



# Feasibility Study for Options Development for the Nanaimo River Fire Protection Service Area in Electoral Area C

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## Executive Summary

The Regional District of Nanaimo (the “RDN”) is the Authority Having Jurisdiction (the “AHJ”) over the Extension Volunteer Fire Department (the “Department” or “EVFD”), which is operated by the Extension Volunteer Fire Department Society (the “Society”). The RDN has engaged Tim Pley & Associates (the “Consultants” or “TPA”) to conduct a feasibility study examining the options for managing coverage by the Department of the properties located in the Nanaimo River area of Electoral Area C, and make recommendations.

The residents of the Nanaimo River area have been receiving fire protection services from the Department since 2005. At that time, the Extension Fire Protection Service Area was converted from a specified area and expanded to incorporate the Nanaimo River area, covering some 45 (now 76) properties.<sup>1</sup> At the same time, however, the RDN, recognizing that most of the Nanaimo River area was more than eight kilometres from EVFD fire hall – which is the maximum travel distance permitted under the Fire Underwriters’ rating enabling “semi-protected” status – passed two further bylaws:

- a bylaw to establish a separate local service area, called Nanaimo River Fire Protection Service Area, covering only the properties in the Nanaimo River area, to enable funds to be collected through taxation for the purpose of constructing a satellite fire hall in the area;<sup>2</sup> and
- a bylaw which approved borrowing for the purpose of constructing a satellite fire hall, such amounts to be charged to the Nanaimo River Fire Protection Service Area.

The creation of this separate fire service area was approved by the area residents prior to the bylaws being passed. Subsequently, the RDN identified a preferred location for a satellite fire hall and procured a grant of land from the Province of BC for that purpose.

One of the goals in expanding fire protection to the Nanaimo River area was to enable the residents to have the benefit of the Department’s rating by the Fire Underwriters. For residential properties, the Department is rated as Dwelling Protection Grade (“DPG”) 3B, which is considered by the insurance industry to reflect semi-protected status. A DPG 3B rating can result in a reduction in insurance premium costs for property owners.

Based on the documents provided to the Consultants, the Fire Underwriters appear to have granted a DPG 3B rating for the Nanaimo River area based on the understanding that a satellite fire hall would be established in the area. Although the hall was never built, the Fire Underwriters maintained the DPG 3B, apparently based on a mapping error which created the impression that most of the expanded service area was within eight kilometres travel distance of

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<sup>1</sup> *Extension Fire Protection Service Conversion and Boundary Amendment Bylaw No. 1439, 2005* (“Bylaw No. 1439”). Estimates of the number of properties originally covered by Bylaw No. 1440 vary: in a cover memo of the CAO submitted at the time to the RDN Board with the bylaws, it indicates that 45 properties were covered. We therefore use that number in this report.

<sup>2</sup> *Nanaimo River Fire Protection Service Area Establishment Bylaw No. 1440, 2005* (“Bylaw No. 1440”).

the EVFD fire hall. This error involved treating a service road, which is gated and not reasonably passable by fire apparatus, as being a usable response route.

Some property owners questioned why the satellite fire hall was not constructed, while others began to question the need for one, suggesting that because the Fire Underwriters were maintaining a DPG 3B rating for the area, and insurance premium reductions remained in force, annual service fees for the Nanaimo River Fire Protection Service Area could be discontinued and the funds held in reserve returned to the property owners.

The RDN saw the need for both a community engagement process and a consideration of options. A community engagement process was considered necessary to confirm with community residents, property owners and other interested parties, whether the community's preferences remained the same as in 2005 or if they had changed. The RDN had received input from some constituents and wanted to ensure that it was hearing from as broad a spectrum of community members as possible.

The consideration of options was necessary because of the variables involved, not the least of which was understanding the basis for Fire Underwriters' DPG designation, whether insurance premium reductions were the sole or primary priority for the community, if a storage garage, while being a conceptually possible option, would be an acceptable and more affordable means to meet community needs, and how the RDN might proceed with distribution of reserve funds if that was determined to be the course of action. The RDN wanted to explore these and other options.

The Consultants' preliminary work included reviewing historical and current documents while also preparing to undertake a robust community engagement process that met RDN's established procedures. The community engagement was designed to provide constituents with the information they needed in order to provide informed input, and to capture that input to assist the RDN in determining a path forward.

From the Consultant's preliminary investigation of the service area, it was evident that the DPG 3B rating was not consistent with published Fire Underwriters' standards and practices. The issue was brought to the attention of the RDN, with a recommendation that the matter be resolved. The Consultants worked with RDN in engaging the Fire Underwriters on the DPG rating question, the result of which was the uncovering of the Fire Underwriters' mapping error. As a result, the Fire Underwriters have indicated that the rating will be lowered for most of the Nanaimo River properties from DPG 3B to DPG 5. The Fire Underwriters have maintained the 3B DPG until December 31, 2022 in order for the RDN to complete the feasibility study.<sup>3</sup>

Ideally, the interaction with the Fire Underwriters would have been completely addressed prior to the sharing of preliminary findings and the Open House. However, community engagement and discussions with the Fire Underwriters overlapped the same time period. This resulted in community members who attended the August 13<sup>th</sup> Open House learning about the pending

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<sup>3</sup> Fire Underwriters letter to the RDN dated September 23, 2022, Appendix 3

DPG change at the Open House, which was an unintended consequence of the established project timeline.

Through the community engagement process, the Consultants and the RDN interacted with community members who displayed a range of awareness of the issues involved in fire protection. Some expressed that they had a high level of awareness of the issues and had established an opinion of the outcome best-suited to meet their needs. Others reported a lower level of awareness on which they could base their outcome preference.

The community engagement process sought to facilitate a values-based discussion. While the level of awareness of fire protection matters varies between community members, every community member is an expert on what they value, and so the process sought to understand those values in order to then explore all options and gauge how each option aligned with community values.

Respondents to the community engagement process indicated a very high appreciation for the Department and the emergency response services that it provides. In descending order, community members valued:

1. Improved fire protection services (as measured by reduced response times);
2. Reduced fire insurance premiums; and
3. Reduced service fees (taxes).

The above criteria were used by the Consultants to assess the benefit to the community of options considered.

There was concern expressed within written survey responses regarding the inability for Nanaimo River area property owners to afford to pay for the construction of a satellite fire hall, and several references to related costs expected to be \$3.5 million or higher.

While community engagement was continuing, the Consultants reviewed various operational and administrative aspects of the Department in order to evaluate the Department's ability to support the operation of a satellite fire hall. As part of that review, it was noted that the Department is already successfully supporting a secondary site in the Nanaimo River area – a rented facility located on private property from which the Department's second pumper unit responds.

While not specifically identified in the RFP as an option, the Consultants reviewed the potential for one newly constructed fire hall, centrally located, to provide service to the entire Extension Fire Protection Service Area, including Nanaimo River. That option would meet Nanaimo River community needs as expressed in the community engagement process. The option of one centrally located fire hall is examined within the report along with several other options.

The Consultants reviewed several recently constructed or currently planned satellite fire hall projects in order to provide real world examples of satellite fire halls for RDN's consideration. Two examples of recently constructed satellite fire halls on Vancouver Island were reviewed and

are summarized in this report. One of those (Meadowood) was constructed by the RDN for the Dashwood Volunteer Fire Department in 2008. The other was constructed by Comox Valley Regional District in Merville/Black Creek in 2022. The RDN engaged Herold Engineering to develop current construction cost estimates for the Meadowood and Merville satellite fire halls. Those estimates are referenced in the report and attached as Appendix 5.

Construction of one centrally located fire hall or a satellite fire hall in the Nanaimo River area would require expenditure of the reserve funds that were collected for that purpose, the borrowing of additional funds, and, in the case of a satellite fire hall, continuation of service area taxation for the amortization period of the debt related to fire hall's construction and outfitting. Once the debt associated with construction of the new satellite fire hall was repaid, the Nanaimo River Fire Protection Service Area could be discontinued, and the service bylaw repealed.

Throughout the feasibility study process, the Consultants have engaged with RDN staff, the EVFD Fire Chief and members of the Society, as well as with a significant number of community members. All have been fully forthcoming and helpful, have made themselves readily available, and provided requested information in a timely manner. RDN staff have demonstrated a high degree of professionalism and desire to support the Nanaimo River community in addressing this longstanding matter. The Fire Chief and the Society have been supportive of the feasibility study, working to achieve the best result for the Extension Fire Protection Service Area while representing the needs of their constituents in the Nanaimo River area.

Nanaimo River residents were found to be genuine, forthcoming and eager to engage on the topic of fire protection. The Nanaimo River community was observed to hold diverse needs and opinions, and a collective passion for the community.

This report examines a number of options, including some that have been brought forward by community members. With these options examined, several can be set aside, and the RDN and the community can focus on a much shorter list of viable options to address community values and needs.

# Project Scope and Methodology

## Background and Scope

The scope of work required by the RDN included a study that would develop and analyze options for the capital funds raised pursuant to Bylaw No. 1440. The options were to include potential alternate cost-effective fire hall designs, alternatives such as an apparatus storage garage for expedited response to the area, stopping annual reserve fund contributions, returning reserve funds, or rationalizing the reserve fund contributions and/or retention of the collected funds. The review was to include recommendations with implications and estimated costs.

The work would include a review of documentation and on-site visits. As a preliminary matter, it would be necessary to undertake a detailed response analysis examining response distances from the existing EVFD fire hall into the Nanaimo River area. It also would be necessary to review the nature of the risks in that area and, in consultation with the Department, to assess the EVFD's long-term needs and planning. The RFP specified that a public engagement process would be undertaken with participating Nanaimo River property owners.

The Consultants worked with the RDN regarding the public engagement process, which was developed with the following considerations:

- identify the range of appropriate stakeholders for the engagement process<sup>4</sup>;
- undertake outreach activities to the stakeholder group, explaining the process and outlining the opportunities for the constituents to provide input (with web-based engagement to supplement in-person engagement);
- report on the outcome of the engagement sessions, which reporting to be included in the feasibility study and to form part of the presentation to the Electoral Area Services Committee.

The Consultants were also to conduct consultation sessions and/or work with:

- the RDN Emergency Services Department;
- the RDN Finance Department;
- EVFD Fire Chief & Officers;
- EVFD Society Board; and
- Electoral Area C Director responsible for fire service area.

As the project moved forward, other stakeholder consultations would be undertaken as determined appropriate or necessary, in consultation with the RDN.

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<sup>4</sup> The stakeholder group to be consulted was identified as including Nanaimo River property owners, area residents and other interested stakeholders

The feasibility study and associated findings were to be presented to the RDN Electoral Area Services Committee. The review commenced in Q2 of 2022 and was to be completed in Q4 of 2022.

## Methodology

The project included a four-phased approach:

### Phase One: Project Kick-off and Background Review

Preliminary meetings were held with RDN staff on April 26, 2022 and May 2, 2022, to refine the scope of work and enable the Consultants to develop a deeper understanding of the project. An in-person kick-off meeting was held on June 2, 2022, with the RDN project team to review and finalize issues related to the scope, timing, and approach.

The Consultants assessed the current fire service capacity of the Department, the current state of fire protection services in the Nanaimo River area, and reviewed background bylaws, documents and related materials covering the history of fire protection services in the Nanaimo River area. The Department, the EVFD dispatch provider and the RDN provided the requested documents to support this work.

### Phase Two: On-site Consultations and Stakeholder Engagement

A preliminary on-site meeting and consultation was conducted with the EVFD Fire Chief, the Society Chair, the RDN Area C Electoral Director and alternate Director at the Department's fire hall on July 20, 2022. A follow up meeting took place on August 13, 2022. The Consultants toured the service area, and examined EVFD apparatus, facilities, training processes, and equipment.

Direct engagement with Fire Underwriters began on June 1, 2022 when the Consultants met with the Fire Underwriters and RDN staff. Several other engagements with Fire Underwriters took place leading up to a meeting on August 9, 2022, at which time the Fire Underwriters acknowledged a previous mapping error, and indicated that the Nanaimo River area DPG rating would change from 3B to 5.

A robust stakeholder engagement process was undertaken. That process included information shared via the internet, mailed flyers and posters in the community, and an in-person Open House on August 13, 2022. The stakeholder engagement process is summarized later in this report. An extensive *What We Heard* summary report is available on the RDN website and at RDN offices.

During this phase of the project, the Consultants engaged with RDN staff, the Fire Chief, members of the Society and Nanaimo River community members.

### **Phase Three: Development of Recommendations and Draft Report**

In the third phase of the project, the Consultants integrated information obtained from the background review, mapping, site visits and input gathered through the community engagement process. Various options were identified. Those options and recommendations were included in a draft report provided to the RDN on October 6, 2022. Options in the draft report covered the matters outlined in the RFP as well as issues that came to light or were brought forward by stakeholders during the course of the study.

### **Phase Four: Development of Final Report**

The final report incorporates feedback received from the RDN regarding the October 6, 2022, draft report. That input has been considered and integrated into the final report. The final report provides an overview of steps taken since 2005 to provide fire protection services in the Nanaimo River area, summarizes Nanaimo River stakeholder input into the matter of fire protection, identifies options, and makes recommendations that reflect the community's needs and stakeholder input.

The Consultants method of assessing the feasibility of options included:

- Review of the capacity of EVFD to staff, equip, and manage a satellite fire hall
- Review of Fire Underwriters' documents related to EVFD and the Nanaimo River area
- Review of Fire Underwriters documented minimum requirements related to travel distance, staffing, training and apparatus for accreditation of fire services
- Review of mapping
- Review of BC Building Code, WorkSafe BC Act and Regulations, and Fire Underwriters' standards as they pertain to satellite fire halls and storage garages
- Review of satellite fire hall construction cost estimates
- Review of financial information to understand the estimated cost to affected property owners arising from construction of a satellite fire hall.

## Summary of Recommendations

The following section summarizes the recommendations contained within the report.

Recommendations	
<b>Recommendation</b>	The RDN should engage with the Extension Volunteer Fire Department Society Board and the EVFD to discuss the potential for construction of one centrally located fire hall to serve the entire Extension Fire Protection Service Area.
<b>Recommendation</b>	If the RDN concludes that construction of one centrally located fire hall is not the preferred option, then the RDN should proceed with due process toward construction of a satellite fire hall. The RDN should investigate whether a P3 partnership provides better value than constructing a publicly owned facility on land located on Nanaimo River Road already in the possession of RDN for that purpose.
<b>Recommendation</b>	Whether the RDN proceeds with construction of one centrally located fire hall or a satellite fire hall, efforts should be undertaken to enable community involvement in the project.
<b>Recommendation</b>	The RDN should implement measures necessary to provide for firefighter safety and compliance with applicable regulations in continued use of the rented facility in the Nanaimo River area. Measures should include consideration of access to adequate amenities and development and implementation of operational guidelines to support continued safe use of the facility.
<b>Recommendation</b>	The RDN should explore the potential to allocate Community Works Funds for the construction of one centrally located fire hall or a satellite fire hall.
<b>Recommendation</b>	The RDN should explore the potential to access grant funding for the purpose of constructing one centrally located fire hall or a satellite fire hall.
<b>Recommendation</b>	The Department, the Society and the RDN should explore the potential to reduce satellite fire hall construction costs in the areas of building design, site preparation costs, development of detailed design plans, and community contributions to the project.
<b>Recommendation</b>	The Department, the Society and the RDN should explore the potential to redeploy current apparatus and re-assess apparatus.

## Recommendations

replacement plans in order to meet Fire Underwriter minimum standards with current and near-future apparatus resources, for the purposes of reducing satellite fire hall costs by an estimated \$500,000.

# Extension Volunteer Fire Department Overview

When investigating the impact of adding a second facility such as a satellite fire hall, it is necessary to review aspects of the Department to understand what effect operating a second facility might have on the Department. To that end the Consultants undertook a high-level review of the Department, examining the following aspects:

- Governance
- Fire hall
- Apparatus
- Impact on DPG arising from a second facility
- Regulatory matters
- Response analysis/Spatial distribution of calls for service

A more in-depth analysis of the above-listed aspects of the Department can be viewed in Appendix 4 of this report.

Table 1: Summary of EVFD

Summary of EVFD Review	
<b>Governance</b>	Operated by the Society. RDN is the AHJ
<b>Oversight</b>	Fire Chief reports to the Society
<b>Service level</b>	Exterior Operations level
<b>Fire Underwriters DPG Rating</b>	3A in hydrant protected areas, 3B in non-hydrant protected areas
<b>Services</b>	Fire protection, first medical responder, automobile extrication, rope rescue, swift water rescue
<b>Apparatus</b>	frontline rated engine purchased in 2020. Tender/engine built in 2000. Reserve engine (1994) staged in rented facility in Nanaimo River area
<b>Facilities</b>	Main fire hall fully maximized for storage and other fire department uses.  A rented facility in the Nanaimo River area
<b>Water supply</b>	Mix of hydrant and non-hydrant served areas

The Department's fire hall is operating at full capacity. All available space appears to be fully utilized. The Department would benefit from additional space for:

- equipment storage;
- drying and storage of personal protective equipment;
- decontamination/showering facilities;
- training/meeting rooms;
- equipment maintenance and repair; and
- administrative functions.

The site on which the fire hall is located also appears to be fully utilized. The Department would benefit from construction of a new, centrally located fire hall or a satellite fire hall. In the case of a satellite fire hall, that would enable relocation of some apparatus and equipment, freeing up needed space at the main fire hall.

There is no replacement plan in place for the Extension fire hall.

## Fire Underwriters

This section examines the role and importance of Fire Underwriters' reviews for property owners in a fire protection area. This is pertinent to the feasibility study because reduced insurance premiums are a significant factor to be considered when examining options.

The Fire Underwriters are a national organization administered by Opta Information Intelligence. It has operated under a variety of names in the past (including SCM Risk Management Services Inc.), but in each instance, the organization was, and we believe remains, owned or controlled by the insurance industry. The rating provided by the Fire Underwriters materially impacts insurance costs for both residential and commercial properties, and impacts the cost-benefit analysis of local governments investing in their fire services. Where that investment can materially improve the rating afforded to some or all of the properties in a service area, resulting in materially lower insurance costs for residents, it means that the tax cost of the investment will be offset in whole or in part by reduced insurance premiums.

The primary purpose of the Fire Underwriters is to establish the Dwelling Protection Grade ("DPG") and Public Fire Protection Classification ("PFPC") for each community in the country. The DPG rating generally applies to single family detached residences,<sup>5</sup> whereas the PFPC rating applies to multi-family residential, commercial, industrial and institutional buildings or districts, and generally is applied by the "commercial lines" arm of the insurance industry.<sup>6</sup>

The DPG Rating is based on a five-point scale, where "1" is the best and "5" is unprotected. The scale is divided at "3", depending on whether the service area has a recognized water supply system (i.e., hydrants) or its department relies on a water tender. From an insurance underwriter's perspective, the ratings are typically grouped as follows:

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<sup>5</sup> Under the Fire Underwriters' definitions, the DPG ratings generally apply to the following: "One- and Two-Family Detached Dwellings (buildings containing not more than two dwelling units) in which each dwelling unit is occupied by members of a single family with not more than three outsiders, if any, accommodated in rented rooms." In addition, under this system a "typical" detached dwelling is a maximum of 3,600 square feet in size. Fire Underwriters Survey website, "Terms of Reference", <http://www.fireunderwriters.ca/dwelling-protection-grade.html>.

<sup>6</sup> Fire Underwriters Survey website, "What is the PFPC" at <http://www.fireunderwriters.ca/public-fire-protection-classification.html>.

Table 2: DPG Rating Details

DPG Rating	Insurance Status	Comment
5	Unprotected	No savings on insurance from having a fire department.
4	Semi-protected	Some savings on insurance likely will be enjoyed; in some regions, this rating and “3B” are often treated as essentially equivalent, though that varies with the underwriter.
3B	Semi-protected	This is usually the rating level at which significant cost savings on insurance are enjoyed. This is usually the highest rating available in areas which are not hydrant-protected.
3A 3B(S) 3B(L) <sup>7</sup>	Protected	Progressively greater savings on insurance. Fully protected status typically results in the maximum savings on insurance costs.
2	Protected	
1	Protected	

The EVFD has achieved a DPG rating primarily of 3B for residential properties, with some areas rated as 3A where properties are within prescribed proximity to fire hydrants.

The following table is a modified version of what has been shown in some Fire Underwriters’ reports. The table sets out the amount by which “average” insurance costs drop for residential properties as the DPG rating improves: <sup>8</sup>

Table 3: DPG Rating—Estimated Insurance Costs

Replacement Value \$	Unprotected (DPG 5) Rate \$	60± % Reduction	Semi Protected (DPG 4 or 3B) Rate \$	32± % Reduction	Fully Protected (DPG 3A or better) Rate \$
100,000	1,165		465		315
125,000	1,470		585		400

<sup>7</sup> A rating of 3B(S) is a Fire Underwriters’ accreditation for tanker shuttle capability, where a department is able to demonstrate its ability to maintain a specified water flow for a stipulated period of time, using tanker units. It applies to areas which are not hydrant-protected, and must be periodically renewed. This specialty rating is treated by most insurers as being the equivalent of a “DPG 3A” (fully protected) rating. Similarly, a 3B(L) rating indicates the department has been accredited for “large diameter hose lay,” which doubles the reach from a fire hydrant from 300 metres to 600 metres.

<sup>8</sup> This table is based on one from a 2015 Fire Underwriters’ report. While the estimated rates are now low (as insurance costs have risen since that time), the approximate cost savings are still enjoyed.

150,000	1,750		700		475
175,000	2,040		815		555
200,000	2,710		1,215		739
250,000	3,290		1,475		893
300,000	3,880		1,741		1,053
350,000	4,422		1,987		1,201
400,000	4,953		2,226		1,349
450,000	5,489		2,465		1,491

One of the critical gating elements for individual properties within a fire protection service area, however, is the maximum travel distance from the fire hall, beyond which a property is treated as unprotected. For the DPG rating, the maximum travel distance is set at eight kilometres.

When the Extension fire protection area was expanded to include Nanaimo River, it was recognized at that time that the majority of the properties were more than eight kilometres from the EVFD fire hall. It was that realization that led to the creation of the second service area to fund the construction within Nanaimo River of a satellite fire hall.

Based on the materials supplied to the Consultants, the Fire Underwriters appear to have granted temporary recognition for the expanded service area, while efforts were being made to fund and build the new hall. At some point over the years, however, it appears that a mapping error created the impression that most of the expanded service was within eight kilometres of the EVFD fire hall. This error involved treating a service road, which is gated and not safely passable by fire apparatus on emergency responses, as being a usable route.

From the Consultant's preliminary investigation of the service area, it was evident that the DPG 3B rating was not consistent with published Fire Underwriters' standards and practices. The issue was brought to the attention of the RDN, with a recommendation that the matter be resolved. When the Fire Underwriters recognized the mapping error, it led to a reversion to the original assessment from the 2005-06 period – i.e., that the majority of the Nanaimo River properties are more than eight kilometres from the EVFD fire hall, and, consequently, are rated as DPG 3B "unprotected". The Fire Underwriters have delayed reclassifying the affected Nanaimo River properties until 31 December 2022.<sup>9</sup>

As such, based on the travel distances involved, the business case in favour of constructing one centrally located fire hall or a satellite hall to ensure that Nanaimo River residents receive the benefit of the Department's DPG 3B rating, is much clearer. As the Fire Underwriters noted in their 23 September letter to the RDN:

*“As per the updated DPG coverage map (without the service road) a portion of it is considered DPG 5 due to being beyond 8 km in road travel distance of a recognized*

<sup>9</sup> Letter, Michael King, Fire Underwriters to Regional District of Nanaimo, 23 September 2022.

*responding fire station. If a satellite firehall (triple combination fire engine and minimum 10 volunteer/paid on call members) that is supported by the Extension Volunteer Fire Department's (EVFD) fire station qualifies for fire insurance grading recognition were to be established in the Nanaimo River Fire Protection Service Area, dwellings within 8 km of that satellite firehall fire station would be eligible for DPG 3A and DPG 3B recognition.”<sup>10</sup>*

It should be noted, however, that not all insurance underwriters use the strict eight-kilometre limit prescribed by the Fire Underwriters. Some insurers have granted some level of cost-saving for travel distances up to 13 kilometres.<sup>11</sup> This approach, however, is entirely in the discretion of the individual underwriter, and would be subject to revision based on changes to the individual insurer's underwriting policies or risk tolerances. While relying on insurers to extend their semi-protected status coverage is not a recommended long-term practice, it may provide a cushion in the period between the Fire Underwriters' reclassification of the properties, and the construction of a new centrally located fire hall or satellite hall.

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<sup>10</sup> Fire Underwriters letter to RDN dated September 23, 2022

<sup>11</sup> Individual insurers use the Fire Underwriters' ratings as a guide – they are not bound to follow them and can choose to treat properties as protected (or partially protected), even if they are beyond the limits ordinarily specified.

# Satellite Fire Halls and Storage Garages

For the purposes of this review and the consideration of a satellite fire hall versus a storage garage, it is helpful to consider three factors:

1. **BC Building Code:** The BC Building Code sets out the standard of construction of buildings in the Province of BC. The BC Building Code classification and subsequent Code requirements derive from the intended use of a building. If a building is intended to be used as a structure that houses emergency response equipment and from which firefighters will respond to emergencies, then the Code requires that the building be constructed to meet fire hall standards, including but not limited to post disaster requirements.

If a building is intended to be used as a storage garage where equipment or apparatus will be stored but not intended for emergency response, then the Code requires less rigor, and a structure that meets the minimal needs of storage can be constructed.

2. **WorkSafe BC Act and Regulations:** WorkSafe BC regards volunteer firefighters to be employees, and therefore the Act and Regulations apply. Some of the amenities related to the workplace would include the need for washrooms, shower facilities, decontamination of turnout gear, vehicle exhaust management along with appropriate measures for the drying and stowage of turnout gear.<sup>12</sup>
3. **Fire Underwriters:** As covered earlier in this report the Fire Underwriters assign DPG ratings based on their own standards. Among other criteria the Fire Underwriters regard a main fire hall to include a minimum of 15 firefighters plus one chief officer, one rated fire apparatus, and a reliable water source (hydrants or tender). Fire Underwriters regard a satellite fire hall to have similar assigned resources with the exceptions that a tender water supply can respond from a different fire hall, and a satellite fire hall only requires ten assigned firefighters.

The Fire Underwriters regard any fire department facility not meeting their minimum standard for a satellite fire hall as being a “storage garage”, a fire department facility for which the Fire Underwriters assign no credit.

For the purposes of this review three types of fire department facilities are considered.

1. **Fire Hall (Main):** A main fire hall, as the name denotes, functions not only as a fire hall from which firefighters respond to emergencies, but also serves as the location at which fire department administration functions are undertaken. A main fire hall might be the location for department meetings, classroom training sessions, equipment storage and apparatus maintenance occur. In a multi-station department, the main fire hall is often

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<sup>12</sup> Exhaust management and turnout gear decontamination and cleaning are related to the increased risk of cancer for firefighters that is derived from exposure to cancer causing elements. This risk has been recognized as part of the WorkSafeBC cancer presumptions for firefighters.

the largest, most complex facility, where more apparatus are staged than is common at satellite fire halls or storage garages.

Main fire halls are often located centrally within a community, nearest the most densely developed area. Smaller communities may have only one fire hall, and that serves as the main fire hall.

The Extension fire hall would be considered to be a main fire hall. What the Consultants have been asked to study for the Nanaimo River area, among other financial options, is whether construction of a satellite fire hall or a storage garage are best options.

2. **Satellite Fire Hall:** In communities that cover areas too large for one central (main) fire hall to provide adequate response coverage, it is common to establish satellite fire halls in the outlying areas to improve response times in those areas. Satellite fire halls improve localized response times and can be recognized by Fire Underwriters which can result in improved service and reduced fire insurance premiums in the satellite fire hall's response area.

Satellite fire halls are usually smaller than main fire halls, given that some of the functions performed at the main fire hall are not replicated at satellite fire halls. Satellite fire halls commonly feature space adequate for one or two apparatus, space and amenities to support the firefighters who respond to emergencies from that location, and any equipment or apparatus that is required for specific risks in the area (example: A Nanaimo River satellite fire hall might house river rescue equipment).

3. **Storage Garage:** A storage garage is a facility constructed for the purpose of storing department apparatus or equipment. A storage garage might be co-located with a main or satellite fire hall. By definition, a storage garage is not intended to provide the amenities necessary to support a response by firefighters.

It is important to note that while the Fire Underwriters might regard a fire department facility from which emergency responses are undertaken as being a storage garage based on their own criteria, the BC Building Code would still regard that facility to be a fire hall, and applicable Code requirements would apply. Further, WorkSafe BC would still regard that facility as being a workplace in the fire department classification, and Regulation requirements would apply.

Construction of a fire department facility in the Nanaimo River area that houses fire department equipment and apparatus, and from which firefighters would respond to emergencies would require that building design and construction comply with the applicable BC Building Code provisions for a fire hall. Design and operation of that building would be required to adhere to WorkSafe BC Regulations. The perception that the RDN could construct a lesser structure and utilize it as a fire hall is misconceived.

There seems little value in constructing a new facility to meet BC Building Code and WorkSafe BC requirements for a fire hall and then operating that facility in a manner that Fire Underwriters regard to be a storage garage (not meeting minimum requirements for insurance purposes to be

recognized as a satellite fire hall). By adding or deploying a newer apparatus and making a minor increase in the number of firefighters currently in the area who would be responding from the new facility, Fire Underwriter recognition could be achieved, enabling DPG 3B status, and property owners could receive insurance premium reduction benefits.

# Community Engagement

## 2005

In 2005 the RDN implemented fire protection services in the Nanaimo River area. At that time, steps were taken (expansion of Extension Fire Protection Service Area to include Nanaimo River area) to provide fire protection in the area immediately. Steps were also taken to enhance the fire protection service to enable a Fire Underwriters' DPG 3B rating so that property owners would be eligible for reduced fire insurance premiums (creation of Nanaimo River Fire Protection Service Area to fund construction of a satellite hall and approval of borrowing for that fire hall). The approach taken by the RDN was approved by the area property owners.

## 2022

Given the passage of time since 2005 and recent community feedback, it was critical that the RDN take steps to gauge the Nanaimo River community's current needs and priorities with regard to fire protection. The RDN directed through the RFP that the Consultant undertake a thorough community engagement process. That engagement process was to be compliant with the RDN's public engagement policy and procedures. The complete *What We Heard Engagement Summary Report* can be found on the RDN [Get Involved!](#) page. The RDN's guiding principles for the community engagement process were observed during the public engagement process. These principles state that:

- A. All feedback provided through the consultation should be included within the consultation evaluation report;
- B. All consultation evaluation reports must be provided to the appropriate board/committee for discussion; and
- C. If engagement occurs online, the evaluation report must be publicly available through the project page to ensure that the RDN closes the loop with residents.

Recognizing the significance for the community of the matter being reviewed, the RDN had committed to delivering in 2022 a responsive, transparent public engagement program that would gather input from Nanaimo River property owners/residents and other interested stakeholders.

The objectives of the public engagement program were to:

1. raise awareness among the Nanaimo River community that the fire service in that area was being reviewed;
2. engage on preliminary fire service options for the community;
3. inform property owners/residents and other interested stakeholders of the opportunities and implications associated with fire service options;

4. gather input on fire service options; and
5. develop recommendations to be considered by the RDN Electoral Area Services Committee.

The community engagement process involved engaging with individuals and groups who were aware of and invested in the project and the topic, as well those who were less invested and perhaps not aware. Efforts were taken to make all residents/property owners and other interested parties aware of the engagement process and facilitate their involvement. The various methods of outreach and information used in this phase were guided by the International Association of Participation's (IAP2) spectrum and touched on both the inform and consult approaches.

The DPG rating assigned by the Fire Underwriters was a significant component of the topic being examined in this project. The fact that the RDN and the Consultant learned of the pending change to the DPG rating only days prior to the Open House resulted in residents/property owners and other interested parties learning of the pending change at the Open House. Some respondents to the RDN survey may not have been aware of the pending change to the long-established DPG rating and the potential that property insurance premiums could increase.

The public outreach phase of the feasibility study was launched on July 18, 2022, with the repopulation of a [Get Involved RDN](#) project page. To promote the page and scheduled engagement opportunities, a fact sheet and invitation were mailed directly to 75 Nanaimo River property owners/residents on or about July 20, 2022. These materials provided information about the project and invited recipients to a public Open House that was scheduled to take place on August 13, 2022. Included in these materials was a QR code directing people to the project page and a call to action for recipients to register for project updates on the *Get Involved RDN* online platform. The fact sheet and invitation were also posted to the *Get Involved RDN* project page.

In addition to the mail out, the RDN sent an email to individuals listed on its previously established project database (a collection of emails from those who had contacted the RDN directly regarding this project). A total of 16 contacts were on the list for the initial engagement outreach email. The email thanked individuals for their ongoing interest in the project, invited them to attend the Open House and provided a copy of the fact sheet for background information. An electronic newsletter with the same information was also sent to those registered on the *Get Involved RDN* project page. Ten registrants received the email; every one of those registrants opened the email.

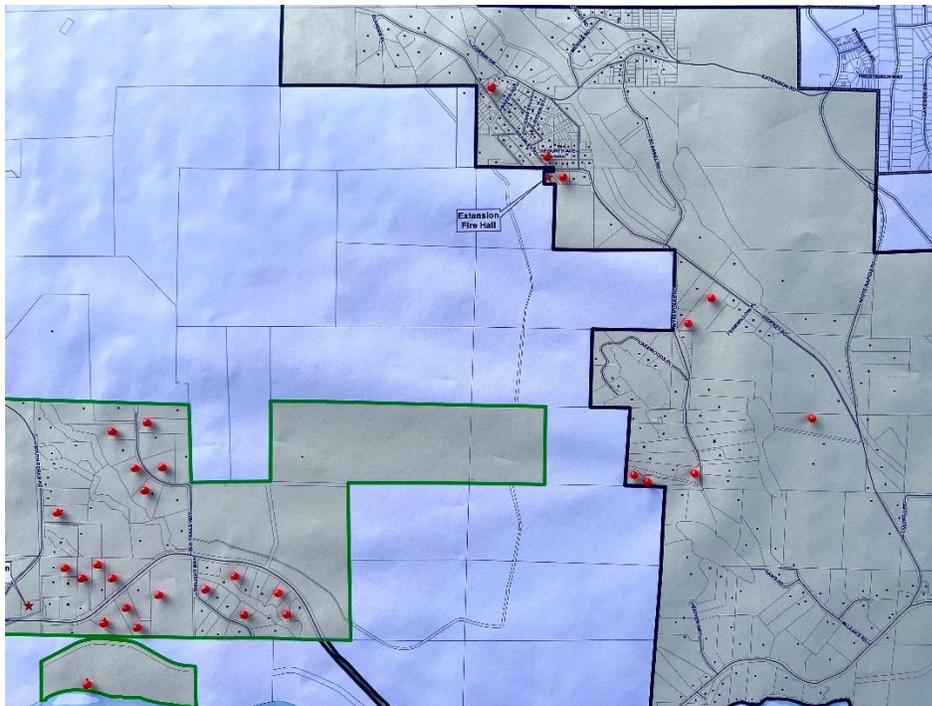
The RDN also created a [Facebook event](#) on the RDN Facebook account. A total of 17 people indicated through this portal that they would attend the August 13 event.

The RDN also took out a quarter-page ad in Nanaimo News Bulletin that was published in the August 3, 2022, edition.

Lastly, the RDN posted news of the Open House on their *News & Highlights* events calendar, on the *Get Involved RDN* project page in the *Newsfeed* section and placed Open House invitation posters at group mailboxes within the Nanaimo River community.

On August 13, 2022, at 1 p.m. the Consultants and the RDN conducted the Open House at Gogo's Christmas Tree Farm (2625 South Forks Road) in an outdoor gazebo. This event kicked off the project's formal public input period which was open from August 13 through August 26, 2022.

Upon arrival at the Open House, attendees were asked to sign in at the registration desk. They were provided with a copy of the fact sheet, a frequently asked questions document, and a four-page feedback form. As attendees entered the gazebo they were asked to "pin" the location of their home/property on a large format community map and encouraged to make their way at their own pace through a display of nine project information panels.



*Figure 1: Open House attendees indicating the location of their home/property*

The display panels provided information on the following topics:

- Goals of the engagement and expressed intention to create a safe space where thoughts and opinions could be expressed
- Summary of Fire Underwriters' DPG
- DPG classification criteria
- The current DPGs in the Nanaimo River community
- How DPG ratings can affect insurance premiums
- Options for consideration

- Project timeline
- Decision-making road map
- Two maps - one showing the current (interim) DPGs and one showing projected DPGs after October 31, 2022

The Consultants were on hand to answer questions and listen to concerns. After attendees had reviewed the information that was provided, they were encouraged to complete and submit their feedback using the form provided.

A total of 39 people attended the event.

To ensure that the feedback form was accessible for all, the RDN converted the feedback form into an online survey accessible via the *Get Involved RDN* project page and uploaded a printable pdf version and fillable form under the *Supporting Documents* section.

Feedback submissions were accepted at the event, via the *Get Involved RDN* project page, by mail, email or in-person drop-off at the RDN office.

On August 15, 2022, a “Thank You” email/newsletter was posted/sent to event attendees and *Get Involved RDN* project page registrants. The outreach piece thanked individuals for their participation, highlighted the upcoming input deadline and encouraged them to remind neighbours and friends in the Nanaimo River area to submit their input before the August 26, 2022, deadline. 81% of recipients through the *Get Involved RDN* project page opened the e-newsletter.

On August 23, 2022, an “Input Deadline” reminder email/newsletter was posted/sent to the RDN’s stakeholder list (now 24 contacts) and *Get Involved RDN* project page registrants. The *Get Involved RDN* e-newsletter had an open rate of 87.5 percent.

The input period closed at 4:30 p.m. on August 26, 2022.

The RDN had previously identified several options for consideration and for which the RDN wanted to gauge community support. Those options included:

1. RDN construct a satellite fire hall in the Nanaimo River area;
2. RDN construct a “storage garage” in the Nanaimo River area;
3. RDN discontinue contributing to the Nanaimo River Fire Protection Service Area Reserve Fund (the “Reserve Fund”); and
4. RDN discontinue contributions and disburse funds from the Reserve Fund to property owners.

Best efforts had been taken to inform residents, property owners and other stakeholders as to the factors involved in the various options and ramifications for each. To understand the value that participants placed on specific aspects of fire protection service, four questions were asked and respondents were asked to rate on a scale of 1 to 10 (with one being the lowest and ten

being the highest) the value they placed on each of the factors. The questions asked and the average response ratings are summarized in Table 3 below:

Table 4: Questions asked

Question Asked	Response Rating (average) on a Scale of 10
How highly do you value fire protection services in the Nanaimo River Service Area?	9.2
How highly would you value improved levels of fire protection service provided in the Nanaimo River service area (as measured in part by reduced response times to emergencies)?	7.2
How highly do you value reduced fire insurance premiums?	7.0
How highly would you value a reduction of service fees (taxes) as they relate to fire protection in the Nanaimo River area?	6.8

### Value Placed on Fire Protection Service

On the question of how highly participants value fire protection services in the Nanaimo River Fire Service Area, 25 of 36 respondents (70%) gave a rating of 10 out of 10. All but one respondent gave a rating greater than 5. These responses indicate an overwhelming and across-the-board value placed on fire protection service in the Nanaimo River area.

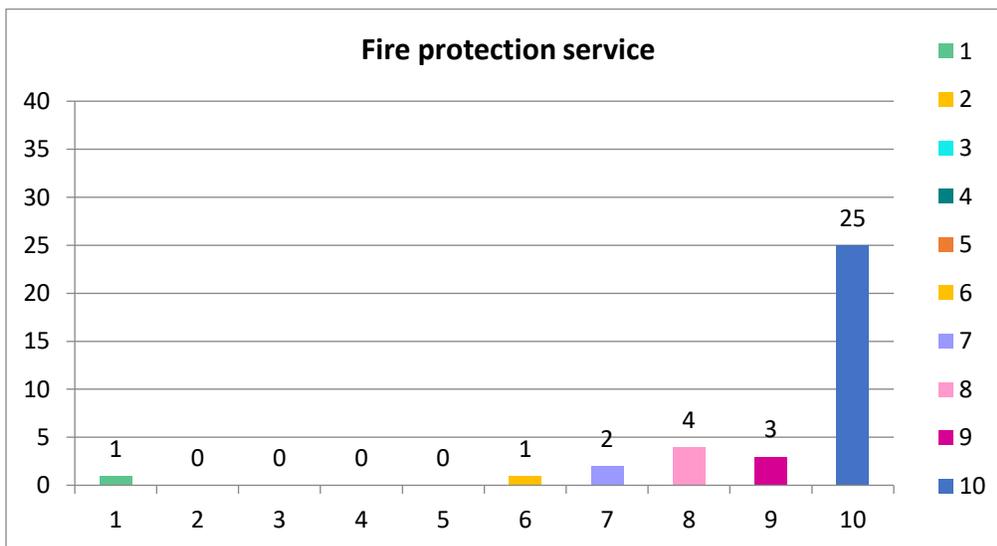


Chart 1: Value placed on fire protection service

### Value Placed on Improving Fire Protection Service

Participants were asked to rate the value that they would place on three aspects of fire protection service, one of those aspects being the potential for improved fire protection services.

13 of 30 (almost 50%) people who responded to this question gave a rating of 10 out of 10. 20 of 30 respondents to this question gave a rating of 8 or higher.

The average rating was 7.2 out of 10. Six respondents (20%) rated improved services as 1 out of 10, the lowest possible rating, demonstrating a polarity, although imbalanced, within the community on the matter of improved fire protection services. Considered a different way, 19 of 30 respondents gave a rating of either 1 or 10 on this question. Similar respondent polarity is also reflected in responses to other questions.

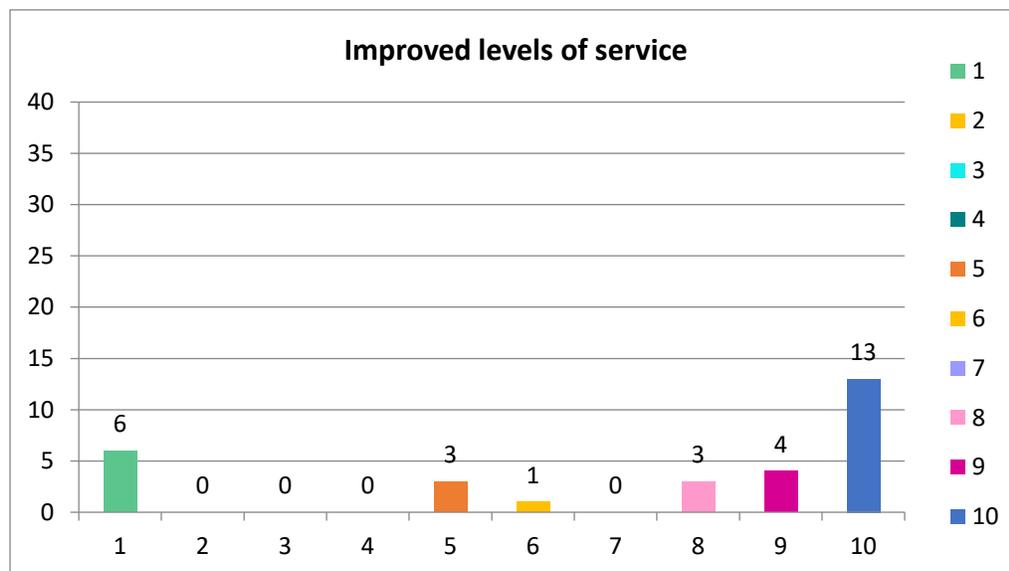


Chart 2: Value placed on improving fire protection service

### Value Placed on Reduced Fire Insurance Premiums

Participants were asked to rate the value that they placed on reduced fire insurance premiums resulting from provision of fire service in the Nanaimo River area. 13 of 35 (37%) people who responded to this question gave a rating of 10 out of 10, the highest possible rating. Four respondents (11%) gave a rating of 1, the lowest possible rating. The average rating was 7.0 out of 10.

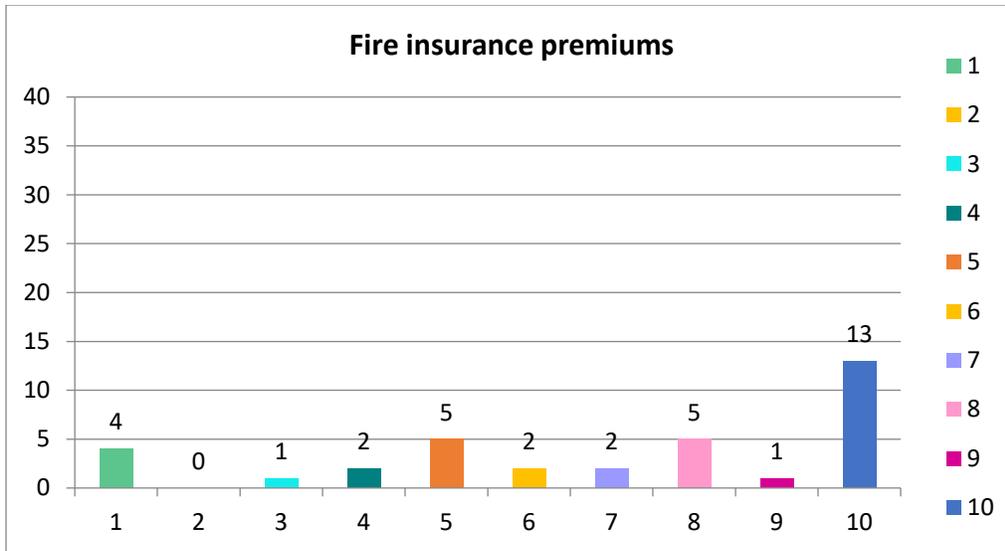


Chart 3: Value placed on reduced fire insurance premiums

### Value Placed on Reduction of Service Fees (Taxes)

Participants were asked to rate the value that they placed on reduction of service fees (taxes) related to fire service in the Nanaimo River area. 13 of 33 (39%) people who responded to this question gave a rating of 10 out of 10, the highest possible rating. The average rating was 6.8 out of 10. 18 of 33 respondents to this question gave a rating of 8 or higher.

Three respondents (9%) gave a rating of 1, the lowest possible rating. The range of responses to this question was more balanced than for other questions.

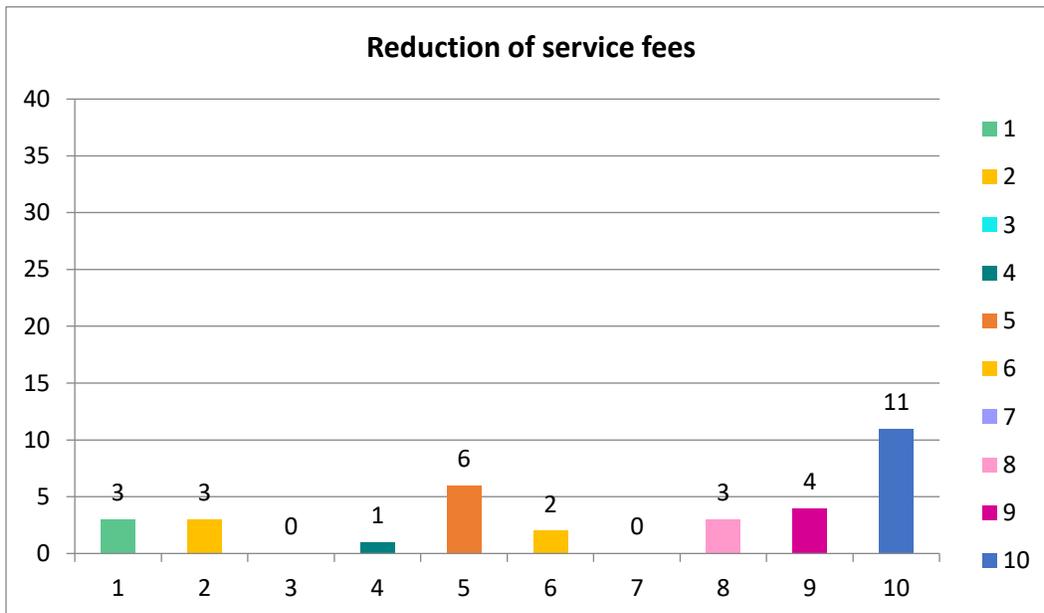


Chart 4: Value placed on reduction of services fees (taxes)

The responses to the four value questions summarized above indicate overwhelming support for provision of fire services in the Nanaimo River area, with lesser but still strong support in descending order for:

- 1. Improving fire protection services;
- 2. Ensuring that fire protection services result in reduction of insurance premiums; and
- 3. Reduction of service fees (taxes) related to fire protection services

As noted earlier, some Nanaimo River area residents reported a higher level of awareness about fire protection as it is delivered in the area than others. The values-based questions summarized above were intended to draw useful feedback from all respondents, even those who reported that they had less than full awareness or understanding of fire protection matters. People who feel they are not well-versed in matters of fire protection service, taxation and fire insurance premiums are still expert at responding to questions about what they value.

Respondents were asked to rate their own level of understanding of fire protection matters. 58% of respondents indicated that they were comfortable with their understanding of fire protection matters, and 37% of respondents indicating they were not comfortable.

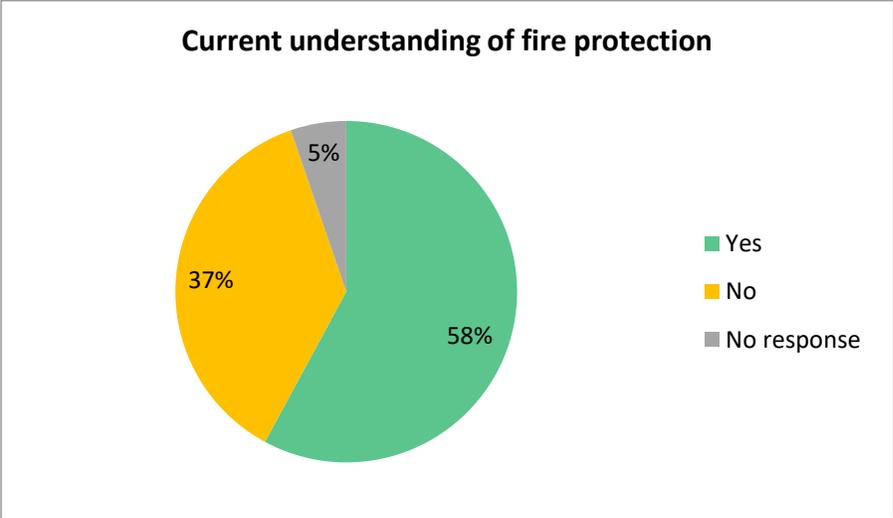


Chart 5: Current understanding of fire protection

The above graphic reinforces the need for the RDN to focus on stated values held by community members as opposed to seeking input on outcome strategies to meet those values. Slightly more than 50% of respondents indicated comfort with their understanding of fire protection matters, whereas almost all respondents were able to respond to questions about their values related to fire protection service.

To further understand community values related to fire protection service, participants were asked to indicate what single aspect about fire service they valued most. The options were limited to:

- Lowest insurance premiums
- Best fire protection
- Both (of the above)
- Need more information

While values related to “improved fire protection services” and “reduced fire insurance premiums” were rated independently and the similarly high ratings of responses are summarized above, when asked to indicate the most valued aspect of fire protection service (lowest insurance premiums or best fire protection) no respondents indicated that they valued low insurance premiums higher than best possible fire protection, 24% of respondents indicated they most highly valued best fire protection, 52% indicated that they valued highest *both* low insurance premiums and best possible fire protection, and 24% indicated that they needed more information.

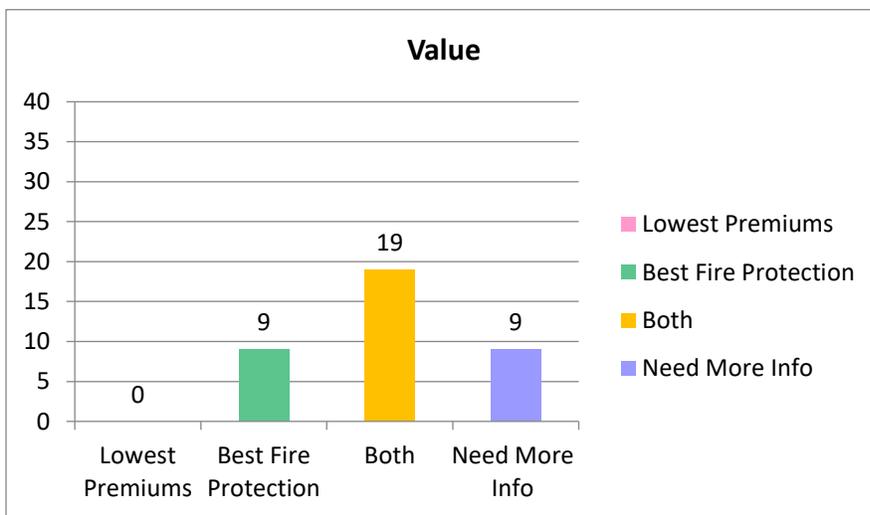


Chart 6: Value

While this feasibility study may have been spurred into action as a result of questions about how the RDN should proceed with managing the reserve funds held for the Nanaimo River Fire Protection Service Area, the heart of the matter appears to be, how should the RDN proceed with administering fire protection service in the area? Previous to this review, there was 17 years of experience with a DPG 3B rating despite a satellite fire hall not having been constructed. That has understandably led to some stakeholders forming entrenched opinions on the matter, which were based on a situation that was not sustainable.

Respondents were asked to select one of five outcome options. Responses to this question did not provide as clear a consensus as was achieved with value-based questions. Slightly more than half of respondents indicated that the RDN should use the reserve funds to construct a fire department facility in the Nanaimo River area (32% of respondents indicated a preference for construction of a storage garage and 21% of respondents favoured construction of a satellite fire hall). 24% of respondents selected “other”, with no clear indication of a broadly preferred alternative action.

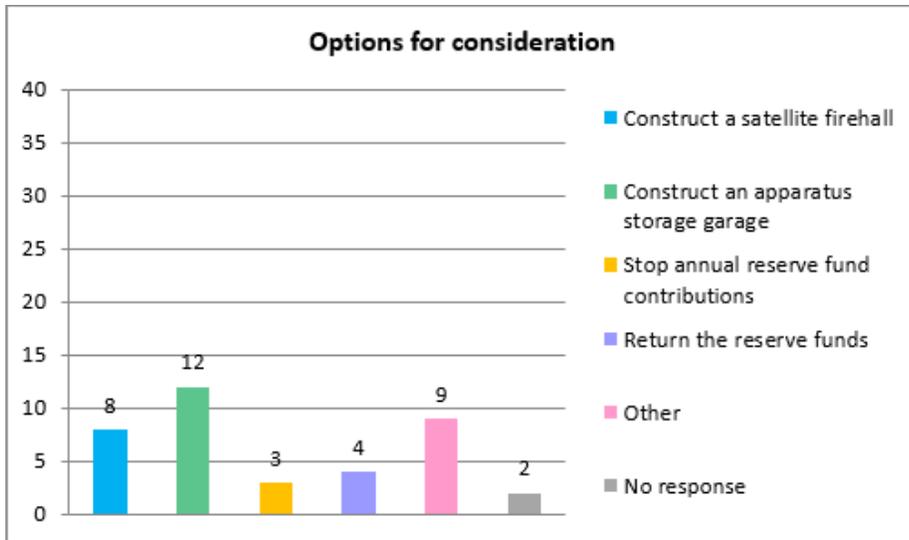


Chart 7: Options for consideration

When asked if their answer to the above would change if the DPG rating for their property changed, resulting in an increase to their fire insurance premiums, 50% indicated it would not, 37% were unsure, 5% said it would and 8% did not answer the question.

The *Options for Consideration* question is not values-based. It has already been noted that only slightly more than 50% of respondents indicated that they were comfortable with their understanding of fire protection service matters. Complicating this matter further, participants only learned about the pending DPG change on the day of the Open House, and some respondents therefore had little time to process that important information before responding to the questionnaire.

During the Open House several participants expressed their willingness to assist in construction of a fire department facility in the Nanaimo River area. Like in other rural communities, Nanaimo River includes tradespeople, owners of heavy equipment, and citizens accustomed to independent action. If RDN proceeds with construction of a fire hall in the Nanaimo River area it should endeavour to offer property owners, residents and other interested stakeholders opportunities to contribute their efforts to the cause.

## Community Engagement Summary

The discussion regarding construction of a satellite fire hall for the Nanaimo River area has been ongoing since 2005. At that time the path forward was clear enough and had broad enough support that the RDN proceeded with actions described earlier in this report.

Over the intervening years between 2005 and 2022, the number of properties in the Nanaimo River area has increased considerably from 45 to 76, the number of property owners has likely similarly increased, and while some residents have remained in place and have a high level of awareness regarding events of the past 17 years, many others do not. Some community members have entrenched opinions on the action(s) that the RDN should take. That

entrenchment and in some cases advocacy for preferred positions has made it difficult for the RDN to gauge the values held by the broader Nanaimo River community. It was within that challenging landscape that the community engagement process was undertaken.

Community engagement was further challenged when preliminary investigations indicated that the Fire Underwriters' longstanding DPG 3B rating may have been based on a mapping error. The timing of the DPG correction by the Fire Underwriters relative to the scheduled public engagement session challenged the RDN's ability to communicate the pending change and consequences to participants. It is likely that some, perhaps many, respondents were not fully aware of the dynamic situation with regard to the DPG rating and possible impacts to fire insurance premiums.

The above paragraphs outline potential reasons why the responses to some questions were spread across a wider range than others. Questions that ask respondents to indicate their preferred outcome rely on respondents having current awareness of the factors that should be considered in determining outcomes. Given that the issue of the Fire Underwriters rating changed days prior to the Open House, even the most informed participants may not have had time to consider the most current information. For that reason, responses to questions about the values held by respondents should be given the greatest consideration.

As summarized above, respondents indicated their overwhelming value for fire protection services (9.2/10 rating), and in descending order demonstrated their strong support for:

1. Improving fire protection services (7.2/10 rating);
2. Ensuring that fire protection services result in reduction of insurance premiums (7.0/10 rating); and
3. Reduction of service fees (taxes) related to fire protection services (6.8/10 rating).

Examination of options and recommendations, both covered later in this report, will take these values into consideration.

## Alternatives

The RDN RFP listed a number of options that were to be considered in the feasibility study, and noted that the options to be analyzed were “not limited to” those listed<sup>13</sup>. Four further options were identified during the course of the feasibility study:

1. Improve a service road in order to create a new, shorter response route from Extension fire hall to Nanaimo River area;
2. Continue to use the currently rented facility at Gogo’s Christmas Tree Farm;
3. Enter into a long-term lease arrangement for a purpose-built satellite fire hall on Gogo’s Christmas Tree Farm; or
4. Construct one fire hall, centrally located to serve the entire Extension Fire Protection Service Area.

The first three options listed above are addressed below under *Capital Options*. The option of building one central fire hall is addressed next.

### Potential for a New Centrally Located Fire Hall

The RFP for the feasibility study focussed on localized fire service solutions to the matter of fire protection service delivery in the Nanaimo River Fire Protection Service Area. The RFP did not however limit options to be considered to only those identified within the RFP. In the interests of examining all possible options, the Consultants examined the potential for one centrally located fire hall to serve the entire Extension Fire Protection Service Area. It has already been noted that the travel distance from the Extension fire hall to the Nanaimo River area is such that Fire Underwriters would assign a DPG of 5 for such a response, which equates to an insurance industry status of “unprotected.”

The RDN and the Nanaimo River community appear to have focussed since the time of expansion of fire protection services in 2005 on a satellite fire hall to serve the Nanaimo River area. Recent communications between community members and the RDN, and the resulting Feasibility Study RFP have continued to focus on a local solution. As a result;

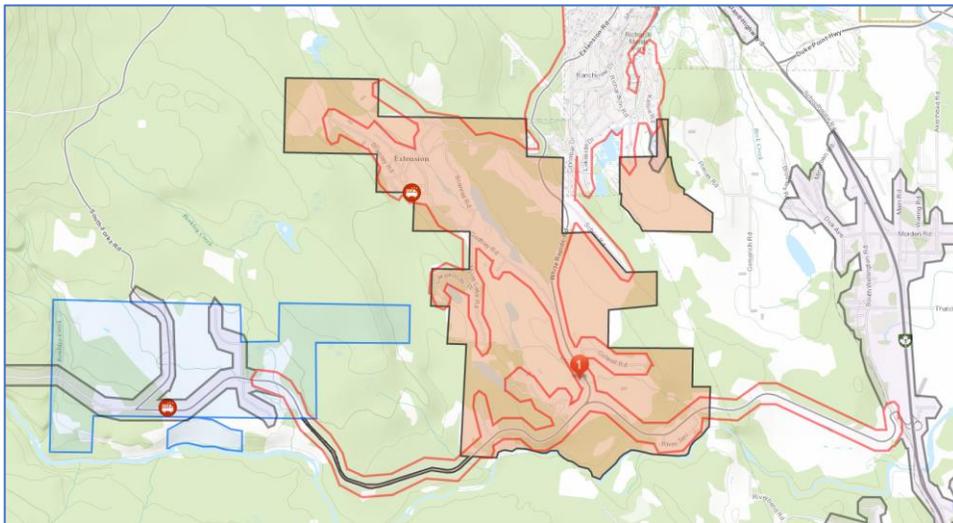
- consideration of relocating the EVFD fire hall was not identified in the RFP as an option to be considered;
- the community engagement process did not include a centrally located fire hall as an option for consideration;
- Extension property owners, residents and other interested stakeholders were not a target group for the engagement process; and

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<sup>13</sup> RDN *Request for Proposals* No. 22-027, issued March 1, 2022

- information regarding construction of one centrally located fire hall was not circulated as part of the Nanaimo River community engagement process or shared at the August 13<sup>th</sup> Open House.

Notwithstanding the above, the Consultants examined the potential for a central fire hall while also considering other options. A mapping exercise was completed to determine if there was a general location from which a newly constructed fire hall could serve all properties in the Extension Fire Protection Service Area (including Nanaimo River) with less than eight kilometres travel distance. Figure 2 below shows that one centrally-located fire hall (near the intersection of Colwell Road and White Rapids Road, 2.8 kms away from the location of the current fire hall), would be able to provide service to all properties in the service area, within the eight kilometre maximum travel distance specified by the Fire Underwriters in order to attain a DPG rating of 3B.



*Figure 2: Possible New Extension Fire Hall (1) at Colwell Road and White Rapids Road with 5 Km (red) and 8 Km (black) travel distance Polygons*

As is the case when fire halls are relocated, should the Extension fire hall be relocated to a site more central to all properties in the service area, some properties would be further away from the new fire hall than from the current one, resulting in the potential that some constituents could perceive a lowered level of service while other constituents might perceive an improved level of service related to the new fire hall being closer to their property. Figure 3 below indicates travel distances from the current Extension fire hall to a sampling of outer limit locations in the service area.

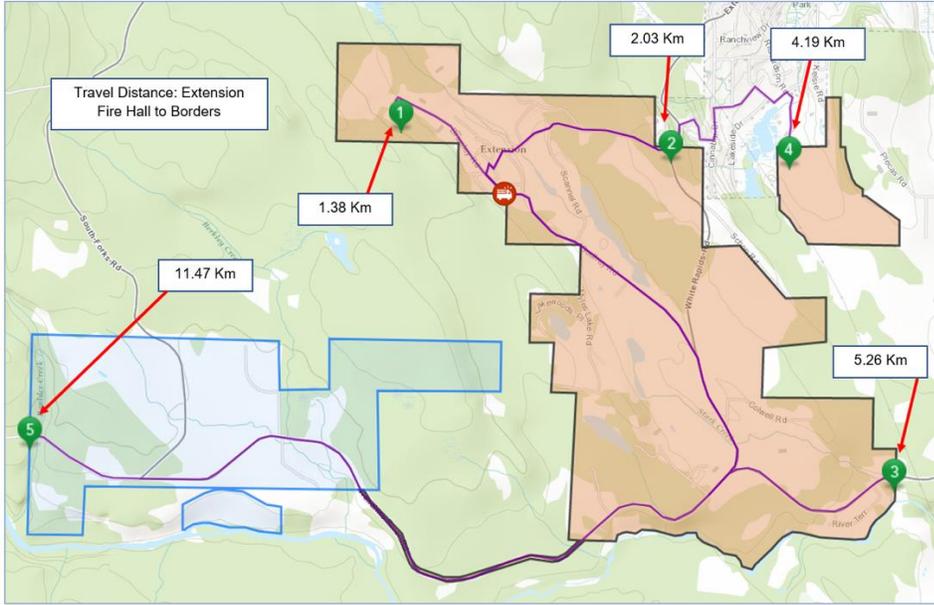


Figure 3: Travel to Borders: Current Site

Travel distances to the same outer limit points from a new centrally located fire hall are shown below:

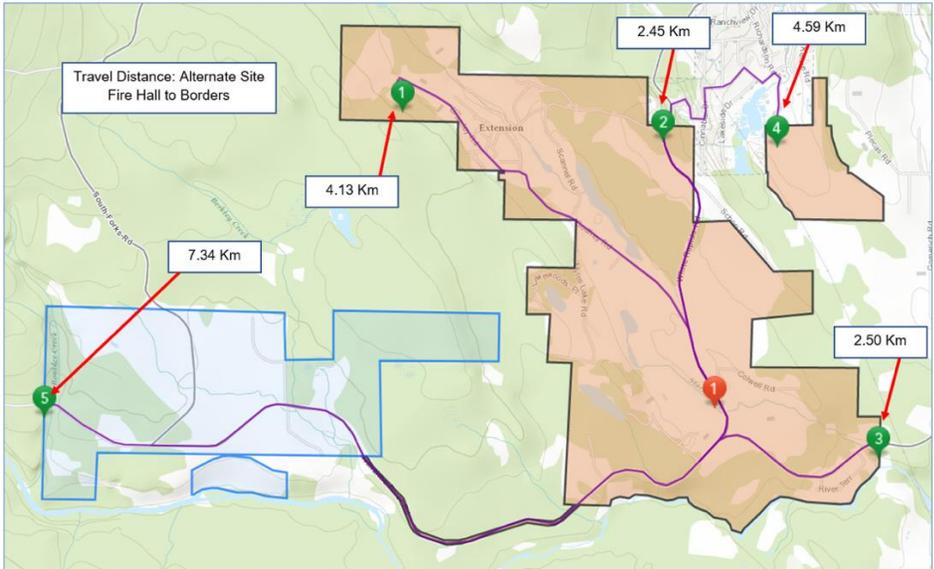


Figure 4: Travel to Borders: Alternate Site

Travel distance comparators for the same points from the two fire hall locations are shown in a table format below

Table 5: Distance comparators between the current fire hall and alternate site

Location	Kilometers From	
	Extension Fire Hall	Alternate Site
1	1.4	4.1
2	2.0	2.5
3	5.3	2.5
4	4.2	4.6
5	10.1	7.4
<b>Average</b>	<b>4.6</b>	<b>4.2</b>
Current Fire Hall	0.0	2.8

The data shown above indicates that a centrally located fire hall would be closer to some outer limit boundaries and further from others. On average a centrally located fire hall would be marginally closer to the outer limit locations sampled. A centrally located fire hall would be 2.8 kms south of the current fire hall, adding that travel distance to any responses to points north of the current fire hall, and reducing travel distance by that amount to all properties in the Nanaimo River area.

In many cases where a service area can be served adequately by one centrally located fire hall versus a main fire hall and a satellite fire hall, consolidation into one fire hall is considered. One fire hall could provide long-term efficiencies in terms of:

- Require fewer Fire Underwriter-recognized fire apparatus (lower capital replacement costs);
- Lower capital costs for fire hall construction over the longer term if one fire hall is constructed rather than two;
- Lower operating costs; and
- Require a minimum of 15 firefighters and one chief officer as opposed to 25 firefighters and one chief officer when fire protection is provided from two fire halls.<sup>14</sup>

It must be noted that Extension property owners, residents and other interested stakeholders have not been consulted on the potential to construct one centrally located fire hall, and may desire to not consider this option. Should the RDN wish to consider the option of one centrally

<sup>14</sup> Fire Underwriters require a minimum of 15 firefighters and one chief officer to be assigned to a fire hall, and an additional minimum of 10 firefighters assigned to each satellite fire hall.

located fire hall, that consideration and consultation should take place before taking action on other options for the Nanaimo River Fire Protection Service Area examined below.

## Capital Options

1. Improve the water pipeline service road in order for it to serve as a primary fire response route from Extension to Nanaimo River area (this option was not included in the RDN RFP but was identified during the feasibility study);
2. Construct a satellite fire hall on the identified parcel of land on Nanaimo River Road;
3. Construct a storage garage on the identified parcel of land at on Nanaimo River Road;
4. Continue to provide a fire response from the rented storage garage located at Gogo's Christmas Tree Farm at 2625 South Forks Road (this option was not included in the RDN RFP but was identified during the feasibility study); or
5. Lease property for a purpose-built satellite fire hall on Gogo's Christmas Tree Farm (this option was not included in the RDN RFP but was identified during the feasibility study).

Given the strictures of the Building Code and WorkSafe BC Regulations, there is no option available to rely long-term on a building which does not meet minimum requirements. The Building Code classifies buildings based on intended use. If a structure is intended to store fire apparatus and related equipment, and to support regular emergency responses, it has to be categorized as a fire station and built to applicable standards. As such, the concept of the RDN building a "garage" (Option 3 above) and using it as a fire hall is not viable as intended by proponents of that option.

Similarly, Option 4 (Continue utilizing a storage garage at Gogo's Christmas Tree Farm) cannot be relied on by the RDN as a long-term solution. Unless the building which is being leased is upgraded to meet Building Code requirements for use as a fire hall and necessary amenities and practices to support firefighters are implemented, this solution should only be used by the Department as a temporary measure while a new hall is being constructed.

## Finance Options

With regard to the reserve fund balance and annual contributions, several options were identified for consideration in the RDN RFP. The disposition of the reserve funds and annual contributions is predicated on whether RDN selects one of the options listed above. Three options for the reserve funds and annual contributions are identified below:

- A. Rationalizing (and continuing) annual reserve fund contributions (triggered by all options except option 4);
- B. Stopping annual reserve fund contributions and returning reserve funds (triggered only by option 4); or

- C. Stopping annual reserve fund contributions and retaining the reserve funds (triggered only by option 4).

## Capital Option Assessments

### Capital Option 1: Improve the Water Pipeline Service Road

The RDN RFP did not include improving a service road as an option to be considered in the feasibility study, but during site visits, the existence and potential of the service road came to light, and it bears examination for potential as a long-term option.

As outlined earlier in this report, an unpaved service road connects the EVFD fire hall with the Nanaimo River area via a more direct route than the public, paved roads. The road, described here as a water pipeline service road, appears to be utilized by the City of Nanaimo to access and service its water pipeline. While the service road presents a more direct route between Extension fire hall and the Nanaimo River area, the road is not currently used by the Department.

The service road is gravel-surfaced, gated at each end, is in rutted and/or washed-out condition in places, and features slopes that would make upgrading and regular use and maintenance challenging. The road also traverses a high elevation ridge which may contribute to accumulation of snow in winter. From informal inquiries, it also appears that there may be land ownership/rights of way issues that would potentially impact any conversion of the red to a regular thoroughfare for emergency vehicles.



Figure 5:  
Service road

At some point after Nanaimo River was added to the Extension Fire Protection Service Area, the Fire Underwriters appear to have identified this service road as a valid primary response route from the fire hall to the Nanaimo River area. If the service road was in fact a viable primary response route, most of the properties in the Nanaimo River area would be within eight kilometers travel distance from EVFD hall, meaning that a satellite fire hall would not be required in order for most property owners in the Nanaimo River area to be eligible for a DPG 3B rating and related insurance premium reductions, materially impacting the cost-benefit analysis for a satellite hall.

Table 6: Option Assessment 1

<b>Option Assessment – Improve the Water Pipeline Service Road</b>	
<b>Does this option improve fire protection services?</b>	If it was an acceptable route, capable of supporting emergency responses, it would shorten travel time to the Nanaimo River area. However, due to slope issues, even if upgraded, this option may actually result in unchanged or longer response times. This option does not have potential to decrease response times to the same extent as would be achieved by constructing a satellite hall.
<b>Does this option enable lower insurance premiums?</b>	Yes. The Nanaimo River Fire Service Area would have the same rating as has existed since 2005 (i.e., DPG 3B). The lowered insurance premium benefit from this option would be the same as construction of a satellite fire hall.
<b>Does this option reduce taxation?</b>	Unlikely. There would be a significant capital outlay required to bring the road up to the standard required to support regular emergency vehicle use, as well as significant on-going maintenance costs (unless the Province of BC adopted the road as a provincial responsibility, or another public or private entity assumed similar responsibility).
<b>Quantitative Analysis</b>	<p>Capital road works would need to be undertaken to address drainage/culvert/ditching, brushing, widening and, at a minimum, hard surfacing the steeply sloped portions of the road.</p> <p>Gates at both ends of the road would need to be removed or upgraded to enable responding fire apparatus to pass through without delay (reliable remote operation).</p> <p>Regular maintenance would need to be undertaken, including brushing, re-surfacing, and snow plowing.</p> <p>Capital and operating expenses have not been calculated for this option.</p>
<b>Legislative</b>	This option may involve Ministry of Highways and Infrastructure (MOTI) adopting the service road as a provincial road or could require MOTI

Option Assessment – Improve the Water Pipeline Service Road	
	approving access and egress to/from the service road from/to provincial roads at either end of the service road.
<b>Fire Underwriters</b>	This option could satisfy Fire Underwriters' requirements for DPG 3B rating (a property must be within 8 km travel distance from a responding fire department), resulting in achieving the same DPG rating as if a satellite fire hall was constructed.
<b>Other External Impacts</b>	This option could require approval of landowners over which the service road passes, approval to undertake capital road improvements, permission to maintain the road, and agreement the road will remain open and passable at all times.
<b>Analysis Summary</b>	<p>While this option has potential to meet Fire Underwriters' requirements for 3B DPG rating in the Nanaimo River area, it presents considerable complexity involving owners of the lands over which the service road passes and involvement of MOTI. It would involve considerable undefined capital and operating expenses, and may even then not provide the fastest response to the Nanaimo River area due to the steep slopes.</p> <p>This option does not guarantee improved fire protection services (reduced response times). Its primary value would be in enabling reduced fire insurance premiums without incurring the expense of constructing and operating a satellite fire hall. However, there could be similar or even greater expense involved in improving and maintaining the service road. Unless the Province of BC or some other public or private entity undertakes improvement and maintenance of the service road to a standard that enables it to be a primary Department response route, this option is not recommended for consideration.</p> <p>Further, due to the uncertainty as to whether this option could improve fire protection services in the Nanaimo River area, which was of high value to respondents to the RDN community engagement process, this option is not recommended.</p>

**Capital Option 2: Construct a Satellite Fire Hall**

In 2005, the construction of a satellite fire hall in the Nanaimo River area was a concept that underpinned the expansion of the Extension Fire Service Area. It was recognized that the newly added Nanaimo River properties were more than eight kilometres from the EVFD fire hall, and that, to obtain a DPG rating for the area required a satellite hall. That hall also would result in the improvement of emergency responses in Nanaimo River, by lowering response times.

Property for a satellite fire hall was secured from the Province of BC. The chosen location is

suitable to provide the necessary coverage for Nanaimo River properties.

To qualify as a satellite hall under the Fire Underwriters' rating system, it also will be necessary to have 10 regularly responding firefighters assigned to the hall, and to acquire fire apparatus that is less than 20 years old.

Table 7: Option Assessment 2

<b>Option Assessment – Construct a Satellite Fire Hall</b>	
<b>Does this option improve fire protection services?</b>	Yes, this option would result in improved fire protection services by reducing response times in the area. Of all the options, this option would provide the most robust (post-disaster) fire department presence in the area.
<b>Does this option enable lower insurance premiums?</b>	Yes, this option would provide for a DPG rating of 3B and potential for future accreditation to DPG 3A (fully protected) if a qualifying water system (fire hydrants with a water system that has specified redundancies and capacities) is installed. Capital Option 1 and Capital Option 2 are the only options that would enable future rating improvement from DPG 3B to 3A.
<b>Does this option reduce taxation?</b>	No, if this option was implemented it would involve expenditure of existing reserve funds and borrowing, which would then require continued annual taxation to service the debt. Once the debt was retired, the additional taxation would no longer be required and the service area disbanded.
<b>Quantitative Analysis</b>	Construction and equipping costs estimated to be \$2,909,287 based on Herold Engineering Class D construction cost estimate of Meadowood satellite fire hall.
<b>Legislative</b>	This option may involve MOTI approving access to and egress from the satellite fire hall location. Also, the proposed use should be considered relative to land use zoning.
<b>Fire Underwriters</b>	This option would result in a rating of 3B DPG (semi-protected) for properties in the Nanaimo River area (subject to staffing and apparatus). If a tender (tanker) truck was stationed at the satellite fire hall the Department could pursue Superior Tanker Shuttle Service (STSS) accreditation which, if achieved, would result in a rating of DPG 3B(S), which is treated as fully protected by insurers, enabling further reductions to insurance premiums in the area.
<b>Other External Impacts</b>	None.

<b>Option Assessment – Construct a Satellite Fire Hall</b>	
<b>Analysis Summary</b>	This option aligns best with the original (2005) intent behind the establishment of the Nanaimo River Fire Service Area, and expansion of the Extension Fire Protection Service Area. It also aligns with the values of those who responded to the community engagement process in 2022. This is the best of all options in terms of fire service improvements and lowered insurance premiums, but is not the best option for reduced taxation.

**Capital Option 3: Construct a Storage Garage**

As was addressed earlier in this report, a fire department facility intended to house emergency response equipment and from which firefighters would respond to emergencies would require adherence to the BC Building Code and WorkSafe BC Regulations. The RDN cannot construct a building intended for use as a storage garage and then use that facility as a fire hall. This option then considers construction of a facility that meets BC Building Code and WorkSafe BC requirements for a fire hall, and that facility being operated at a level (staffing and equipment) that does not meet Fire Underwriters’ standards for a DPG 3B.

*Table 8: Option Assessment 3*

<b>Option Assessment – Construct a Storage Garage</b>	
<b>Does this option improve fire protection services?</b>	Yes, this option would result in improved fire protection services by reducing response times in the area.
<b>Does this option enable lower insurance premiums?</b>	No. If this option was implemented the Fire Underwriters’ rating for a almost all of the Nanaimo River properties would be DPG 5 (unprotected status).
<b>Does this option reduce taxation?</b>	No, if this option was implemented it would involve expenditure of reserve funds and borrowing, which would require continued annual service fees. The amount of borrowing and the continued service fees might be marginally lower than the option to construct and operate a facility deemed by Fire Underwriters to be a satellite fire hall as a result of fewer firefighters responding from that facility and if an older apparatus was used.

<b>Option Assessment – Construct a Storage Garage</b>	
<b>Quantitative Analysis</b>	<p>Construction and equipping costs estimated to be \$2,409,287 based on Herold Engineering Class D construction cost estimate of Meadowood satellite fire hall.</p> <p>This cost estimated is \$500,000 less than the estimate to construct a satellite fire hall as it includes the same construction costs but does not include purchase of a new fire engine</p>
<b>Legislative</b>	<p>This option may involve Ministry of Highways and Infrastructure (MOTI) approving access to and egress from the satellite fire hall location. Also, the proposed use should be considered relative to land use zoning.</p>
<b>Fire Underwriters</b>	<p>The Fire Underwriters have currently assigned an interim rating of DPG 3B pending the outcome of the feasibility study. If this option is selected the Fire Underwriters would most likely change the rating for the Nanaimo River area to DPG 5 (unprotected) due to the Extension fire hall being more than 8 kms away. A change from DPG 3B to 5 would likely result in increased insurance premiums in the Nanaimo River area.</p>
<b>Other External Impacts</b>	<p>None.</p>
<b>Analysis Summary</b>	<p>This option does not fully align with the RDN original (2005) intent or with the values of those who responded to the community engagement process in 2022. While this option would improve fire protection services in the Nanaimo River area, it would not result in insurance premium reductions, and may not result in a considerable reduction in service fees (taxes).</p> <p>This option could provide marginal capital and operating savings over construction and operation of a satellite fire hall.</p> <p>This option is not recommended.</p>

**Capital Option 4: Continue to Utilize Storage Garage Located at Gogo’s**

The Department is currently renting a facility located at Gogo’s Christmas Tree Farm. A reserve fire engine is located there, and a number of Department personnel can respond to incidents from that location.



Figure 6: Rented Facility at Gogo’s

The RDN RFP did not include the Gogo rented facility as an option to be considered in the feasibility study, but during our site visits, the existence of the rented facility came to light, and it bears consideration as an option.

Rent and any other costs associated with the current operation of a rented facility at Gogo’s are being funded through the Extension Fire Protection Service Area. This Option Assessment assumes that the current funding format would remain in force if this option was implemented.

As the rented facility does not appear to meet Building Code or WorkSafe BC Regulation requirements, it is not suitable as a long-term option for the Department. However, it may be suitable as an interim option, while a satellite hall is constructed.

Table 9: Option Assessment 4

Option Assessment – Continue to Use Gogo’s Storage Garage	
<b>Does this option improve fire protection services?</b>	Yes, this option would continue to result in improved fire protection services by reducing response times in the area.
<b>Does this option enable lower insurance premiums?</b>	No. The structure does not meet the Fire Underwriters’ criteria for a suitable fire hall. As such, the rating would continue to be based on responses from the main fire hall.

<b>Option Assessment – Continue to Use Gogo’s Storage Garage</b>	
<b>Does this option reduce taxation?</b>	<p>Long-term use of Gogo’s rented facility is not a viable option. As such, it may only be suitable as an interim solution while a satellite hall is constructed. Some facility upgrades may be necessary to ensure safe interim operations out of this building.</p> <p>Continued, interim operation of this site should be supported by creation of operational guidelines addressing various risks associated with its use, a formalized lease agreement and secured access and egress, all of which could be achieved by the RDN and the Society. Ongoing operating costs would presumably continue to be covered by the main service area.</p>
<b>Quantitative Analysis</b>	An assessment should be conducted as to any material safety or regulatory issues arising from the use of the building as an interim fire department facility, and funds applied to rectify or address such issues.
<b>Legislative</b>	Current use should be considered relative to land use zoning and occupancy permit.
<b>Fire Underwriters</b>	Continued use of this rented facility would not contribute to a long-term DPG 3B rating, but may enable continuation of a DPG 3B rating on an interim basis while a new fire hall is being constructed.
<b>Other External Impacts</b>	None.
<b>Analysis Summary</b>	<p>This option should only be considered as an interim solution while a satellite hall is under construction. The building needs to be reviewed for safety issues and defects, and appropriate OGs developed by the Department to manage any risks associated with its use.</p> <p>If construction of a satellite hall is approved, it may be possible to convince the Fire Underwriters to provide an interim rating (e.g., DPG 3B or 4), based on there being a response from the temporary facility. Such a decision, however, is entirely within the discretion of the Fire Underwriters.</p>

**Capital Option 5: Lease a Purpose-built Satellite Fire Hall on Gogo’s Christmas Tree Farm**

The RDN RFP did not include this option to be considered in the feasibility study, but during the community engagement Open House, Mike Gogo expressed his willingness to construct a new

satellite fire hall elsewhere on his property.<sup>15</sup> The option bears consideration (or elimination) as a long-term option.

Table 10: Option Assessment 5

Option Assessment – Lease a Purpose-built Structure at Gogo’s	
<b>Does this option improve fire protection services?</b>	Yes, this option would result in improved fire protection services by reducing response times in the area.
<b>Does this option enable lower insurance premiums?</b>	Yes, if the satellite fire hall meets Fire Underwriters’ criteria.
<b>Does this option reduce service fees (taxes)?</b>	<p>Possibly. This proposal is essentially a public-private partnership (P3). In order for the effect of this proposal on service fees to be calculated, details of the facility and the lease agreement would first need to be worked out. The range of options under P3 arrangements is quite broad, and may involve some financial commitment on the capital side from the RDN (so, potentially the expenditure of some or all of the reserve funds; it likely would not make sense to adopt this option if significant borrowings were required by the Nanaimo River Fire Service Area).</p> <p>The RDN would then need to consider whether on-going the lease payments are in the nature of capital (and properly attributable to the Nanaimo River Fire Service Area) or are of an operating nature and attributable to the combined service area. From the historical materials reviewed, it is clear that on-going costs for the satellite hall were to become the responsibility of the combined service area, with Nanaimo River residents only responsible for the initial capital outlays (suggesting that if the lease is an operating cost, the Nanaimo River Fire Service Area could be disbanded). If the lease is of a capital nature, then the cost would fall to the Nanaimo River residents.<sup>16</sup></p>

<sup>15</sup> At the time, the idea included the possibility of a “storage garage” as an alternative. Given the requirements of the *Building Code*, any structure to be used by the Department needs to meet post-disaster standards.

<sup>16</sup> A third possibility is that a portion of the lease costs are treated as a capital expenditure (borne by Nanaimo River residents), while the remainder are treated as an operating expense.

<b>Option Assessment – Lease a Purpose-built Structure at Gogo’s</b>	
<b>Quantitative Analysis</b>	<p>This proposal is best compared directly to the options of the RDN constructing a satellite fire hall, which involves the construction of a new facility. We assume that the costs identified in Option 2 would apply to this Option 5 as well.</p> <p>Given that the RDN already owns land for construction of a satellite fire hall, and that the RDN can borrow funds at competitive rates of interest, it may be challenging for a P3 project to provide compelling economic value compared to an RDN-led construction project. The economics of the two approaches will need to be examined closely to determine which provides the better value for taxpayers.</p>
<b>Legislative</b>	<p>The proposed use should be considered relative to land use zoning.</p> <p>Consideration needs to be given to whether a proper lease for only a portion of the land can be granted.</p> <p>Access and egress issues may need to be addressed with MOTI.</p> <p>P3 projects are potentially complex. The Province has detailed P3 guidelines that can be used to guide the RDN’s detailed assessment of this option.</p>
<b>Fire Underwriters</b>	<p>The Fire Underwriters’ rating assessment is the same as Option 2. (construction of a satellite fire hall)</p>
<b>Other External Impacts</b>	<p>None</p>
<b>Analysis Summary</b>	<p>The RDN is considering construction of a public amenity that will likely serve the community for 50 years or more. The borrowing costs related to an RDN-led project would be repaid over a 20-year period. There is potential that a P3 project could result in costs being smoothed over a longer period of time, thus reducing the impact on taxation. This proposal seems only to provide value if Nanaimo River area property owners cannot make the payments required to retire the borrowed debt over a 20-year period, and desire to enter into a P3 agreement to amortize the expense over a longer period of time.</p> <p>Option 5 and Option 2 both involve constructing a new satellite fire hall. They are the only viable long-term options (other than constructing one centrally located fire hall) that enable insurance premium reductions while also improving fire protection service (response times).</p>

## Finance Option Comparison

The three options (the “Finance Options”) related to managing reserve funds and annual contributions derived from taxation are dependent upon which of the five options above is selected for implementation. Table 11 below relates the Finance Options to the five previous options and to the values expressed by those who responded to the community engagement process questionnaire.

Table 11: Finance options

	<b>Option A</b>	<b>Option B</b>	<b>Option C</b>
	<b>Rationalizing (and continuing) Annual Reserve Fund Contributions</b>	<b>Stopping Annual Reserve Fund Contributions and Returning Reserve Funds</b>	<b>Stopping Annual Reserve Fund Contributions and Retaining the Reserve Funds</b>
<b>Which Capital Options enable this Financial Option?</b>	All except Option 4 and possibly 5	Option 4 only	Option 4 only
<b>Can this align with improved fire protection services?</b>	Yes	Yes	Yes
<b>Can this align with lowering insurance premiums?</b>	Yes	No	No
<b>Can this align with reduced service fees (taxes)</b>	No	Yes	Yes
<b>Implications</b>	If RDN selects the option to improve the service road, construct one centrally located fire hall, construct a satellite fire hall or lease a satellite fire hall, this Financial Option should be implemented	As noted earlier, long term continued use of the Gogo’s rented facility is not an option.	As noted earlier, long term continued use of the Gogo’s rented facility is not an option.

# Recommendations

Of the five options summarized above, only two options have the potential to both improve fire protection services as measured by reduced response times and also enable reduction in insurance premiums. Both of those options involve construction of a satellite fire hall in the Nanaimo River area. One of those two options involves construction of a satellite fire hall on land that RDN possesses (Nanaimo River Road) for the purpose, and the other option involves a P3 proposal for construction of a satellite fire hall on private property on South Forks Road near the intersection with Nanaimo River Road.

The Nanaimo River Road property is better located relative to the properties to be protected and to the residences of current volunteer firefighters. Given that the RDN already possesses land for the purpose of constructing a satellite fire hall, purchase of land is not a restricting factor to that option. Further, given that the RDN has access to borrowed capital at competitive rates of interest, any advantage of a P3 project is lessened. However, a more detailed assessment of the P3 option is required, to properly compare the relative costs involved. It also is possible that a lease arrangement for the new hall would be properly classified as an operating expense, one which is shared across the entire fire protection service area.

Given the recommended capital option(s), the recommended financial option is Option A, rationalizing and continuing annual reserve fund contributions. The reserve funds can be expended in support of construction costs, and future service fees (taxes) can be utilized to make payments on debt incurred for capital expenses related to construction and outfitting of the satellite fire hall.

<b>Recommendation</b>	The RDN should engage with the Extension Volunteer Fire Department Society Board and the EVFD to discuss the potential for construction of one centrally located fire hall to serve the entire Extension Fire Protection Service Area.
<b>Recommendation</b>	If the RDN concludes that construction of one centrally located fire hall is not the preferred option, then the RDN should proceed with due process toward construction of a satellite fire hall. The RDN should investigate whether a P3 partnership provides better value than constructing a publicly-owned facility on land located on Nanaimo River Road already in the possession of RDN for that purpose.
<b>Recommendation</b>	Whether the RDN proceeds with construction of one centrally located fire hall or a satellite fire hall, efforts should be undertaken to enable community involvement in the project.
<b>Recommendation</b>	The RDN should implement measures necessary to provide for firefighter safety and compliance with applicable regulations in continued use of the rented facility in the Nanaimo River area.

	<p>Measures should include consideration of access to adequate amenities and development and implementation of operational guidelines to support continued safe use of the facility.</p>
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## Satellite Fire Hall Designs and Costs

A design has not been established for a satellite fire hall in the Nanaimo River area, and for that reason a project cost estimate has not been developed. This section summarizes two recent fire hall projects, to provide a high-level view of potential construction costs of a satellite fire hall in Nanaimo River. Each project involves a fire hall located on Vancouver Island that appears to meet or exceed all requirements for a satellite fire hall.<sup>17</sup>

### Meadowood Satellite Fire Hall (1800 Galvin Place)



Figure 7: Meadowood Fire Hall

Table 12: Meadowood Satellite Fire Hall costs

Meadowood Satellite Fire Hall	
Project Stage	Constructed in 2008
Cost	\$2,359,287 + GST in 2022 (Class D estimate)
BC Building Code Compliant	Yes
Truck Capacity	1 extended drive through bay plus 1 single bay = 3 vehicle capacity

<sup>17</sup> Meeting requirements of BC *Building Code*, WorkSafe BC requirements, and Fire Underwriters' standards.

Meadowood Satellite Fire Hall	
Turn Out Gear Storage (minimum 10)	Yes
Washroom/Shower Facilities	Yes
Decontamination shower	Yes
Laundry	Yes
Vehicle Exhaust Extraction Capability	Yes
Equipment/hose Storage	Yes
Office	Yes
Workshop	Yes
Fitness Room	Yes
Break Room/Kitchen	Yes, with kitchen
Parking	Yes
Training Space (optional but recommended)	Yes
Community Use Space (optional)	No

**Merville Satellite Fire Hall (7352 North Island Highway)**



Figure 8: Merville Satellite Fire Hall

Table 13: Merville Satellite Fire Hall Costs

Merville Satellite Fire Hall	
Project Stage	Constructed in 2022
Cost	\$2,963,183 + GST in 2022 (Class D estimate)
BC Building Code Compliant	Yes
Truck Capacity	2 back-in bays
Turn Out Gear Storage (minimum 10)	Yes
Washroom/Shower Facilities	Yes (2 washrooms, 1 shower)
Decontamination shower	No
Laundry	No, but space available for addition of laundry facilities
Vehicle Exhaust Extraction Capability	Yes, included
Equipment/hose Storage	Yes, modest
Office	Yes
Workshop	No, but space available for establishing
Fitness Room	Yes
Break Room/Kitchen	Yes, with kitchen
Parking	Yes
Training Space (optional but recommended)	Yes
Community Use Space (optional)	Yes, meeting room with separate entrance

Table 14 shows a side-by-side comparison.

Table 14: Side-by-side cost comparison

Criteria	Meadowood	Merville	Merville Modified*
Project Stage	Built/Operating	Built/Operating	Built/operating

<b>Criteria</b>	<b>Meadowood</b>	<b>Merville</b>	<b>Merville Modified*</b>
<b>Cost</b>	\$2,359,287 + GST in 2022 (Class D estimate)	\$2,963,183 + GST in 2022 (Class D estimate)	\$2,531,483 + GST in 2022 (Class D estimate)
<b>BC Building Code Compliant</b>	Yes	Yes	Yes
<b>Truck Capacity</b>	1 drive through double bay + 1 back in bay (3 total)	2 back-in bays	2 back-in bays
<b>Turn Out Gear Storage (minimum 10)</b>	Yes	Yes	Yes
<b>Washroom/Shower Facilities</b>	Yes	Yes (2 washrooms, 1 shower)	Yes (2 washrooms, 1 shower)
<b>Decontamination shower</b>	Yes	No	No
<b>Laundry</b>	Yes	No, but space available for addition of laundry facilities	No, but space available for addition of laundry facilities
<b>Vehicle Exhaust Extraction Capability</b>	Yes	Yes	Yes
<b>Equipment/hose Storage</b>	Yes	Yes	Yes
<b>Office</b>	Yes	Yes	Yes
<b>Workshop</b>	Yes	No, but space available for establishing	No, but space available for establishing
<b>Fitness Room</b>	Yes	Yes	Yes
<b>Break Room/Kitchen</b>	Yes, with kitchen	Yes	No
<b>Parking</b>	Yes	Yes	Yes

<b>Criteria</b>	<b>Meadowood</b>	<b>Merville</b>	<b>Merville Modified*</b>
<b>Training Space (optional but recommended)</b>	Yes	Yes	No
<b>Community Use Space (optional)</b>	No	Yes, meeting room with separate entrance	No

\*Merville Modified: This column examines the potential replication of the Merville satellite fire hall without the break/room kitchen which could also serve as a multi-use community amenity.

## Project Budget

Construction costs (including site preparation) are the major budgetary component for construction and outfitting of a satellite fire hall. Other broad cost categories include:

- Apparatus;
- Equipment; and
- Project contingency.

## Apparatus

In order for a satellite fire hall to be recognized by Fire Underwriters, it must include, at a minimum, a triple combination (water, hose, pump) fire engine that is less than 20 years old. As the apparatus currently stationed at the rented facility in the Nanaimo River area is now some 28 years of age, it is likely that Fire Underwriters will not recognize that unit as meeting the criteria to enable a DPG of 3B.

It may be possible for RDN to petition Fire Underwriters to extend the recognized working life of the current apparatus. Extensions are possible for up to 25 years, based on the apparatus meeting various tests (e.g., pumping, braking acceleration), and in rare circumstances, even past 25 year. Any such extensions need to be viewed as a temporary measure, to enable the community to acquire a new unit. It may also be possible for RDN to purchase a used apparatus with some useful, rated life remaining. This approach might avoid the capital cost of purchasing a new apparatus for several years, though care needs to be taken to ensure that the cost actually reflects its reduced ratable lifespan. The Department should be consulted to ascertain the next scheduled apparatus purchase date.

It may also be possible for the Department to redeploy current and soon to be purchased apparatus in order to meet Fire Underwriter minimum apparatus requirements.

Borrowing to purchase a new apparatus may represent a financial challenge for the community, however, doing so will provide the most reliable service for the longest period of time, and may provide the best value given that a new apparatus will have a 20-year working life span. A new satellite fire hall with new apparatus would likely be a point of pride for the community and the Department, and would be an asset in retaining current volunteer firefighters and attracting new ones.

Construction of one centrally located fire hall would not require the purchase of an additional apparatus, as the 2020 Extension fire engine could serve the entire service area from a central location.

## Equipment

Properly equipping the new fire hall and apparatus will involve the acquisition of some additional equipment (e.g., hose, tools, nozzles, etc.). The Department likely has some equipment on hand that could be repurposed, and the current apparatus staged at a rented facility in the Nanaimo

River area will have transferable equipment. There will be a need for additional equipment such as onboard computers, office equipment, furniture, etc. The project budget for a satellite fire hall should provide for these expenses.

## Project Contingency

Any project of this magnitude requires an adequate contingency for overruns, unforeseen needs and change orders. The tables below include a 15% contingency for consulting fees and a 20% contingency related to construction costs. There is no contingency included below for apparatus or equipment.

Project costs estimates used below are derived from an October 3, 2022, report to the RDN from Herold Engineering. The RDN retained Herold Engineering of Nanaimo, BC to prepare current Class D estimates of probable cost for construction of a fire hall at Nanaimo River based on the following fire hall designs:

- Merville fire hall
- Modified version of Merville fire hall (meeting room deleted)
- Meadowood fire hall

## Project Cost Estimate

Table 15: Cost estimate to construct Merville fire hall at Nanaimo River

Cost Estimate to Construct and Outfit Merville Fire Hall at Nanaimo River			
Expenditures		Revenue Sources	
Fire hall construction <sup>18</sup>	\$1,539,950	Reserve Funds	\$240,000
Land purchase	\$0	Community Works Funds <sup>19</sup>	\$0
Site works	\$655,000	Borrowing	\$3,273,183
Consulting fee contingency (15%)	\$329,243		
Construction contingency (20%)	\$438,990		

<sup>18</sup> Class D estimate provided by Herold Engineering to RDN on October 3, 2022

<sup>19</sup> The RDN has access to an estimated \$808,190 in Community Works Funding allocated to Electoral Area C. All or a portion of these funds could be allocated to the satellite fire hall project.

Cost Estimate to Construct and Outfit Merville Fire Hall at Nanaimo River			
Expenditures		Revenue Sources	
Triple Combination Pumper <sup>20</sup>	\$500,000		
Equipment	\$50,000		
<b>Total</b>	<b>\$3,513,183</b>	<b>Total</b>	<b>\$3,513,183</b>

Table 16: Cost estimate to construct modified version of Merville fire hall at Nanaimo River

Cost Estimate to Construct and Outfit a Modified Version of Merville Fire Hall at Nanaimo River			
Expenditures		Revenue Sources	
Fire hall construction	\$1,539,950	Reserve Funds	\$240,000
Land purchase	\$0	Community Works Funds	\$0
Site works	\$655,000	Borrowing	\$2,841,483
Consulting fee contingency (15%)	\$329,243		
Construction contingency (20%)	\$438,990		
Total reduction related to deletion of meeting space	(\$431,700)		
Triple Combination Pumper	\$500,000		
Equipment	\$50,000		
<b>Total</b>	<b>\$3,081,183</b>	<b>Total</b>	<b>\$3,081,183</b>

<sup>20</sup> CVRD recently purchased a suitable 2022 fire engine for the Merville satellite fire hall for \$500,000. A triple combination pumper less than 20 years old is required to meet Fire Underwriter standards.

Table 17: Cost estimate to construct modified version of Merville fire hall at Nanaimo River (meeting room deleted)

Cost Estimate to Construct and Outfit a Meadowood Equivalent Fire Hall at Nanaimo River			
Expenditures		Revenue Sources	
Fire hall construction	\$1,092,620	Reserve Funds	\$240000
Land purchase	\$0	Community Works Funds	\$0
Site works	\$655,000	Borrowing	\$2,669,287
Consulting fee contingency (15%)	\$262,143		
Construction contingency (20%)	\$349,524		
Triple Combination Pumper	\$500,000		
Equipment	\$50,000		
<b>Total</b>	<b>\$2,909,287</b>	<b>Total</b>	<b>\$2,909,287</b>

## Cost Factors<sup>21</sup>

### Site Costs

Cost estimates to construct a fire hall in Nanaimo River are considerably higher than the actual costs when CVRD constructed the Merville fire hall in 2022 (\$655,000 versus \$183,440). The considerably higher site cost projection is a result of a lack of information about the Nanaimo River site available to the costing engineer at the time of the report.

### Seismic Post Disaster Requirements

The BC Building Code sets out required seismic load capacity for structures in different areas of the province. The seismic post disaster requirements for a fire hall in the Nanaimo River area are 48% higher than in the Merville area, adding cost to construction of similar buildings in the one area over the other. This impacts cost projection for replication of the Merville fire hall.

<sup>21</sup> This section of the report relies on the October 3, 2022 letter to RDN from Herold Engineering

## Existing Construction Climate

While the Merville fire hall was constructed in 2022, the tenders for construction were received in 2021. British Columbia continues to experience escalating construction costs. Herold Engineering estimates that construction cost have climbed 25-30% since the Merville fire hall was tendered. This cost escalation is reflected in the cost estimate to construct the same or similar fire hall in the Nanaimo River area.

## Contingency

Construction cost estimates in this report include a consulting fee contingency (15%) and a construction cost contingency (20%).

## Community Contribution

As mentioned earlier there appears to be an active willingness within the Nanaimo River area to assist in construction of a satellite fire hall. This opportunity should be explored further. Community involvement in a project of this nature can reduce costs and help the community connect to the facility, which will be an asset later for the Department as they seek to recruit new volunteers from the area.

## Calculated Impact of Borrowing

Constructing and equipping a new satellite fire hall in the Nanaimo River area on land already in possession of the RDN for that purpose will require borrowing. Service fees (taxes) will be required to pay down that debt over a period of time.

Table 18 below shows the estimated annual service fee (taxes) required to retire the debt over a period of 20 years.

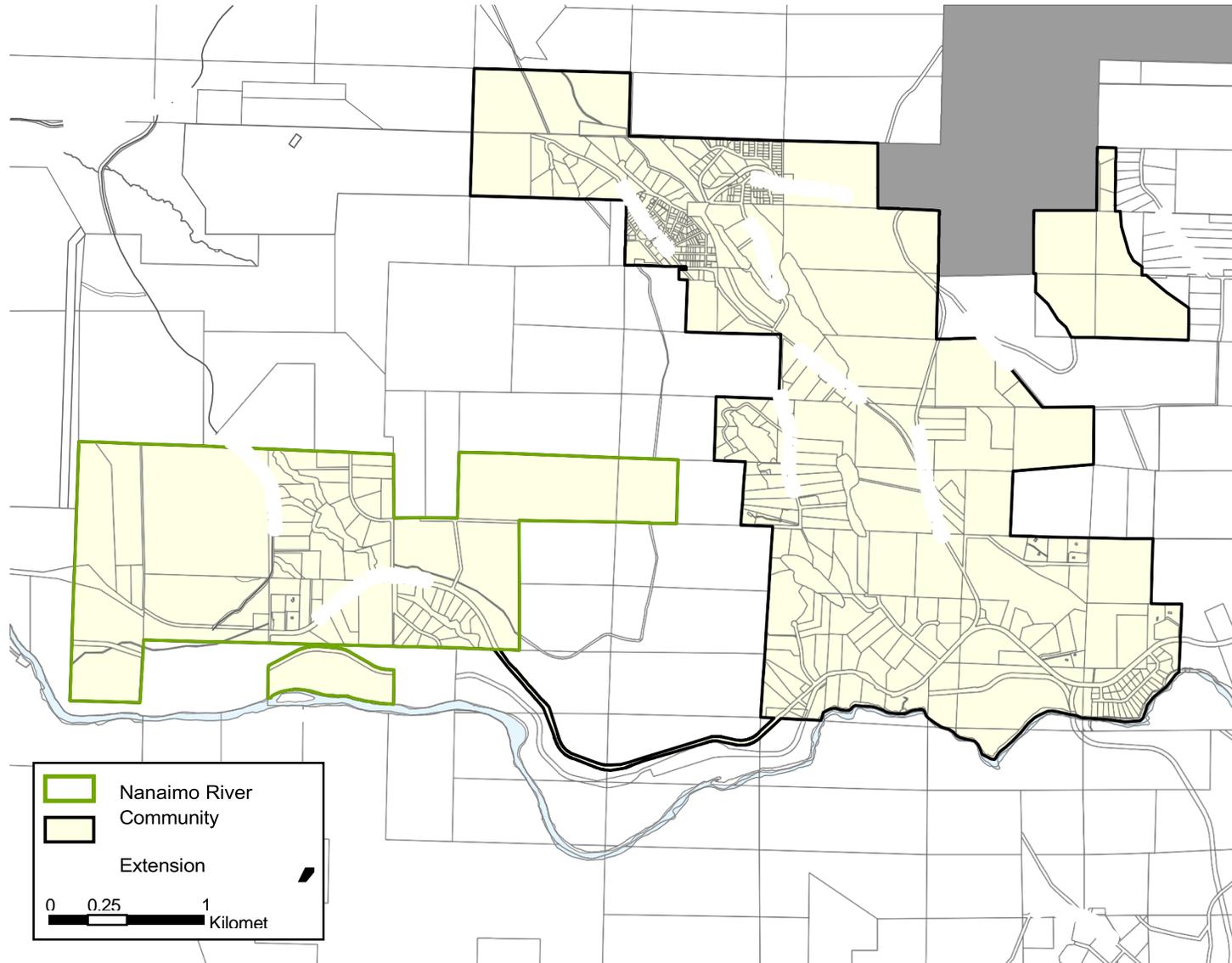
*Table 18: Estimated service fee (taxes) impact related to borrowing, based on the 2022 Revised Roll assessments*

<b>Estimated Annual Service Fees (Taxes) – Nanaimo River Service Area</b>	
<b>Fire Hall Design</b>	<b>Taxation per \$100,000 Assessed Value</b>
<b>Merville fire hall design</b>	\$432.64
<b>Modified Merville fire hall design</b>	\$375.58
<b>Meadowood equivalent fire hall design</b>	\$352.82

# Recommendations

<p><b>Recommendation</b></p>	<p>The RDN should explore the potential to allocate Community Works Funds for the construction of one centrally located fire hall or a satellite fire hall.</p>
<p><b>Recommendation</b></p>	<p>The RDN should explore the potential to access grant funding for the purpose of constructing one centrally located fire hall or a satellite fire hall</p>
<p><b>Recommendation</b></p>	<p>The Department, the Society and the RDN should explore the potential to reduce satellite fire hall construction costs in the areas of building design, site preparation costs, development of detailed design plans, and community contributions to the project.</p>
<p><b>Recommendation</b></p>	<p>The Department, the Society and the RDN should explore the potential to redeploy current apparatus and re-assess apparatus replacement plans in order to meet Fire Underwriter minimum standards with current and near-future apparatus resources, for the purposes of reducing satellite fire hall costs by an estimated \$500,000.</p>

## Appendix 1: Map of Area



## Appendix 2: RFP Terms of Reference

Below is an excerpt from RDN RFP No. 22-027 *Feasibility Study for options development for the Nanaimo River Fire Protection Service Area in Electoral Area C*

### 1. INTRODUCTION

The Regional District of Nanaimo (RDN) is seeking a qualified and experienced consultant to conduct two (2) separate feasibility studies with differing scope and pricing to be submitted in one proposal package of no more than 50 pages.

#### **Feasibility Study for options development for the Nanaimo River Fire Protection Service Area in Electoral Area C**

In 2005 the properties in the Nanaimo River/South Forks area were petitioned to amend the boundaries of the Extension Fire Protection Service Area to include 45 properties within its boundaries. At the same time, the property owners were petitioned to create a new fire protection service area for the purpose of raising capital funds to build a firehall and purchase equipment.

In 2019, the RDN completed a standardization of fire halls project to develop standardized conceptual fire hall designs. Using these designs and the corresponding Class C estimate, the cost of constructing a satellite fire hall for the Nanaimo River Fire Protection Service Area is estimated at a minimum of \$3,640,000 (2022 dollars) excluding additional fire apparatus needed to meet the minimum requirements set by the Fire Underwriters Survey (FUS) per fire station.

In March 2021, the South Forks/Nanaimo River Road Association which has a membership of approximately one third of the impacted properties requested that the RDN look at options to potentially stop the annual reserve fund contributions, consider returning the funds, or to rationalize the reserve fund contributions and/or retention of the collected funds.

As of February 2022, the Nanaimo River Fire Protection Service area is composed of 72 properties who contribute approximately \$15,661 annually towards a capital reserve fund for the construction of a fire hall and equipment. The reserve account has a balance of \$231,731. The 72 properties are also included in the Extension Fire Protection Service area and receive fire protection services from the main fire hall located at 2201 Bramley Road, Nanaimo, BC.

### 2. SCOPE OF SERVICES

#### **Feasibility Study for options development for the Nanaimo River Fire Protection Service Area in Electoral Area C**

The scope of services that the RDN requires of the Consultant include the following:

A feasibility study that will develop and analyze options for the funds raised for the construction of a fire hall. Options should include (but not limited to) potential alternate cost-effective fire hall designs, alternatives such as an apparatus storage garage for expedited response to the area stopping annual reserve fund contributions, returning reserve funds, or rationalizing the reserve fund contributions and/or retention of the collected funds.

- 1) The study will include recommendations with implications and estimated costs.
- 2) A public engagement process with participating property owners is to be part of the study with a minimum of two engagement sessions, one to gather information and one to present findings and gather feedback on how the community wishes to proceed.
- 3) A report of the outcomes of the engagement sessions is to be included with the feasibility study and will form part of the presentation to the Electoral Area Services Committee.
- 4) The Consultant will conduct consultation sessions and/or work with:
  - RDN Emergency Services Department
  - RDN Finance Department
  - Extension Volunteer Fire Department Fire Chief & Officers
  - Extension Volunteer Fire Department Society Board
  - Electoral Area C Director responsible for fire service area
  - Nanaimo River Fire Protection Service Area participating property owners
- 5) Other stakeholder consultations will be undertaken as recommended by the Proponent or RDN, as the project moves forward.
- 6) The consultant will be required to prepare and present two presentations on the findings 1) to the Nanaimo River Community residents as noted above and 2) to the RDN Electoral Area Services Committee.

### **3. DELIVERABLES**

1. Presentation of the findings of each individual feasibility study to the respective Communities and to the RDN Electoral Area Services Committee.
2. Present the findings and recommended options for each feasibility study in two separate final reports (one for each feasibility study) detailing the data collected, public engagement process and outcomes, analysis undertaken, conclusions drawn and options considered and evaluated.
3. A complete editable digital copy of each feasibility study report.
4. Before conclusion of the project, all documents, including but not limited to memos, reports, photographs, video, spreadsheets, and other documents created for the purpose of this project will be provided to the RDN digitally.

# Appendix 3: Letter from Fire Underwriters Survey



## FIRE UNDERWRITERS SURVEY

A SERVICE TO INSURERS AND MUNICIPALITIES

September 23, 2022

Regional District of Nanaimo  
6300 Hammond Bay Road  
Nanaimo, British Columbia  
V9T 6N2

Attention: Anita Sharma, Fire Services Coordinator

### Re: Fire Underwriters Survey Response - Dwelling Protection Grade Nanaimo River Fire Protection Service Area

It has been brought to FUS's attention and discussed with Regional District of Nanaimo (RDN) that a service road that starts adjacent to the Extension Volunteer Fire Department's (EVFD) fire station and connects to Nanaimo River Road has been incorrectly used in determining the Dwelling Protection Grade (DPG) coverage areas in the Extension and Nanaimo River Fire Protection Service Areas. FUS discussed with the Regional District of Nanaimo and it was indicated the service road is not usable and that it will likely not be activated for structural fire protection response.

FUS regrets to inform that dwellings in the Nanaimo River fire protection service have been incorrectly categorized within the DPG system as being eligible for DPG 3A or DPG 3B recognition, being within 8 km<sup>1</sup> in road travel distance of a responding fire station. As the service road is not a road for public fire protection response, FUS is required to remove the road from the FUS road network database and readjust the DPG coverage areas accordingly. Two maps have been included with this letter that show the DPG coverage areas with the service road in place and with the service road removed. Dwellings not within 8 km in road travel distance of the responding fire station will be than categorized as DPG 5 within the Canadian Fire Insurance Grading Index once an update is completed.

FUS collects GIS data from various GIS data road network providers to have a robust road network in the Canadian Fire Insurance Grading Index. A review did occur of the service road and metadata of the road from data providers was not clear regarding the type of road and its ability to be safely used for structural fire protection response. By default, until information is provided to FUS to indicate it is road that should not be used, it was included as being a public road to be used in determining the DPG coverage areas. FUS has no control over the metadata provided from service providers and is not able to review every single road that exists in Canada on an individual basis. When brought to FUS's attention corrections (remove or add a road) do occur to provide accurate information to the subscribing property and casualty insurance industry and to ensure dwellings are being underwritten correctly.

After a discussion with the RDN, FUS will be placing the fire insurance grades on a provisional status for the Extension and Nanaimo River FPSA's until December 31, 2022. The DPG coverage area will be maintained until that date and after that date, the road will be removed from the system and DPG coverage maps will be updated accordingly in the Canadian Fire Insurance Grading Index. The RDN requested a time period before a downgrade occurs for the following reasons:

- 1) Allow time for the RDN to conclude the feasibility study in Extension and Nanaimo River fire protection service areas.
- 2) Allow for the Regional District of Nanaimo to thoughtfully present this change in the DPG as part of the investigation and analysis undertaken during the study.
- 3) Allow for the Regional District of Nanaimo to develop communications (and share the current and new maps) for impacted homeowners as to what the change in DPG means for them.

Michael King, CTech  
Public Fire Protection Specialist  
Fire Underwriters Survey

<sup>1</sup> FUS publishes Dwelling Protection Grades for Personal Lines insured dwellings at a maximum response distance of 8 km as this response distance is correlated with the response time associated with flashover. Structure fire responses in which flashover has occurred have a much higher probability of severe or total losses.



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## FIRE UNDERWRITERS SURVEY

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### Additional Questions from the Regional District of Nanaimo and Responses

The following below are responses to additional questions from the RDN considering the updated map with the service road removed.

#### RDN Question 1

Would the construction and operation of a satellite firehall in the Nanaimo River Fire Protection Service Area lead to any improvement in the Dwelling Protection Grade in such service area (assuming no other changes in how those services are delivered by the EVFD, except to have a satellite hall staffed by volunteers)?

#### FUS Response 1

As per the updated DPG coverage map (without the service road) a portion of it is considered DPG 5 due to being beyond 8 km in road travel distance of a recognized responding fire station. If a satellite firehall (triple combination fire engine and minimum 10 volunteer/paid on call members) that is supported by the Extension Volunteer Fire Department's (EVFD) fire station qualifies for fire insurance grading recognition were to be established in the Nanaimo River Fire Protection Service Area, dwellings within 8 km of that satellite firehall fire station would be eligible for DPG 3A and DPG 3B recognition. The DPG coverage area would be similar to what is displayed in the map attached that included the service road.

#### RDN Question 2

If the RDN does not proceed with the construction and operation of a satellite firehall in the Nanaimo River Fire Protection Area as was envisioned in 2005, would there be any impact on the current Dwelling Protection Grade in the Nanaimo River Fire Protection Service Area?

#### FUS Response 2

No change would occur in the Dwelling Protection Grades (DPG 5 for a majority of the dwellings considering the service road removed) that will apply in Nanaimo River Fire Protection Service Area after December 31, 2022, if a satellite fire station is not established. FUS does recommend to have review completed in 2023 to ensure the data FUS has on file for determining the fire insurance grades in the fire service protection area is up to date.

The DPG coverage areas are based on the public fire protection in place and active, not theoretical. The EVFD qualifying for fire insurance grading purposes, water supplies recognized fire insurance grading purposes (hydrants in the service area from the Nanaimo water distribution system) and the fire station being within 8 km in road travel distance to Personal Lines insured dwellings determine applicable DPG's that may apply to Personal Lines insured dwellings.

If any changes were to occur in the recognition of the fire department, expansion of the fire protection service area, water supplies, or in the road network, further review would be required to occur to determine if any adjustment in the Canadian Fire Insurance Grading Index is warranted.

#### RDN Questions 3

Please provide the RDN with the criteria for a satellite hall recognition for a community/area that is beyond 8 km of a responding fire station.

#### FUS Response 3

FUS may grant satellite fire hall recognition on a per case basis. To qualify for satellite fire hall recognition and qualify for a Dwelling Protection Grade 3A (volunteer fully protected) or Dwelling Protection Grade 3B (volunteer semi-protected) the following is required:



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## FIRE UNDERWRITERS SURVEY

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- A Supported Satellite Fire Hall is located within 16 km in road travel distance of one recognized fire station that meets all of the criteria for a Dwelling Protection Grade 3B (career or volunteer semi-protected) or better.
- Assisting halls are part of the same fire department or through a contract agreement for first due response.
- A suitably constructed and arranged fire hall to properly store fire apparatus and firefighting equipment.
- A minimum of one Triple Combination Pumper surpassing the minimum requirements of CAN ULC S515 and/or NFPA 1901 that is under 20 years in age.
  - No mobile water supply is required if the standalone recognized fire station supporting the satellite hall has a mobile water supply apparatus and qualifies for DPG 3B.
  - If no mobile water supply apparatus exists standalone recognized fire station but has achieved DPG 3A or better, then a mobile water supply apparatus would be required at the satellite fire station for qualify for DPG 3B if no recognized water supply with hydrants exists in the satellite halls service area.
    - FUS will likely be encouraging combination engine/mobile water supply apparatus in the future for additional water supplies in rural areas.
- A minimum of 10 trained members on the satellite fire hall roster
  - Minimum requirement for recognition is in accordance with the BC Structure Firefighters Competency and Training Playbook.
- An adequate and reliable means of receiving alarms of fire and dispatching fire fighters.



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# Appendix 4: Extension Volunteer Fire Department Review

## Governance

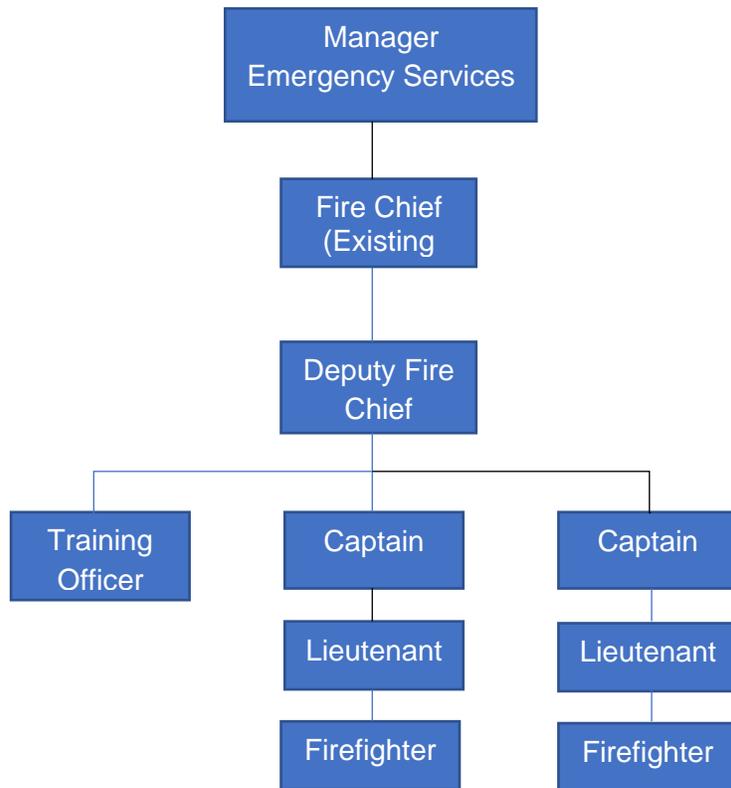
The Department has been established and is directly operated by a society called the “Extension and District Volunteer Fire Department Society” (the “Society”), which was incorporated under the *Society Act* (B.C.) on 12 April 1995. The operation of the Department is subject to oversight from the Society’s Board. The Society has entered into a service agreement with the RDN, pursuant to which it has agreed to provide fire protection in the service area.<sup>22</sup> Funding for the Society is based on the EVFD’s budget, as approved by the RDN.

If a satellite hall is constructed, the Department will need to ensure that its management processes are updated to properly control and oversee an additional site. We expect that weekly training would continue at the main hall (rather than being split between the two halls), but equipment, apparatus and facilities checks of the satellite hall will need to be implemented and managed as part of the Department’s occupational health and safety processes.

## Current Structure

The Department is led by three senior officers: Fire Chief, Deputy Chief and Training Officer (Captain). There are two additional Captains, two Lieutenants and 21 firefighters for an overall strength of 28 members (depicted at right).

The Department’s formal structure is currently based on a single hall configuration that has two platoons of firefighters each with a Captain and Lieutenant. The captains report to the Deputy Fire Chief and the Training Officer (also a Captain) is considered a senior officer and acts in place of the Deputy Chief in his absence.



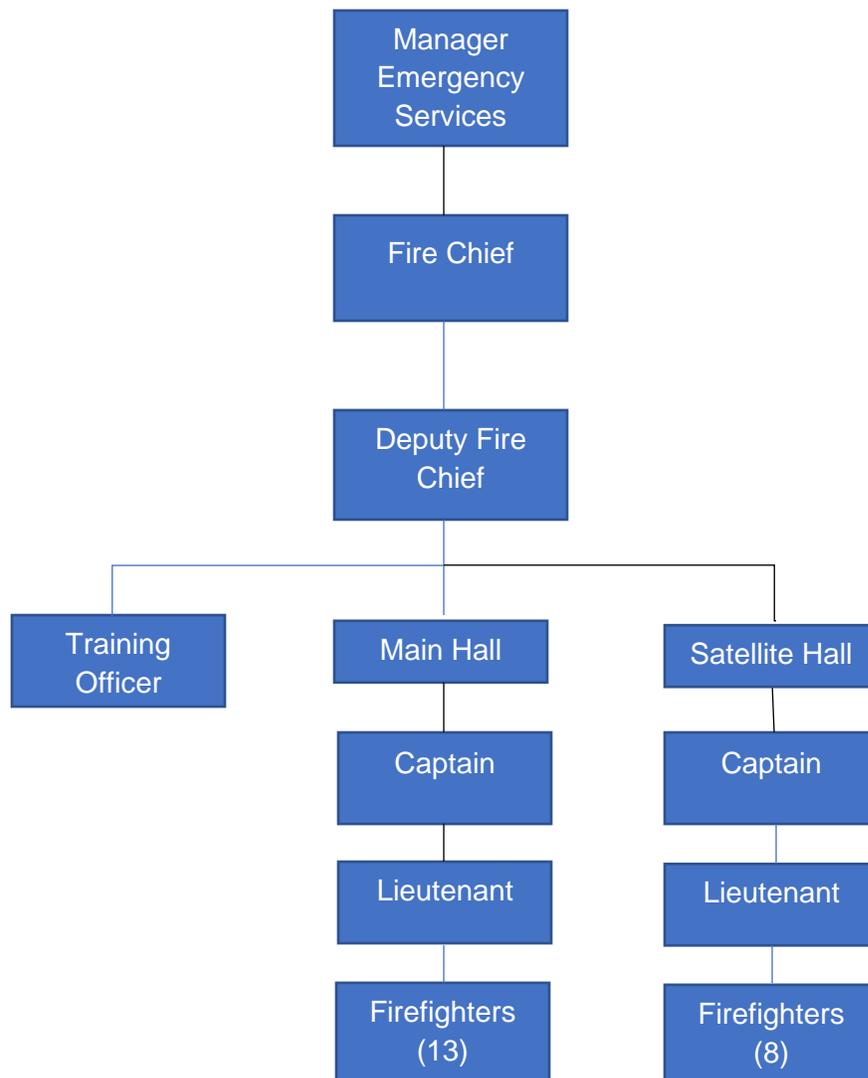
<sup>22</sup> The Service Agreement between the RDN and the Society is dated 2005.

The Fire Chief reports to the Manager of Emergency Services at the RDN.

### Revised Structure

The addition of a satellite hall would require the assignment of a minimum of 10 members to respond from that hall to address the Fire Underwriter requirements for recognition of the satellite hall.

The distance between halls would often result in the satellite hall members arriving on scene in their area significantly sooner than the main hall staff. The need for initial incident command by a trained member points to the need for a realignment of positions. As the addition of the second hall would not necessarily result in a significant increase in overall staffing (though it should be accompanied by a major recruitment drive), it is recommended that one Captain and one Lieutenant position be assigned to respond from the second hall.



# Fire Hall



Figure 9: Extension Volunteer Fire Department Fire Hall:

The Department’s existing fire hall is located at 2201 Bramley Road and has three single-length back-in bays. The fire hall space has been maximized for the storage of apparatus and equipment. There is a small mezzanine space that doubles as an office and training/meeting room. There is no capital reserve fund for a fire hall replacement.

The fire hall is meeting current needs, but there is insufficient space for storage and training. The Department would benefit from the construction of a new main fire hall or satellite fire hall that would provide space for some rescue and other equipment to be relocated to that facility, thereby creating more space at the main fire hall.

Figure 10 shows the eight-kilometre response limits from the current fire hall. Locations are also shown of the rented facility currently in use, and the Nanaimo River Road property where the satellite hall is proposed to be located.

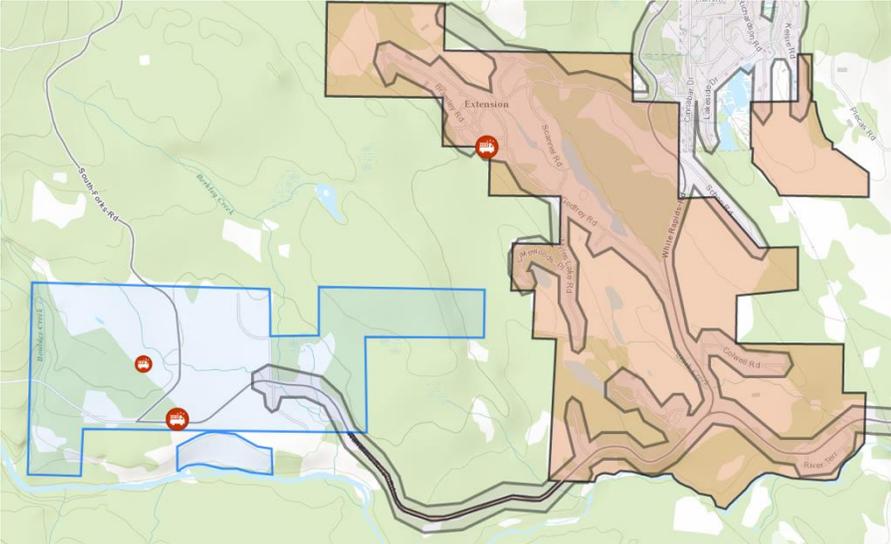


Figure 10: FUS 8 Km Polygon (black) from Extension Fire Hall

## Apparatus

The Department has four main apparatus, with the front-line units housed in the fire hall and one reserve engine housed in the Nanaimo River/South Forks area in a rented facility. Engine 1 and Truck 5 are the first out units for both pumping capacity and water supply. Truck 7 is the designated rescue truck that carries a variety of equipment for specialty rescue such as swift water and additional vehicle extrication gear.

At 28 years of age, Truck 4 has aged out for credit by Fire Underwriters but is fully operational with good pumping capability and an adequate water supply. The unit is housed in a rented facility in the South Forks area on private property (Gogo's Christmas Tree Farm). Firefighters that reside in that vicinity respond to calls using this apparatus.

Truck 5 is the Department's water tender. It is also beyond the Fire Underwriters' maximum age for frontline (pumping) apparatus. To continue to receive credit for this unit until it is replaced, it will be necessary to apply for an extension of recognition, which will require annual testing and certification to be performed.

Table 19: Apparatus

Apparatus	Year	Pump Capacity	Water Tank
Engine 1	2020 Spartan	1850 IGPM	1000 gal
Truck 5	2000 Freightliner	1000 IGPM	1400 gal
Truck 7	2008 Dodge	Honda Mini pump	225 gal
Truck 4	1994 Freightliner	1050 IGPM	600 gal



Figure 11: Engine 1



Figure 12: Truck 5



Figure 13: Truck 7 (Rescue)



Figure 14: Truck 4 (Spare apparatus at storage building)

The Department has an apparatus replacement fund where annual contributions are held. Any operating budget surpluses are also added to the fund at the end of each year. The replacement plan projects the acquisition of a new Tender in 2025/26 to replace Truck 5 and

maintain the necessary apparatus to meet Fire Underwriters' requirements. The Department indicated that it hopes to retain Truck 5, which would require a suitable storage location.

## Equipment

The firefighter personal protective equipment ("PPE") is stored in non-ventilated stalls along the outer walls of the double truck bay area with minimal room for donning and doffing of the gear. The PPE is generally in good condition with new sets recently acquired. In newer halls, separate storage of the PPE is recommended to isolate the gear from contamination by diesel exhaust.



Figure 15: Personal Protective Equipment (PPE) stalls

## Impact of a Satellite Hall – Fire Underwriters

The establishment of a satellite hall would provide an improved response time for incidents in the South Forks and Nanaimo River areas. The construction of a satellite hall at the Nanaimo River Road location would also meet the Fire Underwriters requirement for a DPG 3B rating.

Figure 16 depicts five-kilometre (for commercial insurance) and eight-kilometre (residential insurance) response coverage areas from the proposed satellite hall location.

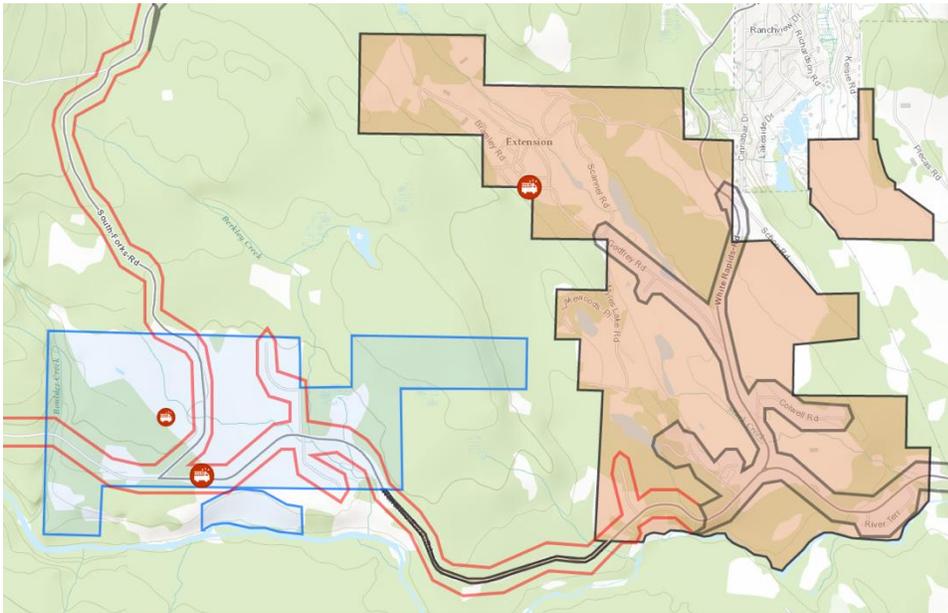


Figure 16: FUS 8 Km Polygon (black) and 5 Km (red) from Proposed Nanaimo River Fire Hall

Currently nine Department firefighters reside in the Nanaimo River/South Forks area. Figure 17 shows the approximate locations of the residences of these firefighters, the proposed satellite hall location and the location of fires in recent years, demonstrating that the proposed site for a satellite fire hall is well-located relative to firefighters and properties to be protected.

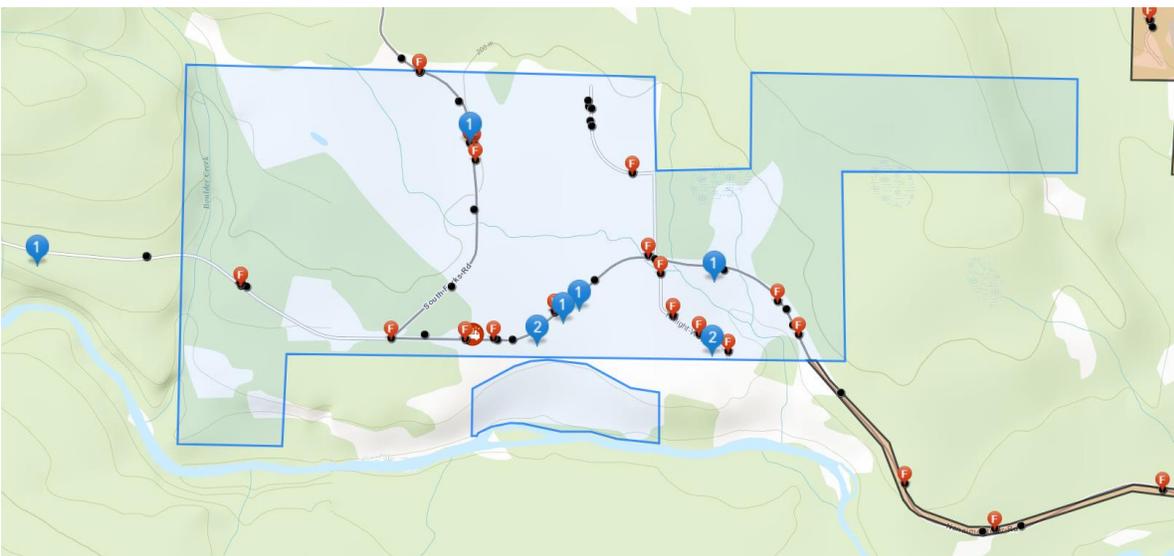


Figure 17: Nanaimo River Proposed Fire Hall Location; Location of 9 Volunteer Firefighters (blue icons), Fire Incidents (red icons), All Other Incidents (black icons)

The current rented facility in the South Forks area consists of a single bay structure with no amenities such as a washroom, shower or decontamination capability. There is no PPE storage and minimal room for any spare equipment such as hose or SCBA cylinders. The structure is privately owned, located on private property and rented to the Department. Access to the building is by way of a long driveway that services the property's residence and outbuildings.



Figure 18: Storage building at Gogo's Christmas Tree farm (South Forks area)

The RDN currently has property located just east of South Forks Road on Nanaimo River Road. It is approximately one acre in size, gently sloped, and rectangular in shape with good road frontage for access/egress. The location is centrally located within the Nanaimo River fire protection service area and its eight-minute response zone would be more than adequate for fire responses in this area and into the original Extension fire protection area.

As noted above, when Truck 5 is replaced, the Department would like to retain it as a reserve unit. To accommodate the existing fleet of four units plus a new truck, would mean that the Department would need two truck bays in a satellite hall, or some other means of providing long-term storage for the reserve vehicle.

## Regulatory Matters

### Service Establishment Bylaws

The Nanaimo River area is part of the Extension Fire Protection service area, which was converted to a local service under the *Extension Fire Protection Service Conversion and*

*Boundary Amendment Bylaw No. 1439, 2005* (“Bylaw No. 1439”).<sup>23</sup> This bylaw has been amended three times, to add additional properties to the service area. The Consultants did not review any of the amending bylaws. Under Bylaw No 1439:

- the original specified area was converted to a local service and the provision of fire protection and other emergency response services was authorized (s. 1)
- the maximum tax rate that may be levied was set at the greater of \$126,400 or \$2.25 per \$1000 of assessed value of land and improvements in the service area (s. 4);
- costs may be recovered by property value taxes, fees and other charges, revenues raised by other authorized means, and revenues raised by way of agreement, enterprise, gift, grant or otherwise (s. 5).

The funds raised under Bylaw No. 1439 are used to fund the operation of the Extension Volunteer Fire Department (the “EVFD”), which is operated by the Extension and District Volunteer Fire Department Society under contract to the RDN.

At the same time that Bylaw No. 1439 was passed, a separate bylaw was passed covering only the properties in Nanaimo River. *Nanaimo River Fire Protection Service Area Establishment Bylaw No. 1440, 2005* (“Bylaw No. 1440”) authorized a “service to construct, acquire and otherwise obtain land, buildings, vehicles and equipment to provide fire protection services.”<sup>24</sup>

Under Bylaw No. 1440:

- the service area was limited to the properties in Nanaimo River;
- the maximum tax rate that may be levied is the greater of \$25,000 or \$2.60/\$1,000 of assessed value (s.5); and
- costs may be recovered by property value taxes, fees and other charges, revenues raised by other authorized means, and revenues raised by way of agreement, enterprise, gift, grant or otherwise (s. 4).

The Consultants did not review any bylaws amending Bylaw No. 1440.

The current boundaries of the Nanaimo River service area are show in Figure 19, below, which now comprises 76 properties in total:

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<sup>23</sup> The original service establishment bylaw, *Extension Fire Protection Specified Area Bylaw No. 638, 1983*, was repealed – see s. 7 of Bylaw No. 1439.

<sup>24</sup> Bylaw No. 1440, s. 1.

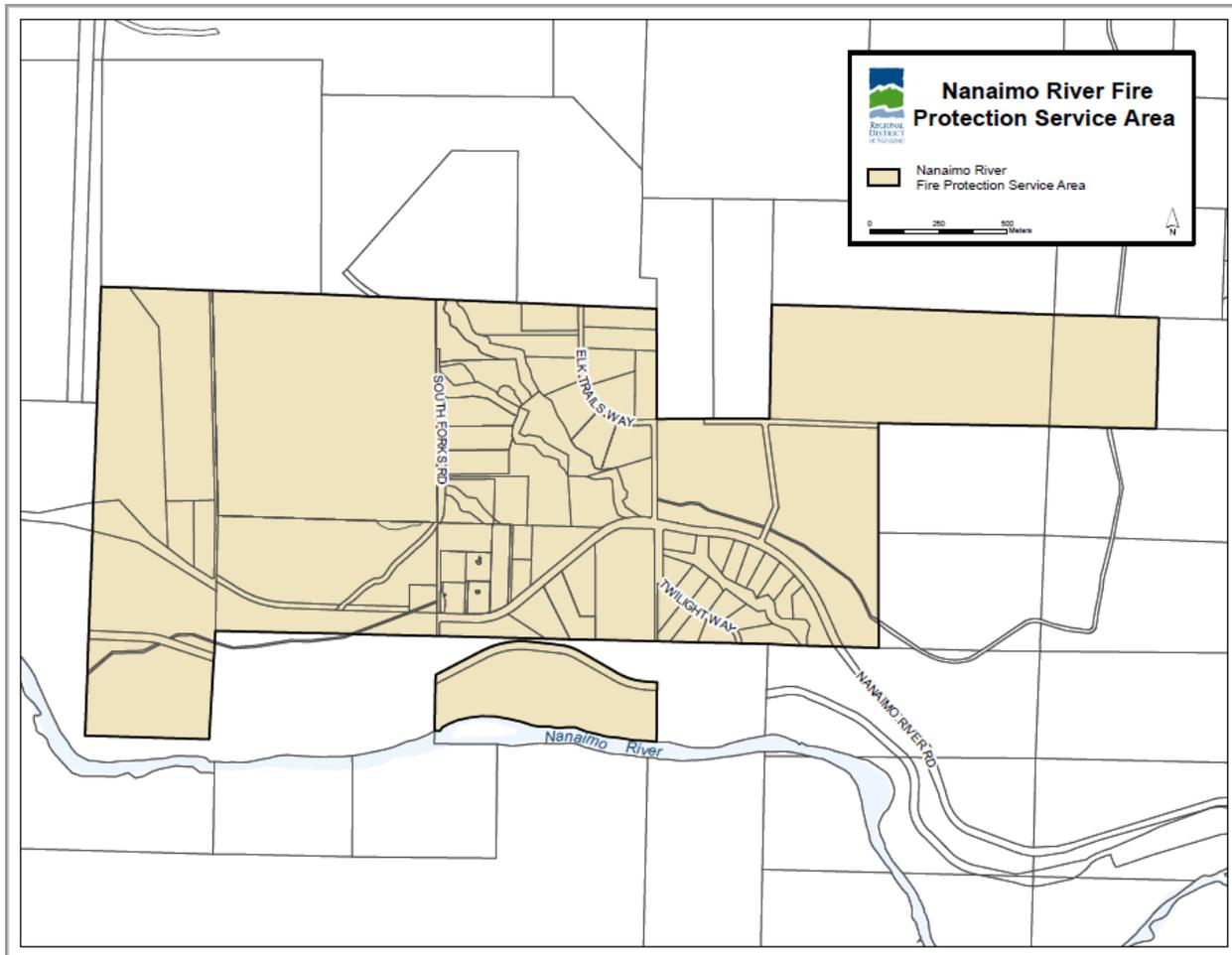


Figure 19: Nanaimo River Service Area under Bylaw No. 1440 (as amended)

The purpose behind this bylaw was to accumulate funds to enable the RDN to construct and equip a satellite fire hall in the service area, to address the issue that most of the properties in Nanaimo River service area are more than eight kilometres from the EVFD’s main hall on Bramley Road.

By its terms, the moneys collected under Bylaw No. 1440 may be used for more than just the construction of a fire hall – they may also be used to purchase vehicles and equipment for fire protection purposes. \$240,000 is currently being held in the relevant account by the RDN.

The initial planning for such satellite hall included a land grant offer from the Province,<sup>25</sup> and basic location plans, as shown in Figure 20, below, were prepared.

<sup>25</sup> Province of British Columbia, “Crown Grant Offer – File 1412956,” 23 November 2007, to RDN, attention: N. Avery, Manager, Financial Services. The grant was in relation to “West 1/2 of District Lot 4, Dougls [sic] District, containing .9688 hectares more or less, except parts within Plans DD15664N, 215RW and 40648.” The status of this grant was not confirmed.



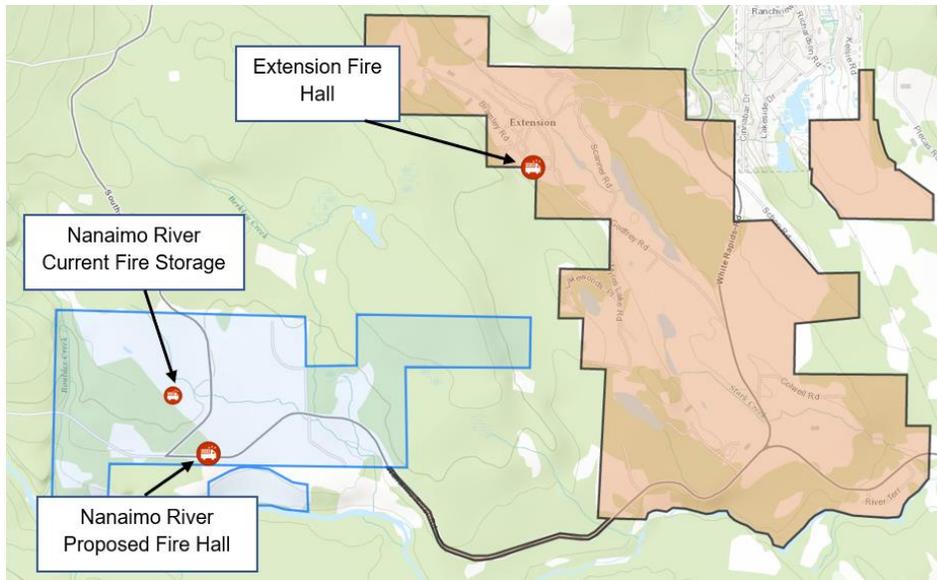


Figure 21: Fire Protection Areas for Extension (beige) and Nanaimo River (blue) + Fire Halls for Extension; for Nanaimo River (proposed) and Nanaimo River (current apparatus storage)

## Responses by Year

Responses by year are listed in Table 20 and shown graphically in Figure 22. Responses have generally risen since 2014, with peaks in 2018 and 2021. As noted, some response data for 2021 and 2022 are likely missing.

Table 20: Incidents by Year

Year	Incidents
2011	19
2012	23
2013	20
2014	18
2015	28
2016	37
2017	43
2018	48
2019	30
2020	47
2021	18
2022	8
<b>Grand Total</b>	<b>339</b>

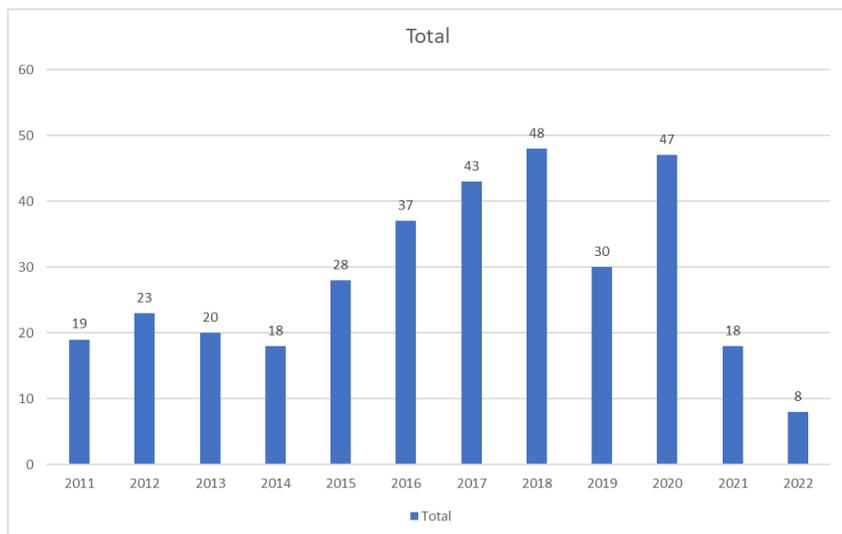


Figure 22: Responses by Year (note only partial data for 2021 and 2022).

## Responses by Month

Responses by month for the years 2011 to 2020 are listed in Table 21 and shown graphically in Figure 23. The Department is busiest from mid-summer through October, and the Department's busiest month (August), which has twice the number of incidents when compared to the months of January, February, March, May, June and November.

Table 21: Incidents by Month 2011 to 2020

Month	Incidents
Jan	20
Feb	18
Mar	19
Apr	25
May	20
Jun	19
Jul	35
Aug	44
Sep	27
Oct	36
Nov	20
Dec	30
<b>Total</b>	<b>313</b>

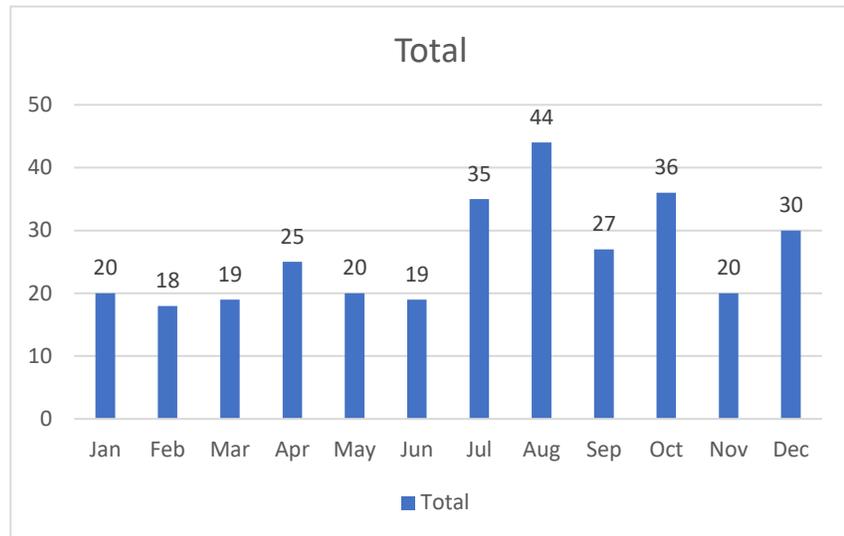


Figure 23: Incidents by Month 2011 to 2020.

## Responses by Day

The number of responses by day of the week is listed in Table 22 and illustrated graphically in Figure 24. Saturday has the peak incident volume, with Wednesday being the quietest. It should be noted, though, that, Wednesday and Saturday aside, responses are fairly consistent across the balance of the week.

Table 22: Incidents by Day of the Week 2011 to 2020

Day	Incidents
Sun	49
Mon	43
Tue	44
Wed	29
Thu	44
Fri	47
Sat	57
<b>Grand Total</b>	<b>313</b>

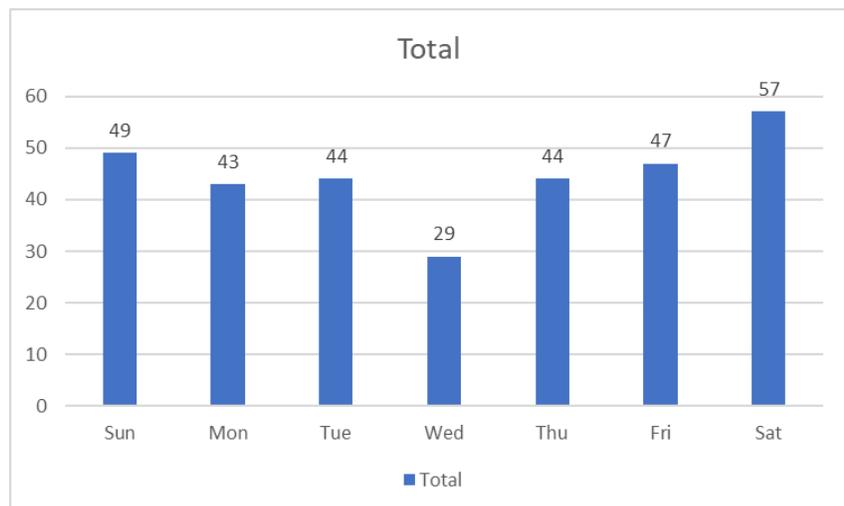


Figure 24: Incidents by Day of the Week 2011 to 2020.

## Responses by Incident Type

The Department responds a range of incident types which are summarized in Table 23 with the highest occurrence of these being burning complaints, motor vehicle incidents (“MVI”) and the general type Fire – Other.

Table 23: Responses by Incident Type 2011 to 2022 (note that data from 2021 and 2022 is incomplete)

Incident	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Burning Complaint	4	3	2	5	12	7	6	6	8	15	3	1	72
MVI	4	5	7	2	3	10	4	5	4	4	3		51
Fire - Other	5	5	2	1	6	6	4	5	5	10	2		51
Assistance	1	2	3			4	10	7	3	4	1		35
Hydro Lines - Fire		2	1	2	2	4	5	8	3	3	1		31
Alarms Activated	2	2	2	4	1	1	2	5	1	4	5		29
Structure Fire		1	3		1	2	6	2	1	1	1		18
Bush Fire		2		2				4	2	3	1		14
Medical Aid	2	1		1	1		3	3	1				12
Mutual Aid					1	2		2	1	1	1		8
WIRES DOWN												5	5
Rescue					1		1			1			3
MVI - Minor				1		1			1				3
Hazardous Materials	1						1	1					3
MISC / OTHER												1	1
MVI - Extrication										1			1
Trouble/ Test - Alarms							1						1
ASSIST CALL												1	1
<b>Grand Total</b>	<b>19</b>	<b>23</b>	<b>20</b>	<b>18</b>	<b>28</b>	<b>37</b>	<b>43</b>	<b>48</b>	<b>30</b>	<b>47</b>	<b>18</b>	<b>8</b>	<b>339</b>

## Spatial Distribution

The Department's responses include those in Extension and Nanaimo River as well as a small number which are outside of these two areas (e.g., along Nanaimo River Road, between the two service areas).

### All Incidents

Figure 25 shows the location of all incidents responded to, with a majority of occurring in the original Extension service area.

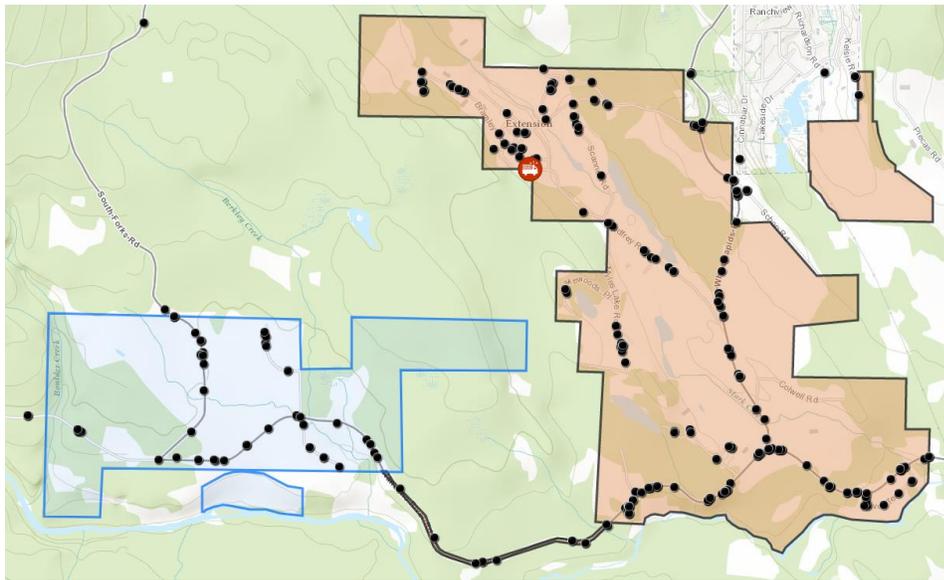


Figure 25: Extension VFD All Responses (2011 to 2020)

### Responses Coded as Fires

The icons in Figure 26 show the locations of all incidents coded as any type of fire. These responses include fires involved with Hydro lines, as well as bush fires, structure fires and those coded as “fire – other.”

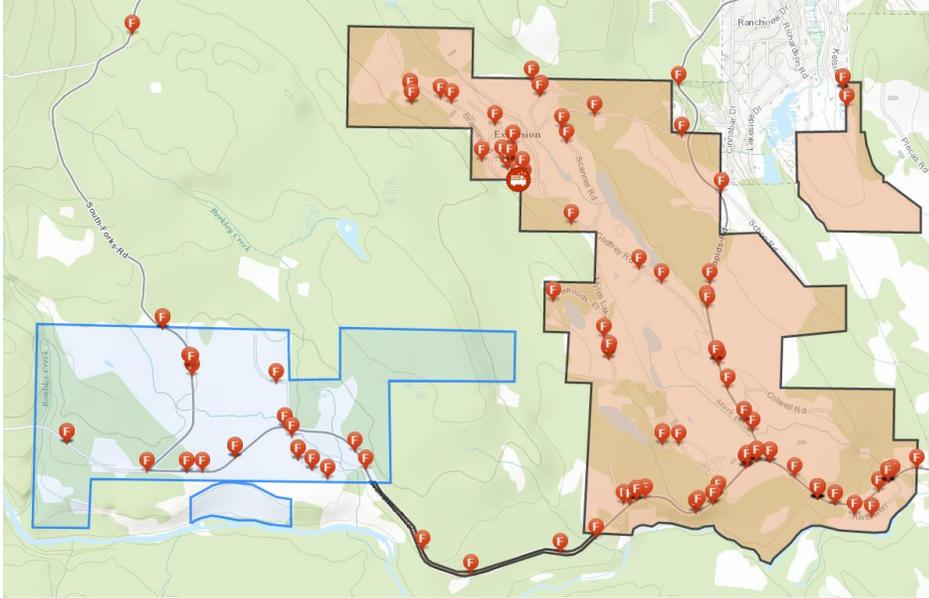


Figure 26: Extension VFD Responses Coded as Fire.

**Responses to Structure Fires**

There were 15 incidents specifically coded as structure fires, the locations of which are illustrated in Figure 27. Of these, 11 occurred in the original Extension service area, with four in Nanaimo River.

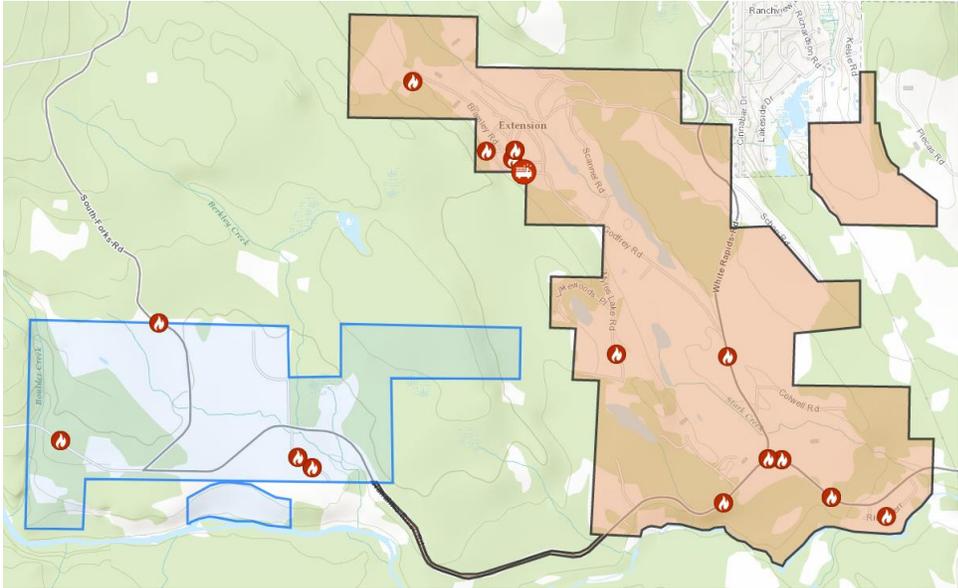


Figure 27: Extension VFD Responses Coded as Structure Fires.

# Appendix 5: Herold Engineering RDN Fire Hall Report Final



October 3, 2022

0837-099

Regional District of Nanaimo  
6300 Hammond Bay Road  
Nanaimo, BC  
V9T 6N2

Attn: Anita Sharma, Fire Services Coordinator, Emergency Services

**Re: Construction Costing Services  
Horne Lake and Nanaimo River  
Satellite Fire Halls**

Dear Anita:

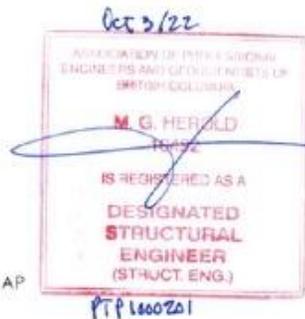
Further to our proposal letter of September 28, 2022 regarding the above, please find attached our high level Estimate of Probable Cost report on the above based on current 2022 dollars.

Please contact the undersigned if you have any questions regarding our report.

Yours truly,

**HEROLD ENGINEERING LIMITED**

Mike Herold, P.Eng., Struct.Eng., M.I.Struct.E., LEED AP



Enclosure

3701 Shenton Road, Nanaimo, BC V9T 2H1 Telephone: 250-751-8558 email: mail@heroldengineering.com



# CONSTRUCTION COSTING SERVICES

Satellite Fire Halls

Mike Herold, P.Eng., Struct.Eng., M.I.Struct.E., LEED AP

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## 1.0 **Executive Summary**

The associated Estimate of Probable Cost in current 2022 dollars for the full size Satellite Fire Halls at Home Lake and Nanaimo River based on the Fire Hall design for Merville are as follows. The values include a 15% allowance for consulting fees and a 20% contingency allowance.

Home Lake Fire Hall (243m <sup>2</sup> ) .....	\$2,895,700.00
Nanaimo River Fire Hall (243m <sup>2</sup> ) .....	\$2,963,200.00
Meadowood Fire Hall (404m <sup>2</sup> ) .....	\$2,359,300.00

## 2.0 **Consultant Scope of Services**

Herold Engineering Limited was retained by the Regional District of Nanaimo (RDN) to prepare a current Estimate of Probable Cost (EPC) for Fire Halls at both Home Lake and Nanaimo River sites that are owned by the RDN.

Herold's scope of work was to provide a current high level (Class D) EPC for each site based on the Merville Auxiliary Fire Hall that was designed by Herold Engineering for the Comox Valley Regional District (CVRD), and constructed in 2021 by Kinetic Construction.

Herold Engineering was also requested to provide a current high level EPC for the Meadowood Fire Hall that was constructed in 2008 for the Regional District of Nanaimo. Herold Engineering was the structural sub-consultant on that project.

## 3.0 **Documents Reviewed**

As part of our costing exercise, the following documents were used to calculate our Estimate of Probable Cost for each of the Halls.

- Merville Auxiliary Fire Hall drawings prepared by Herold Engineering.
- Meadowood Fire Hall construction cost prepared by the Contractor Kinetic Construction, June 20, 2021, including approved extras to the Contract.
- Regional District of Nanaimo site and location drawings of Home Lake Fire Hall and Nanaimo River Fire Hall.
- Meadowood Fire Hall architectural and structural drawings, January 2009 and November 2008.



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- Bow Horne Bay Satellite Fire Hall preliminary architectural drawings SKA-01, SKA-02, and SKA-03 prepared by Zeidler/Praxis Architects dated November, 16, 2018.
- Bow Horne Bay Satellite Fire Hall Class C Construction Cost Estimate prepared by Advicas Group Consultants Inc. dated January 30, 2019.

#### 4.0 Estimate of Probable Cost

The EPC for each of the two sites in the RDN was based on an upgraded estimate of construction costs compared to the Merville Auxiliary Fire Hall, completed in 2021, as reflected by the Kinetic Construction cost estimate for the Merville Hall and upgraded to suit the current construction market.

While this is a reasonable approach to the current cost of the building since the Kinetic Construction cost is known and fairly new (2021), the site-related costs for Merville and the two RDN sites are likely very different.

It is noted that the Advicas Construction Cost Estimate for the Bow Horne Bay Fire Hall on Horne Lake Road, which we assume is the same site as the site for the current proposed Fire Hall, included a site cost of \$655,000.00.

The cost estimate for the Merville Hall as prepared by Kinetic Construction, had site costs of \$183,440.00, so a significant difference in site costs, due to a difference in needed services.

For the purpose of our EPC we have assumed a site cost of \$655,000.00 for the Horne Lake Hall, as well as the Nanaimo River Hall due to a lack of detailed site servicing information at each site.

For our Estimate of Probable Cost for similar Fire Halls to the Merville Hall, we have allowed for a 15% contingency for consulting fees and a 20% construction contingency, on top of a 30% increase in construction costs between the Merville Tender and today.

For comparison purposes, we also completed an EPC for a pre-engineered steel option as per the 2008 Meadowood Fire Hall design in current 2022 dollars, again adding a 15% contingency for consulting fees and a 20% construction contingency.

As requested, we have also included an EPC for new Fire Halls at each of the two RDN sites, deleting the Meeting Room area of 52.16m<sup>2</sup>.



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**5.0 Comparable Fire Hall Areas**

The following gross areas were used in our EPC for the Home Lake and Nanaimo River Fire Halls based on the Merville design.

**Merville FH**

Main Floor.....	190.88m <sup>2</sup>
Meeting Room.....	52.16m <sup>2</sup>
<b>Total.....</b>	<b>243.04m<sup>2</sup></b>

**Meadowood FH**

Main Floor.....	319.80m <sup>2</sup>
Upper Floor.....	84.24m <sup>2</sup>
<b>Total.....</b>	<b>404.04m<sup>2</sup></b>

**6.0 Seismic Post Disaster Requirements**

According to the British Columbia Building Code, Fire Halls must be designed as Post Disaster Structures in order for these emergency buildings to remain in operation subsequent to an expected major seismic event.

The value of the seismic energy during a seismic event is based on numerous values including the expected seismic energy at specific sites across the Province.

Specific site seismic data is available in the Building Code, and the 5% Damped Horizontal Spectral Acceleration values given in the code have a direct impact on the seismic base shears that a building must be designed for. These values are indicated below to represent values used in design for the Halls at Merville, Home Lake, and Nanaimo River.

<b>Location</b>	<b>Sa(0.2)</b>	<b>Sa(0.5)</b>
Merville (Courtenay)	0.653	0.636
Home Lake (Qualicum)	0.888	0.838
Nanaimo River (Nanaimo)	1.02	0.942

For the seismic design of the Halls, the values listed under Sa(0.5) would govern the design and the higher the value is directly proportional to the higher expected seismic base shear for design.



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In other words, the Nanaimo River Hall would be seismically designed for a  $0.942/0.636 = 1.48$  or 48% higher base shear than the Hall at Merville. Both Home Lake and Nanaimo River Halls would be designed for a higher seismic load than the Merville Hall which would have an increased structural cost compared to Merville, but not to the extent of 48% for Nanaimo as an example.

It is our understanding that one option for the RDN is to store the Apparatus in a Storage Garage in order to not design a building for Post Disaster requirements.

It is the writer's opinion that if you are storing Fire Apparatus in any building, it should be designed as a Post Disaster Structure in order to be able to use the equipment in a major seismic event.

## 7.0 Existing Construction Climate

Over the past two years, the construction industry in British Columbia including Vancouver Island, has witnessed substantial cost fluctuations in both materials and labor due to supply chain issues in both areas.

While construction costs are tending to slowly come down for materials and labor due to higher interest rates having an effect on construction activities, it is still our opinion that construction costs have climbed in the last 18 months by 25-30% since the Merville Fire Hall was Tendered and this value has been reflected in our Estimate of Probable Costs for repeat Merville Halls at the two proposed RDN sites.

## 8.0 Estimate of Probable Cost Details

### 8.1 Home Lake Fire Hall (Full Size Building)

Building.....	\$1,489,950.00
Site Works.....	\$655,000.00
<b>Total.....</b>	<b>\$2,144,950.00</b>

Fees 15% Contingency	\$321,742.00
Construction 20% Contingency	\$428,990.00
<b>Total</b>	<b>\$2,895,682.00 (\$2,895,700.00)</b>

### 8.2 Nanaimo River Fire Hall (Full Size Building)

Building..... (increase for higher seismic)	\$1,539,950.00
Site Works.....	\$655,000.00
<b>Total.....</b>	<b>\$2,194,950.00</b>



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Fees 15% Contingency	\$329,243.00
Construction 20% Contingency	\$438,990.00
<b>Total</b>	<b>\$2,963,183.00 (2,963,200.00)</b>

**8.3 Meadowood Equivalent**

Building .....	\$1,092,620.00
Site Works .....	\$655,000.00
<b>Total.....</b>	<b>\$1,747,620.00</b>

Fees 15% Contingency	\$262,143.00
Construction 20% Contingency	\$349,524.00
<b>Total</b>	<b>\$2,359,287.00 (\$2,359,300.00)</b>

**8.4 Merville Fire Hall Reduced Area**

If the RDN decides to use the Merville Fire Hall design less the Meeting Room space, then a reduction in building construction would be approximately \$319,800.00 with a total reduction in cost of \$431,700.00, including the 15% consulting fee contingency and the 20% construction cost contingency.



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## Appendix 6: Consultant Backgrounds

### Tim Pley

Tim was in the municipal fire service for 26 years, followed by six years as a municipal chief administrative officer overseeing a team of 230 employees providing a wide range of services. While President of the Fire Chiefs' Association of BC Tim was instrumental in the provincial government's adoption of a new minimum training standard for structural firefighters and helped draft a new Fire Safety Act which may be adopted in 2022. Tim holds Fire Officer IV and Fire Inspector I designations, was a qualified Technical Rescue Technician in confined space, rope rescue, and tower crane rescue, and has extensive fire ground command and fire prevention inspection experience.

### Dave Mitchell

Dave retired as Division Chief, Communications in 1998 from Vancouver Fire & Rescue Services following a career spanning 32 years. In 1998, Dave was hired by E-Comm 9-1-1, Emergency Communications for BC (E-Comm) as its first Director of Operations. He left E-Comm in June 2000 to work as a consultant, and since that time has managed the development of fire service reviews for more than 100 departments in BC, Alberta, Manitoba and Ontario as well as the Yukon and Northwest Territory.

Dave holds a Bachelor of Arts Degree (Geography) from Simon Fraser University in addition to a diploma from their Executive Management Development Program. He is currently a Director and Board Chair of the Justice Institute of British Columbia Foundation and is a past Director and current member of the Fire Chiefs' Association of British Columbia.

### Alicia Puusepp

With over 15 years in the public sector Alicia Puusepp brings a wealth of knowledge in the field of public participation. Alicia's public engagement career started in 2007 at the Metro Vancouver Regional District where she held the position of consultation and community relations coordinator in the engineering and construction department. Working on significant infrastructure projects in drinking water, wastewater, and solid waste management Alicia planned and executed countless public engagement opportunities for those impacted by regional capital projects.

### Gordon Anderson

Gordon has 29 years of fire service experience having retired in 2019 after spending his last five years as the BC Fire Commissioner (and acting Assistant Deputy Minister of EMBC periodically). At the municipal level he progressed through the ranks and served six years as Deputy Fire Chief and Training Officer with extensive operational experience that includes fire suppression, emergency scene management, fire inspections, pre-incident planning, and fire department administration. He holds NFPA Fire Officer IV certification and a Bachelor of Public

Safety Administration and is a Fellow of the Institution of Fire Engineers (U.K.). As a consultant he has worked on Fire Master Plans, risk assessments and fire service needs assessments.

## Jim Cook

Jim Cook is an experienced professional with over 38 years of experience in the fire service. He has extensive knowledge and experience with budgets, labour relations, fire operations, strategic planning, executive leadership, occupational health and safety programs, project management, community engagement, and organizational change. Jim began his career in the New Westminster Fire Department. He was promoted to the position of Deputy Chief in 2001 which he held until 2008 when he was appointed as the fire chief in West Vancouver. As chief officer, his responsibilities included administration, development of annual operating and capital budgets, communications, human resources, emergency operations, training and facility maintenance including the planning and oversight of the transfer of personnel and equipment to the new main fire hall. Since 2019, Jim has been working as a consultant and has been engaged in several projects that have included the review and analysis of operational guidelines, safe work procedures and the development of compliance programs for health and safety.

## Ian MacDonald

Ian MacDonald is a former lawyer who practised international corporate law in Canada and the United Kingdom. Ian retired as a lawyer in January 2004 and since 2005, has worked extensively on fire and emergency service matters for local, regional and provincial governments. This work includes statutory and regulatory reviews, governance and administrative reviews, bylaw reviews, and occupational health and safety reviews. He has assisted clients with the development of new operational, establishment and fire prevention bylaws including ensuring that both Fire Services Act and Fire Code matters are properly addressed. He has developed a number of multi-party mutual and automatic aid agreements in consultation with fire service clients.