VERNON FIRE RESCUE SERVICES

EIGHT YEAR STRATEGIC PLAN

2018-2025

Table of Contents

This plan has been developed by Interim Fire Chief David Lind with Deputy Fire Chief Scott Hemstad and Administrative Assistant Jodi Barrie. It has been peer reviewed by Chief Administrative Officer Will Pearce, Manager of Financial Planning Aaron Stuart, Cranbrook Fire Chief Wayne Price, and Cranbrook Deputy Fire Chief Scott Driver.

Executive Summary

As a result of a period of insufficient funding Vernon Fire Rescue Services (VFRS) is now in a position which requires a focused, significant and sustained investment in fire apparatus, equipment, staff, and management. In 2017, VFRS accessed $801,000 outside of the normal budgeting process to address significant operational needs. Without a new approach to resourcing VFRS or a significant reduction in the levels of service provided, we can expect this experience to continue for the foreseeable future. The current, reactive approach leaves VFRS falling well outside of Fire Underwriters recommendations and industry best practices.

This report identifies Administration's best professional advice for moving VFRS closer to meeting responsible standards and practices. The plan maintains an effective deployment from Fire Station 1, provides for more consistent deployment of services from Fire Station 2 and begins to address deployment from Fire Station 3. It is focused on providing public safety by enabling a well prepared and equipped firefighting force and seeks to maintain the community's fire insurance rating, to the extent possible.

The plan addresses key enablers for the provision of reliable and safe service which include fire apparatus, equipment, infrastructure, staffing and one time projects. It does not provide services which will exceed industry standards or practices, nor will it provide a full-time response from all three (3) fire stations within the 8 year time frame of this Strategic Plan. Before VFRS can look to being industry leaders we need to restore strength and capacity within the organization.

Resources to Enable the Plan:

Fire apparatus

An increase in fire apparatus reserves of $240,000 through 2018/2019 ($375,000 total) plus a 1.9% increase in each subsequent year.

Equipment

The addition of reserve contributions for equipment and tool replacement of $90,000 through 2018/2019 plus a 1.9% increase in each subsequent year.

Community Wild Fire Protection Plan

The addition of an ongoing operational budget line in 2018 to enable implementation of the Community Wildfire Protection Plan (CWPP) of $20,000.

One time funding

- $90,000 to complete the Fire Hall 2 garage building renovation to provide a facility for Emergency Social Services and a training/conference space, in 2018.
- $60,000 to install an exhaust capture system in the apparatus bays of Station 3, in 2019.
- $40,000 to conduct a Fire Underwriters Survey for the CoV, in 2021.

Staffing

- Provision of $90,000 reserve for increased staffing during high risk conditions, as per Councils direction, in 2017. (this is subject to fire risk conditions)
- Increase to the operational VVFA wages budget of $40,000 to provide a paid-on-call program and wages for additional members, in 2018.
- The contracting out of dispatch services to address liabilities and to reduce operational costs by an estimated $200,000 plus /year, in 2018.
- The hire of four (4) full-time firefighters in 2019 at a staffing cost of $369,816 in the first year. These are not an increase of FTE's as four (4) communications operator positions would be removed from VFRS at the end of 2018. Much of the cost of these wages will be offset by reduced overtime use and savings realized by contracting dispatch services.
- The hire of four (4) full-time firefighters in 2021 at an increased staffing cost of $388,538 in the first year.
- The hire of four (4) full-time firefighters in 2023 at an increased staffing cost of $408,208 in the first year.
- To be clear, the recommendation to hire four (4) full-time firefighters in 2019, 2021, 2023 is contingent on contracting out dispatch services.

Other options to lower the proposed incremental costs of providing service include reducing services or levels of service, and closing fire stations. When considering these options from a risk versus benefit perspective it is clearly evident that they are not typically good options. These types of approaches will reduce the level of public safety in the community. Typically, the amount saved in tax dollars on residential or business property taxes is considerably less than resulting increases to property fire insurance premiums.

This plan is respectfully submitted for the consideration of Mayor and Council. Administration is seeking Councils endorsement of the plan and direction to continue with implementation through 2018 - 2022.

Sincerely,

David Lind,
Interim Fire Chief

City of Vernon Mission Statement

To deliver effective and efficient local government services that benefit our citizens, our businesses, our environment and our future.

Where is Vernon Fire Rescue Services?

VFRS is in a period of transition. The internal and external environments are such that simple, forward looking plans are essential to move the organization into a period of strength and innovation.

A Leadership Team has been established to improve communication, facilitate problem solving, clearly define expectations, and instill a "one team" mentality. Members have participated in developing the department's values, mission, and vision statements. From this work a philosophy of operations has been established to document our members shared system of beliefs and values. The philosophy of operations provides a foundation on which we anchor our approach to service delivery, problem solving and conflict resolution. Joint training sessions with full-time and paid-per-call members are occurring regularly and participation by all members is a clearly defined expectation. Neighbouring fire service leaders are being engaged to build relationships, maintain the Regional Fire Training Centre, and to explore opportunities to work cooperatively, focusing on customer service.

The Fire Services Administrative Team, and the Chief Administrative Officer (CAO) are committed to building a respectful, healthy work environment which encourages professional and personal development. Together, our focus is being the best we can be.

Our Values as defined by the leaders and members of VFRS in 2017

Our team values professionalism, compassion, courage, unity and strength. Through these values, we are proud to provide life safety services and leadership to our community.

Where do we want to be?

We desire to provide excellent public service, to be good at our work, to be properly equipped and trained, and to have the resources at hand to enable providing consistent and reliable service. We will foster a healthy, stable, safe, trusting, and respectful work environment.

Our Vision as defined by the leaders and members of VFRS in 2017

To be recognized as industry leaders in fire prevention, safety, response and recovery while working within a healthy, respectful, community-focused culture. We will achieve this by continuously developing capacity and ability within our department; developing service-focused programs; strengthening relationships with our community, with our leaders and with each other; fostering strong leadership and trust at every level and remaining grounded in our values.

Philosophy of Operations

Our value system is an enduring prioritization of principles that represent the preferred conduct and results for VFRS. This value system defines what members and our organization consider to be appropriate behaviours and outcomes. The values of VFRS are organized into a philosophy of operations, and this philosophy is demonstrated by observable and measurable results.

Professionalism

VFRS and each member is committed to providing professional service to our community, as a composite department, consisting of both full-time and paid-on-call members. Professionalism is achieved and maintained by:

- Maintaining a state of readiness to respond.
- Ensuring equipment is in good repair through regular inspection and run-ups.
- Ensuring we possess adequate skills and knowledge for the services we provide.
- Respecting our profession by conducting ourselves in a manner which is beyond reproach.
- Remaining focused on providing excellent public service.
- Treating others with kindness, respect, patience and consideration.
- By continuously improving ourselves and our department.
- By treating everyone like a valued customer.

Compassion

VFRS and its members demonstrate compassion for others by:

- Considering the needs and perspectives of others.
- Providing competent services to those in need.
- Being truthful and kind.
- Being patient and considerate.
- Respecting confidentiality.
- Being mindful and respectful with the words we use.

Courage

Our members value and demonstrate courage by:

- Having courageous conversations.
- Doing the right thing, even when it is difficult.
- Speaking truth.
- Acknowledging when help is needed and seeking it out.
- Acknowledging fear and apprehension and overcoming it with training, preparation and teamwork.

Unity

Vernon Fire Rescue Services and its members are “one team” working together to provide excellent service to the public. Our unity is demonstrated by:

- Facing challenges anchored in our shared values.
- Being hard on problems and soft on people.
- Cooperative efforts to overcome challenges.
- Building capacity within our members and supporting their development.
- Acknowledging the value each member brings to the Team.
- Solving disagreements with respectful, open and honest communication.

Strength

Our members are our most valuable resource and constitute our organizational strength. Each member takes pride in our organization and safeguards its reputation. Our members demonstrate strength by:

- Being tolerant of others and their perspectives.
- Building others up and providing encouragement.
- Acknowledging errors or misjudgments and making amends.
- Conditioning our minds for the work we do.
- Conditioning our bodies for the work we do.
- Being flexible, adaptive and agile.

How are we going to get there?

Our path forward utilizes a plan focused on maximizing the effectiveness of available resources and by creating agility in response and deployment. It seeks out efficiencies within systems and processes to leverage new resources in a fiscally responsible manner, with the end goal of creating significant and enduring public value. To the extent possible, given environmental constraints, the plan has been informed by the consideration of many stakeholders' perspectives. It seeks to meet Occupational Health & Safety (OH&S) requirements, industry standards and best practices. The approach is to provide simple strategies which employ creative and agile tactics to achieve defined goals.

Our Goals and Objectives

Goal

To provide our firefighters with appropriate **personal protective equipment** (PPE) which is safe and reliable, meets or exceeds OH&S requirements, National Fire Protection Association (NFPA) and Underwriters Laboratories Canada (ULC) standards, and to provide programs and work processes which ensure proper use, maintenance, testing and decommissioning of outdated PPE.

Objectives

In 2017:

- We will replace Self-Contained Breathing Apparatus (SCBA), Supplied Air Respirators (SAR), breathing air bottles, and SCBA face masks as a complete system providing consistency within the breathing air program. And we will replace the breathing air compressor as a component of the breathing air program.
- We will provide a decontamination system and process for PPE.
- We will provide budget adjustments for PPE and uniforms to reflect increases associated with new hires.

In 2018:

- We will increase the firefighter turn-out gear funding to provide each firefighter with PPE which is compliant with OH&S regulations and NFPA standards.
- We will develop and implement a respiratory protection program which conforms to WorkSafe BC regulations.
- We will formalize and document the PPE program.

Goal

To provide **equipment and tools** which are safe, reliable and effective, that meet and/or exceed NFPA and ULC standards. To also provide programs and work practices which ensure proper use, maintenance, testing, and decommissioning of out dated equipment.

Objectives

In 2017, we will develop and implement a hose testing and replacement program.

In 2018:

- We will budget for and replace damaged and expired hose and nozzles.
- We will contribute to an equipment replacement reserve for the ongoing replacement of hose and nozzles, hydraulic tools (JAWS), radio system, Computer Aided Dispatch (CAD), Thermal Imaging Cameras (TIC), and ground ladders.
- We will develop and implement a ground ladder maintenance program.
- We will formalize and document a radio maintenance program.
- We will develop and implement a battery maintenance program.
- We will formalize the Hazardous materials (HAZMAT) program.

In 2019, we will modernize and implement improvements to the fire prevention program.

In 2020, we will replace remaining CAD units and a TIC.

In 2021, we will replace hazardous materials equipment and upgrade and replace the radio system.

In 2022, we will purchase foam and a transportation system and implement a regional class B firefighting foam program. And we will replace out-of-date ropes and harnesses.

Goal

To provide **fire apparatus** which are safe and reliable and meet insurance and industry recognized standards.

Objectives

In 2017, we will establish a fleet replacement schedule which works towards meeting insurance and industry standards for the life span of fire apparatus. - Complete

In 2018:

- We will formalize and document the annual pump testing program.
- Through 2018/2019 budget cycles we will build the annual contribution to the fire apparatus replacement reserve to $375,000 per annum.
- We will purchase a fire/rescue engine.

In 2019, we will purchase a ladder truck.

In 2020, we will replace light duty emergency response/command vehicle.

In 2021, we will replace light duty emergency response/command vehicle.

In 2022, we will purchase an all hazards response unit.

In 2023, we will replace light duty emergency response/command vehicle.

In 2024, we will purchase forestry/brush units/SPU.

In 2025:

- We will replace a light duty emergency response/command vehicle.
- We will purchase and implement fire boat program.

Goal

To **maximize the effectiveness** of currently available resources.

Objectives

In 2018:

- We will relocate the Training Officer and Fire Prevention Officer to Station 2 as a component of an improved Station 2 response model.
- We will relocate a Deputy Fire Chief to Station 2.
- We will develop and implement a paid-on-call program to augment the paid-per-call process.
- We will implement contracting out of dispatch services.
- We will leverage community strengths by developing stakeholder involvement with the Emergency Program.
- We will deploy two (2) firefighters to First Medical Response (FMR) calls consistently throughout the entire response area.
- We will utilize our engine/rescue for road rescue to ensure adequate tools and equipment for responders.

In 2019:

- We will modernize the fire inspection program.
- We will develop and implement a comprehensive emergency preparedness and fire prevention program.
- We will conduct an emergency program full-scale exercise.

Goal

To provide **effective and efficient fire services** by employing an adequate number of trained, qualified, and fit for duty firefighters and support staff. And to provide support systems and deployment models which maximize efficiencies in the provision of sustainable public services.

Objectives

We will provide, staffing of Stations 2 and 3 during high risk conditions.

In 2017:

- We will hire a Deputy Fire Chief of Training/Prevention/Logistics. – Complete
- We will hire Emergency Management and Emergency Social Services Coordinator. - Complete
- We will hire Emergency Management Secretary. – Complete

In 2018:

- We will develop and implement relevant Standard Operational Guidelines (SOG's).
- We will provide an Alternative Dispute Resolution (ADR) process for the organization.
- We will develop and implement a three (3) year training strategy.
- We will develop and implement a three (3) year fire prevention strategy.
- We will develop and implement a three (3) year emergency management strategy.
- We will research and provide Human Resources with information for the development of a recruitment and retention strategy for fire services administration team.
- Budget permitting, we will recruit fifteen (15) additional paid-per-call members with the intent to staff Predator Ridge Station 3.

In 2019, we will hire four (4) additional full-time firefighters to reduce reliance on overtime.

In 2020, we will hire four (4) additional firefighters (increase 4 FTE).

In 2021, we will conduct a Fire Underwriters Survey of the CoV.

In 2023, we will hire four (4) additional firefighters (increase 4 FTE).

Goal

To provide adequate **facilities** to support effective deployment of resources and service delivery.

Objectives

In 2017/2018, we will renovate Station 2 to provide three (3) office/dorm spaces and to address building code requirements.

In 2018/2019, we will develop the garage building at Station 2 as a reception centre for ESS and training/conference area.

In 2019:

- We will install an exhaust capture system at Station 3.
- We will equip and commission the Emergency Operations Center (EOC) at Kal Tire Place.

Our Mission as defined by the leaders and members of VFRS in 2017

Pride. Compassion. Courage. Community.

Informing the Vernon Fire Rescue Services Strategic Plan

In the development of the Vernon Fire Rescue Services Strategic Plan it is critical to understand what the community needs are from fire rescue services. It is equally critical that the public is informed and holds a sound understanding in regards to the current services provided, how fire services is funded, and how considerations such as the community's FUS rating impacts residents. After all "it doesn't really matter how well a local department preforms if it doesn't meet the needs of the community. Therefore, the external environment deserves the initial focus." (Wallace, 1988)

Due to the diversity of information, practices and perspectives informing this topic it was necessary to consider both quantitative and qualitative information. McDavid and Hawthorn suggest that, "There is meaningful distinction between the information that is conveyed by words and numbers." And, "Stakeholders who take the time to read a mixed presentation can learn more about performance." (2006, p. 325) It is through the examination of statistics and data, as well as experiences with fire safety programs and initiatives that a well-rounded understanding of the service immerges.

Mayor and Council are to be presented the material and content of the plan to provide opportunity for input prior to it being delivered to the broader stakeholder group(s). Due to the time constraints associated with immediate operational needs, some improvements are being implemented intuitively as the plan is developed.

Initial **public input** used to inform the plan includes results from a survey of citizens opinions conducted in 2016 (Bertles, 2016). The survey reports that of the 258 responses 147 supported slight increases in funding for fire service, 35 suggested increases and 34 felt a decrease in funding was appropriate. A review of comments from participants reveled that several had concern regarding full-time firefighter wages, which were seen to be too high. It is important to consider the salaries of firefighters in context. The numbers reported in the 2016 City of Vernon Annual Report include remuneration and expenses such as training cost, overtime, contract settlements, etc. Full-time firefighters work more scheduled hours than a typical Canadian worker. A firefighter works a regular forty two (42) hour work week while most other Canadian professionals typically work between a thirty five (35) to forty (40) hour work week. Due to the small number of firefighters on duty, at any given time, VFRS relies heavily on calling back off-duty firefighters for significant events, at overtime rates. Firefighter salary rates are essentially set under the concept of "parity" with firefighter rates in the lower mainland. "Parity" rates have been up held by numerous arbitrators over many years in many communities including Vernon.

Conversations with residents and developers revealed an expectation for fire services to be delivered effectively from all three (3) stations. A meeting with representatives of Predator Ridge development, COV Planning and Fire Services focused specifically on the fire services delivered from Station #3.

Current deployment models are capable of delivering 15-20 minute initial response times to the Predator Ridge community. This has an impact on development requirement and fire insurance rates.

The **VFRS Leadership team** consists of Leaders of the different groups who make up VFRS. These include the Chief, Deputy(s), Shift Captains, Training Officer, Fire Prevention Officer, VVFA Captain(s), and the Emergency Program Coordinator. These Leaders provide guidance regarding how services are delivered and options to improve service delivery through adjustments in systems and approach.

IAFF Executive works with Management to apply the collective agreement and to negotiate contract changes which are needed as VFRS grows and matures.

VVFA Board represents the VVFA members and works with Management to shape agreements which consider VVFA member's needs.

Individual **members** of the service have been engaged in conversations regarding fleet development, deployment options, equipment needs and shortfalls, to name a few and their feedback has helped to inform many aspects of the plan.

Past strategic plans and Fire Underwriters Survey (FUS) reports have been reviewed in order to understand solutions which have been considered over time to address the City's fire and rescue service delivery. These documents share common recommendations regarding increased staffing levels. A FUS report provided in 1990 identified that "…manning is below our recommended level. Although the volunteer manning complement appears adequate, on-duty fire suppression personnel ensure a more effective initial attack capacity, especially on first alarms." (Ian Josephson, 1990) The report further comments on staffing levels in the recommendations section, "a minimum of six (6) on-duty full-time firefighters should respond with the two (2) first out pumpers. Remaining equipment could be manned as required by supplementary manpower from other sources (eg. Off-shift, volunteer members, etc.)." (Ian Josephson, 1990). It is important to note that in 2017, twenty seven (27) years later, and after establishing two (2) additional fire stations that staffing levels remain below the minimum level recommended by FUS in 1990. It is quite likely that a survey completed in 2017 would rate the level of service delivery lower than in 1990. This would result in higher fire insurance rates throughout the City.

There are financial benefits for maintaining an effective fire service. It was presented in the Vernon Fire Rescue Services 2009-2013 Business Plan that citizens of Vernon who held fire insurance were collectively saving $9,587,182 per year due to reduced insurance costs. Based on the 2009-2013 Business Plan, Insurance holders save approximately $2.17 for every dollar spent on fire services in the City of Vernon. (City of Vernon, 2009) Providing fire services which are in-line with FUS recommendations is economically responsible and serves to better protect both life and property.

The City of Vernon Fire Rescue Services Strategic Plan 2008 -2017, not adopted by the council of the day, recommended hiring sixteen (16) new full-time firefighters over the period of time. (Principal, 2008)

Both past FUS reports and the City of Vernon Fire – Rescue Services Strategic Plan 2008 -2017 identify the age of the fire apparatus and the need for a replacement schedule to bring the apparatus in-line with industry recognized standards. Currently, most of the CoV's fire apparatus fall outside of recognized standards.

The **Vernon Community Wildfire Protection Plan (CWPP)** was completed in 2014 and the report informs urban wildfire interface risks within the City of Vernon. This plan provides an inventory of the different types of interface exposures and is used to guide mitigation efforts, inform bylaws, and new development. Some examples of the work being done to reduce the interface threat to our community include; FireSmart work in Predator Ridge, Deer Park, and Ellison Park. Ongoing application of the plan is an important consideration for improving fire safety within the CoV, as members of the public continue to raise concern regarding heavy fuel loads within City boundaries. In 2017, during a summer of extreme wildfire losses, the effectiveness of mitigation efforts conducted in Logan Lake, prior to a wildfire, were credited with reducing the severity and loss. Laura Kane reported that, "In Logan Lake, careful removal of so-called ladder fuels, including tall grasses, shrubs and branches, is what kept the wildfire in June from growing…" (Kane, 2017)

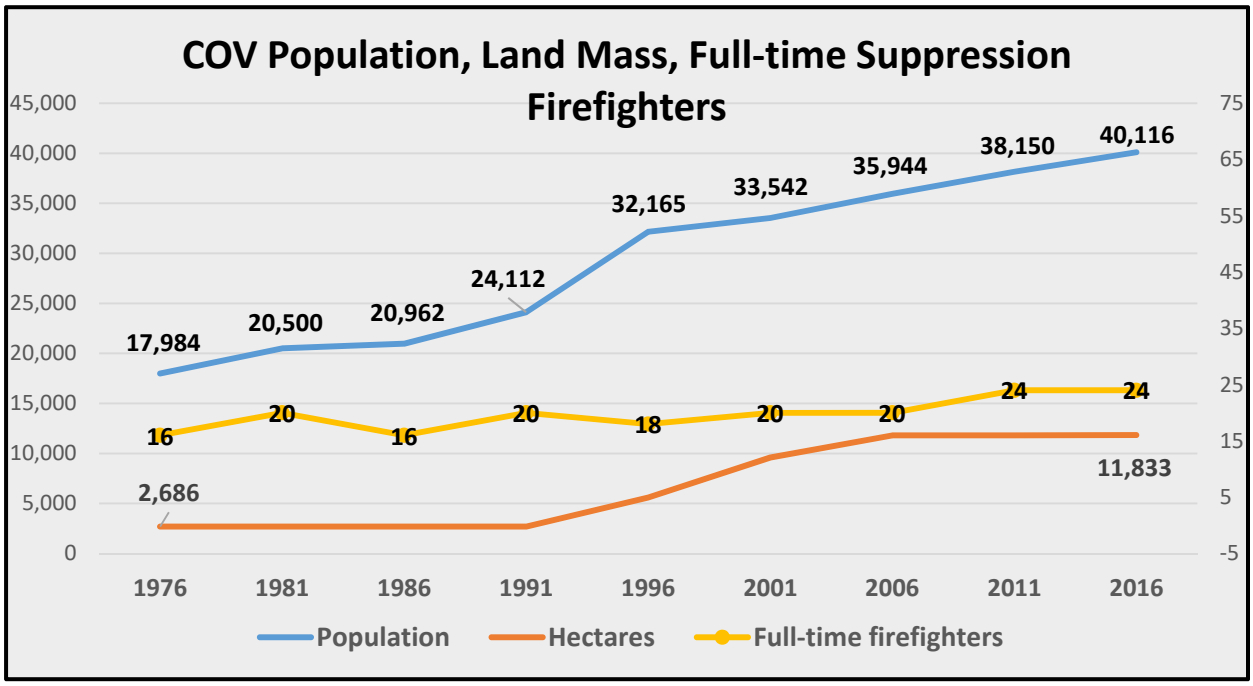

Figure 1 - Population growth within the COV, at five (5) year intervals, from 1976-2016 are reflected in the chart above. Landmass grew from 2,686 hectares in 1976 to 11,833 hectares in 2016, the data points between these years has been hidden as accurate information was unavailable at the time of this report. The number of firefighters reflected in the chart represents those assigned to suppression activities. By 2010 there were four (4) additional firefighters, however, up to 2,000 hours of the FTEs is spent filling in for dispatch services.

Figure 1 captures significant growth in population and land mass. Comparison of this information to the number of firefighters utilized to provide the communities fire and rescue services lends perspective regarding how well resourcing has kept pace with development. It is important to note that initially service was provided from a single fire station. Today the CoV is responsible for three (3) stations and is currently capable of staffing one of these consistently and reliably throughout the year.

Historically, VFRS serviced the CoV from a single fire station located in the downtown area. This centrally located station provided an ideal point for firefighters to respond to all corners of the City. The addition of subdivisions in the Foothills, Lakeview Estates, Okanagan Landing, and Predator Ridge have drastically changed the response area of VFRS. The footprint of the CoV is now a narrow stretch of land with

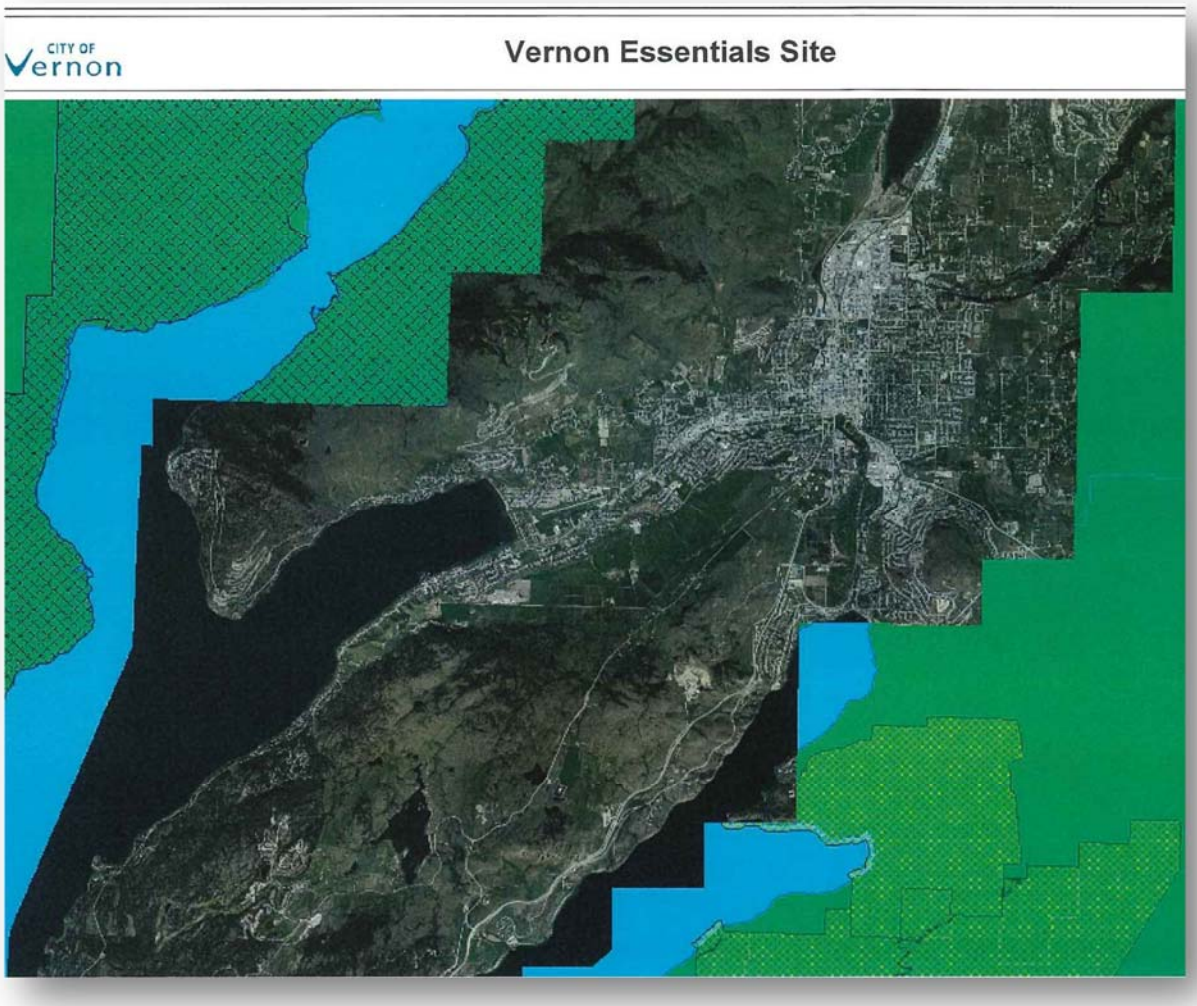

Figure 2 – CoV VFRS service area in 2017.

“fingers” that stretch down long roads with one way in and out. As an example, the furthest point along Eastside Road is over eighteen (18) km from the downtown fire station.

To meet these geographical challenges the CoV implemented a single command structure combining the Okanagan Landing volunteer fire service with the existing career and paid-per-call service and built a new fire station in Predator Ridge. The addition of these stations has not been paired with the funding necessary to operate consistently with a minimal level of service from three (3) fire stations. As a result, most of the apparatus and equipment are now well out-side of their usable life-cycle and staffing is not sufficient to maintain a consistent level of service throughout the community.

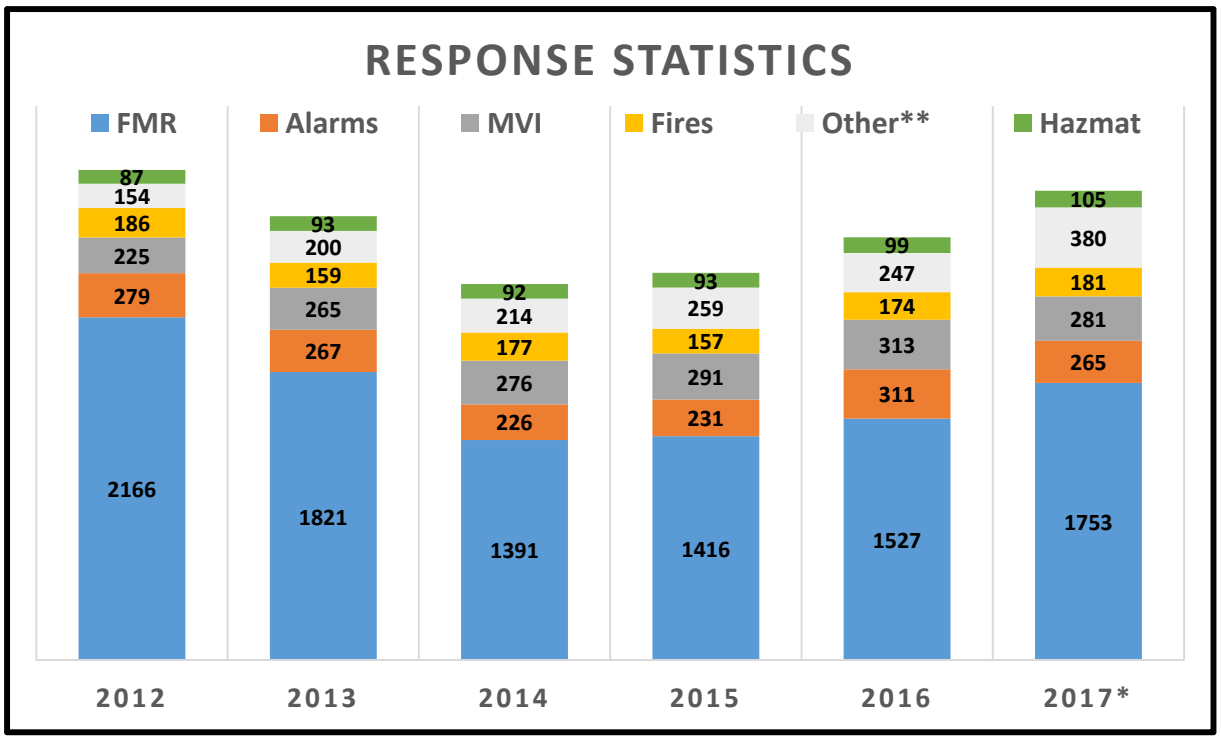

*Figure 3 VFRS Responses. *2017 numbers are predicted based on the first ¾ of the year's data. **Other includes assistance to RCMP and the public, smoke investigation, downed power lines, elevator rescue, etc.*

Figure 3 captures response statistics for the period from 2012 – 2017. Changes to the types of First Medical Responder (FMR) calls attended reflect a decrease in call volume in 2013 and 2014. Since this time fire rescue services has experienced increased call-volume, in-line with industry trends. By all accounts VFRS is a busy fire service. For context, when compared with similar response data from Surrey, BC in 2016 (City of Surrey, 2016) their halls each responded to, on average, 2,206 calls. VFRS responded to 2,671 calls.

Call volume is not the driving factor for this plan. However, it is important to note that the response activity of the service is high and in the current system higher call volumes contribute to the increased use of call backs and more frequent occurrences of overlapping or simultaneous calls-for-service.

Review of Industry Best Practices

Comparison to similar fire services and communities is important to consider in the municipal environment. The information provided in the chart below was collected in September of 2017. When considering budget it is important to note that the numbers reflected may include different program delivery amongst the fire services. As example, VFRS delivers the City's emergency program and the fire services budget also captures costs associated with hydrant maintenance and repair. This is an atypical budgeting practice for fire services. For the purpose of comparison these programs have been removed from the CoV Fire Rescue budget and efforts have been made to consider the other fire services budgets as they relate to providing fire rescue services.

In BC approximately 80% of communities are protected by volunteer fire services with composite (combination of full-time and paid-per-call) and full-time services protecting the larger communities. The volunteer fire departments protect more communities while full-time departments protect more people. VFRS is at a point where the delivery of volunteer services is not sustainable or capable of meeting the community's expectations and yet a full-time fire service is not yet affordable. It is crucial that we develop emergency services at a pace that can keep up with increased demands and development.

Comparison of the City of Vernon to Significantly Smaller Communities

City	Population	Responders		Admin. & Support		
		Full-time	**Paid-per-Call**	**Training Officer**	**Prev./ Insp. Pub. Ed**	**Chiefs**
Vernon, BC	**40,116**	**24**	**25**	**1**	**1**	**3**
Fort St John, BC	20,155	**24**	5	1	2	2
White Rock, BC	19,950	**22**	20	0	0	3
Esquimalt, BC	17,655	**24**	0	0	0	3
Port Alberni, BC	17,678	**20**	0	0	1	2
Cranbrook, BC	20,047	**20**	10	0	1	2
Prince Rupert, BC	13,500	**18**	0	0	0	2
Kitimat, BC	8,131	**20**	0	0	0	3

Figure 4 – 2016 comparison of the City of Vernon to Smaller Communities. This information was collected and verified by the City of Cranbrook Deputy Fire Chief, Scott Driver.

Figure 4 compares Vernon with seven (7) other significantly smaller communities. These smaller communities are relying on eighteen (18) to twenty four (24) full-time firefighters and between zero (0) to twenty (25) paid-per-call firefighters to provide service. Currently VFRS utilizes twenty four (24) full-time and twenty (25) Paid-per-Call firefighters to provide service in a community more than two times the population of these other communities.

Comparison of the City of Vernon to Similar Communities

City	Population	Responders		Admin. & Support			Budget
		Full-time	Paid-per-Call	Training Officer	Prev/Insp Pub Ed	Chiefs	Budget (approx.)
Port Moody, BC	33,551	42	20	1	1	3	6,800,000
Penticton, BC	33,761	32	30	0	2	3	6,141,000*
West Kelowna, BC	34,930	32	60	0	3	4	6,700,000
Prince Albert, SK	35,102	46	0	0	2	2	7,200,000
Campbell River, BC	35,138	22	60	0	1	3	4,100,000
St. Thomas, ON	38,908	48	0	1	2	2	6,500,000
Vernon, BC	**40,116**	**24**	**25**	**1**	**1**	**3**	**5,100,000**
Timmins, ON	41,788	28	143	1	3	2	6,800,000
West Vancouver, BC	42,473	95	0	1	5	4	16,000,000
Port Coquitlam, BC	58,612	72	0	1	2	4	11,000,000

*Figure 5 – 2017 comparison between ten (10) cities of similar population to Vernon, BC. The information was collected through each communities Fire Service Leaders and verified using the municipality's published financial reports and the 2016 Census. *Penticton's budget reflects large revenue offsets ($481,000) which has been added to the reported operational budget amount to more closely reflect a true comparison to the other communities.*

In a comparison with nine (9) other similar sized communities the average number of full-time firefighters employed is forty four (44) and the average number of paid-per-call is thirty four (34). Considering the most similar cities and fire services to Vernon, Port Moody, Penticton, and West Kelowna, it is noteworthy that Vernon is utilizing the least number of full-time fire fighters. Vernon spends, on average, approximately $1,650,000 per year less on fire service than West Kelowna and Port Moody.

How Many Firefighters is enough?

The number of full-time firefighters required per population has been commonly debated within the CoV. A study conducted in 2012 and published by *Firefighting in Canada* identified that the industry practice in North America has been to staff fire departments with the equivalent of one full-time firefighter per thousand in population, along with additional consideration of local conditions and needs. "On average, full-time fire services are employing almost exactly one firefighter per 1,000 residents (0.9954 to be exact)." (Sells, 2012)

Paid-per-call firefighters can be used to help meet this equivalency at a ratio of five (5) paid-per-call to one (1) full-time equivalent. This reflects the number of hours a full-time employee can commit verses the number of hours a dedicated paid-per-call member can commit.

A best practice among volunteer services is to utilize five (5) paid-per-call firefighters per one thousand (1000) population, along with consideration of local conditions and needs. Using this logic the City of Vernon would need two hundred (200) paid-per-call firefighters for a sustainable volunteer firefighting force. Currently, VFRS struggles to maintain the VVFA ranks between twenty (20) and thirty (30) firefighters.

For composite departments, such as VFRS, it is essential to find the right balance of full-time firefighters and paid-per-call firefighters. Having an adequate number of full-time firefighters stationed in the right locations allows for the quickest response and having a contingent of paid-per-call members strengthens the quick initial response for larger and more resource exhaustive events. Applying industry best practice to the CoV indicates the City needs the equivalent of forty (40) full-time firefighters, currently there is a deficit of eleven (11) full-time equivalent positions.

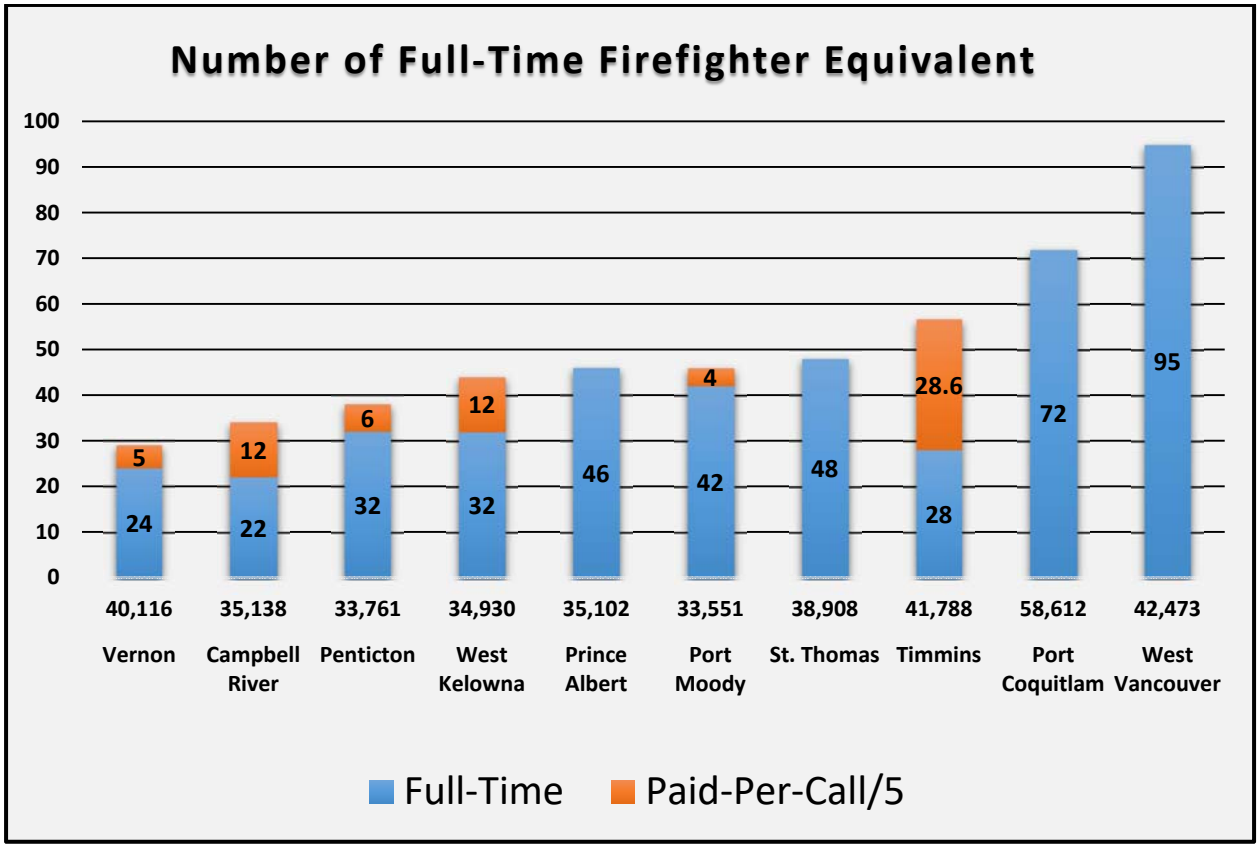

Figure 6 – 2017 comparison of full-time equivalent firefighters per population in similar sized cities.

Figure 6 displays how each of the comparable cities are staffed. The bottom of each bar, in blue, illustrates the number of full-time firefighters. The top section of each bar, in orange, represents the number of paid-per-call firefighters divided by five (5). The total of each bar indicates the full-time equivalent for firefighters in each community. Vernon has the lowest number of full-time equivalent firefighters of these comparable cities.

Some of these communities have provided full-time fire services while others are composite (combined services). Timmins, Ontario provides service by utilizing twenty eight (28) full time and one hundred and forty three (143) paid-per-call. It is likely that they can maintain their high number of paid-per-call members due to their demographic, which is made up largely by those employed in the forestry industry. In contrast, West Vancouver uses ninety five (95) full-time members to protect its wealthy and built-out community.

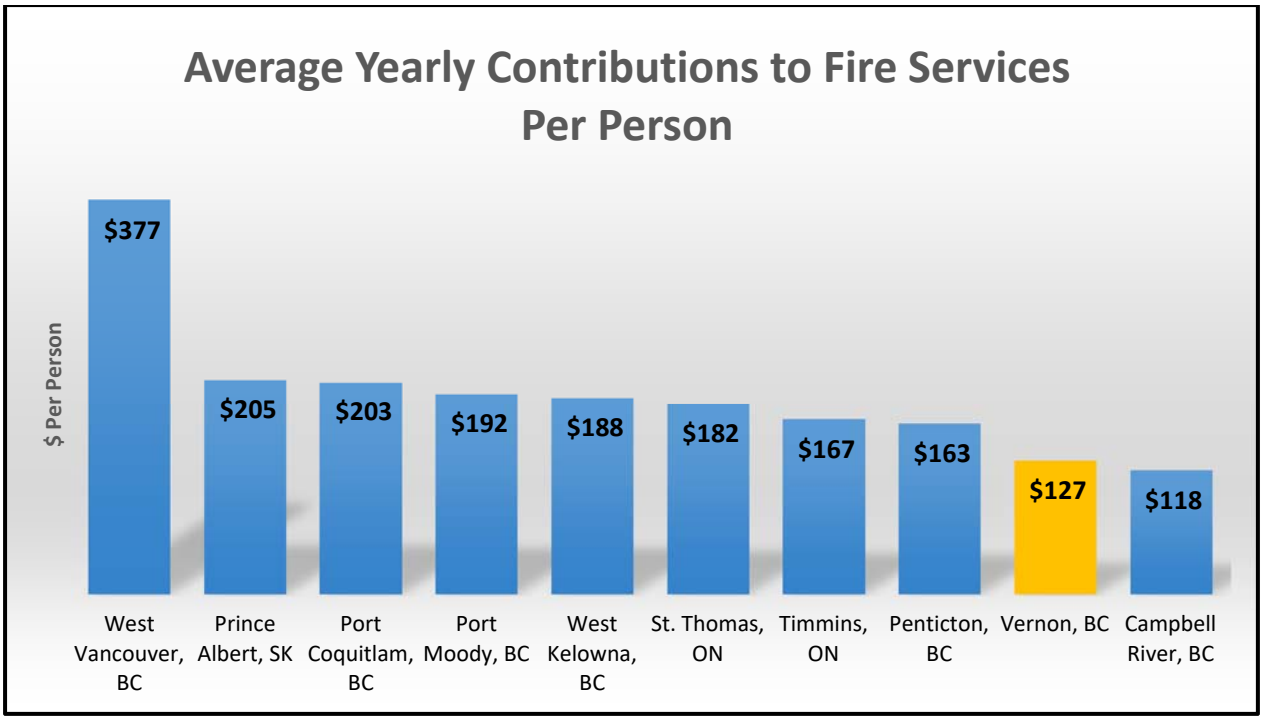

Figure 7 – 2017 calculation of the amount paid per person (population) per year for fire service. The information was collected through each communities Fire Service Leaders, 2016 census, and financial reports.

The calculations in Figure 7 are derived by dividing the fire services annual budget by the population. This is a simplistic approach to provide relative comparison. It is important to note that differences in budgeting and reporting practices can have an impact on the accuracy of the comparison. Efforts have been made to compare like data to increase confidence in the data. Interestingly, while some may feel these are high amounts they are heavily outweighed by the amount saved by each resident due to reduced fire insurance premiums.

Composition of Vernon Fire Rescue Services

VFRS is comprised of several groups responsible for distinct and interdependent programs. Ongoing efforts focus on developing a *"one team"* approach to service delivery. The services delivered include the City's Emergency Program, Fire Prevention and Inspection, Emergency Response, and management of the Regional Fire Training Center (FTC). Our current roster is as follows:

- One (1) interim fire chief
- One (1) deputy fire chief
- One (1) vacant chief fire officer position
- One (1) administrative assistant
- One (1) emergency program coordinator
- One (1) part-time emergency management secretary
- One (1) training officer
- One (1) prevention officer
- Four (4) shift captains – each captain oversees a group of fire fighters
- Twenty (20) full-time fire fighters – divided into four (4) groups
- Twenty (25) paid-per-call firefighters
- Four (4) communications operators

VFRS Organizational Structure

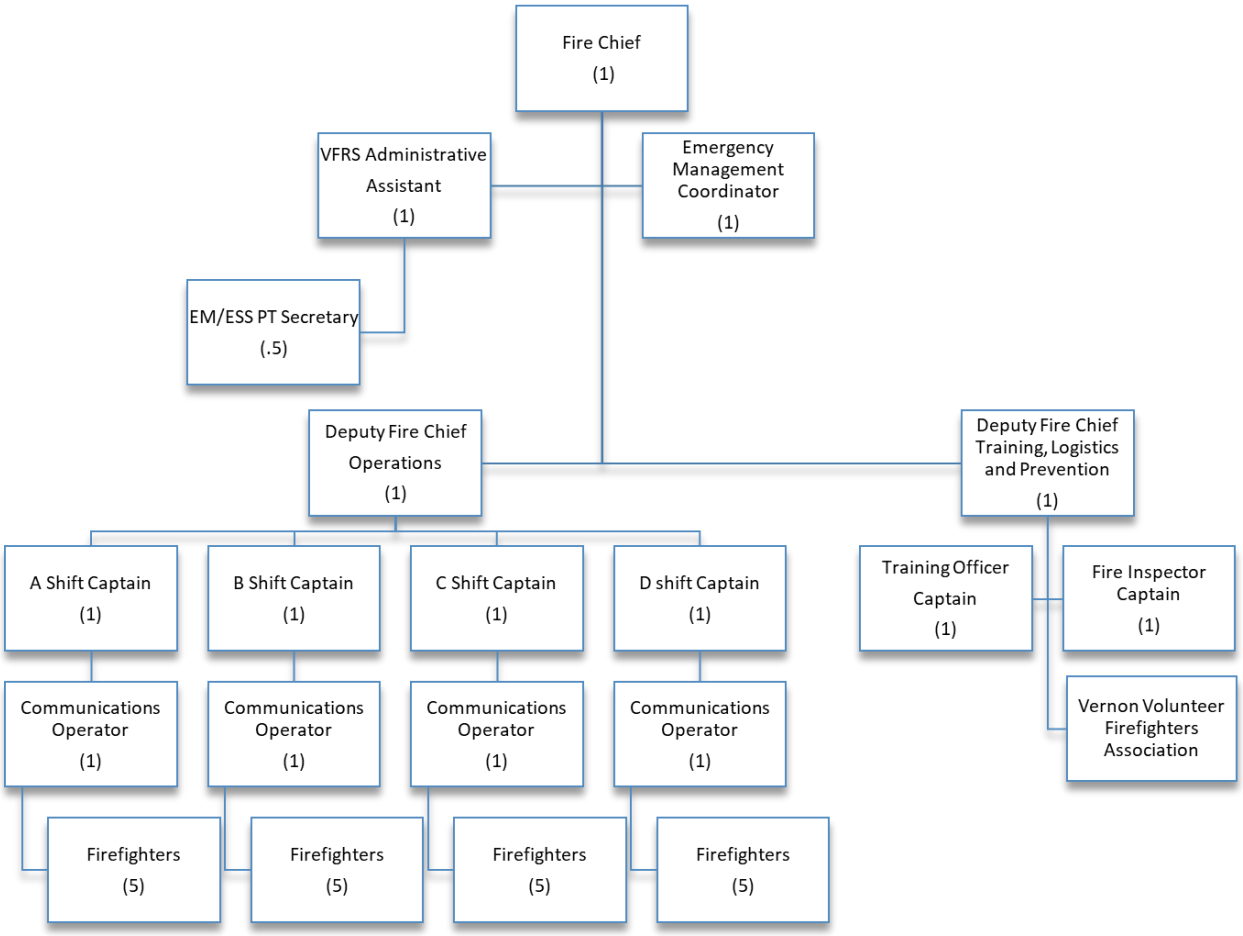

Figure 8 – 2017 Organization Structure of VFRS

Departmental Mandates

Legislation and regulation provides the authority for and governs operation of the fire department and service delivery. The following Legislation and regulations apply to VFRS.

- Local Government Act
- Community Charter
- BC Fire Safety Act
- Workers' Compensation Act
- Emergency Health Services Act
- Emergency Program Act
- Motor Vehicle Act
- Employment Standards Act
- Criminal Code sec. 217.1 (Bill C-45)
- Industry Canada regulations (communications)

The following Codes and Standards apply to VFRS.

- BC Fire Code
- BC Building Code
- NFPA Standards
- Labour Relations Code
- British Columbia Fire Service Minimum Training Standards: Structure Firefighters Competency and Training Playbook

VFRS Core Services

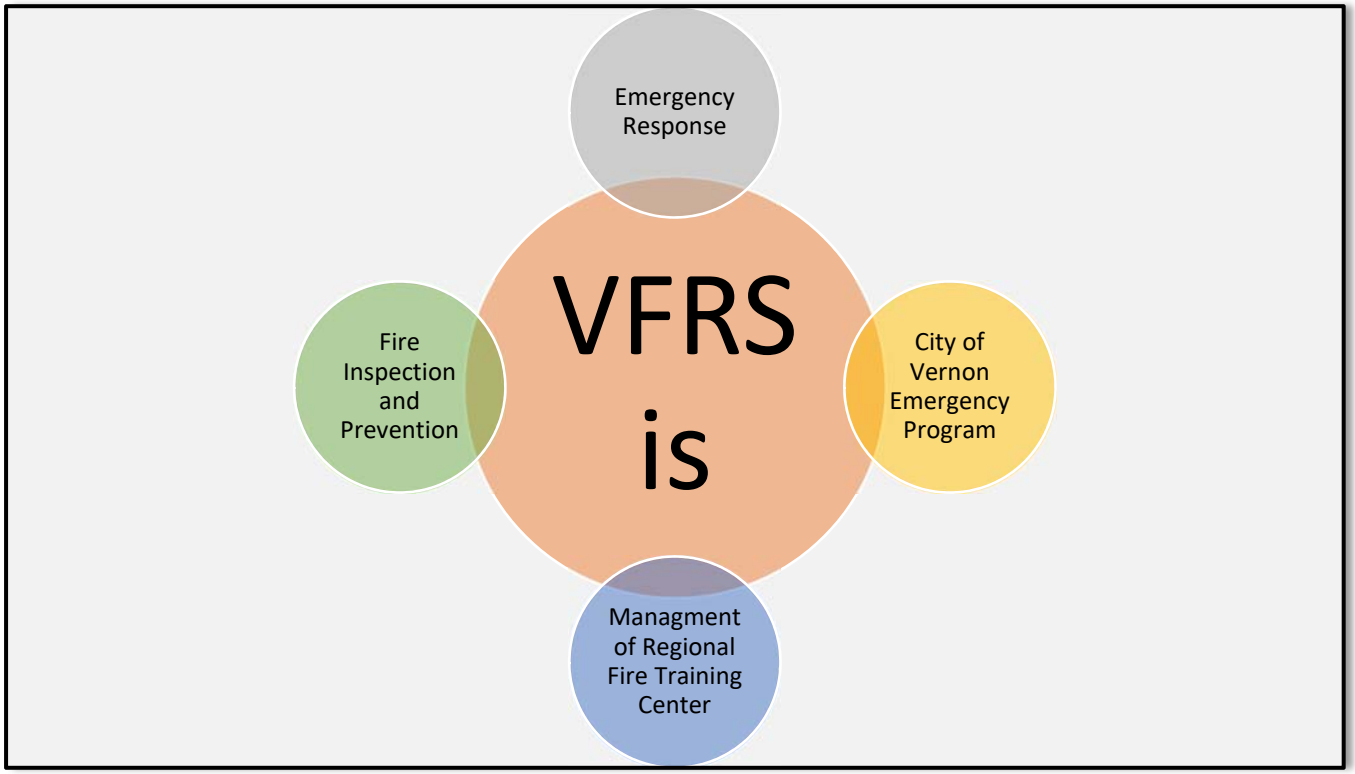

Figure 9 – reflects core services provided by VFRS.

Emergency Response

The emergency response service(s) make up the group of activities which are associated with public perceptions of fire rescue services. These services include fire suppression, first medical response, rescue, and hazardous materials response. It is common for customers to have unrealistic expectations regarding the level of service provided as they quite often do not discern the difference between a staffed and unstaffed fire station or the associated differences in response time. In 2017, the author had an experience with a resident which illustrates this point. The VFRS on-duty crew was deployed to a grass fire in the Predator Ridge area and was cleaning up when a call for a fire near a home was reported in the Foothills. Our mutual-aid partner, BX Fire Services, was dispatched and the VFRS crew cleared the

original call, responding from Predator Ridge to the Foothills. The first fire engine on scene was from the BX Service which is located one (1) kilometer from the fire, followed within a minute by the VFRS crew. The resident was upset that a fire station was so nearby and their fire engine took twenty (20) minutes to arrive. She couldn't understand that the BX crew had to leave what they were doing, drive to the hall and then respond. She quite adamantly expressed that we had failed in providing an effective service.

Most emergency response services can have the greatest impact on outcomes when provided as soon as possible. For fire suppression it is a race against the fire propagation curve to minimize fire spread and damage. With medical response and rescue the challenge is to provide lifesaving interventions while they can still be effective.

Currently, it is not possible to provide the same level of service throughout the entire community. Today's deployment model immediately dispatches full-time firefighters from Fire Station 1 to all areas within the City and supports this response with the slower call back of paid-per-call and off-duty firefighters who respond from Station 2 (Okanagan Landing) and on occasion Station 3 (Predator Ridge). Due to the communities difficult foot print response from one end of the service area to the other can be as long as twenty five (25) minutes or more of travel time.

Fire Suppression

NFPA standards are the most commonly accepted standards regarding the provision of fire protection services. NFPA 1710 is the standard which guides the provision of professional fire suppression service and this standard aims to place enough of the right resources, in sufficient force, quickly enough, to overcome the problem in a manner which limits property loss, injury, and death. The standard notes that "An aggressive and offensive primary interior attack on a fire, where feasible, is usually the most effective strategy to reduce loss of lives and property damage." (NFPA 1710)

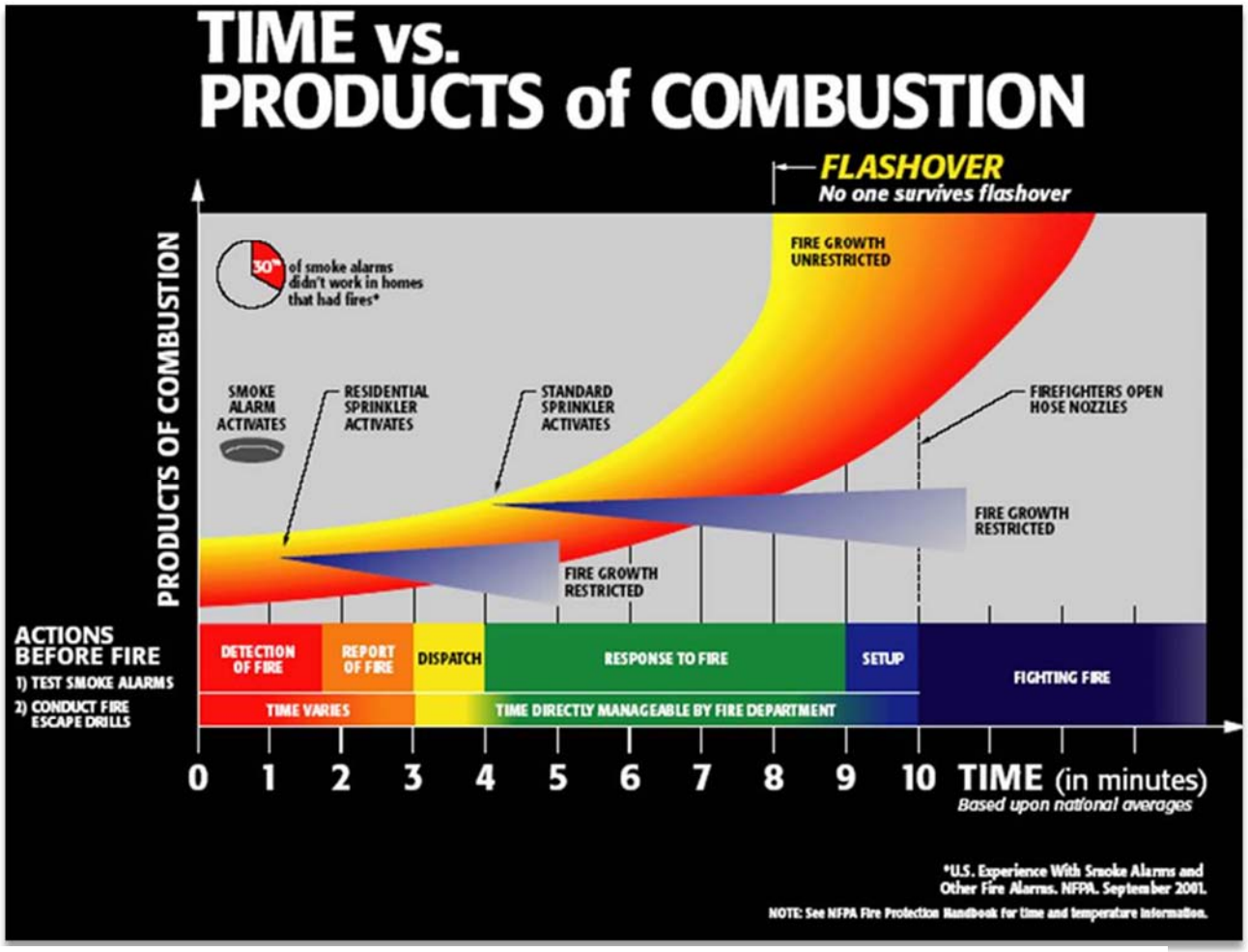

Figure 10 – captures typical fire growth, smoke alarm activation, residential sprinkler activation, standard sprinkler activation, time from detection to firefighting efforts underway.

Figure 10 illustrates the importance of timely intervention in protecting life and property. Sprinkler systems are the ultimate life and property protection tool available, when maintained in proper working order. A typical residential or commercial sprinkler system activates a few heads and controls the fire in the area of origin with much less risk and damage than when the fire is permitted to grow until firefighters can apply water.

The goal of fire services is to provide the first fire engine, with four (4) firefighters, as quickly as possible, in order to facilitate an aggressive interior attack and rescue. While this is ideal, when a smaller number of firefighters is all that is available they can often apply water from a safe location outside of the fire area, resetting the fire and allowing time for addition resources to respond.

Within the CoV, a four (4) firefighter engine company should be maintained from Station 1 with smaller crews responding from Station 2 and 3. Initial responding resources should be supported by the other stations and by the call back of off-duty and paid-per-call members.

First Medical Response

First Medical Response (FMR) calls currently make up the largest percentage of emergency responses. Cardiac arrest, significant trauma or burns, drug overdose and shock are some of the life threatening afflictions which require timely intervention for the best chance of favorable outcome. An American Medical Associations bench mark report of cardiac arrest survival rates notes that when interventions are applied within 1 minute 95% survive, at 2 minutes 88% survive, at 3 minutes 75% survive, at 4 minutes 50% survive, at 6 minutes 20% survive, at 7 minutes 6%, at 8 minutes 2%.

Currently, within the City of Vernon all FMR calls are responded to from Fire Station 1, the time required to reach a patient varies significantly based on the patients proximity to the station.

Rescue

VFRS provides auto extrication (Jaws), low angle rope rescue, and confined space rescue. Many of these services are time sensitive as a patient often cannot be provided needed medical care until they have been retrieved and moved to a safe location.

Confined space rescue is a service employers must be able to provide prior to their employees being permitted to work in a confined space. A benefit of this program is that the CoV has several confined spaces where workers must enter to provide inspection, maintenance, or repair.

Hazardous Materials

Hazardous materials response focuses on reducing risk to life, health and the environment. These calls can be labour intensive and last for prolonged periods of time. The calls typically involve transportation of dangerous goods accidents, chemical releases at arenas or pools, and illicit drug labs.

Training

To provide effective services safely fire services members are continuously training to acquire and maintain skills and required certifications. It typically takes a new VVFA member a year to complete the basic requirements to respond to a fire call.

In addition to firefighting qualifications VFRS members hold qualifications for emergency vehicle operations, confined space rescue, hazardous materials response, first medical responder, rope rescue, auto extrication, incident command, fire scene management, safety officer, fire investigation, fire inspection, public education, fire officer, and more. Each of these certifications can represent forty (40) to eighty (80) hours of initial training and most require regular recertification.

Significant practice is required to retain some of the seldom used skills in order to ensure a constant state of readiness to respond.

Fire Inspection & Prevention

Fire inspections are completed to reduce the risk of fires starting and to ensure fire detection and suppression systems are properly functioning to reduce severity should a fire occur. On-duty firefighters and the Fire Prevention Officer complete scheduled fire inspections based on established frequencies.

VFRS has a contract with the Village of Lumby for fire inspections and investigations, however, with the current work load and resourcing this is not likely a sustainable contract.

Prevention activities should include a public education component. Several programs such as a residential fire alarm initiative have been undertaken in the past. Today a comprehensive three (3) year

strategy is required to guide an effective fire prevention program. Ownership and buy-in to the delivery of fire inspections, investigations, and prevention programs needs to be developed amongst the operations groups to provide the needed capacity for the meaningful delivery of these services.

Emergency Program

VFRS manages the City's emergency program, providing structure, training, and oversight to a corporate team of emergency management leaders. The emergency program encompasses the City's preparedness, response, mitigation, and recovery activities.

Community Emergency Plans

The emergency response plan is undergoing substantive revision and development after transitioning from a regional program to a CoV program in January of 2017. EOC and ESS activations in 2017 serve to inform the plan, capturing lessons learned and best practices established during response to flooding and forest fire evacuations.

Mitigation

In 2016 and 2017 FireSmart activities have been successfully completed in Predator Ridge, Ellison Park and Deer Park. During the 2017 fire season Fire Station 2 and 3 were staffed during the highest risk periods of the day to ensure a quick response to possible wildland fires.

In 2017, a new fire services bylaw has been developed and it provides for the use of burning as a tool to control fuel load hazards. This is one of the more effective tools for control of fuel loads when used with thinning, grazing and other strategies. Prescriptions for burning are required to limit liabilities and ensure ecological concerns are addressed.

Fire Services will seek funding in 2018 to enable access to Provincial grants for larger fuel load mitigation projects to further implement recommendations in the Community Wildfire Protection Plan.

Preparation

The emergency program provides for a prepared community and emergency management structure by providing planning, education, training, practice and full scale exercises.

Response

Initial response to emergencies occur through established notification and dispatch systems. As events grow and responders are stretched beyond their ability to manage the event(s) an Emergency Operations Center (EOC) is established to support responders. Responders from several City Services, Police, Fire, Ambulance, Utilities and Emergency Social Services (ESS) all have representation within the EOC structure to ensure a coordinated response to the community's needs.

Recovery

Even as response to an emergency continues, activities to facilitate the recovery from the event begin. These activities continue long after the initial event has ended.

Regional Fire Training Center

VFRS provides management and recommendations for the Regional Fire Training Center. This service provides a venue for cost effective fire services training to be delivered within the region. Without this facility the regions fire services would be required to send firefighters away for training, increasing the cost and time required to qualify firefighters.

This program is a partnership amongst seven (7) participating governments and managing the center and its agreements is not without complexity. Those involved in the governance of the agreement and in the use of the facility consider the Fire training Center to be of great benefit to the region.

Fire Services Apparatus

Establishing a modern fleet of fire and rescue apparatus is an integral function to meeting the goals and objectives of VFRS. The main performance indicators for establishing the fleet are:

- Apparatus located to accomplish the stated standards of response coverage and service level objectives,
- Apparatus types are appropriate for the functions provided such as; structural fire suppression, wildland fire suppression, first medical response, rescue, hazardous materials response; and
- A replacement schedule exists for apparatus.

Vernon Fire Rescue Services Apparatus Inventory as of 2017

Station #1				
Unit	***Year***	***Age***	***Primary Function***	***Secondary Function***
Engine 1	2009	8	Pumper (structural)	MVI
Engine 1-2	1996	21	Pumper (wildland)	Pumper (structural)
Ladder 1	1991	26	Aerial (110 ft.)	Pumper
Quint 1	2000	17	2nd line Pumper	Aerial (55 ft.)
Rescue 1	2002	15	MVI	N/A
Tender 1	2012	5	Water Supply	N/A
Hazmat trailer	2004	13	Hazmat trailer	N/A
Car 1	2004	13	Medical/Incident Command	N/A
Car 2	2005	12	Inspection	N/A
Car 3	2007	10	Multi-use	N/A
Car 4	2011	6	On-call Chief	N/A
Station #2				
Engine 2	1996	21	Pumper (structural)	Pumper (wildland)
Tender 2	2016	1	Water Supply	N/A
Forestry 2	2002	15	Mini-pump (wildland)	N/A
Utility 2	1991	26	Supplies	N/A
Station #3				
Engine 3	1985	32	Pumper	N/A
Tender 3	1985	32	Water Supply	N/A

Figure 11 - lists the current apparatus for VFRS, along with their location, year of manufacture, age, primary and secondary functions.

Apparatus Lifespan and Replacement Guidelines

There are several sources of information which provide guidance on the appropriate life span of fire apparatus. The National Fire Protection Association (NFPA) publishes internationally recognized standards which apply to almost every facet of firefighting. NFPA 1901 Standard for Automotive Fire Apparatus states in Appendix D:

> *"To maximize fire fighter capabilities and minimize risk of injuries, it is important that fire apparatus be equipped with the latest safety features and operating capabilities. In the last 10 to 15 years, much progress has been made in upgrading functional capabilities and improving the safety features of fire apparatus. Apparatus more than 15 years old might include only a few of the safety upgrades required by recent editions of the NFPA fire department apparatus standards or the equivalent Underwriters Laboratories of Canada (ULC) standards. Because the changes, upgrades, and fine tuning to NFPA 1901 have been truly significant, especially in the area of safety, fire departments should seriously consider the value (or risk) to firefighters of keeping fire apparatus more than 15 years old in first-line service.*
>
> *It is recommended that apparatus more than 15 years old that have been properly maintained and that are still in serviceable condition be placed in reserve status; be upgraded in accordance with NFPA 1912; and incorporate as many features as possible of the current fire apparatus standard. This will ensure that, while the apparatus might not totally comply with the current editions of the automotive fire apparatus standards, many of the improvements and upgrades required by the current editions of the standards are available to the fire fighters who use the apparatus.*
>
> *Apparatus that were not manufactured to the applicable NFPA fire apparatus standards or that are over 25 years old should be replaced."*

Another source of guidance on apparatus replacement is the Fire Underwriters Survey (FUS). FUS is a national organization which provides data on public fire protection for fire insurance statistical work and underwriting purposes of subscribing insurance companies. Subscribers of Fire Underwriters Survey represent approximately eighty five (85) percent of the private sector property and casualty insurers in Canada.

FUS assigns credit in the grading system for fire apparatus based on the size of the community and the age of the apparatus. For communities the size of Vernon, **first line fire apparatus** are given credit **up to 15 years of age**. Apparatus should then be moved to **2nd line from 16-20 years of age**. All fire apparatus 20 years of age and older are required to be service tested by a recognized testing agency on an annual basis to be eligible for grading recognition. Apparatus may be conditionally considered in **reserve status up to the age of 25** when their condition is acceptable and apparatus successfully pass required testing.

By applying the guidelines provided by these organizations to the fleet of apparatus currently in service in Vernon Fire Rescue Services, one can quickly see that many of the apparatus need to be replaced. In particular, Engine 3 and Tender 3 currently in service at Station #3 should immediately be removed. Each of them is 32 years old, well past the acceptable age of fire apparatus. The heavy duty mechanics who work on these trucks haven't tested pumping capabilities for the past two years for fear of catastrophic failure. As well, they receive no credit in the grading system from FUS as usable pieces of fire apparatus.

The next oldest piece of apparatus is Ladder 1, which is twenty six (26) years old. It also should be replaced as soon as possible in order to meet the guidelines from NFPA and FUS. Although the department has Quint 1 available as an aerial device, its ladder is only half as tall as Ladder 1. This makes it inadequate for rescue purposes in many of the taller structures within our community. Replacement of other apparatus within the fleet in order to meet the main performance indicators has been planned. The next section outlines the replacement schedule for those items.

Fleet Replacement Schedule

The following table provides a realistic timeframe for replacing apparatus over the next 20 years. The main purpose is to plan for and fund the fleet. This plan relies on an **increase of contributions to reserves from $135,000 in 2017 to $375,000 in 2018 plus 1.9% in each subsequent year.**

Year	Opening Reserve Balance	Annual Reserve Contribution	Reserve Balance	Apparatus Purchase	Approximate cost	Closing Reserve Balance
2018	600,000	**375,000**	975,000	Engine	(700,000)	275,000
2019	275,000	**382,125**	657,125	Ladder	(1,300,000)	(642,875)
2020	(642,875)	**389,385**	(253,490)	Emergency response/command	(70,000)	(323,490)
2021	(323,490)	**396,784**	73,294	Emergency response/command	(75,000)	(1,706)
2022	(1,706)	**404,323**	402,617	Rescue	(650,000)	(247,383)
2023	(247,383)	**412,005**	164,621	Emergency response/command	(80,000)	84,621
2024	84,621	**419,833**	504,454	Forestry	(450,000)	54,454
2025	54,454	**427,810**	482,264	Emergency response/command & Fire Boat	(485,000)	(2,736)
2026	(2,736)	**435,938**	433,202	Quint	(90,0000)	(466,798)
2027	(466,798)	**444,221**	(22,577)	Reserve Contribution	0	(22,577)
2028	(22,577)	**452,661**	430,084	Engine	(800,000)	(369,916)
2029	(369,916)	**461,262**	91,345	Reserve Contribution	0	91,345
2030	91,345	**470,026**	561,371	Tender	(500,000)	61,371
2031	61,371	**478,956**	540,327	Emergency response/command	(90,000)	450,327
2032	450,327	**488,056**	938,383	Reserve Contribution	0	938,383
2033	938,383	**497,329**	1,435,712	Reserve Contribution	0	1,435,712
2034	1,435,712	**506,779**	1,942,491	Engine	(850,000)	1,092,491
2035	1,092,491	**516,407**	1,608,898	Emergency response/command	(95,000)	1,513,898
2036	1,513,898	**526,219**	2,040,117	Tender	(600,000)	1,440,117
2037	1,440,117	**536,217**	1,976,335	Reserve Contribution	0	1,976,335
2038	1,976,335	**546,405**	2,522,740	Reserve Contribution	0	2,522,740
2039	2,522,740	**556,787**	3,079,527	Emergency response/command	(100,000)	2,979,527
2040	2,979,527	**567,366**	3,546,893	Ladder	(1,700,000)	1,846,893

Figure 12 - fleet replacement schedule to bring front line apparatus close to industry recognized standards by 2026.

VFRS Equipment and Tools

Maintaining tools and equipment is an integral component for the provision of safe and reliable fire and rescue services. Over the last decade or more this has not been given adequate attention and members have become accustom to using equipment that is outdated or does not meet industry standards. VFRS must provide safe and reliable equipment and tools to enable firefighters to provide effective service.

Fire Hose

Picture 1 – puncture found in an attack line during a response to a house fire in 2017. In 2017 a supply line failed during training and another supply line failed during an apartment block fire.

Picture 2 – catastrophic failure of a hose, the coupling separated from the hose, during a house fire in 2017. This was an attack line, had the firefighters been inside the structure at the time of failure they would have lost their water and been placed at an increased risk.

In 2017, the last documented records of annual fire hose testing were from 2013. Discussions with firefighters revealed discrepancies in recollection. Some members felt that testing had occurred without record keeping, others felt it had not occurred in a couple of years or more. Hose testing is an annual requirement to ensure the reliability of this equipment. Currently VFRS is experiencing unacceptable rates of hose failures due to the lack of a testing and replacement program.

In 2017, a hose testing machine was purchased and the hose was tested to industry and manufacture specifications. The testing reviled that:

- 20% of 1 ¾" failed the test,
- 70% of the 2 ½" doesn't meet minimum standards or failed the test; and
- 65% of 4" hose doesn't meet minimum standards or failed the testing.

Due to low hose stock and high failure rates VFRS is currently without spare 4" hose and the fire apparatus does not currently carry enough hose to meet the industry standards. The standards are based on the amount of hose needed to make connections based on building code requirements for hydrant placement and distances needed to access and suppress fires within structures. Much of the 2½" hose was manufactured from between 1974 and July of 1987. In July of 1987, due to significant standard improvements, all preexisting hose was to be removed from service.

Breathing Air System

A safe and reliable breathing air system enables VFRS to effectively undertake emergency operations in and around Immediately Dangerous to Life and Health (IDLH) environments.

In 2017, the Self Contained Breathing Apparatus (SCBA) and Supplied Air Respirators (SAR) utilized by VFRS is a fragmented group of components of various ages, air pressures, and state of repair. The oldest components are up to forty (40) years old and the newest are five (5) years old. The components were built in different eras to differing codes and standards. Older equipment was maintained by taking components from other units and as a result a single SCBA can have multiple serial numbers attached to it. The practice of utilizing breathing air components with different pressures, 2216 psi and 4500 psi, creates several hazards which are eliminated with the implementation of a breathing air system designed to ensure interoperability and compliance with current safety standards.

The breathing air system has remained in service well past a reasonable end-of-life date and as such it presents several Occupational Health and Safety liabilities. In 2017, Council approved the use of reserve funds to replace the breathing air system.

Picture 3 – 2216 psi SCBA, some up to forty (40) years old.

Picture 4 – 4500 psi SCBA, newer generation and not compatible with the 2216 psi models. Most fire services no longer use 2216 psi models as they provide much less breathing air.

Equipment and Tool Replacement Schedule and Reserve Contributions

The above examples illustrate the need to establishing a reasonable replacement schedule along with appropriate contributions to reserves. Operational budgets deal with maintenance and minor repair while the reserves fund system replacement. This plan relies on an **additional contribution to reserves in 2018 of $90,000 plus 1.9% in each subsequent year.**

Equipment Replacement Schedule

Year	Opening Reserve Balance	Annual Reserve Contribution	Total Reserve Balance	Equipment Description	Approximate cost of purchase	Closing Reserve Balance
2017	$ 600,000	**$ -**	$ 600,000	Breathing Air System	$ 600,000	$ -
2018	-	**90,000**	90,000	Hoses, Nozzles, Monitors - 3 TIC's - repeaters and base radios - 15 sets PPE new paid-per-call Predator Ridge	135,000	(45,000)
019	(45,000)	**91,710**	46,710	1 TIC - 4 sets PPE new full-time firefigher - modernize fire prevention program - Equip EOC Kal Tire	52,000	(5,290)
2020	(5,290)	**93,452**	88,162	1 TIC - CAD equip - 4 new sets of PPE new full-time firefighter	88,000	162
2021	162	**95,228**	95,391	Hazmat Equip., Portable Radio System	115,000	(19,609)
2022	(19,609)	**97,037**	77,428	Extrication Equip.- Ropes, Harnesses - class b firefighting foam program	307,500	(230,072)
2023	(230,072)	**98,881**	(131,191)	4 new sets of PPE new full-time firefighter	16,000	(147,191)
2024	(147,191)	**100,760**	(46,431)			(46,431)
2025	(46,431)	**102,674**	56,243			56,243
2026	56,243	**104,625**	160,868			160,868
2027	160,868	**106,613**	267,481	Ropes, Harnesses	10,000	257,481
2028	257,481	**108,639**	366,120	5 TICs	75,000	291,120
2029	291,120	**110,703**	401,823	Extrication Equipment	125,000	276,823
2030	276,823	**112,806**	389,629			389,629
2031	389,629	**114,949**	504,578			504,578
2032	504,578	**117,133**	621,712	Breathing Air System - Ropes Harnesses	812,500	(190,788)
2033	(190,788)	**119,359**	(71,429)			(71,429)
2034	(71,429)	**121,627**	50,198			50,198
2035	50,198	**123,938**	174,136	Washer extractor	70,000	104,136
2036	104,136	**126,293**	230,428			230,428
2037	230,428	**128,692**	359,120	Extrication Equip. -Ropes, Harnesses	165,000	194,120
2038	194,120	**131,137**	325,258	TICs	100,000	225,258
2039	225,258	**133,629**	358,886			358,886
2040	$ 358,886	**$ 136,168**	$ 495,054			$495,054

Figure 13 – equipment and tool replacement schedule.

Staffing and Deployment

The staffing and deployment of VFRS is an important component in achieving consistent and predictable delivery of response services year round. Currently the service is understaffed by eleven (11) full-time equivalent firefighters.

- The contracting out of dispatch services to address liabilities and to reduce operational costs by an estimated ($200,000) plus /year.
- The addition of an operational reserve for additional staffing during high risk conditions $90,000 per year.
- Increase to the operational VVFA wages budget to provide a paid-on-call program and wages for additional members $40,000 in 2018.
- The hire of four (4) full-time firefighters in 2019 at an increased staffing cost of $376,842 in the first year.
- The hire of four (4) full-time firefighters in 2021 at an increased staffing cost of $388,538 in the first year.
- The hire of four (4) full-time firefighters in 2023 at an increased staffing cost of $418,413 in the first year.
- Increases to the operational PPE budget line to reflect new hires at $400/firefighter.
- Increases to the operational uniforms line to reflect new hires at $250/firefighter.

Staffing Plan All Stations (IAFF and VVFA)

- Contracting out of dispatch services provides up to two thousand (2,000) extra firefighter hours/year for deployment. Hire four (4) firefighters to reduce the need to rely on callbacks, maintain minimum manning at five (5).
- For callbacks the group living closest to Station 1 assigned to Station 1.
- For callbacks the group living closest to Station 2 assigned to Station 2.
- For callbacks the group living closest to Station 3 assigned to Station 3.
- Establishing paid-on-call system for two (2) VVFA firefighters for Station 2 and 3 to ensure minimum numbers are consistently available.

Staffing Plan Station 1

- Maintain four (4) firefighter response from Station 1 to facilitate aggressive interior fire attack as per OH&S requirements.
- When additional firefighters, two (2) or more are available they are to be assigned to Station 2 or 3.

Staffing Plan Station 2

Short Range Plan

- Move Training Officer and FPO to Station 2 to contribute to improved response coverage.
    - Training officer works four (4) ten (10) hour days Monday to Thursday
    - FPO works four (4) ten (10) hour days Tuesday to Friday:

        - Adaptations will be needed for work processes to enable both response and maintenance of other duties,
        - Work practices will need to be adjusted; and
        - Use of emergency response/command vehicle (703) from Station 2 or 3 to provide flexibility.
- When Station 1 staffing above four (4) the additional firefighter(s) moves to Station 2.
- Move Deputy Chief to Station 2:
    - Part of response from Station 2 when available; and
    - Acts as the officer on the engine when FPO or TO unavailable.
- Four (4) new full-time firefighters funded in part through savings from alternative dispatch delivery model and reduced call backs.
- Minimum manning would remain at five (5). When firefighter shortages occur Station 2 would be closed during this phase of the plan to control costs. Data regarding how often and for what duration closures occur are recorded to inform as to the effectiveness of the staffing model.

Mid-Range Plan

- Monitor service delivery bench marks, frequency of station closures.
- Establish a minimum firefighter paid-on-call schedule with VVFA members to ensure a two (2) firefighter availability.
- Revitalize the live-in program with VVFA.
- Use full-time member to provide leadership when available.
- Add additional four (4) firefighters to provide consistent and reliable service and reduce dependency on call-backs.
- Target a 0% Station 2 closure by 2023.

Staffing Plan Station 3

Short Range Plan (1-2 years)

- Work with Predator Ridge and Sparkling Hills to identify any employees who may be candidates to join the VVFA and respond to Station 3 during working hours.

Mid-Range Plan (3-5 years)

- Add additional four (4) firefighters to provide ability to staff Station 3 with 2 full-time firefighters some of the time.
- Move TO and FPO from Station 2 to Station 3 to contribute to improved response model.
- Move Deputy Chief position to Station 3.

Facilities and One Time Expense

Renovation of Station 2 began in 2017 with the creation of two (2) additional combined office and dorm spaces. This renovation includes building code upgrades such as changing the doors between the living quarters and the apparatus bays to ensure that the proper fire separation is provided between the areas. This renovation enables staffing Station 2 during the days with full-time firefighters. This is a period of time when most VVFA members are unavailable. The dorm space enables VVFA members who live too far from the station to participate in a paid-on-call program or a live-in program. The renovation removes the meeting and training area which is heavily used by the VVFA.

In consideration of the above and the lack of a facility for provision of ESS, the garage behind Station 2 is planned for use as a multi-purpose space, addressing all of these needs. At the time of this report, the design and quotes for conversion of the space have been completed and the work is expected to be completed in 2018.

Facilities

Description	Cost	Year
Renovate Station 2 garage building to provide a facility for ESS, training/conference.	90,000	2018
Install an exhaust capture system in the apparatus bays of Station 3.	60,000	2019

Figure 14 – one time facility upgrades

Considering the extensive changes within the CoV and its fire rescue service the community is long overdue for a comprehensive Fire Underwriters Survey. Given circumstances and the state of VFRS it is advisable to conduct this survey once significant and sustained efforts have been made to improve the service. The survey provides the information on which both industry and residential fire insurance rates will be based and provides recommendations to the CoV regarding how to improve these rates.

One Time Expense

Description	Cost	Year
Provide a comprehensive Fire Underwriters Survey of the CoV	40,000	2021

Figure 15 – one time FUS review

Appendix A

SWOT Analysis External

Strength

- Geographical location of the City (interface).
- Available assistance from neighboring fire services.
- Strong wildland fire service presence/availability.
- Mutual aid agreements.
- Shared Regional Fire Training Center.
- High level of communication and cooperation amongst the City departments.
- Road rescue program – Provincial Emergency Program (PEP).

Weakness

- Geographical layout of the City (footprint).
- Stand-alone municipal emergency program.
- Overstated FUS rating for Predator Ridge:
    - FUS information on file (2015); and
    - Memo to Council (2015).
- Competition for provision of dispatch services and significant liabilities and lack of efficiency of the current system.
- 2.5% IAFF wage increases outpacing budget increases of 1.9%. Wages make up approximately 80% of the budget.

Opportunity

- Mutual response model to improve customer service in areas where service areas meet and where a neighboring service may be in a better position to provide service to a portion of the community.
- Live in firefighter program and recruitment partnership with Predator Ridge.
- Emergency program developed to include more use of community groups.
- Federal and Provincial grants to implement significant fuel load management as per Community Wildfire Protection Plan (CWPP).

Threats

- Public expectations out of line with resource levels.
- Process, Policy, Liability regarding the Fire Training Center (live fire).
- VVFA members recruited for full-time positions elsewhere – high turnover rate/cost of outfitting, training, experience.
- Difficulty maintaining VVFA numbers at the number needed and industry established best practices levels.
- Risk and liabilities associated with not having a reliable response from Station 3.

Appendix A

SWOT Analysis Internal

Strength

- Fair level of operational service delivery in Station 1 area.
- Stable base of VVFA members in proximity to Station 2.
- Continual development of the Leadership Team.

Weakness

- Location of fire stations.
- Resource level, staffing insufficient to staff Stations 2 and 3.
- Paid-per-call retention, training, outfitting.
- Paid-per-call members decreased availability during regular business hours.
- No assurance of paid-per-call availability at any given time.
- Lack of Reception Center/ESS workspace.
- Lack of stand-alone EOC.
- Lack of long term fleet plan and fleet deficiencies:
    - Apparatus (FUS) (NFPA),
    - Fire boat; and
    - Light duty support vehicles.
- Lack of effective staffing plan for fire station 3.
- Lack of long term capital replacements SCBA, hose, hydraulic tools, radios, breathing air compressor.
- Dispatch system lacks redundancy and many system requirements.
- Out of date and unreliable computer aided dispatch (CAD) system.
- Outdated fire services data management system.
- Lack of reliable record/ reports.
- Lack of reliable metrics and measures.
- Lack of programs to manage hose, rope, confined space, prevention, training, etc.
- Long history of challenging and difficult labour relations.
- Culture of protectionism and mistrust.
- Lack of flexibility associated with current attitudes, work practices, and collective agreement.

Opportunity

- Improvements to current work practices to maximize efficiency.
- Improvements to IAFF and CoV Collective agreement to loosen restrictions on deployment (better use of resources).
- Immediate deployment plan to deal with high-extreme risk periods.
- Improve, modernize fire inspection program.
- Develop a combined fire prevention, emergency preparedness education program.
- Improve training program to increase training opportunities between IAFF, VVFA and Administration.

- Provide opportunity for Leadership Team Development.
- Contracting out of dispatch services to address system liabilities and shortcomings.
- Improved direct communication and feedback between members and administration.
- Improve consistency of fire services throughout the community.
- Build a service centered culture focused on the customers.
- Provide Alternative Dispute Resolution (ADR) process.

Threats

- Lack of a breathing air program as required by OH&S.
- Fire apparatus not recognized through Fire Underwriter Survey (FUS).
- Lack of ability to provide consistent service from Okanagan Landing, Fire Station #2.
- Lack of ability to provide reliable service from Predator Ridge, Fire Station #3.
- Deployment model which does not maximize efficiency of the available resources.
- Lack of ability to properly clean PPE (turnout gear) after an emergency event.
- Auto extrication with rescue results in firefighters not having the tools and equipment of a fire engine (auto ex with car on fire and no water).
- Hose which hasn't been tested in four (4) years and is failing regularly. Hose failed at the last two (2) fires and a supply line on training night.

Appendix B

VFRS Budget Considerations

VERNON FIRE RESCUE SERVICES

2017

BUDGET CONSIDERATIONS

Description	Funding Source	Extra Funding Outside of 2017 Budget
Address PPE shortcomings	$10,000 MIA Grant and $10,000 COR Grant	20,000
Reno Station 2	Building Services	40,000
Reno Station 2 ESS Reception Centre		
PPE Decontamination system	COR Grant and Hazmat Reserve	62,000
Breathing Air System Replacement	Equipment Reserve	600,000
Staffing of Station 2 and 3 during high risk conditions	Unspent 2016 funds	79,000
*This amount is in addition to the approved 2017 operational budget.		**$ 801,000**

Appendix B

VERNON FIRE RESCUE SERVICES

2018

BUDGET CONSIDERATIONS

Description	Funding Source	Cost Considerations
Purchase a fire engine (incl. CAD, fire hose and nozzles)	Reserve	700,000
Hose and nozzle replacement	Reserve	130,000
3 thermal imaging cameras	Reserve	30,000
Radio Repeater and base stations	Reserve	15,000
15 sets of PPE to equip 15 new VVFA members for Predator Ridge	Reserve	60,000
Community Wildfire Protection Plan implementation/grant applications - fuel reduction projects	Budget Increase - Change Request	20,000
Commission Emergency Social Services building (Station 2)*	One-time expense, TBD	90,000
Implement VVFA Paid-On-Call for Station 2 and 3 and 15 additional members	Increase to existing budget	40,000
Staffing of Station 2 and 3 during high risk conditions - as per Council direction	Budget Increase - Change Request	90,000

**this project had been approved in 2016 and later changed in scope. Due to administrative staffing changes the funds were not accessed. The original funding was to come from unexpended revenues.*

Appendix B

VERNON FIRE RESCUE SERVICES

2019

BUDGET CONSIDERATIONS

2019 Deliverables	Funding Source	Cost Considerations
Purchase ladder truck (incl CAD)	Reserve	1,300,000
Modernize fire inspection program	Reserve	15,000
1 Thermal Imagery Camera	Reserve	11,000
Design and installation of an exhaust capture system Fire Hall #3	One-time expense, TBD	60,000
Equip and commission the EOC at Kal Tire Place	Reserve	10,000
4 sets of PPE to equip new full-time firefighters	Reserve	16,000
Hire 4 full-time firefighters*	Budget Increase - Change Request	369,816

**VFRS's FTE's do not increase over the amount of FTE's in 2018 as four (4) communication operators positions are removed from the service at the end of 2018 and four (4) firefighters are added in 2019. Much of the cost of these positions will be offset by efficiencies in reduced overtime and the decreased cost associated with contracting out dispatch services.*

Appendix B

VERNON FIRE RESCUE SERVICES

2020

BUDGET CONSIDERATIONS

Description	Funding Source	Cost Considerations
Replace light duty emergency response vehicle-pickup truck	Reserve	70,000
1 Thermal Imaging Camera	Reserve	12,000
6 Computer Aided Dispatch units		60,000
4 sets of PPE to equip new full-time firefighters	Reserve	16,000

**This hiring results in four (4) new FTE's for VFRS.*

Appendix B

VERNON FIRE RESCUE SERVICES

2021

BUDGET CONSIDERATIONS

Description	Funding Source	Cost Considerations
Hazardous materials response equipment	Reserve	20,000
50 Portable radios	Reserve	65,000
15 Mobile radios	Reserve	30,000
Replace light duty emergency response/command vehicle	Reserve	75,000
Hire 4 full-time firefighters*	Budget Increase - Change Request	388,538

Appendix B

VERNON FIRE RESCUE SERVICES

2022

BUDGET CONSIDERATIONS

Description	Funding Source	Cost Considerations
Extrication Equipment	Reserve	100,000
Purchase all hazards response unit	Reserve	650,000
Purchase light duty emergency response vehicle	Reserve	75,000
Implement regional class B firefighting foam program (including transportation system)	Reserve	200,000
Thermal Imaging Cameras (1)	Reserve	10,000
Ropes/Harness/Rigging	Reserve	7,500

Appendix B

VERNON FIRE RESCUE SERVICES

2023

BUDGET CONSIDERATIONS

2023 Deliverables	Funding Source	Cost Considerations
Hire 4 additional firefighters*	Budget Increase - Change Request	408,208
4 sets of PPE to equip new full-time firefighters	Reserve	16,000
Replace light duty emergency response/command vehicle	Reserve	80,000

**This hiring results in four (4) new FTE's for VFRS.*

Appendix B

VERNON FIRE RESCUE SERVICES

2024

BUDGET CONSIDERATIONS

Description	Funding Source	Cost Considerations
Purchase forestry/brush units/Sprinkler Protection Unit	Reserve	450,000

Appendix B

VERNON FIRE RESCUE SERVICES

2025

BUDGET CONSIDERATIONS

Description	Funding Source	Cost Considerations
Implement fire boat program (equipment and boat)	Reserve	400,000
Replace light duty emergency response vehicle- pickup truck		85,000

Appendix C

Acronyms

Acronym	Meaning
ADR	Alternative Dispute Resolution
CAD	Computer Aided Dispatch
COV	City of Vernon
CWPP	Community Wildfire Protection Plan
EOC	Emergency Operations Centre
ESS	Emergency Support Services
FF	Firefighter
FMR	First Medical Response
FTE	Full-Time Equivalent
FUS	Fire Underwriter's Survey
HAZMAT	Hazardous Waste Materials
IAFF	International Association of Firefighters
IDLH	Immediately Dangerous to Life and Health
OH&S	Occupational Health & Safety
NFPA	National Fire Protection Association
PPC	Paid Per Call
POC	Paid of Call
PPE	Personal Protective Equipment
RFP	Request for Proposal
SAR	Supplied Air Respirators
SCBA	Self-Contained Breathing Apparatus
SOG	Standard Operating Guidelines
SPU	Sprinkler Protection Unit
ULC	Underwriters Laboratories Canada
VFRS	Vernon Fire Rescue Services
VVFA	Vernon Volunteer Firefighters Association

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