


# City Of Port Alberni

# FIRE SERVICES MASTER PLAN

Final Report

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## Preface

This document serves as the City of Port Alberni's Fire Service Master Plan. The primary motivation for developing this document is for the community in establishing a long-term strategy to protect life and property based on community risk, safety, corporate priorities, and council-approved budget allocations. This document will be used as a tool to evaluate and forecast the immediate and future emergency service needs of the community.

## Acknowledgements

Behr would like to specifically acknowledge the leadership, diligence and continuous improvement focus of Fire Chief Mike Owens. While there are some challenges for Port Alberni, Chief Owens remains positive in his efforts to enhance the department and public safety for the community and its citizens. The fire services' leadership and firefighters are dedicated and engaged in all facets of their community. Their pride in the department and their service is clear.

## Copyright

# ACRONYMS

| | |
|---|---|
| ACRD | Alberni Clayoquot Regional District |
| AHJ | Authority Having Jurisdiction |
| BCEHS | British Columbia Emergency Health Services |
| BCEMS | British Columbia Emergency Management System |
| CAD | Computer Aided Dispatch |
| CAO | Chief Administrative Officer |
| CSA | Canadian Standards Association |
| ERF | Effective Response Force |
| EHSC | Emergency Health Services |
| EMS | Emergency Medical Services |
| FSMP | Fire Services Master Plan |
| FTE | Fulltime Equivalent |
| FUS | Fire Underwriters Survey |
| GIS | Geographic Information System |
| HRVA | Hazard Risk Vulnerability Assessment |
| MVC | Motor Vehicle Collision |
| MVI | Motor Vehicle Collision |
| NFPA | National Fire Protection Association |
| OCP | Official Community Plan |
| PAFD | Port Alberni Fire Department |
| POC | Paid-On-Call (Volunteer Firefighter) |
| PSAP | Public Safety Answering Point |
| RIT | Rapid Intervention Team |
| SOC | Standard of Cover |
| SOG | Standard Operating Guideline |
| SOP | Standard Operating Procedures |
| ULC | Underwriters Laboratories Canada |

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# EXECUTIVE SUMMARY

## Introduction

Today's fire and emergency services are continually being challenged by budget constraints, rising call volumes, and increasing and unusual risks against a backdrop of expectations to do more with less. The demand for emergency response and emergency management services has expanded, causing the role to shift and for services to diversify. Effective management of an emergency services department requires a clear understanding of risk and the ability to provide an appropriate response to mitigate the risks. Failing to realize and address these challenges could leave the community and its responders vulnerable.

Modern fire, rescue and emergency services have evolved into a critical component of a community's social safety net. Whereas early fire departments were established specifically to combat structure fires that, at the time, were often devastating. Today's fire departments are also called upon to respond to medical emergencies, rescues of all sorts, motor vehicle incidents, dangerous goods releases, wildland fires and natural disasters, etc. As a result, fire departments must be adequately resourced and equipped to provide these services safely, efficiently, effectively with a great deal of competency.

Elected officials, chief administrative officers, directors, general managers, managers, and fire chiefs are often faced with the ongoing challenge of achieving efficient and effective service delivery models. Public safety is most often one of the top priorities within most communities, but achieving this goal comes at a relatively high cost. The services charged with achieving this outcome, including Police, Fire, EMS, and Emergency Management services, are essential components of the public safety services. Service effectiveness is not an option. However, the need to be fiscally responsible and to review operational efficiency and effectiveness cannot be ignored. Senior community officials must continue to be vigilant in their search for innovative and sustainable practices and finding the balance between service levels and expenditures to ensure their citizens are getting *'Value For Money'*.

The goal of developing a Fire Services Master Plan is to provide strategic direction for the fire service. The Fire Service Master Plan will provide a systematic and comprehensive approach to evaluate current response capabilities by identifying and mitigating risks and assist in formulating and communicating strategic directions for the fire service, while highlighting opportunities for improved service delivery. This Fire Service Master Plan will also assist in conveying information to the public, staff, and municipal council about what to expect in the municipality's approach to fire and emergency service planning, service delivery model, policy, and development.

The outcomes derived from this project identifies recommendations and options towards an optimum service delivery model and serves as a blueprint for the City of Port Alberni Fire Department to be more effective and efficient in the delivery of emergency services through current and future challenges.

## Project Approach and Outcomes

While risks are the basis for triggering response decisions, our analysis has also investigated the overall needs of the community and will provide a point of reference to which future decisions and priorities can be evaluated and implemented. This includes identifying priorities, challenges, and opportunities for the improvement of the delivery of emergency services. Along with risks, this plan also considers applicable legislation, industry-leading and best practices, and standards to provide unbiased analysis and evidence-based recommendations.

Key aspects in the development of this plan included a community and station tour that focused on the overall footprint, topography, and transportation infrastructure of the community along with the fire station response zone. Touring the single station also provided an opportunity to conduct a general condition and operational functionality assessment of the facility.

Targeted interviews and an online survey were also conducted to collect valuable input and information. This process was used to promote an open discussion about the community, risks, and general concerns related to the community and municipal operations.

An industry peer municipal comparative analysis[1] of the fire service was conducted as a method of benchmarking the performance of departments to similar municipalities. These benchmarks include budgets, performance, effectiveness, and efficiencies. Although fire and emergency services ultimately have the same goal of protecting life, property and the environment, each community has its unique features in how to accomplish their goals. Our main criteria for the comparative analysis are indicators of effectiveness and efficiencies amongst the communities for risk and mitigation.

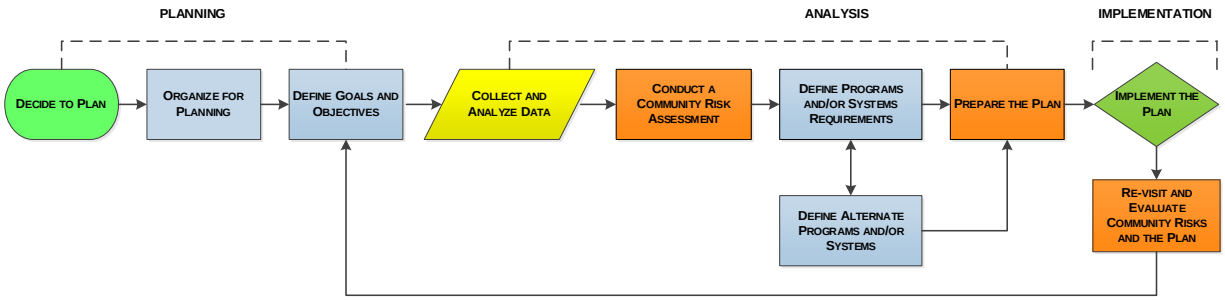
## Fire Services Master Plan Process

A Fire Service Master Plan is sometimes referred to as a ‘road map’ for the future and used as a guiding document for current and future department leaders and decision makers. The following diagram illustrates the process used to complete this plan.

[1] *Please see Community Comparative Analysis, Page vi*

As described in the implementation phase, it is highly recommended that this plan be reviewed and evaluated, at minimum, on an annual basis or when there are unusual changes, such as in population, and residential and/or industrial development activity that could affect changes in risk. When reasonably possible, we also recommend a third-party update of the plan at the five-year mark to apply an unbiased review into the operation and provide further credibility to the master plan process.

*Fire Services Master Plan Process*




## Community Risk Assessment

Every municipality has unique challenges and characteristics contributing to the overall risk profile of the community. An evaluation of potential risks and vulnerabilities within a specific community is a vital process designed to identify, assess, and prioritize various risks, such as natural disasters, industrial accidents, public health emergencies, and other hazards that impact the safety and well-being of the community residents.

Risks can be managed by either accepting the risk, insuring against damages, or investing in risk prevention and mitigation strategies. Local governments typically employ a combination of these approaches. In general, the risks and management strategies of a community are relative to a municipality's financial capacity, geography, population demographics, fixed assets, and critical infrastructure, as well as overall service delivery.

Risks were identified using historical response data, the community emergency management program risk assessment, and information from our interviews to develop a risk profile for the community. The evaluation of fire and rescue risks considers both the probability and consequence of emergency event types. The probability of an event is quantified by analyzing historical, current, and projected data. The consequence of the event type or risk is based on an informed assessment of the potential impact on a community should the event occur.

Hazards and Risks were broken down into three categories; Natural, Human Induced, and Technological & Industrial[2]. The results revealed the top hazards in the community include *(not necessarily in the order as it appears)*:

- Wildland Fires
- Transportation Route Disruption
- Stormwater Flood
- Electrical Outage
- Structure Fire
- Flash Flood
- Human Disease
- Landslide
- Motor Vehicle Incident
- Major Event (any event whose nature, expected attendee level, duration, or location challenges the normal response capability of a community)

In addition to the overall highest risks to the community, certain events pose an increased risk specific to firefighting. To better understand the risks of hazards as they pertain to fire protection services, the hazards have been assessed within the community risk assessment to identify possible impacts on fire protection services. Many of the potential impacts are not unique to a jurisdiction. The results of this review as they pertain to the top hazards in the community are the same as listed above.

## Community Overview

Port Alberni has been reliant on the primary resource sector, particularly forestry and fishing. This is due in part to proximity to resource supply and the advantage of a deep seaport. However, it also functions as the service centre for a large region that includes the Alberni Valley, the Barkley Sound communities, and the pacific west coast communities as such its economy is quite diverse.

It is the regional service centre for hospital care, recreation, and seniors' care services. Port Alberni is the educational centre providing the only high school within the Alberni Valley and is home to the campus of North Island College. Finally, it is the centre of a rich agricultural area which is developing its agri-tourism potential.

[2] *See Section 2.6.1 Summary of Identified Risks and Key Findings - HRVA, Page 15*

## Consultation

Three key aspects in the development of the Fire Services Master Plan included a community and station tour, targeted interviews, and an online firefighter survey. The community tour focused on the overall footprint, topography, transportation infrastructure of the municipality and the response zone for the current fire service station.

Targeted interviews were part of the data and information collection process. Participants were asked questions related to their areas of purview and expertise. An interview guide was used to conduct the interviews. The interview itself was used to promote an open discussion about the community, risks, and general concerns related to the community and municipal operations.

To obtain balanced input, we also employed an online firefighter survey. Our survey methodology offers several unique benefits. First, it offers an opportunity to gather opinions from an entire group as opposed to a limited sample of opinions from a select few. The online survey also offers an extremely flexible approach to the collection of data as respondents can complete the survey questions when it is convenient for them. Additionally, the anonymity of participants is relatively easy to control and therefore may yield more candid and valid responses. Finally, surveys are also extremely time and cost-efficient methods to engage large groups while capturing extensive data.

## Department Overview

PAFD is authorized to provide these services through the City of Port Alberni Fire Control Bylaw. PAFD is classified as a fulltime department. PAFD operates out of a single fire station located within the municipal boundaries and relies on a current roster of 20 NFPA 1001 trained career firefighters (4 Captains and 16 Firefighters), one Chief Fire Prevention Office and one Deputy Fire Chief led by their Fire Chief. The platoon strength for fire suppression is 5, with a minimum on- duty strength of 4.

## Community Comparative Analysis

An industry peer comparative analysis[3] of the Port Alberni Fire Department's operations was also conducted as a method of benchmarking the performance of departments to similar municipalities. These benchmarks include budgets, performance, effectiveness, and efficiencies. Although fire and emergency services ultimately have the same goal of protecting life and property, each community has its unique features in how to accomplish their goals. Our main criteria for the comparative analysis are indicators of effectiveness and efficiencies amongst the communities for risk and mitigation.

The communities who participated, along with the City of Port Alberni, included:

- District of Squamish
- District of Oak Bay
- City of Campbell River
- City of Powell River
- Township of Esquimalt

All six department (including PAFD) have operating budgets within the range of $3.5 to $6.2 million per year. PAFD ranks as the fourth highest per-capita cost of the comparison municipalities. PAFD's operating budget and cost per-capita is within the mid-range range of similarly staffed fire services.

| Community | Municipal Budget 2022/23 | Emergency Services Operating Budget | % of Municipal Budget | Population | Cost Per Capita |
|---|---|---|---|---|---|
| City of Port Alberni | $55,984,376 | $4,389,298 | 7.84 | 18,500 | $237.52 |
| District of Squamish | $68,163,035 | $3,551,497 | 5.2 | 29,206 | $121.60 |
| District of Oak Bay | $54,775,700 | $5,124,800 | 9.3 | 18,000 | $284.86 |
| City of Campbell River | $81,400,000 | $6,200,000 | 7.65 | 38,000 | $163.15 |
| City of Powell River | $24,000,000 | $3,500,000 | 14.58 | 20,707 | $169.02 |
| Township of Esquimalt | $56,700,000 | $5,980,620 | 10.5 | 17,533 | $341.10 |

[3] *Please see Section 3.18.5, Community Comparative Analysis Summary, Page 91*

It is important to note there is no standard for categorizing incidents so it must be understood that the statistics contained in this plan are broadly based and are only for general reference when comparing fire departments. The community comparative analysis can only be interpreted from an indirect basic level due to the disparity from each of the surveyed communities' organizational structure, core services and levels, emergency response categorization, and financial systems. Direct comparison is strongly discouraged.

## Summary of Observations and Recommendations

The following recommendations are drawn from findings presented throughout the report. They are grouped into categories according to priorities: critical, short term, intermediate and long term.

A timeframe has been assigned to each recommendation, with the understanding that the start and completion of any recommendation is based on the criticality of the recommendation combined with staff capacity, annual corporate priorities, and council approved budget allocations.

Some recommendations presented in this report are achievable using existing staff or members' time and will therefore not pose any additional costs to the community. Other recommendations regarding staffing, equipment and infrastructure will likely have associated costs. Costs are based on order of magnitude estimates only and will require further investigation.

Cost 'neutral' refers to the use of internal staff through a normal work schedule. It is noted that the Fire Chief and Deputy Fire Chief current workload does not have the capacity to lead or manage new initiatives or programs. Undertaking of these cost neutral recommendations are contingent upon staff availability, reprioritization, or the addition workload captaincies through the recommended staff increases.

***Note:*** *Recommendations are numbered based on how they appear in the report.*

## Recommendation #1

***PAFD collaborate with the development, public works, and financial services departments, to explore the development of a multi-user building and structure inventory system including risk and infrastructure information for all existing and new structures/facilities within the city, using a common GIS based environment.***

***Reference:*** *Section 2.8 Structural Fire Risk Analysis, Pg. 21*

***Suggested completion:*** *12 - 60 months and ongoing*

***Cost:*** *Neutral*

***Resource:*** *City staff time*

## Recommendation #2

***Develop a comprehensive wildfire defence plan in partnership with ACRD that identifies resource requirements, tactics, and strategies.***

***Reference:*** *Section 2.8.1 Wildland Urban Interface Fires and Planning, Pg. 24*

***Suggested completion:*** *24-120 months*

***Cost:*** *Neutral, unless overtime is necessary and/or a third-party is involved. Third-party is approximately $85 - $100k.*

***Resource:*** *ACRD and city staff time or third-party*

## Recommendation #3

***Establish a 'Levels of Service' policy for emergency response that includes a validation of the various services.***

***Reference:*** *Section 2.8.2 Identified Risks Emergency Response Impact, Pg. 26*

***Suggested completion:*** *24-120 months*

***Cost:*** *Neutral*

***Resource:*** *City staff time*

## Recommendation #4

***Amend the Fire Control Bylaw Schedule A, to include service levels and performance targets.***

***Reference:*** *Section 3.1 Department Overview, Pg. 28*

***Suggested completion:*** *6-12 months*

***Cost:*** *Neutral*

***Resource:*** *City and Fire Department staff time*

## Recommendation #5

***Conduct a comprehensive staffing ratio assessment and determine the optimal staffing ratio.***

***Reference:*** *Section 3.2 PAFD Staffing Resources, Pg. 31*

***Suggested completion:*** *6-12 months*

***Cost:*** *Neutral*

***Resource:*** *City and Fire Department staff time*

## Recommendation #6a

***Develop an updated emergency response matrix for all emergency call types.***

***Reference:*** *Section 3.3 Department Leadership, Management and Operations, Pg. 35*

***Suggested completion:*** *6-12 months*

***Cost:*** *No Cost*

***Resource:*** *Administration time*

## Recommendation #6b

***Re-assign the Firefighter Mechanic to a day shift position and replace with a full-time firefighter on the platoon shift.***

***Reference:*** *Section 3.3 Department Leadership, Management and Operations, Pg. 35*

***Suggested completion:*** *6-18 months*

***Cost:*** *No Cost*

***Resource:*** *PAFD Operating budget*

## Recommendation #6c

***Hire two additional fulltime firefighters to the full-time fire suppression staff.***

***Reference:*** *Section 3.3 Department Leadership, Management and Operations, Pg. 35*

***Suggested completion:*** *6-24 months*

***Cost:*** *2 FTE positions $170,000 increased yearly to $223,000 (4th year)*

***Resource:*** *PAFD Operating budget*

## Recommendation #7

***Establish a .5FTE administrative assistant to support the Fire Department administrative functions.***

***Reference:*** *Section 3.3 Department Leadership, Management and Operations, Pg. 35*

***Suggested completion:*** *12-24 months*

***Cost:*** *$35,000 – 45,000 per year*

***Resource:*** *Operations Budget*

## Recommendation #8

***Prioritize the establishment an annual cyclical firefighter training syllabus.***

***Reference:*** *Section 3.5 Training, Pg. 46*

***Suggested completion:*** *12-24 months*

***Cost:*** *TBD: Operational Budget for staffing time – training budget*

***Resource:*** *Fire Department operational training budget*

## Recommendation #9

***Establish a dedicated PAFD training officer position that includes operational response duties.***

***Reference:*** *Section 3.5 Training, Pg. 46*

***Suggested completion:*** *12-24 months*

***Cost:*** *$150K (Estimated)*

***Resource:*** *PAFD Operations Budget*

## Recommendation #10

***Undertake a feasibility study to establish regional training centre to support the PAFD and Alberni Valley fire services. Furthermore, PAFD should explore opportunities to partner with the ACRD to develop a fire/ emergency services training centre in the Alberni Valley.***

***Reference:*** *Section 3.5 Training, Pg. 46*

***Suggested completion:*** *12-36 months*

***Cost:*** *$20K - $25K, depending on depth of report (Estimated)*

***Resource:*** *PAFD Operations Budget*

## Recommendation #11

***Add an additional fire prevention/public education officer to meet the requirements of the new fire safety act including fire safety inspections, owner/occupant self-risk assessments and compliance monitoring.***

***Reference:*** *Section 3.6.2 Fire Prevention, Pg. 53*

***Suggested completion:*** *12-36 months*

***Cost Cost:*** *$125K /yr.(Estimated)*

***Resource:*** *PAFD Operations Budget*

## Recommendation #12

***Formalize the letter of agreement with NI911 and establish dispatch protocols and performance indicators.***

***Reference:*** *Section 3.7 911 and Fire Dispatch Services, Pg. 58*

***Suggested completion:*** *1-12 months*

***Cost:*** *Neutral*

***Resource:*** *PAFD and NI911 staff time*

## Recommendation #13

***Integrate the mutual and automatic aid agreement into a single regional emergency response agreement.***

***Reference:*** *Section 3.9.1 911 and Fire Dispatch Services, Pg. 59*

***Suggested completion:*** *12-24 months*

***Cost:*** *Neutral*

***Resource:*** *Staff time*

## Recommendation #14

***Complete functional study of the building to address operational, growth, health and safety, gender requirements, and equipment requirements.***

***Reference:*** *Section 3.10 Facilities, Pg. 62*

***Suggested completion:*** *12-24 months*

***Cost:*** *Estimated cost, $35K - $ 50k (depending on scope and depth of project)*

***Resource:*** *Operational Budget. Third-party consultant*

## Recommendation #15

***Conduct a needs assessment and tender process for a second high-pressure portable water pump and an inventory of portable wildfire sprinklers.***

***Reference:*** *Section 3.14 Specialized Rescue Equipment, Pg. 83*

***Suggested completion:*** *12-24 months*

***Cost:*** *Estimated $12K*

***Resource:*** *Operations Budget*

## Recommendation #16

***Regularly update specialty rescue SOP/SOG's and include a sign-off by all staff.***

***Reference:*** *Section 3.14 Specialized Rescue Equipment, Pg. 83*

***Suggested completion:*** *6-12 months (ongoing)*

***Cost:*** *Neutral*

***Resource:*** *Staff time*

## Recommendation #17

***Investigate opportunities to improve assembly time for fire-related incidents and report assembly time performance.***

***Reference:*** *Section 4.4.2 Assembly Time Performance, Pg. 112*

***Suggested completion:*** *1-24 months*

***Cost:*** *Neutral*

***Resource:*** *PAFD Staff Time*

## Recommendation #18

***Complete a critical task analysis for common emergency incident types and link performance standards to the response.***

***Reference:*** *Section 4.7 Critical Task Analysis, Pg. 126*

***Suggested completion:*** *6-18 months*

***Cost:*** *Neutral*

***Resource:*** *PAFD Staff Time*

## Recommendation #19

***PAFD to develop policies to address the response to concurrent calls.***

***Reference:*** *Section 4.8 Concurrent Call Load/Call Volume Impacts, Pg. 130*

***Suggested completion:*** *6-18 months*

***Cost:*** *Neutral*

***Resource:*** *PAFD Staff Time*

## Table of Recommendations Overview

The following table shows the recommendations, along with cost implications and timeline for implementation. A timeframe within 1 – 120 months (1 – 10 years). A colour code is applied to each recommendation according to prioritization and completion.

| Critical | Short Term | Intermediate | Long Term |
|---|---|---|---|
| 1 -12 months | 12 - 48 months | 48 - 60 months | 60-120 months |

| No. | Recommendation | Months | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 |
| 1 | PAFD collaborates with the development, public works, and financial services departments, to explore the development of a multi-user building and structure inventory system including risk and infrastructure information for all existing and new structures/facilities within the city, using a common GIS based environment. | | | | | | | | | | | | |
| 2 | Develop a comprehensive wildfire defence plan in partnership with ACRD that identifies resource requirements, tactics, and strategies. | | | | | | | | | | | | |
| 3 | Establish a 'Levels of Service' policy for emergency response that includes a validation of the various services. | | | | | | | | | | | | |
| 4 | Amend the Fire Control Bylaw Schedule A, to include service levels and performance targets. | | | | | | | | | | | | |
| 5 | Conduct a comprehensive staffing ratio assessment and determine the optimal staffing ratio. | | | | | | | | | | | | |
| 6a | Develop an updated emergency response matrix for all emergency call types. | | | | | | | | | | | | |
| 6b | Re-assign the Firefighter Mechanic to a day shift position and replace with a full-time firefighter on the platoon shift. | | | | | | | | | | | | |
| 6c | Hire two additional fulltime firefighters to the full-time fire suppression staff. | | | | | | | | | | | | |
| 7 | Establish a .5FTE administrative assistant to support the Fire Department administrative functions. | | | | | | | | | | | | |

| No. | Recommendation | Months | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 |
| 8 | Prioritize the establishment of an annual cyclical firefighter training syllabus. | | | | | | | | | | | | |
| 9 | Establish a dedicated PAFD training officer position that includes operational response duties. | | | | | | | | | | | | |
| 10 | Undertake a feasibility study to establish regional training centre to support the PAFD and Alberni Valley fire services. Furthermore, PAFD should explore opportunities to partner with the ACRD to develop a fire/ emergency services training centre in the Alberni Valley. | | | | | | | | | | | | |
| 11 | Add an additional fire prevention/public education officer to meet the requirements of the new fire safety act including fire safety inspections, owner/occupant self-risk assessments and compliance monitoring. | | | | | | | | | | | | |
| 12 | Formalize the letter of agreement with NI911 and establish dispatch protocols and performance indicators. | | | | | | | | | | | | |
| 13 | Integrate the mutual and automatic aid agreement into a single regional emergency response agreement. | | | | | | | | | | | | |
| 14 | Complete functional study of the building to address operational, growth, health and safety, gender requirements, and equipment requirements. | | | | | | | | | | | | |
| 15 | Conduct a needs assessment and tender process for a second high-pressure portable water pump and an inventory of portable wildfire sprinklers. | | | | | | | | | | | | |
| 16 | Regularly update specialty rescue SOP/SOG's and include a sign-off by all staff. | | | | | | | | | | | | |

| No. | Recommendation | Months | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 6 | 12 | 18 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 |
| 17 | Investigate opportunities to improve assembly time for fire-related incidents and report assembly time performance. | | | | | | | | | | | | |
| 18 | Complete a critical task analysis for common emergency incident types and link performance standards to the response. | | | | | | | | | | | | |
| 19 | PAFD to develop policies to address the response to concurrent calls. | | | | | | | | | | | | |

## Conclusion

This Fire Services Master Plan is intended to assist the City of Port Alberni and the Port Alberni Fire Department in evaluating the current service delivery model and develop a strategy to inform future investments in fire, rescue, and emergency services. The plan involved a comprehensive analysis of all key elements of service delivery. This analysis included a review of the operational and administrative aspects of the PAFD, community profile and risk review, comparative community analysis, staffing, core services and program delivery, training, recruitment and retention, facilities, and major equipment.

Further, PAFD response data was assessed with a focus on the current performance, capabilities, and alignment with both existing and projected risks and levels of demand. There are several observations and recommendations provided in this master plan to improve operational effectiveness and efficiencies. Key among the 19 observations and 21 recommendations is:

- Explore the development of a multi-user building and structure inventory system including risk and infrastructure information for all existing and new structures/facilities within the city, using a common GIS based environment.
- Develop a comprehensive wildfire defence plan in partnership with ACRD that identifies resource requirements, tactics, and strategies.
- Establish a 'Levels of Service' policy for emergency response that includes a validation of the various core services
- Conduct a comprehensive staffing assessment and determine the optimal staffing ratio
- Hire two additional fulltime firefighters to the full-time fire suppression staff and reassign the firefighter mechanic to a day shift position.
- Establish a .5FTE administrative assistant to support the Fire Department administrative functions
- Establish a dedicated training officer position and additional fire prevention officer that includes operational response duties.
- Undertake a feasibility study in partnership with ACRD to establish regional training centre to support the PAFD and Alberni Valley fire services
- Formalize the letter of agreement with NI911 and establish dispatch protocols and performance indicators.
- Integrate the mutual and automatic aid agreement into a single regional emergency response agreement
- Complete functional study of the building to address operational, growth, health and safety, gender requirements, and equipment requirements.

Although each recommendation has a corresponding timeframe, it is important to note that this FSMP needs to be revisited on a regular basis to confirm that the observations and recommendations remain relevant. The recommendations outlined in this FSMP will better position the PAFD to mitigate and manage community risks, monitor response capabilities and performance in order to maintain a safe community, excellent public relationships and value for money.

Our interactions with the staff revealed a highly professional and dedicated organization that is committed to providing the best possible service to the citizens of Port Alberni.

# SECTION 1
# INTRODUCTION

## 1.1 Background and Significance

Community leaders across Canada continue to search for approaches that improve the efficiency and effectiveness of fire and emergency service delivery. Effectiveness refers to the ability to achieve the desired results or outcomes, while efficiency involves optimizing the use of available resources whether it be time, money, or effort. The notion of efficiency in service delivery is often described as 'doing more for less.'

Elected officials, Chief Administrative Officers, City Managers, Directors, General Managers, Managers, and Fire Chiefs are often faced with the ongoing challenge of achieving efficient and effective service delivery models. Public safety is most often one of the top priorities within most communities, but achieving this goal comes at a relatively high cost.

The services charged with achieving this outcome, including Police, Fire, EMS, and Emergency Management services, are essential components of the public safety services. Service effectiveness is not an option. However, the need to be fiscally responsible and to review operational efficiency and effectiveness cannot be ignored. Senior community officials must continue to be vigilant in their search for innovative and sustainable practices and finding the balance between service levels and expenditures to ensure their citizens are getting *'Value for Money'*.

## 1.2 Goals and Objectives

The goal of this project is to conduct an in-depth study of the Port Alberni Fire Department and its response capabilities with the objective of developing a Fire Services Master Plan (FSMP). The FSMP provides a systematic and comprehensive approach to evaluating current response capabilities by identifying and mitigating risks. It aims to assist in formulating and communicating strategic directions for the fire service while highlighting opportunities for improved service delivery. The FSMP will also help convey information to the public, staff, and municipal council about what to expect in the municipality's approach to fire and emergency service planning, service delivery models, policies, and development.

While risks are the basis for triggering response decisions, our analysis has also investigated the needs of the community, providing a point of reference upon which future decisions and priorities can be evaluated and implemented. This includes identifying priorities, challenges, and opportunities for improving the delivery of emergency services to the community, businesses, and overall public safety. The plan also considers applicable legislation, industry-leading practices, and standards, along with current and anticipated risks to provide unbiased analysis and evidence-based recommendations.

## 1.3 Project Scope

The Fire Service Master Plan will consider and achieve the following benefits:

- Enhanced firefighter safety
- Improved cost control and containment
- Increased efficiency and effectiveness
- Identification of the right sized service to meet the current and future needs of the community.

At minimum, we completed the following items:

1. Assessed all aspects of the fire service and fire protection service delivery for efficient utilization and optimization of municipal resources, including but not limited to:
    - Administration
    - Training and professional development
    - Communications
    - Fleet/facilities
    - Fire prevention
    - Public education
    - Fire suppression
    - Emergency response
2. Station location – reviewed the existing locations of the current stations relative to service demands and considered potential needs for relocation or additional stations to meet established industry standards and best practices.
3. Apparatus – reviewed the existing fleet and the respective vehicle replacement plans relative to the existing and expected future service demands.
4. Vehicle & Equipment location – reviewed existing vehicle fleet and equipment locations relative to service demands and considered potential needs for relocation.
5. Staffing Levels – reviewed staffing levels in relation to station location and service demands and considered potential readjustment.
6. Service level standards – reviewed the establishment and regulation of bylaws to ensure they met the community's needs and reflected industry standards and best practices.
7. The plan considered the growth in population and development within the city over the next 10 years (2024-2034) and the potential impact on service delivery and operations.
8. Select city staff were consulted for input into the project, and the draft plan, prior to finalization, was made available for review.

The plan outcomes established strategic priorities complete with action plans. These were expressed in terms of goals, objectives, action steps, resources (human and financial), and the timelines required to successfully complete the priorities. Outcomes were based upon on the following objectives:

- Examine programs and the possible alignment of services and resources
- Proactively respond to current and future community needs
- Assess legislative compliance
- Protect community and firefighters by ensuring appropriate and safe staffing levels are available 24/7
- Establish appropriate service levels for the community through bylaw
- Explore opportunities to optimize the fire service's organizational structure
- Implement cost efficiencies and cost avoidance measures as possible

## 1.4 Standards and References

This plan considers the following references and standards:

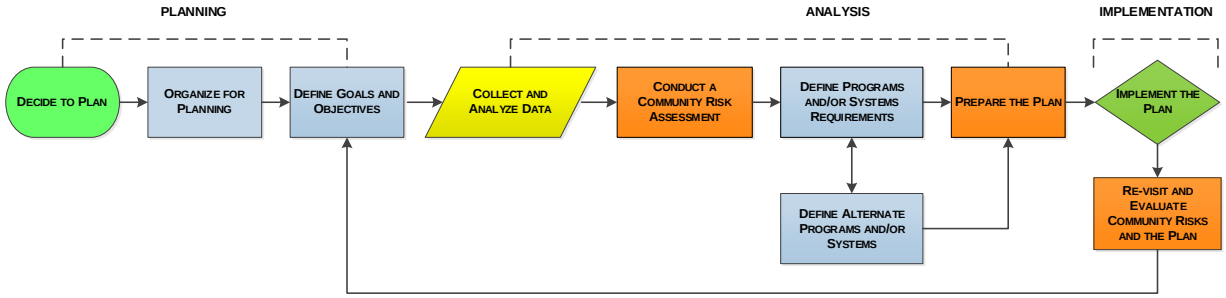
- British Columbia Community Charter and Local Government Act
- British Columbia Fire Safety Act
- British Columbia Building and Fire Codes
- British Columbia Emergency Management System (BCEMS)
- British Columbia Structure Firefighter Minimum Training Standards
- Canadian Standards Association (CSA)
- National Fire Protection Association (NFPA)
- Underwriters Laboratories Canada (ULC)
- Fire Underwriters Survey (FUS)
- WorkSafe BC OHS Regulations

## 1.5 Master Planning Process and Fire Services Assessment

The following diagram illustrates the process used to complete this FSMP. The FSMP is sometimes referred to as a 'road map' to the future and used as a guiding document for department leaders and decision makers.

As described in the 'implementation' phase, it is highly recommended that this plan be reviewed and evaluated, at minimum, on an annual basis or when there are unusual changes in risk, response demands, population and residential or industrial development activity. When possible, we recommend a third-party update of the FSMP at the five-year mark to apply an unbiased review into the operation and provide further credibility to the master plan process.

*Figure 1: Fire Services Master Plan Process*




## 1.6 Consultative Process

### 1.6.1 Community and Fire Station Tour

The community and station tour focused on the overall footprint, topography, and transportation infrastructure of the municipality, as well as the various response zones. Touring the station provided an opportunity to conduct a general condition and operational functionality assessment. Additionally, this tour allowed for meetings with various fire department staff to discuss their respective interests in the development of the Fire Services Master Plan.

### 1.6.2 Targeted Interviews

Targeted interviews were integral to the data and information collection process. Participants were asked questions related to their areas of purview and expertise, utilizing an interview guide for structure. The interviews aimed to foster an open discussion about the community, risks, and general concerns related to both the community and municipal operations.

*Table 1: Targeted Interview List*

| No. | Name | Job Title |
|---|---|---|
| 1 | Mike Owens | Fire Chief |
| 2 | Travis Cross | Deputy Fire Chief |
| 3 | Charlie Starratt | Regional Fire Services Manager, ACRD |
| 4 | Lucas Banton | Fire Chief, Cherry Creek |
| 5 | Mike Kobus | Fire Chief, Beaver Creek |
| 6 | Mike Fox | CAO |
| 7 | Rob Kraneveldt | Manager of Facilities |
| 8 | Patrick Deakin | Economic Development Manager |
| 9 | Andrew McGifford | Director of Finance |
| 10 | Krista Bodin | Director of Human Resources |
| 11 | Ben Halychuk | President, IAFF Local 1667 |
| 12 | Cali Low | Firefighter Mechanic |
| 13 | Derrin Fines | Chief Fire Prevention Officer |
| 14 | Andre Guerin | Station Captain |
| 15 | Mike Cann | Fire Chief, Sproat Lake |

### 1.6.3 Online Firefighter Survey

To obtain balanced input, an online firefighter survey was used. The survey covered various topics, including risk, operations, community growth, and overall management of PAFD. The survey methodology offers several unique benefits. First, it provides an opportunity to gather opinions from the entire group, as opposed to a limited sample of opinions from a select few. The online survey also offers an extremely flexible approach to data collection, allowing respondents to complete the survey questions at their convenience. Additionally, the anonymity of participants is relatively easy to control, potentially yielding more candid and valid responses. Finally, surveys are also extremely time and cost-efficient methods to engage large groups while capturing extensive data.

*(See Appendix D: Online Firefighter Survey Results)*

### 1.6.4 Municipal Comparative Analysis

An industry peer comparative analysis[4] was conducted as a method of benchmarking the performance of departments against similar municipalities. The benchmarks encompass budgets, performance, effectiveness, and efficiencies. While fire and emergency services share the goal of protecting life and property, each community has unique features influencing how they achieve their objectives. The main criteria for the comparative analysis revolve around indicators of effectiveness and efficiencies in risk management and mitigation across communities.

[4] *See Section 3.18, Municipal Comparative Analysis, Page 86*

## 1.7 Study Considerations

The following factors that affected both the assessment and effective mitigation of risk were considered and assessed:

**Community-Specific Considerations**

- Geographic and physical boundaries for response
- Population and future growth
- Community risk factors
- Community demographic information
- Multi-jurisdictional requirements and cooperation
- Current and future development impact on risks and response
- Financial resources and constraints
- Impacts of government legislation
- Bylaws affecting the emergency services
- Economic factors
- Tourism
- Construction
- Industrial activity
- Utilities
- Retail businesses and other services
- Agriculture
- Structural risk inventory that includes old and new stock Buildings and structures. Concentrating on high-risk demands, including business, assembly occupancies,

**Department-Specific Considerations**

- Levels of service and service delivery models
- Budgets
- Fire station locations and other infrastructure
- Support services
- Department structure
- Apparatus and equipment inventory, and future needs
- Operation and administrative staffing and qualifications
- Bylaw, policies, and procedures
- Fire prevention & public education
- Emergency core service response
- Health and wellness
- Training and recruitment records and standards
- Succession planning
- Prevention programs such as inspections, education, and enforcement
- Records and data management
- Emergency services standard operating guidelines and procedures

# SECTION 2
# COMMUNITY PROFILE AND RISK OVERVIEW

## 2.1 Community Overview

The City of Port Alberni is located on the west coast of Vancouver Island. It was incorporated in 1967 following the amalgamation of Alberni and Port Alberni. It is one of three incorporated areas in the Alberni Clayoquot Regional District and together with six Electoral Areas comprises a population of about 30,000 residents within a land area of over 6,600 square kilometers. Port Alberni accounts for nearly 60% of the Regional District's population and less than one percent of the overall land area.

Economic development and associated population growth increased at a rapid rate primarily from investments in the forest industry from 1947 to the late 1970's. Changes in that industry that began in the 1980's resulted in some adjustments to the local economy. The region has emerged as a more diverse network of communities that work together to encourage investment in the rich resources that are available.

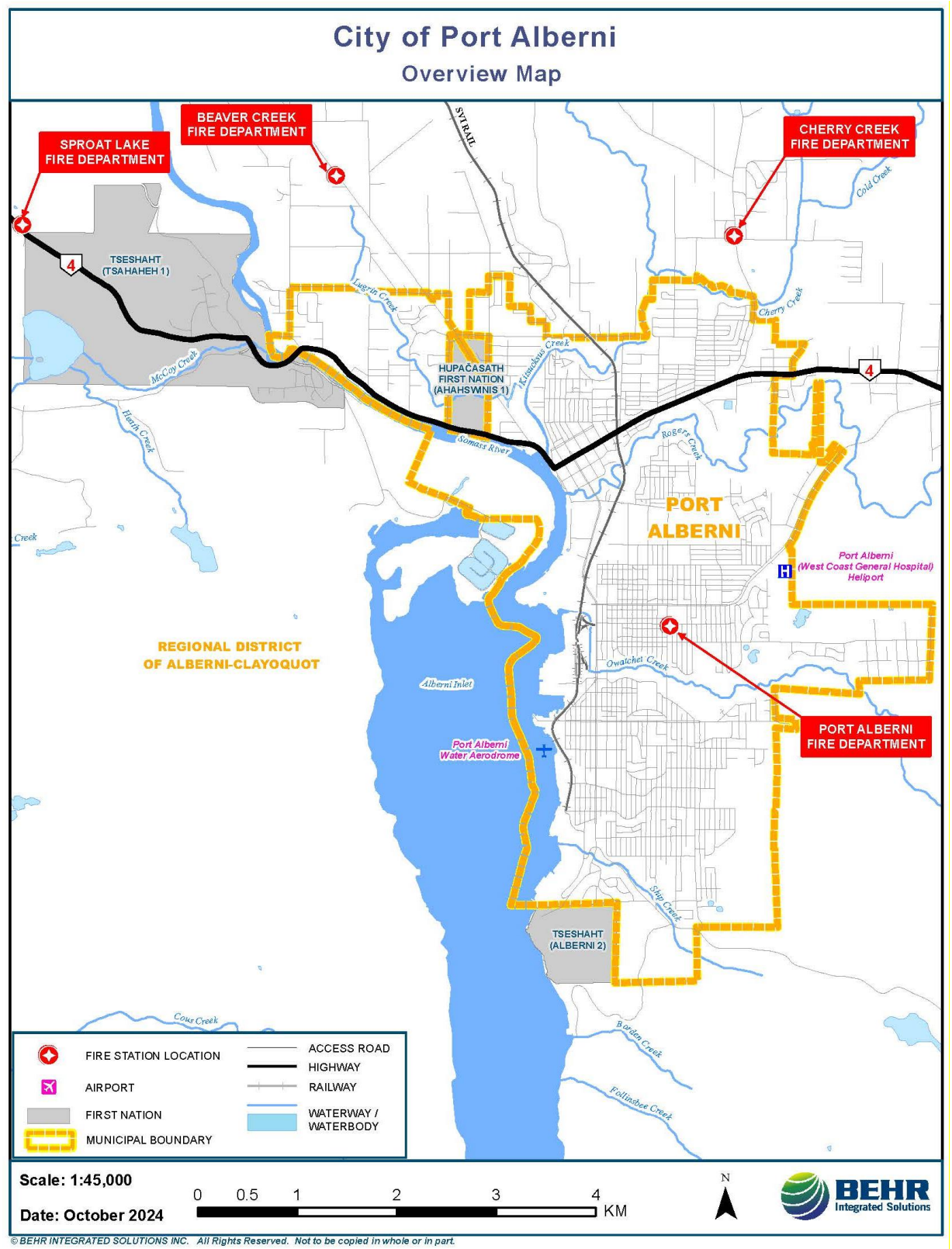
It is bordered by the Beaufort Mountain Range to the east and the Pacific Ocean to the west. Pacific Rim Highway #4 connects Port Alberni to the west coast communities of Bamfield, Tofino and Ucluelet, and Highway #19 connects the city to the central island including ferry terminals and surrounding airports.

The main highway to Port Alberni is Highway 4, known locally as the Alberni Highway and the Pacific Rim Highway. It is the longest east–west main vehicle route on Vancouver Island, with a total length of 163 km. The highway starts at Qualicum Beach, then reaches Port Alberni from which it continues on to Tofino and Ucluelet.

Port Alberni has been reliant on the primary resource sector, particularly forestry and fishing. This is due in part to proximity to resource supply and the advantage of a deep seaport. However, it also functions as the service centre for a large region that includes the Alberni Valley, the Barkley Sound communities, and the pacific west coast communities as such its economy is quite diverse.

It is the regional service centre for hospital care, recreation, and senior's care services. Port Alberni is the educational centre providing the only high school within the Alberni Valley and is home to the campus of North Island College. Finally, it is the centre of a rich agricultural area which is developing its agri-tourism potential.

*Map 1: City of Port Alberni Overview Map*



## 2.2 Economic Indicators

The City of Port Alberni and the surrounding region thrived for several decades with an economy based on the management and processing of natural resources. The main industries were forestry, manufacturing, commercial fishing, and later tourism provided a more diverse economy.

Port Alberni has experienced some uncertainty in its local economy over the past 25 years. This is largely attributable to an unstable resource sector. A number of external factors underlie this problem such as U.S. countervailing duties, anti-dumping levies, and high production costs in the forest industry, and declining commercial salmon stocks in the fishing industry (sport fishery salmon stocks remain healthy).

Significant changes in international commodity markets and resource availability resulted in challenges for many parts of the world that depend on resource use. Port Alberni has responded to these challenges by developing an economy that is more diverse and flexible to changes in markets.

The manufacture of wood products continues to be the key driver of the local economy, as it has been for several decades. A wide range of products are manufactured either in finished form or shipped elsewhere for further manufacturing and sale. Wood commodities exported range from unprocessed logs, to lumber, to paper to full value-added finishing and artisan products.

Many other commodities are produced in the area for processing and shipping to markets. The diversity of the area is demonstrated by the other products that it produces that include field and greenhouse grown agricultural products including award winning wine, both wild and farmed seafood, boats and a range of software and other knowledge-based products.

The largest industrial facilities are manufacturing plants producing forest products. They include one paper plant, and a couple of small scale sawmills. There are many industrial facilities located in the city that provide services to support larger local businesses and to customers outside the communities. Other businesses in the area that might be considered industrial are very diverse, and include the areas of aviation, marine, trucking, agriculture, and aquaculture.

The Alberni Valley Agriculture Plan (2011-2031) indicates that there is significant capacity for increased agricultural production in the Alberni Valley. The demand for (and interest in) local food has never been stronger. Consumers want to buy food they trust from people they trust. The Alberni Valley has experienced farmers, with quality soils, climate, and capital available to produce more.[5]

*Table 2: Major Manufacturing Employers in Port Alberni:*[6]

| Company | Product/Service | Employees |
|---|---|---|
| Canadian Maritime Engineering (CME) | Shipbuilding / Repair / Marine services | 90+ |
| Catalyst Paper | Pulp Mill | 320+ |
| Coulson Aviation | Aviation / Aerial Firefighting / Forestry / Logging | 200-500 |
| DBA Silencing | Exhaust systems & mining truck parts | ~15 |
| Franklin Forest Products | Local sawmill and lumber sales | ~37 |
| Reaplywood Design & Research Inc. | Wood building products | 30+ |
| Western Forest Products | Logging Operations | Unknown |

*Table 3: Major Non-Manufacturing Employers in Port Alberni*[7]

| Company | Product/Service | Employees |
|---|---|---|
| City of Port Alberni | Public Services | 200+ |
| North Island College | Education | 60 Full-Time |
| Royal Canadian Mounted Police (RCMP) | Public Services | 54+ |
| School District #70 * | Education | 425+ |
| Vancouver Island Health Authority | Health care & social services | 900 |
| Walmart | Retail | 150 |
| West Coast General Hospital | Health care | 230+ |

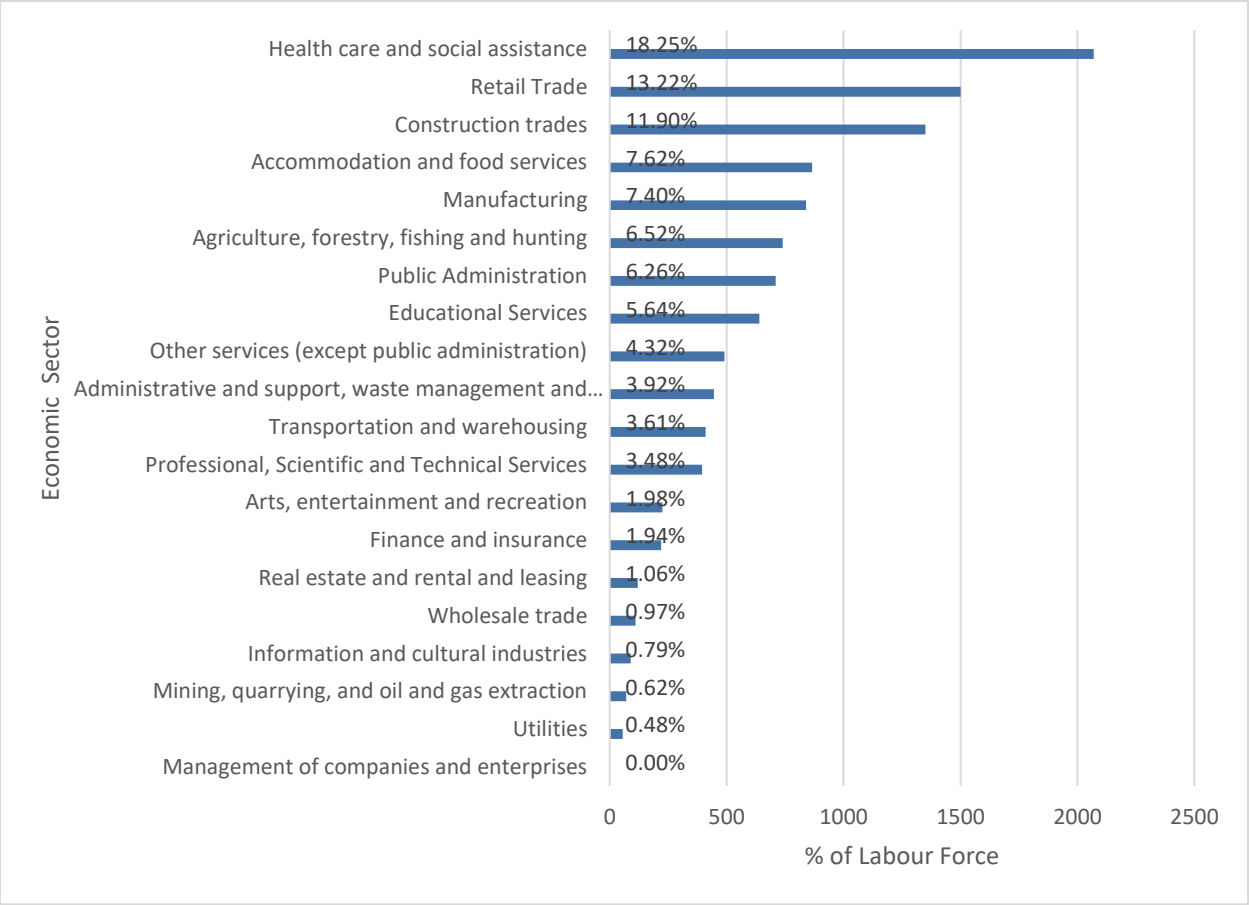
** (Alberni Valley schools, plus Roger St. Offices, and Ops Facility*...excludes ~75 employees at Ucluelet, Tofino and Bamfield)*

[5] *https://www.portalberni.ca/community-profile*

[6] *https://www.chooseportalberni.ca/relocate/employment*

[7] *https://www.chooseportalberni.ca/invest/industries*

*Figure 2: Economic Sectors (2021)*




## 2.3 Growth Projections

Between 2016 and 2021, Port Alberni's population grew from 17,678 to 18,259, marking an average annual growth rate of 0.65% during that period. The population is projected to reach approximately 18,617 in 2024. Growth has been driven primarily by migration, both from within British Columbia and from outside the province, as well as international immigration. However, natural population decline (more deaths than births) has been a counterbalancing factor due to the aging population, where 26.3% of residents are 65 or older, compared to 13.7% under 14.

Looking ahead over the next 10 years, Port Alberni's population growth could continue to rise modestly, with projections of slow yet steady growth. A key driver will be the ongoing diversification of the economy, which has shifted from heavy reliance on forestry and fishing to include sectors like health care, social assistance, retail, and construction. The region also aims to boost economic inclusivity and sustainability, with local leaders emphasizing the importance of inclusive growth and environmental stewardship.

Migration from within the province and other parts of Canada is likely to continue supporting growth, while the affordability of housing compared to other Vancouver Island cities might attract more residents. However, challenges such as an aging population and a crime rate significantly higher than the provincial average may impact long-term growth and quality of life.

## 2.4 Community Demographics

As of the 2021 Census, the demographic composition of Port Alberni, BC reveals a predominantly aging population. The demographic composition of Port Alberni reveals that 73.7% of the population is under the age of 65, while 26.3% is aged 65 or older, reflecting the significant proportion of seniors in the area.

Breaking down the age groups, as of 2021, 13.7% of Port Alberni's residents fall within the 0-14 age bracket, 58.9% are between 15 and 64 years old, with the remainder being 65 and older. Considering this demographic information, an average resident of the City of Port Alberni can be characterized as:

- With a median age of 49.2, Port Alberni has a much older population compared to the national average (41.1)
- Family characteristic of a 2 persons household
- Lives in a single-family dwelling
- Owns their own home
- Has a median household income of $44,640, almost one-third lower than the national average in 2020
- Primarily English speaking
- Works outside the home elsewhere within the City of Port Alberni, for someone else full-time
- Commutes less than 15 minutes each way to work
- Has a high school diploma or equivalency certificate

## 2.5 Community Planning and Development

The City of Port Alberni development is governed by the Official Community Plan (OCP) Bylaw No. 4602 which commenced a comprehensive review in 2022. Public engagement and consultation events and activities are being conducted in 2024 with first reading planned forQ1 in 2025.

City staff have completed preliminary community engagement on the OCP and compiled results into the Growth and Climate Action What We Heard Report. Based on engagement outcomes, staff support using the alternative growth scenario and the Provincial Greenhouse Gas Reduction targets to guide the OCP policy development. Furthermore, key, or essential topics to be addressed in the OCP (based on the public engagement outcomes) include:

- Alternative Growth Scenario approach
- Housing
- Climate Resilience
- Reconciliation[8]

It is important to note that the population of the City of Port Alberni and the surrounding communities has been stable for more than a decade. The updated OCP should be included as a reference for the development of the recommended service delivery policy for PAFD as there may be some direct and indirect impacts.

## 2.6 Community Risk Assessment

Risk can be managed by either accepting the risk, insuring against damages, or investing in risk prevention and mitigation strategies. Local governments typically employ a combination of these approaches. In general, the risks and management strategies of a community are relative to a municipality's financial capacity, geography, population demographics, fixed assets, and critical infrastructure, as well as overall service delivery.

Conducting a risk assessment is the first step towards establishing a strategic plan to manage community risks based upon local fire department response capabilities. The results are used to assist the municipality in making informed decisions regarding the allocation of limited fire prevention and fire response resources.

In this case we used contents from the Alberni-Clayoquot Regional District (ACRD) 2023 Hazard Risk Vulnerability Assessment (HRVA), environmental scan and information from our interviews. The evaluation of fire and rescue risks considers both the probability and consequence of emergency event types. The probability of an event is quantified by analyzing historical, current, and projected data. The consequence of the event type or risk is based on an informed assessment of the potential impact on a community should the event occur.

[8] *https://www.portalberni.ca/official-community-plan*

### 2.6.1 Summary of Identified Risks and Key Findings - HRVA

The list of identified risks provides valuable insights into the specific hazards that pose significant risks to the Alberni Valley and inevitably the City, helping stakeholders prioritize their risk management efforts. It also provides the basis to determine the interplay between likelihood and consequence in determining risk levels, indicating which hazards are not only more probable but also have the potential for severe impacts.

The risk hazards assessed in the HRVA combined with the historical statistical analysis of responses is foundational information for the development of the recommended PAFD service delivery policy, core services and levels.

*Table 4: ACRD HRVA Identified Risks*

| Hazard Category | Hazard | | |
|---|---|---|---|
| Natural | • Air Quality<br>• Extreme Heat<br>• Extreme Cold<br>• Fog<br>• Freezing Rain or Drizzle<br>• Space Weather<br>• Hail<br>• Hurricane/High Wind Event<br>• Lightning<br>• Snowstorm and Blizzards<br>• Earthquake (6.0) | • Cascadia Earthquake (9.0)<br>• Liquefaction<br>• Tsunami (telegenic and terrestrial)<br>• Lake, River, and Stream Flooding Coastal/Shoreline Flooding<br>• Storm Water Flooding<br>• Flash Flooding<br>• Animal Disease<br>• Human Disease (including pandemic and epidemic) | • Plant Disease and Pest Infestation<br>• Wildfire<br>• Avalanche<br>• Landslide/Debris Flow<br>• Land Subsidence (and sinkholes)<br>• Submarine Slides<br>• Ash Fall<br>• Drought<br>• Seiche<br>• Storm Surge |
| Human-Induced | • Cybersecurity Threat<br>• Major Planned Event | • National Security Threat | • Public Disturbance |
| Technological & Industrial | • Electrical Outage<br>• Food Source Interruption (supply chain or community food stores)<br>• Télécommunications Interruption<br>• Fuel Source Interruption<br>• Ground Transportation Route Interruption<br>• Wastewater Collection/Disposal Interruption | • Water Service Interruption (shortage and contamination)Aircraft Incident<br>• Marine Vehicle Incident<br>• Motor Vehicle Incident Explosion<br>• Hazardous Materials Spill<br>• Nuclear Incident | • Public Health Crisis<br>• Structure Failure<br>• Dam and Spillways Failure<br>• Dike/Berm Failure<br>• Structure Fire<br>• Industrial Fire |

### 2.6.2 Factors Contributing to Risk

As mentioned, every municipality has unique challenges and characteristics contributing to the overall risk profile of the community. Some general examples of challenges that may impact a community's level of risk include:

- Community profile
- Fire/rescue service delivery model
- Response capacity and capability
- Population and demographics
- Population growth rate
- Industry types
- Economy
- Rate of development
- Transportation corridor types
- Topography
- Weather
- Historical response data
- Building and structural risk inventories that include aging infrastructures that is subject to failures and newer faster burning construction

### 2.6.3 Risk Management

All communities require a process to identify and actively manage high-priority risks. As previously discussed, there are approaches to managing risk. The focus of this report is to identify and discuss specific risks, and unique community characteristics that contribute to risk, typically managed through fire prevention or fire department response.

The first step in the risk management process includes the assessment of the probability and consequence of specific risks. The next step is the assessment to identify key risks which are then evaluated against the current prevention or response strategy to identify potential service gaps. The third step in this cycle includes adjusting fire prevention and response service levels to manage the resources necessary to pre-emptively mitigate or respond as determined by approved service levels. The last step in the cycle is to measure and report results to key policy makers. This cycle should be repeated periodically to address changes in the risk profile and make thoughtful and informed decisions regarding strategies to manage any changes.

In Canada, local governments are generally charged (by legislation or policy decision) with delivering fire and rescue response services for their citizens. Elected officials are the 'authority having jurisdiction' (AHJ) who determines the level of service required to manage fire and rescue risks to an acceptable level. The challenge for elected officials lies in determining the best balance between investing public funds in adequate emergency services and accepting a certain level of risk.

## 2.7 Risk Evaluation vs. Service Levels

The evaluation of fire or rescue risks considers both the probability and consequence of emergency types of event. The probability of an event is quantified by analyzing historical, current, and projected data. The consequence of the event type or risk is based on an informed assessment of the potential impact on a community should the event occur.

**Probability** – The probability of a risk, or event type, is the determined likelihood that an event will occur within a given time. The probability is quantified by considering the frequency of event type data. An event that occurs daily is highly probable and therefore higher risk. An event that occurs only once in a century is assessed as a lower risk as it may never occur.

**Consequence** – There are three types of consequences when considering fire/rescue response requirements:

- Life safety impact: Life safety risk for victims and responding emergency personnel are the highest order of consequence when considering the risk associated with specific event types. Events with a high likelihood of injury/death occurring and even a moderate probability of occurring require close examination to ensure adequate resources required to safely rescue or protect the lives of occupants from life-threatening are accessible to respond. Incidents that risk life safety include motor vehicle accidents, extreme weather, flooding, fire, release of hazardous materials, medical emergencies, and all types of rescue situations.
- Economic impact: Events with high negative impact on the local economy are devastating to a municipality. For example, recovering from the fire loss of a large employer's property or key public infrastructure in smaller municipalities can be difficult. Therefore, providing adequate response capacity necessary to manage these types of events must be considered.
- Environmental impact: Negative environmental consequences resulting in irreversible or long-term damage to the environment must also be considered in the analysis. Events with risk of negatively impacting water, soil and air quality are also likely to impact life safety as well as the economy and therefore must be considered.

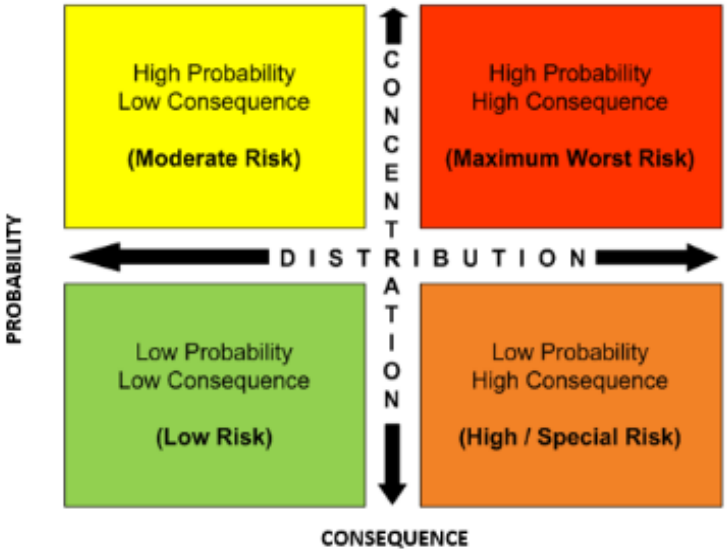
Social and cultural impacts as experienced with the loss of historic buildings, recreation facilities or non-critical community infrastructure, are considered but do not typically affect how fire department resources are deployed.

As discussed, the risk evaluation process is used to identify high-priority risks and the appropriate risk management strategy. Where a fire department response is determined to be the most appropriate management strategy, the appropriate services and service levels should be established to safely manage the risks. Elected officials are responsible for determining which services are delivered and setting service level goals. The service level goals determine the necessary concentration and distribution of either fire prevention or emergency response resources to safely manage the identified risks.

> ***Distribution*** *refers to the number of fixed resources, such as fire stations, and their locations within the community. Distribution varies depending on factors related to the number of incidents and types of calls for service in the defined area.*
>
> ***Concentration*** *refers to the assembling of resources, such as a specialized workforce and equipment, needed to effectively respond to an incident in each area within the community. It must also identify the availability of additional response resources including the reliability and time of arrival of a secondary responding unit.*

The risk evaluation matrix (See Figure 3) can be divided into four levels of risk based on the probability and consequence, each with specific implications for the concentration and distribution of resources. It is provided as a reference and context for use of the matrix to quantify fire response risks in your municipality. Different quadrants of the risk matrix need different response requirements.

*Figure 3: Risk Evaluation Matrix*




As described above, these risks are categorized by considering the probability and consequence of the fire or hazard. This qualitative analysis is based on experience and expertise, and should be completed with input from fire, building and emergency management officials. Every community will have a unique risk inventory contributing to its risk profile.

*Table 5: Types of Structural Fires*

**Low Risk = Low Probability and Low Consequence**

This category is limited to areas or incidents having a low probability of fire risk and low consequence for the potential for loss of life or economic loss. Some low risks include:

- Outdoor fire pits
- Non-structure lightning strikes
- Vacant land
- Parks without structures
- Isolated structures such as sheds

**Moderate Risk = High Probability and Low Consequence**

Most responses fall under this category. Moderate risks include:

- Motor vehicle collisions
- Carbon monoxide detection (emergency medical co-response)
- Monitoring/local alarms
- Vehicle fires
- Dangerous goods incidents with small quantities of a known product (20 litres or less), outdoor odours (natural gas or unknown)
- Miscellaneous explosions
- Emergency standbys
- Smoke
- Odours
- Fires:
  - garbage
  - detached garages
  - single or multi-family residential fires
  - small non-residential buildings less than 600 square metres

**High Risk = Low Probability and High Consequence**

There are very few properties/responses that are considered high probability, high consequence. These properties are categorized as large properties, over 600 square metres, without adequate built-in fire protection systems, or that has large concentrations of people or has a significant impact on the local economy. High risks include:

- Commercial, industrial warehouse
- Dangerous goods incidents with large quantities of known products (75 litres or more), unknown products or large exposure
- Hospitals, care homes, institutions
- Derailments & transportation of dangerous goods
- Aircraft crashes on or off the airport
- Bulk fuel storage facility fire/explosion

**Maximum Risk = High Probability and High Consequence**

This category of risk can be generally categorized as properties over 600 square metres that have high economic value in the form of employment or are not easily replaceable, or natural disasters occurring in highly populated areas, creating high life and property loss potential and strains on the department and other agency resources. Damage to properties in this category could result in temporary job loss or permanent closure of the business. Such properties are highly regulated or possess built-in fire protection systems. Some maximum risks include:

- Wildland fires
- Weather related events (floods, tornadoes, severe storms etc.)
- Large vehicle accidents, pileups, derailments
- Quantities of known flammable products (500-1000 litres)
- Explosions or substation electrical fires
- Confirmed natural gas leak

## 2.8 Structural Fire Risk Analysis

It is critical to plan and consider alternative solutions and innovations when managing risk. The ability of any municipality to increase the distribution of resources and add capacity, the desire to "do more", is ultimately finite, limited by what the taxpayers and community are willing to pay to provide those services.

Spending significant time and resources to manage a risk of low frequency/low consequences will have limited impact and generate minimal improvement in community safety; whereas additional efforts and expenditures to mitigate high consequence and/or high-frequency risk can have significant impacts and results in a community. When planning for fire department response, the planning process includes a detailed review of the past, and anticipation of future events, and their potential frequency and consequence(s), so any design, planning, prevention, education, and response efforts are focused on maximizing life safety and minimizing negative consequences for high-priority events.

This section describes how the risk of structure fires can be evaluated and how to use this information to inform the distribution and concentration of limited fire department resources. Analyzing structural fire risk begins by developing an exhaustive inventory of existing building stock and monitoring changes to the inventory. This process should include staff from the planning and development department, as well as the municipality's fire prevention and building inspectors. This provides the opportunity to evaluate, in advance, the requirements of the BC Building and Fire Codes which will assist in the planning, design, construction, and operation phases of the building.

To create a useful and comprehensive building inventory from scratch it is usually necessary to start with new and recent construction and work back historically, utilizing what development and construction records exist. When there are limited historical records of development and construction, on-site evaluations by knowledgeable staff will be necessary. It may be helpful to build the inventory, when possible, by sorting buildings by, not only occupancy classification (Group A - F), but also the building code era within which they were built, and the type and the use of sub-types of construction (e.g., combustible construction – lightweight floor trusses). These categories will help identify those building code provisions that should have applied to the building's construction at that time, as well as potential risks posed by construction type.

The building inventory database becomes the foundation for assessing structural fire risk in the community. This inventory provides a count and description of all property types and occupancy classifications including single and multi-family residential, assembly (including schools, churches, restaurants, taverns, recreation centres, etc.), institutional (treatment, care, detention), service businesses (banks, medical offices), mercantile (commercial, retail), and high, medium, and low hazard industrial properties.

Once the inventory is created, fire department response capability is measured against the identified and rated property risks. This simple identification of a high number of specific high-risk property types may identify potential gaps in capability and capacity within the current response model, resulting in a reorganization or the need for additional fire department training and/or resources. As building stocks increase and/or change, fire departments should continue to monitor response capability and capacity to ensure the service levels approved by the municipality are maintained.

Fire departments must work with planning and development department staff, and construction discipline Building Code Officer, to develop informed processes which monitor the addition of new buildings or significant changes to existing properties. The fire department should be involved early in the process, in the review of submitted building plans, to identify concerns and determine the risks presented by each property as well as the necessary components of fire safety plans for construction and operation. This collaboration can also inform the development of fire response pre-plans to prepare fire responders for the specific hazards in high-risk structures.

Table 6 provides the current municipality's building inventory. It is typical for single-family detached homes to make up the largest percentage of property types. As a result, fires in this type of moderate-risk structure are typically the most probable. However, the consequence of these types of fires is low relative to other residential properties, such as low-, mid- and high-rise buildings although the more prevalent use of lightweight manufactured floor joists and beams in the past 30 years creates an additional identified hazard for occupants and firefighters during fire events.

*Table 6: Building Inventory by Property Type*

| Property Type | Property Count | % of Total Properties |
|---|---|---|
| Assembly (theatres, schools, hotels, convention centres, public facilities with high occupancies etc.) | 111 | 1.12 |
| Institutional (prisons, hospitals, care homes etc.) | 2 | 0.02 |
| Residential | 8299 | 83.93 |
| Residential - multi-unit | 249 | 2.52 |
| Strat Residential | 527 | 5.33 |
| Industrial | 78 | 0.79 |
| Strat ICI (Industrial, Commercial and Institutional) | 24 | 0.24 |
| Commercial and Mercantile | 584 | 5.91 |
| Farm | 11 | 0.11 |
| Transportation and Utilities | 3 | 0.03 |
| Total | 9,888 | 100 |

The 2021 Statistics Canada Census provides a count of residential dwellings within the city. The analysis of this data includes the number of single, detached, duplex, appartment buildings, etc. Single and semi-detached homes make up the majority residential units.

*Table 7: Household and Dwelling Characteristics*

| | |
|---|---|
| Total - Occupied private dwellings by structural type of dwelling - 100% data | 11,715 |
| Single-detached house | 8,495 |
| Semi-detached house | 305 |
| Row house | 515 |
| Apartment or flat in a duplex | 435 |
| Apartment in a building that has fewer than five storeys | 1,310 |
| Apartment in a building that has five or more storeys | 140 |
| Other single-attached housing | 20 |
| Movable dwelling | 495 |
| Total - Private households by household size - 100% data | 11,715 |

In conjunction with the residential structural fire risk analysis, there are further risks in the city which include medium and high-hazard industrial manufacturing and processing facilities, as well as new developments.

**Observation #1**

PAFD does not have a complete inventory of structures and facilities in order to evaluate the structural risk and how to use this information to inform the distribution and concentration of limited fire department resources.

***Recommendation #1: PAFD collaborate with the development, public works, and financial services departments, to explore the development of a multi-user building and structure inventory system including risk and infrastructure information for all existing and new structures/facilities within the city, using a common GIS based environment.***

***Suggested completion:*** 12 - 60 months and ongoing

***Cost:*** Neutral

***Resource*:** City staff time

***Rationale:*** *Having current and accurate information on all buildings and structures allows PAFD, and other municipal departments, to be well positioned to manage current risks and more readily assess the impact of future growth and changes to the risk profile in the city. A corporate level GIS system could house data layers providing building and hazard pre-planning information, integrated building and fire inspection information, and site-specific hazard and risk related information that would be available for fire prevention, pre planning and response activities.*

*This can be utilized to adjust the priorities of fire department inspections, public safety education, training, emergency planning, budgets, and resources as required. Building inventories should continue to be classified, documented, and maintained utilizing the BC Building Major Occupancy Classification system.*

### 2.8.1 Wildland Urban Interface Fires and Planning

The ACRD HRVA and the ACRD Community Wildfire Protection Plan Update (2019), identifies risk and strategies for minimizing wildfire risks. This Community Wildfire Protection Plan Update will provide the ACRD and city with a framework that can be used to review and assess areas of identified moderate and high fire risk within the region. Additionally, the information contained in this report should help to guide the development of emergency plans, emergency response, evacuation plans, communication, and education programs (including FireSmart), bylaw development in areas of fire risk, and the management of potentially hazardous forest lands adjacent to the community.

With over 60 percent of the province forested, British Columbia is particularly susceptible to wildfires, with lightning strikes accounting for approximately 60 percent of ignitions annually (Government of British Columbia, 2023). The region's topography is diverse, with low lying valley bottom lands, rolling hills and mountainous terrain. Due to this variable topography, the elevation varies significantly from sea-level to alpine mountain peaks exceeding 1,600m.

Disruption or loss of critical infrastructure can further compound the impacts of wildfires on communities. While protective measures are in place, impacts on transportation routes, communications services, medical facilities, or utilities within the interface area can jeopardize the safety, security, or economic well-being of affected communities. Wildfires can be traumatic events, causing psychological distress, particularly for those who lose homes, belongings, or pets. Post-traumatic stress disorder (PTSD), depression, anxiety, and other mental health issues may arise following wildfire events, underscoring the need for adequate support and resources for affected individuals.

Economically, wildfires incur substantial costs, including suppression and response expenditures exceeding $1.3 billion between 2023 and 2024 in British Columbia alone. Moreover, indirect costs such as economic disruptions and lost tourism revenues further compound the financial toll of wildfires.

With the frequency and severity of wildfires on the rise, driven by factors like climate change, the expanding wildland-urban interface, infrastructure expansion, and prolonged drought conditions, the wildfire hazard remains a great risk to the region. The response to a significant wildland fire that threatens the city could include several agencies: provincial, regional, private sector, and municipal. Where a threatening fire is hours or days away from the community, more time can be dedicated to a strategic approach with a planned response and pre-deployment of resources.

The typical method for wildfire defence and protection plans is to react when wildfire puts the community at risk. Developing structure defence or protection plans is usually done hastily, where the identification of risks, response strategies and tactics, critical infrastructure, and coordination of resources becomes a major challenge. Taking a more strategic approach, the city can significantly enhance preparedness, mitigation, response, and resiliency when faced with an impinging wildfire.

The ACRD Community Wildfire Protection Plan contains 48 recommendations includes some elements of preparedness. However, a structure defence plan is the foundation of planning for what fire defence resources may be required during a wildfire event. During an actual event, the plan will be reviewed with the BCWS Incident Command Team and the Alberni Valley fire services to determine what will be requested through the Provincial Wildland Coordination Center and the Structure Protection Coordination Officer.

**Observation #2**

The city does not have a comprehensive wildfire defence plan.

***Recommendation #2: Develop a comprehensive wildfire defence plan in partnership with ACRD that identifies resource requirements, tactics, and strategies.***

***Suggested completion:*** 24-120 months

***Cost:*** Neutral, unless overtime is necessary and/or a third-party is involved. Third-party is approximately $85 - $100k.

***Resource*:** ACRD and city staff time or third-party

**Rationale:** *A community wildfire defence plan provides a pre-incident guide and preparedness plan to assist responders before and in the event of a threatening wildfire. This includes predetermined evacuations routes, safe zones, water sources, tender fill sites, portable water tank/reservoir locations, types and number of structural protection specialists' units and staffing and strategic and tactical response sheets.*

### 2.8.2 Identified Risks Emergency Response Impact

The ACRD HRVA (2023) presents an Alberni Valley overview of the relative risks associated with all hazards. Local decision-makers can enhance their ability to prioritize activities related to risk management and emergency preparedness. In addition to the HRVA additional risk management context is provided as follows:

- City profile and economic indicators
- Development and growth as contained in the updated OCP
- Risk management matrix (Section 2)
- Structural risk inventory (Section 2)
- Community Wildfire Protection Plan
- PAFD core services ( identified in the City of Port Alberni Fire Control Bylaw),
- Provincial regulations (OHS and minimum firefighter training standards)
- Emergency response performance analysis and capacity (section 4)
- Subject matter experts PAFD Officers and FSMP (Behr 2024), and
- Fiscal realities of the City to fund a sustainable fire service

The culmination of all these factors is essential in quantifying risk tolerances to the extent possible for the city and can included in a standards of response coverage or service level policy.

## Observation #3

The fire chief and senior administration identify current response performance with the aim of assisting Council with establishing fire department response service levels. This may be achieved as an outcome to completing a standards of response coverage or service delivery policy.

***Recommendation #3: Establish a 'Levels of Service' policy for emergency response that includes a validation of the various services.***

***Suggested completion:*** *24-120 months*

***Cost:*** *Neutral*

***Resource:*** *City staff time*

***Rationale:*** *NFPA 1201: Standard for Providing Emergency Services to the Public suggests all fire departments should have policy identifying service types and service levels. Section 4.5.3.1 states:*

*"The fire and emergency services (FESA) leader shall develop and adopt a formal policy statement that includes the specific types and levels of services to be provided by the organization, the service area, and the delegation of authority to subordinates."*

*Developing formalized policy statements regarding fire department service levels is considered a leading practice. In the absence of established service levels, it is difficult for a fire chief to determine whether fire department response performance meets community and council service expectations.*

# SECTION 3
# DEPARTMENT PROFILE

## 3.1 Department Overview

The PAFD has been serving the community of Port Alberni for over 100 years providing a wide scope of emergency and fire prevention/public education services. PAFD is authorized to provide these services by The City of Port Alberni "Fire Control Bylaw", Schedule A. These valued services include:

- Fire Prevention
- Structural Fire Suppression
- Marine Fire Suppression
- Shipboard Firefighting
- Confined Space Firefighting
- Technical Rope Rescue
- Slope Rescue
- Automobile Extrication Rescue
- Hazardous Materials Mitigation
- Wildland Fire Suppression
- Swift Water Rescue
- Open Water Rescue
- Medical First Responder
- Public Assistance
- Other emergency or non-emergency public services as authorized by the Fire Chief

In addition to providing critical emergency services, PAFD also performs day-to-day non-emergency activities which include:

- Company Inspections
- Public education
- Incident pre-planning
- Vehicle, apparatus, and equipment preventive maintenance inspections and testing
- Skills maintenance practice and training
- Fire hall preventative maintenance and upkeep

## Observation #4

Council for the City of Port Alberni has enacted Fire Control Bylaw to regulate, prohibit and impose requirements in relation to municipal services within the scope of the Fire Safety Act. Schedule A sets out the services to be provided by the PAFD. The description of these services does not include the approved level of service, including training, certifications, and performance measures.

***Recommendation #4: Amend the Fire Control Bylaw Schedule A, to include service levels and performance targets.***

***Suggested completion:*** *6-12 months*

***Cost:*** *Neutral*

***Resource:*** *City and Fire Department staff time*

***Rationale:*** *The core services being provided by the PAFD should include the level of service and performance expectations. A service delivery policy has been recommended at section 2 of this report.*

*A service delivery policy is a document that identifies the hazards and risks within the community and documents the Fire Services current responsibilities (core services) and limitations. This document is a guide towards continuous improvement This policy creates several benefits to the operation and governance of PAFD. The risk analysis would identify all high, extreme, and unique risks within the city's demand zones. It also involves a complete review of existing services and levels, standard operating guidelines and policies, and a review of fire department resources performance measurement and reporting.*

### 3.1.1 Mission and Vision

**City of Port Alberni Mission Statement**

Our Mission is to enhance the quality of life of residents and taxpayers by creating a vibrant waterfront community.

- providing or facilitating the delivery of high-quality core municipal services and programs.
- balancing economic, environmental, and social benefits.
- being fiscally responsible.
- planning and encouraging development to ensure a thriving economy and strong tax base.
- maintaining sustainable infrastructure.
- providing leadership and building partnerships (internal/external), which will be of benefit to the broader community.

**City of Port Alberni Principals:**

City Council has adopted four principles. These principles are the pillars of Council's decision-making process:

- be authentic.
- demonstrate courage, integrity, and humility.
- be innovative.
- be respectful, communicative, and accountable.

A fire service may align with their municipality's mission, vision, and principals, or build upon those with fire service specific statements.

**Port Alberni Fire Department Mission Statement:**

The Port Alberni Fire Department is a compassionate and professional organization committed to the protection of life, property and the environment, the avoidance of harm, and the elimination of suffering.

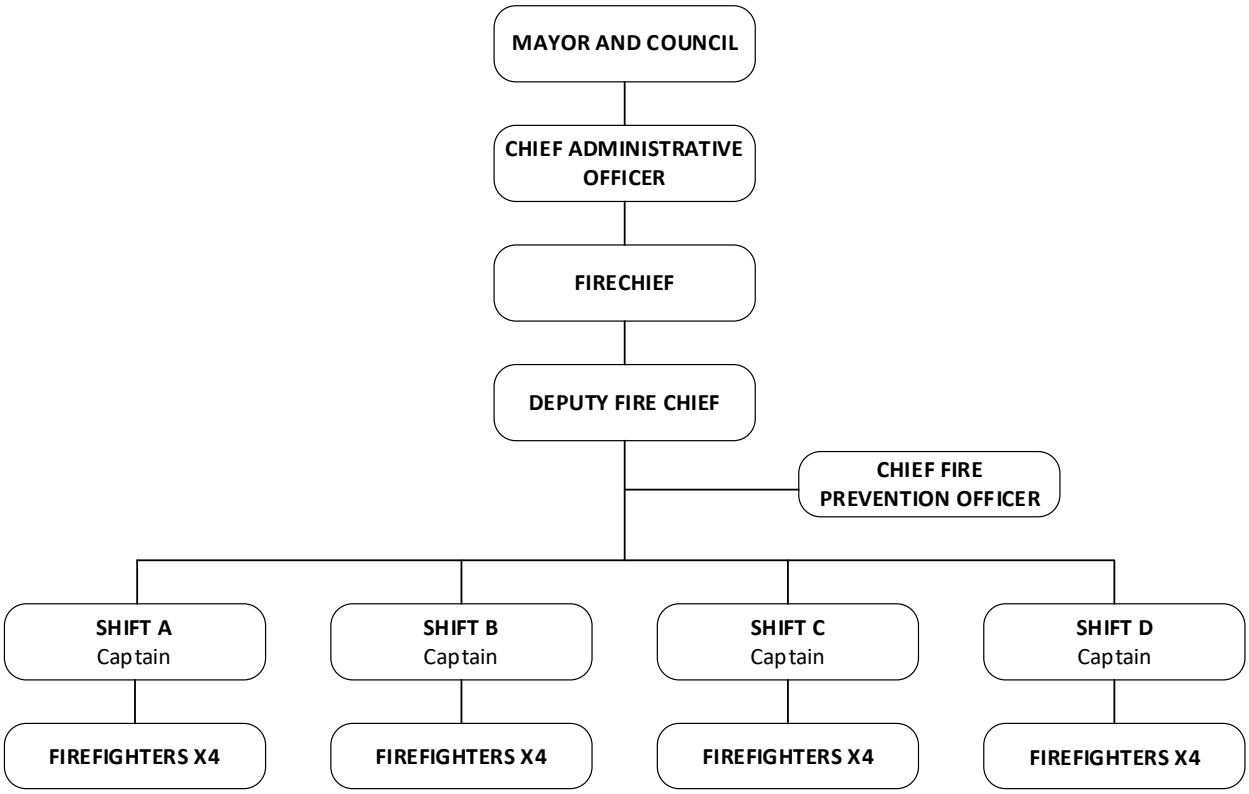
**Port Alberni Fire Department Vision:**

The Port Alberni Fire Department is a progressive and dynamic organization, committed to excellence in the delivery of services.

## 3.2 PAFD Staffing Resources

PAFD is classified as a fulltime department. PAFD operates out of a single fire station located within the municipal boundaries and relies on a current roster of 20 NFPA 1001 trained career firefighters (4 Captains and 16 Firefighters), one Chief Fire Prevention Office and one Deputy Fire Chief led by their Fire Chief. The platoon strength for fire suppression is 5, with a minimum on- duty strength of 4. As a result, he operational capacity of PAFD is heavily dependent on the on-duty staff bolstered by call-back of PAFD members and volunteer members from mutual/automatic aid fire departments. These mutual/automatic aid agreements are further discussed later in this section.

*Chart 1: Port Alberni Fire Department Organizational Chart (2024)*



Fire Department Staffing Ratio Example ONLY

- One FTE position based upon 42 hours per week x 52 week = 2184 hr./yr.
- Total hour coverage per year = 365.25 days x 24 hours = 8766.
- Sick Time averages per year = - 75.045 hours/ per FTE
- Annual leave accrued averages per year = -180.88 hours/per FTE
- Lieu Time averages per year 2020 = 40 /per FTE
- Technical Training per FTE per year = 202.66 hours
- Out of area deployments = 20 hours
- Other Leave – Family Medical, bereavement, etc. = 42 hours

Therefore: 2184 hr./yr. – 75.045 – 180.88 – 40 – 202.66 – 42 - 20 = 1623.415

8766 /1623.415 = **5.4:1**

Therefore: The minimum duty strength (MDS) for 4 firefighters requires a staffing ratio of 5.4 = 22.6 or 23 firefighters

## Observation #5

PAFD currently has 20 full-time suppression staff (16 firefighters and 4 captains) and relies on minimum duty strength of 3 firefighters and 1 captain per shift. There is a regular reliance on overtime to meet the MDS. The recommended staffing model should be a result of an updated staffing ratio calculation. Utilizing an accurate staffing ratio model will assist with ensuring that sufficient staff are always available on duty while decreasing the reliance on overtime.

***Recommendation #5: Conduct a comprehensive staffing ratio assessment and determine the optimal staffing ratio.***

***Suggested completion:*** *6-12 months*

***Cost:*** *Neutral*

***Resource:*** *City and Fire Department staff time*

***Rationale:*** *Determining and maintaining the suppression staffing ratio will assist with ensuring sufficient staff available on each shift to maintain the optimal and minimum staffing while minimizing the reliance on overtime.*

## 3.3 Department Leadership, Management and Operations

Effective leadership and management are paramount for an organization's success. Elected officials are tasked with ensuring the value of money spent on services for their citizens. Department managers are challenged to maintain or increase service levels while avoiding service cost increases. This fiscally driven environment creates the need for communities to adopt more business-like approaches to delivering public safety services. Managers of fire and emergency services, like all public services managers, are required to adopt private sector-like business practices such as:

- Conducting regular market (external) cost comparison analyses
- Developing performance measures and objectives for core services including emergency response, fire prevention, public education, and health and safety
- Regularly monitoring and reviewing delivery performance to determine effectiveness.
- Ensuring value for service

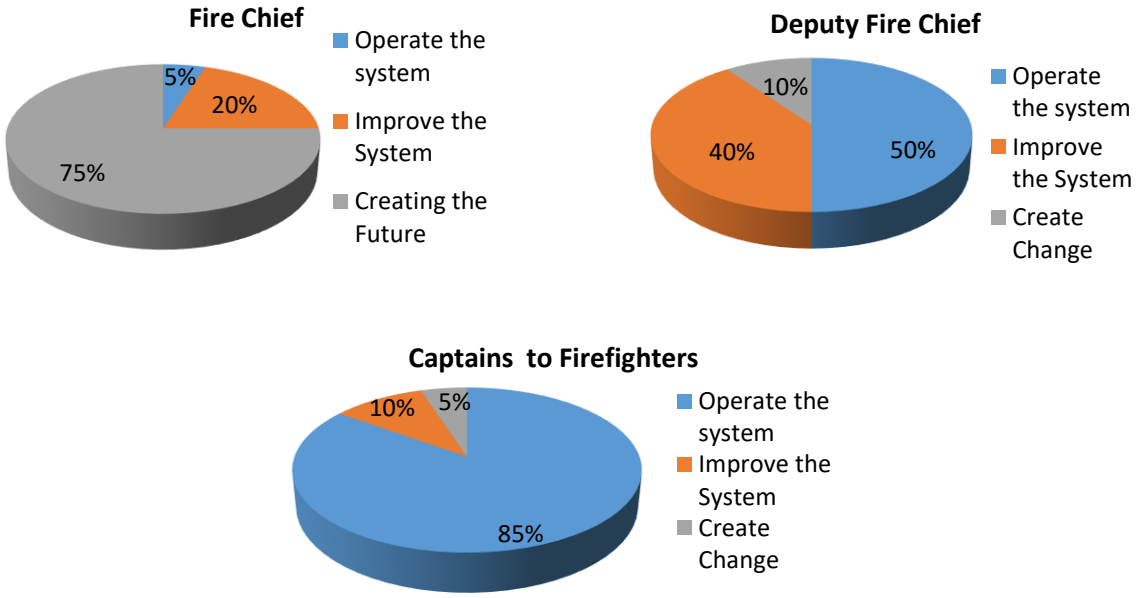
In some cases, this requires a shift from the historical approach of focusing on day-to-day service delivery, to scanning the future and working towards a department that is responsive to change, sustainable and makes efficient use of limited resources.

Fire department leaders must also adopt a more business-like approach to leading and managing their departments. In collaboration with their municipality's senior administration, fire department leaders need to be proactive and examine all aspects of their service delivery systems to look for innovative efficiencies and enhanced effectiveness.

The following theoretical image suggests an allocation of leadership time to effectively operate a fire department, scan for improvement opportunities and implement system improvements. It illustrates two important points:

1) the amount of time allocated to operating, improving, and identifying strategy varies at different levels in the organization
2) senior leadership positions must retain the capacity to identify long-term goals and implement change.

*Image 1: Fire Service Time Management*




The organization's leadership must work closely with the entire team. A highly functioning team understands each person's roles and responsibilities and brings skilled individuals together in a collaborative manner to lead the organization in achieving its values, mission, and vision. To promote role clarity and understanding of the overall structure of responsibility, accurate and updated job descriptions must be available.

Traits of a high-performing team include:

- Trust
- Strong communication
- Transparency
- Collaboration
- Support
- Clarity
- Adaptive
- Reflective

Leadership is a function expected of all PAFD members to contribute to the environment required to achieve service excellence. Day-to-day station leadership and management is a shared responsibility between the chief officers and captains. These positions play a critical role in leading, managing, and mentoring firefighters. This role is crucial in ensuring firefighter practice is aligned with department policy, as well as being the critical link in the chain of command between firefighters and chief officers.

### 3.3.1 PAFD Administrative Team

#### 3.3.1.1 Fire Chief

Reporting to the Chief Administrative Officer the PAFD Fire Chief is a senior leadership position, responsible for the leadership and management of all aspects of service delivery of PAFD as provided in the Fire Control Bylaw.

As a senior administrative employee of the City of Port Alberni, the Fire Chief contributes to the long-range planning for PAFD and community safety programs. Key responsibilities of this position include but are not limited to strategic, technical, management, municipal and business expertise and advice in the conceptualization, development, implementation, monitoring, and continuous improvement of:

- Fire services prevent emergencies via education and outreach, as well as incident evaluation; protects people, property, and the environment; inspection programs.
- Provide emergency response support as required to operational activities including command and safety roles.

#### 3.3.1.2 Deputy Fire Chief

Reporting to the Fire Chief, the Deputy Fire Chief is a management role and assists with the supervision, direction, and administration of PAFD. In the absence of the fire chief, the Deputy Fire Chief assumes the authority and responsibility of the Fire Chief.

Reporting to the Fire Chief, the Deputy Fire Chief has fulltime management role and assists with the supervision, direction, and administration of PAFD. This position is assigned certain portfolios to manage as determined by the Fire Chief. In the absence of the fire chief, the deputy fire chief assumes the authority and responsibility of the fire chief, under the direction of the CAO. Key responsibilities of this position include but are not limited to:

- Direct supervision of fire captains ensuring all operations are ongoing and consistent with departmental operational guidelines and procedures.
- Responds to emergency calls as required to provide support to operations activities, including command and safety roles.
- Oversees training programs within the department, ensuring that all personnel are trained to current standards and that ongoing professional development is prioritized.
    - Oversees daily operations in the fire department, ensuring that staffing, equipment, and procedural protocols are in place for responding to fires and other emergencies.

- Assists the Fire Chief, as needed, in the management of the department's budget, including procurement of equipment and resources, as well as overseeing administrative daily operations.
- Oversees the inspection and prevention programs, ensuring communities infrastructure is prioritized.
- Assists in the hiring of new firefighters and provides direct feedback to the Fire Chief on current membership in their day-to-day operations.

## Observation #6

Based upon the staff interviews, consultation, comparative community analysis and Behr's experience with similar sized fire services there is currently an over reliance for Fire Chief and Deputy Chief to be heavily involved in emergency responses. This is due to the extremely limited response capability of 4 firefighters, and the current call volume. Along with the biweekly duty chief responsibility, this operational role creates a work-life imbalance and detracts from the chief officers' roles to lead and manage the PAFD. The following recommendations will lessen the need for the chief officers to attend emergencies on a regular basis, increase response capacity during weekday peak periods and provide the staffing to maintain (not increase) the current service levels.

***Recommendation #6a: Develop an updated emergency response matrix for all emergency call types.***

***Suggested completion:*** *6-12 months*

***Cost:*** *No Cost*

***Resource:*** *Administration time*

***Rationale:*** *The matrix should define under what circumstances that the Fire Chief and/or Deputy Fire Chief are to be dispatched for emergency response. For example: on confirmed structural fires where the recall of off duty firefighters or automatic aid is required the chief officers are required.*

***Recommendation #6b: Re-assign the Firefighter Mechanic to a day shift position and replace with a full-time firefighter on the platoon shift.***

***Suggested completion:*** *6-18 months*

***Cost:*** *No Cost*

***Resource:*** *PAFD Operating budget*

***Rationale:*** *Having the firefighter mechanic on dayshift will add additional vehicle maintenance and peak period call volume emergency response capacities. This will reduce the reliance on the fire chief and deputy fire chief to be part of the effective response force on a continuous basis.*

## Observation #6

***Recommendation #6c: Hire two additional fulltime firefighters to the full-time fire suppression staff.***

***Suggested completion:*** *6-24 months*

***Cost:*** *2 FTE positions $170,000 increased yearly to $223,000 (4th year)*

***Resource:*** *PAFD Operating budget*

***Rationale:*** *The development of the staffing ratio confirms the need to increase the staff contingent of suppression firefighters. In order to maintain current service levels, decrease the reliance on overtime, and infrequent times when less than 4 firefighters are available with an increase of 2 firefighters is required.*

## Observation #7

The Fire Chief and Deputy Fire Chief are responsible for leading and managing the PAFD. There is considerable administration to management, control and supervision of the fire department and its members. Aspects such as budget preparation, council reports, records management, and corporate undertakings requires the addition of an administrative assistant.

***Recommendation #7: Establish a .5FTE administrative assistant to support the Fire Department administrative functions.***

***Suggested completion:*** *12-24 months*

***Cost:*** *$35,000 – 45,000 per year*

***Resource:*** *Operations Budget*

***Rationale:*** *Administrative support is key to the success of an organization. The addition of a dedicated administrative assistant will take a large administrative obligation from the Chief and Deputy Fire Chief.*

#### 3.3.1.2.1 Chief Fire Prevention Officer

This unionized position reports directly to the Deputy Fire Chief and is responsible for all aspects of fire inspections, fire prevention and public education programs.

#### 3.3.1.2.2 Captain

Reporting to the Deputy Fire Chief, this position is a unionized leadership and a supervisory firefighting position which includes command of the fire hall, and apparatus/equipment and leading a team of assigned firefighting personnel in both emergency and non-emergency situations. A captain is required to make rapid decisions under difficult conditions while considering the safety of their staff and the public and the potential consequences of tactical and operational decisions. This position is required to assume an incident command role until relieved where necessary by a chief officer within PAFD.

PAFD has one Captain assigned to each shift. Each shift has a senior firefighter qualified to act in absence of the captain.

#### 3.3.1.2.3 Firefighter

Under the direction of the captain on duty, the firefighter position is a fulltime unionized position responsible for assisting with:

- Extinguishing and preventing fires.
- Providing emergency medical care in a pre-hospital setting.
- Public Education.
- Performing all duties in accordance with standing orders and OGs, as assigned by the Chief's Office.
- Assist the firefighter mechanic to perform minor maintenance of apparatus, small equipment.
- Assist with daily upkeep of the fire station and grounds.
- Performing all duties in accordance with standing orders and other valid directions
- PAFD has four firefighters assigned to each shift.

### 3.3.2 Policies, Standard Operating Procedures and Guidelines

Fire department policies along with standard operating guidelines (SOGs) and standard operating procedures (SOPs) are essential components of a fire department. Formal, written policies and procedures establish consistent expectations and practices focusing on safety and effectiveness throughout the organization. Policies, procedures, and guidelines are often tied to the department or municipal Values, Vision, and Mission.

All approved policies, procedures and guidelines should be contained in a single fire department manual, easily accessible to all members of the organization with accountability checks in place, regularly scheduled reviews and updates to policies, procedures and guidelines should be a common practice in an organization.

#### 3.3.2.1 Policies

Fire department policies are guiding principles which set expectations and guide all members of the organization. They represent philosophy and expected conduct standards. Typical policy wording would include “all members shall” or “shall not”, which clearly define expectations and provide consistency in practice.

#### 3.3.2.2 Standard Operating Guidelines and Procedures

Fire department standard operating guidelines (SOG) and standard operating procedures (SOP) provide a foundation of best practices and are subject to situational interpretation based on approved policies and procedures.

Fire department standard operating procedures (SOP) assist all members in knowing how to act and react in day-to-day situations. Guidelines allow for flexibility in the application of a procedure as the situation dictates while staying consistent with policy or procedure. Also, SOGs are not meant to limit the ability of on-scene personnel to make decisions but rather allow a degree of flexibility in their decision-making process. When every firefighter follows the same SOPs, they communicate effectively and work efficiently as a team. This improves accountability and the safety of the public and first responders.

PAFD operates under departmental SOP/SOGs focusing on administrative, occupational health and safety, emergency operations, apparatus/equipment maintenance, communications, training, and fire prevention and education. PAFD is in the process of reviewing and updating existing SOP/SOG's and developing new ones where necessary. This process involves all staff with final review and approval being done at the chief level. Interview and survey results suggest that the majority of PAFD's current standard operational guidelines are reflective of fire-rescue industry best practices.

## 3.4 Recruitment, Retention, Advancement & Promotion

### 3.4.1 Recruitment

The recruitment of personnel is a key function of all emergency service agencies. The community places a tremendous amount of faith in fire personnel, trusting them to provide the highest level of service when the public is most vulnerable. As such, a comprehensive process should be used for personnel selection.

Career firefighter positions are valued opportunities. In general, these positions are filled by candidates who will spend their entire working career with a single fire department. As such, experience within the emergency services industry has shown that relaxing the requirements for entry-level positions is not a wise course of action for recruiting employees. Most departments achieve excellence in service delivery with the application of qualified individuals who meet operational standards. Therefore, minimum qualifications should be high, and expectations should be well-defined. It is also helpful to have a comprehensive recruitment package which clearly outlines the requirements and process.

The following classifications within the PAFD have residency requirements and minimum job qualifications as detailed in the Collective Agreement Schedule "B". Residency Restrictions are as follows:

a) 75 percent of the members of the Association shall live within a 4-mile radius of the Fire Hall. The remaining 25 percent of the members of the Association shall live within a 10-mile radius of the Fire Hall or within the Alberni Valley. The selection of which members may reside beyond the 4-mile radius shall be the sole prerogative of the Association.

b) Notwithstanding the provisions of subsection (A), with the approval of the Association, any member may apply in writing for permission to reside beyond the residence restrictions for reasons of health affecting the member, the member's spouse and/or dependent children. Each application shall be judged on its individual merit. The employee may be required to produce a certification of such illness from a duly qualified physician or drugless practitioner. This permission shall not be unreasonably withheld.

The PAFD recruitment program includes the basic requirements including an aptitude test, physical assessment, and interview. Given the high number of applicants that PAFD receives for limited positions, they are in the enviable position to be very selective about their new employees.

New firefighter recruits are assumed to have the basic skills through the NFPA 1001 training that they are required to possess prior to applying. Once employment is started the recruit completes two weeks of orientation and training by the shift captain on duty followed by being assigned to a shift for further training, development, and assessment.

### 3.4.2 Qualifications

The following minimum requirements are contained in the current Collective Agreement.

Chief Fire Prevention Officer Qualifications

1. They shall have all the qualifications and be able to perform all the duties listed for a Captain
2. Over and above these qualifications, required by Section l, they shall have the following qualifications:
    a. Shall have a good knowledge of the current Fire Services Act, and all regulations pursuant thereto; and shall have completed a Local Assistant to the Fire Commissioner's course as given by the Justice Institute of B.C. or appropriate agency; and shall be appointed as a Local Assistant to the Fire Commissioner and act accordingly under the direction of the Fire Chief.
    b. Shall have considerable knowledge of the relevant sections and supplements of the National Building Code.
    c. Shall have a good knowledge of any local Bylaws relevant to the Fire Department.
    d. Shall have the ability to meet and deal effectively with the general public, contractors, architects, businesspeople, etc.
    e. Shall have attended the Fire Academy and been certified in the "Fire Inspection Course(s)".
    f. It shall be desirable that they have shown interest and ambition in their chosen vocation and any additional qualifications that have been obtained will be given every consideration.
    g. Shall be able to prepare reports and preferably have a knowledge of typing and office work.

Captain

1. They shall have a minimum of 10 years' service in the Port Alberni Fire Department and will have held an acting officer's position for a minimum of 1 year immediately preceding their appointment to a Captain's position. If no members qualify, length of service may be waived.
2. They must meet the certification requirements of an accredited entity acceptable to the Employer to the applicable edition of NFPA 1021 Standard for the Fire Officer Professional Qualifications level II.

Firefighter

1. They shall maintain and keep valid a B.C. Driver's Licence for vehicles of Class 3 and 4 with an endorsement for operating a vehicle equipped with air brakes.
2. They will qualify for and keep valid one of the following:
    a) St. John Ambulance Standard First Aid
    b) First Responder Level III
    c) Occupational First Aid Level II or higher
    d) Other course approved by the Fire Chief. Most comments from interview and survey participants suggested the current recruiting practice has been ineffective.
3. They shall have until 12 months after the completion of probationary period to obtain these qualifications. Should a firefighter lose any of these qualifications, they shall have the following lengths of time in which to regain them:

    Driver's Licence - 6 months

    St. John's, First Responder III, or Occupational First Aid Certificate - 6 months or until the next course is held in the city.

Breathing Apparatus Technician Qualifications

1. They shall have all the qualifications and perform all of the duties of a Firefighter and shall do breathing apparatus work during their duty shifts in cooperation with the captain in charge of their shift.
2. They shall hold a current Field Level Maintenance Certificate or equivalent as suggested by the manufacturer.
3. The City shall supply all necessary tools required for them to do this job as determined by the Fire Chief.
4. Should an employee filling this position be promoted to a Captain or Acting Captain rank, they shall relinquish the position of Breathing Apparatus Technician.
5. This position shall be for a mutually agreed annual renewable term.

Firefighter Mechanic Qualifications

1. They shall have all the qualifications and perform all the duties of a Firefighter, and in addition, will hold a British Columbia Trades Qualification Certificate as a Heavy Duty Mechanic or an Automotive Mechanic.
2. The City shall supply all necessary tools required for them to do their job as determined by the Fire Chief.
3. They will be supplied with 2 pairs of coveralls at all times on a replacement basis.
4. Should an employee filling this position be promoted to Captain or Acting Captain rank, they shall relinquish the position of mechanic.

### 3.4.3 Selection and Training of New Employees

Available job openings within PAFD that are not restricted by the selection process contained in the Collective Agreement. They are posted on the City of Port Alberni Website.

The City's human resources department together with the PAFD administration oversee the recruitment and selection process. Applications are initially screened for minimum qualifications. Applicants that meet the minimum qualifications are put through an aptitude, physical, interview and ride-along process. Successful applicants are offered a position and commence their initial training and further assessment process at the station level.

With the exception of the firefighter mechanic, all new employees shall be considered to be on probation until the completion of 6 months' satisfactory service. New employees engaged in the classification of firefighter mechanic shall be considered to be on probation until the completion of 9 months satisfactory service.

PAFD has recently experienced a large number of applicants for any available firefighter postings, however they are in competition with many other fire services that are hiring.

### 3.4.4 Retention

PAFD experiences very little attrition in their staff. The increased demand for trained career firefighters within the Province of British Columbia and throughout Canada has provided opportunities for firefighters to consider a move to other fire services. The main reasons for firefighters leaving include:

- Retirement
- Job demands and satisfaction
- Opportunities for personal advancement
- Increased Financial opportunities
- Community attraction
- Family demands
- Lifestyle

Concerns were raised through interviews and survey responses regarding the inability to assemble a safe effective response force for fire and rescue operations creates stresses that may motivate firefighters to seek external opportunities where there are additional staff resources.

### 3.4.5 Advancement and Promotion

The Fire Chief and Deputy Fire Chief positions are filled through a competitive process open to both internal and external candidates. These positions are appointed by the CAO.

Advancement and promotions within the unionized staff of PAFD is detailed in the Collective Agreement between the City of Port Alberni and the Port Alberni Professional Firefighters Association Local 1667. All vacancies or promotions covered by this Collective Agreement shall be provided to the Association with a minimum of two weeks' notice. Such notifications include the nature of the position, required knowledge, education, ability and skills, shifts, wage, and salary range.

Appointments shall be made for the senior applicant who has the required qualifications. Each successful applicant shall be placed in a probationary acting role for a period contained in the current Collective Agreement based on each position. Upon successful completion of the acting time the applicant will be confirmed in the position. Temporary acting for a vacant position is awarded in compliance with this Collective Agreement.

## 3.5 Training

The City of Port Alberni Fire Control Bylaw sets out the services that PAFD provides. Training programs and processes that are a requirement under the *British Columbia Structural Firefighter Minimum Training Standards and WorkSafe* and *BC, OHS Part 31: Firefighting* must be developed and provided to ensure that all PAFD members are sufficiently trained to the proper standard for any operation that they are expected to perform.

The development and adherence of an annual training syllabus and calendar that has a foundation around the community risks and operational requirements of the fire service, including all corporate programs will have a positive influence on policy adherence and consistency of performance.

Training and competency development are essential and ongoing activities for all contemporary fire departments. Training and education program activities are identified by assessing the Knowledge, Skills, and Abilities (KSAs) needed for the firefighters to perform their duties as outlined in the department's SOGs and procedures. When firefighters are competently trained and possess the KSAs for the services they are expected to provide, they reduce risk and increase their own safety and the safety of the public they serve. All training programs should be measured against and tailored to the core services and identified risk assessments for the community.

Meeting the training needs of a fire service is a very important and demanding portfolio. PAFD does not have a dedicated training officer but rather is managed by the Deputy Fire Chief. The Deputy Fire Chief, together with individual station captains and adjunct trainers do the scheduling of instructors, facilities, and participants to ensure safe and consistent training, while trying to not negatively impacting the operational capacity. The following table lists NFPA standards is offered as a general guideline for NFPA training standards aligned with most fire department positions:

*Table 8: NFPA Professional qualification standards by position*

| | |
|---|---|
| Fire Chief Deputy Chiefs and Platoon Chiefs<br>- NFPA 472 Dangerous Goods Operations<br>- NFPA 1001 Firefighter (Level 2)<br>- NFPA 1002 Pump Operator<br>- NPFA 1021 Fire Officer (Level 2)<br>- NFPA 1041 Instructor (Level 1)<br>- NFPA 1403 Standard on Live Fire Training Evolutions<br>- NFPA 1521 Incident Safety Officer<br>Captain<br>- NFPA 472 Dangerous Goods Operations*<br>- NFPA 1001 Firefighter (Level 2)<br>- NFPA 1002 Pump Operator*<br>- NPFA 1021 Fire Officer (Level 1)<br>- NFPA 1041 Instructor (Level 1)<br>- NFPA 1403 Standard on Live Fire Training Evolutions<br>- NFPA 1521 Incident Safety Officer<br>Safety Officer<br>NFPA 1521 Incident Safety Officer | Firefighter<br>- NFPA 472 Dangerous Goods Operations*<br>- NFPA 1001 Firefighter (Level 1)<br>- NFPA 1002 Driver/Pump Operator<br>- NFPA 1006 Vehicle extrication Level 1<br>Pump Operator<br>- NFPA 472 Dangerous Goods Operations<br>- NFPA 1001 Firefighter (Level 1)<br>- NFPA 1002 Driver/Pump Operator<br>- NFPA 1002 Aerial Operator<br>- NFPA 1006 Vehicle extrication Level 1<br>Training Officer<br>- NFPA 1041 Instructor (Level 1)<br>- All Qualifications required to instruct firefighters and recruits*<br>- NFPA 1403 Standard on Live Fire Training Evolutions<br>Fire Inspector/Fire Investigator<br>- NFPA 1031 Standard for Professional Qualifications for Fire Inspector and Plans Examine<br>- NFPA 1033 Standard for Professional Qualifications for Fire Investigator<br>- NFPA 1035 Standard for Professional Qualifications for Public Fire and Life Safety Educator |

PAFD training is provided through various methods including:

- Theoretical classroom and/or on-line modules
- Practical training while on duty and/or off duty
- A combination of both for proficiency and/or certification

An established process of monitoring and recording any individual employee's training assists with ensuring a competent and safe workforce that operates within the accepted practices and procedures consistent with the Bylaw that includes:

- assess the performance of personnel by setting, administering, and marking examinations, attending emergency incidents, evaluating practical skills, and by providing feedback
- monitor and evaluate ongoing training programs
- research and evaluate policies, procedures, techniques, and equipment
- conduct career development activities for Fire Suppression personnel
- maintain training records and prepare comprehensive reports
- maintain training manuals and reference materials
- actively participate in the promotional processes
- maintain equipment as assigned and assist with the research, design and acquisition of new apparatus and equipment

The ability to provide training in appropriate facilities, which include proper classrooms, controlled and safe live fire training facility ensures that a fire department meets the service levels being provided. PAFD utilizes the fire station to conduct classroom training sessions for smaller groups however are constrained when class sizes are larger.

## Observation #8

As a result of insufficient staff resource time, PAFD has not been able to develop a current training syllabus and calendar for the staff to follow. The training requirements for PAFD staff is extensive to meet provincial regulations. Training has a direct bearing on firefighter and public safety and the establishment of a cyclical training syllabus is a long-standing shortfall that must be addressed.

***Recommendation #8: Prioritize the establishment of an annual cyclical firefighter training syllabus.***

***Suggested completion:*** *6-12 months*

***Cost:*** *TBD: Operational Budget for staffing time – training budget*

***Resource:*** *Fire Department operational training budget*

***Rationale:*** *Consistency of training and skills maintenance to all staff will enhance firefighter personal safety and wellbeing while performing the functions of a firefighter for their community.*

The task of identifying, delivering, and tracking all required training while balancing the operational readiness and budgets is a considerable undertaking. Close coordination with the captains is required to ensure minimal impact on operational responses for training requirements.

The OFC minimum training standards is aligned with the expectations identified by WorkSafeBC regarding workers involved in structure firefighting – OHS Regulation Part 31: Firefighting:

*31.4 Instruction and Direction: The employer must ensure the adequate instruction and direction of firefighters in the safe performance of their duties.*

## Observation #9

PAFD does not have a training officer specifically mandated with the responsibility of the development and coordinated delivery of all necessary training for personnel. Rather this is a shared responsibility of deputy chief, station captains and adjunct instructors.

***Recommendation #9: Establish a dedicated PAFD training officer position that includes operational response duties.***

***Suggested completion:*** *12-24 months*

***Cost:*** *$150K (Estimated)*

***Resource:*** *PAFD Operations Budget*

## Observation #9

***Rationale:*** *The PAFD training portfolio is significant enough to warrant a dedicated training officer to oversee all components of training and competency compliance. A dedicated training officer key function would be to ensure mandatory minimum certification standards for firefighters that align with fire protection services being performed. This will help ensure that firefighters have consistent training according to the level of service set by the City. Furthermore, the training officer can provide operational and administrative capacity to reduce the current work-life imbalance experienced by the Chief and Deputy Chief.*

## Observation #10

There are no dedicated areas to conduct practical hands-on training, including live fire, suppression skills training, or teach and practice technical rescue skills. These limitations prevent on-duty crews the ability to conduct some of the necessary in-service training. This training includes live-fire, suppression skills, technical rescue evolutions and recruit training sessions. Much of core competency training needs are not being met.

***Recommendation #10: Undertake a feasibility study to establish regional training centre to support the PAFD and Alberni Valley fire services. Furthermore, PAFD should explore opportunities to partner with the ACRD to develop a fire/ emergency services training centre in the Alberni Valley.***

***Suggested completion:*** *12-36 months*

***Cost:*** *$20K - $25K, depending on depth of report (Estimated)*

***Resource:*** *PAFD Operations Budget*

***Rationale:*** *A partnership has potential to provide the infrastructure/facilities needed to meet the training requirements of all the fire services in the Alberni Valley and result in cost offsets for the City and ACRD. Practical training is an important aspect of the fire service training curriculum to ensure for public and firefighter safety, complying with occupational health and safety regulations. Having a dedicated facility to allow for in-service practical training can avoid missing required training and/or some travel and overtime requirements. This facility will also allow for safe and appropriately designed areas to conduct training.*

*The opportunity to partner with Alberni Valley fire departments on a joint training facility provides a cost-efficient regional resource.*

## 3.6 Core Services

The fire services and service levels provided should align with the identified community risks and needs of the citizens. Cyclical evaluation of community risks and fire department response capability is necessary to support ongoing emergency planning. Most citizens will not need to access fire department services, however, when emergencies occur, service expectations are high. Good planning processes are necessary to ensure citizens get the services they expect, and the community gets good value for their investment. The City of Port Alberni *Fire Control Bylaw Schedule A* establishes the services being provided by the PAFD within the City of Alberni and contract service areas.

*Table 9: Port Alberni Fire Department Core Services*

| Core Services | |
|---|---|
| Service | Description of Service |
| Fire Prevention | Regular system if inspections (utilizing a *Chief Fire Prevention Officer*, fire company inspections, third party inspections), support the *City's* planning Department in plan review, public fire safety education. |
| Structural Fire Suppression | The department is authorized to provide fire suppression activities with and subject to the limitations set out in the Full-Service Level as defined in the *British Columbia Fire Service Minimum Training Standards; Structure Firefighters – Competency and Training Playbook* (September 2014), set under paragraph 3(3)(b) of the Fire Service Act (B.C.) |
| Marine Fire Suppression | Land-based and/or fire boat-based marine firefighting. |
| Shipboard Firefighting | Land-based and/or fire boat-based marine rescue provided in support of Royal Canadian Marine Search and Rescue, and/or Port Alberni Port Authority. |
| Confined Space Rescue | Land-based, shipboard above deck and/or fire boat-based shipboard firefighting under direction of Port Alberni Port Authority Harbour Master. |
| Technical Rope Rescue | Confine space rescue services within City of Port Alberni and contract service areas. |
| Slope Rescue | Technical rope rescue services within City of Port Alberni and contract service areas. |
| Automobile Extrication | Slope rescue services within City of Port Alberni and contract service areas, in support of Alberni Valley Rescue Squad |

| Core Services | |
|---|---|
| Hazardous Material Mitigation | Rescue extraction services where victims may be trapped in or under an automobile or other vehicle, or entrapped by machinery, or other similar situation. |
| Wildland Fire Suppression | Respond to and mitigation of incidents, in support of responsible party. |
| Swift Water Rescue | Control response of fire involving organic material, grass, brush, or forest |
| Open Water Rescue | Rescue services conducted from near, over, but not in moving water |
| Medical First Responder | Rescue services conducted from near, over, but not in standing water |
| Public Assistance | Emergency medical services in partnership with BC Emergency Health Services (BCEHS) and in support of BC Ambulance Service |
| Other | Providing aid to members of the public where that aid is not consistent with the purpose of the fire department, and where that aid does not fall within another category of service. |

### 3.6.1 Fire Suppression

The City of Alberni authorizes PAFD to provide fire suppression activities with and subject to the limitations set out in the Full-Service Level as defined in the *British Columbia Structure Firefighter Minimum Training Standards*.

Fire suppression encompasses an array of different incidents, including grass and wildland fires, marine and shipboard, Motor vehicle, single and multi-family residential and industrial complex structure fires. It is important to track these incidents to identify trends and possible prevention methods while measuring both stress points on the system and planning for future direction of PAFD.

While residential structural fires are identified as moderate risks, they are hazardous responses for occupants and firefighters. They require significant resources to manage safely and effectively. Fire suppression encompasses a wide range of tactics for control and extinguishment. Many critical tasks need to be completed simultaneously or sequentially for the safe and effective conclusion to the incident.

Through interviews and survey, it is suggested that PAFD is well equipped and properly trained to respond to fires. Concerns were expressed about their ability and possible delays to form an effective response force required to conduct interior fire suppression and rescue given limited personnel resources outlined in the initial response model. PAFD relies heavily on call-back of off-duty firefighters and effective response from one or all of their mutual or automatic aid partners.

### 3.6.2 Fire Prevention

The PAFD Fire prevention program provides a regular system of inspections utilizing a Chief Fire Prevention Officer, fire company inspections, third party inspectors, as well as providing support to the City's safety education programs.

Nationally, the fire service has increased emphasis on fire prevention activities and communities are seeing a significant reduction in fire-related losses. While a large portion of this reduction appears to result from an increased focus on safety in the design, construction and use of equipment and buildings, as well as the widespread installation of smoke alarms in residential occupancies, fire inspections and public fire education have also played a critical role in reduction in actual numbers. Fire prevention programs are known to reduce fire-related injuries, deaths, and property loss in relative proportion to the resources committed. Data collection and analysis will determine the effectiveness of fire-prevention programs and their impact on the overall reduction of losses.

Public education programs and active involvement in the community are important efforts that inform and engage citizens to think about fire safety and risk reduction. PAFD supports several fire prevention and education activities which include:

- Smoke alarm and home safety program
- Backyard burning
- Campfires
- FireSmart
- Carbon Monoxide safety
- Winter fire safety
- Fireworks safety
- Pre-emergency planning

The City of Port Alberni currently has in excess of 1000 inspectable properties requiring many hours to sufficiently complete. Due to competing duties, the department has been unable to complete all these inspections as scheduled.

The current fire prevention and public education programs are managed by a single Chief Fire Prevention officer. These responsibilities include conducting fire inspections of commercial properties, high-hazard occupancies, and assembly occupancies within PAFD Fire's response jurisdiction. The department has experienced an increase in fire and life safety inspections that require significant on-duty staff time for re-inspections. Combined with the responsibilities of public safety education and fire investigations, this creates a capacity shortfall that hinders the effective management of fire prevention and education programs.

It is important to note that the former Fire Services Act was replaced in September 2024 with the Fire Safety Act. A significant change in this act is the need for fire safety inspections owner/occupant self-risk assessments and compliance monitoring. The following excerpt from the Office of the Fire Commissioner's Fire Safety Act Questions and Answers Date Revised: September 17, 2024, highlights these changes:

- The Fire Safety Act (FSA) places a duty on owners of buildings to ensure that there is no fire hazard on, or in the owner's premises.
- The BC Fire Code reinforces this established responsibility, and the FSA provides the province with tools to ensure compliance.
- To meet the requirements of the FSA and the BC Fire Code, building owners and operators may be required to conduct fire safety self-assessments and put the appropriate fire safety measures in place.
- The frequency and requirements for a Fire Safety Assessment are set by the monitoring entity (municipalities).
- Failure to conduct a fire safety self-assessment may result in more enforcement actions by the monitoring entity, which may include completing a fire inspection for a fee from the municipality.
- Any established fire inspection fee will be imposed by the local authority via a bylaw

## Observation #11

The new requirements in the fire safety act that includes compliance monitoring, along with the existing PAFD fire safety programs further adds to an already excessive workload with the fire prevention and inspection services.

***Recommendation #11: Add an additional fire prevention/public education officer to meet the requirements of the new fire safety act including fire safety inspections, owner/occupant self-risk assessments and compliance monitoring.***

***Suggested completion:*** *12-24 months*

***Cost:*** *$125K /yr.(Estimated)*

***Resource:*** *Operations budget*

***Rationale:*** *The new BC Fire Safety Act Fire Safety Act includes significant change in the need for fire safety inspections, owner/occupant self-risk assessments and compliance monitoring. Compliance monitoring is the responsibility of the monitoring entity which is the respective municipality. In this regard the addition of a City Port Alberni Fire Inspector is deemed essential. An additional fire prevention/public education officer will assist PAFD to meet the fire safety act fire prevention, inspections, investigations , and public education mandates.*

### 3.6.3 Medical

On August 12, 2009, PAFD renewed the Agreement with the Province of British Columbia, represented by the Emergency Health Services Commission (EHSC). Under the provisions of the Emergency and Health Services Act, R.S.B.C 1996, c, 182) PAFD provides medical services in partnership with British Columbia Emergency Health Services (BCEHS) and in support of British Columbia Ambulance Service.

Within this agreement, the EHSC consents to the PAFD to:

- Provide emergency health services in BC by way of first responders.
- Train personnel to provide emergency health services and enter into agreements or arrangements for that purpose.

Collectively, these are referred to as *"the Services"*, subject to the terms and conditions contained within the remainder of the agreement. These services are only to be provided at the request of the Commission through the Commission's Emergency Medical Dispatch System. A condition of this agreement is that the PAFD will only allow trained and licenced first responders to provide emergency health services:

This agreement may be terminated immediately by the EHSC on giving written notice to the Agency for the Agency's non-compliance with the Terms and Conditions. Alternatively, either party may terminate the agreement upon providing 30-days written notice of their intent to terminate to the other party. There is no renewal or review date specified within the Agreement.

Medical first response and co-response are low cost, high value services provided by PAFD to the residents and visitors of Port Alberni. The distribution of fire department resources often exceeds that of ambulance resources and as a result, firefighters are often able to respond to medical emergencies faster, or in support of ambulance services. Many fire services in British Columbia work closely with BCEHS with the goal of enhancing the life-safety of their citizens.

### 3.6.4 Rescue

A primary focus of a fire service is to protect life, property, and the environment to their community and as such, rescue situations are a significant component of their service delivery. Rescue situations can vary significantly depending on several factors that dictate unique operational considerations including specialized training and equipment. This training and equipment must be developed in consideration of the unique risks within the community.

Rescue situations often require a coordinated response from multiple agencies including fire, police, EMS, utility agencies, and others. Understanding and respecting each other's' responsibilities and capabilities is important for an effective operation.

The increased reliance on diverse rescue operations has resulted in the development of specific rescue disciplines that outline the level of training, equipment and certifications required to manage the rescue situation safely and effectively.

PAFD does not utilize specialty teams for individual rescue or special operations but attempts to train all firefighters to the highest level possible for each discipline to meet the service expectations of the Fire Control Bylaw. Increasing Provincial and Federal OHS requirements put significant challenges on all fire services to adequately train and equip their staff to these requirements.

It is important that training processes and SOG/SOG's are explicit on the delivery of these services and to be constrained by the risk involved, level of training of each responder and the equipment available to handle these situations safely and effectively.

The following rescue disciplines are authorized through the Fire Control Bylaw, Schedule A. As previously identified, the Fire Control Bylaw should include service levels and performance targets for all PAFD core services:

#### 3.6.4.1 Automobile Extrication

Automobile extrication rescue is a technical rescue discipline which PAFD has included within their core services. This discipline encompasses a vast array of situations ranging from single vehicle, multi-vehicle, low speed, and high speed MVI incidents requiring the safe and effective removal of patients that are injured or otherwise trapped. This discipline also includes incidents of entrapment from machinery or other similar situations. Specialized training and equipment are required to provide this service safely and effectively.

#### 3.6.4.2 Confined Space Rescue

Confined space rescue is a technical rescue discipline which PAFD has included within their core services. This discipline encompasses a vast array of situations ranging from building collapse to an industrial vessel. PAFD provides confined space rescue services to Catalyst, CPA Public Works, CME, and anyone else within the City limits as requested. Specialized training, certifications and equipment are required to provide this service safely and effectively.

WorkSafeBC defines a confined space as *an area: (a) an enclosed or partially enclosed; (b) not designated or intended for human occupancy; (c) has limited or restricted means for entry or exit that may complicate the provision of first aid, evacuation, rescue, or other emergency response service; (d) is large enough and so configured that a worker could enter to perform assigned work.*

#### 3.6.4.3 Slope Rescue

PAFD provides slope rescue services within the city and contract service areas in support of Alberni Valley Rescue Squad. PAFD attempts to train all firefighters to the technician level through an industry recognized in-house training program that includes low-slope and high slope rescues. Some members having achieved the technician level and are seconded to assist with training this discipline. PAFD is the primary agency for these types of rescues within the City of Port Alberni and in cooperation with the Alberni Valley Rescue squad outside of the city limits. PAFD also possesses the appropriate training equipment for this level of service.

#### 3.6.4.4 Technical Rope Rescue

PAFD provides high angle rescue at the technician level with some staff certified to respond to tower/crane rescues. Specialized training, certifications and equipment are required to provide this service safely and effectively. PAFD also possesses the appropriate training and equipment for this level of service.

##### 3.6.4.4.1 Water and Marine Fire Suppression and Rescues

PAFD provides a variety of water and marine vessel rescues, and firefighting tasks as set out in the Fire Control Bylaw. These services are usually performed in close coordination and/or direction with the City of Port Alberni Port Authority.

##### 3.6.4.4.2 Swift Water Rescue

PAFD provides rescue services from near, over, but not in moving water. PAFD attempts to provide the necessary training and equipment required to provide this service safely and effectively.

##### 3.6.4.4.3 Open Water Rescue

PAFD provides rescue services from near, over, but not in moving water. PAFD attempts to provide the necessary training and equipment required to provide this service safely and effectively.

##### 3.6.4.4.4 Marine Rescue

PAFD provides land based and/or fire boat-based rescue services in support of the Royal Canadian Marine Search and Rescue.

#### 3.6.4.4.5 Shipboard Firefighting

PAFD is authorized to provide land-based shipboard above deck and/or fire boat-based shipboard firefighting. PAFD administration has made request to add additional funds to their 2025 operating budget to be allocated for increasing the water and marine rescue and/or firefighting training.

## 3.7 911 and Fire Dispatch Services

Fire Dispatch services is provided by the North Island 911 Centre (NI911) in Campbell River, British Columbia. 911 calls are received and vetted at the E-Comms facility in Vancouver, then forwarded to NI911 in Campbell River, where station notification and radio dispatch services is provided to all departments within ACRD, including PAFD. There are no performance indicators established for alarm handling and processing for PAFD responses.

### Observation #12

PAFD does not have established performance indicators for dispatch services regarding alarm handling and processing. Further the letter of agreement has not been signed by the respective parties.

***Recommendation #12: Formalize the letter of agreement with NI911 and establish dispatch protocols and performance indicators.***

***Suggested completion:*** *1-12 months*

***Cost:*** *Neutral*

***Resource:*** *PAFD and NI911 staff time*

***Rationale:*** *Performance indicators are quantifiable and achievable measures that align with an organization's goals and objectives. Having established performance indicators for dispatching establishes the framework for how quickly and efficiently an alarm is received, handled, and processed to the appropriate agency. This in turn reduces overall response times and increased the chance of favorable outcomes.*

## 3.8 Emergency Management Program and Emergency Operations Center

The Emergency and Disaster Management Act legislates that municipalities are responsible for managing the first response to an emergency event. They are required to develop emergency response plans and programs which are reviewed, maintained, and updated as necessary. Bylaw No. 4836 is the *City of Port Alberni Emergency Plan Bylaw*, which outlines roles and responsibilities in the event of an emergency.

The ACRD is authorized by the Emergency Act, RSBC, 1996 to provide local emergency plans and has adopted the Alberni Valley Emergency Plan Bylaw No. PS1006 to apply to the entire Alberni Valley under the Emergency Program Act. The Board of the Regional District has established a Regional Emergency Preparedness Committee as the emergency management organization for the ACRD and has provided one emergency plan for the Alberni Valley, including the City of Port Alberni.

This committee has representation from the City of Alberni including the Mayor and other members of Port Alberni Council, and the Port Alberni Chief Administrative Officer.

## 3.9 PAFD Partnerships and Agreements

### 3.9.1 Fire Protection Mutual Aid Agreement with the Alberni Clayoquot Regional District

The City of Port Alberni, the ACRD, and the Cherry Creek Waterworks District entered into a fire protection mutual aid agreement dated November 10, 2012. This agreement establishes that the fire service emergency resources of any party can be deployed to assist the other parties during an emergency.

The terms of this agreement remain in force except when any party terminates its rights and obligations giving one hundred and eighty (180) days written notice. In that case the terms of this agreement shall continue in force between the remaining parties.

In addition to the mutual aid agreement, the city is a partner in the Alberni Valley Automatic Aid Agreement dated June 2017 with three neighbouring volunteer fire departments:

- The ACRD
    - Sproat Lake Volunteer Fire Department
    - Beaver Creek Volunteer Fire Department
- Cherry Creek Waterworks District
    - Cherry Creek Volunteer Fire Department

This agreement outlines the agreement for all participating fire departments to respond and assist automatically within the boundaries of the City of Alberni and the fire service areas of the Beaver Creek Volunteer Fire Department, Sproat Lake Volunteer Fire Department, and the Cherry Creek Volunteer Fire Department.

Schedule “A” Emergency Incidents and Response Guideline of this Agreement outlines the expected automatic response to a “working structure fire” into the requesting service area from each of the other partner agencies of one engine with four firefighters.

**Observation #13**

The mutual aid and automatic aid agreements contain different, potentially conflicting, and duplicate provisions which can create operational problems. These issues were identified and detailed in the ACRD Fire Services Review dated March 2022. Furthermore, it is understood that an informal practice has been initialed whereas only 2 firefighters respond as the first out unit in order to expedite the establishment of a rapid intervention team (RIT) at structural fires in the city.

***Recommendation #13: Integrate the mutual and automatic aid agreement into a single regional emergency response agreement.***

***Suggested completion:*** *12-24 months*

***Cost:*** *Neutral*

***Resource:*** *Staff time*

***Rationale:*** *As detailed in the ACRD Fire Service Review, consideration should be given to the following issues:*

- *Whether aid responses should be made expressly discretionary, rather than based on decisions involving "operational, safety or other concerns".*
- *Building out the dispute resolution processes to address circumstances where the parties' respective CAOs cannot settle the matter in question (e.g., by providing for mandatory or optional arbitration); and*
- *Schedule A updated to better describe the circumstances in which automatic aid is invoked for response into the City, and*
- *Formalize the response protocols including staffing levels for first out units.*

### 3.9.2 Letter of Agreement with the Port Alberni Port Authority

The City of Port Alberni and the Port Alberni Port Authority have a Letter of Agreement (no available date of signing). This Agreement details the City of Port Alberni agreement to provide fire inspections and related services, including administration, training, and limited fire suppression response to fire and medical emergency incidents on a cost recovery basis to the China Creek Marina and Campground.

### 3.9.3 Fire Protection Fee for Service Agreement with the Tseshaht and Hupacasath First Nation

The City of Port Alberni and the Tseshaht First Nation have entered into Fire Protection Agreement dated February 6, 2019. This Agreement focuses on PAFD providing fire protection, rescue, and extrication and medical first responder services to the Tseshaht First Nation on an annual cost formula stipulated in the agreement. Either party may terminate this agreement with ninety (90) days written notice.

The city and the Hupacasath First Nation have entered into Fire Protection Agreement dated May 25, 2017. This Agreement focuses on PAFD providing fire protection, rescue, and extrication and medical first responder services to the Ahahswinis Indian Reserve No. 1. on an annual cost formula stipulated in the agreement. Either party may terminate this agreement with ninety (90) days written notice.

### 3.9.4 Fire Protection Agreement with Western Forest Products

The City of Port Alberni and the Western Forrest Products have entered into Fire Protection Agreement dated October 11, 2016. This Agreement focuses on The City of Port Alberni Fire Department providing fire suppression and medical first responder services for the Cameron Shop, fueling stations and office buildings on an annual cost formula stipulated in the agreement. Either party may terminate this agreement with ninety (90) days written notice.

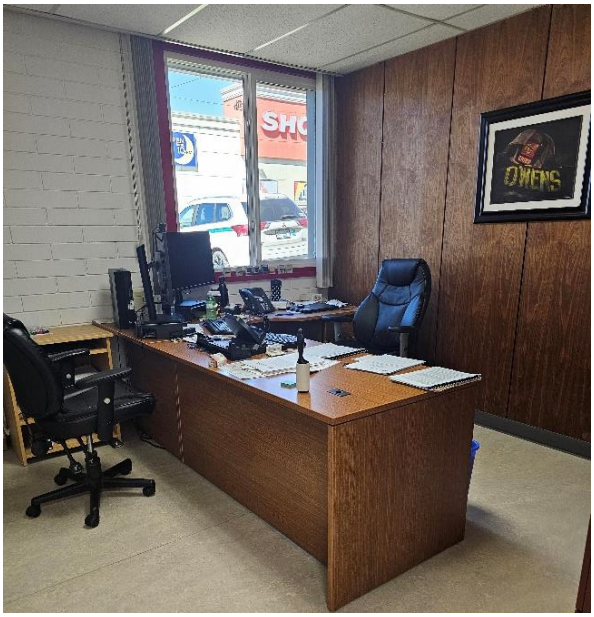
## 3.10 Facilities

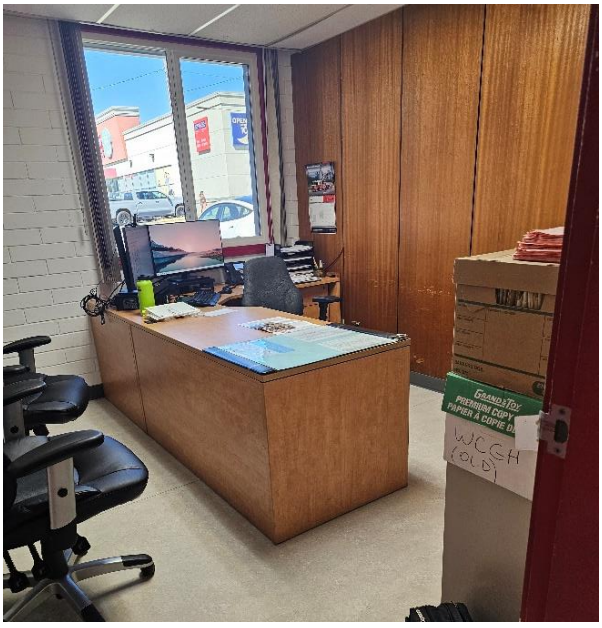
PAFD provides fire and emergency response from one centrally located municipally owned and operated fire station. This station serves as the hub for all apparatus, operations, and response personnel and provides good access for response to major roadway networks.

| | | | |
|---|---|---|---|
| Station Name: | Port Alberni Fire Department – Station #1 | | |
| Address: | 3699 10th Avenue | | |
| Year Built: | 1967 | | |
| Use: | Fire & Rescue Administration / First Responder / Fire Prevention /HazMat Response | | |
| Bays: | 4 (3 are drive through but currently used as tandem & 1 non-drive through) | | |
| Apparatus and Light Duty Vehicle descriptions (including specialty equipment, i.e., boats, quads, trailers, etc.) | Tower 3 (Aerial – Platform) | Engine 1 (Pumper) | Rescue 8 (Wildland/Light Rescue |
| | Engine 5 (Pumper) | Engine 4 (Reserve Pumper) | Utility Trailer |
| | Unit 15 (Support Unit) | Unit C10 (Support Unit) | |
| | Harbour Chieftain (Boat) – Harbour Key Marina | Unit C19 (Support Unit) | |
| Comments: | Single station, this station serves as the hub for all apparatus, operations, and response personnel. | | |

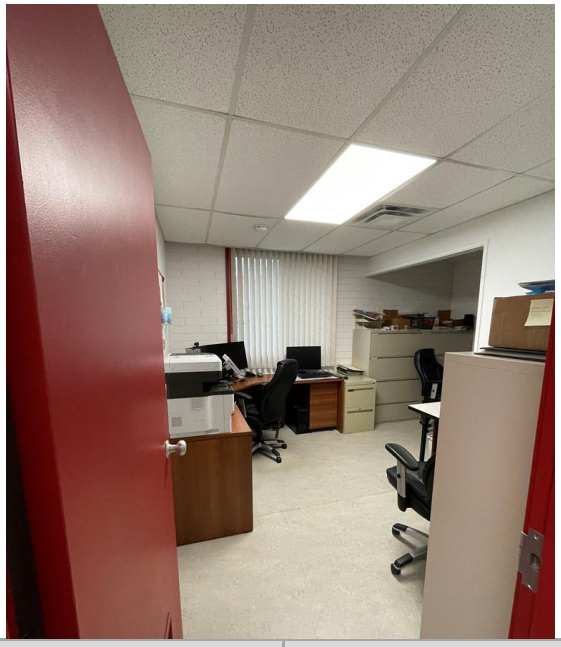
| Station Name: | Port Alberni Fire Department – Station #1 |
|---|---|

| Fire Chief's Office | Deputy Chief's office |
|---|---|

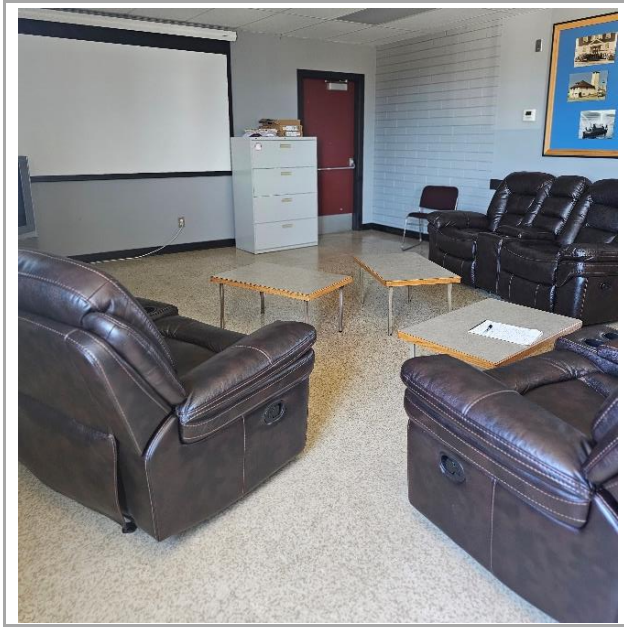


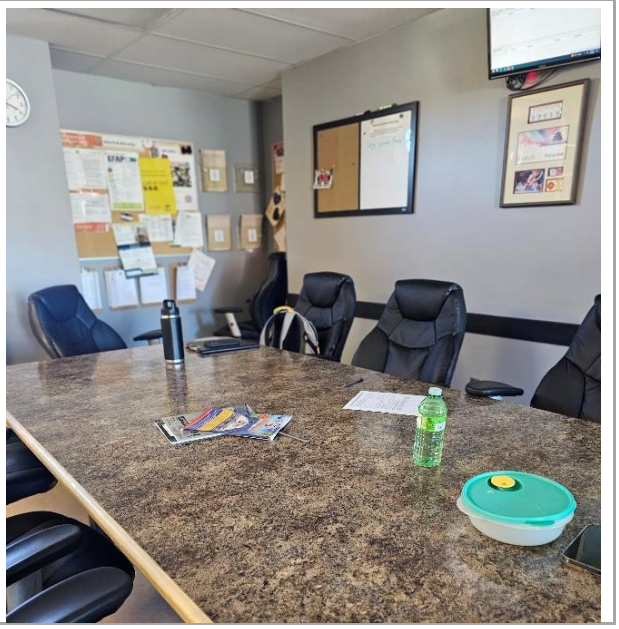
CFPO Office

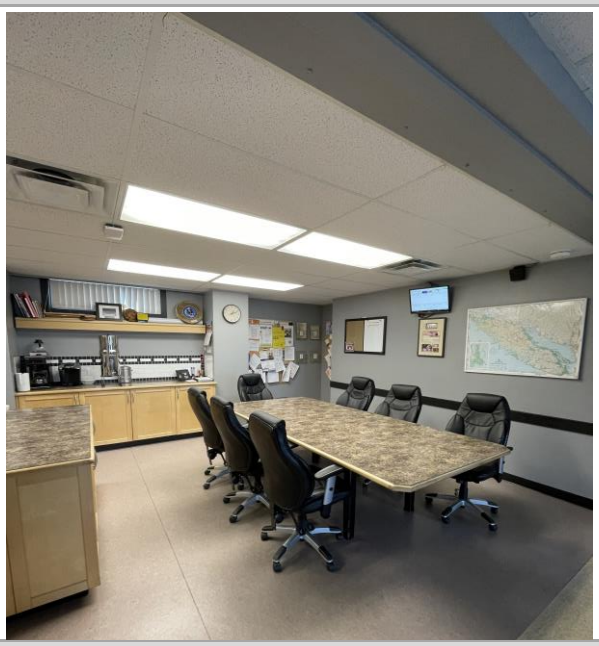


Day Room



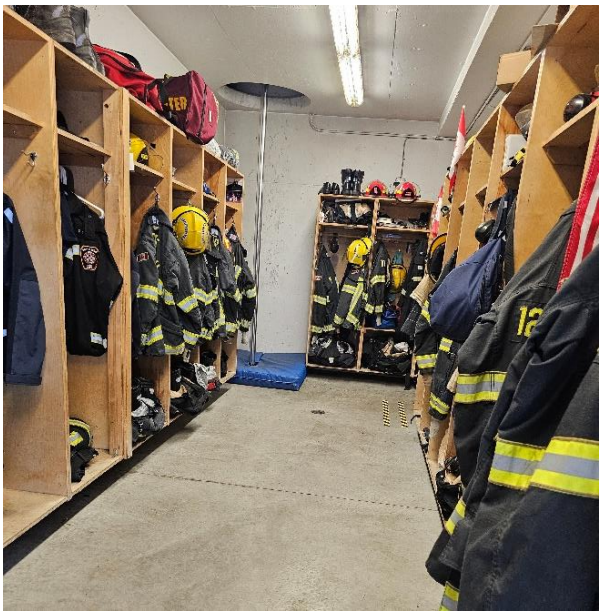
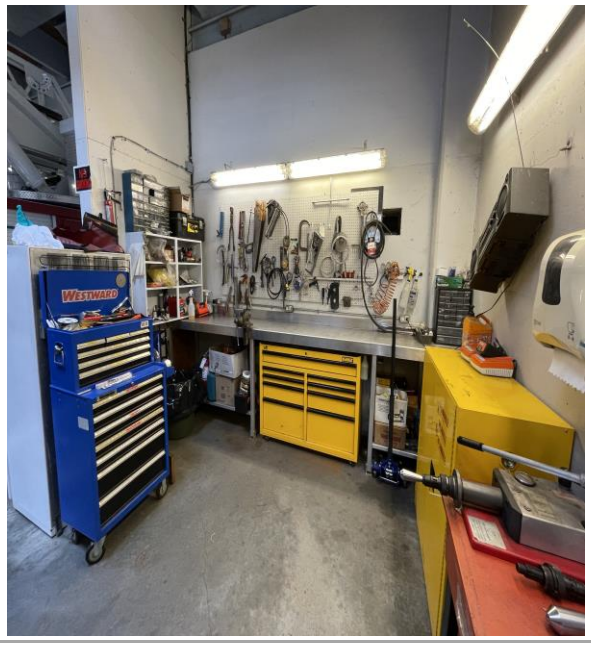
Training, Meeting Room

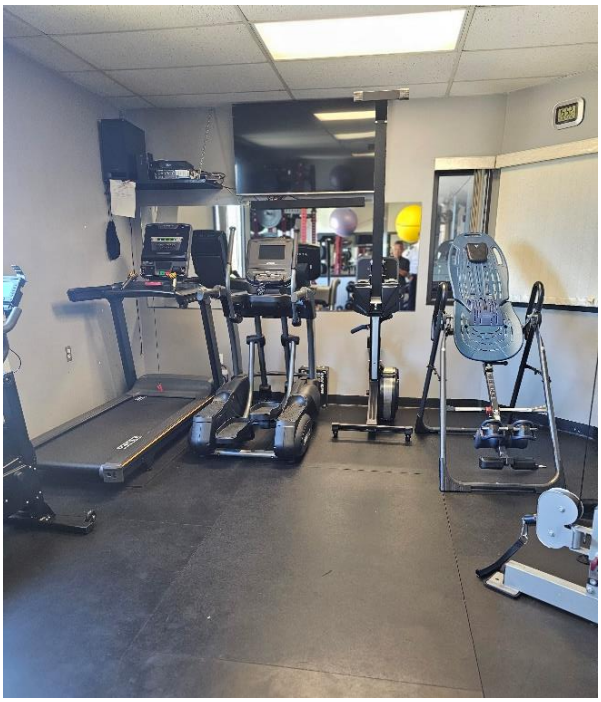
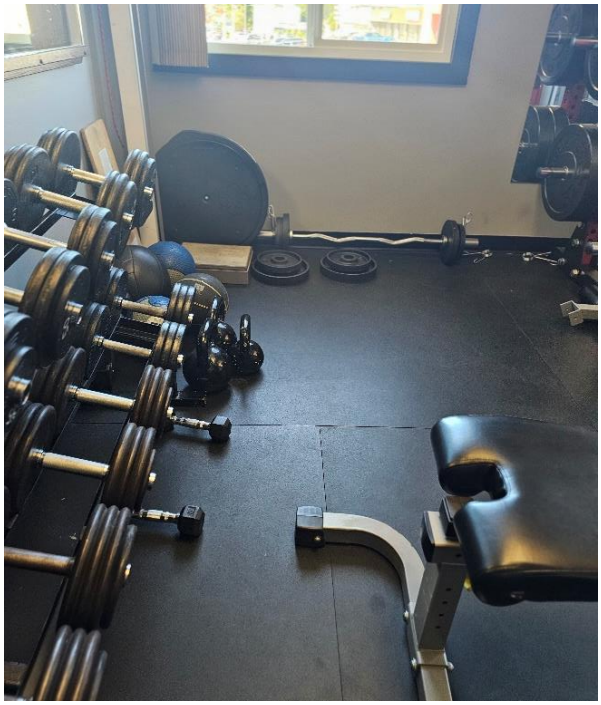
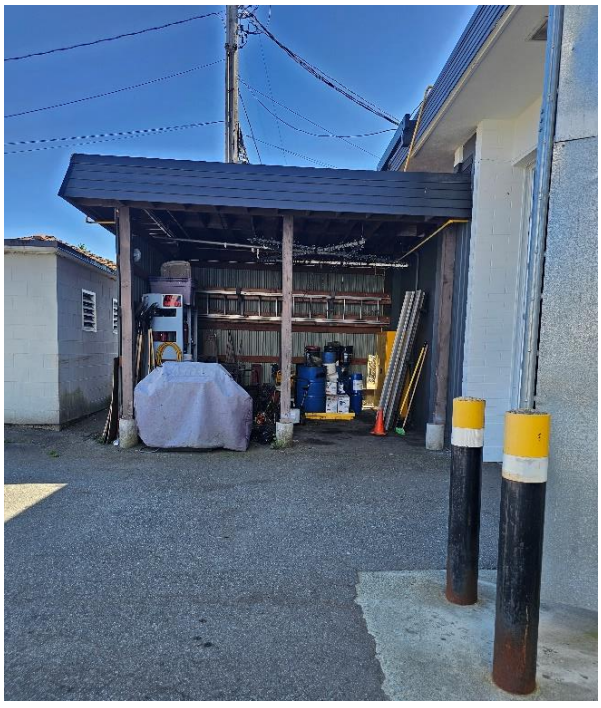


| Kitchen | Dining Area |
| --- | --- |
|  |  |

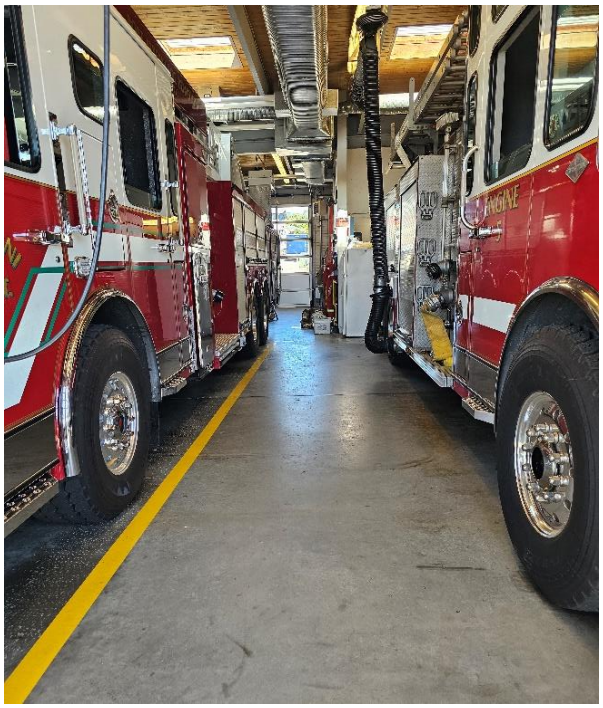
| Filing Room |
| --- |
|  |

| Sauna and Shower Area | |
|---|---|
|  |  |
| Locker Room | Dorm |
|  |  |

| Laundry | Gear Storage Area |
| --- | --- |
|  |  |
| **Small Equipment Maintenance Area** | **SCBA Airfill Station** |
|  |  |

| Personal Training | |
|---|---|
|  |  |
| **Outdoor Storage** | |
|  |  |

Apparatus Bay

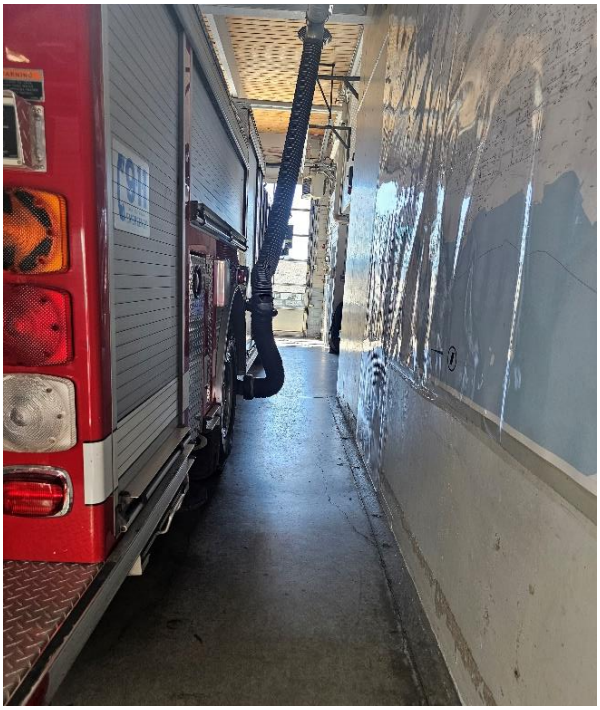


*Table 10: Fire Station Review*

| Item | Description | Yes | No | Comments |
|---|---|---|---|---|
| 1 | Site security | ✓ | | |
| 2 | Adequate parking for staff and visitors | ✓ | | |
| 3 | Internet and intranet connectivity | ✓ | | |
| 4 | Adequate space for training – training props, hydrant | ✓ | ✓ | Classroom and skills maintenance only |
| 5 | Back-up power supply | ✓ | | |
| 6 | Fire Chiefs' office | ✓ | | |
| 7 | Deputy's Chief's offices | ✓ | | |
| 8 | Emergency management office | ✓ | | |
| 9 | Administrative support office/space | | ✓ | |
| 10 | Training room / meeting room | ✓ | | |
| 11 | Office security | ✓ | | |
| 12 | Dorm rooms | ✓ | | |
| 13 | Day use area | ✓ | | |
| 14 | Kitchen | ✓ | | |
| 15 | Fitness / wellness area | ✓ | | |
| 16 | Firefighter Men's and ladies' bathrooms and showers | ✓ | | |
| 17 | Space to safely garage and do minor maintenance on vehicles | | ✓ | Garage area is limited |
| 18 | Hose drying area | ✓ | | |
| 19 | Small equipment storage and maintenance room | ✓ | | |
| 20 | Air filling station room complete with proper ventilation | ✓ | | |
| 21 | Industrial washer and dryer room | ✓ | | Not functional, nor adequate for identified needs |
| 22 | Bunker gear storage room complete with proper drying and ventilation | ✓ | | |
| 23 | Consumables storage room | ✓ | | |
| 24 | Sufficient workstations | ✓ | | |
| 25 | Sufficient supervisor workspace | ✓ | | |
| 26 | Breakout or quiet room | | ✓ | |
| 27 | Public and Staff Washrooms | ✓ | | |

| Item | Description | Yes | No | Comments |
|---|---|---|---|---|
| 28 | Locker room | ✓ | | |
| 29 | Proper interior lighting | ✓ | | |

## Observation #14

The current fire station was built in 1967. Since then, it has undergone number of renovations and updates. On October 3, 2024, a Building Condition Assessment was done that focused only on exterior cladding, roofing, emergency power, and HVAC. It did not, however go over the functionality of the building and workspace. Over the years, the entire space has been re-purposed, resulting in poor overall flow. There is also no room for expansion to accommodate additional apparatus or operational space.

A recent renovation was done to prevent the transmission of airborne illness and provide for a degree of privacy for all personnel. Previous to that a major upgrade was done over 20 years ago which included seismic upgrades and breathing apparatus maintenance area.

***Recommendation #14: Complete functional study of the building to address operational, growth, health and safety, gender requirements, and equipment requirements .***

***Suggested completion:*** *12-24 months*

***Cost:*** *Estimated cost, $35K - $ 50k (depending on scope and depth of project)*

***Resource:*** *Operational Budget. Third-party consultant*

***Rationale:*** *A complete building functionality study of the PAFD fire station will identify opportunities and challenges to address health and safety, demographic, and operational requirements for a modern fire station. The goal is to provide a safe and inclusive workspace for today and into the foreseeable future, as well as improving turnout time and ultimately total response time to an emergency.*

## 3.11 Apparatus and Light Duty Vehicles

Fire apparatus and light duty vehicles are typically the largest capital asset expenditures for any fire department. Purchasing and managing these assets requires strong fiscal responsibility to withstand public and municipal council scrutiny. Currently, PAFD has significant funds invested in vehicles and equipment and in reserve funds. The lifespan of apparatus varies depending on its type and use. Fire services typically designate a lifecycle to each piece of apparatus and contribute to a capital reserve fund to ensure enough funds are available when a replacement is needed. Given the nature of emergency services and the reliance on safe and dependable equipment and vehicles, the need for a regular, critical review of these assets is important to determine if the intended life cycle is both achievable and financially responsible.

Fire apparatus is routinely utilized under extreme conditions for extended periods of time. The reliability of these critical pieces of equipment cannot be in question. As stipulated in NFPA 1901," Automotive Fire Apparatus" a front-line apparatus is required to maintain a 95% in-service status.

In most instances, in addition to maintaining a current fleet capable of providing reliable service, meeting the CAN/ULC S515 "Mobile Fire Apparatus" and/or NFPA 1901 standards favorably impacts municipal insurance ratings. While the life expectancy of any piece of equipment or vehicle is contingent on proper use, maintenance and repair, fire apparatus life cycles are subject to adjustments more frequently than normal service vehicles. Annual reviews of all apparatus in the PAFD, including mileage, call volume, maintenance records, testing results and salvage values should be carefully conducted with subsequent adjustments to the original life cycle, which may result in a reduction or extension of the service life cycle as warranted.

### 3.11.1 Standards for Fire Apparatus

#### 3.11.1.1 National Fire Protection Association (NFPA)

NFPA has developed standards to assist a fire service with the design, maintenance, inspection, testing, life cycling and disposal of the fire apparatus. Fire departments may choose to adopt these standards or utilize them as a reference in their standards and practices. (All the following standards are intended to be consolidated as NFPA 1900 in 2024).

NFPA 1901: Standard for Automotive Fire Apparatus

The NFPA 1901 standard defines the requirements for new automotive fire apparatus and trailers designed to be used under emergency conditions to transport personnel and equipment and to support the suppression of fires and mitigation of hazardous conditions. This standard recommends that fire apparatus should respond to first alarms for the first 15 years of service, with the expectation that they perform as designed 95% of the time. For the next five years, it should be held in reserve for use at large fires or used as a temporary replacement for out-of-service first-line apparatus.

NFPA 1911: Standard for the Inspection, Maintenance, Testing and Retirement of In-Service Emergency Vehicles

NFPA 1911 standard defines the minimum requirements for establishing an inspection, maintenance, and testing program. Also included are guidelines for emergency vehicle refurbishment and retirement.

In addition, the National Fire Protection Association Standard (NFPA) 1901: Standard for Automotive Fire Apparatus recommends the following:

*D.1 General*

*To maximize firefighter capabilities and minimize risk of injuries, it is important that fire apparatuses 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. Apparatuses more than 15 years old might include only a few of the safety upgrades required by the 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 around 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 apparatuses that are more than 15 years old that has been properly maintained and 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 (See Section D3 of 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 firefighters who use the apparatus. Apparatuses that were not manufactured to the applicable NFPA fire apparatus standards or that are over 25 years old should be replaced.

#### 3.11.1.2 Underwriters Laboratories of Canada

Current ULC[9] and NFPA 1901: Standard for Automobile Firefighting Apparatus Standards recommend using apparatus on the front line for up to 15 years, then as a backup for another four to five years. Of course, this timeline is dependent on the frequency of use, scheduled maintenance, and budgets. As indicated in Table 11, some emergency vehicles' life cycles can be extended due to low usage or serviceable condition. A leading practice is to have a complete condition survey conducted to determine if there is a usable life cycle remaining. This condition survey must consider the NFPA and FUS standards along with the maintenance and cost records of the respective vehicle.

ULC utilizes many of the provisions within these standards as part of the Underwriters survey for determining fire insurance ratings for a community. For example, it follows the life cycle program with the exception that it may award full credit for a fire apparatus older than 15 years, but not more than 20 years, in remote locations only if the piece of equipment is deemed in excellent condition and all necessary upgrades are done. The value of the additional credit in this case, which is only a portion of the total grading for a final FUS rating may well be overshadowed by the cost of maintaining an older unit.

[9] *Retrieved from Underwriters Laboratories of Canada (ULC) is an independent product safety testing, certification, and inspection organization. www.canada.ul.com*

*Table 11: Fire Apparatus Service Schedule (Fire Insurance Grading)*

| Apparatus Age (Yrs.) | Major Cities [3] | Medium Sized Cities [4] | Small Communities[5] and Rural Centres |
|---|---|---|---|
| 0 – 15 | First Line Duty | First Line Duty | First Line Duty |
| 16-20 | Reserve | 2nd Line Duty | First Line Duty |
| 20-25[1] | No Credit in Grading | No Credit in Grading or Reserve[2] | No Credit in Grading or 2nd Line Duty[2] |
| 26-29[1] | No Credit in Grading | No Credit in Grading or Reserve[2] | No Credit in Grading or Reserve[2] |
| 30+ | No Credit in Grading | No Credit in Grading | No Credit in Grading |
| [1]All listed fire apparatus 20 years of age and older are required to be service tested by recognized testing agency on an annual basis to be eligible for grading recognition (NFPA 1071). | | | |
| [2]Exceptions to age status may be considered in a small to medium sized communities and rural centers conditionally, when apparatus condition is acceptable, and apparatus successfully passes required testing. | | | |
| [3]Major Cities are defined as an incorporated or unincorporated community that has: a populated area (or multiple areas) with a density of at least 400 people per square kilometer; AND a total population of 100,000 or greater. | | | |
| [4]Medium Communities are defined as an incorporated or unincorporated community that has: a populated area (or multiple areas) with a density of at least 200 people per square kilometer; and/or a total population of 1,000 or greater. | | | |
| [5]Small Communities are defined as an incorporated or unincorporated community that has: no populated areas with densities that exceed 200 people per square kilometer; AND does not have a total population of more than 1,000. | | | |

### 3.11.1.3 Fire Underwriters Survey (FUS)

The FUS provides insurance grading that may have a direct implication for fire insurance. Fire apparatus is designed, specified, and tendered based upon the unique requirements of the fire service and the community needs it serves. With the design, specification, tender and procurement processes typically taking two to three years or in recent years even longer, along with the expected life cycles of these apparatus being 20 years or more, it is important that the initial equipment purchase planning decisions accurately reflect both the identified immediate needs and those anticipated in the future.

### 3.11.1.4 Apparatus Replacement and Dispersal

Determining the appropriate dollar value required to be placed in a reserve fund to ensure sufficient monies are available at the time of replacement is based on life cycle, forecasted inflation and depreciation. Calculating the yearly contributions is based on the number of years of expected life in the fleet inventory.

As identified above, although both NFPA and FUS have criteria for re-classifying or retiring apparatus, modifications or upgrades may be required based on age or heavy usage. For example:

- Engines: 16-20 years frontline (FUS & NFPA), but can be reduced due to high usage
- Rescue Truck: 15 years frontline (NFPA) but can be reduced due to high usage

In a review of the current apparatus, a study of the original purchase price minus market depreciation is compared to the anticipated replacement cost, taking into consideration the trend in inflationary increases. The salvage or trade-in value of the original apparatus can be estimated based on industry trends. This value is subject to the following considerations:

- Age of the vehicle
- Kilometres
- General condition
- Certifications
- Annual test results

Through careful analysis, the optimal replacement year can be determined. Table 12 shows an example of an apparatus purchased in 2014 with a 25-year replacement timeline. Assumptions need to be determined for a particular piece of apparatus to consider the type of factors above, as well as the type of requirements for the replacement apparatus to meet the needs for the next 20-plus years. Annual reserve contributions should be made to ensure sufficient funds are available at the time of anticipated replacement.

*Table 12: Fire Apparatus Life Cycle Cost Projection Example*

| Period | Year | Replacement cost | Based on % | Difference between original vs replacement | Depreciated value |
|---|---|---|---|---|---|
| 0 | 2014 | $375,415.05 | | $0.00 | $375,415.05 |
| 1 | 2015 | $386,677.50 | 3.0% | $11,262.45 | $300,332.04 |

| | | | | | |
|---|---|---|---|---|---|
| 2 | 2016 | $398,277.83 | 3.0% | $22,862.78 | $240,265.63 |
| 3 | 2017 | $410,226.16 | 3.0% | $34,811.11 | $192,212.51 |
| 4 | 2018 | $422,532.95 | 3.0% | $47,117.90 | $153,770.00 |
| 5 | 2019 | $485,912.89 | 15.0% | $110,497.84 | $123,016.00 |
| 6 | 2020 | $558,799.82 | 15.0% | $183,384.77 | $98,412.80 |
| 7 | 2021 | $642,619.79 | 15.0% | $267,204.74 | $78,730.24 |
| 8 | 2022 | $684,390.08 | 6.5% | $308,975.03 | $62,984.19 |
| 9 | 2023 | $728,875.44 | 6.5% | $353,460.39 | $50,387.36 |
| 10 | 2024 | $776,252.34 | 6.5% | $400,837.29 | $40,309.88 |
| 11 | 2025 | $826,708.74 | 6.5% | $451,293.69 | $32,247.91 |
| 12 | 2026 | $880,444.81 | 6.5% | $505,029.76 | $25,798.33 |
| 13 | 2027 | $937,673.72 | 6.5% | $562,258.67 | $20,638.66 |
| 14 | 2028 | $998,622.51 | 6.5% | $623,207.46 | $16,510.93 |
| 15 | 2029 | $1,063,532.98 | 6.5% | $688,117.93 | $13,208.74 |
| 16 | 2030 | $1,132,662.62 | 6.5% | $757,247.57 | $10,566.99 |
| 17 | 2031 | $1,206,285.69 | 6.5% | $830,870.64 | $10,000.00 |
| 18 | 2032 | $1,284,694.26 | 6.5% | $909,279.21 | $10,000.00 |
| 19 | 2033 | $1,368,199.39 | 6.5% | $992,784.34 | $10,000.00 |
| 20 | 2034 | $1,457,132.35 | 6.5% | $1,081,717.30 | $10,000.00 |

*Figure 4: Fire Apparatus Life Cycle Cost Projection – EXAMPLE ONLY*

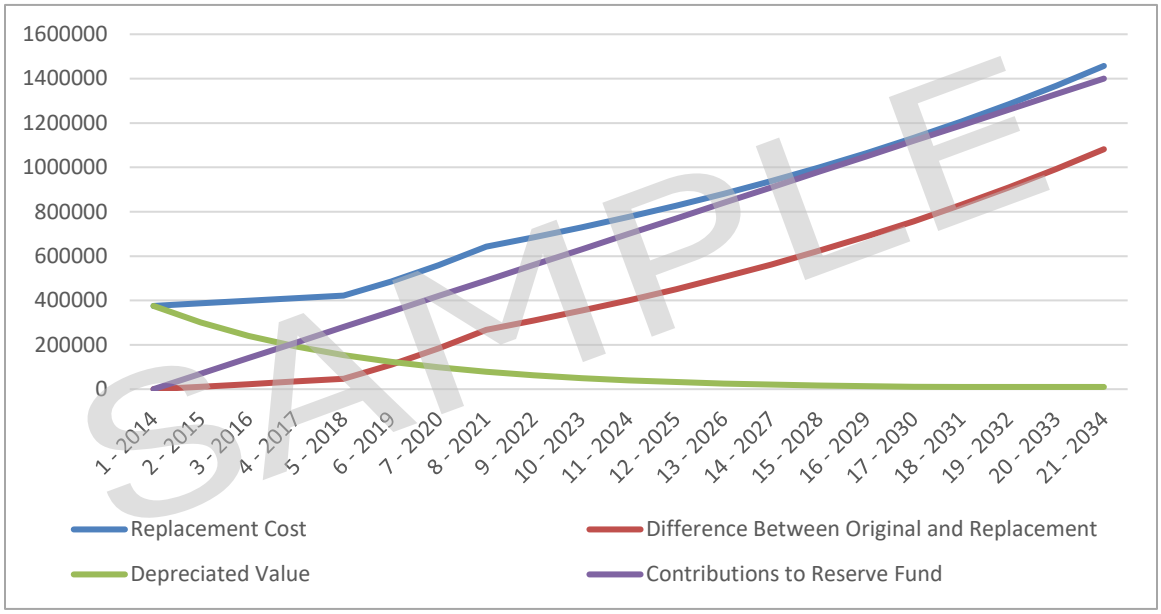



Table 12 and Figure 4 show that the monies put into the replacement reserve fund are close to the projected replacement cost in year 15 and require additional contributions to extend past. Note the following key points:

- Five-year increase to replacement cost from 15-20 years = $393,600
- Five-year decrease in depreciation value from 15-20 years = $3,208
- Total increased costs to retain apparatus for additional 5 years (15-20) = $396,808
- Additional contributions to reserve fund $383,600
- Difference between 15 and 20 years is $1,447,132 - $1,050,324 = $383,600 or an additional $79,361 of contribution per year
- Changing from a 15 to 20-year replacement cycle requires $3,968 per year more

Replacement lifecycles for PAFD vehicles are not consistently following NFPA 1901, however are consistent with lifecycles recommended by the FUS body reporting to the Canadian General Insurance (CGI). In addition to the maintenance of a current fleet capable of reliably providing service, favorably meeting insurance guidelines impacts municipal insurance ratings. PAFD attempts to keep their engines in front-line for 10 years, and moving to second-line for 10 years, and thereafter up to 5 years in reserve. As PAFD has only 1 aerial apparatus, it is planned for 20 years of front line service with no designated reserve. Individual apparatus and light vehicles are assessed during this lifespan and adjusted as necessary.

All City of Port Alberni capital equipment funding including PAFD apparatus, light vehicles and equipment is captured in the city's five-year financial plan.

### 3.11.2 Apparatus and Emergency Vehicle Fleet Inventory

The following chart identifies current PAFD apparatus and light vehicles in use, expected life cycle, and anticipated current replacement costs.

*Table 13: PAFD Apparatus and Light Vehicles with Planned Replacement Schedule*

| No. | Unit Description | Unit number | Year built | In-service Month/year | Planned Replacement year |
|---|---|---|---|---|---|
| 1 | Engine (Pumper) | 1 | 2021 | 07/2022 | 2042 |
| 2 | Front-line Aerial Apparatus | 3 | 2023 | 2024 | 2044 |
| 3 | Engine 4 (Pumper) | 4 | 2000 | 03/2000 | 2020 |
| 4 | Engine 5 (Back-up Pumper) | 5 | 2010 | 05/2010 | 2030 |
| 5 | Rescue 8 (Wildland/Light Rescue) | 8 | 2006 | 2006 | 2019 |
| 6 | Support Unit | 10 | 2023 | 2024 | 2037 |
| 7 | Support Unit | 15 | 2014 | 2014 | 2027 |
| 8 | Utility Trailer/Support Unit | 17 | 2006 | 2006 | 2021 |
| 9 | Support Unity | 19 | 2011 | 2011 | 2024 |
| 10 | Water Rescue Boat | N/A | 1994 | 03/1995 | 2030 |

***Note:*** *A summary of the current PAFD fleet including major apparatus and light duty vehicles is attached as Appendix F.*

#### 3.11.2.1 Apparatus and Light Duty Vehicle Assessment

PAFD apparatus and light duty vehicles are all owned by the City of Port Alberni and are well maintained with necessary repairs being done as required. The required commercial vehicle tests, certifications, and annual pump tests and certifications are completed each year in accordance with NFPA 1911 "Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles" as required, through certified third-party private vendors.

All PAFD apparatus operators are required to conduct pre-trip or post-trip inspections, as necessary. All records of these inspections are to be captured in the Vehicle logbooks. Any significant deficiencies result in that piece of equipment being placed out of service until repaired. Coordination of these repairs is the responsibility of the PAFD Fire Chief.

## 3.12 Ancillary Equipment

Ancillary equipment includes all supporting items such as couplings, fittings, hose accessories and other tools including hand and powered. Equipment needed for field response operations such as vehicle extrication tools, hand tools and pumps are current and appropriate for the needs of PAFD. The ancillary equipment is designed to meet the department's current core services, goals and objectives. Through interviews and questionnaires, it is suggested that PAFD is well resourced with ancillary equipment, SCBAs, and consumables. As the response needs change or grow, additional equipment must be considered.

### 3.12.1 Small Equipment Maintenance and Repair

PAFD has a designated space within the fire station for small equipment. The PAFD fire mechanic or SCBA technician perform minor bench repairs on tools and equipment where possible. Major repairs and/or maintenance of other equipment is done through external providers.

## 3.13 Personal Protective Equipment

PAFD personnel are supplied with the most current NFPA, NIOSH and CSA approved personal protective equipment (PPE) including turnout (bunker gear), gloves, helmets, boots and any specialized gear for specific rescue and medical response operations. The PPE provided is current, appropriate, and designed to meet PAFD safety goals and objectives.

PAFD has a designated space within the fire station for SCBA maintenance and repair, including an SCBA breathing-air fill station. The maintenance and basic repair of SCBA harnesses, masks and air bottles is performed by the designated Fire Breathing apparatus Technician.

## 3.14 Specialized Rescue Equipment

While a fire service cannot anticipate every type of emergency response, having appropriate equipment and training to provide the level of service safely and effectively within their defined core services should be considered as the minimum.

Effective and efficient response to an incident requires vehicles and/or apparatus suitably equipped and designed for a specific purpose. PAFD responds with specialized equipment to incidents involving motor vehicles, Hazmat/DG incidents, technical rope rescue, confined space, shore-based ice and water rescue, and wildland interface fires. Typically utilizing their engines and rescue for the immediate response, specialized equipment is kept on the apparatus or in-station in anticipation of the known risks in each response zone.

### 3.14.1 Rescue Tools

Rescue tools consist of equipment as simple as crowbars or small hand tools up to and including heavy rescue cutters, spreaders, and lift bags. In many cases, at most motor vehicle incidents requiring extrication, having this equipment readily available and operating properly is truly a matter of life and death.

There is a variety of hand tools carried on each engine. In addition, heavy rescue tools are carried on Engine 1 and Engine 4. This rescue equipment appears to be sufficient for immediate needs.

### 3.14.2 Wildland Firefighting

Equipment specifically designed for wildland firefighting is typically lighter and more portable. Hose packs, water packs, and other light-duty firefighting tools need to be transported by light vehicle, or on foot in some cases under extreme terrain and conditions.

Interview and survey results indicate that for the most part their wildland equipment is sufficient, excepting the need for at least one high-pressure portable pump and a supply of portable sprinklers. Additional equipment and resources are currently brought in through mutual aid should it be needed.

### 3.14.3 Water/Ice Rescue

Identified as one of PAFD's core services, response occurs in a support role to water and ice rescue incidents. The Fire Control Bylaw identifies that water rescue incidents are shore-based responses. PAFD is not authorized or trained to provide any form of open water rescue service.

The boat is a shared resource with the Port Alberni Port Authority.

### 3.14.4 Dangerous Goods Response

PAFD personnel are trained to the NFPA 472 Operations level and equipped to manage basic to moderate dangerous goods incidents and has several operating guidelines related to different types of dangerous goods incidents. The equipment that is typically required for this level of dangerous goods response includes air monitoring equipment, diking, patching and absorbent material, and appropriate PPE. PAFD maintains enough equipment for minor dangerous goods incidents. Larger incidents would require additional resources by request to the Province of British Columbia.

### 3.14.5 High-Angle Rescue

PAFD personnel are trained to the NFPA 1006 Technician level through an in-house training program and operating guidelines that satisfy British Columbia WorkSafe requirements and is equipped to manage basic to moderate high-angle or low-slope incidents. These rescue situations typically require specialized equipment designed for difficult retrievals. Typical tools are a rescue basket and appropriate rope with a type of haul system for both the patient and the rescuers.

PAFD has a broad range of expectations defined within its core services. The equipment required to provide these services safely and effectively is sufficient and appropriate. An ongoing review of necessary equipment for expected service levels will assist PAFD in requesting any equipment needs through the appropriate budget process. PAFD has OGs in place for high-angle rescue, as well as embankment rope rescue.

## Observation #15

PAFD conducts wildfire operations in and around the City of Port Alberni. There is a change in procedure to limit night-time operations for safety reasons. There are times when it is necessary to set up static protection systems to protect structures or contain the spread of fire. PAFD does not have an inventory of protection sprinklers that can be deployed. Additionally, PAFD has a single high pressure portable water pump and if an additional pump is required PAFD would request one from BC Wildfire if available.

***Recommendation #15: Conduct a needs assessment and tender process for a second high-pressure portable water pump and an inventory of portable wildfire sprinklers.***

***Suggested completion:*** *12-24 months*

***Cost:*** *Estimated $12K*

***Resource:*** *Operations Budget*

***Rationale:*** *Containing the spread of wildfire requires specialized equipment. Portable high-pressure pumps and portable wildfire sprinklers can be deployed in a pro-active manner and are very effective where firefighting personnel are not on scene.*

## Observation #16

Fire service speciality rescues provide several challenges to deliver those services safely and effectively, including:

- Potential for significant human life safety and environmental damage.
- Unique training and specialized equipment required
- The low frequency of these types of events
- Adverse and/or remote locations and conditions
- Reliance on close coordination and cooperation of other responding agencies

These types of emergency responses can result in responders attempting operations and/ or rescues that are outside the training levels, equipment, and procedures adding to individual risk/benefit struggles to an already stressful situation

***Recommendation #16: Regularly update specialty rescue SOP/SOG's and include a sign-off by all staff.***

***Suggested completion:*** *6-12 months (ongoing)*

**Observation #16**

***Cost:*** *Neutral*

***Resource:*** *Staff time*

***Rationale:*** *The requirement to have concise and understood SOP/SOG's is paramount for the safety of both the patients and responders. Knowledge of limitations of the agency for any particular rescue discipline that is re-enforced through training and response will limit responders from attempting rescue operations that are outside of their level of training and/ or service protocols.*

## 3.15 Rehab and Decontamination

During and after an emergency event that involves significant physical effort and exposure to potentially harmful toxins, a protocol to ensure proper medical monitoring, rest and decontamination is critical to the health and welfare of the firefighters. Areas away from the immediate danger zone that provide shelter and amenities to accomplish these goals can be achieved by utilizing nearby physical structures where available. Other times suitable facilities may not be available due to incident location and allocated resources. PAFD has SOGs in place for Heat Stress Re-Hydration Unit procedures, as well as gross and advanced decontamination for Suppression Incidents.

## 3.16 Asset Management

PAFD utilizes a combination of excel spreadsheets/paper records and computer software programs to capture and track the various functions of their asset management. PAFD has recently moved software providers and are in the process of migrating over files and processes to the new system. This program is used for:

- Incident reporting
- Maintenance reporting, repair, replacement, and tracking
- Training manuals, modules, schedules, and tracking
- Personnel information

***Note:*** *PAFD is currently researching software programs to facilitate payroll entries to the corporate program.*

## 3.17 Firefighter Health and Wellness

The active pursuit of employee/member health and wellness is extremely important to an organization. The benefits include:

- Decreased absenteeism

- Decrease in injuries during normal duties
- Decreased claims
- Improved work/home balance

PAFD has SOGs and programs which demonstrate their commitment to firefighter health and wellness. The City of Port Alberni Council and administration have embraced the pursuit of their employees' health and wellness through programs and processes including:

- WorkSafeBC coverage
- Exposure tracking
- Post-fire decontamination processes
- Firefighter specific health and safety initiatives
- Critical Incident Stress Management & mental health support

## 3.18 Municipal Comparative Analysis

Comparing the Port Alberni Fire Department to that of similar municipalities is a good way to identify relative service levels, costs, and trends. It must be noted that all communities have different attributes such as risk factors, historical decisions, and community profiles. For this reason, the comparative community analysis should be used as a base reference only, not a suggestion or intention of something to be replicated.

For the purposes of this analysis, we used 2019-2023 information to obtain common information from each community. Although fire and emergency services have the same goal of protecting life and property, each community has its unique features in how to accomplish those goals. Therefore, there are no ideal or identical comparators for the Port Alberni Fire Department. Our main criteria for collecting information were:

Population

Budgets

Department size

Type (full-time, part-time or combination)

Department staffing

Additional information for evaluation was:

- Number of fire stations
- Call volume
- Call types

*Table 14: Participating Community Comparatives*

| Community | Population | Land Area ($km^2$) | Area of Response ($km^2$) |
|---|---|---|---|
| City of Port Alberni | 18,500 | 19.76 | 19.76 |
| District of Squamish | 29,206 | 104.71 | 104.71 |
| District of Oak Bay | 18,000 | 10.52 | 10.52 |
| City of Campbell River | 38,000 | 144.38 | 144.38 |
| City of Powell River | 20,707 | 28.9 | 28.9 |
| Township of Esquimalt | 17,533 | 7.08 | 7.08 |

### 3.18.1 Budgets

Department budgets are of specific concern to most communities. In some instances, budgeting for fire and emergency services make up a considerable portion of a community's operating budget. We evaluated the budgets for each community, and it is important to note that each is unique in how each municipality allocates their budgets.

*Table 15: Community Comparative Budget Ranking*

| Community | Municipal Budget 2022/23 | Emergency Services Operating Budget | % of Municipal Budget | Population | Cost Per Capita |
|---|---|---|---|---|---|
| City of Port Alberni | $55,984,376 | $4,389,298 | 7.84 | 18,500 | $237.52 |
| District of Squamish | $68,163,035 | $3,551,497 | 5.2 | 29,206 | $121.60 |
| District of Oak Bay | $54,775,700 | $5,124,800 | 9.3 | 18,000 | $284.86 |
| City of Campbell River | $81,400,000 | $6,200,000 | 7.65 | 38,000 | $163.15 |
| City of Powell River | $24,000,000 | $3,500,000 | 14.58 | 20,707 | $169.02 |
| Township of Esquimalt | $56,700,000 | $5,980,620 | 10.5 | 17,533 | $341.10 |

| | |
|---|---|
| Per Capita Net Expenditure: | $237.52 |
| Mean/Average Per Capita Net Expenditure: | $219.54 |

### 3.18.2 Industry Standards

*Table 16: Community Comparative Standard of Cover*

| Community | Standard of Cover | Standard of Cover approved by Council | Is the standard based on a leading practice such as NFPA 1710/ 1720 and/or WorkSafe BC Minimum Training Standards for Firefighters |
|---|---|---|---|
| City of Port Alberni | No | No | Yes |
| District of Squamish | Yes | Yes | Yes |
| District of Oak Bay | Yes | Yes | Yes |
| City of Campbell River | Yes | Yes | Yes |
| City of Powell River | Yes | Yes | Yes |
| Township of Esquimalt | Yes | Yes | No |

### 3.18.3 Department Profile

*Table 17: Community Comparative Departments' Profile*

| Community | Department Type | No. of Stations | Total Staff | Fire Chief (FT) | Deputy (DC) Assistant Chief (AC | Support Staff (FT) | Suppression Staff | Fire Prevention Staff (FT) | Training Staff (FT) | Dispatch | Mechanical (FT) | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| City of Port Alberni | FT Career | 1 | 23 | 1 | 1 (DC) FT | 0 | 20 FT | BC | 0 | 0 | 1 | NA |
| District Squamish | Composite | 2 | 17 | 1 | 2(DC)-FT | 1 | 13 FT<br>50 POC | 0 | 0 | 0 | 0 | 0 |
| District of Oak Bay | FT Career | 1 | 30 | 1 | 2(DC)-FT | 2 | 24 FT | 1 | 0 | 0 | 1 | 0 |
| City of Campbell River | Composite | 2 | 80 | 1 | 2(DC) FT | 1 | 26 FT<br>35 POC | 1 | 0 | 13 | 1 | 1 |
| City of Powell River | Composite | 1 | 42 | 1 | 1(DC) FT | 1 | 16 FT<br>23 PT | 0 | 0 | 0 | 0 | 0 |
| Township of Esquimalt | FT Career | 1 | 33 | 1 | 2(DC) FT | 1 | 29 FT | 0 | 0 | 0 | 0 | 0 |

FT: Full-time PT: Part-time POC: Paid-On-Call

### 3.18.4 Response Data

For the purposes of this municipal comparator analysis, we used 2019–2023 information to get common information from each community. Breakdowns are divided into the two following categories:

*Table 18: Examples of Incident Types for Statistical Analysis*

| Incidents by Type | | |
|---|---|---|
| **Medical Related Calls** | | |
| Call Types | Pre-Hospital Care: Alpha, Bravo Charlie Delta Echo | |
| | Lift Assist | |
| | False Alarms | |
| **Fire-Related Calls** | | |
| Fire Emergency | Alarm<br>Burning Complaint<br>Structure Fire<br>Minor Fire<br>Smoke | Car Fire<br>Re-check<br>Wildfire – Grass, Brush, Outdoor<br>Oven/Pot on Stove<br>Explosion |
| MVI (Motor Vehicle Incident) | Extrication | No Extrication |
| Rescue | Stalled Elevator<br>Lake/Marine Rescue<br>High Angle | Swift Water<br>Building Collapse<br>Ice |
| Hazmat/Dangerous Good | Highway Incident<br>Rail Incident | Industrial Incident<br>Resident Incident |
| Non-Emergency | Carbon Monoxide<br>Gas/Oil Smell/Spill<br>Power/Telephone/Cable Line Down<br>Natural Gas Leak | Aircraft Standby Incident<br>Bomb Threat<br>Hazardous Materials<br>Propane Leak/Smell |
| Other | Inspection<br>Burning Pile Inspection<br>Assist Other Agency<br>Public Service | Needle Pick-up<br>Flood Assessment<br>Water Problem (in structure) |

***Note:*** *Description and category names may not be common terminology in all jurisdictions.*

*Table 19: Municipal Comparative Response Call Volume*

| Community | | Port Alberni | Squamish | Oak Bay | Campbell River | Powell River | Esquimalt |
|---|---|---|---|---|---|---|---|
| Total Call Volume | 2019 | 1640 | 746 | 1213 | 2576 | 940 | 1046 |
| | 2020 | 1332 | 720 | 899 | 1940 | 689 | 614 |
| | 2021 | 2037 | 973 | 1120 | 2824 | 1008 | 803 |
| | 2022 | 2498 | 1008 | 1304 | 3666 | 1243 | 879 |
| | 2023 | 2859 | 1231 | 1382 | 4376 | 1273 | 969 |
| Fire Related Calls | 2019 | 804 | 526 | 645 | 1146 | 385 | 368 |
| | 2020 | 783 | 542 | 637 | 1008 | 365 | 356 |
| | 2021 | 903 | 656 | 751 | 1230 | 395 | 327 |
| | 2022 | 901 | 718 | 760 | 1323 | 400 | 383 |
| | 2023 | 957 | 717 | 803 | 1516 | 420 | 391 |
| EMS Related Calls | 2019 | 836 | 220 | 568 | 1430 | 555 | 678 |
| | 2020 | 549 | 178 | 262 | 932 | 324 | 258 |
| | 2021 | 1134 | 317 | 369 | 1594 | 613 | 476 |
| | 2022 | 1597 | 290 | 544 | 2343 | 843 | 496 |
| | 2023 | 1902 | 514 | 579 | 2860 | 853 | 578 |

### 3.18.5 Community Comparative Analysis Summary

PAFD ranks among the mid-range (3rd or 4th) within the municipalities surveyed for operating budget, percentage of municipal budget, and cost per capita. This is considered to be appropriate and efficient for a city the size of Port Alberni.

There is no standard for categorizing incidents so it must be understood that these statistics are broadly based and are only general reference when comparing fire departments. The community comparative analysis can only be interpreted from an indirect basic level due to the disparity from each of the surveyed communities' organizational structure, core services and levels, emergency response categorization, and financial systems.

# SECTION 4
# RESPONSE STATISTICS AND PERFORMANCE

The following section provides an overview of incident and response frequency, relevant fire service legislation and NFPA standards, as well as a summary of emergency response performance for incidents within the City of Port Alberni. The scope of this report focuses on the operation of the fire station within the city but excludes emergency responses into the surrounding regional district unless specifically noted.

## 4.1 Industry Leading Practices and Standards

In Canada, and in particular British Columbia, leading practices and standards considered by the fire service industry when planning effective and efficient service delivery include the following sources:

- National Fire Protection Association (NFPA) standards
- National Institute of Standards and Technology (NIST)
- British Columbia Structure Firefighter Minimum Training Standards
- British Columbia Building Code (BCBC) Fire Department Response
- WorkSafe BC, OHS Part 31: Firefighting
- Fire Underwriters Survey (FUS)
- Centre for Public Safety Excellence accreditation
- Fire service master plans and Standards of Cover policy
- Predictive modelling and dynamic deployment system (PMDDS)

The most widely accepted standards for the fire service are developed by the NFPA. Several decades of research have resulted in the NFPA establishing industry benchmarks for operation and firefighter safety.

The use of industry standards such as those offered by the NFPA does not limit a local government's flexibility to develop levels of service based upon local conditions and economic realities. Rather, the use of these standards as a guide, along with the requirements outlined in WorkSafeBC and the BC Structure Firefighter Minimum Training Standards. As stated in the Authority and Purpose section of the Structure Firefighter Minimum Training Standards, the objection of the Training Standards is to identify the competencies and skills that all structure firefighters must have to enhance their personal safety and wellbeing while performing the functions of a firefighter for their community.

As previously stated in the former *BC Structure Firefighters Competency and Training Playbook* and is still valid today, *It is the AHJ's decision as to the appropriate service level for its fire service which should be based on:*

- *Local conditions*
- *Consultation with representatives of local fire service delivery organization*
- *Availability of resources and the ability of those resources to respond*
- *The realities of the community in terms of demographics, risks, travel distances, fire hall locations, equipment, and staffing models*
- *The ability of the authority having jurisdiction (AHJ) to financially support its fire department to enable it to meet all applicable training, safety, and operational requirements for the chosen service level*

Therefore, establishing fire department service levels in BC municipalities is the responsibility of local government. There are no regulatory requirements to meet specific service levels. The only regulatory requirements linked to fire department service levels is the 10-minute fire department response time requirement for new developments outlined in the BCBC, and the WorkSafe BC: OHS Regulation Part 31: Firefighting.

### 4.1.1 NFPA Standards

The most widely accepted standards for the fire service are developed by the National Fire Protection Agency (NFPA). Established in 1986, "*the NFPA is a self-funded non-profit organization devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards (NFPA, 2021).*" The NFPA has developed over 300 consensus-based codes and standards designed to minimize the effects of fires. Several decades of research have resulted in the NFPA establishing industry benchmarks for fire department operations, training, and equipment.

#### 4.1.1.1 NFPA 1710

NFPA has done considerable research in developing standards and ensuring they reflect the primary value of life-safety and effective emergency response. The standard addressing fire department operational performance and service levels is NFPA Standard 1710: Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments. This standard provides a benchmark for most common responses and a platform for developing the appropriate plan for responding to higher hazard occupancies and complex incidents.

*NFPA 1710: Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, response standards provide a basis to evaluate the PAFD's station response performance. The response standards identified in Table 20 are based on a low to medium risk typical single-family dwelling of 2000 $ft^2$ (186 $m^2$) without a basement and with no exposures. Alarm answering should be completed within 15 seconds 90% of the time. Alarm processing should be completed within 64 seconds 90% of the time. A turnout time of 80 seconds and travel time of 240 seconds, 90% of the time is prescribed.

NFPA does not specifically identify a total response time standard for first arriving fire apparatus and assembly time for the full alarm Effective Response Force (ERF). However, it is common practice to add the percentile performance times for alarm handling (alarm answering and processing combined), turnout and travel times to infer the first arriving response goal of six minutes and 39 seconds, 90% of the time. Therefore, the inferred response standard is 399 (6 minutes and 39 seconds) for the first engine company to arrive 90% of the time. Similarly, the full alarm response goal of 10 minutes and 39 seconds, 90% of the time is often considered the inferred time standard for the assembly of the full alarm assignment.

This standard also requires a 480-second travel time or less for deployment of an initial full alarm assignment to a low to medium risk fire incident with a minimum of 16 members (17 if an aerial devise is used). Larger or more complex incidents may require more firefighters and may have an extended time to assemble an ERF. NFPA 1710 maintains several additional standards that speak to special types of operations within the responsibilities of a fire service.

Based on our knowledge and experience, few if any fire services in Canada fully comply with NFPA 1710 service level standards. However, these standards are useful in informing you of the development of achievable and sustainable service levels.

*Table 20: NFPA 1710 Performance Standards*

| | NFPA 1710 Primary Standards | | | | NFPA 1710 Secondary Standards | | | |
|---|---|---|---|---|---|---|---|---|
| | Primary | Seconds | Percentile | FFs | Secondary | Seconds | Percentile | FFs |
| Alarm Answering | 1 | 15 | 95% | | 2 | 40 | 99% | |
| Alarm Processing | 1 | 64 | 90% | | 2 | 106 | 95% | |
| Chute Time | Fire | 80 | 90% | | EMS | 60 | 90% | |
| Travel | First arriving | 240 | 90% | 4 | Full Alarm | 480 | 90% | 16 |
| *Response (inferred)* | *First arriving* | *399* | *90%* | *4* | NA | N/A | N/A | NA |
| *Response (inferred)* | *Full Alarm* | *639* | *90%* | *16* | NA | N/A | N/A | NA |

FF - Firefighter

### 4.1.2 National Institute of Standards and Technology (NIST)

The NIST Fire Research Division is a U.S. physical science laboratory that through its programs in measurement, prediction, systems integration, and the dynamics of fire and its interactions with the built and natural environment. NIST provides leadership for advancing the theory and practice of fire safety engineering, firefighting, fire investigation, fire testing, fire data management, and intentional burning.

NIST developed a comprehensive report that identifies the optimum number of members for a fire company necessary for the most effective completion of the over 22 essential fire ground tasks at a typical single-family house fire. On average, a four-member crew operating on a structure fire completed all the tasks on the fire ground seven minutes faster (nearly 30%) than the two-person crews. The four-person crews completed the same number of fire ground tasks 5.1 minutes faster on average (nearly 25%) than the three-person crews.

### 4.1.3 BC Building Code Fire Department Response

The BC Building Code (BCBC) has developed criteria to establish spatial separation for un-sprinklered buildings depending on the response time of a fire department. Where the response time (measured from notification of the fire department to the arrival of the first fire engine) exceeds 10 minutes to new residential developments, requirements related to limiting distance (proximity to other buildings) and construction may be affected[10].

The overarching intent of the BCBC 10-minute fire department response time code requirement is to establish spatial separation requirements for un-sprinklered residential buildings, depending on the response time of a fire department. When fire suppression staff response exceeds a 10-minute total response time, buildings must be located farther away from the property line or provided with additional fire protection, such as non-combustible siding, limited side-yard windows or sprinkler systems. Additional fire protection measures slow the spread of fire by either containing it or suppressing it, giving the fire department additional time to arrive before the fire spreads or becomes a high intensity residential fire.

The 10-minute total response time must be achieved for 90 percent of the incidents. The definition of 'total response time' is the time from a fire department receiving notification of an emergency to the arrival of a fire department vehicle capable of beginning fire suppression activities (typically a pumper truck with water, hose, and firefighters). *(See Appendix E British Columbia Building Code (BCBC), Office of Housing and Construction Standard, Information Bulletin, 'Fire Department Response Time'.)*

### 4.1.4 WorkSafe BC, OHS Part 31: Firefighting

In British Columbia, WorkSafe BC has established several general occupational health and safety (OHS) regulations that apply to the fire service. In addition, OHS regulation Part 31: Firefighting[11] establishes regulatory requirements specifically for the fire service.

[10] *British Columbia Building Code (BCBC), Office of Housing and Construction Standard, Information Bulletin, 'Fire Department Response Time'*

[11] *https://www.worksafebc.com/en/law-policy/occupational-health-safety/searchable-ohs-regulation/ohs-regulation/part-31-firefighting*

Some of these regulations have a direct impact on service levels. This includes critical tasks such as scene accountability, traffic control, rehabilitation, firefighter direction and instruction in the safe performance of their duties and interior firefighting operations. Part 31.23 Entry into Buildings: firefighters must be trained to the *BC Structure Firefighter Minimum Training Standards (July 2024)* to enter a building on fire with self-contained breathing apparatus. Furthermore, a team of two firefighters must have a backup team to affect a rescue with equal or greater qualifications situated outside the building within 10 minutes of entry or they must exit. The rescue team cannot engage in any duties that limit their ability to make a prompt response to rescue an endangered firefighter while interior structural firefighting is being conducted.

If there is a lack of interior qualified firefighters on scene then all operations must be conducted from the exterior of the building until the fire is extinguished. This is commonly referred to in the fire service as the '2-in-2 out' WorkSafeBC regulation.

### 4.1.5 Fire Underwriters Survey

The Fire Underwriters Survey (FUS) provides data, underwriting, risk management and legal/regulatory services focusing on community fire-protection and fire prevention systems in Canada. FUS publishes the Canadian Fire Insurance Grading Index which is utilized by the property casualty insurers. This grading will establish the basis for insurance companies in determining fire insurance premium rates. FUS assesses the following:

- Fire department response - includes apparatus, distribution of companies, staffing, training, maintenance, pre-incident planning, etc.
- Fire safety control - includes review of all fire prevention and public education activities. The overall needs of these programs are determined with the aim of reducing the number of fires within the community. All activities should be measured for their effectiveness.
- Municipal building stock - includes details such as size, construction, exposures, occupancy types, and fire protection systems. These lay the foundation of a municipal risk assessment and assist to determine a community's fire station, apparatus, and staffing needs.
- Water system capacity and distribution for public fire protection - includes an emphasis on the system's ability to reliably deliver adequate water to control major fires throughout the municipality. The amount of water available to the fire department is the critical test in the evaluation.

FUS provides an overall '*point in time*' assessment of the community's fire service capabilities. Improving FUS ratings may reduce residential, commercial, and industrial fire insurance premiums. Our research suggests FUS ratings have a greater impact on insurance premiums for industrial occupancies. The impact on insurance premiums must be carefully evaluated as the industry is very competitive and premiums can be adjusted regardless of the fire department's capabilities and FUS ratings.

## 4.2 Incident Type and Frequency

Typically, fire and rescue services have access to large amounts of incident and response data. Incident data can be used and reported for several purposes. Incident type and frequency data are used to analyze department activity levels and identify trends in demand for fire services. The range of services provided by the modern fire service is often surprising. Fire departments have evolved from responding primarily to fires to responding to a broad range of public service and emergency incidents, becoming a critical component of public safety services.

Incident type data is typically categorized and used to identify trends in services provided in a community. For example, fire incidents may be categorized into specific fire types such as brush, chimney, garbage dumpster, cooking, or vehicle fires. This level of detail is useful to a fire chief in analyzing community risk and service requirements. It may also be useful in identifying specific fire prevention and public education opportunities.

Incident data may also be summarized into broader categories to provide a more general report on activities undertaken by the fire department. For example, all types of fires may also be combined in a single category along with other broad categories such as rescue, motor vehicle or medical incidents to provide a general report of fire department activity to the public or elected officials.

Table 21 provides an overview of broad incident categories. This information is useful in quantifying general community risks and fire department activity. Mutual aid and non-emergency responses has been excluded from the table as it represents assisting another station and not considered a unique event.

*Table 21: Incident Count by Incident Type Category (2019-2023)*

| Incident Type | 2019 | 2020 | 2021 | 2022 | 2023 | Total | % |
|---|---|---|---|---|---|---|---|
| Rescue | 0 | 5 | 6 | 7 | 7 | 25 | 0.24% |
| Motor Vehicle Collision | 171 | 132 | 176 | 152 | 150 | 781 | 7.53% |
| Miscellaneous | 175 | 186 | 148 | 131 | 138 | 778 | 7.51% |
| Medical | 836 | 549 | 1134 | 1597 | 1902 | 6018 | 58.06% |
| Hazmat | 25 | 25 | 22 | 17 | 19 | 108 | 1.04% |
| Fire | 116 | 105 | 138 | 125 | 103 | 587 | 5.66% |
| Dangerous Conditions | 42 | 42 | 49 | 56 | 36 | 225 | 2.17% |
| Alarms | 212 | 219 | 235 | 204 | 277 | 1147 | 11.07% |
| Public Service | 63 | 69 | 129 | 209 | 227 | 697 | 6.72% |
| Total | 1640 | 1332 | 2037 | 2498 | 2859 | 10366 | **100%** |

The following key observations regarding incident types were noted:

- Medical first response incidents were the most frequent making up over 58% of the activity.
- Fire-related incidents represented 5.66% (587) of the incidents over this period.
- Alarm calls account for the second most frequent incident category at over 11%
- Hazardous Materials incidents, Rescues, and Dangerous Condition calls for service were infrequent.
- Motor Vehicle and Miscellaneous calls for service were both just over 8% of all incidents

Chart 2 provides a four-year aggregated analysis of the broad incident categories and provides an alternate visualization of the incident frequency.

*Chart 2: Incident Frequency by Percentage (2019-2023)*

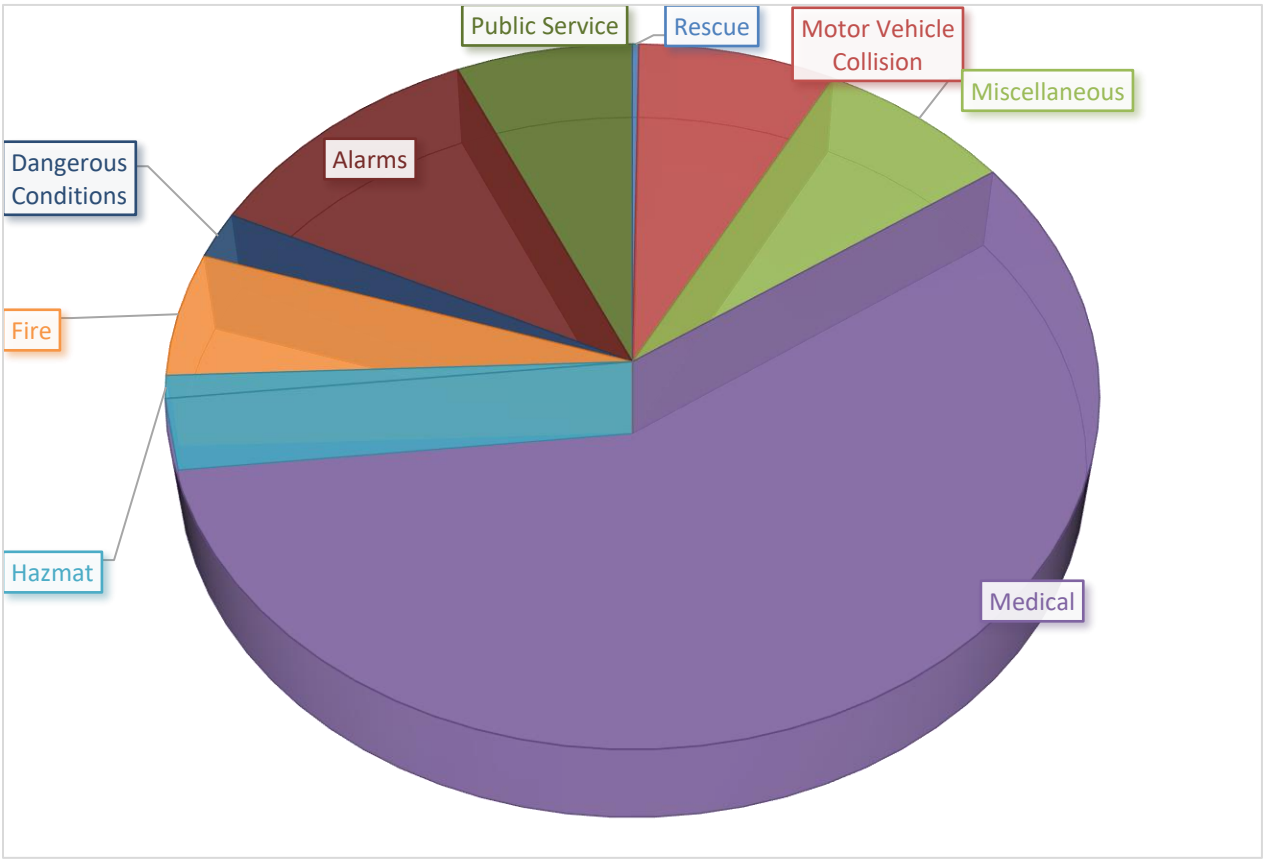
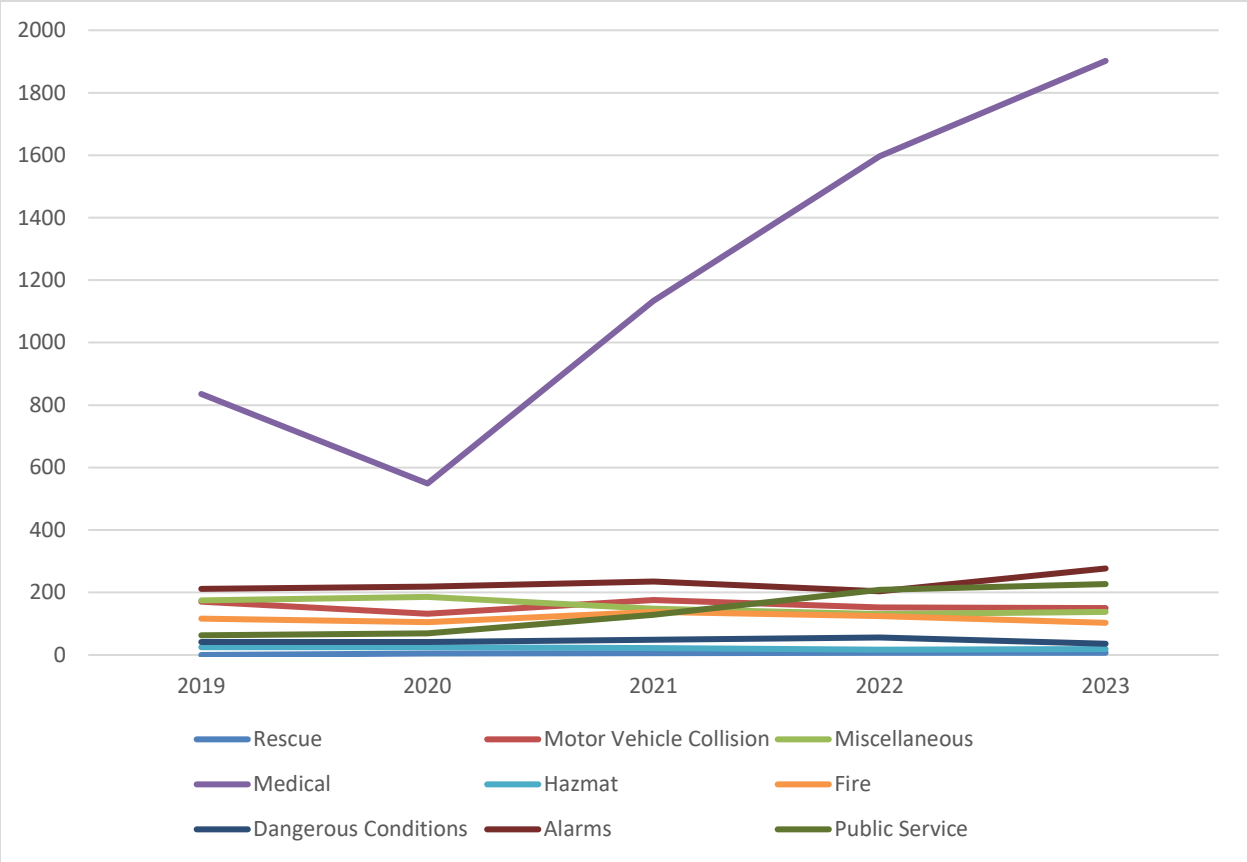



Chart 3 identifies which incident types were increasing (trending upward), decreasing (trending downward) or unchanged (flat trendline). This information can be used to identify emerging or declining community risks, or the need to change core services and service levels.

*Chart 3: General Incident Trends*




The following key observations regarding incident types were noted:

- Medical first response incidents have increased significantly since 2020
    - The notable dip in 2020 was due to COVID and the reduction of medical responses due to exposure risk for non-critical incidents.
- Public Service incidents rose from 623 incidents in 2019 to 227 in 2023
- Remaining incident totals are relatively stable across all types.

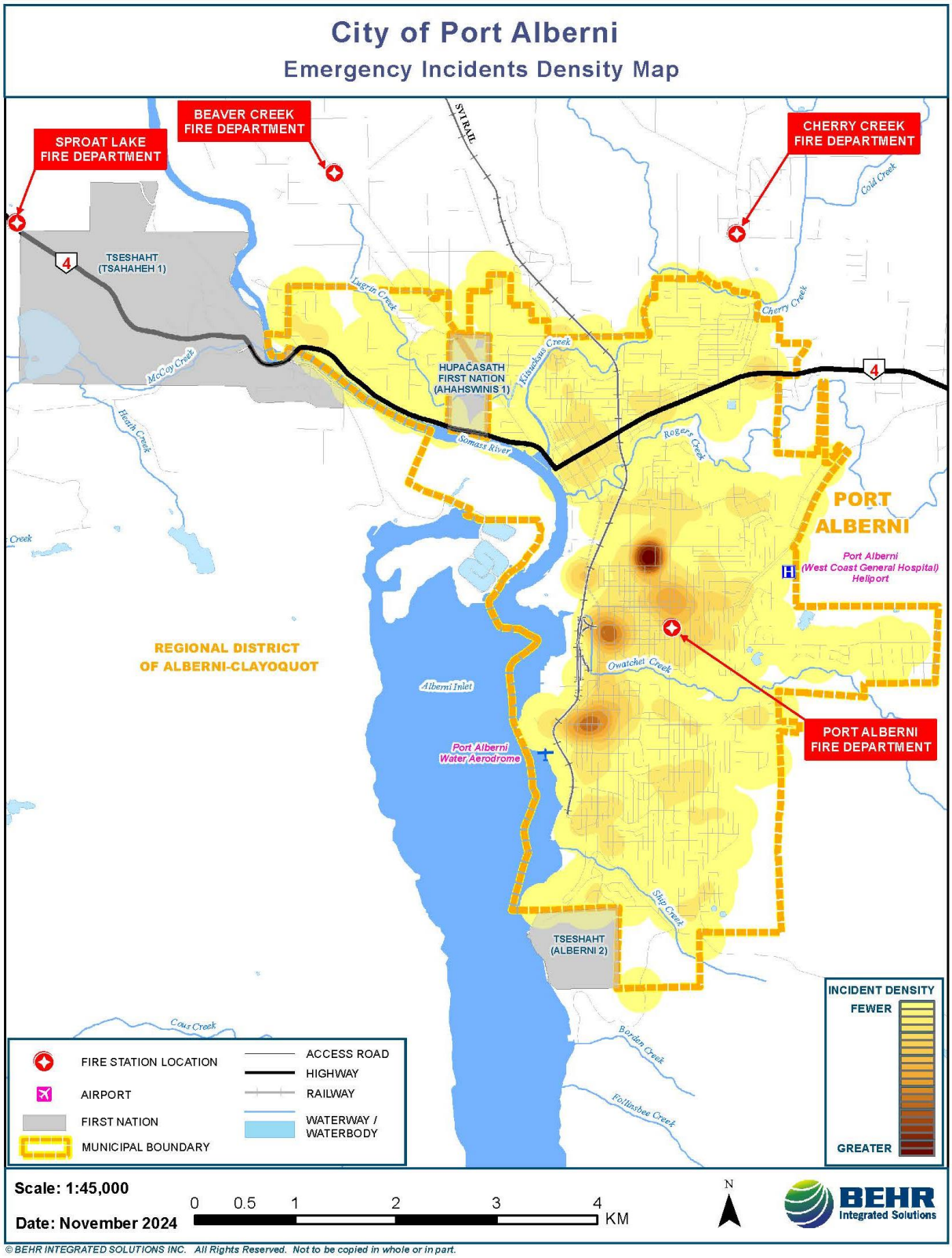
Table 22 expands the broader incident categories into relevant subcategories. This information provides greater detail into specific types of emergencies that the department responded to. This information is also useful in quantifying specific community risks if certain types of calls are particularly prevalent.

*Table 22: Incident Count by Subcategory*

| Incident by Subcategory | 2019 | 2020 | 2021 | 2022 | 2023 | Total | % |
|---|---|---|---|---|---|---|---|
| **Medical** | | | | | | **6018** | |
| Medical | 836 | 549 | 1134 | 1597 | 1902 | 6018 | 58.06% |
| **Alarms** | | | | | | **1147** | |
| Alarm | 212 | 219 | 235 | 204 | 277 | 1147 | 11.07% |
| **Dangerous Condition** | | | | | | **225** | |
| CO Incident | 14 | 11 | 9 | 5 | 10 | 49 | 0.47% |
| Hydro | 6 | 12 | 19 | 32 | 8 | 77 | 0.74% |
| Smoke/Odour/Elec | 22 | 19 | 21 | 18 | 18 | 98 | 0.95% |
| Tsunami | 0 | 0 | 0 | 1 | 0 | 1 | 0.01% |
| **Fire** | | | | | | **587** | |
| Chimney Fire | 6 | 4 | 5 | 4 | 3 | 22 | 0.21% |
| Garbage Container | 66 | 68 | 78 | 55 | 57 | 324 | 3.13% |
| Outdoor | 6 | 5 | 9 | 17 | 7 | 44 | 0.42% |
| Structure | 28 | 23 | 37 | 39 | 29 | 156 | 1.50% |
| Vehicle Fire | 10 | 5 | 9 | 10 | 7 | 41 | 0.40% |
| **Hazmat** | | | | | | **108** | |
| Fuel | 12 | 12 | 6 | 3 | 7 | 40 | 0.39% |
| Natural Gas | 9 | 10 | 12 | 12 | 8 | 51 | 0.49% |
| Propane | 1 | 2 | 2 | 1 | 1 | 7 | 0.07% |
| Unclassified | 3 | 1 | 2 | 1 | 3 | 10 | 0.10% |
| **Motor Vehicle Collision** | | | | | | **781** | |
| MVI | 110 | 87 | 105 | 96 | 87 | 485 | 4.68% |
| Aid MVI/ Ext | 1 | 0 | 0 | 1 | 0 | 2 | 0.02% |
| Extrication | 54 | 40 | 59 | 46 | 54 | 253 | 2.44% |
| Ped Struck | 6 | 5 | 12 | 9 | 9 | 41 | 0.40% |
| **Miscellaneous** | | | | | | **778** | |
| Assist Other Agency | 0 | 0 | 1 | 13 | 14 | 28 | 0.27% |
| Auto Aid | 1 | 0 | 0 | 0 | 0 | 1 | 0.01% |

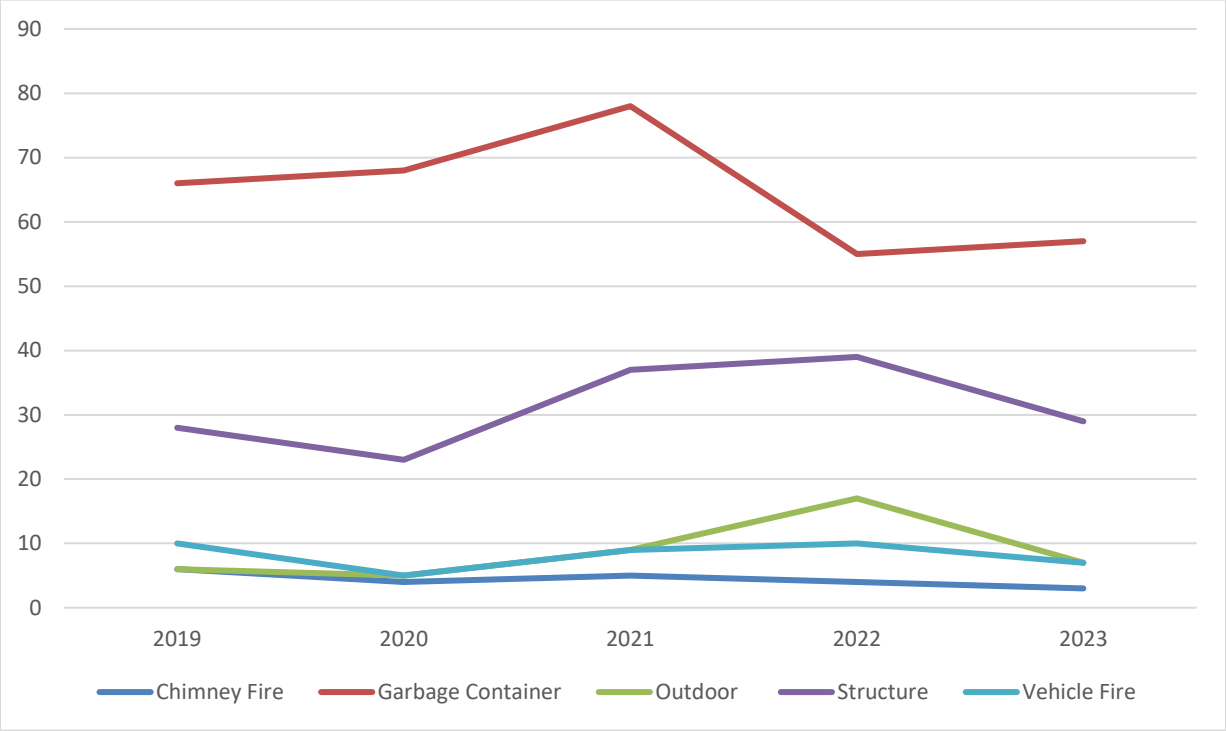
| Incident by Subcategory | 2019 | 2020 | 2021 | 2022 | 2023 | Total | % |
|---|---|---|---|---|---|---|---|
| Beach/ Brush | 171 | 180 | 145 | 111 | 118 | 725 | 6.99% |
| Marine | 3 | 1 | | 3 | 3 | 10 | 0.10% |
| No Response | 0 | 2 | 1 | 2 | 2 | 7 | 0.07% |
| Structure Re-check | 0 | 3 | 1 | 2 | 1 | 7 | 0.07% |
| **Public Service** | | | | | | **697** | |
| Beach/Brush | 0 | 1 | 0 | 0 | 0 | 1 | 0.01% |
| Burning Complaint | 0 | 0 | 48 | 126 | 113 | 287 | 2.77% |
| Investigation | 0 | 1 | 5 | 29 | 60 | 95 | 0.92% |
| Unclassified | 63 | 67 | 76 | 54 | 54 | 314 | 3.03% |
| **Rescue** | | | | | | **25** | |
| Technical | 0 | 5 | 6 | 7 | 7 | 25 | 0.24% |
| **Total** | **1640** | **1332** | **2037** | **2498** | **2859** | **10366** | 100% |

*Map 2: Incident Density Map*



Municipal fire departments were implemented in the 19th and 20th centuries to manage large fire conflagrations which had the potential to raze entire communities. Modern building codes and fire inspection programs have reduced community risk fires presented in years past. Despite these continuous improvements, fire incidents continue to occur. They represent one of the greatest risks of injury to both the firefighters and the public, in addition to property loss. Further, fire incidents typically require a prompt response from a larger number of firefighters and apparatus to manage safely. Therefore, fire incidents warrant specific consideration throughout this FSMP. Chart 4 provides detailed review of the five-year trends for specific types of fire incidents.

*Chart 4: Fire Incident Trends (2019–2023)*

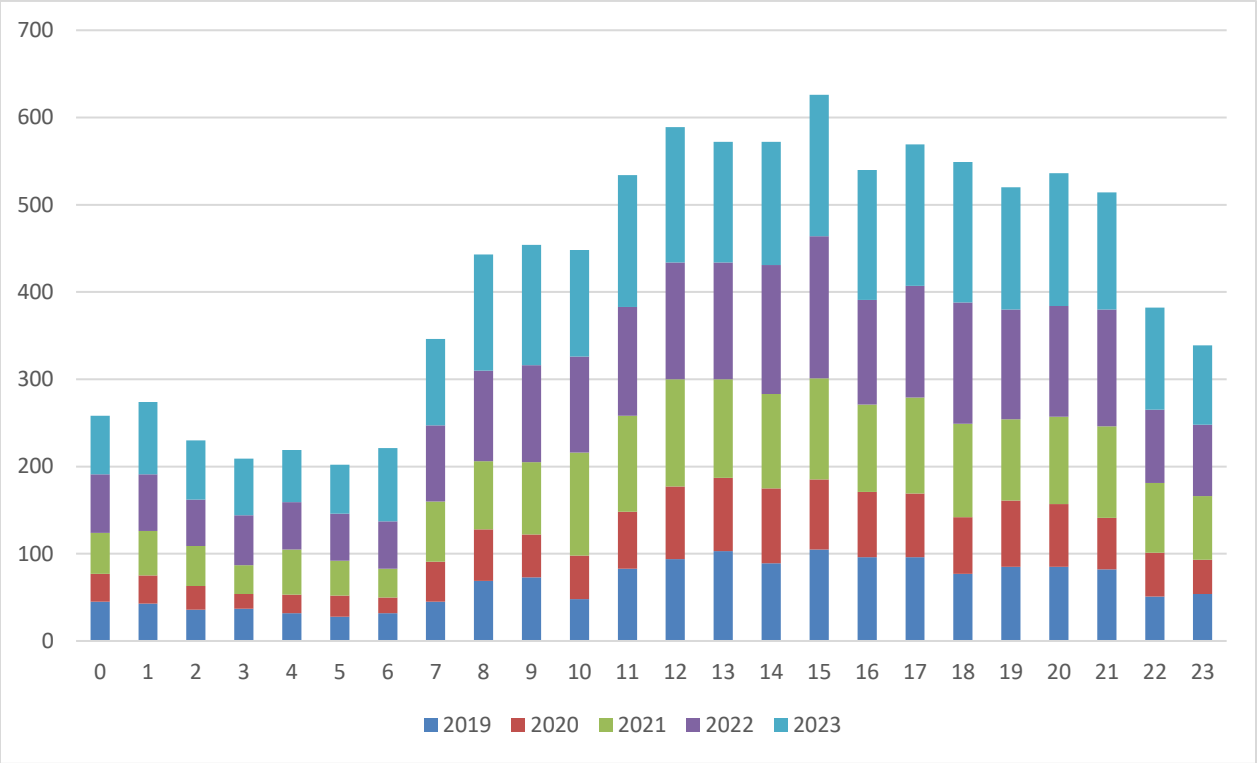



The following key observations regarding fire-related incidents were noted:

- Garbage container fires peaked in 2021 and have dropped in 2022 and 2023
- Structure Fires rose sharply in 2021and 2022 and have declined in 2023
- All other types have remained relatively stable

Chart 5 considers the time-of-day incidents which occurred during the five-year period. Fire and rescue departments typically experience the highest period of demand for services throughout the daytime hours. It is useful to occasionally monitor peak periods of demand to assess service levels and staffing requirements when demand is the highest and lowest.

*Chart 5: Incident Count by Hour of Day (2019-2023)*

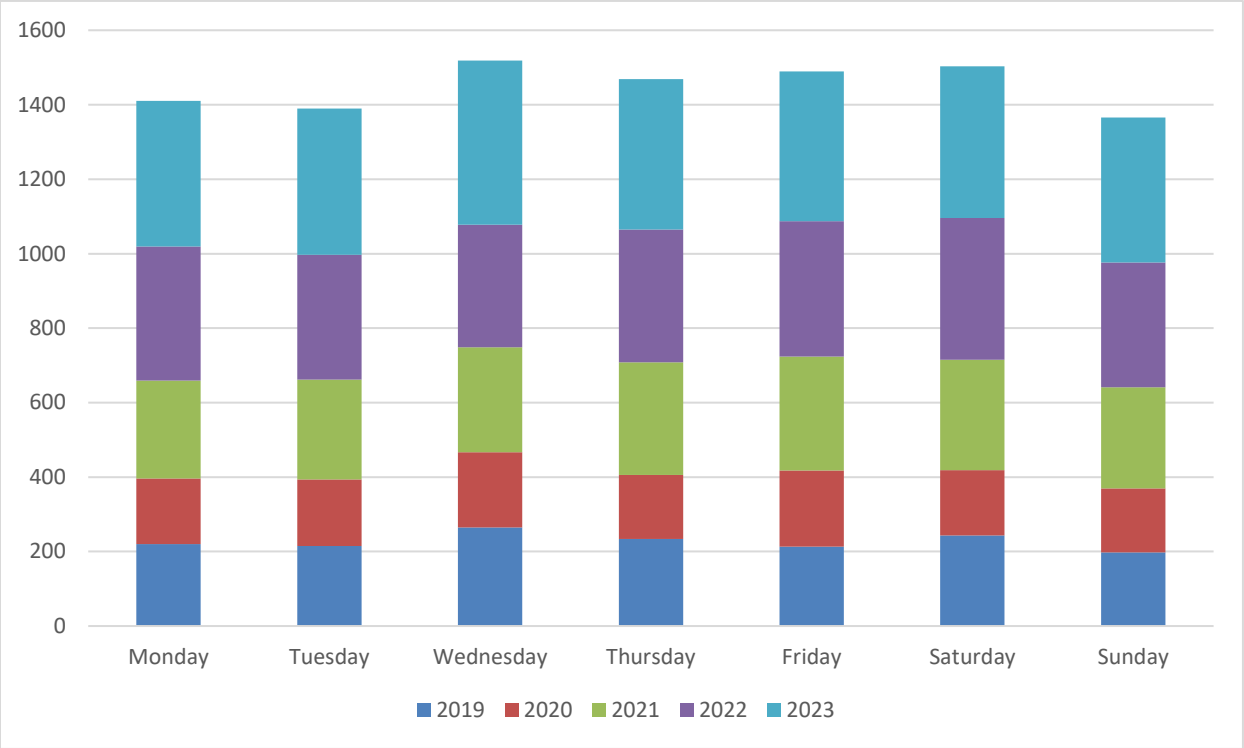



The following key observations regarding the time-of-day incidents occurred were noted:

- Activity steadily rose throughout the morning and peaked in the afternoon (3 pm) before beginning to slowly taper off into the evening.
    - In our experience, this is a common pattern that is aligned with the level of activity in the community.
- The period between 12 am and 6 am is the lowest period of demand for services.

Chart 6 identifies the demand for services by the day of the week. Monitoring the days of the week during which fire departments experience the highest and lowest demand provides additional insight into potential pressures in service delivery.

*Chart 6: Incident Count by Day of Week (2019-2023)*

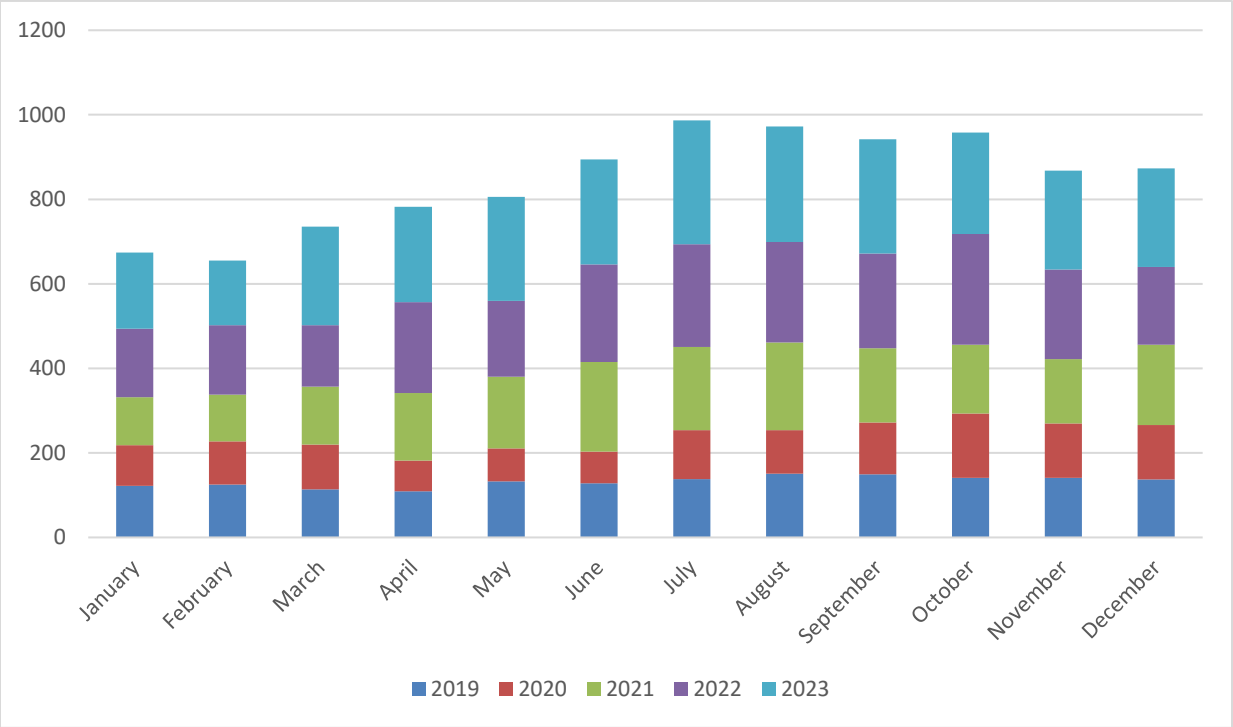



The following key observation regarding the day of week incidents occurred were noted:

- There was a modest variation in demand for services by day of week
- Wednesdays were the highest (n=1519) and Sundays the lowest (n=1366) days of the week during this five-year period

Chart 7 identifies the demand for services by month of the year. Monitoring the activity by time of year can provide fire departments insight into seasonal variation in incident volume.

*Chart 7: Incident Count by Month (2019-2023)*




The following key observation regarding the time of year incidents occurred were noted:

- Warmer months (June-October) experienced higher incident volumes than cooler periods (January-March).
- July and August saw the highest activity.

## 4.3 Intervention Time and NFPA Standards

Incident types and counts provide insight into the type and frequency of specific risks within a community. However, it is limited in the sense that it does not address the effectiveness of the response to emergencies. Emergency response performance is assessed from two perspectives: the speed of the initial response and the time taken to assemble all the resources necessary to safely manage an emergency incident. The following information provides an assessment of these two measures of emergency response performance and an overview of the importance of a prompt intervention time and an analysis of the response performance.

### 4.3.1 Intervention Time

Total intervention time is the elapsed time between the incident occurring and the time incident management begins. The discovery of the incident and initiation of the emergency response system is typically activated by calling 911.

After the 911 call is made, the emergency response system is engaged to manage the incident and minimize its impact. The system is composed of an emergency dispatching centre and the first responding agency. The main purpose of the emergency response system is to respond to and manage emergency incidents as quickly and safely as possible. As a result, the time taken to obtain relevant caller and incident information (alarm handling time), notify first responders and have them prepare to respond (assembly time), and drive to the scene of the incident (travel time) are all critical elements of an effective response. These elements are the focus of this section and are key indicators of total response time performance.

Incident management time is variable and depends on the type of incident and the resources required to safely manage it. Fire department resource availability is determined by the concentration (how many and what types of resources there are in one station) and distribution (where are those resources located relative to the incident) of fire department equipment and firefighters. Resource requirements are based on community risks. An adequately resourced response system should provide an Effective Response Force (ERF) to safely manage commonly known risks as effectively and efficiently as possible.

Figure 5 provides an overview of the incident intervention timeline. The definitions and descriptions of the actions taken in each time segment are provided below.

*Figure 5: Response Time Continuum*

| **Notification** | **Intervention Time** | | | | |
|---|---|---|---|---|---|
| Incident Discovery and 911 Call | Alarm Answering | Alarm Processing | Assembly / Chute Time | Travel Time | Set-up |
| Time unknown (Time varies with every incident) | 15 seconds | 64 Seconds | 80 Seconds Fire<br>60 seconds medical | 240 Seconds | May vary by event |
| *Time indirectly manageable* | *Time directly manageable* | | | | |
| ← ***Time Values*** → | | | | | |

**Discovery:** Time between the start of the emergency incident and when a person or an engineered system has detected the incident.

**Emergency 911 Call:** Time taken to dial 911 and notify the 911 call centre for the need for emergency services.

**Alarm Handling:** Begins when the 911 call is answered and ends with the notification of firefighters. It includes the time taken to answer the 911 call and transfer it to the appropriate dispatcher (NFPA reference: alarm answering), and for the dispatcher to get the necessary information and notify the fire department (NFPA reference: alarm processing).

**Assembly Time (Chute Time):** Begins when dispatch notifies the firefighters until the response vehicle leaves the station for response. Time is required for firefighters to dress in proper PPE and safely leave the station.

**Travel Time:** Begins when an apparatus leaves the station or otherwise begins the response to the scene of the emergency and ends at the time when the assigned vehicle arrives on scene. This time segment is a function of distance, and the speed travelled.

**Total Response Time:** Begins when the 911 call is answered and ends when the first apparatus, capable of commencing the incident management.

**Resource Deployment Time:** Time it takes (on-site) to evaluate the necessary actions, position the required resources, and commence the intervention. In the case of a fire, completing size-up, assigning the necessary tasks, and deploying resources results in unnecessary delays on scene. A well-trained crew can minimize these delays while providing a safe, successful response.

## 4.4 Emergency Response Performance Analysis

The following section provides a detailed analysis of each time segment affecting response time within the municipal boundaries of the City of Port Alberni. Response time performance will be assessed against NFPA standards with the information available. The Building Code 10-minute response initial response for structure fires will also be assessed.

E-Comms is the Public Safety Answering Point (PSAP) and forwarded to Fire Dispatch provided by the North Island 911 Centre (NI911) in Campbell River, British Columbia. The response information was reviewed from reports provided by North Island 911 and Port Alberni records management system. It appeared through the review that the Port Alberni RMS report was more accurate and detailed to provide a more accurate picture of response performance. It is noted that the Port Alberni RMS is only available with incidents from January 1, 2020, to December 31, 2023, providing a four-year analysis. The incident timestamps included:

- Incidents begin time
- Station or firefighter dispatch notification
- Apparatus responding
- Apparatus arrived
- Returned to station

Historically, fire departments typically reported their average performance. Average performance can be misleading as it is only achieved approximately half of the time but is influenced by outliers, particularly in small datasets. Contemporary fire and emergency services typically use the 90th percentile performance times to provide a more precise representation of response reliability. This information can be used for several purposes including, but not limited to:

- Monitoring response efficiency and effectiveness
- Reporting response performance to community and elected officials
- Evaluating the effectiveness and compliance with national and provincial codes
- Evaluating the effectiveness and compliance with council policies and local bylaws
- Identifying possible improvement strategies
- Developing or modifying service level standards
- Planning for future resource needs (operational and capital)

### 4.4.1 Alarm Handling Performance

Alarm handling time is typically the cumulative time taken for alarm answering and alarm processing in the dispatching process. The initial time stamp available for identifying the alarm answering time in the PSAP was not available. Therefore, only alarm processing was analyzed. Alarm processing time begins at the point of time the alarm is answered, and call evaluation begins and ends when the fire department is dispatched.

NFPA 1710 states that alarm answering shall be completed within 15 seconds and alarm processing within 64 seconds, both 90% of the time for the highest priority events where significant property loss or imminent threat to life exists. Alarm handling performance is somewhat manageable by implementing best practice processes, supporting technologies and continuous improvement programs. This benchmark should be monitored with the aim of ensuring alarm handling is as efficient as possible to achieve optimal total response time performance. However, non-emergency requests for service, identifying rural addressing and remote locations, callers requiring language translation, TTY, or Text-To-911 services may delay the interrogation time required to gather the appropriate information for first responders. NFPA allows for additional time and sets a 90 second target for these situations. No data was available to identify these scenarios as part of the analysis.

Given that alarm answering data was unavailable, the following analysis focuses on alarm processing data to assess the performance from incident creation to the dispatch of the first fire resources. Table 23 provides an assessment of the 90th percentile times for different incident categories.

*Table 23: 90th Percentile Alarm Processing Performance by Incident Type by Year (in secs) (2021-2023)*

| Incident Type | 2021 | 2022 | 2023 | 3-year |
|---|---|---|---|---|
| Rescue | 133 | 151 | 107 | **121** |
| Motor Vehicle Collision | 62 | 66 | 63 | **63** |
| Miscellaneous | | 37 | 9 | **34** |
| Medical | 49 | 49 | 46 | **48** |
| Hazmat | 80 | 55 | 72 | **78** |
| Fire | 81 | 72 | 95 | **83** |
| Dangerous Conditions | 71 | 104 | 65 | **96** |
| Alarms | 57 | 56 | 71 | **60** |
| Total-All Incidents | **57** | **54** | **56** | **56** |
| NFPA 64 sec Compliance-all calls | **92%** | **94%** | **93%** | **93%** |
| NFPA 64 sec Compliance – Excluding medical | **88%** | **86%** | **85%** | **87%** |

The following key observations regarding alarm processing time were noted:

- Overall 90th Percentile Alarm Processing Time is well within the NFPA standard of 64 seconds.
- Overall, for all calls, the 64 second target for alarm processing was met 93% of the time. With medical excluded, the alarm processing time is 87% over the 3-year period.
- Rescue incident processing is the highest (121 seconds) over the 3-year period.
- Compliance with the 64 second NFPA standard is best in the medical incident category, mainly due to the automation of CAD-to-CAD connection with BC Ambulance.

### 4.4.2 Assembly Time Performance

Assembly time is measured from the point of fire department notification until the first responding fire/rescue apparatus has responded. For career staff, assembly time is typically much shorter as it is limited to moving toward the fire engine, putting on their bunker gear and getting into the vehicle.

Assembly time performance should be monitored and reported to firefighting crews regularly. NFPA 1710 identifies a 90th percentile chute time standard of 80 seconds for career firefighters which can be difficult to achieve. Attention to station design, activities within a station and firefighter awareness can all help to improve the performance and optimize response performance.

Table 24, Assembly Performance by Incident Type identifies 90th percentile assembly times for incident types. This analysis is for the first unit enroute to the incident only.

*Table 24: Assembly Performance by Incident Type (in secs) **

| Incident Type | 2021 | 2022 | 2023 | 3-year | 1710 80 sec compliance |
|---|---|---|---|---|---|
| Rescue | 214 | 181 | 130 | **188** | 50% |
| Motor Vehicle Collision | 172 | 167 | 150 | **166** | 29% |
| Miscellaneous | | 146 | 37 | **139** | 67% |
| Medical | 135 | 130 | 115 | **125** | 50%* |
| Hazmat | 160 | 142 | 115 | **138** | 60% |
| Fire | 160 | 158 | 152 | **154** | 36% |
| Dangerous Conditions | 173 | 148 | 123 | **152** | 46% |
| Alarms | 153 | 148 | 142 | **145** | 37% |
| All Incident Types | 149 | 141 | 123 | 135 | 47% |

** Medical Assembly time target is 60 seconds*

The following key observations regarding assembly times were noted:

- Assembly times are 135 seconds (2 minutes, 15 seconds) and only meet the NFPA standard of 80 seconds 47% of the time
- Medical incidents are more than double the NFPA standard of 60 seconds, currently at 125 seconds and is achieved only 50% of the time. It is noted that during the 2020-2022 years, COVID-19 protocols required crews to suit up in PPE prior to responding and addresses the increased times identified

## Observation #17

Assembly times represent the largest impact to overall response times in the City of Port Alberni. The assembly time for all incidents is 135 seconds (2 minutes, 15 seconds) which is 55 seconds above the industry standard (80 seconds). Medical responses represent the largest percentage (73%) of incidents and the assembly time is 125 seconds (2 minutes, 5 seconds) which is 65 seconds higher than the industry standard of 60 seconds. It is noted that during Covid-19 period assembly time was lengthened due to the requirements of donning extra PPE. However, in 2023 the time was 115 seconds (1 minute, 55 seconds), still 55 seconds higher than the industry standard.

***Recommendation #17: Investigate opportunities to improve assembly time for fire-related incidents and report assembly time performance.***

***Suggested completion:*** *1-24 months*

***Cost:*** *Neutral*

***Resource:*** *PAFD Staff time*

***Rationale:*** *Assembly time plays a vital role in the overall total response time. The PAFD is currently above the industry standards. Through improving the assembly times, firefighters can arrive on scene faster to mitigate the incident. Improvements can include station layout, policies and guideline revisions, regular performance monitoring and reporting, and a change in responder behaviour. All should be explored to determine the best solution(s).*

### 4.4.3 Travel Time Performance

Travel time is measured from the point of a fire/rescue apparatus leaving the fire station to the arriving at the incident address/location. Travel time is a function of incident distance from the fire station and the speed travelled to the incident. It can be managed to a certain point in larger municipalities with multiple demand zones and stations. These larger departments can distribute fire resources in the most optimal response locations in the demand zones. This is difficult in smaller municipalities with a single station.

Travel time should be monitored over time to assess whether additional resources are required in different locations to maintain desired service levels. NFPA 1710 identifies a first arriving travel time performance goal of 240 seconds, 90% of the time for career fire stations. This standard is most frequently applied to urban and suburban developments. In low density urban and suburban developments that are primarily large lot single residential properties, this travel time performance can be a challenge to achieve. In order to conduct travel time analysis, travel time was collected for the first arriving unit that was not a command vehicle and compared across incidents.

*Table 25: 90th Percentile Travel Performance by Station (in secs)*

| Incident Type | 2021 | 2022 | 2023 | 3-Years |
|---|---|---|---|---|
| Rescue | 513 | 397 | 570 | **528** |
| Motor Vehicle Collision | 633 | 584 | 721 | **669** |
| Miscellaneous | | 244 | 0 | **229** |
| Medical | 335 | 328 | 327 | **331** |
| Hazmat | 322 | 501 | 286 | **358** |
| Fire | 423 | 473 | 297 | **408** |
| Dangerous Conditions | 533 | 459 | 367 | **471** |
| Alarms | 381 | 378 | 355 | **371** |
| All Incident Types | 382 | 364 | 342 | 362 |

The following key observations regarding travel time were noted:

- The total incident travel time is 362seconds at the 90$^{th}$ percentile, which is 122 seconds higher than the NFPA standard of 240 seconds at the 90$^{th}$ percentile
- MVI incidents has the longest travel times which is likely reflective of incidents occurring on further out highways and major arterial roadways that take longer to respond to from the single station location.
- Medical incidents had the shortest travel time at 331 seconds (6 mins and 33seconds)

### 4.4.4 Response Time Performance

Total response time would typically be measured from the point at which the emergency call is answered in the 911-dispatching centre to the time the first fire or rescue apparatus arrives at the incident. This time best reflects the emergency systems' overall response performance and the experience of the person requesting the service. The NFPA 1710 standard implies a response time performance goal of 384 seconds (excluding alarm answering time) for the first arriving fire apparatus in urban areas

As the population, geographic footprint of developed areas and community risk increase, a fire department will experience an increase in concurrent requests for service, longer travel distances and a higher frequency of complex incidents. As a result, emergency response times may gradually increase as demand for service increases.

Table 26 identifies the total response time for the incident categories. Total response time includes alarm processing, assembly, and travel time segments. Additionally, compliance with the implied NFPA 1710 (384 sec) standard was measured.

*Table 26: Response Performance 2021-2023 (in secs)*

| Station | 2021 | 2022 | 2023 | 4 Year |
|---|---|---|---|---|
| Rescue | 763 | 597 | 698 | **722** |
| Motor Vehicle Collision | 822 | 768 | 852 | **836** |
| Miscellaneous | | 366 | 46 | **356** |
| Medical | 451 | 439 | 429 | **439** |
| Hazmat | 468 | 631 | 416 | **517** |
| Fire | 561 | 646 | 459 | **556** |
| Dangerous Conditions | 683 | 611 | 514 | **634** |
| Alarms | 542 | 510 | 495 | **517** |
| All Incidents (90$^{th}$ percentile) | 519 | 491 | 461 | 488 |
| NFPA 1710- 384 second compliance | 65% | 70% | 75% | 71% |
| BC Building Code 10-min Compliance | 94% | 95% | 97% | 96% |

The following key observations regarding response time were noted:

- PAFD is meeting the NFPA total response of 384 seconds 71% (488 seconds) of the time.
- PAFD is meeting the BC Building Code -10-minute total response time 96% of the time.
- Medical incidents have the best total response time of 439 seconds (7 minutes, 19 seconds) which is attributed to the faster call handling time. It is also note in the assembly time, that COVID-19 protocols required crews to don PPE prior to responding adding to assembly time performance.
- Motor Vehicle incidents have the highest total response time at 836 seconds (13 minutes , 56 seconds)

## 4.5 Response Time Mapping Analysis

To estimate a 10-minute fire department response coverage area in alignment with the BC Building Code, fire departments should calculate and map a theoretical travel time. The general methodology used to calculate the 90$^{th}$ percentile theoretical travel time is based on the following formula:

*10 min (600 sec) – (90$^{th}$ percentile Assembly Time (in sec)) = Theoretical Travel Time (in seconds)*

Theoretical 10-minute response coverage maps illustrate the theoretical response area from current fire stations. As discussed in Section 4.1.2, the National Building Code of Canada – 2024 BC Edition (BCBC 2024) identifies specific construction/development requirements for properties outside of a 10-minute fire department response. For new construction outside a 10-minute fire department response, the BCBC 2024 identifies a requirement to increase limiting distance or sprinkler all floors of the property. The 10-minute fire department response is measured from the point the fire department receives notification of a fire to the arrival of the first apparatus capable of initiating fire suppression.

Using NFPA 1710 as a guide, theoretical maps can be constructed to show the areas currently within the 4-minute NFPA standard for urban travel time to fire incidents. NFPA uses a 90$^{th}$ percentile target for 15 firefighters to arrive on scene. Significant to these calculations is that NFPA uses the dispatch of fire apparatus as the start of the time interval and is calculated as follows:

*Response Time Goal (6 minutes, 24 seconds, or 384 seconds) – 90$^{th}$ percentile Assembly Time = Theoretical Travel Time*

Table 27 describes the 90$^{th}$ percentile assembly, and theoretical travel times for NFPA 1710 response standard as well as the BCBC 2024 10-minute response target.

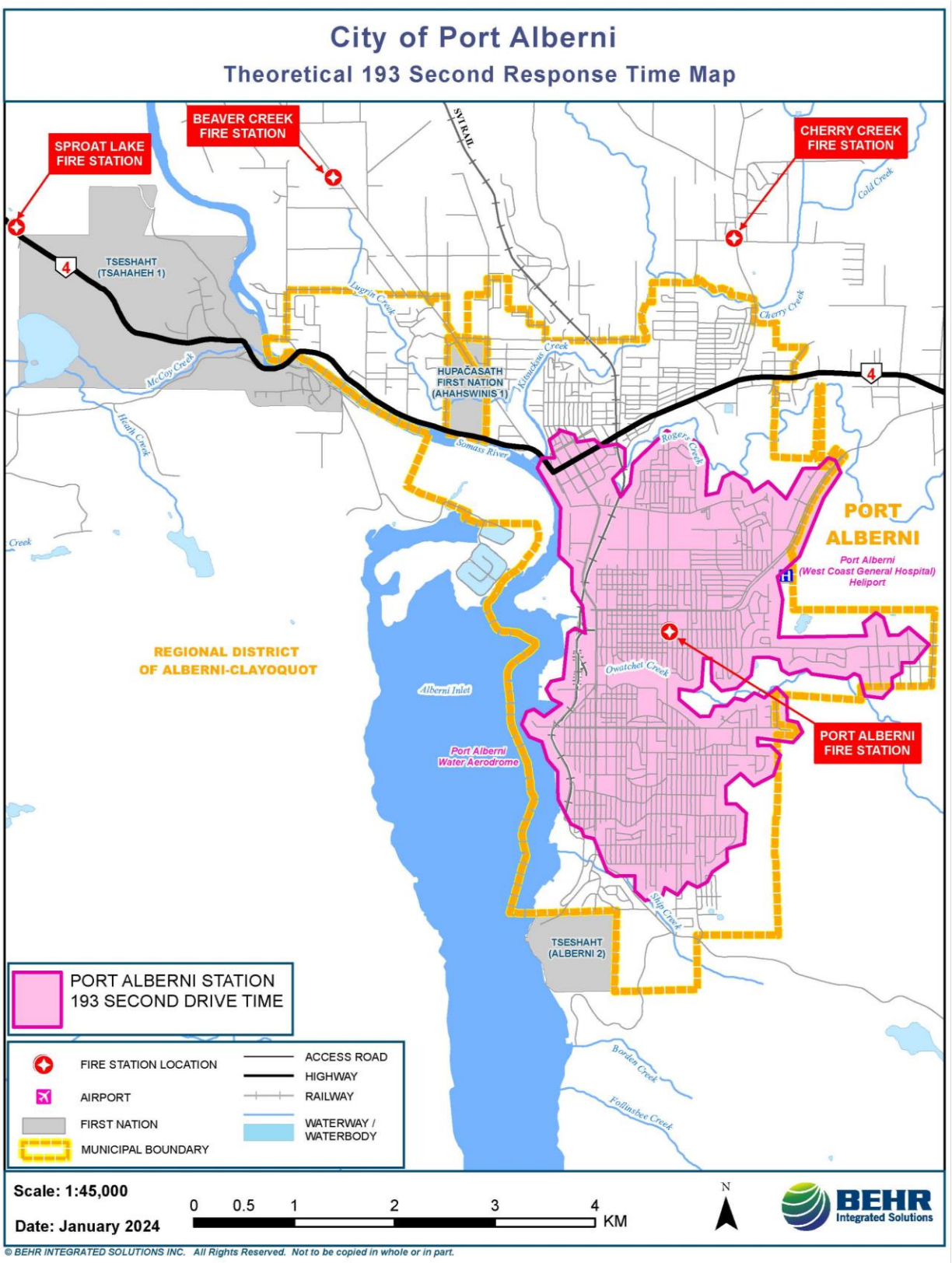
*Table 27: 90th Percentile Theoretical Travel Time (2020-2023)*

| 90th Alarm Handling Time (seconds) | 90th Assembly Time* (seconds) | NFPA 1710 240-sec. Theoretical Travel Time | BCBC 2024 600-sec. Theoretical Travel Time | BCBC 2024 600-sec. Travel Time (using improved 80-sec. assembly) |
|---|---|---|---|---|
| 56 | 135 | 193 | 465 | 520 |

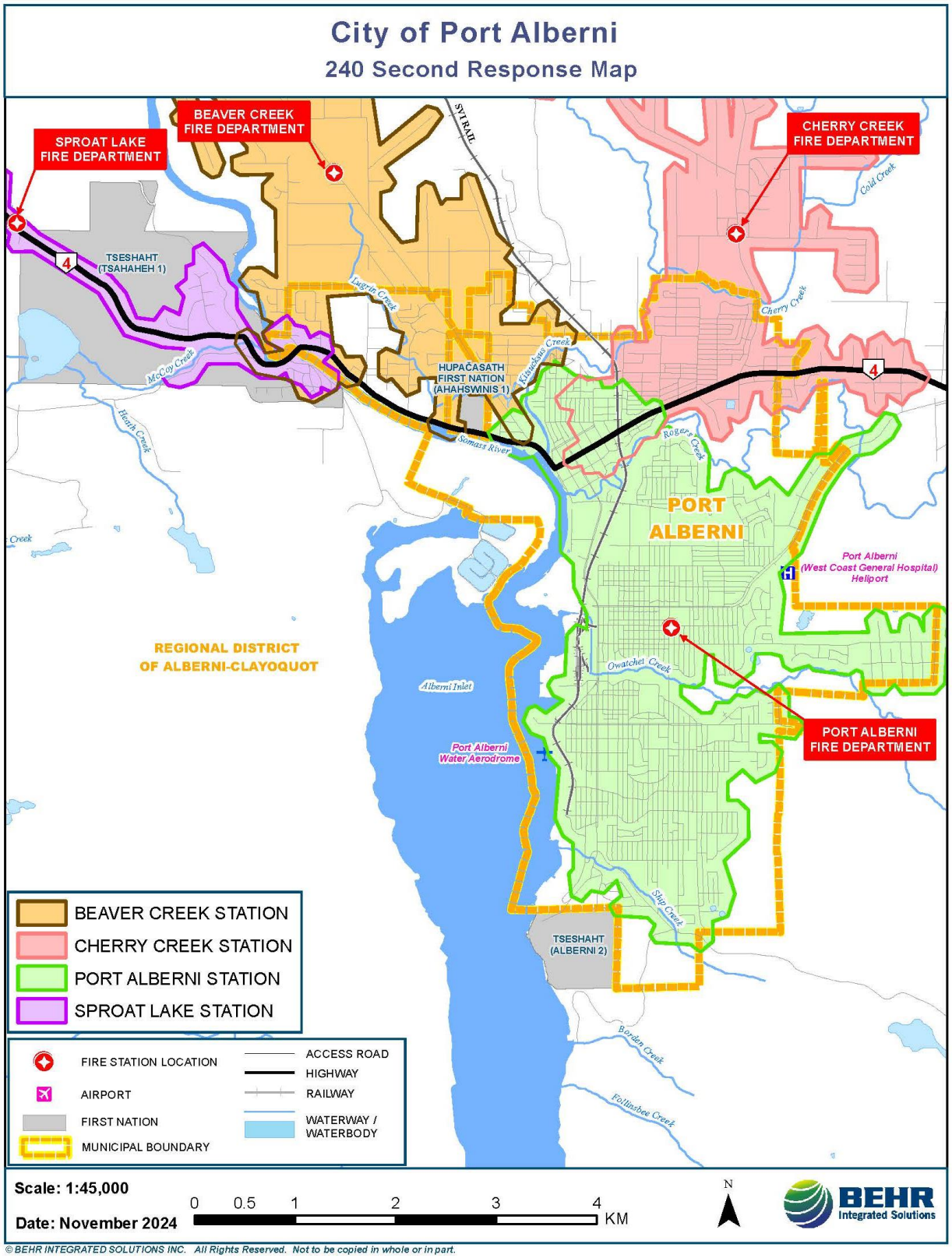
**Assembly time includes fire-related incidents only.*

- Map 3: Theoretical 6 minute, 24 second (193 second travel time) NFPA Total Response Coverage describes the current area meeting a 384 second response area.
- Map 4: NFPA 6 minute, 24 seconds (240 second travel time) NFPA Total Response Coverage with an improved 80 second assembly time describes the current area meeting a 384 second response area.
- Map 5:Theoretical 10-Minute NFPA Fire Response Coverage (Current vs. Future assembly time) describes the current area meeting the BCBC 2024 10-minute response objective as well as potential coverage if assembly time were able to be reduced to 80 seconds.

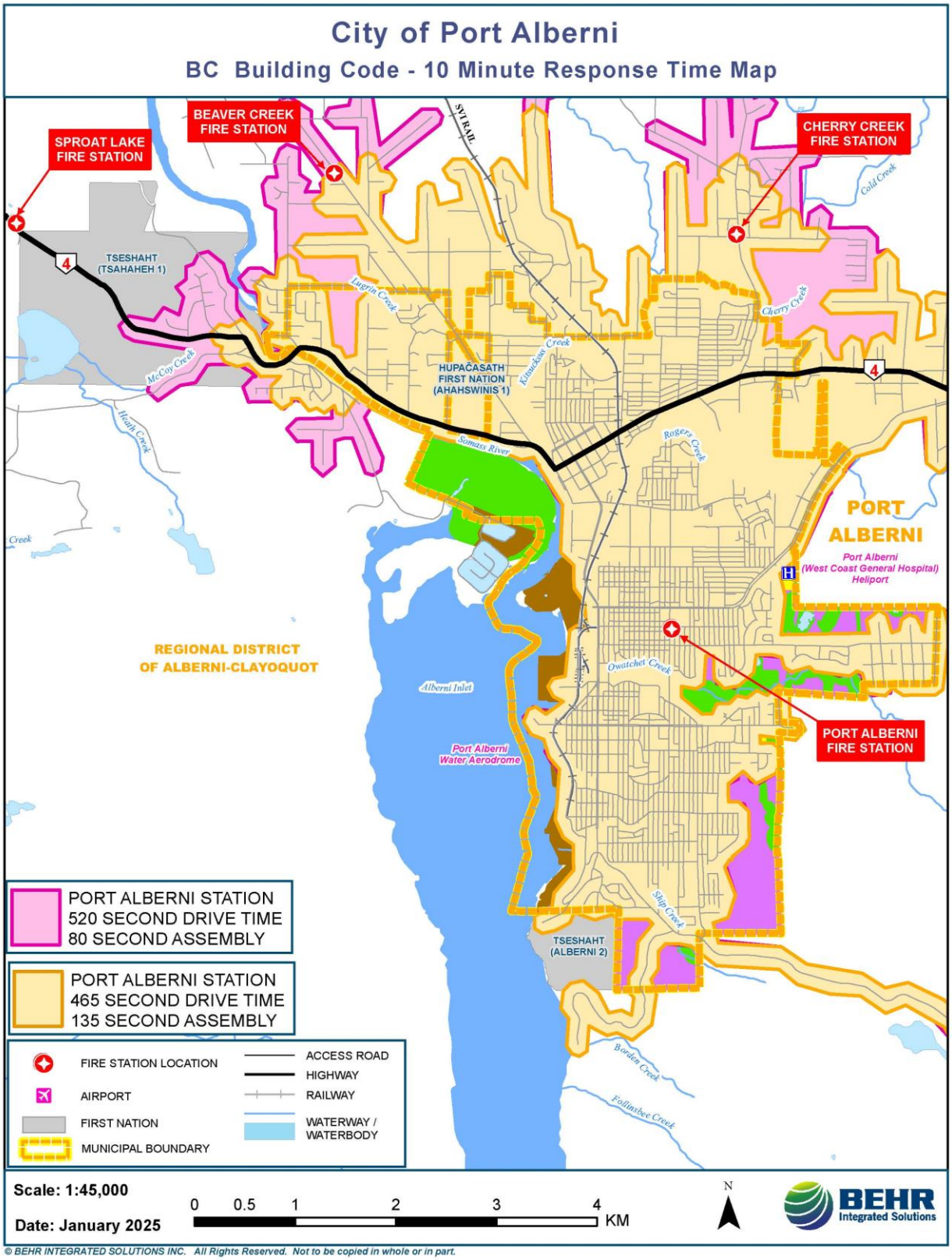
*Map 3: Theoretical 6 minute, 24 second (193 second travel time) NFPA Total Response Coverage*



*Map 4: NFPA 6 minute, 24 seconds (240 second travel time) NFPA Total Response Coverage*



*Map 5:Theoretical 10-Minute NFPA Fire Response Coverage (Current vs. Future assembly time)*



## 4.6 Effective Response Force

This section provides further explanation on the importance of assembling an effective response force (ERF) comprising adequate firefighters and equipment to manage emergency incidents safely and effectively.

ERF standards are based on fire response research completed by organizations such as NFPA and the National Institute of Standards and Technology (NIST). These standards are established to ensure adequate resources are available to complete critical tasks in a safe and timely manner. NIST research identified over 22 essential fire ground tasks at a typical single-family house fire. Ideally, NFPA 1710 suggests a minimum of 16 firefighters, or four companies of four firefighters, are required for a full alarm assignment (17 if an aerial device is used) for a standard residential house fire. These incidents represent the higher probability of all structure fires in the city.

The response time goal is to have an effective response force assembled on-scene within 624 seconds (10 minutes, 24 seconds – total response time). This represents a 480-second (8-minute) travel time. Map 6: 480 Second Response Time demonstrates the response coverage for each station including the automatic aid stations with neighbouring municipalities within a 480-second travel time.

The PAFD utilizes automatic and mutual aid agreements with neighbouring volunteer fire departments to assist with staffing during larger, more complexed incidents, including structure fires. Table 28 indicates the number of structure fire incidents each of the automatic aid partners responded to and indicates the mobilization time of each.

*Table 28: Automatic Aid partners mobilization time for fire incidents*

| Department | # of fire incidents | Turnout Time | Travel Time | Total response time |
|---|---|---|---|---|
| Beaver Creek | 19 | 806 | 588 | 1279 |
| Cherry Creek | 27 | 609 | 592 | 1413 |
| Sproat Lake | 36 | 795 | 704 | 1431 |

The observations of the mobilization time for the automatic aid partners are:

- Automatic aid partners are arriving on scene approximately 21 minutes to 24 minutes at the 90$^{th}$ percentile from the time they are paged out.
- Sproat Lake responded to the most fire incidents and has the longest total response time of 1431 seconds or 23 minutes, 33 seconds

Of the 86 structure fire incidents reported in the 4-year timeframe, 29 did not achieve 10 or more firefighters. This could be that the fire was contained by initial crews and did not require additional units or that 10 firefighters was unachievable. Of the remaining 57 incidents a minimum of 10 firefighters on scene for all structure fires (including response from automatic aid partners) was 1,059 seconds or 17 minutes, 39 seconds at the 90th percentile.

At the 10-minute mark at the 90th percentile, of an incident, 7 firefighters were able to assemble on scene.

Automatic Aid agreements identify that a minimum crew of 4 is required on each engine to any incident reported as a “Working Structural Fire”, however there is a standing practice to have the first unit respond with 2 in order to have rapid intervention teams set up quicker.

*Map 6: 480 Second Response Time*

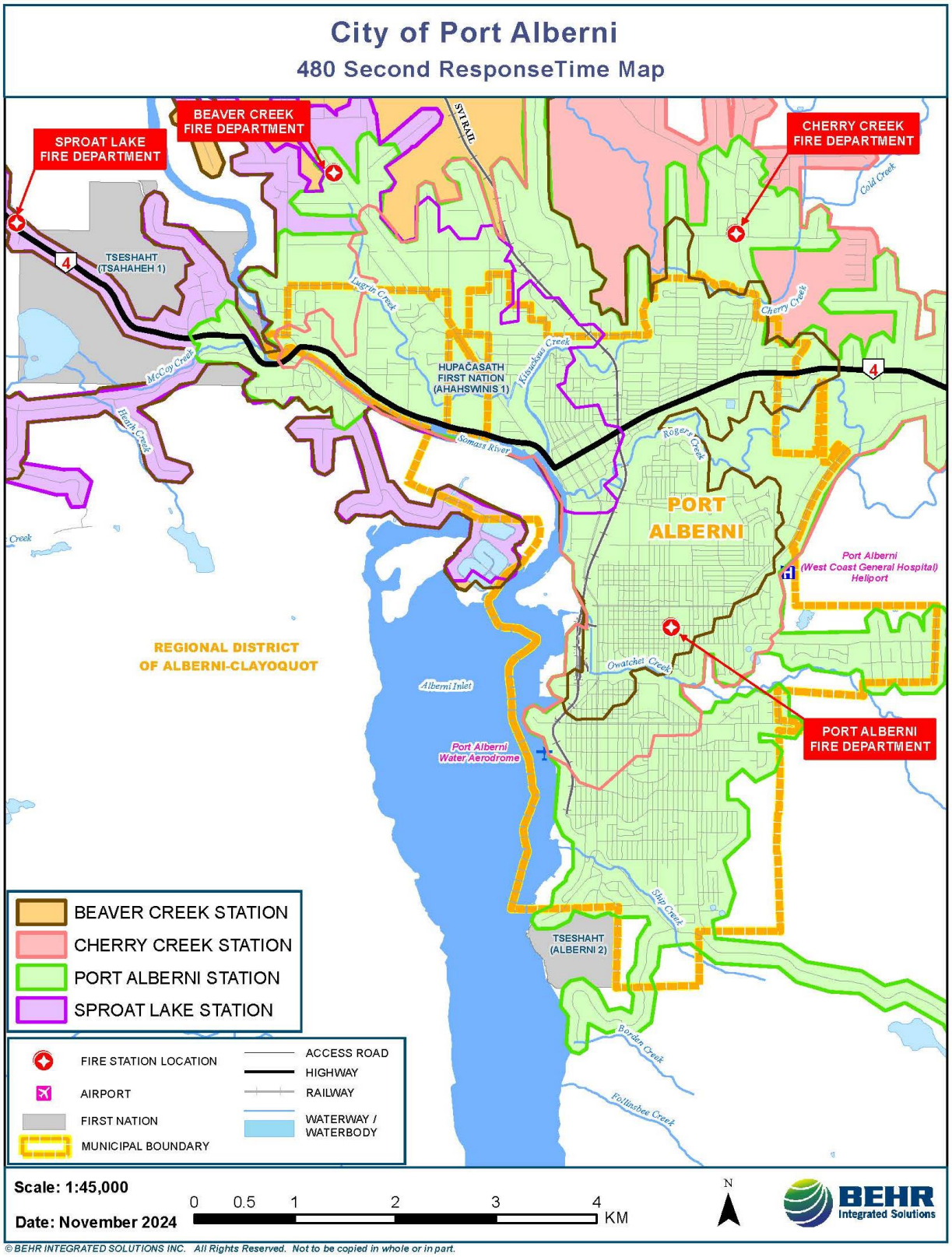


*Table 29* summarizes the median number of firefighters that responded to different incident types.

*Table 29: Median Number of Personnel on Scene by Incident Type*

| Incident Type | 2021 | 2022 | 2023 | 4-Year |
|---|---|---|---|---|
| Alarms | 4 | 4 | 4 | 4 |
| Chimney Fire | 4.5 | 4 | 4 | 4 |
| CO Incident | 4 | 4 | 4 | 4 |
| Fire | 3 | 5 | 4 | 4 |
| Gas Spill | 2.5 | 4 | 4 | 4 |
| Hydro | 4 | 4 | 4 | 4 |
| Marine | | 8 | 5 | 6.5 |
| Medical | 2 | 2 | 4 | 4 |
| MVI | 4 | 4 | 4 | 4 |
| Natural Gas | 4.5 | 4 | 4 | 4 |
| Smoke/ Odor/ Elec | 4 | 6 | 5 | 5 |
| Structure Fire* | 13 | 17.5 | 13.5 | 15 |
| Unclassified | 4 | 4 | 4 | 4 |
| Unclassified Fire | 4 | 4 | 4 | 4 |
| Vehicle Fire | 4.5 | 4.5 | 4 | 4 |

**Includes automatic aid agreement fire departments*

*The following key observations regarding median number of personnel on scene were noted:*

- *Structure fires had a median number of 15 firefighters on scene throughout the three years, however examining the number of firefighters on scene in 624 seconds (10 minutes, 24 seconds) identifies 11 firefighters.*
- *The majority of incidents had a median number of 4 PAFD firefighters, to which these incidents would typically require only 4 firefighters on scene.*
- *Medical response has increase from 2 -4 firefighters in the past two-years*

## 4.7 Critical Task Analysis

A critical task analysis for common incident types illustrates the resources required to achieve tactical objectives based on resource availability. The rationale for completing a critical task analysis is to identify whether response policies and guidelines align with available resources. In other words, are enough firefighters typically responding to complete the critical tasks on emergency scenes in a safe and timely manner.

However, the optimal number of firefighters is not always available. Response policies and guidelines should identify critical task assignments and tactical objectives based on available resources. The optimal numbers of firefighters to manage larger and more complex incidents may not be dispatched initially due to the availability of firefighters. As a result, tactical objectives should be scaled to reflect these limitations. For example, an interior fire attack or rescue may not be possible with a single engine company and a limited water supply. Response policies or guidelines should also identify a contingency plan to call in off-duty firefighters or initiate mutual aid/automatic aid for larger or more complex incidents.

The following tables provide examples of critical task analyses that should be embedded in fire department standard operating guidelines or policies. The purpose of completing a critical task analysis is to establish the ERF response requirements and embed task assignments in standard operating guidelines. The examples provided are intended to illustrate leading practices with respect to the ERF required to safely manage commonly occurring emergency incidents. They are provided as a guide and are not intended to specifically represent PAFD response capacity or apparatus.

*Table 30: Low Risk: Small Fire (No Exposures): Garbage, Vehicle – Private, Grass, Investigate (External), Monitoring Alarm (W/O Confirmation), Medical.*

| Low Risk Incident | |
|---|---|
| Command and Safety | 1 |
| Driver/ Pump Operator | 1 |
| Incident responders | 2 |
| Total Personnel | 4 |

*Table 31: Moderate Risk: Attached Garage, Single Family Residential (Detached/Duplex)*

| Moderate Risk Incident | |
|---|---|
| Command | 1 |
| Safety | 1 |
| Pump Operator | 1 |
| attack line/ search and rescue | 6 |
| Water supply | 1 |
| Rapid Intervention Crew | 3 |
| Ventilation/ Utilities | 2 |
| EMS | 2 |
| Total Personnel | 17 |

*Table 32: Moderate Risk: Motor Vehicle Crash (1-3 Private Vehicles)*

| MVC | |
|---|---|
| Command and Safety | 1 |
| Driver/ Pump Operator | 1 |
| Incident responders | 5 |
| Blocker vehicle driver | 1 |
| Total Personnel | 8 |

*Table 33: Moderate Risk: Technical Rescue*

| Technical Rescue | |
|---|---|
| Command | 1 |
| Safety | 1 |
| Rescue Sector Officer | 1 |
| Rescue specialists | 7 |
| support | 3 |
| EMS | 2 |
| Total Personnel | 15 |

*Table 34: High Risk: Commercial, Seniors' Home, Industrial, Strip Mall, Mid-Rise Residential*

| High Risk Incident | |
|---|---|
| Command | 1 |
| Safety | 1 |
| Pump Operator | 1 |
| Initial Attack Line | 2 |
| Back up line | 2 |
| Search and rescue | 4 |
| Water supply | 1 |
| Rapid Intervention Crew | 4 |
| Suppression Support | 6 |
| EMS | 2 |
| Ventilation/ Utilities | 4 |
| Total Personnel | 28 |

*: High Rise Residential Greater Than 23m*

| High Rise Risk | |
|---|---|
| Command | 1 |
| Safety | 1 |
| Sector Officers | 2 |
| Driver/Pump Operator | 1 |
| Initial Attack Line | 3 |
| Back up line | 3 |
| Search and rescue | 4 |
| Lobby Control | 1 |
| Floor Control | 1 |
| Elevator Control | 1 |
| Staging Officer | 1 |
| Water supply | 2 |
| Secondary water supply | 2 |
| Evacuation | 4 |
| Logistics | 1 |
| Rapid Intervention Crew | 4 |
| Suppression Support | 5 |
| Ventilation/ Utilities | 4 |
| EMS | 2 |
| Total Personnel | 43 |

## Observation #18

SOGs could be enhanced by identifying the number of firefighters and resources required to complete critical tasks. A critical task analyses embedded in response policies or guidelines will clarify incident resource requirements and the tactical priorities based on resource availability.

***Recommendation #18: Complete a critical task analysis for common emergency incident types and link performance standards to the response.***

***Suggested completion:*** *6-18 months*

***Cost:*** *Neutral*

***Resource:*** *PAFD Staff time*

***Rationale:*** *WorkSafe BC has established a number of general Occupational Health and Safety (OHS) regulations that apply to the fire service. Some of these regulations have a direct impact on service levels. This includes critical tasks such as scene accountability, traffic control, rehabilitation, firefighter direction and instruction in the safe performance of their duties and interior firefighting operations.*

*In addition, OHS regulation Part 31: Firefighting establishes regulatory requirements specifically for the fire service. Also, the British Columbia Structure Firefighter Minimum Training Standards identifies response policies should include a critical task analysis. It states that "guidelines and policies developed should include, as per National Fire Protection Agency (NFPA) standards: a. identification of the standard firefighting functions based on the emergency services to be offered, including functions that must be performed simultaneously; b. the minimum number of firefighters required to safely perform each identified firefighting function or evolution".*

*If there is a lack of interior qualified firefighters on scene then all operations must be conducted from the exterior of the building until the fire is extinguished. This is commonly referred to in the fire service as the '2-in-2 out' WorkSafeBC regulation.*

## 4.8 Concurrent Call Load/Call Volume Impacts

Managing multiple emergency calls at the same time is referred to as concurrent call load or simultaneous call load. Managing concurrent call loads is a significant challenge for fire departments, as they need to ensure that they have enough resources and personnel available to respond to multiple emergencies effectively. This can involve strategic planning, resource allocation, and sometimes even mutual or automatic aid agreements with neighboring departments.

PAFD is experiencing approximately a 15% concurrent call-load, indicating that 15% of all incidents are occurring at the same time and require resources to be divided to address each incident. Of these concurrent calls, 10% are medical responses, 1.6% MVC's and fires are only 0.5%. Dividing resources lowers the fire services' ability to manage the critical tasks required at each incident. Fire service should develop policies to guide staff on how to manage concurrent calls ensuring that incident types, mitigation capabilities and firefighter safety are addressed.

### Observation #19

Concurrent call loads with limited resources of 4 firefighters have required PAFD to split crews to deal with multiple calls. This can create concerns on how to divide the crews, when to divide and can create concerns to firefighter and public safety.

***Recommendation #19: PAFD to develop policies to address the response to concurrent calls.***

***Suggested completion:*** 6-18 months

***Cost:*** Neutral

***Resource*:** PAFD staff time

***Rationale:*** *The development of appropriate policies will allow for proactive planning for crews to address concurrent calls. Splitting crews provide for a number of concerns including firefighter and public safety.*

*The majority of concurrent calls are medical incidents and not the primary responsibility for the PAFD. Within these policies, PAFD could consider not responding to medical calls when they are already on another call, the call in of mutual-aid or automatic aid, and as the department grows opportunity to respond with 2-crews.*

The overuse of mutual or automatic aid agreements puts additional pressures on the neighbouring volunteer departments and has the potential to see those departments withdrawing services or pushing back on the volume of callouts.

## 4.9 Measuring, Managing and Reporting Performance

### 4.9.1 Performance Management

Performance measurement is at the core of moving toward a data-based culture and away from opinion-based decision making. Performance measurement allows fire services to:

- Determine baseline performance level according to the indicators
- Establish goals based on current performance
- Determine the gap between desired goals and current performance levels
- Track progress toward achieving goals
- Benchmark and compare performance between departments
- Identify problems and causes
- Plan for the future

Performance data must be relevant, timely and useful to drive performance improvement through performance management. Performance management refers to the process of monitoring and identifying service excellence and service gaps. In this context, it is not intended as an individual performance review.

Measurable service levels and objectives, as well as processes to access timely data must be in place to support performance measurement, management, and reporting. Council is the authority having jurisdiction over establishing service levels. Senior administration and the PAFD Fire Chief should provide relevant performance reports reflecting the fire service performance information to support this process. However, several factors beyond performance information contribute to how appropriate service levels are established including assessment of local risks, cost, and general economic conditions.

Operational performance data and service level expectations should be regularly reported to staff. Timely performance reporting reflecting operational performance metrics and service levels is key to implementing performance management and system improvements. One approach to providing timely information to fire staff is to develop a performance dashboard. Computer-aided dispatch (CAD) and record management system (RMS) technologies must be integrated to support this tool.

Assembly time, staff attendance to calls, and overall response performance should be monitored and discussed. This is considered the best practice. Figure 6 describes a performance dashboard which provides an example of the performance metrics that could be routinely reported. Performance reporting needs to be timely and relevant to promote process improvement strategies. This type of reporting may be useful in supporting PAFD's efforts to improve assembly time.

*Figure 6: Performance Dashboard*

| | Sept | YTD | Property Value |
|---|---|---|---|
| Total Dollar Loss | $ 20,000 | $ 1,807,100 | $ 24,774,025 |
| Suspicious Fires | 5 | 66 | |

| | Sept Actual | Mthly Budget | Mth% | YTD Actual | YTD Budget | YTD% |
|---|---|---|---|---|---|---|
| Total | $ 1,462,500 | $ 835,283 | 175.1% | $ 13,129,246 | $ 10,026,860 | 130.9% |
| OT | $ 110,889 | $ 31,051 | 357.1% | $ 788,343 | $ 325,558 | 242.2% |

| | Sept | YTD | Targets |
|---|---|---|---|
| Training Hours | 990 | 8,709 | 8,175 |
| Avg Turnout Times - Fire Emergency | 00:01:55 | 00:01:53 | 00:01:20 |
| Avg Turnout Times - 1st Med Resp | 00:01:30 | 00:01:31 | 00:01:00 |
| Pre-plans entered | 15 | 15 | |

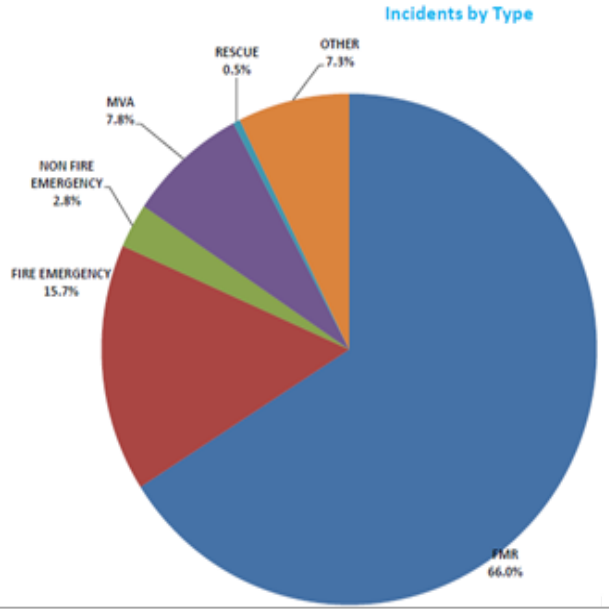
| OT By Cost Centre | 2014 | 2015 | Difference |
|---|---|---|---|
| Suppression | $ 437,326 | $ 732,551 | $ (295,224) |
| Dispatch | $ 48,118 | $ 35,210 | $ 12,909 |
| Prevention, Training & Admin | $ 33,065 | $ 20,582 | $ 12,483 |
| All Departments | $ 518,510 | $ 788,343 | $ (269,833) |

| Dispatch | Sept | YTD | Projected | YTD % |
|---|---|---|---|---|
| Dispatch Incidents | 2,631 | 23,256 | 32,234 | 72.1% |
| 911 Call Volume | 365 | 6,365 | | |
| | | | Targets | |
| % 911 Calls answered < 15 sec | 99% | 99% | 95% | |
| % 911 Calls answered < 40 sec | 100% | 100% | 99% | |

| Inspections | Current Mth Completions | Current Assigned Mth | YTD | YTD Targets |
|---|---|---|---|---|
| Total Inspected Properties | 378 | 334 | 3761 | 3007 |
| Fire Prevention Consults | 53 | | 450 | |
| A Shift | 38 | 40 | 314 | 317 |
| B Shift | 42 | 43 | 310 | 311 |
| C Shift | 34 | 35 | 317 | 320 |
| D Shift | 36 | 39 | 301 | 313 |
| Inspectors | 228 | 177 | 2519 | 1746 |

| Public Education | Events | Attendees |
|---|---|---|
| | 150 | 8,030 |

| Incidents by Type | Sept | YTD | Proposed | YTD % |
|---|---|---|---|---|
| 1ST RESP - MEDICAL ASSIST | 535 | 5220 | | |
| 1ST RESP - <<WAIT FOR POLICE> | 1 | 98 | | |
| 1ST RESP - CARDIAC | 7 | 84 | | |
| FMR | 543 | 5,402 | | |
| ALARM | 75 | 622 | | |
| BURNING COMPLAINT | 19 | 207 | | |
| SMOKE | 7 | 106 | | |
| STRUCTURE FIRE | 6 | 88 | 116 | 76% |
| MINOR FIRE | 8 | 80 | | |
| WILDFIRE/GRASS/BRUSH/OUTDOOR | 3 | 67 | | |
| CAR FIRE | 8 | 45 | 64 | 70% |
| RECHECK | 2 | 40 | | |
| CHIMNEY FIRE | 0 | 20 | | |
| OVEN/POT ON STOVE | 0 | 6 | | |
| EXPLOSION | 0 | 3 | | |
| FIRE EMERGENCY | 128 | 1,284 | | |
| CARBON MONOXIDE ALRM | 7 | 72 | | |
| GAS/OIL SMELL/SPILL | 8 | 54 | | |
| NATURAL GAS LEAK | 5 | 44 | | |
| POWER/TEL/CABLE LINE DOWN | 2 | 30 | | |
| AIRCRAFT STANDBY/INCIDENT | 0 | 15 | | |
| PROPANE LEAK / SMELL | 1 | 12 | | |
| HAZARDOUS MATERIAL | 1 | 4 | | |
| BOMB THREAT | - | - | | |
| NON FIRE EMERGENCY | 24 | 231 | | |
| MVA/EXTRICATION | 53 | 389 | | |
| MVA | 47 | 250 | | |



# SECTION 5
# CONCLUSION

This Fire Services Master Plan is intended to assist the City of Port Alberni and the Port Alberni Fire Department in evaluating the current service delivery model and develop a strategy to inform future investments in fire, rescue, and emergency services. The plan involved a comprehensive analysis of all key elements of service delivery. This analysis included a review of the operational and administrative aspects of the PAFD, community profile and risk review, comparative community analysis, staffing, core services and program delivery, training, recruitment and retention, facilities, and major equipment.

Further, PAFD response data was assessed with a focus on the current performance, capabilities, and alignment with both existing and projected risks and levels of demand. There are several observations and recommendations provided in this master plan to improve operational effectiveness and efficiencies. Key among the 19 observations and 21 recommendations is:

- Explore the development of a multi-user building and structure inventory system including risk and infrastructure information for all existing and new structures/facilities within the city, using a common GIS based environment.
- Develop a comprehensive wildfire defence plan in partnership with ACRD that identifies resource requirements, tactics, and strategies.
- Establish a 'Levels of Service' policy for emergency response that includes a validation of the various core services
- Conduct a comprehensive staffing assessment and determine the optimal staffing ratio
- Hire two additional fulltime firefighters to the full-time fire suppression staff and reassign the firefighter mechanic to a day shift position.
- Establish a .5FTE administrative assistant to support the Fire Department administrative functions
- Establish a dedicated training officer position and additional fire prevention officer that includes operational response duties.
- Undertake a feasibility study in partnership with ACRD to establish regional training centre to support the PAFD and Alberni Valley fire services
- Formalize the letter of agreement with NI911 and establish dispatch protocols and performance indicators.
- Integrate the mutual and automatic aid agreement into a single regional emergency response agreement

- Complete functional study of the building to address operational, growth, health and safety, gender requirements, and equipment requirements.

Although each recommendation has a corresponding timeframe, it is important to note that this FSMP needs to be revisited on a regular basis to confirm that the observations and recommendations remain relevant. The recommendations outlined in this FSMP will better position the PAFD to mitigate and manage community risks, monitor response capabilities and performance in order to maintain a safe community, excellent public relationships, and value for money.

Our interactions with the staff revealed a highly professional and dedicated organization that is committed to providing the best possible service to the citizens of Port Alberni.

# APPENDICES

# Appendix A: Glossary of Terms

| | |
|---|---|
| Apparatus | Any vehicle provided with machinery, devices, equipment, or materials of the Fire department for firefighting as well as equipment used to transport firefighters or supplies. |
| Assembly Time | From the time the notification sounds in the fire station until the first vehicle leaves the station. In a full-time department this is expected to be within 80 seconds but for volunteer departments the time to collect a response crew can vary widely depending on location and time of emergency as well as all the factors that impact travel time. |
| Chute Time | See Assembly Time |
| Dangerous Goods | This term is synonymous with the terms hazardous materials and restricted articles. The term is used internationally in the transportation industry and includes explosives, and any other article defined as a combustible liquid, corrosive material, infectious substances, flammable compressed gases, oxidizing materials, poisonous articles, radioactive materials, and other restrictive articles. |
| Discovery | This is the time between the start of the emergency and when someone or an engineered system has detected the incident. |
| Dispatch Time | This is the time required to extract the necessary information from the caller to allow the proper response to be initiated. The dispatcher identifies the correct fire location and initiates the dispatch by paging the appropriate fire station. |
| Emergency Call | This is the period between discovery and the actual notification of emergency services. |
| Emergency Coordination Centre (ECC) | A facility dedicated to service receives calls, processes them, and then dispatches emergency units to the correct location in the appropriate time period. |
| Emergency Operations Centre (EOC) | The protected sites from which civil officials coordinate, monitor, and direct emergency response activities during an emergency or disaster. |
| Emergency | Any occasion or instance that warrants action to save lives and to protect property, public health, and safety. The situation is larger in scope and more severe in terms of actual or potential effects. |
| Fire Suppression | The application of an extinguishing agent to a fire at a level such that an open flame is arrested; however, a deep-seated fire will require additional steps to assure total extinguishment. |

| | |
|---|---|
| Hazard Analysis | A document, which identifies the local hazards that have caused, or possess the potential to adversely affect public health and safety, public and private property, or the environment. |
| Impact | The effect that each hazard will have on people such as injury and loss, adverse effects on health, property, the environment, and the economy. |
| Incident | A situation that is limited in scope and potential effects. |
| Intervention Time | The time from fire reporting to the point where the first arriving pumper, or other apparatus providing comparable functions, arrives at the fire scene and directs an extinguishing agent on the fire. |
| Mutual Aid Agreement | An agreement between jurisdictions to assist each other during emergencies by responding with available manpower and apparatus. |
| National Fire Protection Association | The National Fire Protection Association is an internationally recognized trade association established in 1896 that creates and maintains standards and codes for usage and adoption by local governments to reduce the worldwide burden of fire and other hazards. This includes standards and guidelines which many fire departments utilize to carry out day-today operations. |
| Response | Those measures undertaken immediately after an emergency has occurred, primarily to save human life, treat the injured, and prevent further injury and losses. They include response plan activation, opening and staffing the EOC, mobilization of resources, issuance of warnings and direction, provision of aid, and may include the declaration of a State of Local Emergency. |
| Risk | The chance or likelihood of an occurrence based on the vulnerability and known circumstances of a community. |
| Setup Time | This is the time necessary on-site to evaluate the necessary actions, position the required resources and commence the intervention. In the case of a fire, completing size-up, assigning the necessary tasks, and deploying resources can provide delays on scene. A well-trained crew can minimize these delays while providing a safe, successful response. |
| Standard Operating Guidelines (SOG) | A written organizational directive that establishes or prescribes specific operational or administrative methods to be followed routinely, which can be varied due to operational need in the performance of designated operations or actions. |

| | |
|---|---|
| Standard Operating Procedures (SOP) | A written organizational directive that establishes or prescribes specific operational or administrative methods to be followed routinely for the performance of designated operations or actions. |
| Travel Time | Once a vehicle leaves the station, it must negotiate the best route between that point and the location of the emergency. Factors to consider for travel time are driver skill, weather, traffic, topography, road conditions and vehicle capabilities. |

# Appendix B: List of Figures, Charts, Maps, Images and Tables

## Figures



## Charts



## Maps



## Images

## Tables

# Appendix C: Response Mapping Methodology

Response travel times are directly influenced by station location and can be varied based upon a cost/risk analysis and the development of performance targets.

**Base Data Layers Requested**

- Hydrology
- Single Line Road/Transportation Network
- Railways
- Municipal Boundaries
- Parks
- Projection File
- Orthophoto (GeoTIFF, Mr.SID), if available
- Emergency Services Locations

**Data Formats**

- Preference of ESRI Shapefiles

**Purpose of Files**

A. Hydrology
   i. Identify needs for response to water locations (if dependent on a water response unit)
   ii. Can be identified and analyzed with the rail network to locate spill contaminations, as well as containment for overland flow & flooding to water spills
   iii. Locations of bridge crossings which can convert to varying incidents, such as MVC/MVA, spill contaminants, etc.
   iv. Assists in the definition of the map for locational awareness by others
   v. Completes the map

B. Single Line Road/Transportation Network
   i. Used to determine response times from emergency locations to determine a network based on road speeds
   ii. Roads are created into a network for response

C. Railways

i. Identified risk areas for impeding response time when crossing a roadway or proximity to municipal areas will also determine the response and apparatus used for a derailment response or other rail emergency or risks, such as chemical spill evacuations.

D. Municipal Boundaries

i. Identifies the limits to response for mutual aid and responsibilities when overlaps occur within a response area. Also identifies sub areas for specific mapping and identification of municipal and regional response zones. Provides information for gap analysis for future state locations or refinement of locations.

E. Parks

i. Identifies the potential risk areas due to accessibility issues for tracts of land, as well as constraints and opportunities for new locational analysis for or against new stations within a municipality. Ability to determine development of new locations due to proximity. Parks are identified as local, regional, provincial, and national.

F. Projection File

i. To ensure that we have the same data set up as being used by the Municipality or Client, measurements (both distance and time) and spatial location are correct when determining analysis.

G. Orthophoto (GeoTIFF, Mr.SID), if available

i. We typically do not use the ortho on the output maps, but the analysis sometimes needs clarification of what is on the ground, and we use it to quickly ground truth locations and information needed prior to asking clients for clarification, or to substantiate clarification of an area.

ii. Is a nice to have, yet hard to use, as it takes up a lot of memory/space and is difficult to ship/transfer.

H. Emergency Services Locations

i. Identify the actual location rather than a theoretical location based on an address match to ensure that the data location is as correct as possible, and no mis-locations are identified on the initial running of the theoretical response times.

ii. Locations may be moved from within a parcel to the front of the parcel whereby it touches the road network. Ensures the response from the station is captured. There are no corrections made to the movement of station on time, as it is typically within 50 metres.

**Theoretical Response Zone**

A. Assumptions

i. Weather is average – no storms, rain, snow etc.
ii. Roadway segments contain a node/junction at intersections
    - If not available, road network needs to be cleaned and fixed
iii. Roadways need to sometimes extend beyond some municipalities
iv. Emergency responders are trained in response vehicles
v. Response vehicles are in good condition
vi. Roads are dry and in good condition
vii. Left turns are not reduced by a time %
viii. Road speeds are provided by client, if not
    - Road class table used to populate speeds based on road classification
    - Road speeds are reduced from the posted sign, typically no more than 5%
ix. Traffic volume is average, there is no congestion or there is a free-flowing lane to be used
x. Rail crossings are free to cross and do not impede response
xi. Time of day is based on an average time from 9 am – 9 pm
xii. Opticoms (or similar product for traffic light manipulation) are present to allow for free moving response
xiii. Intersections of roads are not reduced (the roads are reduced from other project limits and averaged over time for generality of best fit)
xiv. School zones are not adjusted unless identified, then changes to road net are made

B. Response Time
i. Customized response based on Emergency Services Input
ii. Response time includes 80% of all calls for service
iii. Total drive time along roads (determined above by road speeds)
iv. Variances are identified and are tweaked based on known data or other trends

C. Response Polygons
i. Identify general area of response from the outer most limits driven
ii. Also identify response zones for mutual aid
iii. Identify gaps in response
iv. Aid in the development of Fire Zones for response
v. Assist in the identification of new stations
vi. Also identifies needs to move stations to another location, as required

**Additional Analysis**

A. Out-of-Scope Analysis (needs further discussion with client)
   i. Transition from project to operationally based:
      - Specific distance and travel
      - Based on time of day
      - Based on time of year
      - Call volume
      - Call types
      - Modeling
      - Scripting for batch work

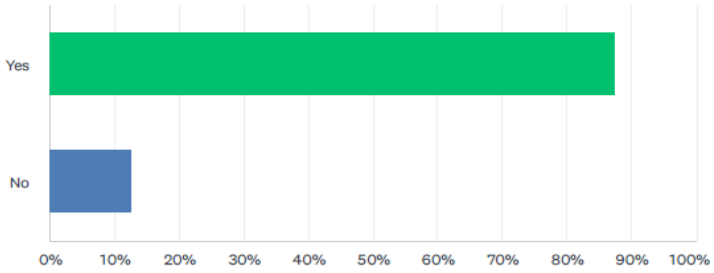
B. Data Availability
   i. When data available from clients is detailed enough, it is used
   ii. Not all data is detailed enough, and assumptions are made

C. Analysis
   i. Additional analysis can be performed (as reduction of road speeds to an intersection)
      - For above example, identification of intersections can be complex, and data not always available:
         - Stop Sign
         - 3-Way Stop
         - Yield
         - Lights
         - Flashing Light
   ii. Tends to be time consuming
         - Clients not willing to engage cost of this project
         - Levels of data may not be accessible
         - Missing detail
         - Usually is a one-off project and new data is typically not leveraged

# Appendix D: Online Firefighter Survey Results

## Q1 Do you receive positive feedback from the citizens of Port Alberni about the services you provide? Yes or no, if no please provide additional comments

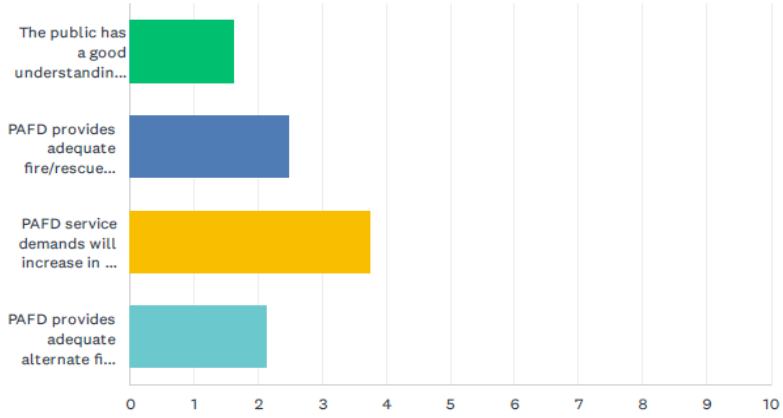
Answered: 8 Skipped: 0




| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Yes | 87.50% | 7 |
| No | 12.50% | 1 |
| TOTAL | | 8 |

## Q2 Please rank the following statements in order of how strongly you agree, with 1 being the strongest agreement and 4 being the weakest:

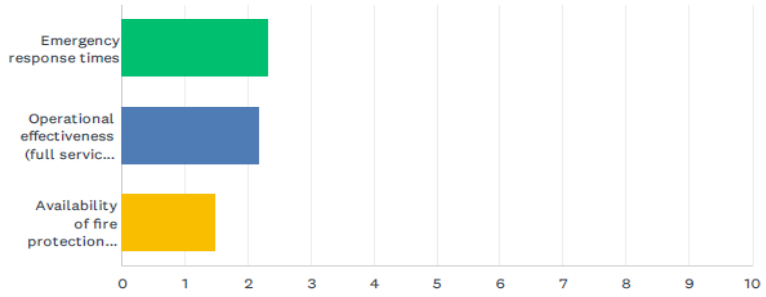
Answered: 8 Skipped: 0




| | 1 | 2 | 3 | 4 | TOTAL | SCORE |
|---|---|---|---|---|---|---|
| The public has a good understanding of the fire service and its capabilities. | 0.00% 0 | 12.50% 1 | 37.50% 3 | 50.00% 4 | 8 | 1.63 |
| PAFD provides adequate fire/rescue protection | 25.00% 2 | 25.00% 2 | 25.00% 2 | 25.00% 2 | 8 | 2.50 |
| PAFD service demands will increase in the future due to community and economic growth | 75.00% 6 | 25.00% 2 | 0.00% 0 | 0.00% 0 | 8 | 3.75 |
| PAFD provides adequate alternate fire risk reduction strategies (e.g., residential sprinklers, FireSmart program, public education, and fire prevention programs) | 0.00% 0 | 37.50% 3 | 37.50% 3 | 25.00% 2 | 8 | 2.13 |

## Q4 Please rank the following aspects of fire/rescue protection that you provide, with 1 being the most adequate and 3 being the least adequate:

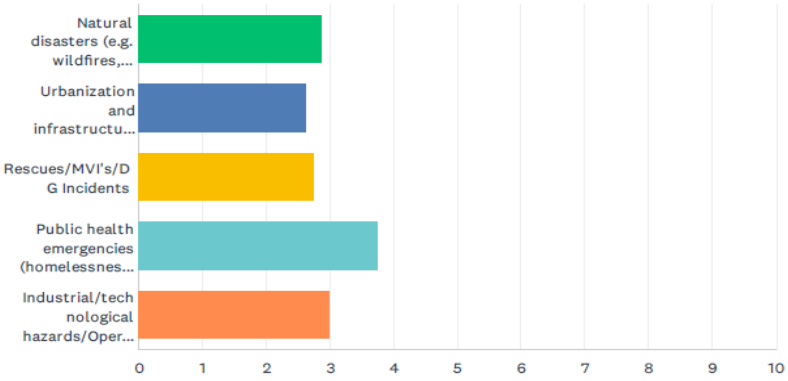
Answered: 6 Skipped: 2




| | 1 | 2 | 3 | TOTAL | SCORE |
|---|---|---|---|---|---|
| Emergency response times | 50.00% 3 | 33.33% 2 | 16.67% 1 | 6 | 2.33 |
| Operational effectiveness (full service response capabilities and capacity) | 33.33% 2 | 50.00% 3 | 16.67% 1 | 6 | 2.17 |
| Availability of fire protection resources (fleet, equipment, staffing, facilities) | 16.67% 1 | 16.67% 1 | 66.67% 4 | 6 | 1.50 |

## Q6 Please list the top 5 risks and rank them in order of their significance, with 1 being the highest risk and 5 being the lowest risk (e.g. wildfires, climate change, structural fires, rescues, MVIs, homelessness and drug crisis, DG incidents, natural disasters, operational response limitations etc.)

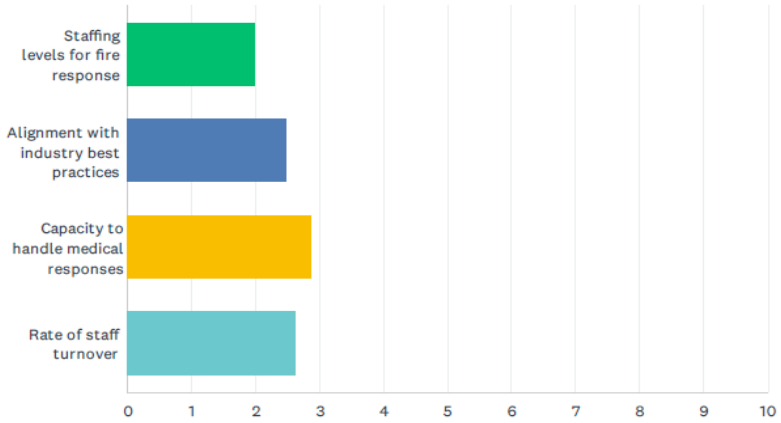
Answered: 8 Skipped: 0




| | 1 | 2 | 3 | 4 | 5 | TOTAL | SCORE |
|---|---|---|---|---|---|---|---|
| Natural disasters (e.g. wildfires, climate change) | 12.50% 1 | 25.00% 2 | 25.00% 2 | 12.50% 1 | 25.00% 2 | 8 | 2.88 |
| Urbanization and infrastructure development | 0.00% 0 | 12.50% 1 | 50.00% 4 | 25.00% 2 | 12.50% 1 | 8 | 2.63 |
| Rescues/MVI's/DG Incidents | 0.00% 0 | 50.00% 4 | 0.00% 0 | 25.00% 2 | 25.00% 2 | 8 | 2.75 |
| Public health emergencies (homelessness, unemployment, poverty, and drug crisis) | 50.00% 4 | 12.50% 1 | 12.50% 1 | 12.50% 1 | 12.50% 1 | 8 | 3.75 |
| Industrial/technological hazards/Operational Response Limitations | 37.50% 3 | 0.00% 0 | 12.50% 1 | 25.00% 2 | 25.00% 2 | 8 | 3.00 |

## Q8 Please rank the following aspects of your fire service's response model in order of adequacy, with 1 being the most adequate and 4 being the least adequate. Provide additional comments if needed:

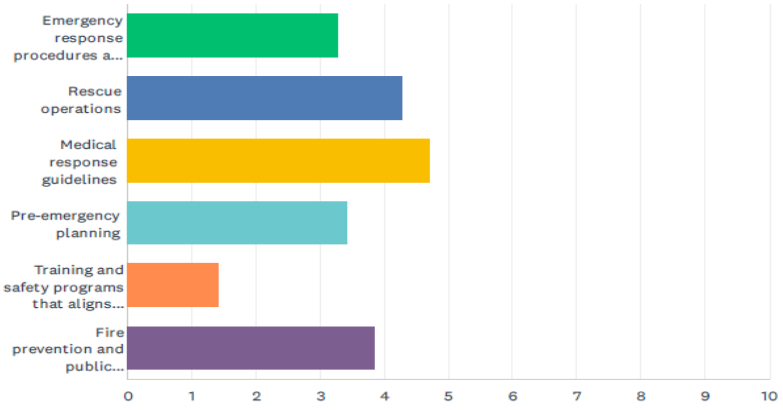
Answered: 8 Skipped: 0




| | 1 | 2 | 3 | 4 | TOTAL | SCORE |
|---|---|---|---|---|---|---|
| Staffing levels for fire response | 25.00%<br>2 | 0.00%<br>0 | 25.00%<br>2 | 50.00%<br>4 | 8 | 2.00 |
| Alignment with industry best practices | 12.50%<br>1 | 50.00%<br>4 | 12.50%<br>1 | 25.00%<br>2 | 8 | 2.50 |
| Capacity to handle medical responses | 37.50%<br>3 | 25.00%<br>2 | 25.00%<br>2 | 12.50%<br>1 | 8 | 2.88 |
| Rate of staff turnover | 25.00%<br>2 | 25.00%<br>2 | 37.50%<br>3 | 12.50%<br>1 | 8 | 2.63 |

## Q10 Please rank the following policy/procedure/guidelines areas in order of how effective they are within PAFD with 1 being the very effective and 6 being the least reflective:

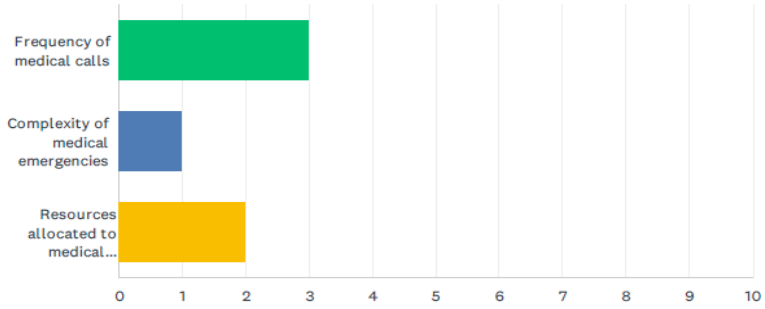
Answered: 7 Skipped: 1




| | 1 | 2 | 3 | 4 | 5 | 6 | TOTAL | SCORE |
|---|---|---|---|---|---|---|---|---|
| Emergency response procedures and guidelines | 28.57% 2 | 0.00% 0 | 14.29% 1 | 14.29% 1 | 14.29% 1 | 28.57% 2 | 7 | 3.29 |
| Rescue operations | 14.29% 1 | 28.57% 2 | 28.57% 2 | 28.57% 2 | 0.00% 0 | 0.00% 0 | 7 | 4.29 |
| Medical response guidelines | 28.57% 2 | 42.86% 3 | 14.29% 1 | 0.00% 0 | 14.29% 1 | 0.00% 0 | 7 | 4.71 |
| Pre-emergency planning | 0.00% 0 | 14.29% 1 | 42.86% 3 | 14.29% 1 | 28.57% 2 | 0.00% 0 | 7 | 3.43 |
| Training and safety programs that aligns with core services | 0.00% 0 | 0.00% 0 | 0.00% 0 | 14.29% 1 | 14.29% 1 | 71.43% 5 | 7 | 1.43 |
| Fire prevention and public education programs | 28.57% 2 | 14.29% 1 | 0.00% 0 | 28.57% 2 | 28.57% 2 | 0.00% 0 | 7 | 3.86 |

## Q12 Please rank the following aspects of medical response in terms of how much they impact your capacity to provide other emergency response services, with 1 being the highest impact and 3 being the lowest impact:

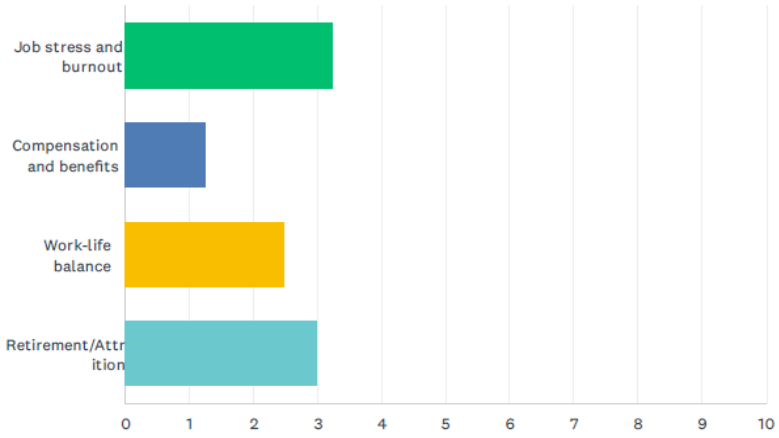
Answered: 5 Skipped: 3




| | 1 | 2 | 3 | TOTAL | SCORE |
|---|---|---|---|---|---|
| Frequency of medical calls | 100.00% 5 | 0.00% 0 | 0.00% 0 | 5 | 3.00 |
| Complexity of medical emergencies | 0.00% 0 | 0.00% 0 | 100.00% 5 | 5 | 1.00 |
| Resources allocated to medical response | 0.00% 0 | 100.00% 5 | 0.00% 0 | 5 | 2.00 |

## Q14 Please rank the following factors contributing to staff turnover in the PAFD, with 1 being the most significant and 4 being the least significant:

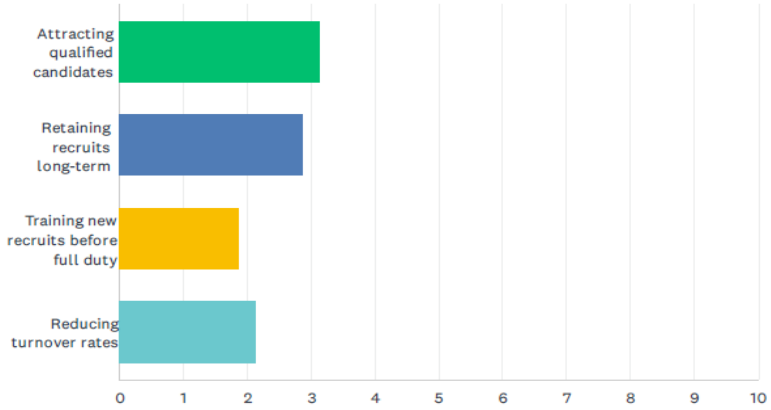
Answered: 8 Skipped: 0




| | 1 | 2 | 3 | 4 | TOTAL | SCORE |
|---|---|---|---|---|---|---|
| Job stress and burnout | 25.00%<br>2 | 75.00%<br>6 | 0.00%<br>0 | 0.00%<br>0 | 8 | 3.25 |
| Compensation and benefits | 0.00%<br>0 | 0.00%<br>0 | 25.00%<br>2 | 75.00%<br>6 | 8 | 1.25 |
| Work-life balance | 12.50%<br>1 | 25.00%<br>2 | 62.50%<br>5 | 0.00%<br>0 | 8 | 2.50 |
| Retirement/Attrition | 62.50%<br>5 | 0.00%<br>0 | 12.50%<br>1 | 25.00%<br>2 | 8 | 3.00 |

## Q16 Please rank the following aspects of the recruiting program in order of effectiveness, with 1 being the most effective and 4 being the least effective:

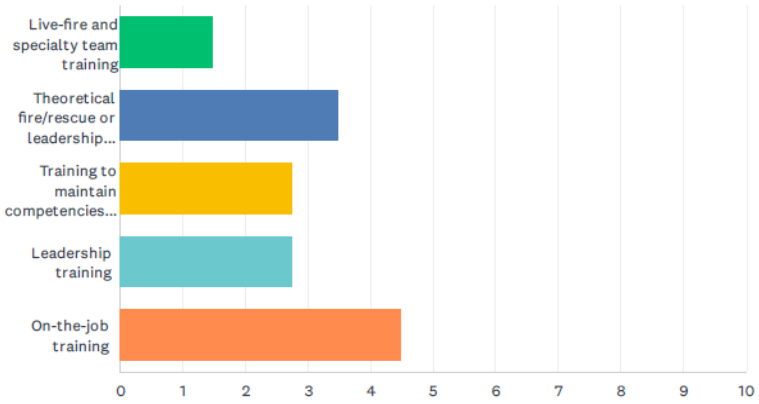
Answered: 8 Skipped: 0




| | 1 | 2 | 3 | 4 | TOTAL | SCORE |
|---|---|---|---|---|---|---|
| Attracting qualified candidates | 50.00% 4 | 25.00% 2 | 12.50% 1 | 12.50% 1 | 8 | 3.13 |
| Retaining recruits long-term | 25.00% 2 | 50.00% 4 | 12.50% 1 | 12.50% 1 | 8 | 2.88 |
| Training new recruits before full duty | 12.50% 1 | 12.50% 1 | 25.00% 2 | 50.00% 4 | 8 | 1.88 |
| Reducing turnover rates | 12.50% 1 | 12.50% 1 | 50.00% 4 | 25.00% 2 | 8 | 2.13 |

## Q18 Please rank the following training aspects in order of adequacy, with 1 being the most adequate and 5 being the least adequate:

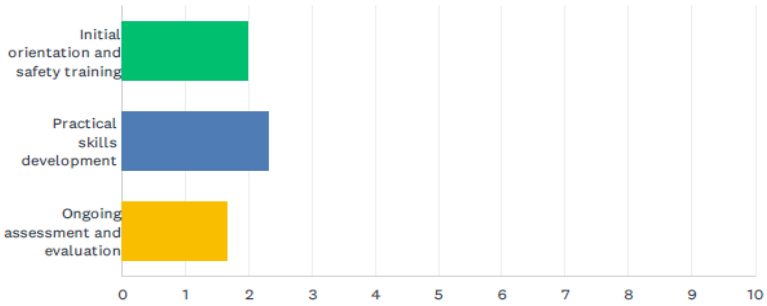
Answered: 8 Skipped: 0




| | 1 | 2 | 3 | 4 | 5 | TOTAL | SCORE |
|---|---|---|---|---|---|---|---|
| Live-fire and specialty team training | 0.00% 0 | 12.50% 1 | 0.00% 0 | 12.50% 1 | 75.00% 6 | 8 | 1.50 |
| Theoretical fire/rescue or leadership training | 12.50% 1 | 50.00% 4 | 12.50% 1 | 25.00% 2 | 0.00% 0 | 8 | 3.50 |
| Training to maintain competencies and certifications | 0.00% 0 | 25.00% 2 | 37.50% 3 | 25.00% 2 | 12.50% 1 | 8 | 2.75 |
| Leadership training | 12.50% 1 | 12.50% 1 | 25.00% 2 | 37.50% 3 | 12.50% 1 | 8 | 2.75 |
| On-the-job training | 75.00% 6 | 0.00% 0 | 25.00% 2 | 0.00% 0 | 0.00% 0 | 8 | 4.50 |

## Q20 Please rank the following phases of recruit training in order of adequacy before full duty, with 1 being the most adequate and 3 being the least adequate:

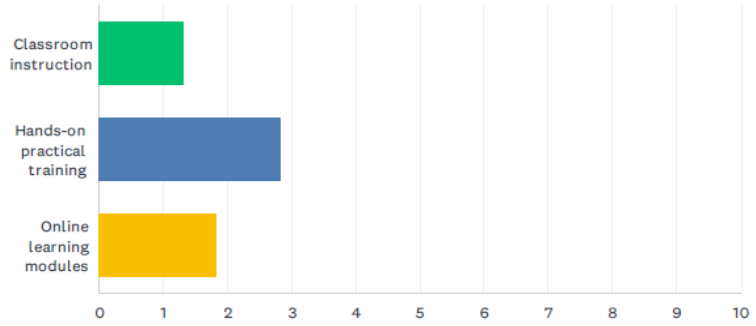
Answered: 3 Skipped: 5




| | 1 | 2 | 3 | TOTAL | SCORE |
|---|---|---|---|---|---|
| Initial orientation and safety training | 33.33% 1 | 33.33% 1 | 33.33% 1 | 3 | 2.00 |
| Practical skills development | 66.67% 2 | 0.00% 0 | 33.33% 1 | 3 | 2.33 |
| Ongoing assessment and evaluation | 0.00% 0 | 66.67% 2 | 33.33% 1 | 3 | 1.67 |

## Q22 Please rank the following aspects of your training in order of their effectiveness in maintaining competencies and certifications, with 1 being the most effective and 3 being the least effective:

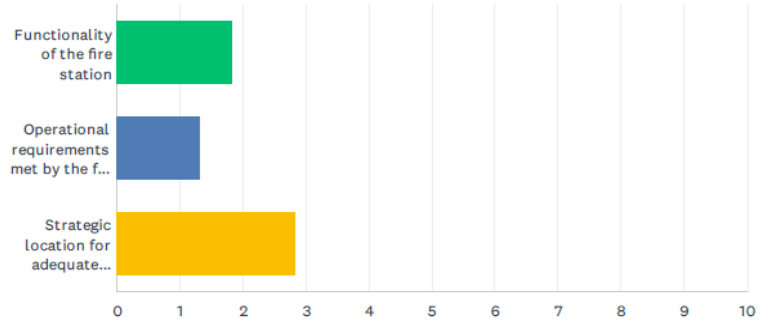
Answered: 6 Skipped: 2




| | 1 | 2 | 3 | TOTAL | SCORE |
|---|---|---|---|---|---|
| Classroom instruction | 0.00%<br>0 | 33.33%<br>2 | 66.67%<br>4 | 6 | 1.33 |
| Hands-on practical training | 83.33%<br>5 | 16.67%<br>1 | 0.00%<br>0 | 6 | 2.83 |
| Online learning modules | 16.67%<br>1 | 50.00%<br>3 | 33.33%<br>2 | 6 | 1.83 |

## Q24 Please rank the following aspects of the fire station in order of how well they meet the department's needs, with 1 being the best and 3 being the worst:

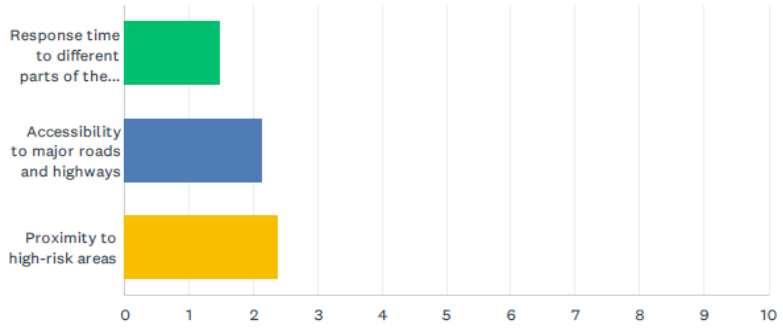
Answered: 6 Skipped: 2




| | 1 | 2 | 3 | TOTAL | SCORE |
|---|---|---|---|---|---|
| Functionality of the fire station | 16.67%<br>1 | 50.00%<br>3 | 33.33%<br>2 | 6 | 1.83 |
| Operational requirements met by the fire station | 0.00%<br>0 | 33.33%<br>2 | 66.67%<br>4 | 6 | 1.33 |
| Strategic location for adequate geographic coverage | 83.33%<br>5 | 16.67%<br>1 | 0.00%<br>0 | 6 | 2.83 |

## Q26 Please rank the following factors related to the fire station's location, with 1 being the most advantageous and 3 being the least advantageous:

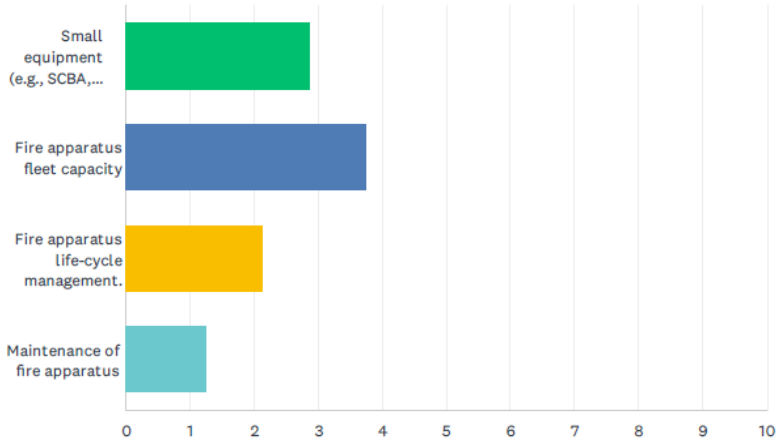
Answered: 8 Skipped: 0




| | 1 | 2 | 3 | TOTAL | SCORE |
|---|---|---|---|---|---|
| Response time to different parts of the community | 12.50% 1 | 25.00% 2 | 62.50% 5 | 8 | 1.50 |
| Accessibility to major roads and highways | 50.00% 4 | 12.50% 1 | 37.50% 3 | 8 | 2.13 |
| Proximity to high-risk areas | 37.50% 3 | 62.50% 5 | 0.00% 0 | 8 | 2.38 |

## Q28 Please rank the following equipment resources in order of adequacy, with 1 being the most adequate and 4 being the least adequate:

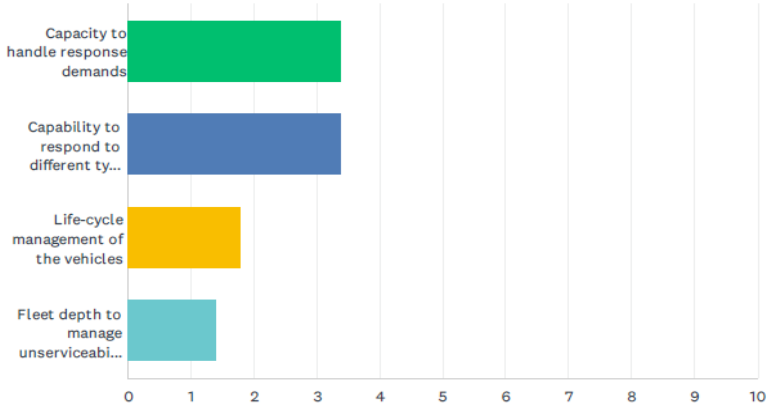
Answered: 8 Skipped: 0




| | 1 | 2 | 3 | 4 | TOTAL | SCORE |
|---|---|---|---|---|---|---|
| Small equipment (e.g., SCBA, light duty vehicles) | 25.00% 2 | 37.50% 3 | 37.50% 3 | 0.00% 0 | 8 | 2.88 |
| Fire apparatus fleet capacity | 75.00% 6 | 25.00% 2 | 0.00% 0 | 0.00% 0 | 8 | 3.75 |
| Fire apparatus life-cycle management. | 0.00% 0 | 37.50% 3 | 37.50% 3 | 25.00% 2 | 8 | 2.13 |
| Maintenance of fire apparatus | 0.00% 0 | 0.00% 0 | 25.00% 2 | 75.00% 6 | 8 | 1.25 |

## Q30 Please rank the following aspects of the vehicle fleet in order of their effectiveness in meeting operational demands, with 1 being the most effective and 4 being the least effective:

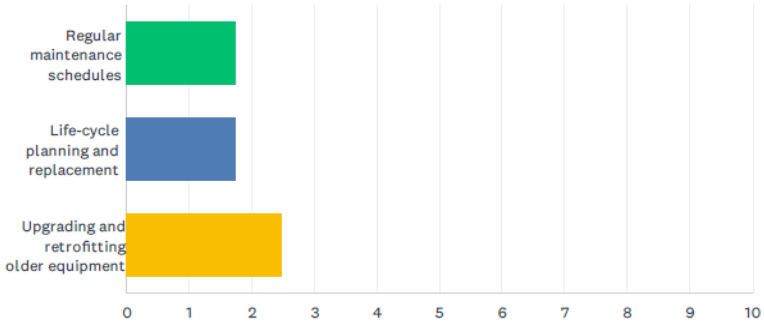
Answered: 5 Skipped: 3




| | 1 | 2 | 3 | 4 | TOTAL | SCORE |
|---|---|---|---|---|---|---|
| Capacity to handle response demands | 40.00% 2 | 60.00% 3 | 0.00% 0 | 0.00% 0 | 5 | 3.40 |
| Capability to respond to different types of emergencies | 60.00% 3 | 20.00% 1 | 20.00% 1 | 0.00% 0 | 5 | 3.40 |
| Life-cycle management of the vehicles | 0.00% 0 | 20.00% 1 | 40.00% 2 | 40.00% 2 | 5 | 1.80 |
| Fleet depth to manage unserviceability of frontline units | 0.00% 0 | 0.00% 0 | 40.00% 2 | 60.00% 3 | 5 | 1.40 |

## Q32 Please rank the following aspects of fire apparatus management in order of effectiveness, with 1 being the most effective and 3 being the least effective:

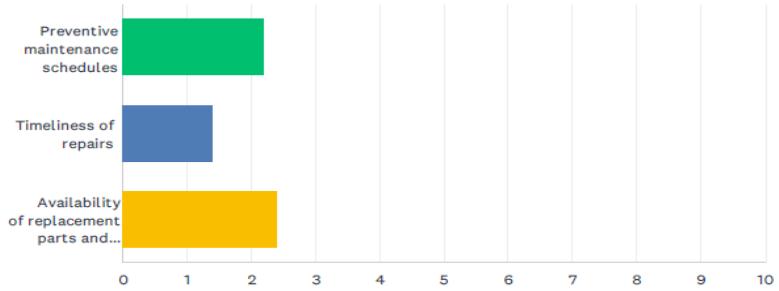
Answered: 4 Skipped: 4




| | 1 | 2 | 3 | TOTAL | SCORE |
|---|---|---|---|---|---|
| Regular maintenance schedules | 25.00% 1 | 25.00% 1 | 50.00% 2 | 4 | 1.75 |
| Life-cycle planning and replacement | 25.00% 1 | 25.00% 1 | 50.00% 2 | 4 | 1.75 |
| Upgrading and retrofitting older equipment | 50.00% 2 | 50.00% 2 | 0.00% 0 | 4 | 2.50 |

## Q34 Please rank the following maintenance practices in order of adequacy, with 1 being the most adequate and 3 being the least adequate:

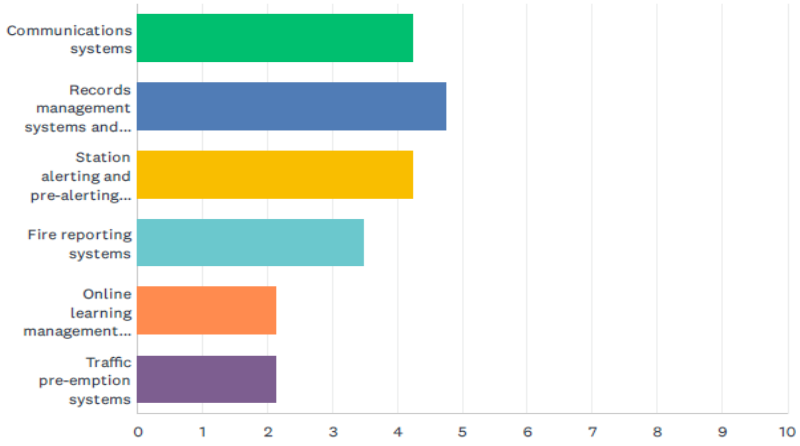
Answered: 5 Skipped: 3




| | 1 | 2 | 3 | TOTAL | SCORE |
|---|---|---|---|---|---|
| Preventive maintenance schedules | 60.00% 3 | 0.00% 0 | 40.00% 2 | 5 | 2.20 |
| Timeliness of repairs | 0.00% 0 | 40.00% 2 | 60.00% 3 | 5 | 1.40 |
| Availability of replacement parts and resources | 40.00% 2 | 60.00% 3 | 0.00% 0 | 5 | 2.40 |

## Q36 Please rank the following technology areas in order of how well the service keeps pace with advancements, with 1 being the most up-to-date and 6 being the least up-to-date:

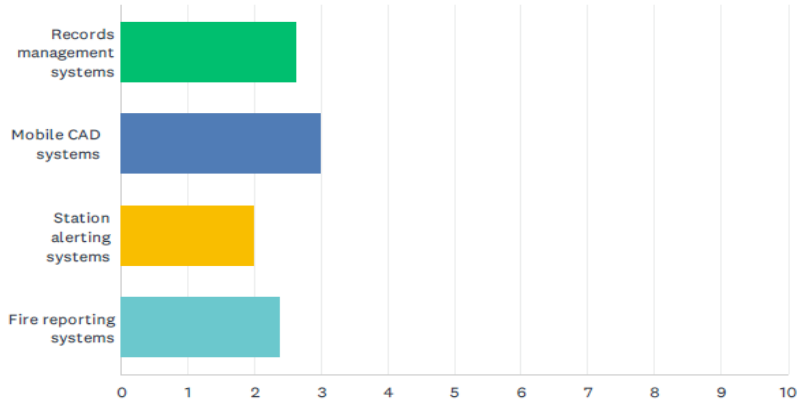
Answered: 8 Skipped: 0




| | 1 | 2 | 3 | 4 | 5 | 6 | TOTAL | SCORE |
|---|---|---|---|---|---|---|---|---|
| Communications systems | 12.50% 1 | 50.00% 4 | 12.50% 1 | 12.50% 1 | 0.00% 0 | 12.50% 1 | 8 | 4.25 |
| Records management systems and mobile CAD systems | 37.50% 3 | 25.00% 2 | 25.00% 2 | 0.00% 0 | 12.50% 1 | 0.00% 0 | 8 | 4.75 |
| Station alerting and pre-alerting systems | 25.00% 2 | 12.50% 1 | 25.00% 2 | 37.50% 3 | 0.00% 0 | 0.00% 0 | 8 | 4.25 |
| Fire reporting systems | 0.00% 0 | 12.50% 1 | 37.50% 3 | 37.50% 3 | 12.50% 1 | 0.00% 0 | 8 | 3.50 |
| Online learning management systems (LMS) | 12.50% 1 | 0.00% 0 | 0.00% 0 | 0.00% 0 | 50.00% 4 | 37.50% 3 | 8 | 2.13 |
| Traffic pre-emption systems | 12.50% 1 | 0.00% 0 | 0.00% 0 | 12.50% 1 | 25.00% 2 | 50.00% 4 | 8 | 2.13 |

## Q38 Please rank the following technology systems in order of their effectiveness in supporting fire service operations, with 1 being the most effective and 4 being the least effective:

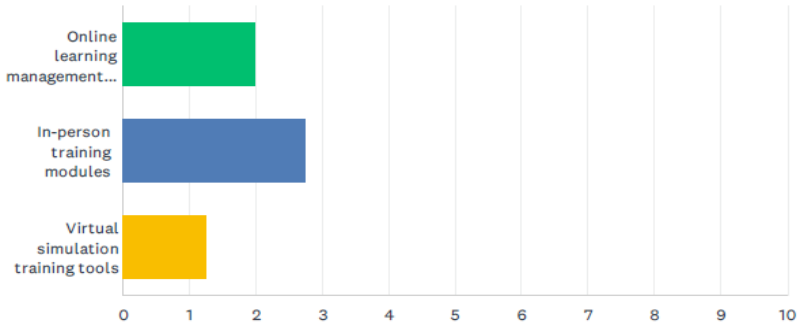
Answered: 8 Skipped: 0




| | 1 | 2 | 3 | 4 | TOTAL | SCORE |
|---|---|---|---|---|---|---|
| Records management systems | 25.00%<br>2 | 25.00%<br>2 | 37.50%<br>3 | 12.50%<br>1 | 8 | 2.63 |
| Mobile CAD systems | 37.50%<br>3 | 25.00%<br>2 | 37.50%<br>3 | 0.00%<br>0 | 8 | 3.00 |
| Station alerting systems | 12.50%<br>1 | 25.00%<br>2 | 12.50%<br>1 | 50.00%<br>4 | 8 | 2.00 |
| Fire reporting systems | 25.00%<br>2 | 25.00%<br>2 | 12.50%<br>1 | 37.50%<br>3 | 8 | 2.38 |

## Q40 Please rank the following training technologies in order of their effectiveness in supporting continuous learning, with 1 being the most effective and 3 being the least effective:

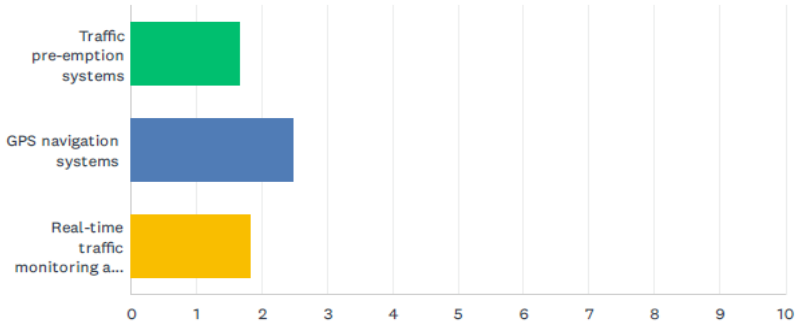
Answered: 4 Skipped: 4




| | 1 | 2 | 3 | TOTAL | SCORE |
|---|---|---|---|---|---|
| Online learning management systems (LMS) | 25.00%<br>1 | 50.00%<br>2 | 25.00%<br>1 | 4 | 2.00 |
| In-person training modules | 75.00%<br>3 | 25.00%<br>1 | 0.00%<br>0 | 4 | 2.75 |
| Virtual simulation training tools | 0.00%<br>0 | 25.00%<br>1 | 75.00%<br>3 | 4 | 1.25 |

## Q42 Please rank the following technologies in order of their impact on emergency response efficiency, with 1 being the most impactful and 3 being the least impactful:

Answered: 6 Skipped: 2




| | 1 | 2 | 3 | TOTAL | SCORE |
|---|---|---|---|---|---|
| Traffic pre-emption systems | 16.67%<br>1 | 33.33%<br>2 | 50.00%<br>3 | 6 | 1.67 |
| GPS navigation systems | 66.67%<br>4 | 16.67%<br>1 | 16.67%<br>1 | 6 | 2.50 |
| Real-time traffic monitoring and updates | 16.67%<br>1 | 50.00%<br>3 | 33.33%<br>2 | 6 | 1.83 |

## Q44 What are the strengths, weaknesses, opportunities and challenges for the PAFD?

Answered: 8 Skipped: 0

| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Strengths | 100.00% | 8 |
| Weaknesses | 100.00% | 8 |
| Opportunities | 87.50% | 7 |
| Challenges | 100.00% | 8 |

# Appendix E: British Columbia Building Code (BCBC), Office of Housing and Construction Standard, Information Bulletin, 'Fire Department Response Time'

Office of Housing and Construction Standards

Information Bulletin
**Building and Safety Standards Branch**
PO Box 9844 Stn Prov Govt
Victoria BC V8W 9T2
Email: building.safety@gov.bc.ca
Website: www.housing.gov.bc.ca/building

No. B13 - 04
July 8, 2013

## Fire Department Response Time

**Background**

The BC Building Code uses different criteria to establish spatial separation requirements for unsprinklered buildings, depending on the response time of a fire department. Where the response time, measured according to the parameters in this bulletin and the BC Building Code, exceeds 10 minutes in 10% or more of the calls to the building, requirements related to limiting distance may be affected.

**How do I determine fire department response time?**

For the purpose of the application of Clauses 3.2.3.1.(8)(a), 9.10.14.3.(1)(a) and 9.10.15.3.(1)(a) of the BC Building Code, fire department response time shall be considered to be the time from the receipt of notification of a fire by the fire department, to the arrival, at the building or building site, of the first firefighting vehicle that is staffed and equipped to fight a fire for the purpose of limiting the exposure to adjacent buildings.

This bulletin is only intended to address the measurement of fire department response time for application of Clauses 3.2.3.1.(8)(a), 9.10.14.3.(1)(a) and 9.10.15.3.(1)(a) of the BC Building Code.

**When do I start measuring and when do I stop?**

Measurement of fire department response time starts when the fire department receives notification, and does not include the time it takes for 911 or other dispatch services to relay the call to the fire department. Response time ends when the first firefighting vehicle arrives at the building or building site, and does not include additional set-up time for the vehicle or crew.

The estimated response time should be determined for the specific building site and not an average for the general community. The response time should be determined using present, factual information and circumstances. Fire department response time does not need to account for potential future impacts such as increased traffic congestion or road closures.

Office of Housing and Construction Standards

Information Bulletin
**Building and Safety Standards Branch**
PO Box 9844 Stn Prov Govt
Victoria BC V8W 9T2
Email: building.safety@gov.bc.ca
Website: www.housing.gov.bc.ca/building

**What is a 'firefighting vehicle?'**

A firefighting vehicle is one that has integral firefighting equipment and does not include support vehicles, such as pickup trucks or other passenger vehicles.

**Do I need to be familiar with NFPA 1710?**

The reference to NFPA 1710 in Appendix note A-3.2.3.1.(8) is intended to provide commentary on the measurement of response time based on 90% of actual response times. NFPA 1710 is not a referenced standard in the BC Building Code and there is no expectation that performance requirements in NFPA 1710 be met.

---

**Code references:**

**3.2.1.3.(8)(a)** the time from receipt of notification of a fire by the fire department until the arrival of the first fire department vehicle at the building exceeds 10 min in 10% or more of all fire department calls to the building, and

**9.10.14.3.(1)(a)** the time from receipt of notification of a fire by the fire department until the first fire department vehicle arrives at the building exceeds 10 min in 10% or more of all calls to the building, and

**9.10.15.3.(1)(a)** the time from receipt of notification of a fire by the fire department until the first fire department vehicle arrives at the building exceeds 10 min in 10% or more of all calls to the building, and

# Appendix F: PAFD Light Duty and Apparatus Fleet Inventory

| | | | |
|---|---|---|---|
|  | |  | |
| Unit Number: | **3** | Unit Number: | **1** |
| Year/Make: | 2023 SPARTAN GLADIATOR LFD 10" RAISED ROOF | Year/Make: | 2021 SPARTAN GLADIATOR LFD 20” RAISED ROOF |
| Type: | Engine / Diesel | Type: | Engine / Diesel |
| Odometer (kms.): | 4,719 | Odometer (kms.): | 39,126 |
| Pump Capacity: | 8000 LPM @ 150PSI | Pump Capacity: | 8000 LPM @ 150PSI |
| Tank Capacity: (Water) | 1136L | Tank Capacity: (Water) | 3480L |
| Foam Capacity: | No Foam | Foam Capacity: | 20 USG |
| Delivery Method: | N/A | Delivery Method: | Injected FoamPro |
| Usage: | Frontline aerial apparatus for chimney fire. Second out structure fire. Confined space. High angle. Minimum Crew: 4 | Usage: | Frontline pumper. First to MVI on road, medical, structure fire. Minimum Crew: 4 |
| Comments: | Cost: $2,100,657.44 | Comments: | Cost: $957,285.12 |

| | | | |
|---|---|---|---|
|  | |  | |
| Unit Number: | 4 | Unit Number: | 5 |
| Year/Make: | 2000 FREIGHTLINER FL80 4X4 | Year/Make: | 2010 SPARTAN GLADIATOR |
| Type: | ENGINE / DIESEL | Type: | ENGINE / DIESEL |
| Odometer (kms.): | 107,423 | Odometer (kms.): | 125,630 |
| Pump Capacity: | 4773 LPM @ 150PSI | Pump Capacity: | 7570 LPM @ 150PSI |
| Tank Capacity: (Water) | 1900 L | Tank Capacity: (Water) | 3480 L |
| Foam Capacity: | 30 USG | Foam Capacity: | 25 USG |
| Delivery Method: | Injected FoamPro | Delivery Method: | Injected FoamPro |
| Usage: | First to off-road mvi and high-angle rescue. Support for structure fire. Forestry kit for wildfire. Minimum Crew: 4 | Usage: | Third out for structure fire. Back up for Engine 1. Minimum Crew: 4 |
| Comments: | Cost: $348,061.65 | Comments: | Cost: $513,600 |



| | | | |
|---|---|---|---|
| Unit Number: | 8 | Unit Number: | HARBOR CHIEFTAIN |
| Year/Make: | 2006 FORD F-550 XL SD 4X4 / E-ONE CANADA WALK-AROUND | Year/Make: | 1994 KAMMA & BLAKE INDUSTRIES LTD. |
| Type: | ENGINE / DIESEL | Type: | ENGINE / GASOLINE |
| Odometer (kms.): | 42,250 | Odometer (kms.): | 710/699 Hrs. (2 x 2019 Yamaha 200hp) |
| Pump Capacity: | N/A | Pump Capacity: | 500 USGPM |
| Tank Capacity: (Water) | 207usg | Tank Capacity: (Water) | Sea chest. |
| Foam Capacity: | 40L | Foam Capacity: | 20 USG |
| Delivery Method: | Induction | Delivery Method: | Injected FoamPro |
| Usage: | First to wildfire. Supports rescue/extrication. Minimum Crew: 4 | Usage: | Patrol Vessel |
| Comments: | Cost: $117,601.46 | Comments: | No Cost info. |



| | | | |
|---|---|---|---|
| Unit Number: | 10 | Unit Number: | 15 |
| Year/Make: | 2023 DODGE RAM 1500 CLASSIC CREW CAB 4x4 | Year/Make: | 2014 DODGE RAM 1500 4x4 SLT |
| Type: | TRUCK / GASOLINE | Type: | TRUCK / GASOLINE |
| Odometer (kms.): | N/A | Odometer (kms.): | N?A |
| Pump Capacity: | N/A | Pump Capacity: | N/A |
| Tank Capacity: (Water) | N/A | Tank Capacity: (Water) | N/A |
| Foam Capacity: | N/A | Foam Capacity: | N/A |
| Delivery Method: | N/A | Delivery Method: | N/A |
| Usage: | CFPO vehicle. Support Unit | Usage: | Support Unit |
| Comments: | Cost: $69,715.06 | Comments: | Cost: $47,789.69 |

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|---|---|---|---|
| Unit Number: | 19 | Unit Number: | 17 |
| Year/Make: | 2011 CHEVROLET SILVERADO 1500 LT | Year/Make: | 2006 HAULMARK TRAILER |
| Type: | TRUCK / GASOLINE | Type: | CARGO TRAILER |
| Odometer (kms.): | N/A | Odometer (kms.): | N/A |
| Pump Capacity: | N/A | Pump Capacity: | N/A |
| Tank Capacity: (Water) | N/A | Tank Capacity: (Water) | N/A |
| Foam Capacity: | N/A | Foam Capacity: | N/A |
| Delivery Method: | N/A | Delivery Method: | N/A |
| Usage: | Chief's vehicle. Support Unit | Usage: | Support Unit |
| Comments: | Cost: $40,574.33 | Comments: | Enclosed Trailer<br>Cost: $7,190.63 |