be delivered. The need for FireSmart in particular has an important place in the recent history of the CRD.

Being within the CRD these programs are not required services by the regional district. While greatly beneficial, public education programs such as FireSmart, Smoke Alarm Awareness and others, require both resources (people and material) as well as some budget. In the case of the CRD, budget is limited, and these programs are not considered core services by either the departments or CRD. Volunteer firefighter also express distaste for delivering these programs because they add time to their already busy lives at the firehall, and they are not generally the reason they joined, which was to fight fire, etc.

However, alternate opportunities do exist to greatly enhance local fire & safety education program delivery in communities like those with CRD VFD's. Departments in other jurisdictions, including the USA, are starting to recognize the true value of prevention and education as a core service for VFD's. Correspondingly, they are dedicating resources to delivery of these important programs. One successful model involves the "hiring" of dedicated volunteer public education members within the VFD. These members would be recruited from the community and

preferably possess previous education or public engagement backgrounds (Appendix I). Typically, departments should avoid aging or disabled former members unless they demonstrate strong interpersonal and educational traits. These positions are excellent opportunities for individuals who strongly believe in the fire service, support educational safety messaging and want to help the community, but either cannot be a firefighter (due to age, physical limitations, etc) or they do not wish to be one (fear of heights, claustrophobia, etc). The added membership would be minimal, 1-3 members, and the costs near negligible with only a t-shirt or another identifier required. They do not require firefighter training, nor PPE.

The benefits of such a change in philosophy within a department can be profound. First, the obvious benefits of improved public safety are evident. Second however, is that these individuals, because they pro-actively engage the entire community, will act as an overall ambassador for the department. This will introduce the department in a positive way to a much wider spectrum of the community than currently occurs through the minimal interactions being done. As a result, community profile, department trust, respect, and most importantly firefighter recruitment will benefit.

During the review this topic was discussed at length with representative chiefs. There seemed to be a general recognition of the value of such a program.

Recommendation 86: That each VFD strongly consider initiating a Public Educator position within the volunteer ranks of the department. It is further recommended that the position be filled by a non-firefighter as a person who can dedicate their time and effort solely to prevention and education.

Recommendation 87: That the CRD initiate a staff position within Protective Services to coordinate delivery of public education and prevention programs throughout the CRD.

No fire investigations are undertaken by fire service personnel within the CRD as there is no requirement by legislation for a regional district to do so. Fire investigations come under the authority and responsibility of the RCMP in the region. RCMP will attend and determine fire cause, particularly to rule out arson, as required. The OFC is available to assist as required by the RCMP.

Several chiefs (or deputies) possess their Local Assistant to the Fire Commissioner (LAFC) designation and have been permitted by the CRD to exercise the authorities of the LAFC in their service areas. This "hit and miss" deployment of LAFC's should be reconsidered as the *Fire Services Act* clearly identifies that unless an LAFC is appointed, the powers of the Act only flow through the RCMP officer on site. This could be interpreted to mean that the local fire department, or chief, could not exercise the powers of the *Act* (including right to enter, demolish, seize materials, etc.) without an RCMP officer present to authorize their use.

This dilemma is challenging for three reasons. First, fire chiefs are likely unaware of the restrictive language in the *Act* and will perform the activities regardless, with potential for liability. Second, most police officers will either not know the *Act*'s authority or will be uncomfortable exercising it at an event they have no expertise in. Third, the CRD does not have

representative on scene who could properly exercise the required authority to mitigate a serious emergency of any type, not just fire, successfully and safely.

Recommendation 88: That the CRD consider appointing the Manager of Protective Services and Regional Fire Services Supervisor as LAFC's for the entire CRD or that existing LAFC's be given expanded jurisdictional mandates to cover areas without existing LAFC's.

Recommendation 89: That the CRD initiate a response protocol for a recognized LAFC to respond promptly to any serious incident where LAFC powers and authority may be required.

Records Management

Records management within the CRD fire departments is a concern with respect to legislative compliance. Some departments are doing quite well while others have poor records management practices. Files important to records management in the fire service include personnel, training, incidents, health and safety, inspections, testing, maintenance, and payroll.

Numerous departments are not understanding, or acknowledging, the requirement to undertake comprehensive records management across all of their operation in order to remain compliant with the WorkSafeBC OH&S Regulation, the Playbook, the *Motor Vehicle Act* and Regulation, the *Employment Standards Act* and Regulation, and the *Freedom of Information and Protection of Privacy Act (FOIPPA)*. Records management documentation deficits are occurring specifically in three critical areas: comprehensive FDM data entry of incident details, personal records, and firefighter training; safety equipment inspection, testing and maintenance; and vehicle pre- and post-trip inspection records. Additionally, breaches exist in the management of confidential records. Personnel files, criminal background checks, and other sensitive documents are often not secured in a locked file cabinet or office with restricted access to the Fire Chief and Deputy only. In fact, one department has all confidential records stored at the Fire Chiefs home – a serious violation of privacy regulations.

Recommendation 90: That the CRD establish a secure filing system for paper copies of all personnel and operational records at each firehall, with restricted access.

Recommendation 91: That the CRD engage with the FOCC to initiate increased electronic submission and storage of records within FDM including, maintenance, testing, asset management, and inspection records.

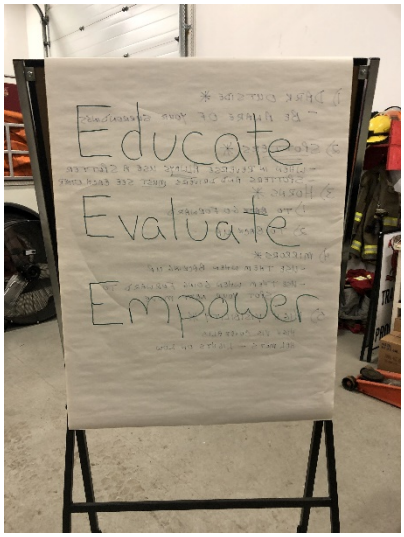
Recommendation 92: That the CRD initiate basic and advanced FDM training for all Chief Officers, Training Officers and fire department Clerks as soon as possible

Recommendation 93: That the CRD consider implementing a cloud-based records management system for use by all VFD's for documents not required to be stored in other databases like FDM.

WHY STRIVE TO EVOLVE?

The CRD, as well as each VFD and its members, are at a cross-roads in the evolution of the CRD fire service. Do they all step up, accept the need to evolve and act to fix shortcomings and gaps? Or does the CRD accept the current model, along with its inherent liability concerns, and leave the fire services status quo? The answers seem clear, and the generation of this review strongly identifies that the CRD recognizes and acknowledges that they must move forward.

The CRD has a robust and talented system of eager, skilled, and dedicated firefighters throughout the 14 fire protection areas. The departments and firefighters have strong desire to succeed and evolve their delivery of service to their communities. The CRD needs to lead this evolution and meet the challenges head-on to ensure that:



- Firefighter safety and health will improve markedly and the CRD VFD's will become more cohesive.
- Community members will receive improved and more engaged service.
- The CRD will minimize their risk exposure while simultaneously improving community and firefighter safety – a terrific win-win!
- Personal pride of chiefs, officers and firefighters will be enhanced through use of modern and effective equipment.
- Community and family support will build through improved training, performance, and engagement.
- Community support will build, and recruitment and retention of firefighters will be enhanced for the longer term.

CONCLUSIONS

The CRD has many talented and dedicated firefighters within the regional fire service. Getting to an even better place is desirable for the CRD, as well as the members of each VFD and the community they serve. As firefighters, the VFD members are part of a strong brotherhood and sisterhood that is unique to community volunteerism (Appendix J). They deserve a great deal of praise and respect.

While the review identified opportunities for improvement, it also highlighted many areas of strength. The foundation of the fire service within the CRD is very strong, and while the recommendations may appear numerous and/or complex, they are just a set of individual steps on the journey to a stronger organization. Many of the issues identified can be quickly resolved, or at least improved, to achieve legislative compliance and the addressing of "low hanging fruit" within the recommendations will facilitate generation of a positive attitude toward addressing the larger challenges. In turn, this will lead to a broader mindset whereby the bigger challenges can be overcome. The volunteer-based service delivery model for fire services has its limitations, but it benefits greatly from the presence of outstanding individuals who are committed to community.

For ease of reference, the recommendations are provided in: Recommendations List (Appendix K) and Review Recommendations by Management Topic Area and Priority (Appendix L).

The recommendations put forward by Response Specialties are direct because they are needed, but we also fully recognize and empathize with the challenges ahead and are available to assist as we can moving forward. The honest and forthright information provided will facilitate growth and enhancement of fire protection in the entire CRD for years to come.

Once again, Response Specialties would like to express our sincere appreciation for the assistance we have received from the leadership teams and chiefs from each VFD, as well as the CRD Protective Services staff. Your sincerity and efforts are fundamental to the success of this review. The motto below, proudly displayed on many VFD apparatus, is proud statement of the dedication and determination of those who tirelessly serve their communities in the CRD.

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APPENDIX A - List of major legislative compliance items

Workers Compensation Act	
and OH&S Regulation	
	Joint OH&S Committee composed of a min. 4 members (with 1 each from employer and worker)
	Committee members must be selected by their peers
	Joint OH&S Committee meetings monthly
	Joint OH&S Committee member training (8 hours annually per member)
	Joint OH&S Committee Minutes posted
	Facility safety inspections monthly
	Worker and Employer safe work procedure training
	OFA Level 1 First Aid attendant available
	OFA Level 1 First Aid kit available in firehall
	First Aid records and documentation management program
	Young or New Worker orientation program in place
	WHMIS training for all workers annually presented
	Workplace impairment procedure in place
	Hearing Tests annually when noise exceeds OH&S Reg Part 7.8 specifications
	Records management of annual hearing tests
	High visibility apparel available to all workers when exposed to vehicle traffic in excess of 30km/h
	Respiratory protection program in place
	Availability of SCBA for all firefighters who may be exposed to smoke or hazardous atmosphere
	Availability of at least 4 SCBA if any SCBA are used
	SCBA service, repair and testing may only be performed by a qualified person
	Annual fit-testing of every worker who may use SCBA masks and equipment
	Inspection and hydrostatic testing of SCBA cylinders in compliance with OH&S Reg Part 8.45
	Traffic control program in place
	Written procedures for fire department activities specified in OH&S Reg Part 31.5
	Retain all testing and inspection records
	Written procedures for the maintenance, cleaning and removal from service of firefighting PPE
	Presence of compliant PPE for all suppression firefighters
	Presence of a Personal Alert Safety System (PASS) device for every firefighter using SCBA
	PASS Devices must be tested prior to every use and at least weekly
	Policy that any firefighter exposed to oxygen deprived atmosphere must wear SCBA
	Physician certification of fitness to use SCBA for any FF with a known cardiorespiratory condition or shortness of breath
	Annual fill station air quality sampling by certified technician that meets applicable CSA Standard
	Ground ladder use, testing and maintenance must conform to NFPA Standards 1931 and 1932
Playbook	
	An Operational Service Level must be establish by the AHJ through either bylaw or policy
	Training program to meet, or exceed, the established operational Service Level
	Qualified Instructors and evaluators for the established operational service level
	WorkSafeBC firefighter coverage for all personnel
	Compliance with WorkSafeBC and OH&S Regulation requirements
	Comprehensive records management system for training records
	Appropriate equipment and apparatus to meet requirements of the established operational service level
Motor Vehicle Act	
and Regulation	
	Driver training program identifying compliance items for emergency vehicle operation on the road
	Annual Commercial Vehicle Inspection (CVI) by a license inspector
	Completion of comprehensive pre-trip inspections prior to any non-emergency use, and at least monthly
	Completion of a comprehensive post-trip inspection immediately following any emergency response use
Fire Services Act	
	Presence of a Local Assistant to the Fire Commissioner in order to use the powers and authority of the Act
Employment Standards Act	
and Regulation	
	Parts 2, and 4-8 of the *Act* , and Part 4 of the Regulation apply to volunteer and paid-on-call firefighters

APPENDIX B - Fire Underwriters Survey (FUS) requirements

MINIMUM REQUIREMENTS FOR FUS DPG GRADING

A Fire Protection Area (FPA) is defined as the area covered by a specific firehall and registered with the Province of BC.

DPG (Dwelling Protection Grade) is a 1-5 scale representing levels of community fire protection regarding private dwelling insurance. DPG 1 is the highest grade possible.

If FPA population is less than 1000:

- A clearly established fire protection boundary area registered with the Province
- 1 Fire Chief **and** 15 active and trained firefighters able to respond
- A suitably constructed and arranged firehall facility
- One triple-combination Engine/Pumper[1] (<25 yrs age) with minimum 625 igpm (3000 LPM) at 150 psi accredited to either ULC S515 or NFPA 1901
- Accredited Commercial Vehicle Inspection (CVI) required annually on apparatus
- Accredited pump testing required annually on engines/pumpers

AND

- An accredited public water supply system in accordance with FUS "Water Supply for Public Fire Protection" minimum standards

OR

- One Water Tender[1] apparatus (<25 yrs age) with minimum 880 igal (4000 L) capacity accredited to either ULC S515 or NFPA 1901, AND
- Combined minimum water tank capacities of engine/pumper plus tender apparatus of 1500 igal (6820 L), AND
- If using a dump valve on the Tender, a portable tank of 1000 igal (4550 L) is required

If FPA population is over 1000:

All requirements listed above (population less than 1000) apply, except:

- Front-line engines/pumpers and tenders must be 20 years of age or less

If Superior Tanker Shuttle (STSS) designation DPG 3B(S) is desired:

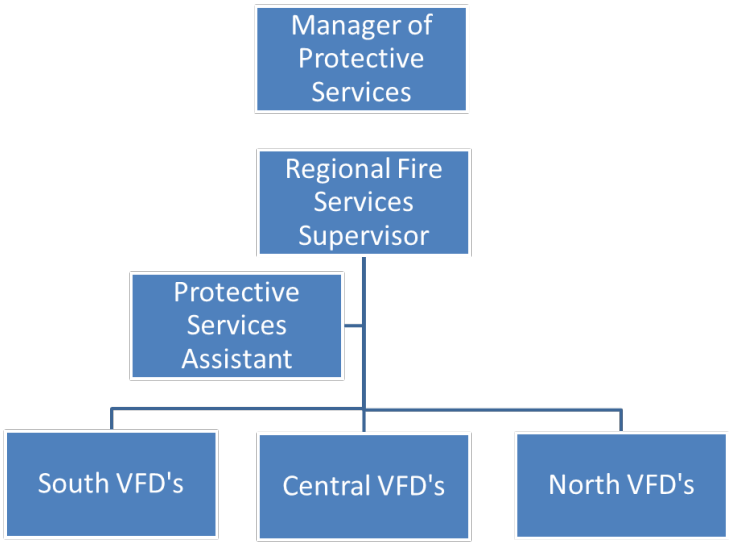
- All engines/pumpers and tenders utilized must be 20 years of age of less [1]

[1] Only the front-line apparatus of each type (engine or tender) to meet the minimum qualifications above. All other apparatus can be beyond retirement age (20 or 25 years) with no negative effect on the Grade. All apparatus are expected to be maintained in operating condition, regardless of age, if they are to be utilized for firefighting activities.

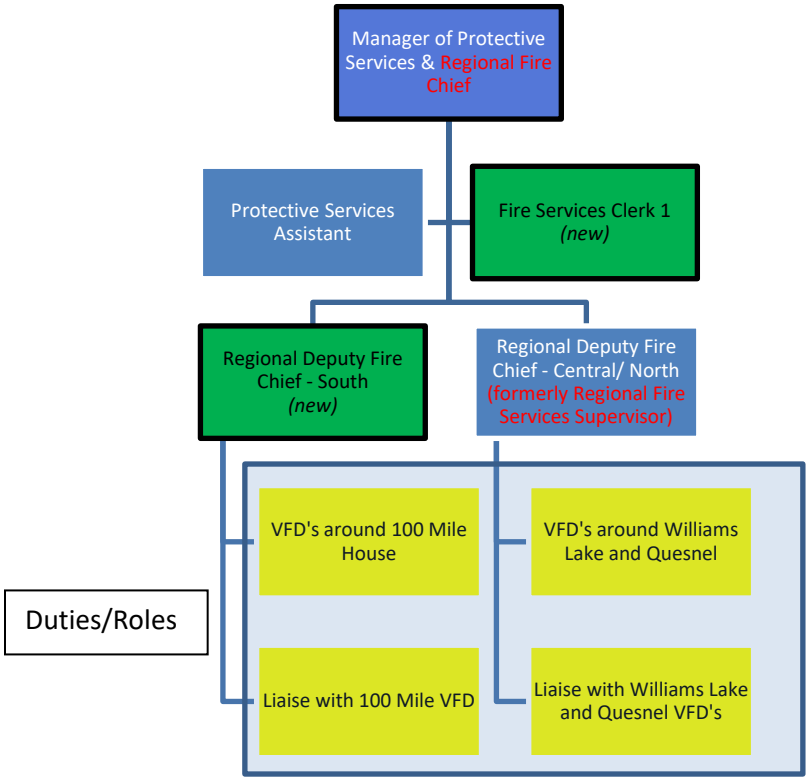
APPENDIX C - Proposed reorganization of CRD Protective Services

Note: **Title Changes are noted in Red font. New positions are identified in clear box** *(new)*

Current Organization:



Re-organization - Step 1:



Estimated costs for Step 1 (per protection area and per folio)

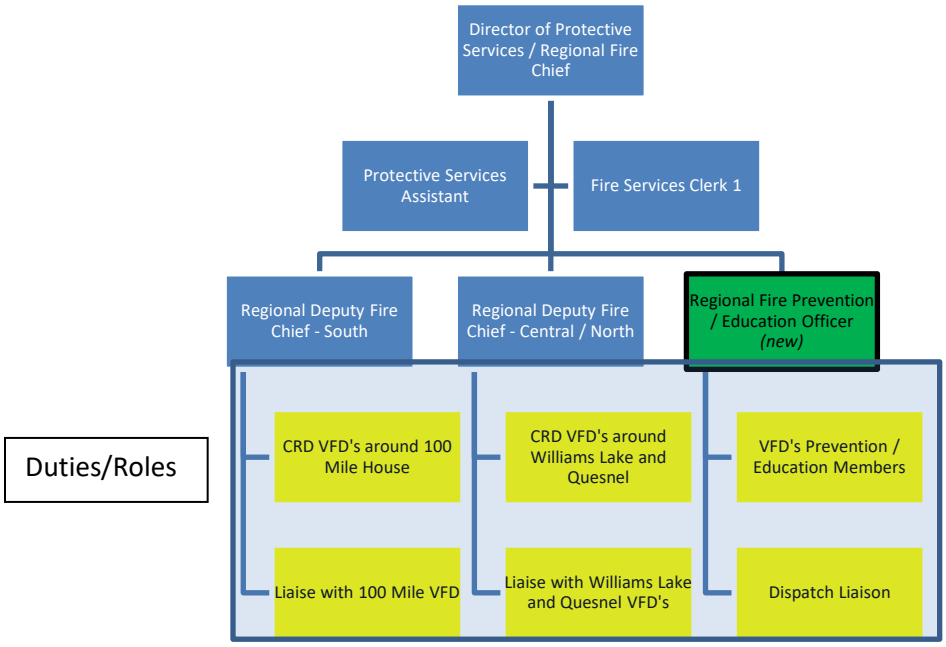
VFD	2016 Census Population	folio count / taxpayers	% total folios	Staff increase total cost	Staff increase per folio
108 Mile	2356	1889	13.23%	$23,225.41	$12.30
150 Mile	1168	863	6.05%	$10,610.66	$12.30
Barlow Creek	1327	885	6.20%	$10,881.15	$12.30
Bouchie Lake	2074	1341	9.39%	$16,487.70	$12.30
Deka Lake	881	1420	9.95%	$17,459.02	$12.30
Forest Grove	892	1094	7.66%	$13,450.82	$12.30
Interlakes	1352	2116	14.82%	$26,016.39	$12.30
Kersley	1087	692	4.85%	$8,508.20	$12.30
Lac la Hache	1055	746	5.23%	$9,172.13	$12.30
Lone Butte	869	1123	7.87%	$13,807.38	$12.30
Miocene	614	550	3.85%	$6,762.30	$12.30
Ten Mile	741	640	4.48%	$7,868.85	$12.30
West Fraser	697	482	3.38%	$5,926.23	$12.30
Wildwood	879	433	3.03%	$5,323.77	$12.30
		14274	100.00%	**$175,500.00**	
Proposed position costs in Step 1 = $175,500 (including benefit burden)					

- Costs of positions should be shared equally by all properties protected

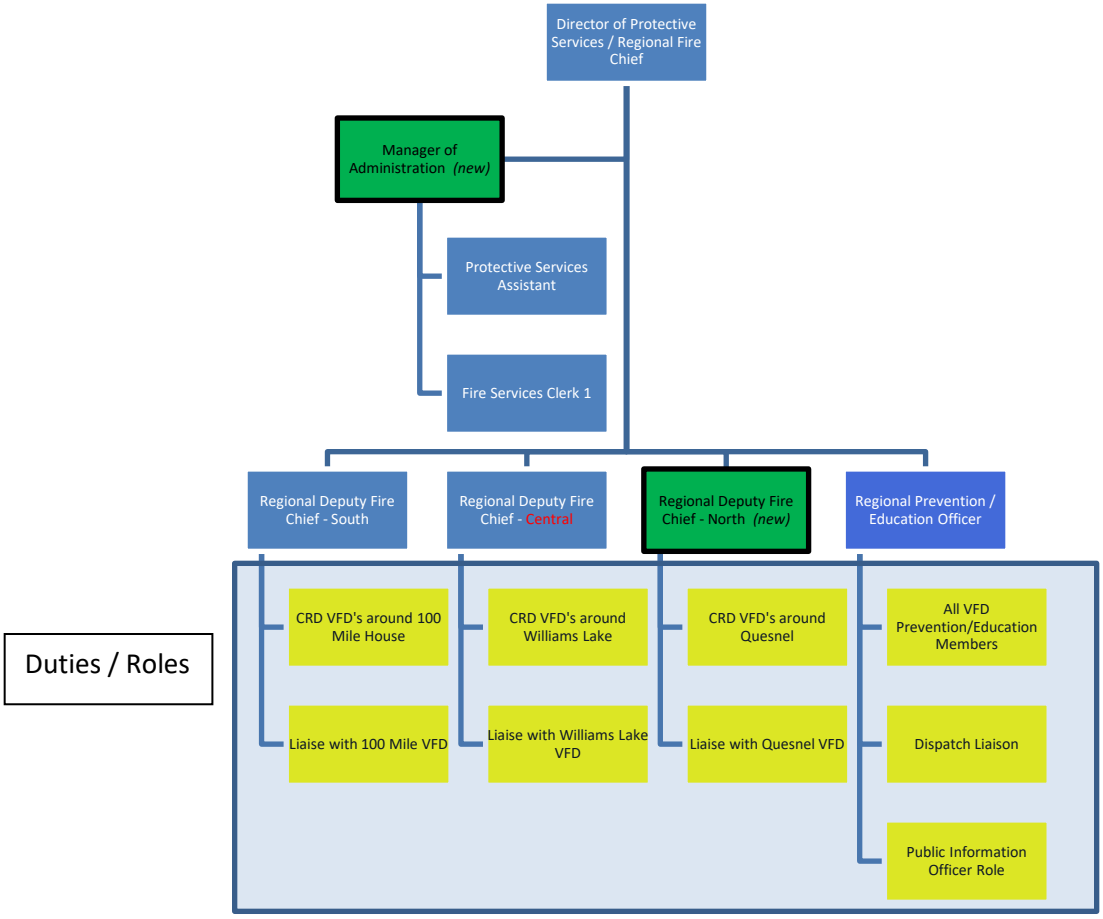
- Estimated costs per protection area derived from % of total folios associated to each protection area multiplied by estimated cost ($175,500)

- Cost per folio is derived from cost for fire protection area divided by # of folios in that area

Re-organization - Step 2: Future implementation



Re-organization - Step 3:



Major Capital Item Cost changes - Overall

		PPE Equip				SCBA Equip			Apparatus			
	# reported firefighters by VFD	Estimated PPE replacement costs (current inventory)	Estimated PPE replacement costs (proposed inventory)	Portion of 20% regional spare PPE	PPE Cost changes total	Estimated SCBA replacement costs (current inventory)	Estimated SCBA replacement costs (proposed inventory)	SCBA cost changes total	Estimated Apparatus replacement costs (current inventory)	Estimated Apparatus replacement costs (proposed inventory)	Apparatus cost changes total	Total financial change
108 Mile	15	$54,000	$42,750	$16,209	$4,959	$160,000	$165,000	$5,000	$1,800,000	$1,500,000	-$300,000	-$290,041
150 Mile	31	$74,100	$88,350	$16,209	$30,459	166,000	$165,000	-$1,000	$2,650,000	$1,500,000	-$1,150,000	-$1,120,541
Barlow Creek	25	$54,500	$71,250	$16,209	$32,959	$143,000	$165,000	$22,000	$1,075,000	$1,075,000	$0	$54,959
Bouchie Lake	28	$85,750	$79,800	$16,209	$10,259	$102,000	$165,000	$63,000	$1,500,000	$1,075,000	-$425,000	-$351,741
Deka Lake	22	$72,500	$62,700	$16,209	$6,409	$218,000	$165,000	-$53,000	$1,500,000	$1,500,000	$0	-$46,591
Forest Grove (2 halls)	25	$116,200	$71,250	$16,209	-$28,741	$216,000	$235,000	$19,000	$2,350,000	$2,000,000	-$350,000	-$359,741
Interlakes (3 halls)	35	$125,450	$99,750	$16,209	-$9,491	$184,000	$305,000	$121,000	$2,775,000	$2,925,000	$150,000	$261,509
Kersley	27	$65,600	$76,950	$16,209	$27,559	$130,000	$165,000	$35,000	$1,925,000	$1,500,000	-$425,000	-$362,441
Lac la Hache	19	$55,900	$54,150	$16,209	$14,459	$189,000	$165,000	-$24,000	$1,850,000	$1,500,000	-$350,000	-$359,541
Lone Butte	16	$99,650	$45,600	$16,209	-$37,841	$102,000	$165,000	$63,000	$2,000,000	$1,075,000	-$925,000	-$899,841
Miocene	23	$65,550	$65,550	$16,209	$16,209	$130,000	$165,000	$35,000	$1,650,000	$1,500,000	-$150,000	-$98,791
Ten Mile	28	$83,850	$79,800	$16,209	$12,159	$90,000	$165,000	$75,000	$1,075,000	$1,075,000	$0	$87,159
West Fraser	26	$92,100	$74,100	$16,209	-$1,791	$112,000	$165,000	$53,000	$1,075,000	$1,075,000	$0	$51,209
Wildwood	19	$108,800	$54,150	$16,209	-$38,441	$156,000	$165,000	$9,000	$1,925,000	$1,075,000	-$850,000	-$879,441
					$39,126			$422,000			-$4,775,000	
Based upon data provided by the 14 VFD's for the # of firefighters, PPE, SCBA and apparatus, the following savings have been estimated under regionalized procurement												**-$4,313,874**

Estimated unit cost in 2020 CDN dollars	
Engine	$500,000
Tender/Engine	$425,000
Wildland/Utility	$150,000
PPE jacket & pants	$2,500
jacket only	$1,500
pants only	$1,000
PPE Helmet	$350
SCBA pack & mask system	$7,000
SCBA Cylinder	$2,000

Major Capital Item Cost changes - PPE

		Current Equip					Proposed Equip						
	# reported firefighters by VFD	# PPE jackets	# PPE pants	# PPE Helmets	Est. Replacement cost (current equip)	# member sets	# PPE sets (jackets & pants)	# PPE Helmets	Est. Replacement cost (regional std model)	Capital cost changes for VFD PPE	Portion of 20% regional spare PPE	Capital cost changes for Regional PPE
108 Mile	15	19	19	18	$54,000	15	15	15	$42,750	-$11,250	16,209	$4,959
150 Mile	31	26	26	26	$74,100	31	31	31	$88,350	$14,250	16,209	$30,459
Barlow Creek	25	19	19	20	$54,500	25	25	25	$71,250	$16,750	16,209	$32,959
Bouchie Lake	28	38	20	25	$85,750	28	28	28	$79,800	-$5,950	16,209	$10,259
Deka Lake	22	26	23	30	$72,500	22	22	22	$62,700	-$9,800	16,209	$6,409
Forest Grove (2 halls)	25	42	42	32	$116,200	25	25	25	$71,250	-$44,950	16,209	-$28,741
Interlakes (3 halls)	35	45	45	37	$125,450	35	35	35	$99,750	-$25,700	16,209	-$9,491
Kersley	27	24	24	16	$65,600	27	27	27	$76,950	$11,350	16,209	$27,559
Lac la Hache	19	19	19	24	$55,900	19	19	19	$54,150	-$1,750	16,209	$14,459
Lone Butte	16	36	34	19	$99,650	16	16	16	$45,600	-$54,050	16,209	-$37,841
Miocene	23	23	23	23	$65,550	23	23	23	$65,550	$0	16,209	$16,209
Ten Mile	28	31	30	21	$83,850	28	28	28	$79,800	-$4,050	16,209	$12,159
West Fraser	26	32	35	26	$92,100	26	26	26	$74,100	-$18,000	16,209	-$1,791
Wildwood	19	41	34	38	$108,800	19	19	19	$54,150	-$54,650	16,209	-$38,441
Total Numbers	**339**	**421**	**393**	**355**	**$1,153,950**	**339**	**339**	**339**	**$966,150**	**-$187,800**	**275,550**	**$39,126**

Estimated unit cost in 2020 dollars	PPE jacket & pants	$2,500	CDN
	jacket only	$1,500	CDN
	pants only	$1,000	CDN
	PPE Helmet	$350	CDN

NOTES:
- Additional spare PPE should be purchased regionally to provide back-up and replacement due to damage, etc.
- suggest 20% surplus (65 sets) for an additional $275,550. Divided equally by 17 firehalls) it is $16,210 each
- A number of departments reported zero spare PPE equipment. This is unlikely.

Major Capital Item Cost changes - SCBA

	Current Equip			Proposed Equip			
	# SCBA packs	# Cylinders	Replacement cost (current equip)	# SCBA packs	# Cylinders	Replacement cost (regional Std modell)	Capital cost changes over time
108 Mile	10	45	$160,000	15	30	$165,000	$5,000
150 Mile	16	27	$166,000	15	30	$165,000	-$1,000
Barlow Creek	13	26	$143,000	15	30	$165,000	$22,000
Bouchie Lake	8	23	$102,000	15	30	$165,000	$63,000
Deka Lake	16	53	$218,000	15	30	$165,000	-$53,000
Forest Grove (2 halls)	24	24	$216,000	25	30	$235,000	$19,000
Interlakes (3 halls)	12	50	$184,000	35	30	$305,000	$121,000
Kersley	12	23	$130,000	15	30	$165,000	$35,000
Lac la Hache	15	42	$189,000	15	30	$165,000	-$24,000
Lone Butte	8	23	$102,000	15	30	$165,000	$63,000
Miocene	8	37	$130,000	15	30	$165,000	$35,000
Ten Mile	6	24	$90,000	15	30	$165,000	$75,000
West Fraser	8	28	$112,000	15	30	$165,000	$53,000
Wildwood	8	50	$156,000	15	30	$165,000	$9,000
Total Numbers	**164**	**475**	**$2,098,000**	**240**	**420**	**$2,520,000**	**$422,000**
Estimated unit cost in 2020 dollars	SCBA pack & mask		$7,000	CDN			
	SCBA Cylinder		$2,000	CDN			

Major Capital Item Cost changes - Apparatus

	Current Fleet				Proposed Fleet					
	# Engines	# Tenders	# other	Replacement cost (current fleet)	Engine	Tender	Wildland/ Utility	Proposed additional tender-engine	Replacement cost (new fleet model)	Capital savings changes over time
108 Mile	1	2	3	$1,800,000	1	1	1	1	$1,500,000	-$300,000
150 Mile	3	2	2	$2,650,000	1	1	1	1	$1,500,000	-$1,150,000
Barlow Creek	1	1	1	$1,075,000	1	1	1		$1,075,000	$0
Bouchie Lake	1	2	1	$1,500,000	1	1	1		$1,075,000	-$425,000
Deka Lake	1	2	1	$1,500,000	1	1	1	1	$1,500,000	$0
Forest Grove (2 halls)	3	2	0	$2,350,000	2	2	1		$2,000,000	-$350,000
Interlakes (3 halls)	3	3	0	$2,775,000	3	3	1		$2,925,000	$150,000
Kersley	3	1	0	$1,925,000	1	1	1	1	$1,500,000	-$425,000
Lac la Hache	2	3	0	$1,850,000	1	1	1	1	$1,500,000	-$350,000
Lone Butte	2	2	1	$2,000,000	1	1	1		$1,075,000	-$925,000
Miocene	1	2	2	$1,650,000	1	1	1	1	$1,500,000	-$150,000
Ten Mile	1	1	1	$1,075,000	1	1	1		$1,075,000	$0
West Fraser	1	1	1	$1,075,000	1	1	1		$1,075,000	$0
Wildwood	1	3	1	$1,925,000	1	1	1		$1,075,000	-$850,000
Total Numbers	**24**	**27**	**14**	**$25,150,000**	**17**	**17**	**14**	**6**	**$20,375,000**	**-$4,775,000**

Estimated unit cost in 2020 dollars	Engine	$500,000	CDN
	Tender/Engine	$425,000	CDN
	Wildland/Utility	$150,000	CDN

		current fleet								proposed fleet									
Department Fire Protection Area	Average # of firefighters responding	total # of FF seats	total # of SCBA	# engines	# tenders	# others	total fleet #	Total water capacity	Total pump capacity	total # of FF seats	total # of SCBA	# engines	# tenders	# brush	total fleet #	Total water capacity	Total pump capacity	Total water capacity with Auto Aid	Total pump capacity with Auto Aid
108 Mile	7	23	10	1	2	3	6	3450 igal	1700 igpm	15	15	1	1	1	3	2250 igal	2100 igpm	5450 igal	4550 igpm
150 Mile	8	19	16	3	1	2	6	3300 igal	3500 igpm	15	15	1	1	1	3	2250 igal	2100 igpm	5450 igal	4550 igpm
Barlow Creek	5	15	13	1	1	1	3	2150 igal	880 igpm	15	15	1	1	1	3	2250 igal	2100 igpm	5450 igal	4550 igpm
Bouchie Lake	5	18	8	1	2	1	4	6000 igal	840 igpm	15	15	1	1	1	3	2250 igal	2100 igpm	5450 igal	4550 igpm
Deka Lake	8.5	8	16	1	2	1	4	3600 igal	2100 igpm	15	15	1	1	1	3	2250 igal	2100 igpm	5450 igal	4550 igpm
Forest Grove (2 FH's)	7	16	20	2	2		4	4800 igal	2550 igpm	25	25	2	2	1	5	4250 igal	3850 igpm	7450 igal	6300 igpm
Interlakes (3 FH's)	8	20	12	3	3		6	7075 igal	3120 igpm	35	35	3	3	1	7	6250 igal	5600 igpm	9450 igal	8050 igpm
Kersley	7	20	12	2	1		3	4500 igal	3150 igpm	15	15	1	1	1	3	2250 igal	2100 igpm	5450 igal	4550 igpm
Lac la Hache	8	12	15	2	2		4	5100 igal	2750 igpm	15	15	1	1	1	3	2250 igal	2100 igpm	5450 igal	4550 igpm
Lone Butte	6	18	8	1	3		4	5300 igal	1875 igpm	15	15	1	1	1	3	2250 igal	2100 igpm	5450 igal	4550 igpm
Miocene	7	22	8	1	2	2	5	7000 igal	2050 igpm	15	15	1	1	1	3	2250 igal	2100 igpm	5450 igal	4550 igpm
Ten Mile	5.5	12	6	1	2		3	4300 igal	840 igpm	15	15	1	1	1	3	2250 igal	2100 igpm	5450 igal	4550 igpm
West Fraser	7.5	15	8	1	1	1	3	3100 igal	840 igpm	15	15	1	1	1	3	2250 igal	2100 igpm	5450 igal	4550 igpm
Wildwood	7.5	17	8	1	3	1	5	5250 igal	1150 igpm	15	15	1	1	1	3	2250 igal	2100 igpm	5450 igal	4550 igpm
totals		235	160	21	27	12	60	64,925	27,345	240	240	17	17	14	48	37,500	34,650	73,300	68,950

Operating costs for a 60 unit fleet is dramatically reduced when lowered to 48. Even if some extra units are added, the fleet will still be heavily reduced in size and cost.

Increase in number of seats for firefighters in several departments

Every FF on scene must have SCBA available. New fleet provides a 43% increase in # SCBA available on scene for firefighters

Using the automatic aid model, water capacity increases for majority, and pumping capacity dramatically rises for most.

Average # of firefighters responding will increase significantly with Automatic Aid as they are from multiple departments (local availability restrictions are largely avoided)

Capital purchase/replacement costs for fleet dramatically reduced from 60 - 48

AGES OF APPARATUS

	FUS age requirement	Apparatus to be retired under regional model	VFD's to consider extra tender/engine apparatus - why?	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
108 Mile	20 yr	Brush 11, Rescue 11, Tender 11	Call volumes			tender								engine							utility					tender								engine
150 Mile	20 yr	Duty truck, Rescue 11, Engine 14, Tender 11	Call volumes	tender	engine	utility									tender									tender	engine	utility								
Barlow Creek	20 yr	Squad/Crew 11		engine			utility		tender															engine			utility		tender					
Bouchie Lake	20 yr	Tender 12, Rescue 11			utility	engine						tender													utility	engine					tender		
Deka Lake	**20 yr ***		Remote location	engine				tender		utility														engine			tender					utility		
Kersley	20 yr		Remote location				engine	utility						tender													engine	utility						tender
Lac la Hache	20 yr	Engine 12, Tender 12	Remote location	engine	utility							tender												engine	utility						tender			
Wildwood	**20 yr ***	Tender 11, Tender 13, Rescue 11			engine	utility						tender													engine	utility					tender			
Lone Butte	**20 yr ****	Tender 11, Rescue 11			utility				tender														engine		utility			tender					
Forest Grove (2 halls)	**25 yr**	Engine 12				tender	tender	utility								engine							engine							tender	tender	utility	
Interlakes (3 halls)	**25 yr**			engine		utility		tender	tender		tender																engine	engine	engine		utility		tender	tender
Miocene	**25 yr**	Tender 12, Squad 11	Remote location					engine		utility																		tender					engine	
Ten Mile	**25 yr**	tender (old)			engine										utility											tender				engine				
West Fraser	**25 yr**				engine		utility		tender																					engine		utility		tender
Evergreen pattern				4 engines, 1 tender	4 engines, 3 utility	1 engine, 1 tender, 3 utility	1 engine, 1 tender, 2 utility	1 engine, 2 tender, 2 utility	4 tenders	2 utility	1 tender	3 tenders		1 engine, 1 tender	1 tender, 1 utility	1 engine					1 utility		2 engines	3 engines, 1 tender	2 engines, 3 utility	1 engine, 2 tenders, 2 utility	2 engines, 1 tender, 1 utility	1 engine, 1 tender, 1 utility	1 engine, 2 tenders	2 engines	1 tender, 1 utility	4 tenders, 2 utility	1 engine, 1 tender, 1 utility	1 engine, 3 tenders

Additional of utility/wildland/brush truck to VFD fleet

* Deka Lake and Wildwood should be transitioned to a 20 year FUS replacement cycle as their populations are approaching the 1000 cut-off

** Lone Butte should be transitioned to a 20 year FUS replacement cycle as well UNLESS it moves to a 2 firehall model , in which case it can remain at the 25 year interval

Apparatus cost in 2020 dollars	Est cost for Engine	$500,000 CDN
	Est cost for Tender/Engine	$425,000 CDN
	Est cost for Wildland	$150,000 CDN

APPENDIX G - Dry Fire Hydrant

In rural areas where municipal water systems are not available, dry hydrants are used to supply water for fighting fires. A dry hydrant is analogous to a standpipe. A dry hydrant is usually an unpressurized, permanently installed pipe that has one end well below the water level of a lake or pond. For northern areas it needs to be below the typical freeze depth where it enters the water body. The underwater end has a strainer to prevent debris from entering the pipe. The above ground end drops vertically into the ground to below the frost/freeze layer. It has a hard sleeve connector to attach to the drafting hose from the fire apparatus.

When water is needed, a tender or engine will connect to the dry hydrant and pump from the lake or pond by drafting water. This is done by vacuuming the air out of the dry hydrant, hard sleeve, and the fire pump with a primer. Because lower pressure now exists at the pump intake, atmospheric pressure on the water and the weight of the water forces water into part of the dry hydrant above water, into the hard sleeve, and finally into the pump. This water can then be pumped out to fire hoses by the fire apparatus.

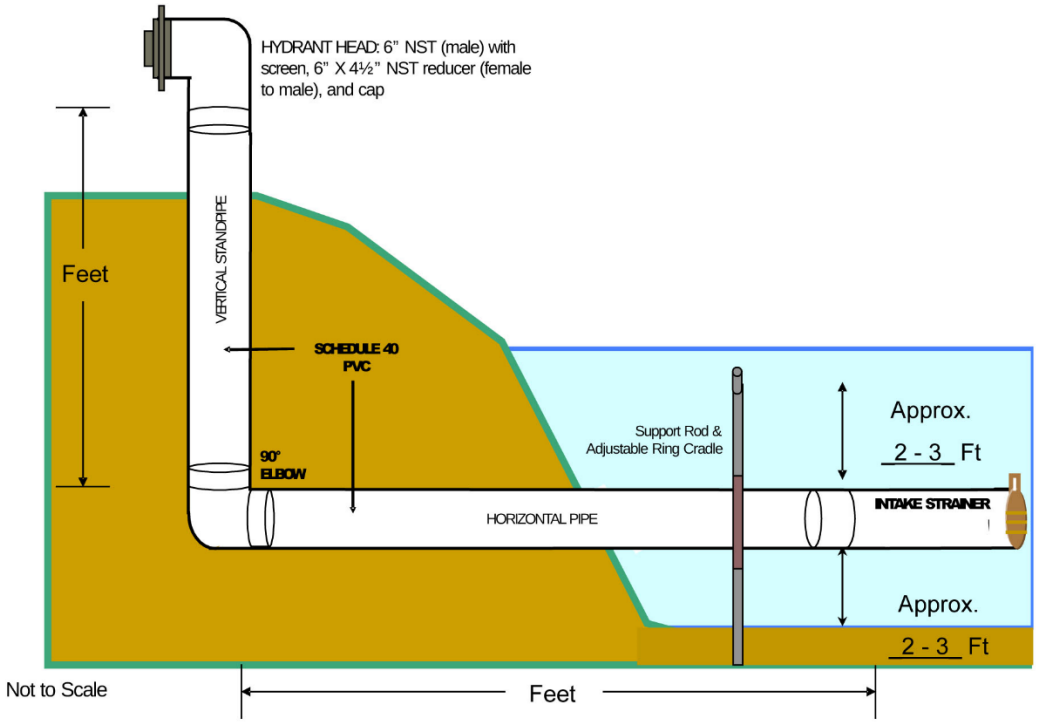
Since no water exists within the vertical part of the system when not being used, the pipe will not freeze and break and will remain functional year-round even in freezing weather.

Source: "What is a dry hydrant?" – Insurance Basics You Tube video, March 29, 2015.
https://www.youtube.com/watch?v=4aiSp2gAdas

Source: Kocheck Company Inc. Safety Equipment.
https://www.kochek.com/shop/dry-hydrant-reflective-sign/

Source: South Sumpter Fire Department (2016).
http://www.southsumterfire.org/?m=201602

Example installation (exact measurements TBD based upon frost/freeze depths in area):



Source: Bob Lusk Outdoors, Valuable Pond Amenities: Siphons and Dry Hydrants.
https://www.bobluskoutdoors.com/articles/valuable-pond-amenities-siphons-dry-hydrants-2017-08-3603

APPENDIX H - Example of a Medical Fit for Duty Assessment Form

Medical Examination Form

SURNAME:_____ GIVEN NAMES:_____

Date of Birth: _____ Care Card #: _____

ADDRESS:_____ / _____ / _____ B.C. ____
(Street) (City)

OCCUPATION "FIREFIGHTER" – VOLUNTEER

The medical examination to be performed by a Physician is to determine if the person above has maintained an acceptable level of health and has not contracted any disabling disease or disability to prevent their effective functioning in the position of a firefighter.

The regular duties of a firefighter may include prolonged anaerobic exertion, heavy lifting, working in confined or awkward positions, ability to immediately function upon waking from deep sleep, and exposure to high mental stress.

The Physician shall determine, using any testing procedure he/she feels necessary, if the above person is fit for active firefighting duties so that the firefighter will NOT jeopardize himself/herself and other personnel or public that he/she may come in contact with while performing his/her duties.

The following is to be completed by a Licensed Physician

_____ ***is / is not*** *(please circle appropriate)*
(NAME)

physically and mentally fit for firefighting duties as per the above requirements.

ADDITIONAL COMMENTS:_____

Physician Name:_____ **Physician Signature**:_____

Physician Address:_____ / _____ / _____

Date:_____

Example property of Response Specialties (March 2020)

APPENDIX I - Description of competencies, roles and responsibilities of a volunteer Public Educator position

Selection of an individual to the position of volunteer Public Educator should come with expectations for the following competencies and experience:

- Formal training as an educator in the public domain
- Experience delivering messaging to a diverse client group
- Strong interpersonal skills combined with self-initiative
- Pleasant demeanor and appropriate behavioral characteristics

The role of the volunteer Public Educator should be focused on the following programs:

- Delivery of the FireSmart program as prepared for the Province of British Columbia
- Delivery of Home Smoke Alarm awareness and testing program in support of the OFC
- Delivery of firesetter safety programs for children identified as at risk for fire setting
- Liaison with local schools and community groups on fire safety
- Liaison with local senior groups on fall prevention programming
- Obtain and deliver available fire safety literature available free and on-line
- Liaise with the OFC and other public educators to further advance the field and share knowledge
- Liaise with the public on innovation and personal experience that can be shared
- Liaise with firefighters to identify hazardous conditions or opportunities for education arising from incident responses

The responsibilities of the volunteer Public Educator should be:

- Use of personal vehicle, or department vehicle if available
- Attendance at non-firehall locations to deliver programming
- Document and record the number, type and location of public education sessions delivered
- Inform the Fire Chief and/or CRD staff of concerns found during delivery of programming
- Inform the Fire Chief and/or CRD staff of opportunities for program enhancement at a local and district level
- Liaise with firefighters to gain knowledge from incidents, and educate them on basic public safety messaging they can deliver during incident responses

APPENDIX J - Comparison of community volunteers and volunteer firefighters

This exhibit shows the key differences between regular community volunteers and volunteer firefighters

Factor	Community Volunteer	Volunteer Firefighter
Annual time requirements/ expectations	Modest	Training 150 hours; callouts 150 hours
Randomness of time requirements	Predictable hours	Predictable training hours; random hours call out
Volunteer safety	Not an issue	Unpredictable dangers and safety risks
Regulatory environment	None to modest	Heavy regulation by WorkSafe BC and other agencies
Certification environment	None	Volunteers required to maintain their certifications (e.g. driving; firefighting; medical skills, safety practices; records)
Life safety/health impacts	None	Can be major long-term health risks
Risk of Post-Traumatic Stress Injury/Disorder (PTSI/PTSD)	None	Mental injury very possible based on viewing of serious accident scenes; often over many years
Training requirements	Modest, usually informal and common sense	Major start up and continuing training requirements throughout their service
Attendance standards	Usually optional	Attendance standards generally required for training and callouts
Length of commitment	Usually for up to a year at one time	Commitment is expected to be for many years
Impacts on personal life	None	Need to be sober and fit for duty essentially all the time. Must be prepared to leave home or work immediately for incidents

APPENDIX K – Recommendations List

Recommendation 1: That the CRD review all bylaws upon provincial adoption of the new *Fire Safety Act.*

Recommendation 2: That the CRD develop and distribute a comprehensive list of all legislatively required compliance items for each VFD and actively enforce compliance annually, as required and feasible.

Recommendation 3: That the CRD Protective Services transition to a face-to-face communication model with VFD chiefs and departments where staff visit each department 2-4 times annually

Recommendation 4: That the CRD confirm its managerial reporting lines and organizational structure to all VFD fire chiefs and senior officers.

Recommendation 5: That the CRD Manager of Protective Services be given an unencumbered mandate to enhance regionalization of the fire service.

Recommendation 6: That the CRD implement Step 1 of the proposed Protective Services reorganization (Appendix C) for fiscal 2021/22.

Recommendation 7: That the CRD confirm prominent display of the CRD Fire Services logo outside every firehall under their jurisdiction.

Recommendation 8: That the CRD Finance department develop a "non-discretionary" list of budget GL accounts within VFD budgets that the fire chief can see but cannot exercise management of. These GL's would specially apply to items requiring legislative compliance.

Recommendation 9: That CRD Finance and Purchasing departments develop a Finance and Procurement 101 program for all new and existing fire chiefs that outlines budget basics, financial rules, purchasing rules, and provides education of operating, capital, and reserve allocations and limits.

Recommendation 10: That CRD Finance department develop a Finance/Budget "calendar" for fire chiefs that identifies benchmark dates for important actions and budget management.

Recommendation 11: That CRD Finance department develop a modified financial structure to allow for creation and management of a centralized CRD inventory account for group purchasing related to VFD's that can be reallocated, as needed, to individual department budgets.

Recommendation 12: That the CRD carefully consider the issue of "alternatively funded" assets and their long-term interjection into CRD budget and operations.

Recommendation 13: That the CRD engage in formal financial and operating partnerships with the municipal fire departments in 100 Mile House and Williams Lake to utilize their certified training centers for enhanced VFD training. Model should be like existing relationships between local CRD VFD's and Quesnel VFD.

Recommendation 14: That the CRD consider the identification of VFD fire chiefs as auxiliary employees, instead of contractors.

Recommendation 15: That CRD Protective Services should require comprehensive business cases and objective statistical facts to support any additional service request by a VFD beyond the identified "core" CRD services. This should include consideration and provision of first responder medical response.

Recommendation 16: That CRD Protective Services should require a comprehensive business case to support continued involvement in any discretionary service being performed by a VFD.

Recommendation 17: Specific service delivery activities should be identified, or excluded, within any new empowering bylaw or other policy document between the CRD and the VFD.

Recommendation 18: The CRD undertake a comprehensive review of all response areas with the goal of minimizing response times, equalizing call volumes, sharing risk, facilitating automatic aid response, and maintaining sustainable tax base funding for each department.

Recommendation 19: That a specific incident response worksheet template be created by the CRD to facilitate data collection at incident scenes, and that the FDM incident record database will be populated with comprehensive incident details for every incident.

Recommendation 20: The CRD Protective Services lead a comprehensive review of all high-risk properties within its jurisdiction and develop pre-incident plans and training for associated VFD's in all cases.

Recommendation 21: That CRD Protective Services staff become uniformed personnel and that senior operational staff assume a rotating "duty officer" role for response to high-profile or high-risk incidents throughout the district. Further, that the duty officer be provided an appropriate emergency vehicle with which to respond promptly.

Recommendation 22: That CRD Protective Services institute and enforce expectation that all active duty firefighters will have appliable PPE (Coat, pants and helmet) that is less than 10 years of age from date of manufacture.

Recommendation 23: That CRD institute and enforce a regionalized procurement and asset management program for PPE jackets, pants and helmets, at minimum.

Recommendation 24: That inspection, maintenance and testing checklists and records for all PPE, and in compliance with all applicable legislation and regulation, be created and retained as per CRD best practice.

Recommendation 25: That CRD institute and enforce a regionalized procurement and asset management program for SCBA and other respiratory protection equipment.

Recommendation 26: That CRD institute and enforce a regionalized standardization of SCBA equipment for all VFD's. Municipal VFD integration should be encouraged.

Recommendation 27: That all future apparatus purchases, regardless of vehicle type, have equal numbers, or more, SCBA than firefighter sitting positions to ensure every firefighter on a fireground has respiratory protection available.

Recommendation 28: That inspection, maintenance and testing checklists and records for all SCBA, including compliance with all applicable legislation and regulation, be created, and retained as per CRD best practice.

Recommendation 29: That the CRD confirm compatibility challenges and opportunities between neighbouring fire services related to SCBA types and training.

Recommendation 30: That the CRD centralize all management of OH&S required inspection, maintenance and testing related to respiratory protection equipment.

Recommendation 31: That a complete inventory of each VFD's equipment and apparatus be regularly undertaken to ensure items are known, functional, safe, and ready for use, and that required items that are not available are identified for purchase.

Recommendation 32: That a formal equipment inspection, maintenance and testing program be initiated by the CRD for all life safety, firefighting, and power equipment. A formal checklist should be created and regularly utilized by all VFD members.

Recommendation 33: That inspection, maintenance, and testing records for all fire department equipment be retained as per CRD records management practices and kept accessible to CRD Protective Services at the firehall for a period not less than 2 years.

Recommendation 34: That the CRD permanently remove from service all cotton-jack hose in VFD inventories.

Recommendation 35: That the CRD undertake an inventory of all firehose in each VFD to ensure functionality, compatibility, and number of each are known.

Recommendation 36: That the CRD provide the VFD's with visual inspection checklists for hoses and manage annual testing of all hoses at each department.

Recommendation 37: That the CRD and VFD's identify and resolve compatibility challenges and opportunities between regional fire services related to fire hose and coupling types.

Recommendation 38: That the CRD undertake an inventory of all portable drafting ponds/tanks to ensure capacities meet FUS requirements and operational need without being excessive.

Recommendation 39: That the CRD undertake an inventory of all portable pump equipment to ensure numbers, capacities and types are appropriate to departmental uses.

Recommendation 40: That CRD standardize fleet composition and deployment across the district using a three-apparatus model (engine, tender-engine, wildland utility) for each VFD.

Recommendation 41: That CRD consider, on an individual department basis, and as supported by a strong business case, the addition of specific apparatus.

Recommendation 42: That CRD Protective Service and Finance departments ensure that a guaranteed 24/7/365 fuel access program is in place for every VFD, including use of firehall fuel depots or mobile delivery vendors if required.

Recommendation 43: That all CRD firefighters be appropriately licensed by the Province of BC to operate all apparatus in their firehall. Alternatively, that all VFD's only operate apparatus that their full membership can drive.

Recommendation 44: That all CRD firefighters who may operate any apparatus regularly perform pre- and/or post-trip inspections on the apparatus on a regular basis as per the requirements of both their airbrake endorsement and commercial vehicle regulations.

Recommendation 45: That the CRD undertake rationalization of any chief officer duty vehicle to ensure compliance with CRD policy and CRA regulations.

Recommendation 46: That the CRD immediately institute a district-wide Automatic Aid system, that includes one engine from the nearest aid department and two tenders from the two closest aid department, to respond to all reported working structure fires or advancing wildland-interface fires.

Recommendation 47: That the CRD define and standardize back-fill requirements for aid departments responding to another jurisdiction under an Automatic Aid request.

Recommendation 48: That the CRD define and standardize all terminology related to aid agreements and contract services and apply this terminology to all existing and future documentation.

Recommendation 49: That the CRD identify urgent requirements for renovations to existing firehalls to increase the number and type of washrooms as well as shower facilities to at least two each per facility.

Recommendation 50: That the CRD assess all existing facilities for Building, Electrical and Fire Code compliance. Further, that HVAC systems, utilities, communications, and water/sewer be made safe immediately without exception.

Recommendation 51: That CRD Protective Services consider standardization of dry hydrant installations at multiple water body/lake access points for all VFD's without a public water supply system. The locations should be done in close collaboration with local fire departments.

Recommendation 52: That the CRD explore funding, including grants, to install dry hydrants around the perimeter of the major lakes in each jurisdiction.

Recommendation 53: That the CRD explore, as part of any firehall upgrade and ongoing capital improvements, the installation of a large underground reservoir tank at each firehall that does not already have one in place. Further, that the CRD should inspect, upgrade and maintain existing underground tanks, as required.

Recommendation 54: That CRD Protective Service consider standardization of the installation of firehall underground water tank/reservoirs at 10,000 gallons.

Recommendation 55: That CRD Protective Services coordinate with all VFD's to research, identify and implement a single cellular-based App for provision of enhanced firefighter dispatch that meets all requirements of Federal and Provincial Privacy legislation.

Recommendation 56: That CRD Protective Service consider standardization of a satellite back-up connect system provider for all VFD's.

Recommendation 57: That CRD Protective Service identify all radio equipment in use in each VFD and cross-reference this information against the allocated number of devices for radio licenses issued for each department. Radio licenses must be updated accordingly.

Recommendation 58: That CRD Protective Service develop an inventory of all radio equipment in the CRD.

Recommendation 59: That CRD Protective Service consult with all VFD's and other jurisdictions to reach a standardization of whether firefighters will be issued personal radios or pagers, and then account for the decision within the budget process of each department.

Recommendation 60: That CRD Protective Service consider standardization of all radio equipment (brands, types, capabilities) across all VFD's to ensure interoperability, and benefit from group purchasing opportunities.

Recommendation 61: That the CRD urgently coordinate with the RDFFG and Prince George FOCC to bring Deka Lake VFD on-line with the FOCC 911 system and dispatch radio communication system utilized by the other CRD fire services.

Recommendation 62: That the CRD coordinate enhanced training in the use of FDM and institute improved oversight to ensure reporting compliance levels.

Recommendation 63: That the CRD initiate a Fire Chief Succession Plan and Selection Process that focusses on education, skills and experience as the key factors.

Recommendation 64: That the CRD initiate a Fire Chief training program entitled Fire Chief 101 – Legislation and Management of a VFD.

Recommendation 65: That the CRD Protective Services meet and strategize with the fire chiefs at Lac la Hache, 108 Mile, Forest Grove, Interlakes and Lone Butte to develop a rapid recruitment process for their protection areas.

Recommendation 66: That the CRD explore and implement an appropriate minimum training attendance requirement for all VFD's.

Recommendation 67: That the CRD research and work with a small team of VFD officers to implement a comprehensive firefighter recruitment program. This should include a toolbox for use by VFD's locally.

Recommendation 68: That the CRD develop and implement a recruit training program, compliant to both WorkSafeBC and the Playbook, that will be delivered at the regional level and attended by new recruits from departments within that region. Delivery of instruction would be from recognized trainers from across the CRD VFD's.

Recommendation 69: That a formal discipline process be identified for application in the event a firefighter has excessive points, or a restriction or prohibition on their drivers' license.

Recommendation 70: That a requirement be established requiring immediate notification to the fire chief, or designate, of any restriction or prohibition from driving.

Recommendation 71: That an RCMP Enhanced Criminal Background Check, including Vulnerable Sector, be implemented for all firefighters upon hire, and every 3-5 years thereafter at department expense.

Recommendation 72: That all new CRD recruits obtain a certificate of fitness (mental and physical) from a registered physician identifying they are clear to assume the duties of a firefighter in the CRD. Costs for this request must be reimbursed by the fire department on hire.

Recommendation 73: That regular general fitness assessments be made a component of the annual training program for all CRD firefighters, with attendance being compulsory.

Recommendation 74: That any CRD firefighter who has been absent from training or responses due to injury or illness for a period exceeding 3 consecutive months, or who has missed their compulsory annual fitness assessment, be made to undergo a full medical evaluation by a registered physician and be cleared of any associated health concerns prior to returning to active duty. Costs for this request must be reimbursed by the fire department.

Recommendation 75: That any healthy CRD firefighter who has been absent from training or responses for a period exceeding 6 consecutive months, regardless of reason, be made to undergo a full Exterior Firefighter skills assessment and medical exam before returning to active duty.

Recommendation 76: That the CRD Protective Services and VFD training officer representatives cooperatively develop and implement a universal training calendar including both recruit training and regular member training to the two service levels utilized within the CRD.

Recommendation 77: That the CRD Protective Services review all core and discretionary services delivered by CRD VFD's and ensure that recognized training programs are utilized and comply with applicable legislation and best practice.

Recommendation 78: That the CRD identify at least six qualified instructors from within the VFD ranks to immediately begin development and instruction of regional training programs specific to both the Playbook as well as other skills and services.

Recommendation 79: That CRD Protective Services provide to the VFD Training Officers training record document templates for use in recording individual and departmental training. Additionally, enhanced FDM training for electronic recording and storage of detailed and legislation compliant training records should be a priority.

Recommendation 80: That CRD Protective Services standardize the training provider/vendor for first responder, emergency scene traffic control, driver/operator, and wildland-interface firefighting training programs.

Recommendation 81: That local VFD training ground use be discontinued unless the site can be certified to be safe by a registered professional/technician.

Recommendation 82: That CRD Protective Services engage themselves fully in VFD OH&S Committee administration to ensure that programs are established properly, meeting and reporting regularly, and undertaking all requirements including member training.

Recommendation 83: That CRD Protective Services facilitate regular OH&S workshops for committee members from all VFD's to learn and share knowledge.

Recommendation 84: That the CRD immediately activate and support a functioning OH&S program within each member VFD with support from CRD Protective Services.

Recommendation 85: That the CRD create a comprehensive checklist of all required OH&S functions and records for reference use by all fire departments.

Recommendation 86: That each VFD strongly consider initiating a Public Educator position within the volunteer ranks of the department. It is further recommended that the position be filled by a non-firefighter as a person who can dedicate their time and effort solely to prevention and education.

Recommendation 87: That the CRD initiate a staff position within Protective Services to coordinate delivery of public education and prevention programs throughout the CRD.

Recommendation 88: That the CRD consider appointing the Manager of Protective Services and Regional Fire Services Supervisor as LAFC's for the entire CRD or that existing LAFC's be given expanded jurisdictional mandates to cover areas without existing LAFC's.

Recommendation 89: That the CRD initiate a response protocol for a recognized LAFC to respond promptly to any serious incident where LAFC powers and authority may be required.

Recommendation 90: That the CRD establish a secure filing system for paper copies of all personnel and operational records at each firehall, with restricted access.

Recommendation 91: That the CRD engage with the FOCC to initiate increased electronic submission and storage of records within FDM including, maintenance, testing, asset management, and inspection records.

Recommendation 92: That the CRD initiate basic and advanced FDM training for all Chief Officers, Training Officers and fire department Clerks as soon as possible

Recommendation 93: That the CRD consider implementing a cloud-based records management system for use by all VFD's for documents not required to be stored in other databases like FDM.

APPENDIX L – Recommendations by Management Topic Area and Priority (immediate, short-term, medium-term, long-term)

	Governance	Compliance	Finance	Operations	Priority
Recommendation 1	√				
Recommendation 2		√			
Recommendation 3	√				
Recommendation 4	√				
Recommendation 5	√				
Recommendation 6	√				
Recommendation 7	√			√	
Recommendation 8			√		
Recommendation 9			√		
Recommendation 10			√		
Recommendation 11			√		
Recommendation 12			√		
Recommendation 13			√	√	
Recommendation 14	√		√		
Recommendation 15	√				
Recommendation 16	√				
Recommendation 17	√				
Recommendation 18	√			√	
Recommendation 19				√	
Recommendation 20	√			√	
Recommendation 21	√			√	
Recommendation 22		√		√	
Recommendation 23	√		√		
Recommendation 24		√			
Recommendation 25	√		√		
Recommendation 26	√			√	
Recommendation 27	√			√	
Recommendation 28		√			
Recommendation 29	√			√	
Recommendation 30	√	√			
Recommendation 31				√	
Recommendation 32		√		√	
Recommendation 33	√	√			
Recommendation 34				√	
Recommendation 35				√	
Recommendation 36		√		√	
Recommendation 37	√			√	
Recommendation 38				√	

	Governance	Compliance	Finance	Operations	Priority
Recommendation 39				√	
Recommendation 40	√	√	√	√	
Recommendation 41	√		√	√	
Recommendation 42			√	√	
Recommendation 43		√		√	
Recommendation 44		√		√	
Recommendation 45	√				
Recommendation 46	√			√	
Recommendation 47	√			√	
Recommendation 48	√	√		√	
Recommendation 49			√	√	
Recommendation 50		√		√	
Recommendation 51				√	
Recommendation 52			√	√	
Recommendation 53			√	√	
Recommendation 54				√	
Recommendation 55	√		√	√	
Recommendation 56	√		√	√	
Recommendation 57		√		√	
Recommendation 58				√	
Recommendation 59	√		√	√	
Recommendation 60	√		√	√	
Recommendation 61	√			√	
Recommendation 62	√	√		√	
Recommendation 63	√				
Recommendation 64	√				
Recommendation 65	√			√	
Recommendation 66	√	√			
Recommendation 67	√			√	
Recommendation 68	√	√			
Recommendation 69	√				
Recommendation 70	√				
Recommendation 71	√				
Recommendation 72	√	√			
Recommendation 73	√			√	
Recommendation 74	√	√		√	
Recommendation 75	√			√	
Recommendation 76				√	
Recommendation 77	√			√	
Recommendation 78				√	
Recommendation 79		√		√	

	Governance	Compliance	Finance	Operations	Priority
Recommendation 80	√			√	
Recommendation 81	√	√		√	
Recommendation 82	√	√			
Recommendation 83	√	√		√	
Recommendation 84	√	√			
Recommendation 85	√	√			
Recommendation 86	√				
Recommendation 87	√				
Recommendation 88	√	√			
Recommendation 89	√			√	
Recommendation 90	√	√			
Recommendation 91	√	√		√	
Recommendation 92		√		√	
Recommendation 93	√	√			

Observations:

To be successfully completed, many recommendations have impact upon, or require influence from, multiple management topic areas. Immediate and short-term recommendations primarily address priority issues of safety and/or required legislative compliance specific to critical fire service legislation (Playbook and WorkSafeBC OH&S Regulation).

Of the 93 recommendations, 35 (38%) address a single management topic area (e.g. Governance). The remaining 68 recommendations (68%) address multiple management topic areas simultaneously.

Of the 93 recommendations, 36% reference governance, 18% reference compliance, 12% reference finance, and 34% reference VFD operations

Suggested timelines for implementation of the recommendations in this report are that:

- the 20 recommendations identified as immediate priority should be completed prior to July 1, 2021
- the 32 recommendations identified as short-term priority should be completed prior to July 1, 2022
- the 30 recommendations identified as medium-term priority should be completed prior to Jan 1, 2024
- the 19 recommendations identified as long-term priority will likely take 4+ years to complete.

Many immediate priority recommendations can be considered as “low hanging fruit” and could be actioned quickly and easily by existing staff within their current mandates. Examples include transition to a face-to-face communication priority; activate and support functioning OH&S programs; and enhanced FDM training and use.

REFERENCES

British Columbia Fire Service Minimum Training Standards: Structure Firefighters Competency and Training PLAYBOOK (2015 Ed.), Province of B.C.

Community Charter (2003), Province of BC

Fire Services Act (1996), Province of BC

Freedom of Information and Protection of Privacy Act (1996), Province of BC

Local Government Act (2015), Province of BC

Motor Vehicle Act (1996), Province of BC

National Fire Protection Association Standard 1851 (2020 Edition) – Standard on Selection, Care and Maintenance of Protective Ensembles for Structural Firefighting and Proximity Firefighting.

Occupational Health and Safety Regulation (2019), part of the WorkSafe BC *Workers Compensation Act,* Province of BC.

Workers Compensation Act (2019), Province of BC

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