Outer Discovery Islands Fire Brigade Study

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13 September 2022

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Executive Summary

The Outer Discovery Islands are populated by year-round and seasonal residents. Residents who choose to live in the area year-round embrace an independent way of life that both blends with the natural environment and overcomes the challenges that come with sustaining livelihoods in that natural environment.

In 2021, while a heat dome was established over the region, a structure fire occurred at Diamond Bay on Sonora Island. The fire quickly consumed the structure and spread to the tinder dry forest. The fire travelled rapidly upslope, threatening other structures. Neighbours responded quickly to attempt to control the fire. A call for help was issued, and neighbours converged at Diamond Bay where an *ad hoc* fire control effort was hastily organized. A crew from BC Wildfire Service and air support arrived, established command of the incident, and were able to contain and ultimately extinguish the fire.

The Diamond Bay fire incident was disturbing for many in the Outer Discovery Islands. Summertime fire conditions had been noticeably changing over recent years, culminating with the 2021 heat dome and Diamond Bay fire incident. Many residents, concerned about fire risk, had already purchased fire pumps and other equipment. Some residents were frustrated by the Diamond Bay fire experience, and expressed a desire to become better prepared as a community for similar incidents in the future.

> **"With climate change the risk of fire has changed, and we need to consider what we are going to do differently in response."**
> ***Rob Wood, Maurelle Island 2022***

Some residents in the area regard climate change to be responsible for what they believe is a permanent change resulting in heightened risk of wildfire during the dry summer months. Rob Wood, a long-time resident of Maurelle Island stated, "the fire conditions over the past five years have been different than in previous years. With climate change the risk of fire has changed, and we need to consider what we are going to do differently in response."

The Strathcona Regional District (the "SRD") engaged Tim Pley & Associates to investigate the feasibility of creating a fire brigade in the Outer Discovery Islands. The uniqueness of the region, including the terrain, marine conditions, dispersed population, absence of infrastructure, and the way in which development has occurred preclude the establishment of a conventional fire department using conventional methods of transportation and fire control. This report outlines the findings of an in-depth review of the issues and opportunities related to fire safety in the Outer Discovery Islands, and makes recommendations for actions that, if implemented, will enable the Outer Discovery Islands community to respond in an organized and effective way to changing fire conditions, making their community safer.

The study was undertaken to review the feasibility of a fire brigade that could provide structure fire protection at the Exterior Operations level, the minimum level of structure fire protection permitted in BC. Through site visits described in this report, the Consultants determined that the

Outer Discovery Islands do not have the necessary infrastructure to enable the operation of a structure fire department that would require not only roads and large volume water supplies but also fire apparatus and facilities (fire halls) for storing apparatus and where firefighters could undertake training. Infrastructure and some equipment would need to be replicated on each island participating in the structure fire protection service. Costs related to development of road networks, water supplies, fire halls, apparatus and equipment are not estimated in this report.

Having concluded that structure fire protection is not an achievable level of service in the Outer Discovery Islands, the Consultants turned their attention to the potential for a fire brigade that operates at a wildland firefighting service level, similar to the BC Wildfire Service. The report concludes that such a fire brigade is feasible and could provide service that would be valued by residents. Development of a wildland fire brigade could address a number of the concerns expressed by residents.

The report incudes recommendations related to the creation, structure and operation of a wildland fire brigade. A wildland fire brigade should be a function of the SRD, and the SRD should create a service area within which the service would be provided. The report also outlines other services commonly provided by fire departments that the fire brigade might also provide, adding additional value for Outer Discovery Island residents. Should a wildland fire brigade be established, it is recommended that consideration be given to enabling these additional services as well, or providing for the addition of those services at some point in the future.

The Consultants wish to thank the Outer Discovery Island community members for their active participation in the study process, and commend them for their proactive approach in considering how to make their community safer.

Summary of Recommendations

The following section extracts the recommendations contained within the report. The more expansive discussion in the report contains details regarding each of these recommendations. For convenience, the relevant headings are included as a guide to the section from which the particular recommendation is extracted.

All recommendations set out in this report are predicated on the assumption that SRD proceeds with establishment of a local service area and establishes a fire brigade to provide wildland fire protection services within the Outer Discovery Islands.

Regulatory Matters	
Recommendation	The SRD should establish a local government service area for the Outer Discovery Islands and establish a wildland fire brigade for the purposes of providing wildland fire protection and other emergency response services that may be approved.
Recommendation	In the service establishment bylaw, the SRD should stipulate services authorized to be provided by the wildland fire brigade. Those services should include wildland firefighting, services ancillary to or in support of such firefighting (including training and fire prevention activities), and such other emergency response services or assistance to the public, as may be expressly authorized by the SRD Board.
Recommendation	The SRD should ensure that the service establishment bylaw is supported by an operational powers and administration bylaw. The emergency response powers of the wildland brigade need to be specified, along with the fundamental administrative structure and reporting lines.
Recommendation	The SRD should ensure that members of the wildland brigade are recognized as either volunteers or employees of the SRD for the purposes of section 738 of the *Local Government Act* and give consideration to also ensuring that wildland brigade members are covered by the SRD's indemnity bylaw on the same basis as other volunteer firefighters.
Recommendation	The SRD should ensure that the wildland brigade fully complies with the *Workers Compensation Act* and related regulations, that brigade members are provided with WorkSafe BC coverage, that a joint occupational health and safety committee (or worker representative system) is established and supported by the SRD, that the SRD's occupational health and safety policy will apply to the wildland brigade, and that this policy is

	reviewed and updated as required to ensure that it encompasses this new set of operational responsibilities.
Challenges in Establishing a Fire Brigade	
Recommendation	The SRD should at the time of establishing the wildland brigade, specifically authorize the brigade to provide fire prevention and education services, and consider authorizing first medical responder services, marine rescue services, and search and rescue services. If these services are not authorized at the time the wildland brigade is established, the empowering bylaw should enable the future establishment of these services without requiring amendment to the establishing bylaw (see suggested approach in the second recommendation in the Regulatory Matters summary above).
Recommendation	The SRD should assess its capacity to provide administrative support to the wildland brigade and make changes necessary to ensure that it can provide the necessary support through allocation of SRD staff time or contracted services.
Training and Fire Suppression Operations	
Recommendation	In the operational powers and administration bylaw, the SRD should establish the position of wildland brigade fire chief, and delegate to the fire chief authorities necessary for the fire chief to recruit and train officers, crew leaders and firefighters, to lead the wildland brigade, and to take actions necessary to prevent and suppress wildland fires.
Recommendation	Develop operational guidelines related to the use of personal watercraft or vehicles for emergency responses to address response safety and staging, personal and organizational liabilities and insurance, and consideration of adequate docking facilities at key locations
Recommendation	The SRD should investigate the provision of insurance and liability coverage for personal watercraft used for training and emergency response.
Recommendation	If the SRD and local community proceed with the establishment of a wildland brigade, the minimum training required for suppression operations will include: • S100 Basic Fire Suppression and Safety and refresher S100A course as described in this section • ICS 100 (all) and ICS 200 (officers/leaders) • Occupational First Aid level one • Small pump operations

Interoperability	
Recommendation	The SRD should support the wildland brigade fire chief in establishing and maintaining functional relationships with external agencies, such as BC Wildfire Service, the Coast Guard and BC Emergency Health Services.
Organizational and Administrative Structure	
Recommendation	In the event the SRD proceeds with the establishment of a Wildland Brigade, operational guidelines should be created to set out the organizational structure, ranks, roles and responsibilities as recommended in this section
Recommendation	The SRD create operational guidelines to provide direction and guidance for brigade members for responding to incidents
Dispatch and Communications	
Recommendation	The SRD should engage with North Island 911 to establish emergency dispatch services for the wildland brigade.
Budget	
Recommendation	The SRD should ensure that budget funding is provided for the wildland brigade such that the brigade is able to function safely and effectively, and purchase, maintain and replace equipment necessary for completion of the brigade's mandate.

Community Profile

For the purposes of this review, the Outer Discovery Islands comprise Read Island, Maurelle Island, North Rendezvous Island, and the southern portion of Sonora Island, including Diamond Bay and Owen Bay. These islands are all within Electoral Area C of the SRD. The area is home to a permanent population estimated to be approximately 130 residents, as noted below:[1]

Outer Island Residents	Full Time	Seasonal
Seniors	61	49
Adults under age 65	53	45
Under age 18	19	6
TOTALS (estimated)	**133**	**100**

Figure 1. Sonora Island house adjacent to 2021 Diamond Bay fire (shared with permission)

The Outer Discovery Islands are notable for their ruggedness and beauty, the rich marine environment and at times treacherous tidal currents. In the context of the timely deployment of external resources into the area during emergency events, the Islands are also remote.

The Outer Discovery Islands community reflects its surrounding natural environment. Residents are proudly independent, well-resourced to meet their anticipated needs, and capable both on the land and on the water. While independent, there is a strong sense of community among residents, who look out for one another.

Figure 2. Building not in use, Surge Narrows

[1] Estimated informally by outer islanders in Fall 2018-Spring 2019, and adjusted in 2022 based on local knowledge.

Development in the community involves primarily single-family dwellings on large lots, mostly located near various bays and wharves. Residents with waterfront properties typically have small private docks for boat access or rely upon limited road access to public and/or shared docks. At Surge Narrows, there is a school with associated structures and infrastructure, as well as a post office.

Figure 3. Surge Narrows School

Various past and current community projects demonstrate a high level of community cohesiveness among full time residents. The current construction of a community pavilion located at Surge Narrows is indicative of the residents' willingness and ability to act as a community on matters of common interest. This is further exemplified through the grocery delivery program. Established through COVID-19 emergency response funding availability through Emergency Management BC, the program is now fully self-supporting and run by volunteers.[2]

Figure 4: Community pavilion

Figure 5. West of Read Island

The Outer Discovery Islands community also has a significant number of properties that are occupied seasonally, primarily during the summer months. In this regard the Outer Discovery Islands are similar to other resort and cottage communities, where only a portion of property owners are present and fully involved in the community year-round. As such, there may be differences between the permanent and part-time populations regarding their level of support for community activities and ability to support such activities in a practical way

[2] Described in Appendix 1 – Grocery Delivery Program

Project Scope

The genesis of the fire brigade review project was the 2021 Diamond Bay fire. The After Action Review Report (Appendix 2) conducted by SRD staff and involving community members and BC Wildfire Service ("BCWS") personnel, included an action item that the "community decide if a volunteer fire brigade idea should be explored."[3]

Figure 6. 2021 Diamond Bay fire damage

That action item subsequently resulted in the Surge Narrows Community Association (the "SNCA") requesting that the SRD investigate "the costs and implications of creating a local fire brigade"[4] (Appendix 3). On December 16, 2021, the SRD issued a Request for Proposals (the "RFP") seeking proposals from qualified consultants to investigate the feasibility of establishing a fire brigade to serve portions of the Outer Discovery Islands, as outlined in the RFP and on a map[5] (Appendix 4) included in the RFP. The RFP process led to the engagement of Tim Pley & Associates (the "Consultants") to commence the review in late April 2022.

The SRD RFP noted that "the intent is that a proposed fire brigade would meet the service level of *Exterior Operations Level Firefighter* as defined by the *BC Structure Firefighter Competency and Training Playbook*."[6] The RFP further noted that,

> *"the SRD wishes to investigate how best to provide the delivery of fire suppression and response activities in the areas mentioned above and the cost of such service. This will include topics such as:*
> - *Training and operations;*
> - *Interoperability;*
> - *Dispatch and communications;*
> - *Fire suppression equipment costs;*
> - *Organization and administration structure; and*

[3] Appendix 2, Page 3, *Diamond Bay, Sonora Island – Interface Fire V82577 After Action Review*, 2021

[4] Appendix 3, Surge Narrows Community Association letter dated September 24, 2021

[5] Appendix 4, Map of Study Area, *Request for Proposals RFP 16-21 Surge Narrows Fire Brigade Study*, Strathcona Regional District December 16, 2021

[6] Page 3 *Request for Proposals RFP 16-21 Surge Narrows Fire Brigade Study*, Strathcona Regional District December 16, 2021

- *Other related topics that may be identified by the proponent.*

Topics such as firehall construction and procurement of fire apparatus are not within this scope of this study. The final report should provide enough detail for the Regional District to determine whether it is feasible to establish the service that has been proposed. The information in the final report can based upon research, interviews, site visits, observations, and discussions with community representatives, Strathcona Regional District staff, provincial entities and others."[7]

[7] Page 3, Ibid

Project Methodology

The project included a four-phased approach:

Phase One: Project Kick-off and Background Review

Preliminary meetings were conducted with SRD Protective Services Coordinator Shaun Koopman and local volunteer Emergency Preparedness Coordinator Ginny Vassal. Through these meetings, the project scope of work was refined, the Consultants began to develop a deeper understanding of the project and the community, and logistics were discussed to support the site visit phase of the project.

Phase Two: On-site Consultations

From 13 to 15 June 2022, Tim Pley, Gord Anderson and Laurie Pley visited the Outer Discovery Islands community. Meetings were undertaken with residents at Read Island (near King Island), Diamond Bay (Owen Bay wharf and community were toured, and the site and nearby area of the 2021 Diamond Bay interface fire was observed), Maurelle Island, and a broader community meeting was held at Surge Narrows where at least one resident family from Maurelle Island was in attendance. Residents from the Evans Bay area on Read Island also attended this meeting. While at Surge Narrows, the Consultants were also able to engage individually with several members of the SNCA Board.

The on-site consultations were instrumental to the Consultants developing an understanding of the opportunities and limitations regarding the establishment a fire brigade and also to understanding the needs and concerns of community residents.[8] At each session it was observed that marine travel is the primary means for residents to come together.

The community engagement session at Surge Narrows intentionally coincided with a community event held at the Surge Narrows Elementary School that included a dramatic performance by students and a musical performance by some adults in the community. While this session was not related to the public engagement session for this review, it did provide a valuable opportunity to observe the community coming together in common interest. The consultants thank the school and community for allowing our presence at this memorable event.

The on-site consultations would not have been possible without the support and involvement of Ginny Vassal. Ms. Vassal was instrumental in scheduling meetings, engaging residents to attend meetings, facilitating resident input during meetings, and ferrying the Consultants safely through an area where local knowledge and marine vessel operation competence were critical. The Consultants greatly appreciated the time Ms. Vassal spent with us, and the deeper understanding that she provided of the overall community.

[8] Details related to efforts to raise community awareness of the engagement sessions are summarized in Appendix 6.

Subsequent to the on-site consultations, further input was received from several Discovery Island residents. The Consultants also engaged with BCWS staff regarding the review.

Phase Three: Development of Recommendations and Draft Report

A client draft review report was provided to the SRD on July 29, 2022.

Phase Four: Development of Final Report

Input received from SRD provided a valuable, fresh perspective on the client draft report. Minor modifications were made to the final report based on input from SRD staff.

Structure Fire Protection

The RFP noted that one goal was to assess the feasibility of establishing a fire brigade that will be able to operate at the Exterior Operations Service Level, as set out in the *BC Structure Firefighter Competency and Training* Playbook ("the Playbook"). During preliminary stages of the study, it was determined that provision of structure fire protection is not feasible for the Outer Discovery Islands. A detailed summary outlining the reasons why that is not feasible is included in Appendix 5.

Exterior Operations-level fire protection would require fire apparatus and storage facilities for apparatus and equipment (firehalls) that were specifically precluded from the project as per the RFP.

The reasons that a traditional structure fire protection service cannot readily be established are summarized below.

A fire department capable of providing structure fire protection in the Outer Discovery Islands would be required to meet the requirements for Exterior Operations under the Playbook, the minimum permitted level of structure fire protection permitted in BC. An Exterior Operations-level fire department would require that firefighters and apparatus (fire engines) have road access to structures, and access to water supplies in volumes adequate for structure firefighting. Structure firefighting service is delivered using fire apparatus and large volumes of water necessary to counter the massive fuel load involved in structure fires. Structure firefighting, even at Exterior Operations level, would require infrastructure commonly found in semi-rural communities, and not currently in place in the Outer Discovery Islands. This infrastructure (roads, water supply, fire apparatus, fire halls) would need to be replicated on each island that participated in the fire protection service.

It is conceivable that a convergent-model structure fire protection department could be established, utilizing one or more fire boats as a means to move equipment to the fire scene and then pump water from the ocean up to the location of a structure fire. However, many of the structures that were viewed by the Consultants in the Outer Discovery Islands are not close enough to the ocean and/or at too high an elevation for a fire boat to be effective. Elevation and distance are both enemies of the movement of water, and compound the challenges of providing water supply at volumes and pressures adequate for structure firefighting. In communities that rely on fire boats as a water source for structure fire protection, fire engines are still used to relay pump and provide pressure adequate to maintain fire streams when fires are upslope from the water source. A fire boat-based structure fire protection service would not be able to provide fire protection service to many of the structures in the area without additional fire apparatus and/or static water sources located nearer to those structures and a road network to enable timely access those resources.

Appendix 5 contains more detailed information about the challenges of providing structure fire protection in the Outer Discovery Islands.

Even if the community undertook the purchase and maintenance of a fire boat, trained and equipped a group of firefighters to the Exterior Operations standard, and implemented a convergent fire response model, the rapid nature of fire growth in structures and the time it would take to assemble adequate resources and water supply at the site of a fire would be such that any structure impacted by fire would be lost, and firefighting efforts would be turned, at best, to preventing spread of fire to the surrounding forest.

After concluding that structure fire protection was not a feasible option, the Consultants then focussed their examination on the level of fire protection service that is possible – wildland interface fire protection. The remainder of this report examines the option of developing that level of fire protection across the Islands.

Regulatory Matters: Wildland Brigade

The mandatory minimum training requirements for Exterior Operations firefighting are set out Appendix 5. As noted in that Appendix, these requirements, coupled with infrastructure deficits and equipment costs, make the establishment of a compliant structure firefighting brigade infeasible. Engagement with SRD staff and community members indicated that this view is one that was generally shared amongst stakeholders.

This portion of the report therefore examines an alternative – the development of a purely wildland brigade, one which would respond to wildfires on the Islands in advance of, or in support of, a response from BCWS.

The following sections therefore examine a number of regulatory issues impacting the potential creation of a wildland brigade. For the purposes of these sections, we have assumed that the wildland brigade would be operated under SRD auspices and supported by local taxation.

Service Area Establishment

The creation of a viable service is best ensured by establishing a local service area and supporting the proposed emergency response activities through taxation. The amounts so raised can be supplemented by other fundraising efforts, including grants from senior governments.

The SRD is fully conversant with the requirements for establishing a local service area, as set out in Part 10, "Regional Districts: Service Structure and Establishing Bylaws" in the *Local Government Act*:

- the services being authorized need to be described;
- the boundaries of the service area need to be defined;
- the support of the local residents will be required;[9] and
- the maximum taxation rate and authorized methods for cost recovery must be prescribed.

We would recommend that the description of the authorized service be carefully constructed. The services authorized should cover wildland firefighting, services ancillary to or in support of such firefighting (including training and fire prevention activities), and such other emergency response services or assistance to the public, as may be expressly authorized by the SRD Board.

The service establishment bylaw should be supported by an operational powers and administration bylaw, which defines the following:

- the administrative structure, oversight and reporting lines for the service;

[9] While there are circumstances where a referendum is not required to be used, in this case, given that the service will be dependent on the support of local volunteers, obtaining such formal public input is critical.

- the services the wildland brigade is authorized to provide;
- a process for approving additional emergency response services (e.g., search and rescue, water rescue, ancillary health services or emergency health services, etc.)
- the budgeting processes; and
- the powers being granted to the emergency responders in connection with an incident response.

Members of the wildland brigade should be recognized as either volunteers or employees of the SRD for the purposes of section 738 of the *Local Government Act*, so that the immunities contained in that section apply to them. Consideration also should be given to ensuring wildland brigade members are covered by the SRD's indemnity bylaw, on the same basis as other volunteer firefighters.

One of the costs applicable to the service will be an allocation for insurance coverage under the SRD's insurance policy.

BC Structure Firefighter Competency and Training Playbook

The Playbook sets out the minimum training requirements for structure firefighting and for authorities having jurisdiction (the "AHJ") over fire departments. A wildland brigade would not engage in structure firefighting, and therefore the Playbook is not applicable. However, the Playbook contains some prudent oversight requirements for AHJs that the SRD should consider adopting as practices. This includes formally adopting through bylaw or policy statement a level of fire protection service (wildland), maintenance of training records, internal safety leadership and designation and training of team (crew) leaders.

WorkSafe BC

The application of the *Workers Compensation Act* (the "WCA") and related regulations will need to be reviewed in detail with WorkSafe BC. For the safety of wildland brigade members, WorkSafe BC coverage should be obtained if possible. We note that the definition of "firefighter", which is an element of the definition of "worker" in section 1 of the WCA, appears broad enough to encompass the members of the proposed wildland brigade, meaning that the WCA and related regulations would apply to a wildland fire brigade and its volunteer firefighters:[10]

> "firefighter" means a member of a fire brigade, working with or without remuneration, who is assigned primarily to
>
> (a) fire suppression duties, whether or not those duties include the performance of ambulance or rescue services,

[10] The term "fire suppression" is not defined in the WCA.

(b) investigation duties respecting the cause, origin or circumstances of a fire, or

(c) any combination of both fire suppression duties as described in paragraph (a) and fire investigation duties as described in paragraph (b);

While the WCA and related regulations apply to a wildland fire brigade and its firefighters, Part 31 of the *Occupational Health and Safety Regulation* (the "OH&S Regulation"), which sets certain, specific requirements for *structure* firefighting and related firefighters, would not apply to them. Section 31.2 provides as follows:

> ***31.2 Application***
>
> This Part [31] applies to employers and to workers who are employed in firefighting activities on a full or part time basis, including volunteer firefighting in municipal service and industrial fire brigades to which the compensation provisions of the *Workers Compensation Act* apply, but does not apply to forest fire fighting.

Several issues flow from the application of the WCA and the OH&S Regulation (not including Part 31):

- The SRD's occupational health and safety policy will apply to the wildland brigade. This policy should be reviewed and updated as required to ensure it encompasses this new set of operational responsibilities.
- The wildland brigade will require operational guidelines ("OGs") covering its activities. Even if the WCA did not apply, we would recommend that such OGs be developed as required best practice, and to support both training and operations.
- The SRD will need to ensure that the training provided to wildland brigade members, and to individuals within the wildland brigade who are assigned supervisory roles, is commensurate with their expected operational activities.
- The wildland brigade will require first aid capabilities as required by sections 3.14 – 3.21, and Schedule 3-A, "Minimum Levels of First Aid" of the OH&S Regulation (see the Training and Operations section, below, where training requirements for wildland firefighting are considered in greater detail).
- The wildland brigade will need to be supported by appropriate records keeping, covering:
    - training;
    - apparatus/equipment repairs and maintenance;
    - internal operations (e.g., budgeting and cash management); and
    - occupational health and safety requirements (meeting minutes, investigations etc.).
- The wildland brigade will need either to operate a safety committee or appoint a "worker representative" to address safety issues on an on-going basis.[11] Since Part 31 of the OH&S Regulation does not apply, in theory this safety committee participation could

[11] See the requirements in Part 2, Division 5, ss. 31 – 46 of the WCA.

operate through the SRD's existing safety committee. However, given the localized nature of the service and the special circumstances under which the wildland brigade would be operating, we would recommend that a separate committee or worker representative be created for the wildland brigade itself. It should be noted that there are training requirements for committee members that must be met, along with a requirement that an annual review be conducted of the operation of the joint committee/worker representative.[12]

Other Service Issues

During the community engagement sessions there were several references made to the potential for a fire brigade to provide other related services. On Maurelle Island and at Diamond Bay there were discussions about the potential for members of a fire brigade to provide assistance at medical emergency situations and/or assisting victims to helicopter landing zones or locations accessible by Coast Guard. At Diamond Bay it was pointed out that residents already provide assistance at marine emergencies, and there was discussion about the potential for a fire brigade to provide marine rescue services in support of the Coast Guard.

The provision of any additional services by the wildland brigade will impact its training and supervision requirements. For example, if the wildland brigade provides search and rescue ("SAR") services on the Islands, then SAR training will be required, along with additional equipment and operational guidelines.

One issue which surfaced during the on-site visits was the question of liability arising from the provision of first aid to members of the public. Clearly, any response from the BC Ambulance Service ("BCAS") or Coast Guard to a medical emergency on the Islands will be considerably delayed relative to responses by those agencies in urban or other rural areas. Under Section 1 of the *Good Samaritan Act*:

> "A person who renders emergency medical services or aid to an ill, injured or unconscious person, at the immediate scene of an accident or emergency that has caused the illness, injury or unconsciousness, is not liable for damages for injury to or death of that person caused by the person's act or omission in rendering the medical services or aid unless that person is grossly negligent."

However, if the provision of such assistance was included in the services authorized for the wildland brigade:

- it is likely that the provision of such aid would be excluded from protection by subsection 2(a) of the *Good Samaritan Act*; and
- it is possible that such services would be construed as the provision of "emergency health services" under the *Emergency Health Services Act*. As such, the consent of BC Emergency Health Services ("BCEHS") would be required.

[12] See sections 3.26 and 3.27 of the *OH&S Regulation*.

We are aware that BCEHS has developed unique protocols with other remote communities – for example, the Bamfield Volunteer Fire Department is authorized to operate at the higher qualification level of "Emergency Medical Responder" and to transport patients, as result of the community's remoteness and consequent lack of a timely response from BCAS. If the SRD, in consultation with the community, determines that the provision of medical aid should be included in the services provided by the wildland brigade, it should explore with BCEHS how those services can best be delivered, and what training and consent agreements will be required.

Recommendations

Recommendation	The SRD should establish a local government service area for the Outer Discovery Islands and establish a wildland fire brigade for the purposes of providing wildland fire protection and other emergency response services that may be approved.
Recommendation	In the service establishment bylaw, the SRD should stipulate services authorized to be provided by the wildland fire brigade. Those services should include wildland firefighting, services ancillary to or in support of such firefighting (including training and fire prevention activities), and such other emergency response services or assistance to the public, as may be expressly authorized by the SRD Board.
Recommendation	The SRD should ensure that the service establishment bylaw is supported by an operational powers and administration bylaw. The emergency response powers of the wildland brigade need to be specified, along with the fundamental administrative structure and reporting lines.
Recommendation	The SRD should ensure that members of the wildland brigade are recognized as either volunteers or employees of the SRD for the purposes of section 738 of the Local Government Act and give consideration to also ensuring that wildland brigade members are covered by the SRD's indemnity bylaw on the same basis as other volunteer firefighters.
Recommendation	The SRD should ensure that the wildland brigade fully complies with the *Workers Compensation Act* and related regulations, that brigade members are provided with WorkSafe BC coverage, that a joint occupational health and safety committee (or worker representative system) is established and supported by the SRD, that the SRD's occupational health and safety policy will apply to the wildland brigade, and that this policy is

	reviewed and updated as required to ensure that it encompasses this new set of operational responsibilities.

Benefits of Establishing a Wildland Brigade

A number of concerns and questions arose during community meetings regarding the establishment and maintenance of a fire brigade focused on wildfire response. There were also a number of concerns raised regarding the 2021 Diamond Bay fire, and in particular the challenges faced coordinating the suppression and support activities of volunteers wanting to assist BCWS personnel in active firefighting. This section examines some benefits that could be derived through the establishment of a wildland brigade, which would address some specific concerns expressed by community members.

Figure 7. June 15 Surge Narrows Open House

In small or rural communities there is often an absence of established government resources. In these areas, fire departments or fire brigades utilizing volunteers are the only immediate "boots on the ground" for local or senior governments. There are benefits to having an organized and recognized function of government (in this case, the SRD as the local government) tasked with organizing and helping to manage such responses. It ensures continuity, oversight and access to financial resources through taxation.

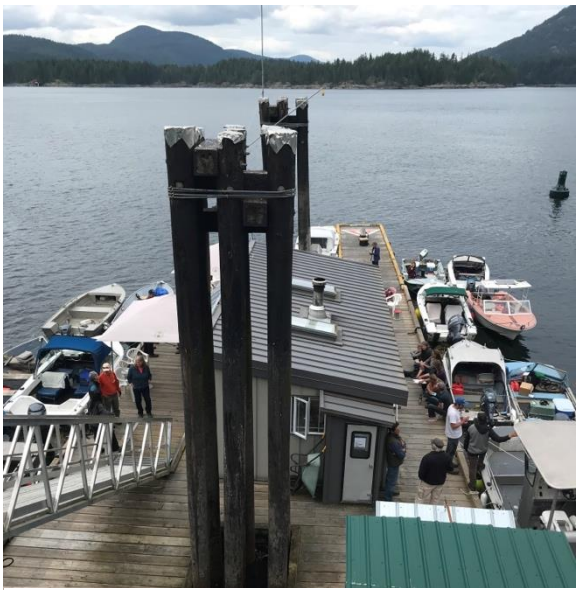


Figure 8. June 15 Surge Narrows Open House

Figure 9: June 15 Surge Narrows Open House

Figure 10: June 14 Diamond Bay Open House

Other Potential Services

As noted in the previous section, when a local service area is established, the services authorized to be provided are defined. Given the relative remoteness of the Islands, and the potential for expanding or adding to the authorized services in the future, we recommend that the service establishment bylaw permit new services to be added, subject to the approval of the SRD Board. Properly cast, this approach avoids having to amend the underlying bylaw, while ensuring that any service expansion is properly considered and sustainable.

Other services that the wildland brigade could potentially provide, and that the community might want to consider at the time of establishment include:

- First Medical Responder (FMR): Under agreement with the BCEHS, the wildland brigade could respond to medical emergencies and provide assistance until the arrival of BCAS, Coast Guard or other agency authorized to transport patients (or as noted above, BCEHS may permit the wildland brigade to transport patients). FMR is a service commonly provided by fire departments/brigades and can provide considerable value to communities. We would note, however, that this level of service requires specific training and the maintenance of qualifications.

- Marine Assistance: The wildland brigade could explore with the Coast Guard the potential to be dispatched to and provide assistance at marine-related incidents or calls for assistance.
- Search and Rescue: The wildland brigade could explore with Coast Guard and/or the current land-based SAR service provider to be dispatched to and provide assistance at incidents involving SAR either on land or on water. This assistance may include providing marine transport and the benefit of local knowledge, in addition to direct assistance with the search and retrieval functions.
- Other: The community might identify one or more services needed in the community that a wildland brigade could provide utilizing the tools, skills and organizational structure of the service, and authorization for provision of those services could be considered at the time of establishment or granted at a later date.

Fire Prevention and Education

Protection from fires is best achieved through a matrix of interconnected efforts; a layered approach that begins with fire prevention activities. Fire suppression efforts are resource intensive, involve risk to people and property, and require appropriate training and equipment to undertake safely and effectively. Conversely, fire prevention efforts provide "low hanging fruit" in the sense that through planned and sustained engagement with community members the number of uncontrolled fires can be reduced and the consequences of those fires can be lessened.

The scope of this project involved investigating the feasibility of a fire brigade. Fire brigades provide the best results when they involve not only fire suppression but also fire prevention and community education regarding fire safety. Fire prevention and fire safety education would be critical components in any wildland brigade's efforts such that the proposed organizational structure includes a position specifically assigned to fire prevention and education. All members of the wildland brigade should become conversant in the application of fire safety theory, and, under the guidance and direction of the prevention position, wildland brigade members could participate in fire prevention and fire safety education programs.

Fire prevention efforts undertaken by a wildland brigade could include:

- **Continued and enhanced application of the FireSmart program:** Application of FireSmart principles can result in structures being safer from the effects of wildfires and forested areas being safer from structure fires. Fire prevention efforts should be undertaken to prevent fires from spreading from one structure to another, or to the forest. This work will support fire suppression efforts by the wildland brigade;
- **Fire Safety Education:** A fire safety education program can include school-based learning, pop up educational booths at community events, newsletter inserts, home fire safety inspections (by invitation only), and other activities tailored to the community. Through fire safety education fires can be prevented, and residents can learn to be better prepared to act when a fire occurs;
- **Smoke Alarm Program:** Smoke alarms provide early warning of fires that save lives. The presence of a working smoke alarm is the best way to prevent loss of life to fire.

Through an active and community-wide smoke alarm program, a wildland brigade can ensure that every home has at least one working smoke alarm;[13]

- **Regulation of outdoor burning and other high fire risk activities:** The establishment of a wildland brigade should be coupled with the development of a bylaw to manage or mitigate the risks of outdoor burning. Human-caused fires represent a significant risk to the wildland, and through wildfire extension, to structures in the community. A bylaw that regulates outdoor burning can focus on high risk behaviour that can be enforced in the event that common sense and reasoning are not successful in addressing the risk.

The wildland brigade would be able to connect with the Fire Prevention Officers' Association of BC to utilize existing programs and access education and prevention materials to support its activities.

Potential for Future Grant Funding

Having an established wildland brigade would enable the application to senior governments for grant funding for related purchases and projects. This might include funding for infrastructure, (improved wharves for emergency use, land-based water reservoirs, equipment storage units), fire prevention programs (FireSmart program, fuel management, structure renovation to improve fire safety), equipment (pumps, hose, appliances, hand tools, personal protective equipment) or training.

More Effective Working Relationship With BCWS

One of the key concerns voiced after the 2021 Diamond Bay fire was that, after the arrival of BCWS crews, local volunteers were not permitted to support BCWS in active firefighting. BCWS looks to untrained community members, at most, for logistical support and local knowledge in the early stages of a wildfire suppression event. During wildfire response, community members are asked to leave the area in order to enable trained suppression crews and aircraft to perform their work. BCWS, like other emergency response agencies, does not generally recruit or utilize untrained volunteers in emergency operational work.

BCWS and other emergency response agencies may utilize local government resources for operational roles where those resources are a part of an established organization such as is proposed in this report. In that case, the wildland brigade members are trained and equipped for the tasks at hand, and able to operate under the BCWS incident command system.

[13] It is recommended that a combination Smoke / Carbon Monoxide detector be used.

Improved Response to and Suppression of Incipient Wildfires

The convergent volunteer response to the 2021 Diamond Bay fire was commendable and indicative of the way in which community members in the Islands communicate and respond to support one another. If a wildland brigade was established:

- notification of emergency incidents could be accelerated through page-capable portable radios;
- responses to incidents could be improved by having wildland brigade members trained and prepared to respond to emergencies;
- fire suppression efforts could be enhanced by having trained, equipped and organized firefighters working cohesively and implementing an Incident Action Plan; and
- coordination and communication with incoming BCWS personnel would be enhanced.

Early and effective intervention can result in control of wildfires at the incipient stage. A wildland brigade could provide the Outer Discovery Islands with the ability to intervene more quickly and more effectively before wildfires grow out of control, improving the suppression or fire control, and thus protecting structures.

Standardization of Equipment and Improved Readiness

Several community residents have purchased fire pumps and hoses. Some have stated that their equipment would be made available to others and/or a wildland brigade for the purposes of fire protection.

In the meeting with community members at Diamond Bay, it was learned that some pumps were not operational when needed, there were different makes and sizes of pumps, and pumps and equipment continued to arrive at the scene as the incident progressed. Several community members asked if a wildland brigade could use privately-owned pumps and equipment rather than purchasing new ones.

Figure 11. Structure adjacent to Diamond Bay fire

The benefits of an established wildland brigade include the standardization of equipment. This would build upon the availability of privately-owned pumps that could be used while that equipment was being acquired. Privately-owned pumps could continue to augment wildland brigade equipment to build up an identified inventory of

available equipment. Part of the wildland brigade's ongoing work would be to periodically test any such privately-owned pumps that may have been made available for use by their owners. Once acquired, the wildland brigade's own equipment would be dedicated to fire suppression uses (including training), stored in known locations and regularly maintained.

Improved Resource Awareness

As noted above, over time the wildland brigade could purchase standardized equipment that would be staged in appropriate locations and readily available for use by wildland brigade members

If desired, some fire protection equipment could be staged for public use as is currently done at points of gathering such at wharves and piers.

Local Government Taxation and Regulatory Authority

The regulatory and taxation powers of the SRD as they relate to a fire brigade have been addressed under Regulatory Matters section of this report. Establishing a local government service area would enable the wildland brigade to benefit from the SRD's ability to use tax revenues to fund the wildland brigade, and from the SRD's regulatory authority to manage activities that increase fire risk or that hinder fire suppression activities.

Funding a wildland brigade through taxation could provide for more equitable sharing of fire protection costs among all property owners. Owners of properties occupied seasonally would bear a commensurate share of the related costs, enabling all property owners to support this community effort.

Improved Internal and External Communications

Community members currently maintain contact through various means, including monitoring VHF channel 16 (marine emergency frequency), and monitoring VHF channel 12 (used as the talk around channel).

The use of portable radios by the proposed wildland brigade would enhance activation of emergency responders during an emergency and improve overall communications. The SRD could explore the ability to enable the wildland brigade frequency to be installed in radios owned by wildland brigade members and develop an operational guideline for the use of the brigade frequency. It should be noted that the use of marine radio to coordinate fire response activities is prohibited as that is an illegal use of marine radio frequencies.

A wildland brigade could also help to improve communications between the community and external agencies. A recognized local government wildland brigade could engage with BCWS to seek permission to install BCWS radio frequencies in brigade-owned radios. This would facilitate communications between the wildland brigade and incoming aerial firefighting resources, as well as between wildland brigade members and BCWS personnel during fire suppression operations.

The SRD also could explore the potential for the wildland brigade to be dispatched by North Island 911. Having a recognized and capable dispatch provider would enable not only timely dispatching to emergencies but could also be a support during emergency incidents, and a reliable communications link between the community and the external agencies such as BCWS, the RCMP and BCEHS.

Challenges in Establishing a Wildland Brigade

While engaging with community members several concerns were expressed about potential negative consequences of establishing a formal fire or wildland brigade. Those concerns are listed below with brief responding remarks:

Time commitment required from volunteers

As with any fire department or brigade there would be a requirement that members participate in regular training and respond to emergency incidents if available. Since the proposed wildland brigade would be providing service at a wildland firefighting level, as opposed to Exterior Operations, training would be considerably less onerous, and seasonal in nature. A certain amount of commitment would also be required to conduct regular maintenance of equipment, participate in community events and support fire prevention activities.

If the wildland brigade's functions are expanded over time to incorporate other emergency response functions, such as medical or rescue, then additional training (including maintenance training) would be required. As such, any decision to expand the brigade's operational responsibilities would have to be made carefully, and with the support of its members.

Administrative workload

Some administrative effort would be required to organize and to operate a wildland brigade. Administrative work would be conducted primarily by the wildland brigade's chief officers, with a portion of administration/record keeping conducted by other firefighters.

Certain administrative support may be available through the SRD, which can assist with developing and implementing the required operational guidelines and occupational health and safety processes. It also may be able to assist with budgeting and records keeping.

Consideration should be given by the SRD to the increased administrative workload that would be involved in both the establishment and the ongoing support of a wildland brigade. In considering how to address that increased workload the SRD should explore options to assign existing SRD staff resources, add additional staff resources, or to engage a contracted service provider with the expertise to undertake this work.

The wildland brigade can expand any recruitment efforts to include individuals who are willing to perform administrative (as opposed to emergency scene) functions.

Taxation impact on property owners

Establishing and operating a wildland brigade would involve some cost to landowners through property taxation. It would be incumbent upon property owners to determine whether the benefits of a wildland brigade amounted to a positive value proposition relative to the cost of taxation. Taxing for the service, however, will ensure that the organization is financially viable, properly authorized to undertake emergency operations, and able to fund such things as training, equipment procurement and ongoing maintenance and fire prevention activities.

Loss of *Good Samaritan Act* Protection

There was some discussion of the potential loss of protection under the *Good Samaritan Act*. First, it should be noted that that statute applies only to the rendering of medical assistance (and not to any other forms of emergency response). If the decision is made to move to include medical response services as one of the wildland brigade's functions, then it is likely that that statute would not apply. However, the benefits of formalizing this service include:

- better training and qualifications;
- formal arrangements with BCEHS that typically include an indemnity;
- liability protection for individual responders under section 738 of the *Local Government Act*; and
- insurance coverage through the wildland brigade, which would be operating under the SRD's liability and indemnity policy.

As such, the decision as to whether to include this role within the wildland brigade's list of authorized services should not be predicated solely or primarily on concerns over the loss of protection under the *Good Samaritan Act*.

Table 1 below summarizes anticipated benefits and perceived challenges associated with establishment of a wildland brigade.

Table 1: Benefits and Challenges Summary

Table 1: Establishment of a Wildland Brigade	**Benefit**	**Concerns Raised**
	Other potential service delivery	Time commitment from volunteers
	Fire prevention and education opportunities	Administrative workload
	Potential for additional grant funding	Taxation impact on property owners
	Closer working relationship with BCWS	Members of a wildland brigade would assume liability where currently that risk is mitigated by the Good Samaritan Act
	Improved response to and suppression of incipient fires	
	Standardization of equipment, improved readiness	
	Improved resource awareness	
	Local government taxation and regulatory authority	
	Improved internal and external communications	

Recommendations

Recommendation	The SRD should at the time of establishing the wildland brigade, specifically authorize the brigade to provide fire prevention and education services, and consider authorizing first medical responder services, marine rescue services, and search and rescue services. If these services are not authorized at the time the wildland brigade is established, the empowering bylaw should enable the future establishment of these services without requiring amendment to the establishing bylaw (see suggested approach in the second recommendation in the Regulatory Matters summary, above)..
Recommendation	The SRD should assess its capacity to provide administrative support to the wildland brigade and make changes necessary to ensure that it can provide the necessary support through allocation of SRD staff time or contracted services.

Training and Fire Suppression Operations

Training and operations are proposed to be structured to reflect the distribution of population within the service area. The typical volunteer fire department response process –volunteers responding in their own vehicles to a central fire hall and then to the incident in a fire department vehicle – is not proposed for Outer Discovery Islands. Instead, a convergent response model is proposed. This approach better reflects infrastructure and travel challenges in the community, as well as the current states of population distribution and neighbourly support. It would involve wildland brigade resources (members and equipment) staged at various locations in the service area, and those resources converging at the incident location by way of personal watercraft or vehicle, with specific responsibilities for gathering the necessary equipment during transit. This will require equipment to be staged in several key locations in the service area and some equipment and personal protective equipment to be staged with and carried by brigade members.

Figure 12. staged wildland firefighting equipment - Horne Lake, BC

A convergent response model involves the closest fire crew and equipment arriving on scene first, assessing the situation, establishing incident command, calling for necessary additional resources, creating an Incident Action Plan, and initiating fire suppression activities. As other crews and equipment arrive on scene, they will report to and be tasked by the incident commander. In this manner, the earliest possible intervention efforts are taken, and the brigade response strengthens over time. A convergent response model is dependent upon members' training and equipment being standardized so that, regardless of which members arrive at an emergency scene and in what combination, they are able to safely and effectively manage the incident.

Use of personal watercraft or vehicles to respond to emergency scenes will require operational guidelines regarding response safety and staging, investigation of personal and organizational liabilities and insurance, and consideration of adequate docking facilities at key locations.

Over time, as the brigade becomes better-equipped, consideration could be given to the purchase of a fire brigade boat suitable for emergency responses.

The proposed organizational chart reflects a geographically decentralized brigade with members who train primarily with their own crew and less often with other crews. In order to ensure operational compatibility, the tasks of training and operations would be assigned to the Deputy Chief, who would be responsible for ensuring that crew training is consistent, and all members are capable of fulfilling their emergency scene roles. Training would be coordinated

by the Deputy Chief and delivered by qualified crew leaders. To ensure cohesion, the brigade would periodically conduct larger training exercises where crews could intermix.

The Province of BC, through BCWS, is responsible for suppression of wildfire on Crown lands and in jurisdictions without a fire department. Upon arrival of BCWS at a wildfire, its incident commander will assume incident command and control over response operations. It will be critical for the wildland brigade to understand the transitioning process. The wildland brigade could then operate as a resource to BCWS and assume any support or response roles as directed. To enable the establishment of a working relationship between the brigade and the BCWS it will be important to ensure appropriate (recognized) training is undertaken, and that there is regular communication with BCWS about the brigade's status and availability.

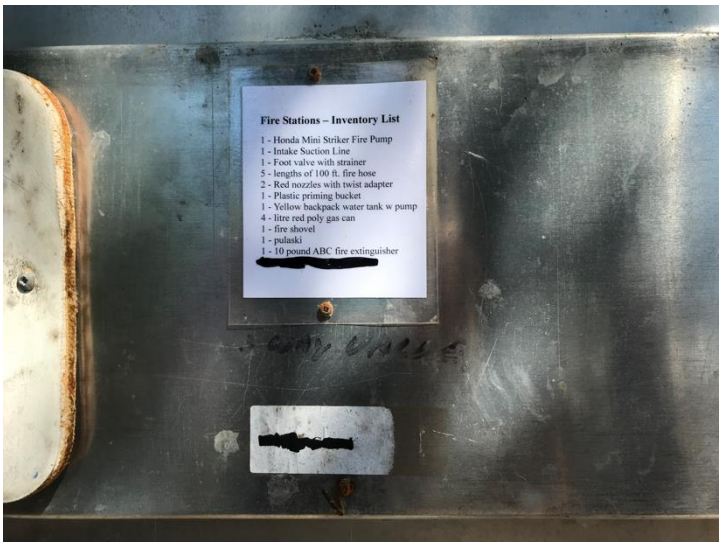


Figure 13. Fire Station inventory list

The training needed to support a wildland brigade includes relevant courses to ensure the safety of the firefighters, operational success in suppressing incipient wildfires, and successfully interacting with BCWS. The following courses are proposed, subject to guidance from BCWS:

- S100 Basic Fire Suppression and Safety (a two-day course) followed annually by the S100A refresher course (all firefighters);
- Incident Command System 100 (all firefighters and support);
- Incident Command System 200 (brigade officers/leaders);
- BCWS liaison officer familiarization training;[14]
- WorkSafe BC recognized Occupational First Aid (Level 1)[15] (all firefighters);
- Pleasure Craft Operators licence or Small Vessel Operators Permit (all boat operators); and
- Pumps and pumping training based on BCWS curriculum.

For a brigade to engage in wildland firefighting activities in support of the BC Wildfire Service there is a requirement to complete a recognized S-100 course followed by annual S100A refresher training.

> *The most common fire training course in B.C. is the S-100, which is considered as basic fire suppression training for contract crews. The S-100 and S-100A are required to meet the*

[14] Training to be determined in consultation with BCWS.

[15] https://www.worksafebc.com/en/health-safety/create-manage/first-aid-requirements/certificates-accepted-in-bc

training requirements under Section 26.3.1 Forestry Operation Fire Fighting of B.C.'s Occupational Health and Safety Regulation. The intended audience for this course is forest industry workers and contract fire fighters.

The S-100 is a two-day, 16-hour course with both a classroom and a field component. The annual refresher is a one-day, four-hour course and does not include a field component. Both the S-100 and S-100A are good for one year from date of delivery. If a person has taken either course within the last five years, they would only need to take the S-100A to be considered trained for the following year. If more than five years have passed since a person has taken either course, they would need to re-take the two-day, S-100 course again.[16]

Figure 14. Equipment

The BCWS utilizes the Incident Command System ("ICS"). It is important that wildland brigade members be trained in ICS and understand the roles and responsibilities of the positions within all of the participating organizations during an emergency event.

One of the roles identified within the ICS system is the Liaison Officer. A Liaison Officer would provide the BCWS with a single point of contact that can obtain and share location or organization specific information in a timely manner to support the operations in the field. This could include the locations of equipment or water sources, information about residents and properties as well as updates on actions taken prior to the arrival of BCWS resources.

Boat operators may already have a boater's licence given that is a Transport Canada requirement. Any brigade member who intends to operate a boat in support of wildland brigade operations would need to ensure they are licensed.

While not a requirement, it is recommended that wildland brigade members are also provided training in small pump and pumping operations. This could be done through the BCWS, a nearby fire department or utilizing a train the trainer model.

[16] BC Wildfire Service website (Information on Wildfire Training).

Recommendations

Recommendation	In the operational powers and administration bylaw, the SRD should establish the position of wildland brigade fire chief, and delegate to the fire chief authorities necessary for the fire chief to recruit and train officers, crew leaders and firefighters, to lead the wildland brigade, and to take actions necessary to prevent and suppress wildland fires.
Recommendation	Develop operational guidelines related to the use of personal watercraft or vehicles for emergency responses to address response safety and staging and consideration of adequate docking facilities at key locations
Recommendation	The SRD should investigate the provision of insurance and liability coverage for personal watercraft used for training and emergency response.
Recommendation	If the SRD and local community proceed with the establishment of a wildland brigade, the minimum training required for suppression operations to include: • S100 Basic Fire Suppression and Safety and refresher S100A course as described in this section • ICS 100 (all) and ICS 200 (officers/leaders) • Occupational First Aid level one • Small pump operations

Interoperability

The SRD expressed through its RFP a desire to investigate the potential for improved interoperability and coordination with external agencies. During community engagement sessions, residents expressed a desire for improved coordination and cooperation with BCWS and Coast Guard.

External agencies such as those noted above are unlikely to establish interoperability agreements and to make full utilization of local resources in the absence of an established local government entity such as a wildland brigade. Once established, however, a wildland brigade could enter into formal and informal agreements with external agencies that would enable brigade members to be able to work more closely with external agency personnel than was experienced during the Diamond Bay fire.

Key factors that would enable formal cooperation include:

- an established legal entity with local government authority;
- recognized minimum training, procedures, and operational guidelines;
- formal command and control of members;
- reliable emergency communications;
- reliable and shared-frequency communications between the brigade and external agencies (if not shared access to radio frequencies, an agreed upon communications platform that each party can access when the need to communicate arises); and
- compatible equipment.

A key frustration expressed through the 2021 Diamond Bay Fire After Action Review and at community engagement sessions in June 2022, was that community members were not permitted to work cooperatively with BCWS personnel in fire suppression activities. The establishment of a trained and equipped wildland brigade, one recognized by BCWS, would address that issue for future incidents.

Recommendations

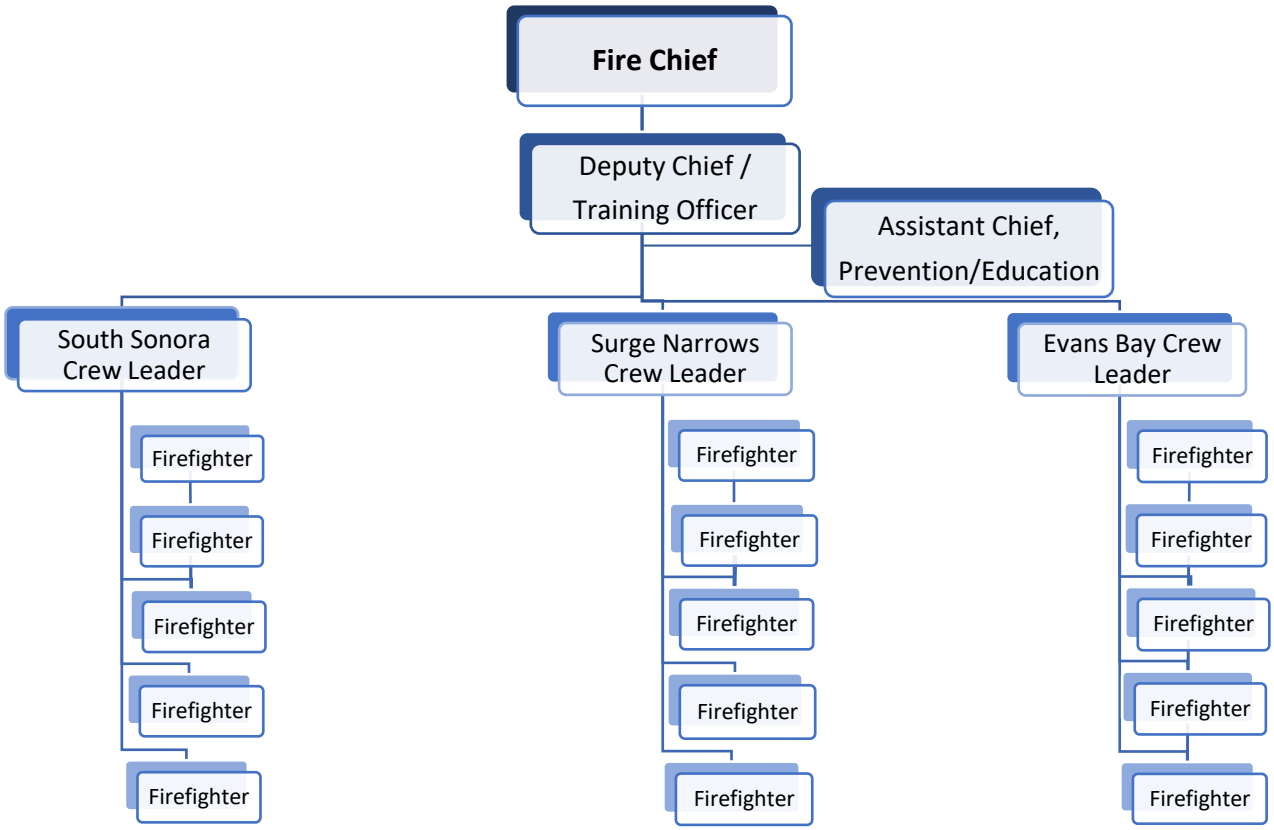
Recommendation	The SRD should support the wildland brigade fire chief in establishing and maintaining functional relationships with external agencies, such as BC Wildfire Service, the Coast Guard and (if FMR is provided) BC Emergency Health Services.

Organizational and Administration Structure

Organizational Structure

A proposed organizational structure for a wildland brigade is outlined below.

As noted above, establishment of such a brigade would require that the SRD establish a local service area authorizing its operation, and an operational powers bylaw covering its emergency operations. The SRD would be the AHJ, and therefore responsible for determining (in consultation with the community) the services provided by the brigade and the level to which those services would be provided. The fire chief, noted above as the person in charge of the wildland brigade, would report directly to an SRD staff person. Those reporting lines and related administrative structures are typically set out in the relevant operational powers bylaw.



It is recommended that the internal organizational structure reflect and be consistent with other fire departments/brigades in SRD and other regional districts to facilitate interoperability. For similar reasons, the suggested organization utilizes position titles such as “fire chief”, “deputy

chief", etc. The structure is predicated on crews being developed and maintained at each of major population nodes, as discussed further, below.

The fire chief and other chief officers will liaise with their peers in other local government service areas and with external agencies that are familiar with the title as denoting the leader of a local government fire department or brigade. The terms "crew leader" and "firefighter" reflect BCWS terminology. Using these designations will facilitate wildland brigade personnel operating alongside BCWS suppression crews.

Given the nature of the terrain and waterways, the clustered nature of population nodes within the community, and the manner in which BCWS deploys its staff for wildfire initial attack in small, three-person crews, it is proposed that the wildland brigade organize personnel in geographical groups, with a Crew Leader assigned to each group. For the purposes of demonstrating the proposed organizational model, three crews shown are named to reflect known population nodes. Ideally, each crew should have more than three members, so that when deployed, crews are more likely to have a staffed strength of at least three.

The geographical designation of crews will facilitate local training that is coordinated across all groups by the Deputy Chief/Training Officer.[17] It also establishes the functional initial attack crews responding to incidents proximate to their location. Other crews can respond in a layered manner in support of the first due crew, providing the earliest possible fire suppression efforts sustained by subsequent crews until relieved by incoming BCWS personnel.

The proposed organizational chart sets out 21 positions, including three chief officers, three crew leaders and fifteen firefighters (three crews of six). The question undoubtedly arises as to what would be the minimum required number of wildland brigade members.

At a minimum, a wildland brigade should be able to meet all required administrative, maintenance and training requirements and provide during fire season a minimum fire response of three personnel.[18] Assuming a 50% turn out rate during fire season when wildland brigade members are likely engaged in other activities, a minimum wildland brigade strength of six members would be required to provide for an IA response of three (one crew leader and two firefighters) plus a minimum of one chief officer. Minimum wildland brigade staffing would be seven.

In determining an optimum number of wildland brigade members, the following should be considered:

- Each wildland brigade member adds marginal costs related to PPE, equipment, training and administration; and
- A wildland brigade is intended to provide suppression efforts prior to the arrival of BCWS, and support for BCWS until they are able to muster adequate resources of their

[17] Geographical descriptors for Brigade teams are provided as suggestions for the purpose of demonstrating the concept. Should a Brigade be established, Chief officers should determine organization and designation of members and teams.

[18] BCWS Initial Attack ("IA") crews are comprise a crew leader and two crew members

own. A wildland brigade is not intended to undertake fire suppression efforts beyond the initial stages of a fire incident response.

The organizational chart reflects three crews of six members each, with three chief officer positions. This configuration is recommended as the optimum staffing model. This brigade strength staffing recommendation (three chief officers, three crew leaders and 15 firefighters) can be augmented by non-fire suppression volunteers who could provide valuable administrative and other support to the brigade.

Table 2: Brigade Crews

	Chief Officers	Crew Leaders	Firefighters	Total
Minimum	1	1	5	7
Proposed Optimum	**3**	**3**	**15**	**21**

Fire Chief: Reporting to the SRD, the fire chief is the administrative and operational leader of the wildland brigade. The Fire Chief is responsible for reporting to the SRD, implementing and ensuring compliance with operational guidelines, and overseeing administrative requirements of the brigade. The fire chief is solely responsible for hiring, dismissing, and disciplining personnel, subject to SRD policy. The fire chief is the primary spokesperson for the wildland brigade, and acts as the principal liaison between the wildland brigade and other agencies. The fire chief assumes operational command at emergency incidents as required.

Deputy Chief/Training Officer: Reporting to the fire chief, the deputy fire chief is assigned responsibilities for the coordination of training of wildland brigade personnel, developing and implementing operational plans, ensuring that regular equipment maintenance programs are implemented, procurement and record keeping associated with the areas of responsibility for this position. The deputy fire chief acts in the place of the fire chief when the fire chief is absent.

Assistant Chief, Prevention/ Education: Reporting to the fire chief, the assistant fire chief is responsible for directly, and through wildland brigade personnel, implementing the wildland brigade's fire prevention program. Practical examples of the assistant chief's work include implementation of the FireSmart program and educating residents and visitors on matters relating to fire prevention and fire safety. While the incumbent in the assistant fire chief role may be involved in wildland brigade operations, this role does not require operational involvement in the wildland brigade.

Crew Leader: Reporting to the fire chief, crew leaders are responsible for leading and supervising firefighters assigned to their teams. Crew assignments may change during training or emergency operations. Crew leaders are responsible for ensuring that firefighters under their supervision comply with wildland brigade operational guidelines, their training, and overarching regulations. Crew leaders will perform administrative and record keeping duties related to the responsibilities of the team leader position, and as assigned otherwise by the fire chief. Crew leaders are required to perform all work performed by firefighters in the wildland brigade.

Firefighter: Reporting to a crew leader, firefighters are responsible for operational response and work at emergency scenes, for adhering to fire brigade operational guidelines, and for acting as ambassadors for the wildland brigade and champions for fire safety. The role of firefighter involves at times demanding physical work under stressful and challenging conditions, and adherence to operational guidelines and direction from wildland brigade officers.

Recommendations

Recommendation	In the event the SRD proceeds with the establishment of a Wildland Brigade operational guidelines should be created to set out the organizational structure, ranks, roles and responsibilities as recommended in this section
Recommendation	The SRD create operational guidelines to provide direction and guidance for brigade members for response to incidents

Dispatch and Communications

Currently, residents in the Outer Discovery Islands area use VHF channel 16 as a hailing frequency, which is a permitted use in addition to its primary role as a distress frequency. Once contact is established, community members use VHF channel 12 as their talking frequency, and many residents monitor both channels.

During community engagement sessions, it was noted that during the 2021 Diamond Bay fire, there was limited ability to communicate with incoming BCWS aerial operations resources, and that including some BCWS radio frequencies in local radios would be helpful. As noted earlier in this report, the use of marine radio to coordinate fire response activities is prohibited as that is an illegal use of marine radio frequencies.

An established wildland brigade could engage with BCWS to reach agreement to install some BCWS radio frequencies in brigade-owned portable radios to facilitate communications between the two organizations. The wildland brigade, together with SRD, could apply to Industry Canada for a dedicated dispatch frequency for the brigade and a dedicated operational channel. The wildland brigade and SRD could also engage with North Island 911 to establish emergency dispatch services for the brigade. This would require an agreement to receive and process requests for assistance from several modalities including 9-1-1, a 10-digit number and marine radio. Dispatch of wildland brigade members would require a reliable means of alerting which might include a VHF paging system subject to a review of radio coverage or the use of an agreed UHF marine channel.

Current technology enables use of multi-channel portable VHF radios that are equipped with the ability to scan multiple channels and to transmit a page or alarm. Acquiring such equipment will enable brigade members to be more quickly contacted by North Island 911 Fire Dispatch, to activate a page out of brigade members internally if the situation warrants, to monitor radio frequencies of other agencies provided permission has been granted to install those frequencies, and to communicate directly with external agencies. Any call taking and dispatch agreement with North Island 911 Fire Dispatch may involve an initial capital investment to ensure compatibility and coverage of technical systems and will likely also incur an ongoing budget for the dispatch service.

During community engagement sessions, residents commented on the current challenges related to satellite phone use in the area. Specifically, when satellite phones are utilized to contact 911, those calls are routed to a dispatch center in the USA resulting in delays, lack of knowledge of the area, and perceived inadequate services.

Recommendations

Recommendation	The SRD should engage with North Island 911 to establish emergency dispatch services for the wildland brigade.

Budget

While wildland brigade budget requirements will be dependent upon the specifics of the brigade desired and the time period over which the wildland brigade becomes fully staffed and equipped, a proposed budget is included in Appendix 8 and summarized below.

A key assumption included in development of the proposed budget is that start up purchases will be staged over at least a three-year period so as to smooth the impact of start-up costs over several budget/taxation years while enabling the wildland brigade to be operational in the first year. This approach is predicated on the use of privately owned pumps and other equipment to initially support brigade operations, until it is able to obtain the necessary equipment and storage facilities over the course of the three-year period.

Local government capital budgets generally include expenditures for capital assets that will be utilized over a multi-year time frame. Operating budgets cover personnel costs (including training), maintenance and items that will be consumed, utilized within the budget year, and/or which are relatively low cost. For the purposes of this report, the wildland brigade's budget requirements are presented with capital and operating expenses combined.

Another key assumption reflected in the proposed budget is that, as mentioned earlier in this report, wildland brigade members will utilize their personal watercraft and vehicles to respond to training sessions and emergency incidents. The proposed budget includes funds to reimburse wildland brigade members for fuel consumed while attending training or emergency incidents. The proposed budget does not include contribution to the future purchase of one or more wildland brigade boats.

The draft budget (Table 3) does not anticipate that the brigade will have material revenues in addition to taxation. However, once the wildland brigade is established, there are grant programs available that should be explored, and local fundraising efforts could supplement revenues generated from taxation.

Administration: Includes suggested stipends for chief officers, reimbursement of fuel costs for chief officers, administration supplies such as consumables and computer software, hardware and internet access.

Personnel: Includes personnel related expenses such as training, training supplies, travel required for training, fuel reimbursement for non-chief officer personnel, and personal protective equipment.

Prevention/Education: Includes costs related to fire prevention and education efforts.

Equipment: Includes costs related to the purchase, maintenance and replacement of brigade equipment such as pumps, hoses, related appliances, and hand tools.

Communications: Includes capital and operating costs for technology interoperability as well as the ongoing cost for call taking and dispatch of wildland brigade personnel.

Facilities: Includes costs related to constructing, maintaining and replacing fixed equipment storage facilities.

Table 3: Budget

Department	Item	2023	2024	2025	2026	2027	
Administration		**$13,500**	**$ 11,785**	**$11,079**	**$11,411**	**$11,753**	
	Stipends	$9,000	$9,270	$9,548	$9,835	$10,130	Divided among three chief officers
	Supplies	$4,000	$2,000	$1,000	$1,030	$1,061	Admin supplies
	Fuel reimbursement	$500	$515	$530	$546	$563	Reimburse fuel cost for admin activities
	SRD Admin/Insurance	$ -	$ -	$ -	$ -	$ -	
Personnel		**$21,500**	**$15,845**	**$14,200**	**$14,566**	**$14,943**	
	Training	$3,000	$3,090	$3,183	$3,278	$3,377	ICS, etc.
	Training supplies	$1,000	$1,030	$1,061	$1,093	$1,126	Support for training and training sessions
	Training travel	$2,500	$2,575	$2,652	$2,732	$2,814	
	Fuel reimbursement	$5,000	$5,150	$5,305	$5,464	$5,628	Training, prevention/education, emergency responses
	PPE	$10,000	$4,000	$2,000	$2,000	$2,000	
Prevention/ Education		**$3,000**	**$3,090**	**$3,183**	**$3,278**	**$3,377**	
	Training	$1,000	$1,030	$1,061	$1,093	$1,126	
	Supplies	$1,000	$1,030	$1,061	$1,093	$1,126	
	Fuel reimbursement	$1,000	$1,030	$1,061	$1,093	$1,126	
Equipment		**$10,000**	**$10,250**	**$10,271**	**$4,292**	**$4,347**	
	Portable radios	$5,000	$5,000	$5,000	$1,000	$1,003	Develop inventory over time
	Small tools	$1,500	$500	$515	$530	$546	Hand tools
	Pumps/hoses/ appliances	$3,000	$3,000	$3,000	$1,000	$1,030	Develop inventory over time
	Small equipment repairs	$500	$750	$753	$756	$759	

Department	Item	2023	2024	2025	2026	2027	
	Asset replacement	$ -	$1,000	$1,003	$1,006	$1,009	Annual contribution to replace capital assets at end of life
Facilities		**$4,000**	**$4,620**	**$4,759**	**$4,901**	**$5,048**	
	Equipment storage units	$4,000	$4,120	$4,244	$4,371	$4,502	Install one per year on priority basis
	Asset replacement	$ -	$500	$515	$530	$546	Anticipate minimum 20-year life span
Communications	NI 911	$ -	$ -	$ -	$ -	$ -	TBD operating and capital costs
Total		**$52,000**	**$45,590**	**$43,491**	**$38,449**	**$39,469**	

Recommendations

Recommendation	The SRD should ensure that budget funding is provided for the wildland brigade such that the brigade is able to function safely and effectively, and purchase, maintain and replace equipment necessary for completion of the brigade's mandate.

Appendix 1: Surge Narrows Grocery Delivery Program[19]

The Surge Narrows grocery delivery system started a few years ago with the help of a start-up grant from the Strathcona Regional District. The grant helped to cover challenges due to lack of knowledge and experience, while encouraging participation in new system they were uncertain about needing. Some thirty families, and the occasional newcomer, have joined the program. The program is self-supporting and fully run by volunteers.

Orders are placed online to the Campbell River Save On Foods for pickup on the same day every other week. All Surge Narrows orders are compiled for a delivery service to pick up in its truck and take to the water taxi in time for the scheduled departure of the boat. The orders are transported by water taxi to the Surge Narrows dock. At the dock, customers unload, weigh and sort the individual orders by name. The Individual order weights are recorded and used to calculate their share of the total delivery cost. Customers are billed at the end of each month, and they pay by e-transfer.

Because there is a minimum charge from each carrier plus a weight charge, it is much more economical for each customer to share these costs rather than each person setting up their own delivery. Also, it's more efficient to have one person making all the carrier arrangements. Everyone comes to the Surge dock for mail and other activities, anyhow, so it is almost as convenient as having their orders dropped off at their own home.

Initially online ordering was not possible, resulting in an unsustainable workload for the coordinator. At that time, individual orders were amalgamated into one huge order and emailed to the store. Upon arrival at the dock, the load had to be sorted into individual orders, weighed for shipping costs, and billed for the actual grocery cost.

During COVID, merchants had to set up websites for online ordering and implement pickup systems at the stores. Currently, a volunteer communicates with the carriers, keeps the customers' shipping accounts, and sends out the monthly bills—a task that takes maybe three hours a month.

At a cost of about $0.50 per pound, it is still a saving over going to town. A small team of lightly trained volunteers who can fill in for each other as needed has been established, and the system is working very well.

[19] Paraphrased excerpt from Judith Wright email message to Sheila Fashedo and Tim Pley, August 20, 2022.

Appendix 2: Diamond Bay After Action Review

Diamond Bay, Sonora Island - Interface Fire V82577
After Action Report

Photo - Kathy Barnes

"This was one of the best experiences I've had with the public working on a wildfire. Everyone was super helpful and understanding. The response of the public was one of the major factors in keeping this fire as small as it was."

BC Wildfire Service – Vancouver Island

Background: The fire was reported to BC wildfire at approximately 4 p.m. Thursday August 12th; initial attack crew of 2 BC Wildfire staff together with a number of residents from Sonora, Busby, Maurelle, and Read Islands and their pumps and hose fought the fire late into the night. On Friday August 13th B.C. Wildfire Service had 17 firefighters, four helicopters and one boat working at the site. These efforts kept the fire to approximately 5.3 hectares.

Upon recommendation from BC Wildfire, the Strathcona Regional District (SRD) issued evacuation alerts for properties south of Hyacinth Lake and Dorr Lake and provided ongoing updates for residents via SRD Connect Rocket.

Action Items from Debrief Sessions: Items in process

	Action	By / Comments
	TRAINING & PREPAREDNESS	
1.	S 100 or similar training requested	Ginny Vassal organizing with BC Wildfire; sessions at both Sonora Island & Surge Narrows.
2.	Incident Command training requested	Shaun Koopman to instruct; 2 sessions as above. Tentatively Oct 4-8, dates to be confirmed.
3.	Free confidential firesmart inspections available for all homes fall 2021.	Funding was obtained by SRD. Sign-ups and schedule by September 2021. Ginny is local co-coordinator.
4.	Miray Campbell has	volunteered to work on Emergency Preparedness-Sonora Island
	FIRE FIGHTING EQUIPMENT	
5.	Request for powerful community pumps & hose	From Jim Abram; "talking with staff about pumps at all wharves. SRD engineer is sourcing; funding is being explored". Jim Mallis working with SRD re: 3 dock set-ups: Surge Narrows, Owen Bay, Evans Bay. Residents also investigating.
6.	Locally owned firefighting pump/hose inventory listed & mapped.	Ginny is working on initial test map for Read Island 1st; subsequently other islands / together with Miray.
7.	Assist residents understand their fire-fighting equipment needs	Although not a professional firefighter, Jim M has researched equipment & sources. Contact Jim to discuss.
8.	Recommend annual pump maintenance day with cross training on how to use other pumps & where stored	For Read Island: Jim M For Sonora & Busby:_____(TBA)_____
9.	Lost or damaged equipment claim; advise Ginny of your equipment missing / not repairable	Ginny working with Shaun to understand official process then prepare claim. Contact Jaysson Greenfield (Owen Bay - marine mechanic) if your pump mechanically damaged.

Action Items: Not yet underway

	Action	By
11.	**COMMUNICATION:** Communication was a significant opportunity for learning. Community to consider emergency communication methods, training, and coordination. Discussion and recommendations on following page.	
10.	**PREPAREDNESS:** Community to decide if volunteer fire brigade idea should be explored. This would allow brigade members to fight exterior fires with BC Wildfire. If yes, request SRD to assess costs & report. Training would be no charge but would require commitment.	
12.	**EQUIPMENT:** - Label - Let several neighbours know how to access - Include working flashlight & charged handheld radio - have tools & fittings, water, snack, jacket together in kit. - know the limits of your equipment - date your fuel, add stabilizer - good fuel filter is key	
13.	Owen Bay dock – considered "a health & safety issue" by residents	

Contacts noted above:

Shaun Koopman, SRD Protective Services Coordinator: skoopman@srd.ca 250-830-6702

Ginny Vassal, Emergency Preparedness Volunteer: gvassal2@gmail.com 250-285-0057

Jim Mallis, Read Island jmallis@telus.net 250-947-1173

Miray Campbell, Diamond Bay miraycampbell@gmail.com 250-202-8773

Jaysson Greenfield Owen Bay jayssongreenfield@hotmail.com

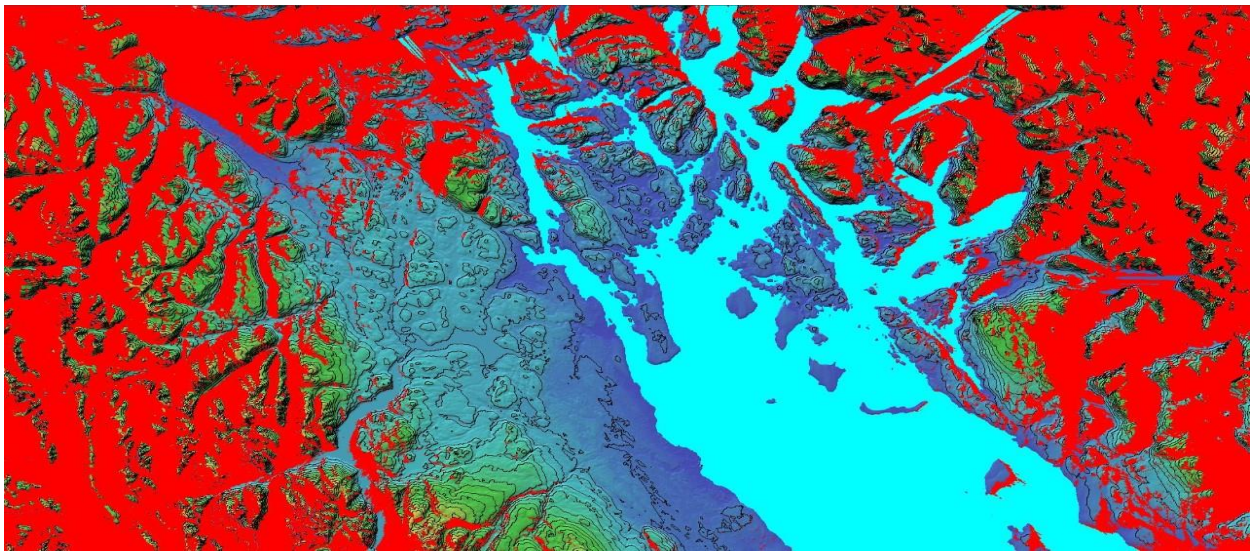
COMMUNICATION:

Summary:

- The initial call for help was responded to quickly
- There were challenges communicating among those who came to help, insufficient radios, and lack of overall coordination, in spite of exceptional individual efforts.
- The night of the initial attack - communication between residents, BC Wildfire, and the SRD updates regarding equipment and firefighting resources required was contradictory.

Specifics: RADIOS

- There was no communication with on-ground BCWS firefighters who communicate on their own commercial frequency. *Suggestion* - have a spare radio programmed to community monitored channel to give to BC Wildfire leader.
- The limited number of handheld radios available made co-ordination difficult. *Suggestion:* A box of charged walkie talkies or handheld radios for crew would have made a big difference
- Diamond Bay residents communicate on VHF 12 & if emergency, channel 16. *Recommend* users scan both channels. Other islanders used VHF channel 12 only.
- Airhorn blasts were used successfully to tell others to turn on radios, emergency. Word travelled quickly.
- *Suggestion* - noise cancelling headphones for handheld radios.
- Concerns –There are some limitations with using VHF radio. Shaun Koopman recommendation: Ham radio, SRD is using as standard. Anyone who successfully takes the online course, and joins SRD Emergency Communication Team, course fee will be reimbursed. Ham radio covers all outer islands on several repeaters, blue-purple below is SRD's Heriot Ridge repeater coverage



OTHER COMMUNICATION

- Called Coast Guard for help – Coast Guard said “call 911”. Had to be firmly persuaded to call for assistance on behalf of those with no cell service. Others called BC Wildfire. Both methods worked.
- Consider setting up emergency phone trees.
- SRD’s Connect Rocket will notify all residents who have signed up of emergencies on any of the outer islands. Sign up at **http://strathconrd.connectrocket.com**. If you don’t have cell, text, or Xplornet telephone service, ask a neighbour to relay. If that is not possible, contact Ginny.

Additional comments from Sonora & Surge Narrows meetings

Nate Stewart from BC Wildfire, Quinsom station:

- Kudos to those from Sonora and all the surrounding islands who brought and set up pumps & hose and made a difference during the 1st critical night.
- Recommend fire-smarting all homes
- Fire investigation will be complete by fall

Feedback to BC Wildfire Service (BCWS):

- IA (initial attack) crew arrived quickly.
- The IA crew had small or no pumps. Requested support resources were prepared and available, however, helicopters couldn’t fly them in at night. BCWS apparently didn’t know Way West water taxi is on call 24 hours and could transport.
- IA crew didn’t have working flashlights.
- Strong concern expressed that BCWS advised SRD to send out the message “don’t come” on 1st night when help & pumps were needed
- Request for BCWS to consider teamed firefighters to support IA team (by 3 AM, 2 member IA team tired went to bed)
- The retardant spray used by BC Wildfire was effective.

Process/organization

- Designating leader & communication coordinator is key.
- Having clear roles makes a big difference.
- Volunteer firefighters should work in pairs / teams for safety.
- Initial immediate response is key to success
- Consider designating a community muster station.
- Ask for help even if fire appears to be under control
- Important to move children, elders, animals to a safe location 1st. One elder with limited mobility remained in his home close to the fire.

- It was helpful to have a small team on-site after the official fire-fighting shut down at 3 AM for the safety and reassurance of residents.

Additional notes on pumps / hose / water:

- Pumps from Sonora Resort made a significant difference; however large pumps were not easy to move
- It would help to have a tool for crimping hoses or training in how to change out linesunder pressure.
- The amount of water pumped by water pump is impressive. A heli-bag drops 340 gallons of water, large pumps push more water than that within 3 minutes. A kiddie pool could be used as intermediate water storage for pumps in series.
- Those who live inland may not have an adequate water source for summer firefighting.
- Key to have easy carry bag of fittings/adaptors, hose T's, 2 stroke oil, tools (wrench, hammer, knife), hose stranglers. Also jacket, rope, first aid kit, water.
- Fire extinguishers – Fire Shop in Campbell River will come out and do annual check of all fire extinguishers $8/per extinguisher + water taxi fee. New 10 lb fire extinguisher costs about $80. Wildfire staff previously recommended turn extinguishers upside down annually & tap with rubber mallet.

Other:

- Having a personal emergency plan is important.
- Request for community accessible medical equipment & medical response training.
- Information requested about how to properly set–up / maintain a propane fridge.
- What can be done about cell service?
- Suggested designate community heli-pad(s) and improve. Ken's heli-pad on Sonora, is unsafe, do not use.

In Summary:

"We were beyond impressed at the strength, kindness and tireless effort of every single person in the community"

For our Neighbours Fundraiser

A fundraiser for those impacted by the recent Diamond Bay fire

Our hearts go out to those impacted by the fire. One person lost a cabin that had been on loan to a community member. Others lost a full solar set-up, water tanks, personal effects, and other items.

We can help our neighbours! We have created a fund to help replace and rebuild.
Please make a donation by :

- sending an etransfer to sonora.fire.donation@gmail.com
- Cash donation – to Miray (from Sonora) or Ginny (from Read Island)

A council of Diamond Bay folks will determine how to allocate funds received – distributions will start as soon as we have reasonable funds to share. And if you'd prefer to specify where you donation goes, just let us know.

Income tax receipts are available for all donations $20 or more given to Ginny or sent to sonora.fire.donation@gmail.com. It is important to advise if you'd like a tax receipt when you make your donation. If yes, provide your email address, proper name, and mailing address. Ginny is a Chartered Accountant (CPA CA) on Read Island and the Treasurer of SNCA for the previous decade. Your donation will be administered carefully and respectfully.

Miray Campbell (Diamond Bay) miraycampbell@gmail.com
Renate Harvey (Busby Island) renateharvey@gmail.com
Ginny Vassal (Read Island) gvassal2@gmail.com 250-285-0057

After picture – cabin, Diamond Bay.

Appendix 3: SNCA letter to SRD

Surge Narrows Community Association
Box 52, Surge Narrows BC V0P 1W0

September 24, 2021

Mr Brad Unger
Chairman of the Board of Directors
Strathcona Regional District

Re: Investigating a Volunteer Fire Brigade for the Outer Discovery Islands (Surge Narrows Community)

At the Surge Narrows Community Association (SNCA) AGM held on Saturday September 11th, the members present unanimously supported the following motion **"that the SRD be asked to investigate the costs and implications of the creating a local fire brigade".** In addition, on September 21st, the SNCA Board approved the following motion: **"The SNCA board endorses the above-mentioned motion from the AGM that the SRD be requested to investigate the costs and implications of creating a local fire brigade."**

SNCA is a Canadian Registered Charity representing the approximately 147 full-time plus over 120 part-time residents on Read Island, Maurelle Island, North Rendezvous Island, and southern Sonora Island. Founded in 1973, our organization promotes and provides educational, charitable, environmental and community activities and services, maintains two community centres, and issues a monthly newsletter "Surge Currents" to over 400 current and past residents and friends.

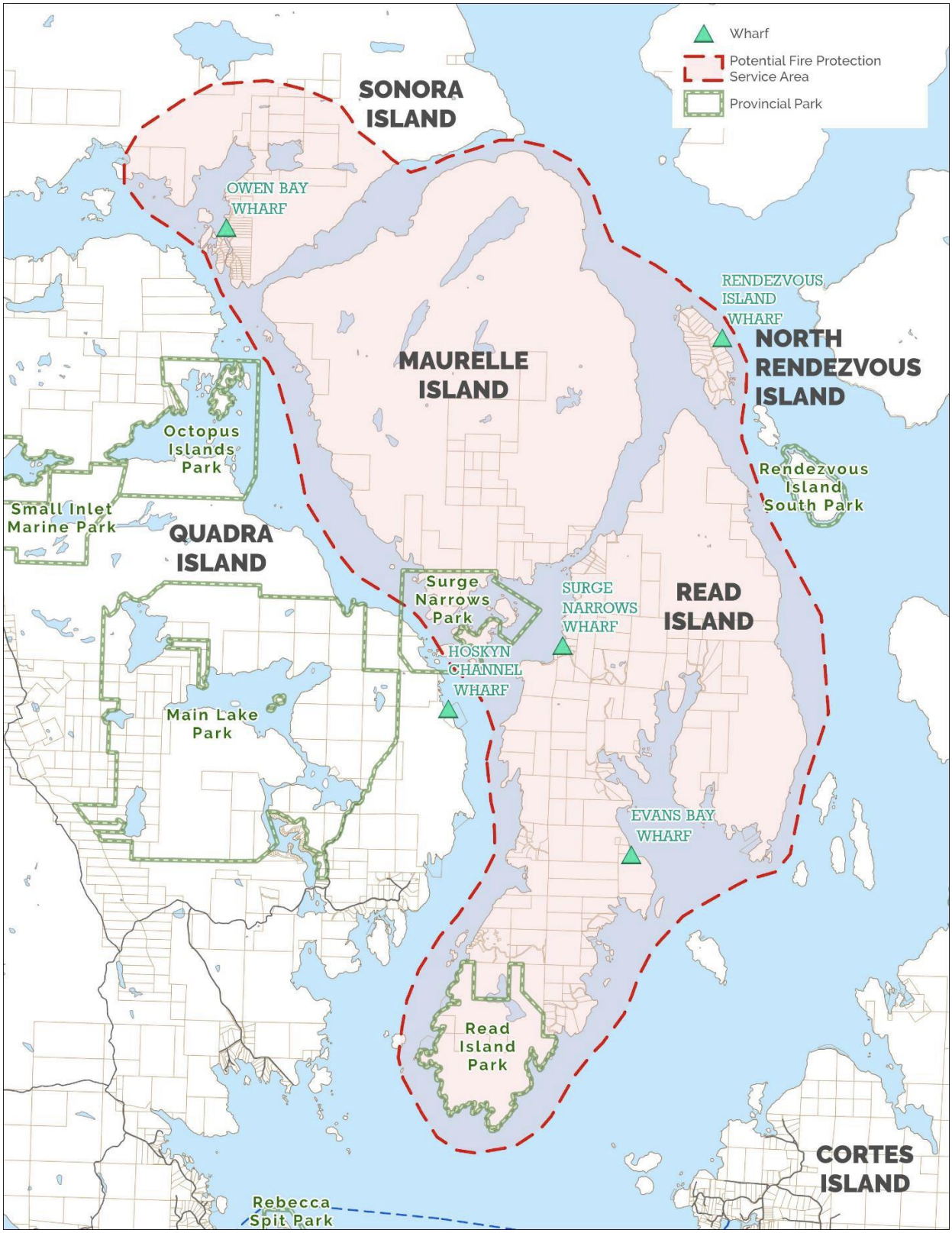
Scope of Service Request: Our residents are interested in pursuing a service that provides firefighting training, standardized equipment and responder insurance coverage. We are not currently interested in open burning regulations, large fire trucks nor constructing a fire hall.

Please note in undertaking this investigation that we ask the person or group tasked with this investigation consult with Ginny Vassal, CPA CA, Surge Narrows ESSD (Emergency Social Services Director) and Jim Mallis, local resident and board member of SNCA, who is knowledgeable about firefighting equipment and sourcing.

Thank you for your help moving this idea forward.

Sincerely,
The Surge Narrows Community Association Board of Directors - Sheila Hollanders, dood Turner, Jim Mallis, Renee Desautels, Eve Flager
together with
Ginny Vassal - Emergency Preparedness

Appendix 4: Map of Study Area



Appendix 5: Structure Fire Protection – Operational Challenges

The RFP noted that one goal was to assess the feasibility of establishing a fire brigade that will be able to operate at the Exterior Operations Service Level, as set out in the Playbook. The report also examines how best to deliver wildland fire suppression activities. The study was subject to the caveat that "topics such as firehall construction and procurement of fire apparatus are not within this scope of this study."[20] This section examines the principal operational and service area issues that impact the development of a compliant, structure fire brigade.

Minimum Training Level for Firefighters and Officers

Under the *Fire Services Act*, the Fire Commissioner is responsible for issuing training standards for "fire services personnel" in the province.[21] A major new set of standards was issued in 2014, which was then updated and revised in a second edition in May 2015.[22] A third edition of such standards, which will be broader in scope, updated to the current NFPA requirements, and renamed, is being actively developed at the time of the writing of this report and expected to be published sometime in the fall of 2022.

The Playbook[23]

> "is applicable to all fire services personnel in British Columbia, as defined in the *Fire Services Act*. It covers all fire departments and fire services, including municipal and regional district fire departments, fire brigades, volunteer fire departments, and fire departments established as a society under the Society Act (B.C.). This Playbook does not apply to provincial Wildfire Management Branch resources."

The current version of the Playbook contemplates that a fire department may deliver one of three possible levels of service and establishes the principal minimum training required to qualify for each level of service. The service level under consideration for the Outer Islands is that of Exterior Operations, which covers firefighting activities restricted to the control and/or extinguishment of a fire from an external position to the building or object, and where a fire department or brigade does not undertake interior attack or rescue operations on a fire-involved structure or object or operate in an atmosphere that is "immediately dangerous to life and health."

The Playbook establishes an explicit requirement for the "Authority Having Jurisdiction" (the "AHJ") over a fire department to expressly set the level of service that is expected to be

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[20] Page 3 *Request for Proposals RFP 16-21 Surge Narrows Fire Brigade Study*, Strathcona Regional District December 16, 2021

[21] *Fire Services Act*, s. 3(3)(b). This power and obligation is continued in the new *Fire Safety Act*.

[22] *British Columbia Fire Service Minimum Training Standards: Structure Firefighters – Competency and Training Playbook* (September 2014; second edition – May 2015) (the "Playbook").

[23] Playbook, Overview, s. 2, "Scope," at p. 3/20.

provided by its fire department or fire brigade. The AHJ in relation to any fire brigade established by the SRD would be the SRD Board. Under the *Workers Compensation Act* and its associated regulations, the SRD would also be considered the employer of the firefighters and officers in any fire brigade that may be established.

The training, organization, staffing, equipment, and apparatus required to support the chosen level of service all then flow from the service level that is set.

While Exterior Operations is the least challenging level of qualification that can be achieved, the training involved is extensive. We have set out in Appendix 5 the training requirements for Exterior Operations. Based on our experience, it typically takes 12 months (assuming weekly two-hour training sessions) to train an individual to the Exterior Operations Service Level. Once qualifications are achieved, there is then a need for significant on-going maintenance training to maintain such skills and qualifications. Such maintenance training is particularly critical for smaller departments which have fewer calls where the skills can be exercised.

Service Area Issues

The proposed service area comprises several islands which are primarily accessed using small watercraft. The demographic varies by island, with some having higher proportions of seasonal residents than others. The road infrastructure varies in both extent and condition on each island and there is no existing conventional infrastructure for equipment storage or fire training purposes. This creates a number of impediments to the provision of a structure fire suppression service.

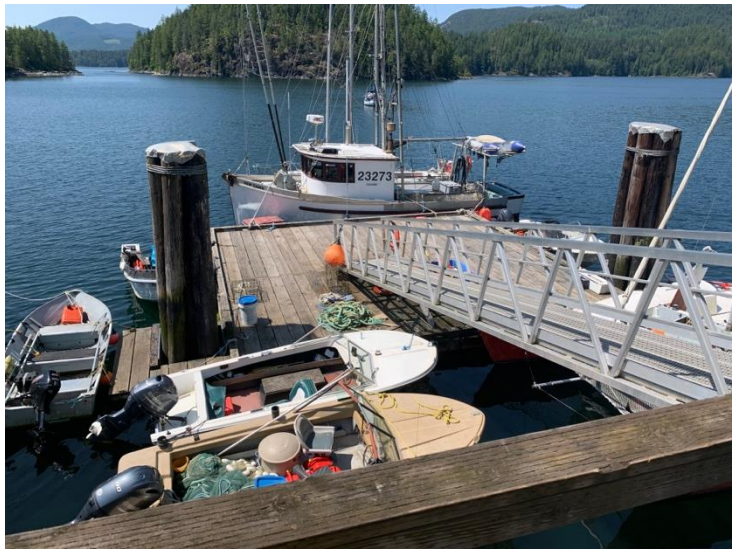


Figure 6. Owens Bay Dock, Sonora Island

- There are no land connections between the various islands. Essentially, each Island would require a standalone collection of assets and equipment.
- Even if the equipment required to operate at Exterior Operations level were possible to assemble and store safely, the infrastructure on the Islands precludes the use of standard fire apparatus. The road networks are insufficient to support a standard approach to structure firefighting. Many properties are water access only. As such, a water-based response would be needed to supplement any land-based capabilities and also would be needed to transport firefighters and supplies between the Islands.
- The permanent population from which to draw volunteer firefighters is small, and establishing and maintaining training levels for members and officers would be significantly challenging.

- Lack of ready and accessible water supplies for structure firefighting, unless able to pump from the ocean.
- The tax base may be too small to create a sustainable fire brigade operating at the Exterior Operations level, given the infrastructure, equipment and training that would be required.
- Given the rate at which a structure fire spreads through the building, and the amount of time that it would take to assemble even the minimum required equipment and personnel at the scene of such a fire, an Exterior Operations fire brigade would provide little value to the community relative to the cost and effort to establish and maintain it.

Engagements with SRD staff and community members subsequent to release of the preliminary findings in this review included acknowledgement from those stakeholders that the Exterior Operations level of service likely cannot be achieved in the Outer Discovery Island community based on the issues identified above and given that firehalls and apparatus procurement are outside the scope of this review.

To establish and maintain an Exterior Operations level fire department would require such investment in infrastructure in multiple locations and commitment from such a high percentage of the relatively small and dispersed year-round population, that such a level of service is not feasible. Even if an Exterior Operations-level fire department was established, the value to the community would be negligible relative to the initial and ongoing expense and effort required to manage the logistical challenges affecting structure fire responses, as noted above.

Appendix 6: Outer Island Fire Brigade Community Engagement

Notification of the fire brigade review project began in March 2022 through the community newsletter, following support for the project by SRD Electoral Area Services Committee & approval by the SRD Board of Directors.

The Consultants conducted community engagement sessions at several locations over the course of June 13 through 14, 2022. Attendance at engagement sessions is set out in Table 4 below:

Table 4: Engagement Sessions

Location	Date	# of Attendees
King Island subdivision (Read Island)	June 13, 2022	4
Sonora & Busby Islands (meeting at Diamond Bay)	June 14, 2022	14
Maurelle Island	June 14, 2022	2
Surge Narrows (Read Island)	June 15, 2022	21

Figure 14: Notice board at Surge Narrows advertising engagement session

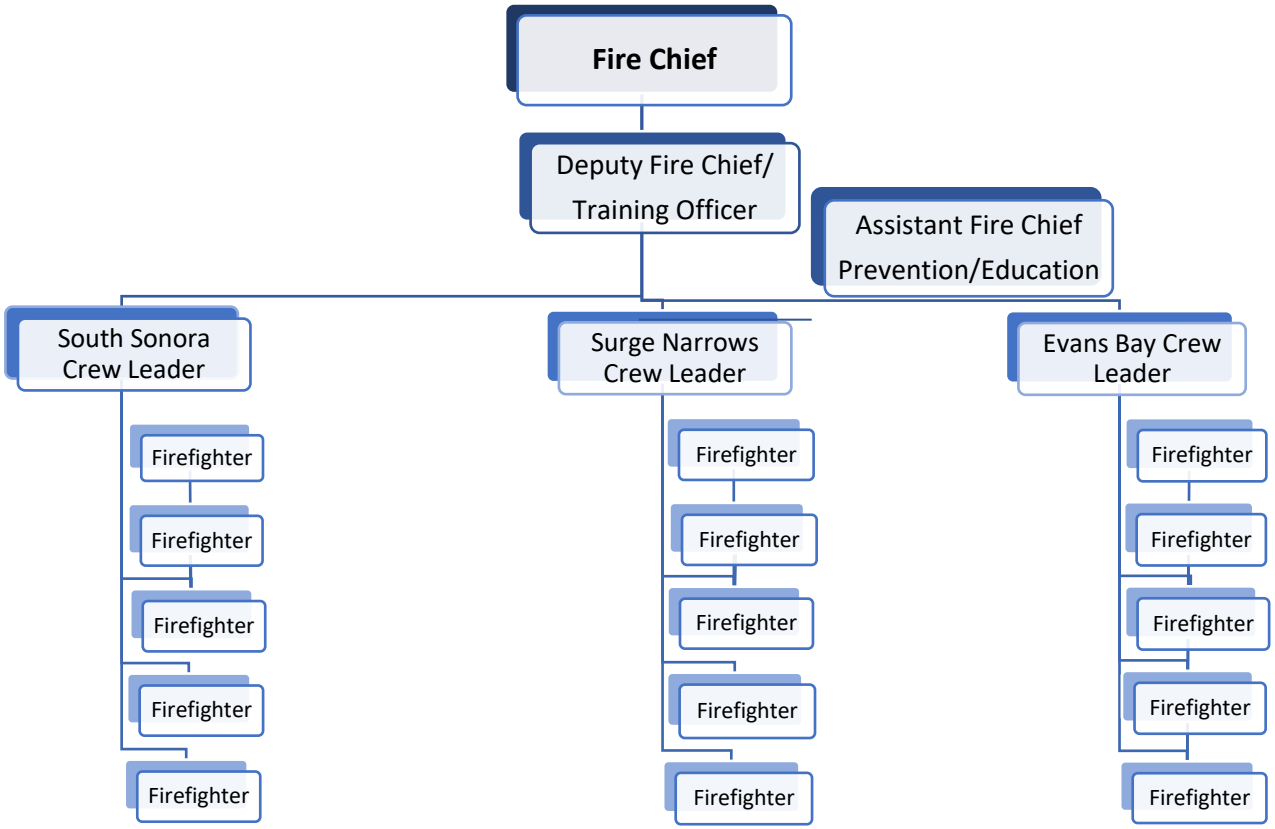
Efforts were made to provide opportunities for in-person consultation for residents of each island. As much as was possible meetings were conducted where residents could most easily attend. Residents were made aware of scheduled engagement sessions through the following methods:

- Announcements in community newsletter (monthly)
- Email sent to all individuals known to have attended the Diamond Bay fire after action review in August 2021
- Email sent to all residents of Maurelle Island.
- A Rendezvous Island resident committed to making Rendezvous Island property owners aware.
- Email sent to King Island (Read Island) residents. One resident committed to making all King Island property owners aware.
- A large poster was placed at the Surge Narrows Post Office on Read Island.
- The Postmistress was made aware and encouraged to share awareness where possible.

- Email reminders were sent approximately one week before community engagement sessions commenced.
- Session reminders were posted on Read Island and Sonora Facebook pages several days prior to sessions.
- The June 15th Surge Narrows session was scheduled to coincide with the school children's spring concert in an effort to maximize session attendance at Read Island. A community lunch was prepared, and residents were encouraged to take in the lunch and subsequent community engagement session.

Appendix 7: Draft Organizational Chart – Outer Discovery Islands Wildland Brigade

A draft organizational chart is provided below for the purposes of discussion. This issue is discussed in the body of the report under *Organization and Administration Structure*.



Appendix 8: Draft Budget– Outer Discovery Islands Wildland Brigade

Department	Item	2023	2024	2025	2026	2027	
Administration		**$13,500**	**$ 11,785**	**$11,079**	**$11,411**	**$11,753**	
	Stipends	$9,000	$9,270	$9,548	$9,835	$10,130	Divided among three chief officers
	Supplies	$4,000	$2,000	$1,000	$1,030	$1,061	Admin supplies
	Fuel reimbursement	$500	$515	$530	$546	$563	Reimburse fuel cost for admin activities
	SRD Admin/Insurance	$ -	$ -	$ -	$ -	$ -	
Personnel		**$21,500**	**$15,845**	**$14,200**	**$14,566**	**$14,943**	
	Training	$3,000	$3,090	$3,183	$3,278	$3,377	ICS, etc.
	Training supplies	$1,000	$1,030	$1,061	$1,093	$1,126	Support for training and training sessions
	Training travel	$2,500	$2,575	$2,652	$2,732	$2,814	
	Fuel reimbursement	$5,000	$5,150	$5,305	$5,464	$5,628	Training, prevention/education, emergency responses
	PPE	$10,000	$4,000	$2,000	$2,000	$2,000	
Prevention/ Education		**$3,000**	**$3,090**	**$3,183**	**$3,278**	**$3,377**	
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	Fuel reimbursement	$1,000	$1,030	$1,061	$1,093	$1,126	
Equipment		**$10,000**	**$10,250**	**$10,271**	**$4,292**	**$4,347**	
	Portable radios	$5,000	$5,000	$5,000	$1,000	$1,003	Develop inventory over time
	Small tools	$1,500	$500	$515	$530	$546	Hand tools
	Pumps/hoses/ appliances	$3,000	$3,000	$3,000	$1,000	$1,030	Develop inventory over time
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Department	Item	2023	2024	2025	2026	2027	
	Asset replacement	$ -	$1,000	$1,003	$1,006	$1,009	Annual contribution to replace capital assets at end of life
Facilities		**$4,000**	**$4,620**	**$4,759**	**$4,901**	**$5,048**	
	Equipment storage units	$4,000	$4,120	$4,244	$4,371	$4,502	Install one per year on priority basis
	Asset replacement	$ -	$500	$515	$530	$546	Anticipate minimum 20-year life span
Communications	NI 911	$ -	$ -	$ -	$ -	$ -	TBD operating and capital costs
Total		**$52,000**	**$45,590**	**$43,491**	**$38,449**	**$39,469**	

Appendix 9: Defined Terms and Acronyms

Term/Acronym	Definition
AHJ	Authority Having Jurisdiction
BCEHS	BC Emergency Health Services
BCEMS	British Columbia Emergency Management System
BCWS	BC Wildfire Service
EMBC	Emergency Management BC
EPC	Emergency Program Coordinator
FMR	First Medical Responder
ICS	Incident Command System
JPRs	Job Performance Requirements
NFPA	National Fire Protection Association
OH&S	Occupational Health and Safety
OH&S Regulation	*Occupational Health and Safety Regulation*, B.C. Reg. 296/97
Playbook	*British Columbia Fire Service Minimum Training Standards: Structure Firefighters – Competency and Training Playbook* (September 2014; second edition – May 2015)
PPE	Personal Protective Equipment
SCBA	Self-Contained Breathing Apparatus
SNCA	Surge Narrows Community Association
TPA	Tim Pley & Associates Ltd
WCA	*Workers Compensation Act* (B.C.)

Appendix 10: 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.

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). In a career fire department 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. In addition, he also served with two different volunteer fire departments for 13 years. Gordon 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.

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.

Laurie Pley

Laurie Pley is a former Emergency Planning Coordinator, Occupational Health and Safety Coordinator, and Manager of Recreation with a focus on Aquatics. Laurie holds a bachelor's degree in Anthropology from the University of Victoria and has completed numerous safety and emergency courses and programs. While working as an Occupational Health and Safety

Coordinator Laurie was an early adopter of WorkSafe BC's Certificate of Recognition safety audit program and was an active auditor in her organization and others.

Appendix 11: Training Playbook

Structure Firefighters Competency and Training

PLAYBOOK

Second Edition: May 2015

References to NFPA Standards for:

Train the Trainer

Exterior Operations Firefighter

Interior Operations Firefighter

Full Service Operations Firefighter

Team Leader Exterior and Interior

Risk Management Officer

Company Fire Officer

Standards Referenced:

NFPA 220	Standard on Types of Building Construction
NFPA 921	Guide for Fire and Explosion Investigations
NFPA 1001	Standard for Fire Fighter Professional Qualifications
NFPA 1002	Standard on Fire Apparatus Driver/Operator Professional Qualifications
NFPA 1021	Standard for Fire Officer Professional Qualifications
NFPA 1041	Standard for Fire Service Instructor Professional Qualifications
NFPA 1407	Standard for Training Fire Service Rapid Intervention Crews
NFPA 1500	Standard on Occupational Safety and Health Program
NFPA 1584	Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises
NFPA 5000	Building Construction and Safety Code

Train the Trainer	Competency Met
NFPA 1041 4.2.1 – 4.2.4 / 4.3.2 – 4.3.3 / 4.4.1 – 4.4.4 / 4.5.1 – 4.5.3 and 4.5.5	
4.2.1 Definition of Duty. The management of basic resources and the records and reports essential to the instructional process.	
4.2.2 Assemble course materials, given a specific topic, so that the lesson plan and all materials, resources, and equipment needed to deliver the lesson are obtained. **(A) Requisite Knowledge.** Components of a lesson plan, policies and procedures for the procurement of materials and equipment, and resource availability. **(B) Requisite Skills.** None required.	Yes ☐ No ☐
4.2.3 Prepare requests for resources, given training goals and current resources, so that the resources required to meet training goals are identified and documented. **(A) Requisite Knowledge.** Resource management, sources of instructional resources and equipment. **(B) Requisite Skills.** Training schedule completion.	Yes ☐ No ☐
4.2.4 Schedule single instructional sessions, given a training assignment, department scheduling procedures, instructional resources, facilities and timeline for delivery, so that the specified sessions are delivered according to department procedure. **(A) Requisite Knowledge.** Departmental scheduling procedures and resource management. **(B) Requisite Skills.** Training schedule completion.	Yes ☐ No ☐
4.3.2* Review instructional materials, given the materials for a specific topic, target audience, and learning environment, so that elements of the lesson plan, learning environment, and resources that need adaptation are identified. **(A) Requisite Knowledge.** Recognition of student limitations and cultural diversity, methods of instruction, types of resource materials, organization of the learning environment, and policies and procedures. **(B) Requisite Skills.** Analysis of resources, facilities, and materials	Yes ☐ No ☐
4.3.3* Adapt a prepared lesson plan, given course materials and an assignment, so that the needs of the student and the objectives of the lesson plan are achieved. **(A)* Requisite Knowledge.** Elements of a lesson plan, selection of instructional aids and methods, and organization of the learning environment. **(B) Requisite Skills.** Instructor preparation and organizational skills.	Yes ☐ No ☐
4.4.1 Definition of Duty. The delivery of instructional sessions utilizing prepared course materials.	
4.4.2 Organize the classroom, laboratory, or outdoor learning environment, given a facility and an assignment, so that lighting, distractions, climate control or weather, noise control, seating, audiovisual equipment, teaching aids, and safety are considered. **(A) Requisite Knowledge.** Classroom management and safety, advantages and limitations of audiovisual equipment and teaching aids, classroom arrangement, and methods and techniques of instruction. **(B) Requisite Skills.** Use of instructional media and teaching aids.	Yes ☐ No ☐
4.4.3 Present prepared lessons, given a prepared lesson plan that specifies the presentation method(s), so that the method(s) indicated in the plan are used and the stated objectives or learning outcomes are achieved, applicable safety standards and practices are followed, and risks are addressed. **(A)* Requisite Knowledge.** The laws and principles of learning, methods and techniques of instruction, lesson plan components and elements of the communication process, and lesson plan terminology and definitions; the impact of cultural differences on instructional delivery; safety rules, regulations, and practices; identification of training hazards; elements and limitations of distance learning; distance learning delivery methods; and the instructor's role in distance learning. **(B) Requisite Skills.** Oral communication techniques, methods and techniques of instruction, and utilization of lesson plans in an instructional setting.	Yes ☐ No ☐
4.4.4* Adjust presentation, given a lesson plan and changing circumstances in the class environment, so that class continuity and the objectives or learning outcomes are achieved. **(A) Requisite Knowledge.** Methods of dealing with changing circumstances. **(B) Requisite Skills.** None required	Yes ☐ No ☐
4.5.1* Definition of Duty. The administration and grading of student evaluation instruments.	

Train the Trainer	Competency Met
4.5.2 Administer oral, written, and performance tests, given the lesson plan, evaluation instruments, and evaluation procedures of the agency, so that bias or discrimination is eliminated the testing is conducted according to procedures, and the security of the materials is maintained. **(A) Requisite Knowledge.** Test administration, agency policies, laws and policies pertaining to discrimination during training and testing, methods for eliminating testing bias, laws affecting records and disclosure of training information, purposes of evaluation and testing, and performance skills evaluation. **(B) Requisite Skills.** Use of skills checklists and oral questioning techniques.	Yes ☐ No ☐
4.5.3 Grade student oral, written, or performance tests, given class answer sheets or skills checklists and appropriate answer keys, so the examinations are accurately graded and properly secured. **(A) Requisite Knowledge.** Grading methods, methods for eliminating bias during grading, and maintaining confidentiality of scores. **(B) Requisite Skills.** None required.	Yes ☐ No ☐
4.5.5* Provide evaluation feedback to students, given evaluation data, so that the feedback is timely; specific enough for the student to make efforts to modify behavior; and objective, clear, and relevant; also include suggestions based on the data. **(A) Requisite Knowledge.** Reporting procedures and the interpretation of test results. **(B) Requisite Skills.** Communication skills and basic coaching.	Yes ☐ No ☐

Exterior Operations – Firefighter	Competency Met
Emergency Scene Traffic NFPA 1001 5.3.3	
5.3.3* Establish and operate in work areas at emergency scenes, given protective equipment, traffic and scene control devices, structure fire and roadway emergency scenes, traffic hazards and downed electrical wires, an assignment, and SOPs, so that procedures are followed, protective equipment is worn, protected work areas are established as directed using traffic and scene control devices, and the fire fighter performs assigned tasks only in established, protected work areas. **(A) Requisite Knowledge.** Potential hazards involved in operating on emergency scenes including vehicle traffic, utilities, and environmental conditions; proper procedures for dismounting apparatus in traffic; procedures for safe operation at emergency scenes; and the protective equipment available for members' safety on emergency scenes and work zone designations. **(B) Requisite Skills.** The ability to use personal protective clothing, deploy traffic and scene control devices, dismount apparatus, and operate in the protected work areas as directed.	Yes ☐ No ☐
Safety & Communications NFPA 1001 5.1.1, 5.1.2, 5.2, 5.2.1, 5.2.2, 5.2.3, 5.3.2, 5.3.17, 5.3.18	
5.1 General. For qualification at Level I, the fire fighter candidate shall meet the general knowledge requirements in 5.1.1; the general skill requirements in 5.1.2; the JPRs defined in Sections 5.2 through 5.5 of this standard; and the requirements defined in Chapter 5, Core Competencies for Operations Level Responders, and Section 6.6, Mission-Specific Competencies: Product Control, of NFPA 472, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*.	Yes ☐ No ☐
5.1.1 General Knowledge Requirements. The organization of the fire department; the role of the Fire Fighter I in the organization; the mission of fire service; the fire department's standard operating procedures (SOPs) and rules and regulations as they apply to the Fire Fighter I; the value of fire and life safety initiatives in support of the fire department mission and to reduce fire fighter line-of-duty injuries and fatalities; the role of other agencies as they relate to the fire department; aspects of the fire department's member assistance program; the importance of physical fitness and a healthy lifestyle to the performance of the duties of a fire fighter; the critical aspects of NFPA1500, *Standard on Fire Department Occupational Safety and Health Program.*	Yes ☐ No ☐
5.1.2 General Skill Requirements. The ability to don personal protective clothing, doff personal protective clothing and prepare for reuse, hoist tools and equipment using ropes and the correct knot, and locate information in departmental documents and standard or code materials.	Yes ☐ No ☐
5.2 Fire Department Communications. This duty shall involve initiating responses, receiving telephone calls, and using fire department communications equipment to correctly relay verbal or written information, according to the JPRs in 5.2.1 through 5.2.4.	
5.2.1* Initiate the response to a reported emergency, given the report of an emergency, fire department SOPs, and communications equipment, so that all necessary information is obtained, communications equipment is operated correctly, and the information is relayed promptly and accurately to the dispatch center. **(A) Requisite Knowledge.** Procedures for reporting an emergency; departmental SOPs for taking and receiving alarms, radio codes, or procedures; and information needs of dispatch center. **(B) Requisite Skills.** The ability to operate fire department communications equipment, relay information, and record information.	Yes ☐ No ☐
5.2.2 Receive a telephone call, given a fire department phone, so that procedures for answering the phone are used and the caller's information is relayed. **(A) Requisite Knowledge.** Fire department procedures for answering nonemergency telephone calls. **(B) Requisite Skills.** The ability to operate fire station telephone and intercom equipment.	Yes ☐ No ☐

Exterior Operations – Firefighter	Competency Met
5.2.3 Transmit and receive messages via the fire department radio, given a fire department radio and operating procedures, so that the information is accurate, complete, clear, and relayed within the time established by the AHJ. **(A) Requisite Knowledge.** Departmental radio procedures and etiquette for routine traffic, emergency traffic, and emergency evacuation signals. **(B) Requisite Skills.** The ability to operate radio equipment and discriminate between routine and emergency traffic.	Yes ☐ No ☐
5.3.2* Respond on apparatus to an emergency scene, given personal protective clothing and other necessary personal protective equipment, so that the apparatus is correctly mounted and dismounted, seat belts are used while the vehicle is in motion, and other personal protective equipment is correctly used. **(A) Requisite Knowledge.** Mounting and dismounting procedures for riding fire apparatus, hazards and ways to avoid hazards associated with riding apparatus, prohibited practices, and types of department personal protective equipment and the means for usage. **(B) Requisite Skills.** The ability to use each piece of provided safety equipment.	Yes ☐ No ☐
5.3.17 Illuminate the emergency scene, given fire service electrical equipment and an assignment, so that designated areas are illuminated and all equipment is operated within the manufacturer's listed safety precautions. **(A) Requisite Knowledge.** Safety principles and practices, power supply capacity and limitations, and light deployment methods. supply and lighting equipment, deploy cords and connectors, reset ground-fault interrupter (GFI) devices, and locate lights for best effect.	Yes ☐ No ☐
5.3.18 Turn off building utilities, given tools and an assignment, so that the assignment is safely completed. **(A) Requisite Knowledge.** Properties, principles, and safety concerns for electricity, gas, and water systems; utility disconnect methods and associated dangers; and use of required safety equipment. **(B) Requisite Skills.** The ability to identify utility control devices, operate control valves or switches, and assess for related hazards.	Yes ☐ No ☐
PPE and Self Contained Breathing Apparatus NFPA 1001 5.1.2, 5.2, 5.3, 5.3.1, 5.3.2, 5.5.1	
5.1.2 General Skill Requirements. The ability to don personal protective clothing, doff personal protective clothing and prepare for reuse, hoist tools and equipment using ropes and the correct knot, and locate information in departmental documents and standard or code materials.	Yes ☐ No ☐
5.2 Fire Department Communications. This duty shall involve initiating responses, receiving telephone calls, and using fire department communications equipment to correctly relay verbal or written information, according to the JPRs in 5.2.1 through 5.2.4.	Yes ☐ No ☐
5.3 Fireground Operations. This duty shall involve performing activities necessary to ensure life safety, fire control, and property conservation, according to the JPRs in 5.3.1 through 5.3.20.	
5.3.1* Use self-contained breathing apparatus (SCBA) during emergency operations, given SCBA and other personal protective equipment, so that the SCBA is correctly donned, the SCBA is correctly worn, controlled breathing techniques are used, emergency procedures are enacted if the SCBA fails, all low-air warnings are recognized, respiratory protection is not intentionally compromised, and hazardous areas are exited prior to air depletion. **(A) Requisite Knowledge.** Conditions that require respiratory protection, uses and limitations of SCBA, components of SCBA, donning procedures, breathing techniques, indications for and emergency procedures used with SCBA, and physical requirements of the SCBA wearer. **(B) Requisite Skills.** The ability to control breathing, replace SCBA air cylinders, use SCBA to exit through restricted passages, initiate and complete emergency procedures in the event of SCBA failure or air depletion, and complete donning procedures.	Yes ☐ No ☐

Exterior Operations – Firefighter	Competency Met
5.3.2* Respond on apparatus to an emergency scene, given personal protective clothing and other necessary personal protective equipment, so that the apparatus is correctly mounted and dismounted, seat belts are used while the vehicle is in motion, and other personal protective equipment is correctly used. **(A) Requisite Knowledge.** Mounting and dismounting procedures for riding fire apparatus, hazards and ways to avoid hazards associated with riding apparatus, prohibited practices, and types of department personal protective equipment and the means for usage. **(B) Requisite Skills.** The ability to use each piece of provided safety equipment.	Yes ☐ No ☐
5.5.1 Clean and check ladders, ventilation equipment, SCBA, ropes, salvage equipment, and hand tools, given cleaning tools, cleaning supplies, and an assignment, so that equipment is clean and maintained according to manufacturer's or departmental guidelines, maintenance is recorded, and equipment is placed in a ready state or reported otherwise. **(A) Requisite Knowledge.** Types of cleaning methods for various tools and equipment, correct use of cleaning solvents, and manufacturer's or departmental guidelines for cleaning equipment and tools. **(B) Requisite Skills.** The ability to select correct tools for various parts and pieces of equipment, follow guidelines, and complete recording and reporting procedures.	Yes ☐ No ☐
Ropes and Knots NFPA 1001 5.1.2, 5.3.20, 5.5.1	
5.1.2 General Skill Requirements. The ability to don personal protective clothing, doff personal protective clothing and prepare for reuse, hoist tools and equipment using ropes and the correct knot, and locate information in departmental documents and standard or code materials.	Yes ☐ No ☐
5.3.20 Tie a knot appropriate for hoisting tool, given personnel protective equipment, tools, ropes, and an assignment, so that the knots used are appropriate for hoisting tools securely and as directed. **(A) Requisite Knowledge.** Knot types and usage; the difference between life safety and utility rope; reasons for placing rope out of service; the types of knots to use for given tools, ropes, or situations; hoisting methods for tools and equipment; and using rope to support response activities. **(B) Requisite Skills.** The ability to hoist tools using specific knots based on the type of tool.	Yes ☐ No ☐
5.5.1 Clean and check ladders, ventilation equipment, SCBA, ropes, salvage equipment, and hand tools, given cleaning tools, cleaning supplies, and an assignment, so that equipment is clean and maintained according to manufacturer's or departmental guidelines, maintenance is recorded, and equipment is placed in a ready state or reported otherwise. **(A) Requisite Knowledge.** Types of cleaning methods for various tools and equipment, correct use of cleaning solvents, and manufacturer's or departmental guidelines for cleaning equipment and tools. **(B) Requisite Skills.** The ability to select correct tools for various parts and pieces of equipment, follow guidelines, and complete recording and reporting procedures.	Yes ☐ No ☐

Exterior Operations – Firefighter	Competency Met
Fire Streams, Hose and Appliances NFPA 1001 5.3.7, 5.3.8, 5.5.1, 5.5.2	
5.3.7* Attack a passenger vehicle fire operating as a member of a team, given personal protective equipment, attack line, and hand tools, so that hazards are avoided, leaking flammable liquids are identified and controlled, protection from flash fires is maintained, all vehicle compartments are overhauled, and the fire is extinguished. **(A) Requisite Knowledge.** Principles of fire streams as they relate to fighting automobile fires; precautions to be followed when advancing hose lines toward an automobile; observable results that a fire stream has been properly applied; identifying alternative fuels and the hazards associated with them; dangerous conditions created during an automobile fire; common types of accidents or injuries related to fighting automobile fires and how to avoid them; how to access locked passenger, trunk, and engine compartments; and methods for overhauling an automobile. **(B) Requisite Skills.** The ability to identify automobile fuel type; assess and control fuel leaks; open, close, and adjust the flow and pattern on nozzles; apply water for maximum effectiveness while maintaining flash fire protection; advance $1_1/_2$ in. (38 mm) or larger diameter attack lines; and expose hidden fires by opening all automobile compartments. in stacked or piled and small unattached structures or storage containers that can be fought from the exterior, attack lines, hand tools and master stream devices, and an assignment, so that exposures are protected, the spread of fire is stopped, collapse hazards are avoided, water application is effective, the fire is extinguished, and signs of the origin area(s) and arson are preserved.	Yes ☐ No ☐
5.3.8* Extinguish fires in exterior Class A materials, given fires in stacked or piled and small unattached structures or storage containers that can be fought from the exterior, attack lines, hand tools and master stream devices, and an assignment, so that exposures are protected, the spread of fire is stopped, collapse hazards are avoided, water application is effective, the fire is extinguished, and signs of the origin area(s) and arson are preserved. **(A) Requisite Knowledge.** Types of attack lines and water streams appropriate for attacking stacked, piled materials and outdoor fires; dangers — such as collapse — associated with stacked and piled materials; various extinguishing agents and their effect on different material configurations; tools and methods to use in breaking up various types of materials; the difficulties related to complete extinguishment of stacked and piled materials; water application methods for exposure protection and fire extinguishment; dangers such as exposure to toxic or hazardous materials associated with storage building and container fires; obvious signs of origin and cause; and techniques for the preservation of fire cause evidence. **(B) Requisite Skills.** The ability to recognize inherent hazards related to the material's configuration, operate handlines or master streams, break up material using hand tools and water streams, evaluate for complete extinguishment, operate hose lines and other water application devices, evaluate and modify water application for maximum penetration, search for and expose hidden fires, assess patterns for origin determination, and evaluate for complete extinguishment	Yes ☐ No ☐
5.5.1 Clean and check ladders, ventilation equipment, SCBA, ropes, salvage equipment, and hand tools, given cleaning tools, cleaning supplies, and an assignment, so that equipment is clean and maintained according to manufacturer's or departmental guidelines, maintenance is recorded, and equipment is placed in a ready state or reported otherwise. **(A) Requisite Knowledge.** Types of cleaning methods for various tools and equipment, correct use of cleaning solvents, and manufacturer's or departmental guidelines for cleaning equipment and tools. **(B) Requisite Skills.** The ability to select correct tools for various parts and pieces of equipment, follow guidelines, and complete recording and reporting procedures.	Yes ☐ No ☐
5.5.2 Clean, inspect, and return fire hose to service, given washing equipment, water, detergent, tools, and replacement gaskets, so that damage is noted and corrected, the hose is clean, and the equipment is placed in a ready state for service. **(A) Requisite Knowledge.** Departmental procedures for noting a defective hose and removing it from service, cleaning methods, and hose rolls and loads. **(B) Requisite Skills.** The ability to clean different types of hose; operate hose washing and drying equipment; mark defective hose; and replace coupling gaskets, roll hose, and reload hose.	Yes ☐ No ☐
Ventilation NFPA 1001 5.3.11, 5.5.1	

Exterior Operations – Firefighter	Competency Met
5.3.11 Perform horizontal ventilation on a structure operating as part of a team, given an assignment, personal protective equipment, ventilation tools, equipment, and ladders, so that the ventilation openings are free of obstructions, tools are used as designed, ladders are correctly placed, ventilation devices are correctly placed, and the structure is cleared of smoke. **(A) Requisite Knowledge.** The principles, advantages, limitations, and effects of horizontal, mechanical, and hydraulic ventilation; safety considerations when venting a structure; fire behavior in a structure; the products of combustion found in a structure fire; the signs, causes, effects, and prevention of backdrafts; and the relationship of oxygen concentration to life safety and fire growth. **(B) Requisite Skills.** The ability to transport and operate ventilation tools and equipment and ladders, and to use safe procedures for breaking window and door glass and removing obstructions	Yes ☐ No ☐
5.5.1 Clean and check ladders, ventilation equipment, SCBA, ropes, salvage equipment, and hand tools, given cleaning tools, cleaning supplies, and an assignment, so that equipment is clean and maintained according to manufacturer's or departmental guidelines, maintenance is recorded, and equipment is placed in a ready state or reported otherwise. **(A) Requisite Knowledge.** Types of cleaning methods for various tools and equipment, correct use of cleaning solvents, and manufacturer's or departmental guidelines for cleaning equipment and tools. **(B) Requisite Skills.** The ability to select correct tools for various parts and pieces of equipment, follow guidelines, and complete recording and reporting procedures.	Yes ☐ No ☐
Water Supply NFPA 1001 5.3.15, 5.5.1, 5.5.2	
5.3.15* Connect a fire department pumper to a water supply as a member of a team, given supply or intake hose, hose tools, and a fire hydrant or static water source, so that connections are tight and water flow is unobstructed. **(A) Requisite Knowledge.** Loading and off-loading procedures for mobile water supply apparatus; fire hydrant operation; and suitable static water supply sources, procedures, and protocol for connecting to various water sources. **(B) Requisite Skills.** The ability to hand lay a supply hose, connect and place hard suction hose for drafting operations, deploy portable water tanks as well as the equipment necessary to transfer water between and draft from them, make hydrant-to-pumper hose connections for forward and reverse lays, connect supply hose to a hydrant, and fully open and close the hydrant.	Yes ☐ No ☐
5.5.1 Clean and check ladders, ventilation equipment, SCBA, ropes, salvage equipment, and hand tools, given cleaning tools, cleaning supplies, and an assignment, so that equipment is clean and maintained according to manufacturer's or departmental guidelines, maintenance is recorded, and equipment is placed in a ready state or reported otherwise. **(A) Requisite Knowledge.** Types of cleaning methods for various tools and equipment, correct use of cleaning solvents, and manufacturer's or departmental guidelines for cleaning equipment and tools. **(B) Requisite Skills.** The ability to select correct tools for various parts and pieces of equipment, follow guidelines, and complete recording and reporting procedures	Yes ☐ No ☐
5.5.2 Clean, inspect, and return fire hose to service, given washing equipment, water, detergent, tools, and replacement gaskets, so that damage is noted and corrected, the hose is clean, and the equipment is placed in a ready state for service. **(A) Requisite Knowledge.** Departmental procedures for noting a defective hose and removing it from service, cleaning methods, and hose rolls and loads. **(B) Requisite Skills.** The ability to clean different types of hose; operate hose washing and drying equipment; mark defective hose; and replace coupling gaskets, roll hose, and reload hose.	Yes ☐ No ☐

Exterior Operations – Firefighter	Competency Met
Ladders NFPA 1001 5.3.6, 5.5.1	
5.3.6* Set up ground ladders, given single and extension ladders, an assignment, and team members if needed, so that hazards are assessed, the ladder is stable, the angle is correct for climbing, extension ladders are extended to the necessary height with the fly locked, the top is placed against a reliable structural component, and the assignment is accomplished. **(A) Requisite Knowledge.** Parts of a ladder, hazards associated with setting up ladders, what constitutes a stable foundation for ladder placement, different angles for various tasks, safety limits to the degree of angulation, and what constitutes a reliable structural component for top placement. **(B) Requisite Skills.** The ability to carry ladders, raise ladders, extend ladders and lock flies, determine that a wall and roof will support the ladder, judge extension ladder height requirements, and place the ladder to avoid obvious hazards.	Yes ☐ No ☐
5.5.1 Clean and check ladders, ventilation equipment, SCBA, ropes, salvage equipment, and hand tools, given cleaning tools, cleaning supplies, and an assignment, so that equipment is clean and maintained according to manufacturer's or departmental guidelines, maintenance is recorded, and equipment is placed in a ready state or reported otherwise. **(A) Requisite Knowledge.** Types of cleaning methods for various tools and equipment, correct use of cleaning solvents, and manufacturer's or departmental guidelines for cleaning equipment and tools. **(B) Requisite Skills.** The ability to select correct tools for various parts and pieces of equipment, follow guidelines, and complete recording and reporting procedures.	Yes ☐ No ☐
Rehabilitation Area (REHAB) NFPA 1001 5.1.1, NFPA 1500, NFPA 1584	
5.1.1 General Knowledge Requirements. The organization of the fire department; the role of the Fire Fighter I in the organization; the mission of fire service; the fire department's standard operating procedures (SOPs) and rules and regulations as they apply to the Fire Fighter I; the value of fire and life safety initiatives in support of the fire department mission and to reduce fire fighter line-of-duty injuries and fatalities; the role of other agencies as they relate to the fire department; aspects of the fire department's member assistance program; the importance of physical fitness and a healthy lifestyle to the performance of the duties of a fire fighter; the critical aspects of NFPA1500, *Standard on Fire Department Occupational Safety and Health Program*.	Yes ☐ No ☐
+ **NFPA 1500** Standard on Occupational Safety and Health Program	Yes ☐ No ☐
+ **NFPA 1584** Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises	Yes ☐ No ☐
Introduction to Basic Fire Behavior and Building Construction NFPA 220, NFPA 921, NFPA 1001 5.3.11, 5.3.12, 5.3.13 NFPA 5000	
5.3.11 Perform horizontal ventilation on a structure operating as part of a team, given an assignment, personal protective equipment, ventilation tools, equipment, and ladders, so that the ventilation openings are free of obstructions, tools are used as designed, ladders are correctly placed, ventilation devices are correctly placed, and the structure is cleared of smoke. **(A) Requisite Knowledge.** The principles, advantages, limitations, and effects of horizontal, mechanical, and hydraulic ventilation; safety considerations when venting a structure; fire behavior in a structure; the products of combustion found in a structure fire; the signs, causes, effects, and prevention of backdrafts; and the relationship of oxygen concentration to life safety and fire growth. **(B) Requisite Skills.** The ability to transport and operate ventilation tools and equipment and ladders, and to use safe procedures for breaking window and door glass and removing obstructions.	Yes ☐ No ☐

Exterior Operations – Firefighter	Competency Met
5.3.12 Perform vertical ventilation on a structure as part of a team, given an assignment, personal protective equipment, ground and roof ladders, and tools, so that ladders are positioned for ventilation, a specified opening is created, all ventilation barriers are removed, structural integrity is not compromised, products of combustion are released from the structure, and the team retreats from the area when ventilation is accomplished. **(A) Requisite Knowledge.** The methods of heat transfer; the principles of thermal layering within a structure on fire; the techniques and safety precautions for venting flat roofs, pitched roofs, and basements; basic indicators of potential collapse or roof failure; the effects of construction type and elapsed time under fire conditions on structural integrity; and the advantages and disadvantages of vertical and trench/strip ventilation. **(B) Requisite Skills.** The ability to transport and operate ventilation tools and equipment; hoist ventilation tools to a roof; cut roofing and flooring materials to vent flat roofs, pitched roofs, and basements; sound a roof for integrity; clear an opening with hand tools; select, carry, deploy, and secure ground ladders for ventilation activities; deploy roof ladders on pitched roofs while secured to a ground ladder; and carry ventilation-related tools and equipment while ascending and descending ladders.	Yes ☐ No ☐
5.3.13 Overhaul a fire scene, given personal protective equipment, attack line, hand tools, a flashlight, and an assignment, so that structural integrity is not compromised, all hidden fires are discovered, fire cause evidence is preserved, and the fire is extinguished. **(A) Requisite Knowledge.** Types of fire attack lines and water application devices most effective for overhaul, water application methods for extinguishment that limit water damage, types of tools and methods used to expose hidden fire, dangers associated with overhaul, obvious signs of area of origin or signs of arson, and reasons for protection of fire scene. **(B) Requisite Skills.** The ability to deploy and operate an attack line; remove flooring, ceiling, and wall components to expose void spaces without compromising structural integrity; apply water for maximum effectiveness; expose and extinguish hidden fires in walls, ceilings, and subfloor spaces; recognize and preserve obvious signs of area of origin and arson; and evaluate for complete extinguishment.	Yes ☐ No ☐
+ **NFPA 220** Standard on Types of Building Construction	Yes ☐ No ☐
+ **NFPA 921** Guide for Fire and Explosion Investigations	Yes ☐ No ☐
+ **NFPA 5000** Building Construction and Safety Code	Yes ☐ No ☐
Dangerous Goods or Hazmat Awareness *(from NFPA 472)* • Can utilize any training provider, including internal, that meets the competencies of NFPA 472 – Awareness Level [Playbook: Page 16, note1]	Yes ☐ No ☐
Gas & Electrical Safety for Firefighters *(supplied by a BC Utility utilizing an evaluation mechanism)* • Can utilize any program, developed by a registered Gas or Electrical Utility within the Province of BC, which includes an evaluation instrument based upon current recommended practice [Playbook: Page 16, note 2]	Yes ☐ No ☐
Incident Command System 100 *(from BCERMS curriculum)* • Can utilize any training provider, including internal, using certified training and evaluation based upon the BCEMS model. [Playbook: Page 16, note 3]	Yes ☐ No ☐