

## TAHSIS FIREHALL RELOCATION PROJECT FACT SHEET

### SUMMARY:

Tahsis Council has approved relocating the Fire Hall into the former woodshop at Captain Meares School (CMESS) at a cost of approximately \$2 million, which will be funded through a grant or long-term borrowing.

### BACKGROUND:

The current Fire Hall is located in a high risk area for flooding due to climate change and sea level rise. It is also structurally unsound and has had to be abandoned. Without replacing the Fire Hall, the Village risks losing the Fire Department, as happened recently in Zeballos. The Fire Underwriters Survey ("FUS") rating for Tahsis is Dwelling Protection Grade 3B which requires the apparatus (trucks) be stored in a "suitably constructed and arranged fire hall". (FUS supplies information to insurance companies for use in setting property insurance premiums.)

### COUNCIL DECISION MAKING PROCESS

In May 2021, Council considered mandatory (e.g., meets seismic and building code requirements) and desirable (e.g., good access and egress) siting criteria for a new fire hall. Ten sites were considered and scored based on the criteria. Cost was considered separately. The CMESS wood shop was ranked highest due the straightforward construction, above the 200 year floodplain and the lowest cost option to meet the FUS requirements. In November 2021, Council agreed to engage an architect to prepare drawings and a detailed cost estimate for repurposing the wood shop as a fire hall. School District #84 had planned to demolish the wood shop building, but have halted those plans in light of Council's interest in leasing or purchasing the property for the fire hall. In June 2022, the Village applied for a \$1.892m provincial grant (100% funding) for the project. Council has also moved ahead with a loan authorization bylaw to borrow up to \$2m if the grant application is unsuccessful. Tahsis voters will decide whether to approve the borrowing request.

### CURRENT STATUS

Approximately \$103,110 has been spent to assess the suitability of the wood shop space as a firehall and In preparing drawings, plans and cost estimates for the project.

The apparatus are parked at the Village Public Works Yard and firefighter turn out gear is stored in a sea can at the Public Works Yard. The office and training room are temporarily located in the Recreation Centre.

**From:** [Karl Neufeld](#)  
**To:** [Mark Tatchell](#); [Fire Department](#)  
**Cc:** [Aniko Nelson](#)  
**Subject:** Tahsis Fire Hall  
**Date:** February 11, 2021 10:29:09 AM  
**Attachments:**

**Importance:** High

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Mark and Lisa,

Based on my visit to the firehall yesterday(Feb10,2021), and discussions with Chief Iles, I would suggest an alternate location for personnel and apparatus were found as soon as possible. If you feel more comfortable with a professional engineers report, I would recommend hiring a structural engineer to assess the condition of the structure immediately.

Based on the following observations, I would consider the building unsafe for occupancy

1. the very recently dated notations on some of the structural cracks,
2. the overnight increases of cracks on both concrete floors and interior walls,
3. the daily increase in the number and sizes of cracks,
4. the pieces of trim falling from the ceiling,
5. cracking of window panes and gaps too the exterior at windows, and
6. the deflection of walls.

Sincerely,



**Karl Neufeld, RBO**  
**Building Official**

990 Cedar Street, Campbell River, BC V9W 7Z8

e. [kneufeld@srd.ca](mailto:kneufeld@srd.ca) | t. 250.830.6713 | f. 250.830.6710

M2b



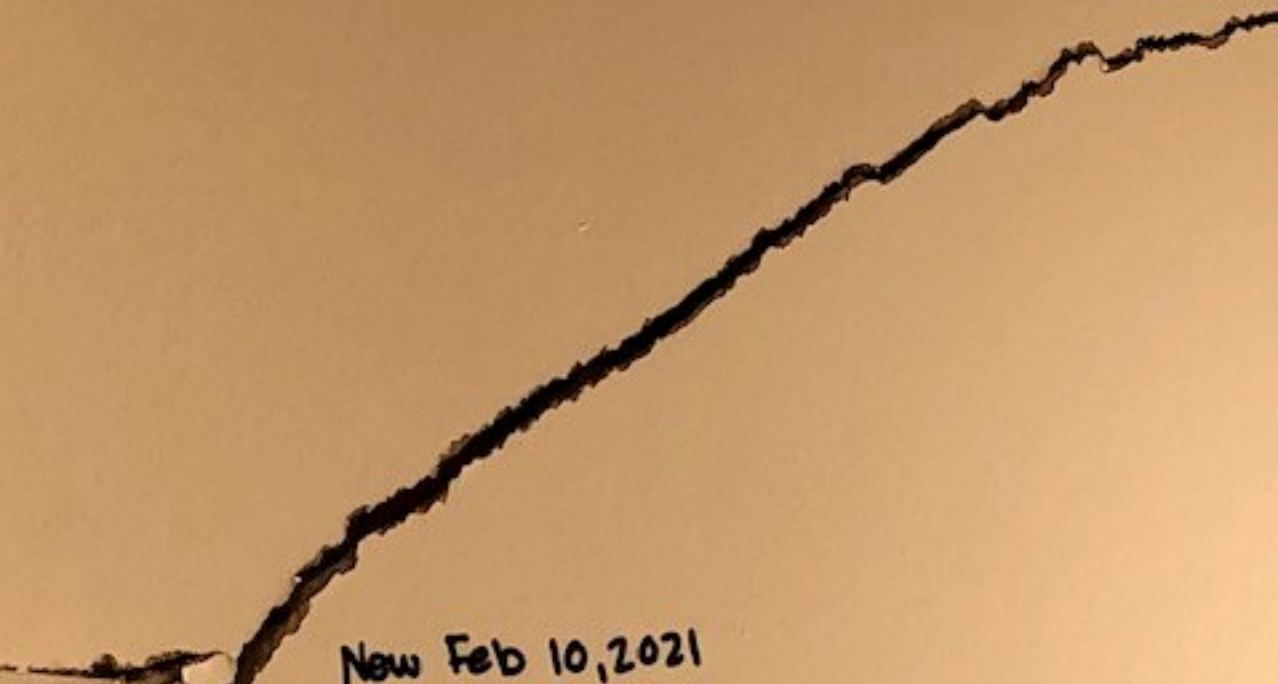
M2b

New Feb 9, 2021  
1/4" up 14"  
Feb 10, 2021 24"



M2b

New Feb 6, 2021



New Feb 10, 2021

M2b





M2b



# VILLAGE OF TAHSIS

## Report to Council

### CONFIDENTIAL

**To:** Mayor and Council

**From:** John Manson, P. Eng.

**Date:** May 13, 2021

**Re:** Tahsis Firehall Project – Options Analysis

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#### **PURPOSE OF REPORT:**

To provide Council with options for a Tahsis Firehall based on maintaining the current level of Fire Protection Service desired for the future, including a high level review of potential sites, opportunities to co-locate or multi-use, renovate existing or to build new. Order of magnitude costs and funding implications will be outlined, and next steps suggested.

Land negotiations are required if the preferred location is on private or School District land, therefore this report is initially being considered in a closed meeting.

#### **BACKGROUND:**

A municipality is not legislatively required to provide fire service, but if they choose to, there are minimum requirements and regulatory implications under the *Fire Services Act*. The municipality must also choose the level of service provided as this will determine the level of response, training and equipment needed.

The Village has provided fire protection to the community since incorporation. The current Fire Underwriters Survey (FUS) rating for Tahsis is Dwelling Protection Grade 3B, which means that for each fire hall fire apparatus must include a minimum of one triple combination pumper rated at not less than 3000 LPM (625 Igpm at 150 psi), AND a minimum of one mobile water supply apparatus with a minimum rated water carrying capacity of 4000 L (880 I.gal), and to be credited, apparatus must be stored in a suitably constructed and arranged fire hall.

For each fire hall with a Dwelling Protection Grade 3B, the responding fire force will include at a minimum: 1 Fire Chief (required to respond but not required to be on-duty) and 15 auxiliary fire fighters scheduled to respond in addition to the number of personnel required to conduct mobile water supply shuttle operations.

At present, the Fire Department has both apparatus as noted above, as well as a passenger vehicle for the Fire Chief that is normally parked off-site. The Department does not envision the need for any additional apparatus that would require another additional dedicated inside storage bay.

Fire dispatch is provided through a contract with North Island 911 and the City of Campbell River.

To continue providing Fire Protection Services at this level a 2 bay heated building with good access/egress and space for administration, training, equipment cleaning and storage is needed. The training space could be double purposed for use as an Emergency Operations Centre, which is currently being designated at the Municipal Hall.

The Tahsis Firehall is located at 157 Head Road, Tahsis. It was built in approximately 1995, on the site of a commercial building that burnt down.

In 2020, firefighters noted rapid building settlement. The building was assessed by a Building Official for the Strathcona Regional District on February 10, 2021. From this assessment, it was recommended that an alternate location for personnel and apparatus be found immediately, noting the following observations and issues:

1. recently dated notations on some of the structural cracks,
2. overnight increases of cracks on both concrete floors and interior walls,
3. daily increase in the number and sizes of cracks,
4. pieces of trim falling from the ceiling,
5. cracking of windowpanes and gaps to the exterior at windows, and
6. deflection of walls.

A structural engineer was commissioned (McElhanney) to assess the building. The key recommendations from the engineer's report are as follows:

*The structure appears to be undergoing rapid and unexpected differential settlement. This settlement has resulted in significant serviceability issues in the form of separating finishes, cracking drywall, cracking / sloping slabs, and stretching / stressed electrical cables. These serviceability issues were noted throughout the structure and are representative of significant settlement in the building substructure.*

*Given the above noted findings, it is McElhanney's recommendation that the structure is not used for occupancy or for the storage of equipment. As the structural issues appear to be caused by settlement within the subgrade, any structural repairs would provide only temporary solutions and are not recommended. Given the significant geotechnical*

*issues at the site, replacement of the structure at a new location with more suitable subgrade is likely a more feasible option than in-situ repairs of the existing building.*

**Based on the engineering reports, the existing building cannot be repaired, and the current site is not a feasible option to rebuild on. A new site and building are required.**

For the short term, operations of the firehall have been relocated to the Recreation Centre (administrative in meeting/class room) and the Public Works Yard (vehicles and equipment).

Council has directed staff to investigate alternatives for replacing or repairing the existing fire hall. Included in this investigation is a preliminary assessment of mandatory and “desirable, but not essential” attributes for a number of possible alternative sites for the fire hall. We also discuss construction alternatives, including renovation of existing structures, new construction, and a possible third alternative of a pre-built movable structure that has recently become available on the market.

Should Council determine that they wish to replace the existing City Hall/Library building in the near future, and while the cost of such a multi-use facility may be significantly higher, there may be economies of scale that make the inclusion of a Fire Hall component in that project worthwhile considering, rather than a standalone building.

In the absence of that direction, an assessment of possible co-location options such as a combination Fire Hall/City Hall/Library multi use facility or Public Works/Fire Hall were not considered in detail due to the significantly higher cost implications and the challenge of financing a project of that nature. One component worth considering is whether to relocate the EOC from City hall to the Fire Hall, and is considered in our analysis.



**ANALYSIS:****1. MANDATORY SITING FACTORS**

The following are considered mandatory factors that are essential for the siting of a new fire hall:

<b>No</b>	<b>Factor</b>	<b>Why Essential</b>	<b>Comments</b>
1	Building meets seismic and building code requirements	Required for certification	
2	Location is within Minimum Response Standard area	Required for certification	
3	Building can meet Emergency Program Post Disaster needs	Required for certification	
4	Site large enough to support a minimum 2 bay building functionally sized for current usage – parking, access and egress.	Required for certification	Minimum site size is considered to be 0.17 Ha, 0.42 Acres, 18,000 sq feet)
5	Building above 200 year (Year 2050) floodplain (next 50 years)	Considered essential due to risk of flooding during building lifetime	Building should be located at or above the floodplain to protect building equipment and apparatus during it's expected 50 year lifetime

## 1. DESIRABLE SITING FACTORS

The following are considered desirable factors for the siting of a new fire hall:

No	Factor	Why Desirable	Comments
6	Tsunami: Building above Mag 9.0 Subduction Earthquake Flood Event (about 1:400 year probability)	Protects building or renovation investment	The major subduction event is considered a 10-12% probability in the next 60 years (building lifetime)
7	Building and site access above 200 year (Year 2050) floodplain (next 50 years)	Provides response (fire or assistance with resident relocation) service during flood event	Staffing may be impacted as some staff may not be able to respond during the flood event
8	Access/Egress/Parking	Required for response	
9	Zoning/DP considerations	Approval process and/or risk	Meets OCP or Zoning or where an amendment is suitable for the community

Ten potential sites were considered in a variety of locations to explore suitability in several areas. Site selection was restricted to the built up areas of the Village to provide reasonable service times.

Ten potential sites were identified and detailed in Appendix “A”. Desirable or non-mandatory attributes were rated on a scale of 1 to 5, with 5 being a high score. Cost was not considered in the desirability score and is presented separately.

A number of sites in the north section of the Village north of Head Bay Road suffer from foundation challenges similar to the existing fire hall site. Eight of the ten sites selected met the mandatory requirements noted above.

The highest ranked five sites are:

<b>Location</b>	<b>Desirability Score</b>	<b>Estimated Cost</b>	<b>Comments</b>
CMESS Wood Shop	14	\$1.0 Million	Long term lease or subdivision
School Hill – DL595	14	\$1.75 Million	Private Property, site size may be difficult
Rugged Mtn: Old Admin Building	14	\$1.75 Million	May require subdivision (Contaminated Site Implication)
Discovery Crescent Park	13	\$1.6 Million	Access (steep narrow roads) and Parking are issues
Existing Fire Hall Site	13	\$1.9-\$2.1 Million	Movable structure or Pile Foundation required
Village Site (Old Go Cart Track)	12	\$2.0 Million	Pile Foundation required

The Captain Meares Elementary Secondary School (CMESS) Wood Shop is highest ranked and a good option to consider due to relatively straightforward construction (renovation) if the school district is prepared to give a long term lease or, better still, subdivide the property. The school is above the 200 year floodplain, but it is not yet known at present if it will be above the Tsunami level. The site could also be a challenge to access from the west during a 200 year flood event, however, this risk is minimal today (0.7 meter sea level rise in 100 years).

The School Hill site is equally ranked but site size may be a challenge and requires a new building which is more expensive.

The Rugged Mountain Old Admin Building on a Western Forest Products property is also equally ranked but requires a new building which is more expensive.

The Discovery Crescent Park Site is fourth ranked with difficult access, limited parking and it is a small site.

The Fire Hall Site and the Old Go-Cart Track (or the Western Forest Products Lands north of Head Bay Road) are also centrally located but may be susceptible to Tsunami depending on the results of the study under way at present with the Strathcona Regional District. Pile foundations would be required for either of these sites, which is cost prohibitive.

The Tsunami risk is an unknown at present, but the Village should receive clarification on the expected flood elevations due to the subduction 'event' (Mag 9.0 earthquake) that is expected to occur in the future. Research from other studies (Tofino – Northwest Hydraulics Study) indicates that the probability of the Mag 9.0 event occurring off the coast of Vancouver Island is about 10% over the next 40 years, so this may be a factor that could be discounted in the analysis. However, it is not recommended that the EOC be re-located in the Fire Hall if it is decided to locate the fire hall in the tsunami zone.

#### **FINANCIAL IMPLICATIONS:**

A modest new construction Fire Hall with 2 heated apparatus bays could range between a low of \$1.6 Million for a basic steel or pop up style structure to a high of over \$3,000,000 for a concrete, post disaster standard. For the purpose of site comparison analysis, we estimated new construction at \$400/square feet, with a new build of 4,000 square feet.

The high level estimate to renovate the CMES Wood Shop (at 5,000 square feet plus mezzanine) is \$900,000.

The Village does not have funds specifically set aside for the replacement of the Fire Hall. The Fire Reserve Fund balance is approximately \$290,000 and this is allocated for the replacement of fire vehicles and equipment.

The likelihood of grant funding for this project is low. Federal and Provincial grant funding programs are currently not the best fit for a Fire Hall replacement project. Program intakes are not currently open and the lead time for consideration is quite lengthy.

The Village is able to debt finance building costs through the Municipal Finance Authority of BC. The cost of borrowing each \$1,000,000 at today's MFA rates (2.34%) amortized over 30 years would be about \$47,000 per year. This would require the assent of the electors through a referendum process and an increase in property taxes of approximately 7% phased in over two budget years (Note the 2.34% rate is only for the first 10 years of the 30 year borrowing, MFA recommends an overall budget rate of 3.0% for a 30 year borrowing).

It is likely that a budget in the range of \$1 million will be needed for this project. The budget estimate will be refined as further information about the preferred site is obtained.

**CONCLUSIONS**

The highest ranked site is the CMESS Woodshop, and this building has the potential to be cost effectively renovated. However, the initial engineering estimate requires further refinement before a recommendation can be made. Early indications are that the site could be subdivided and acquired.

The other sites all require construction of a new building which is more expensive than the CMESS Woodshop renovation.

Should the cost of the CMES Woodshop renovation prove cost prohibitive, a new building would be required at either that site or the second highest ranked site of reasonable size which would be Rugged Mountain Old Admin Western Forest Products Site. New construction, or possibly a prefab steel building. Cost of a new building will be refined but early estimates are in the \$1.6 million plus range.

Grant funding is not a viable option at this time and debt financing with likely be required for this project to proceed. Assent of the electors through referendum approval should be obtained before contractual land or building commitments are concluded.

If Council confirms the CMESS Woodshop as the preferred site and the refined cost estimate remains lower than construction of a new building, an option to acquire the property could be negotiated.

Once the option to acquire the property is obtained Council could consider a release of the information and engaging the community to gain feedback on the project and the financial impact.

**RECOMMENDATION:**

1. That Council endorse the CMESS Woodshop location as the preferred site and authorize the Chief Administrative Officer to commence negotiations for an option to purchase from the School District.
2. That the engineering cost estimate for the Wood Shop Renovation be further refined for report back to Council.

Respectfully submitted:



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John Manson,  
Project Manager

## **APPENDICES**

<b>Appendix “A” –</b>	<b>Fire Hall Options Analysis</b>
<b>Appendix “B” -</b>	<b>Tahsis Fire Hall Settlement March 22, 2021 Technical Memo</b>
<b>Appendix “C” -</b>	<b>Tahsis Fire Hall Relocation Project Dec 3, 2020 Technical Memo</b>
<b>Appendix “D”</b>	<b>Architectural rendering of Tahsis Fire Hall at CMESs campus</b>

Site	Approx Sq Feet (Fire Hall)	Building Type	Owner	Mandatory Criteria (Y/N)						Desireable Criteria				Financial Criteria							Meets Mandatory Criteria ?	Desireability Score	Comments
				Seismic	In Response Area	Building Post Disaster Ready	Site Size	Above 200 yr Floodplain (Year 2050)	Subjective (Rated 0-5, 5 is good)				Costs (\$1,000's) NO CONTINGENCYIES FOR COMPARISON ONLY										
									Tsunami resistant (assumed at 8.0 m)	Access above 1:200 (50yr) Floodplain	Access/Egress/Parking	Zoning/ Regulatory	Extra Foundation Costs (Piles/Floating Foundation)	Extra Site Filling Cost (Site + Access)	Extra Servicing Cost	Land Purchase Cost	Base Building Cost	Estimated (Ballpark) Total Cost (\$1,000)					
2	CMESS Wood Shop	5,000	Renovation	School District	Y	Y	Y	Y	Y (existing)	0	4	5	5		0	10	100	900	1010	Y	14	Lease or purchase from School District, extra sf in mezzanine	
7	School Hill Rd (DL 595, Dahling)	4,000	New	D Dahling	Y	Y	Y	Y	Y (existing)	5	5	2	2	50			100	1,600	1750	Y	14	Site size may be a challenge	
6	Rugged Mtn: Old Admin Building	4,000	New	Western Forest	Y	Y	Y	Y	Y (existing)	5	5	4	0	50			100	1,600	1750	Y	14	Subdivision would be required (possible contaminated site issues)	
10	Discovery Crescent Park	4,000	New	Village	Y	Y	Y	Y	Y (existing)	5	2	1	5			10		1,600	1610	Y	13	Limited Parking, difficult (steep, narrow) access, small site	
1a	Existing Fire Hall Site	4,000	Rebuild (New conventional)	Village	Y	Y	Y	Y	Y with Fill	0	3	5	5	450	50	10		1,600	2110	Y	13	Pile Foundation Required	
1b	Existing Fire Hall Site		Rebuild (New Prebuilt)	Village	Y	Y	Y	Y	Y with Fill	0	3	5	5		50	10		1,800	1860	Y	13	Using a 'prebuilt' settlement 'friendly' structure (smaller building)	
4	Go Cart Site (Village)	4,000	New	Village	Y	Y	Y	Y	Y with fill	0	3	4	5	450	25	10		1,600	2085	Y	12	Pile Foundation Required	
3	Old Baseball Diamond	4,000	New	Western Forest	Y	Y	Y	Y	Y (existing)	0	3	4	3	450	0	10	100	1,600	2160	Y	10	Access needed and Pile Foundation Required	
5	Public Works Site (PW, FH)	4,000	New -w- Pub Works Rebuild	Village	Y	Y	Y	N	Y (existing)	n/a	n/a	n/a	n/a		50			2000 plus	2000 plus	N	n/a	Requires soil assessment	
8	City Hall Site (CH, LIB, FH)	4,000	Rebuild (New conventional)	Village	Y	Y	Y	N	Y (existing)	n/a	n/a	n/a	n/a	30		10		3000 plus	3000 plus	N	n/a	Limited Parking, Library Funding req'd,temp relocation	
9	Aircraft Hanger		Renovation	Village	Y	Y	Y	N	N	n/a	n/a	n/a	n/a					?	?	N	n/a	Site too small, below floodplain	



# TECHNICAL MEMO

**To**

Mark Tatchell, CAO  
Village of Tahsis

**From**

Alan Blakeley, P. Eng.  
McElhanney

**Re**

Tahsis Firehall Building Settlement

**Date**

March 22, 2021

## 1. Introduction

McElhanney was engaged by the Village of Tahsis to review the existing firehall building at 157 Head Bay Rd, Tahsis, BC. Firehall staff have noted rapid building settlement at the end of 2020. A review of the building was conducted by a building inspector from the Strathcona Regional District (SRD). The review noted drywall cracking, falling trim, cracking windowpanes, and deflection of walls. The building inspector recommended that personnel and apparatus be relocated from the current building location. Additionally, the building inspector recommended a review by a structural engineer. McElhanney reviewed the structure on March 3, 2021.

## 2. Observations

The existing structure is a wood framed building built in approximately 1995. The roof framing consists of pre-engineered wood trusses which appear to have been built at a later date than the walls and foundations below. The wall framing consists of 2x6 stud framing. The structure is supported on cast-in-place concrete walls on strip footings, with a concrete slab on grade floor. According to Firehall staff, the structure is built on foundations from a previous building which was destroyed in a fire in 1982. The previous building had a below grade basement, which was backfilled to support the slab on grade of the current fire hall.

The building is showing significant signs of distress due to differential settlement. The following findings were typically noted throughout the building:

- Based on indications marked on the building structure, settlements appear to be occurring at a rate of up to ½" per week in some locations.
- In multiple locations, interior partition walls have separated from the ceiling by up to 3".
- The separation of interior bearing walls from the ceiling has started to pull on electrical wiring which appeared to be stretched / stressed.
- Recent cracking has been noted at window opening corners.

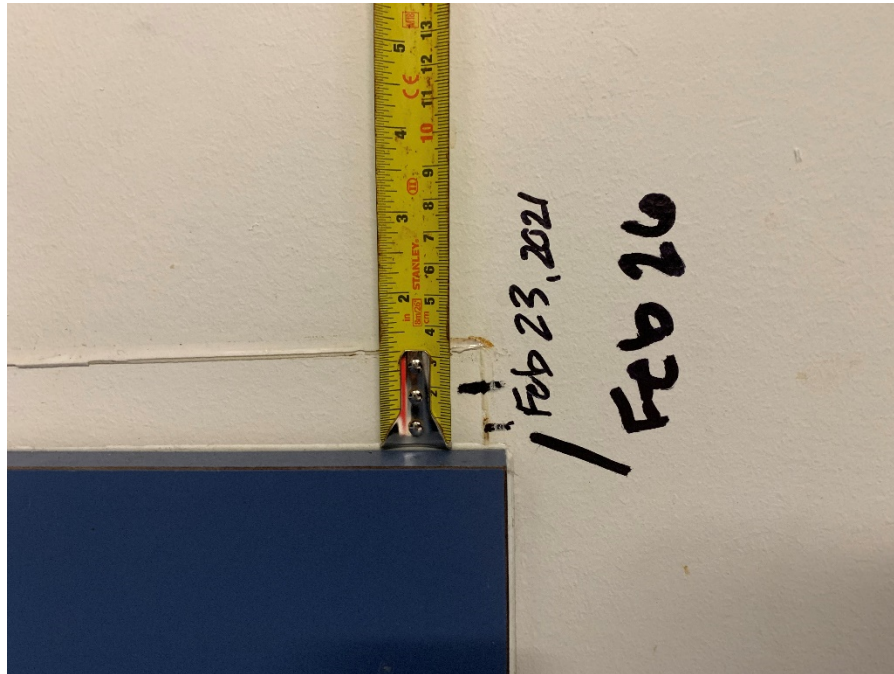
**McElhanney**

1211 Ryan Road, Courtenay BC Canada V9N 3R6  
Tel. 250-338-5495 | Fax. 1-855-407-3895 | [www.mcelhanney.com](http://www.mcelhanney.com)

March 22, 2021

- Interior finishing has failed and is separating from the building superstructure.
- The exterior foundation walls appear to be cracking and differential settlement in the grade was noted to be up to 1-1/2" over 10'-0".
- Multiple cracks in the slab on grade were noted, and the slab is visibly sloping.
- The slab on grade appears to be separating from foundation walls.

Several photos of the above noted findings are shown below.



*Figure 1: Separation / settlement of countertop at exterior wall*

March 22, 2021



Figure 2: Cracking above door frame



Figure 3: Separation of interior partition wall



March 22, 2021



*Figure 4: Separation of interior partition wall with stressed electrical cables*



*Figure 5: Exterior wall showing differential settlement*



March 22, 2021



*Figure 6: Cracking / separation of slab on grade from foundation wall*

### **3. Recommendations**

The structure appears to be undergoing rapid and unexpected differential settlement. This settlement has resulted in significant serviceability issues in the form of separating finishes, cracking drywall, cracking / sloping slabs, and stretching / stressed electrical cables. These serviceability issues were noted throughout the structure and are representative of significant settlement in the building substructure.

Given the above noted findings, it is McElhanney's recommendation that the structure is not used for occupancy or for the storage of equipment. As the structural issues appear to be caused by settlement within the subgrade, any structural repairs would provide only temporary solutions and are not recommended. Given the significant geotechnical issues at the site, replacement of the structure at a new location with more suitable subgrade is likely a more feasible option than in-situ repairs of the existing building.

Additionally, it is recommended that an electrician be engaged to review the building electrical wiring / connections.



March 22, 2021

#### 4. Closure

Please do not hesitate to contact the undersigned with any questions or concerns.

Sincerely,  
McElhanney Ltd.

Prepared by:

Reviewed by:



Alan Blakeley, P. Eng  
[ablakeley@mcelhanney.com](mailto:ablakeley@mcelhanney.com)

Matt Friderichs, P.Eng.  
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#### Revision History

Date	Status	Revision	Author
2021-03-22	Issued for Client Review	00	Alan Blakeley

#### Limitation

This technical memo has been prepared for the exclusive use of the Village of Tahsis. The material in it reflects the best judgement of the Consultant in light of the information available to the Consultant at the time of preparation. As such, McElhanney, its employees, sub-consultants and agents will not be liable for any losses or other consequences resulting from the use or reliance on the report by any third party.



# TECHNICAL MEMO

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**To**

Mark Tatchell, CAO  
Village of Tahsis

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**From**

Alan Blakeley, P. Eng.  
Structural Engineer

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**Re**

Tahsis Firehall Relocation Project

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**Date**

December 3, 2020

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## 1. Introduction

### 1.1. REPORT SCOPE

McElhanney Ltd. has been retained by the Village of Tahsis to provide a preliminary structural feasibility review of relocating the Tahsis Volunteer Fire Department to the existing wood shop structure at the Captain Meares Elementary Secondary School in Tahsis, BC.

This memo provides a preliminary review of the existing wood shop structure as well as recommended structural upgrades and associated cost estimates required to upgrade the building for use as a fire hall.

McElhanney conducted a site review of the structure on October 23, 2018. Additional drawings were provided to the McElhanney structural office on September 12, 2019.

### 1.2. PROJECT BACKGROUND

The Village of Tahsis Volunteer Fire Department is considering relocating from its current building at 157 Head Bay Road to the current wood shop attached to the existing Captain Meares Elementary Secondary School (CMES).

The original structure of the wood shop was built in 1972. Multiple additions have been made to the school and the wood shop since the initial construction of the main structure. Limited and incomplete drawing sets are available for the initial construction in 1971 as well as additions built in 1976, 1980, 1984, and 1988. A seismic risk assessment was conducted on August 14, 2018 and made available to the McElhanney structural department on October 8, 2019.



## 2. Assessment

### 2.1. EXISTING STRUCTURE

The existing building is conventional timber frame. The roof is framed with timber rafters and steel web joists for longer spans. The roof is sheathed with plywood. The walls are framed with 2x6 timber studs at 16" centres and sheathed with plywood on the exterior walls. Based on the seismic risk assessment report, the foundations are expected to be conventional cast-in-place concrete and the existing soil site class is assumed to be class D. Based on the seismic risk assessment report, the existing structure does not appear to have been designed for seismic loading.

### 2.2. REQUIRED BUILDING PERFORMANCE

In general, it is not required to upgrade existing buildings designed and built under a previous building code to the current edition except for when substantial changes or additions to the structure, or a major change in occupancy, are proposed that will change the anticipated loading on the structure.

The change in function of the building from a school to a firehall would constitute a change in building importance category from a high importance category (a school) to a post-disaster importance category (a firehall). Fire halls are required to fall under the post-disaster category as it is expected that they be capable of providing emergency services in the event of a natural disaster such as an earthquake.

The change from a school structure to a fire hall will constitute a major change in occupancy. This major change in occupancy will result in different load requirements on the building. These new load requirements will require upgrades to the current structure to suit the current 2018 British Columbia Building Code (BCBC).

### 2.3. ADDITIONAL REQUIREMENTS

As requested by the Tahsis Volunteer Fire Department, the following items would be required in order to function as a fire hall:

- A lobby to receive people
- Three offices for the fire chief, officer, and training space
- A lockable room for telecommunication hardware
- Rest area and kitchenette
- Classroom for approximately 20 students plus an instructor
- Two full washrooms with showers (male and female)
- Two bays for apparatus with a 14' door, 20 Amp plug, and air exhaust system
- Two bays to position 40' long apparatus
- Tool room for small engine repair with a large compressor for trucks and air horn
- SCBA room for four stage air compressor with a sink and water
- Storage room
- Mezzanine
- A 10'-12' overhead door with a bay for a 30' long vehicle
- Generator transfer switch

General building layout, electrical, and mechanical requirements are outside the scope of this structural report. Under the Architects Act of BC, an architect is required for any alteration or repair of a school of any size. An architect is required for this relocation project and should be engaged by the Village.



## 3. Recommendations

### 3.1. ROOF SYSTEM

#### 3.1.1. Gravity

Based on site reviews, the gravity system for the roof consists of steel web joists for longer spans and timber rafters for shorter spans. Comparing the 1970 National Building Code of Canada to the 2018 BCBC, the snow loads (including post-disaster importance requirements) would see an increase of approximately 5%. With a nominal increase in snow loads, it is unlikely that significant upgrades to the gravity system of the roof would be required.

#### 3.1.2. Lateral

According to the seismic risk assessment report, the current diaphragm structure of the roof consists of “nominally nailed plywood.” To fully determine if upgrades to the roof diaphragm are required, the thickness of the existing plywood and the nailing pattern would need to be determined; however, based on an assumption of ½” thick plywood with 2-1/2” long common nails at 6” at plywood edges, the diaphragm structure for the roof would not meet current code requirements. Upgrades to the roof would include stripping the existing roofing material, replacing the existing plywood and nails, and reroofing the entire structure.

### 3.2. WALLS

#### 3.2.1. Gravity

Based on site reviews, the walls appear to be constructed of 2x6 D. Fir #2 studs at 16” on centre. This framing arrangement is typical for buildings of this type and would likely not require upgrades.

#### 3.2.2. Lateral

According to the seismic risk assessment report, the current lateral system for the walls consists of “nominally nailed plywood.” Field reviews noted interior plywood sheathing secured with staples and exterior diagonal board sheathing in several locations. The existing lateral system for the walls does not meet current code requirements and would need upgrading. Approximately 200’ feet of wall would need to be converted into shear walls by sheathing full height with 5/8” thick Douglas fir plywood with nailing at 4” at panel edges. The sheathing may be applied to the interior or exterior face of the walls. If sheathing is applied to the exterior face of the walls, the existing cladding would need to be removed and replaced. Additionally, in several locations, existing windows would need to be filled in to allow for continuous shear walls. The bottom plate of the shear walls should be secured to the existing footings with 5/8” Ø post-installed anchor bolts at 6’-0” on centre.



### 3.3. MISCELLANEOUS

#### 3.3.1.Headers

The structural framing for the existing headers could not be determined from field reviews or existing drawings. The existing header framing should be exposed and reviewed for structural conformance to the 2018 BC Building Code.

#### 3.3.2.Mezzanine

Multiple interior mezzanine structures have been added to the workshop area during the building's service life. These structures appear to meet gravity requirements of the BCBC; however, it is unknown if they are laterally braced. Seismic stability upgrading may be required either through bracing the structures individually or tying them into the shear walls of the workshop superstructure. Further investigation should be conducted to determine the seismic stability of the existing mezzanine structures.

#### 3.3.3.Building Connection

Due to the change in occupancy and increase in seismic loading, the existing workshop structure would need to be seismically separated from the rest of the school by a minimum of 8 – 10". This would typically require removing cladding and cutting and removing existing stud walls. Additional stud walls would be required, and new exterior cladding would need to be reinstalled.

### 3.4. FOUNDATIONS

#### 3.4.1.Gravity

As previously noted, the increase in gravity loads is expected to be nominal. Assuming conventional cast-in-place footings on suitable native bearing, the existing foundations should not require significant upgrades to resist gravity loading.

#### 3.4.2.Lateral

The upgraded seismic system would require new cast-in-place reinforced concrete footings at shear wall end locations. New footing sizes would range from 4 cubic yards to 10 cubic yards totaling approximately 90 cubic yards of concrete. The existing footings would need to be undermined and removed to allow for the installation of new footings. New hold downs complete with cast in place anchor rods should be installed at the ends of all new shear walls.

### 3.5. ADDITIONAL RECOMMENDATIONS

#### 3.5.1.Additional Consulting Services

Under the Architect's Act of BC, an architect is required for any alteration to any school. Additionally, firehalls in general have several unique mechanical and electrical requirements compared to typical institutional buildings. It is also strongly recommended that a building envelope review and geotechnical review be conducted for this project. Given the requirements for an architect and the multiple consulting disciplines required on a project such as this, an architect will need to be engaged.



### 3.6. COST ESTIMATE

Based on the above noted recommendations, the estimated capital cost for structural items is \$850,000 accurate to  $\pm 50\%$ . A detailed break down of the Class "D" cost estimate can be found in *Appendix A*. Please note that this cost does not include architectural, mechanical, electrical, geotechnical, building envelope, etc. items.

## 4. Closure and Disclaimers

This technical memo has been prepared by McElhanney Ltd. at the request of Mark Tatchell. The information and data contained herein represent McElhanney's best professional judgment in light of the knowledge and information available to McElhanney at the time of preparation. Except as required by law, this memo and the information and data contained herein are to be treated as confidential and may be used and relied upon only by the client, its officers, and employees.

McElhanney Ltd. denies any liability whatsoever to other parties who may obtain access to this report for any injury, loss or damage suffered by such parties arising from their use of, or reliance upon, this document or any of its contents without the express written consent of McElhanney or its agents.

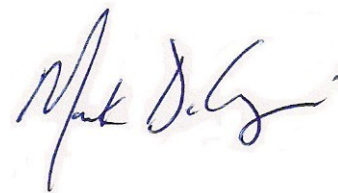
We trust that the information contained in this report is suitable for your current needs. If you have any questions or require additional information, please do not hesitate to contact us.

Sincerely,

*McElhanney Ltd.*

*Prepared By:*

*Reviewed By:*




*Alan Blakeley, P. Eng.  
Structural Engineer*

*Mark DeGagné, P.Eng.  
Branch Manager*



# APPENDIX A

*Class “D” Cost Estimate*

Preliminary Capital Cost Estimate				 McElhenny	
Project: Tahsis Firehall Relocation				2-Dec-20	
Project No: 2221-49140				By: A. Blakeley	
Class D Cost Estimate					
Structure	Description	Units	Quantity	Unit Rate	Estimate
Roof Diaphragm	Removal of existing roofing and sheathing (labour)	hrs	400	\$50.00	\$20,000
	Plywood roof sheathing and fasteners	sq. ft.	5,000	\$5.00	\$25,000
	Installation of new sheathing (labour)	hrs	300	\$50.00	\$15,000
	New felt and gravel roofing	sq. ft.	5,000	\$40.00	\$200,000
Roof Diaphragm Subtotal					\$260,000
Shear Walls	Removal of interior cladding (labour)	hrs	350	\$50.00	\$17,500
	Interior sheathing and fasteners	sq. ft.	4,000	\$5.00	\$20,000
	Installation of interior sheathing (labour)	hrs	1,500	\$50	\$75,000
	Installation of new walls and cladding at seismic break (labour)	hrs	200	\$50	\$10,000
	New sheathing and cladding at seismic break	sq. ft.	800	\$20	\$16,000
Shear Wall Subtotal					\$138,500
Foundations	Underpin existing footings / form new footings (labour)	hrs	1,500	\$50.00	\$75,000
	Formwork (materials)	sq. ft	500	\$5.00	\$2,500
	Site prep and excavation (labour)	hrs	150	\$50.00	\$7,500
	Excavator	lump sum	1	\$6,000.00	\$6,000
	Concrete supply	cu. ft.	800	\$75.00	\$60,000
Renovation Subtotal					\$151,000
Subtotal					\$549,500
Structural Engineering, Contract Administration (10% of Subtotal)					\$54,950
Contingency (40%)					\$241,780
Total Estimated Capital Cost					\$846,230

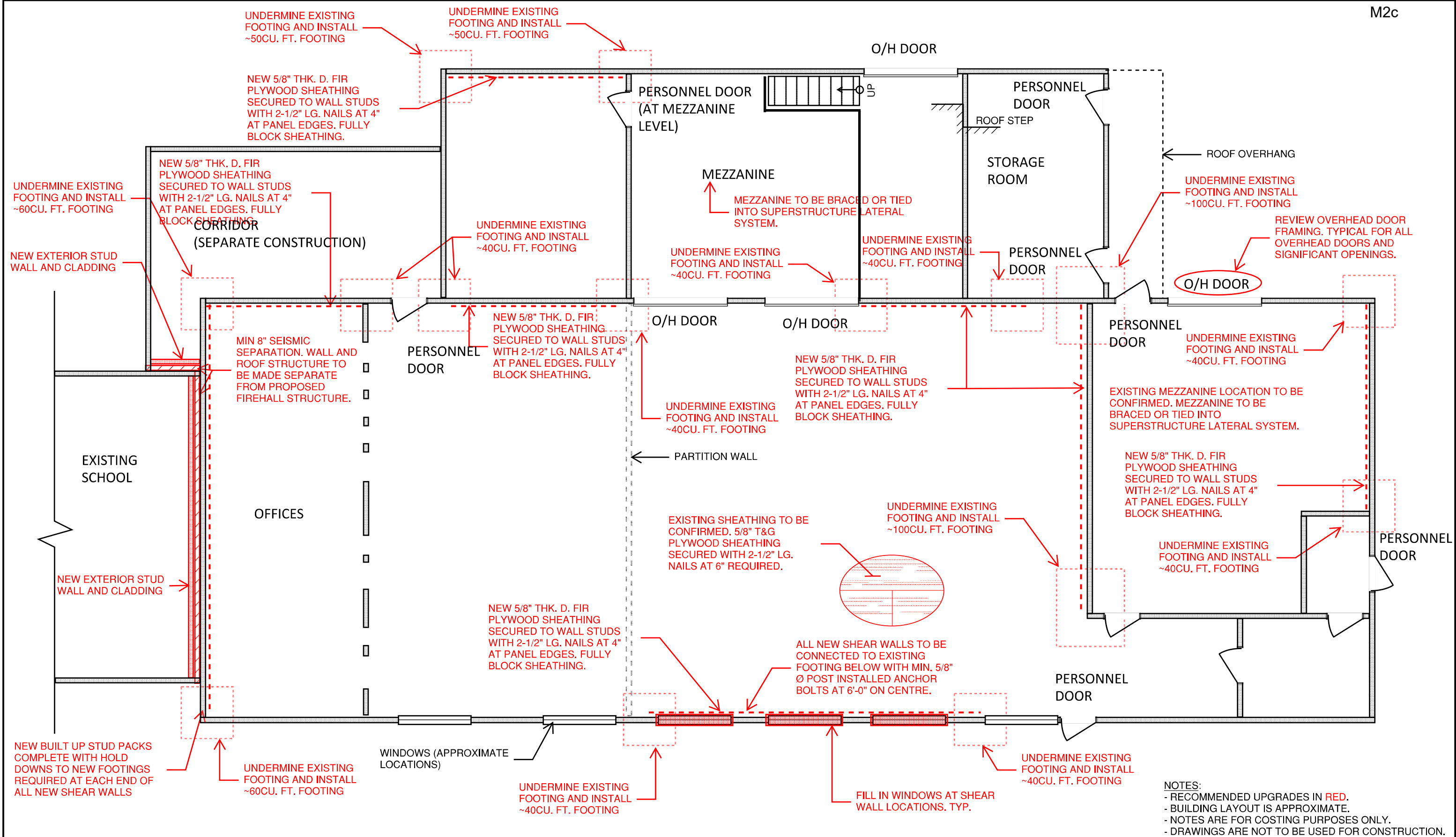
**In reviewing the estimate, please note the following:**

1. Estimate is for structural scope only. Additional costs for mechanical / electrical / geotechnical / architectural work should be considered.
2. Estimate is intended for general project planning and should not be considered sufficiently accurate for specific budgetary purposes.
3. Estimate assumes competitive contractor tendering.
4. Estimate is based on available cost estimate data from recent projects.
5. Estimate is considered accurate to  $\pm 50\%$ .
6. A contingency of 40% is recommended to account for capital cost items which have not been considered to date based on the extent of design work completed. This includes miscellaneous items that need further investigation such as the mezzanine structures.
7. Estimate is based on labour and material rates from 2020 and may vary widely due to future market conditions.
8. Considerations have been made to project location and are reflected in estimated hours.

# APPENDIX B

*Recommended Upgrades*






Rev	Date	Description	Drawn	Design	App'd

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**McElhanney Ltd**

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Courtenay BC  
Canada V9N 3R6  
Tel 250 338 5495

VILLAGE OF TAHSIS - PROPOSED FIREHALL RELOCATION		Sketch No.
MAIN FLOOR PLAN WITH RECOMMENDED UPGRADES		SK-01
Project Number	2221-49140	Rev.
		00

# VILLAGE OF TAHSIS

## Report to Council

### CONFIDENTIAL

**To:** Mayor and Council

**From:** Chief Administrative Officer

**Date:** November 14, 2021

**Re:** Tahsis Fire Hall – replacement

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**PURPOSE OF REPORT:**

To seek Council direction on next steps for Tahsis Fire Hall replacement.

**BACKGROUND:**

Council has considered and asked staff to analyze two locations to replace the Tahsis Fire Hall: the CMESS wood shop and the former Wolverton Building site. Staff have focused their work on the cost and other implications for these two sites on the assumption that Council wishes to replace the Tahsis Fire Hall. As further background, the May 13<sup>th</sup>, 2021 staff report is attached to this report.

**Cost Estimate**

McElhanney has refined its cost estimate to re-purpose the CMESS wood shop to meet the structural requirements for a post-disaster building. Those costs are estimated to be \$500,000 for structural work only (see attachment). The cost estimate does not include interior upgrades such as electrical, plumbing, HVAC, etc. For the Wolverton building, McElhanney has advised they can provide an estimate for a new post-disaster building (structural costs only) but they believe the final “all in” cost would be between \$1-\$2m which is in line with the estimate in the May 13<sup>th</sup> staff report of \$1.75m. Staff have also engaged WFP on a proposal to lease the Wolverton site for building the firehall with an option to sub-divide. WFP states their preference is to sub-divide and sell, but they have agreed to consider the lease option. Both Wolverton site options (lease or buy) will take time and financial resources to conclude.

To develop Class “C” or “B” cost estimates (which would include the full cost of the project), the Village will need the services of an architecture firm.

### Direction Required on Cost Estimate

- Does Council wish to receive Class “C” or “B” cost estimates<sup>1</sup> for a replacement fire hall at both of these locations?
- If so, does Council approve spending up to \$25,000 for preliminary drawings and cost estimates by a professional architect for this purpose?

### Funding

There are no federal or provincial grant programs for public safety or emergency service infrastructure, including buildings. Public safety and emergency services (including fire halls) buildings are specifically excluded from Infrastructure Canada’s multi-year funding agreements with British Columbia. Therefore, the Village will need to fund 100% the cost of a new firehall from its existing revenue sources or, more likely, by borrowing from the Municipal Finance Authority.

To construct a replacement fire hall, the Village will need to borrow up to \$2 million. Even if Council approved borrowing \$2m, the Village would only the borrow the amount needed to pay for the project.

### Direction Required on Financing

- When does Council wish to consider initiating the long term borrowing process?

### Site Considerations

Both the CMESS and Wolverton building are above the 200 year floodplain elevation, however, the CMESS building is not above the tsunami inundation zone. The Wolverton building site is above the tsunami inundation zone. It is not required for certification by the Fire Underwriters Survey that a firehall be built above the floodplain or tsunami zone, although it is suggested that building above the floodplain be considered essential due to the risk of flooding during the building lifetime. It is also noted that in the event of a flood or tsunami, it would be possible to move the fire trucks and other equipment from the fire hall to higher ground.

### Direction Required on Fire Hall sites

- Is building above the tsunami inundation zone a mandatory requirement for Council, even if it is not a FUS requirement?

---

1

<p>Class “B”: Prepared after completing site investigations and studies, and after defining the major systems Based on a project brief and preliminary design Used for project approvals</p>
<p>Class “C” Prepared with limited site information and based on probable conditions Captures major cost elements Used to refine project definition</p>

- Does Council want to explore other site locations and building options? If so, how much money and time does Council wish to spend on other options?
- Does Council wish to engage in community consultation on the current options (after or before architectural drawings are completed)?

**STAFF RECOMMENDATION:**

- Retain a professional architect to develop drawings of the firehall in the CMESSE woodshop facility and to prepare cost estimates for re-purposing that facility as a firehall. (This is the least expensive option that meets the FUS mandatory criteria); and
- Council confirm its firehall replacement decision no later than February 25, 2022 in order for staff to have sufficient time to prepare the Loan Authorization Bylaw for introduction and first three readings by April 5, 2022.

**ALTERNATIVE OPTION:**

- Retain a professional architect to develop drawings of a firehall at the CMESSE and Wolverton sites and prepare cost estimates for both sites;
- Conduct community consultation on the firehall locations and designs;
- Prepare the Loan Authorization Bylaw for introduction in April 2023.

**STRATEGIC PRIORITY:**

Yes. Replacing the fire hall is a 2021 and 2022 strategic priority for Council.

Respectfully submitted:



---

Mark Tatchell, CAO

# Capital Infrastructure Stream Application Form for the Strategic Priorities Fund

## 2022 Strategic Priorities Fund Capital Infrastructure Stream Application Form

**Deadline for submission: Thursday, June 30, 2022**

**It is important that you save the data entered in this form.**

**Prior to submitting the application to UBCM please ensure you have uploaded all mandatory attachments to this form.**

**Please refer to the Program Guide (<https://www.ubcm.ca/funding-programs/canada-community-building-fund/strategic-priorities-fund>) for additional information on the funding program and the Strategic Priorities Fund How-To Guide (<https://www.ubcm.ca/funding-programs/canada-community-building-fund/strategic-priorities-fund>) for PIMS (<https://www.ubcm.ca/funding-programs/canada-community-building-fund/strategic-priorities-fund>) which will guide applicants on how to successfully submit an application form in PIMS.**

**For questions regarding the SPF program and eligibility please contact [ccbf@ubcm.ca](mailto:ccbf@ubcm.ca) or phone 250-356-0930**

**For technical assistance please contact [PIMS@ubcm.ca](mailto:PIMS@ubcm.ca) or phone 250-356-5133 during regular business hours.**

### SECTION 1 PROJECT INFORMATION

#### **1. Project Title \***

Tahsis Fire Hall Relocation

#### **2. Project Category \***

Fire Halls and Fire Stations

#### **3. Is this project the subject of a recent infrastructure grant application? \***

No

#### **4. Project Rationale: Provide a brief project rationale outlining why the project is needed and how the project meets that need. \***

Much of the Village of Tahsis is located on the estuary and banks of the Tahsis River, which empties into a long inlet of the Pacific Ocean. This geography exposes the Village to significant and increasing risks from climate change-related related floods and sea level rise. In response – and to strengthen our community and support long-term

economic growth – we are undertaking a multi-year process to eliminate or minimize these risks by upgrading or relocating key infrastructure. One such piece of key infrastructure is our current Fire Hall building, which is located in a high-risk area at low elevation near the shoreline. The Fire Hall has risen to the top of our priority list because, in addition to its at-risk location, it recently became structurally unsound and had to be abandoned. Without quick replacement the Village risks losing our Fire Department/Service altogether. After a rigorous exploration of options we have landed on an innovative, community-building and environmentally-friendly concept whereby we refurbish an unused woodshop attached to the local school (at higher elevation outside of the 200-year floodplain), transforming it into a new and upgraded Fire Hall and Emergency Operations Centre (“EOC”). This project responds to our community’s urgent need for a sustainable, climate and flood-resilient Fire Hall and EOC, while salvaging an entire building and strengthening a new community hub taking shape at our local school. For example, why the project is needed could be: current facility needs replacement due to age, condition, increased service demands, meeting regulatory requirements etc.

**5. Project Description: Provide a detailed list of the physical works and location of the project. \***

(1) Salvage and repurpose an existing ~5,000 square foot woodshop into a Fire Hall/EOC containing:

- Parking for 2 fire trucks and space for workbenches
- Parking for Tahsis’ Wildland Fire trailer
- Dry room and gear cupboards for drying and storage
- Assembly room for training or coordinating up to 50 persons
- Administration area for 3 desks
- Reception counter (Install counter from old firehall)
- Kitchen with sink and fridge
- Accessible washroom with accessible shower
- 2 additional washrooms
- Electrical room
- Compressor room
- Storage

(2) Remove an existing classroom to fully separate the school from the new Fire Hall/EOC.

(3) Salvage and relocate several pieces of equipment from the existing Fire Hall including the bay doors, tsunami siren, LED lighting, exhaust system and reception counter.

*For example:*

*Build a wastewater effluent pipeline and outfall at north end of 20 Mile Bridge at Highway 10, including:*

- 10km of force main;
- pumping system;
- outfall structure; and

## 6. Project Location \*

Captain Meares Elementary Secondary School, Alpine View Road, Tahsis BC V0P 1X0 –  
Latitude: 49.926773, Longitude: -126.651197

Include physical address, GPS coordinates or start and end points.

## SECTION 2 REQUIRED DOCUMENTATION

### Take a moment to attach the following documents to the application form.

Prior to submitting the application to UBCM please ensure you have uploaded all mandatory attachments to this form. The maximum size per file upload is 20 MB.

*Please download and complete the Detailed Cost Estimate Template (<https://www.ubcm.ca/funding-programs/canada-community-building-fund/strategic-priorities-fund>) and attach it at the bottom of this page. See the Strategic Priorities Fund How-To for PIMS (<https://www.ubcm.ca/funding-programs/canada-community-building-fund/strategic-priorities-fund>) document for more information on how to upload files to your application form.*

If you are uploading large documents, please indicate in the application form what they are and where the reviewer should refer to find relevant information. It is preferred that only relevant information be uploaded.

If your resolution is not available at the time of application submission, please include the date it will be submitted by email in the required document notes below.

## 7. Required Documents \*

Detailed Cost Estimate Template

Maps and/or Drawings

Feasibility Study and/or Design Report

Board or Council Resolution Supporting the Application

### Notes for Submitted Documentation:

-The attached map is taken from our 2019 Flood Risk Assessment, and summarizes the case for the new location (it is outside of the 2019, 200-year floodplain). The contour for the 2100, 200-year floodplain actually contains 0.6m of “freeboard” (safety contingency), and if you remove this freeboard the new Fire Hall remains outside of this future floodplain as well. At minimum, this modeling suggests the new Fire Hall will be safely outside the 200-year floodplain for its entire anticipated lifespan of 50 years.

-The Fire Hall Condition Assessment followed an inspection by an official from Strathcona Regional District who recommended the building immediately be abandoned. Currently, our Fire Department is storing its two fire trucks outside and its equipment in sea cans, a situation that is not tenable for much longer.

-The Options Analysis mentions that the Village was waiting on tsunami hazard mapping.



This mapping has since been completed and shows much of the Village (including the new proposed Fire Hall location) in the inundation zone of a magnitude 9.0 subduction earthquake-triggered tsunami off the coast of Vancouver Island. However, the probability of this design event occurring was estimated as ~10-20% during the lifetime of the firehall structure (50 years). This relatively low probability, combined with the fact the Fire Department has a written procedure for quickly relocating the fire trucks to high ground on both sides of the Village in the event of an earthquake, mitigated our concerns about location at the school site from the point of view of Tsunami protection.

-The Options Analysis also suggests grant funding for this project was not realistic. This was before we saw the criteria for the current SPF round, which includes Fire Halls.

**8. How are you planning to secure all funds associated with this project? Provide evidence that funds have been secured or explain how and when funds will be secured. \***

As a small remote community, we are requesting 100% of this project's eligible costs be covered through the grant. We do not anticipate any significant ineligible costs for which other, new funds must be secured. If the project costs exceed the project budget (including surpassing the 40% contingency) – for example due to excessive inflation – the Village has funds available to cover a shortfall.

For example: 3rd reading of borrowing bylaw; confirmation of other grants such as Community Works Funds; reserve funds, etc. Note that applications will not be considered until all funds have been secured for the project.

## **CLASS COST ESTIMATE**

**9. Provide the class estimate A, B, C, D \***

Class C

**9. Provide the year the cost estimate was determined? \***

2022

**9. How was the cost estimate determined? \***

Professional estimates were secured for all components, including a Quantity Survey. See program guide or the detailed cost estimate template for examples of Cost Estimate Class.

**10. What contingency plans are in place for increases in project costs or if external contributions are less than anticipated? \***

In addition to incorporating a 40% contingency in the project budget (the high end for Class C), the Village has funds available as a last-resort to cover unexpected increases in materials, contract costs, and any other project overruns.

Note that SPF does not consider cost overruns

## **SECTION 3 PROJECT DETAILS**

**11. Has the project started? \***

No

Project works which would otherwise be eligible, become ineligible if the project works have started prior to the date the project is included in a submitted SPF application. The project is deemed to have been started if a tender has been awarded or work has commenced.

**12. Estimated project start date. \***

Jul 01, 2022

Use the calendar icon to the left of the field to select the date

**13. Estimated project completion date. \***

Dec 31, 2023

Use the calendar icon to the left of the field to select the date

**14. Identify risks to meeting this timeline. \***

Tahsis' remote location introduces some risk and uncertainty regarding the transport of equipment and material required to complete the project. However, we are accustomed to this risk and have accordingly allowed for adequate time in the project schedule. The project site is confirmed, no environmental assessments are required, we are requesting 100% of the project costs through this grant, the budget has an appropriate contingency, additional reserve funds are available as a last-resort to cover additional cost escalation, and we do not expect any risks related to detailed design or public opposition.

Please list all that are known, and include your evaluation and proposed mitigation for each risk. (E.g. seasonal limitations to construction, detailed design work, public oppositions expected, referendum required, unconfirmed grants, siting not confirmed, environmental assessments etc.)

**15. Is there the intent to submit a request for the use of own force labour and equipment for this project? \***

No

Please see program guide for how to submit a request for approval.

**16. Is this project a phase or component of a larger project? \***

No

**17. Have alternative options for the project been considered? \***

Yes

**17. If so, how were they compared or analyzed? Please Explain why the chosen option was selected.**

Alternatives were compared via a detailed Options Analysis (attached as supplemental technical information). The study concluded that the innovative proposal outlined in this application was the most cost-effective way to relocate the Fire Hall outside of the 200-year design event floodplain; alternative options would be nearly double the cost, with fewer environmental and community benefits.

**PROJECT FUNDING**

*Ensure that the values entered here match those in the project record and the detailed cost estimate template.*

**18. Estimated Total Project Costs \***

2,032,675

**19. Strategic Priorities Funding Request**

\*

1,892,675

**20. Borrowing**

0

**21. Other Grants**

0

**22. Other Contributions**

0

Eg. In-kind contributions, legal fees, tax rebates, other

**23. Internal Contributions**

140,000

E.g. Reserves, DCCs, etc.

## SECTION 4 PROGRAM OBJECTIVES

***In order to be eligible a project must align with one or more of the Canada Community-Building Fund National Objectives of Productivity and Economic Growth, Cleaner Environment, or Strong Cities and Communities.***

***Answer the following questions for each national objective that is applicable to the project or phase that is the subject of this application, identifying both quantitative and qualitative benefits.***

**24. Productivity and Economic Growth: Describe the measurable economic benefits of the project in the community.**

This project will ensure that Tahsis is able to sustain our existing Fire Department, its three part-time positions, and the suite of economy-supporting services described below (Question 25).

E.g. Number of existing or confirmed jobs; Increase in number of services/level of service.

**25. Productivity and Economic Growth: Describe the non-measurable economic benefits of the project in the community.**

The presence of basic safety infrastructure and services is essential to attracting and retaining businesses, jobs, residents and visitors. If the Village is unable to relocate our Fire Hall we risk being forced to suspend our entire Fire Department and the comprehensive suite of services it currently provides (our Fire Department does more than just fight local fires, it provides regional wildfire response, inspections for commercial and residential buildings, emergency medical response, first responder and disaster evacuation assistance, road rescue, hazardous material response, and a variety of educational and safety programs). The loss of our Fire Department/Service would put at

risk our long-term economic and official community plans that aim to rebuild, renew and grow following the closure of Tahsis' two mills. If we lose our Fire Department, this would also mean the loss of our current 3B Fire Underwriters Survey rating, which would trigger significantly higher home insurance costs for residents who, overall, have significantly lower incomes than the provincial average, putting additional downward pressure on our local economy.

e.g. Potential for future business/jobs, increasing tourism, services etc.

## **26. Cleaner Environment: Describe the environmental benefits of the project.**

Of the various options to relocate the Fire Hall/EOC (as detailed in our Options Analysis) this project had the lowest cost as well as the highest degree of environmental benefit. The benefits fall into eight distinct categories.

(1) Waste reduction and diversion → This project will allow an entire building/addition to be saved from demolition (~5,000 ft<sup>2</sup>). In addition, elements of the existing Fire Hall will be re-used at the new facility including the bay doors, tsunami siren, LED lighting fixtures, exhaust system and reception desk (the entirety of the existing Fire Hall cannot be saved in any case due to its location and structural issues). At an operational level, the new Fire Hall/EOC will include a wildlife-safe compost for kitchen scraps, and recycled paper products will be used throughout.

(2) Energy efficiency → the new Fire Hall/EOC will be significantly more energy efficient than the current building, utilizing R28 insulation on the ceiling and R12 for the walls, a rooftop heat pump and Energy Recovery Ventilator (ERV) system, an Energy Star certified hot water tank, LED lighting and motion sensors.

(3) Energy use → the higher efficiency and a similar square footage to the old Fire Hall will lead to a reduction in overall energy use.

(4) GHG reductions → the old Fire Hall did not use fossil fuels in the building energy system, and the BC Hydro grid is low-emission, so the lower energy use described above will not lead to a significant decrease in GHGs. Rather, the GHG savings will come in the form of (a) emissions avoided due to ~90% of the required building materials being salvaged/re-used from the existing woodshop and Fire Hall (vs. manufacturing and transporting new materials), and (b) emissions avoided due to not having to demolish and landfill the existing woodshop.

(5) Cleaner indoor air → the new Fire Hall/EOC will use ultra-low VOC paints, finishes and flooring, and the new HVAC system is zoned to maximize indoor air quality via inline filtration. This will allow the EOC to serve as a clean air shelter in the event of wildfire smoke events (current building is not equipped for this).

(6) Cleaner water → the new Fire Hall/EOC will allow for the installation of an oil/water separator to clean the water from truck washing and other discharges, reducing pollution entering local water systems.

(7) Water conservation → The new Fire Hall/EOC will utilize new, low-flow fixtures throughout.

(8) Natural vegetation → The project includes the creation of a new Indigenous/local plant garden, with associated social and educational value.

E.g. Reduction in GHG emissions, cleaner water, cleaner air, climate change mitigation etc.

**27. Cleaner Environment: What environmentally sustainable considerations have been incorporated into the project?**

As described in response to Question 4, the Village is in the midst of a multi-year process of relocating or upgrading key infrastructure to adapt to climate change and eliminate or minimize the increasing risk of floods and sea level rise. In other words, a driving rationale for this project is its advancement of our long-term climate adaptation plans.

Furthermore, our Fire Hall and Fire Department anchor our Community Wildfire Protection Plan and its associated environmental protection objectives. If we cannot replace our Fire Hall we will likely lose our Fire Department, and with it our local first-responder ability to protect the areas of high environmental value indicated in the Wildfire Protection Plan.

Please refer to our response to Question 26 for eight additional, discrete environmental sustainability considerations that have been incorporated into this project.

E.g. Integration, connections with long term planning, climate change adaptation etc.

**28. Strong Cities and Communities: Describe the community health, social, and cultural benefits of the project.**

This project will strengthen our community and create health, social and cultural benefits in four main ways:

(1) Sustaining existing essential services → If we are unable to relocate our Fire Hall we will likely be forced to suspend our Fire Department/Service for the first time in our Village's history. In response to Question 25 (above), we described the comprehensive suite of existing services currently provided by the Department, which bring clear benefits for both the health and safety of our residents and the strength of our economy (e.g. firefighting, emergency medical, first responder and evacuation assistance, road rescue and hazardous material response), which extend regionally through our agreement with Moutcha Bay Resort and our road rescue agreement up to km 30 on the Head Bay Forest Service Road.

(2) Sustaining a volunteer firefighting team → Related to (1), the demands on our volunteer fire department – in terms of training, energy, time and commitment – are significant. Providing them with a new, safe and functioning Fire Hall is critical to maintaining the camaraderie and cohesion necessary to support the kind of effort we ask of our volunteers.

(3) Existing social and cultural events → Our Fire Department currently helps anchor a full calendar of social and cultural events throughout the year including our Christmas Bazaar and tree light-up, Easter programs, raft race and spring fair. The loss of our Department at these events – due to the lack of a Fire Hall – would be sorely felt by local residents.

(4) Strengthened community hub → One of the reasons this project is so exciting is due to the associated, innovative partnership and integration with the local school. The school already houses Tahsis' seniors centre and community child care facility. By adding the Fire Hall/EOC to this bundle of services we would be strengthening a community hub that is forming at this site.

E.g. Promoting inclusive and accessible communities, improved drinking water quality etc.

**29. Strong Cities and Communities: Describe how this project will advance the long-term goals and vision of the community as identified in applicable community plans.**

(1) 2022 Strategic Priorities → This project advances Council's 2022 Strategic Priorities (as indicated in the attached 2022 Strategic Priorities document, under the Infrastructure and Services heading; pg. 1). Replacement of the Fire Hall has been a strategic priority for several years now (it has been a long-term goal).

(2) Flood risk/climate adaptation → This project advances the Village's long-term goal of minimizing flood risks to key infrastructure assets – including our Fire Hall – as identified in our 2019 Flood Risk Assessment. Guided by the recommendations of the 2019 assessment, Tahsis has been planning and conducting various works to minimize these flood risks, and this project continues that process by relocating our Fire Hall to higher ground outside of the current (2019) 200-year-event floodplain.

For reference, the attached Floodplain map (extracted from our comprehensive 2019 Flood Risk Assessment) shows the location of both the current Fire Hall building and the proposed new location at the school. As shown, the new location is outside of the 2019 200-year-event floodplain limit (blue line).

Flood risk will increase over time as climate change brings (a) more intense rainfall events and (b) sea level rise. While the Floodplain map (attached) shows the new location as being within the 2100 200-year-event floodplain limit (orange line), three factors mitigate against this long-term risk: (a) the mapped line for 2100 includes 0.6m of "freeboard" (extra safety contingency) and if you remove this the new location would be, strictly-speaking, below the 2100 floodplain level; (b) the new Fire Hall will be designed for a 50-year life expectancy, and will be outside of the anticipated 200-year event floodplain for its entire lifespan; and (c) the Village is planning on extending the dikes along the Tahsis River and along Head Bay Rd over the next 5-15 year period, which could make an impact on the resulting flood elevation (making the net floodplain elevation no greater than the sea level elevations of 5.3m in year 2100 with freeboard, and 4.7m without, assuming that the river dikes isolate this area from the effects of the Tahsis River). The new Fire Hall location is at an elevation of 5.5m.

(3) Tahsis Official Community Plan → This project advances the Emergency Services and Preparedness section (Section 3.8.2, pg. 27) of our OCP, with a new Fire Hall directly supporting the outcomes of Policies (a), (b), (d), (e), and (f).

(4) Evacuation Plan → This project will allow Tahsis to maintain/implement our recently-updated (2020) community Evacuation Plan, which relies on our existing Fire Department to perform key roles (Section 8.1.2, pg. 23). Without a Fire Hall, our Fire Department will

likely need to be disbanded. Furthermore, most of the community's Evacuation activities are coordinated out of the Emergency Response Centre, which this project would relocate to the same location as (share space with) the new Fire Hall.

(5) Community Wildfire Protection Plan → Roughly half of Tahsis' Community Wildfire Protection Plan (2020) relies on the continued presence of our local Fire Department (e.g. pp. 4-11, recommendations 1,4,5,9,12,14,15,16,24,25,26,27,28,29). This project will ensure our Wildfire Protection Plan remains actionable.

Include a copy of the relevant sections of the community plan as supporting documentation. Identify relevant sections with page and paragraph numbers included.

## SECTION 5 PROGRAM CRITERIA

***In order to be eligible a project must meet at least one of the SPF Program Criteria: Large in Scale, Regional in Impact, or Innovative. Describe how the project subject to this application meets these criteria.***

### **30. Large in Scale: Describe how the size, scale and/or benefits of the project is large in relation to the size of the community.**

At a total cost equivalent to half of the Village's annual operating budget, this project is financially large in scale. The degree of salvage/material reuse is also significant, with ~90% of an existing structure being saved (the school woodshop). However, the reason this project has been such a consistent strategic priority of Council is because of the outsized benefits of maintaining our local Fire Department (through this project's provision of a relocated and upgraded Fire Hall). In our responses to Question 25 and 28 we detail the importance of our Fire Department/Service to economic renewal and growth, health, safety, and social and cultural programming. It would be difficult to identify a project where the local benefits per dollar are larger in scale than the project outlined in this application.

### **31. What is the population of community? (The community making the application.)**

393 (year-round) and 1000 (summer)

### **32. What is the population that will be directly served by this project?**

1,200 (including nearby Moutcha Bay Resort)

### **33. Regional in Impact: Describe the degree to which this project supports interjurisdictional collaboration and coordination.**

There are eight distinct ways this projects supports interjurisdictional collaboration and coordination:

(1) This project will eliminate the need for School District 84 to demolish and dispose of the old woodshop building attached to Captain Meares Elementary Secondary School (because it will be refurbished and repurposed into the new Fire Hall and EOC).



(2) This project will allow Tahsis to maintain our Road Rescue Agreement with Emergency Management BC, which extends 30km from the Village on Head Bay Road.

(3) This project will allow Tahsis to continue to support the BC Wildfire Service as first responders to local wildfire events, where able.

(4) In association with an enabling bylaw passed by the Strathcona Regional District, this project will allow Tahsis to continue to provide Fire Services to the Moutcha Bay Resort (and its maximum population of 200 guests).

(5) This project will allow Tahsis to continue to host joint training exercises with neighbouring Gold River Fire & Rescue, at our local training centre.

(6) This project will maintain Tahsis' ability to service two First Nation reserves with firefighting services as needed/requested.

(7) This project will allow Tahsis (via our Fire Department) to continue delivering Fire Smart materials and programming to local residents in coordination with British Columbia Fire Smart.

(8) This project will allow Tahsis to continue providing emergency medical assistance in coordination with BC Ambulance.

### **34. Does this project involve partnerships?**

Yes

E.g. P3, NGO, inter-agency etc.

### **34. Identify the parties involved in the partnership and their roles.**

Our main partner on this project is School District 84, who are providing the land and an existing structure (woodshop) to repurpose as our new Fire Hall, and for whom we are eliminating the need to demolish and landfill that structure. School District 84 will provide the land via a long-term lease similar to one already in place for a Village-operated daycare located in the school.

Additionally, as described in our response to Question 33, the completion of this project will allow us to maintain a suite of other interjurisdictional partnerships anchored in the continuation of our Fire Department (which we will need to shut down if we are unable to relocate our Fire Hall).

E.g. Sharing cost, governance, or delivery.

### **35. Regional in Impact: Describe the degree the project benefits more than one community, is identified as regional priority, and/or is regional in scope.**

As detailed in elements (2) through (6) of our response to Question 33, the regional benefits of this project are as follows:

- This project will allow Tahsis to maintain our Road Rescue Agreement with Emergency

Management BC, which extends 32km from the Village on Head Bay Road.

-This project will allow Tahsis to continue to support the BC Wildfire Service as first responders to local wildfire events outside of Village boundaries, where able.

-In association with an enabling bylaw passed by the Strathcona Regional District, this project will allow Tahsis to continue to provide Fire Services to the Moutcha Bay Resort (and its maximum population of 200 guests).

-This project will allow Tahsis to continue to host joint training exercises with neighbouring Gold River Fire & Rescue, at our local training centre.

-This project will maintain Tahsis' ability to service two First Nation reserves with firefighting services as needed/requested.

Without a Fire Hall, we will need to disband our Fire Department/Service and these regional benefits will be lost.

### **36. Innovation: Describe any innovative component(s) of the project.**

We see this project as being innovative in two main ways:

(1) Large-scale salvage → It re-uses/re-purposes ~90% of an existing structure (old woodshop) to create a new Fire Hall for the Village. We see this scale of salvage as being innovative for a local government, even as the processes and technologies to complete the work will be standard.

(2) School/Fire Hall integration → We're not aware of any other jurisdiction where a Fire Hall is integrated on school grounds. We're excited by the community-building and educational potential of this partnership.

### **37. Describe what research, planning, testing, technology, or methodology supports the approach that will be used, and the additional risks associated with using this innovation (include where it has been used, and the results).**

In 2021 the Village commissioned an Options Analysis that compared 10 options for building a new Fire Hall. The large-scale salvage/refurbishment of the school woodshop scored the highest, including because of its location outside of the floodplain, and its low cost. Our longstanding partnership with School District 84 enables and supports this option, and we see no additional risks associated with the salvage approach/methodology (we have detailed information on the existing structure).

### **38. Innovation: Describe the relative benefit of the innovative process, method or technology over existing practices.**

As a small remote community we are accustomed to making do with what we have and reusing things whenever possible. However, the scale of salvage represented by this project is significant (~90% of an existing structure is being salvaged/diverted from demolition). The relative benefits of this approach fall into three main categories:

- (1) The cost of this approach is approximately half the cost of alternatives.
- (2) This approach will use ~90% fewer new materials than an alternative new-build option, with associated environmental benefits.
- (3) The physical integration with the school – and its onsite child care and seniors centre–strengthens an existing community hub (alternative sites would not have the same effect).

## SECTION 6 PROJECT PLANNING & BENEFITS

### ASSET MANAGEMENT

*Reporting on progress towards improving asset management practices is a mandatory requirement for fulfilling reporting commitments set out in the Canada Community-Building Fund Community Works Fund (CWF) Agreement between BC local governments and the Union of BC Municipalities (UBCM).*

*In 2022, all local governments will be required to complete the Asset Management Assessment Form – Measuring Progress. Information on how to complete this survey will be available on the UBCM website (<https://www.ubcm.ca/funding-programs/canada-community-building-fund/asset-management>).*

***Completion of this survey will also be a pre-condition to approvals under this 2022 Strategic Priorities Fund intake.***

*For more information on asset management tools, resources and best practices, including the document Asset Management for Sustainable Framework for BC, please visit Asset Management BC (<https://www.assetmanagementbc.ca/framework/>)*

#### **39. How do you manage your infrastructure assets? Explain whether you have an asset management plan linked with a long-term financial plan, asset management policy, strategy, framework, and/or governance structure. \***

In 2016, the Village undertook a Core Asset Information Project, which consolidated and reorganized the Village's existing Asset Management information. This led to the development of a comprehensive and fully-costed 2017-2021 Capital Plan. The Village has since commenced individual Asset Management Plans for all core assets, including storm, water, sewer and roads and the creation of asset registers and condition assessments, which were completed for most asset classes.

In 2021, a specific Fire Hall condition assessment was conducted which – alongside the 2019 Flood Risk Assessment – underscored the urgent need for a new Fire Hall location.

Our asset management planning work is continuing, including the selection of capital asset replacement projects for the 5 Year Financial Plan. We are also in the process of preparing two new asset management grant applications to support further mapping and

training, and to develop a comprehensive (vs. individualized) long-term asset management plan and detailed 5 year capital plan.

**40. Does your local government have a long-term financial plan? \***

Yes

**40. How long-term is your financial plan (in years)?**

5 years as required by s. 165 of the Community Charter.

**40. How does the financial plan relate to an Asset Management plan, Capital Works plan, Official Community Plan, and any other strategic community and corporate plans.**

The results of the asset management planning exercises completed and under way will continue to inform the 5 Year Financial Plan. The intention is to complete a longer term (20 year) capital replacement program which aligns with a long-term, comprehensive (vs. individualized) asset management plan.

**41. Describe how operation and maintenance will be funded over the lifecycle of the infrastructure subject to this application. \***

Ongoing operating and maintenance costs for the new Fire Hall will be fully funded through the annual operating budget.

**42. What proportion (%) of infrastructure replacement for this project will be funded through current financial revenues?**

100

**For the Asset Class subject to this application:**

**43. Is there an asset inventory/registry? \***

Yes

**43. Is it complete?**

Yes

**43. What year was it completed?**

2021

**44. Has a condition assessment been completed? \***

Yes

**44. What year was it completed?**

2021

**45. Is there an asset management plan? \***

Yes

**45. Is it complete?**

Yes

**45. What year was it completed?**

2021

**45. Is the plan linked your organizations long-term financial plan?**

Yes

**46. Additional Comments for the Asset Management Questions 43-45 Listed Above:**

-When we say “Yes” to having an asset management plan for the Fire Hall we are referring to the 2021 Options Analysis which identified the top-scoring location for the new Fire Hall (identifying the best location and estimated cost for the new asset). Once this project is complete we will, as with our other key assets, create an individualized asset management plan.

-The Village also maintains a Fire Hall reserve fund as part of our financial planning, with the funds reserved for costs such as equipment purchases and repairs.

**47. What effects will the proposed project have on service levels and how will these be measured? \***

This project will allow the Village of Tahsis to maintain service levels for a range of services provided by our Fire Department, including local firefighting (at a 3B Fire Underwriters Survey rating and as required by BC’s Structure Firefighter Competency and Training Playbook), regional wildfire response, inspections for commercial and residential buildings, emergency medical, first responder and disaster evacuation assistance, road rescue, hazardous material response, and a variety of educational and safety programs. Without this project, our Fire Department will need to be disbanded and all of these services will be lost.

E.g. The water treatment plant upgrade will improve water quality– measured by the reduction in the number of boil water advisories, and improved levels of disinfection residuals and or by the number of residents with improved water quality and/or meet a provincial/federal standard.

**48. Describe the long-term financial plan in place for renewal or replacement of the asset subject to this application? \***

The Village will create a new capital plan for the Fire Hall once it has been relocated out of the floodplain and into its new location at the school.

The Village has and will continue to maintain a Fire Hall Reserve Fund earmarked for operational expenses including equipment repair or replacement (e.g. fire trucks, hoses, etc.).

## COMMUNITY SERVICE DEMANDS

*A community's demand for a service (existing or new) is a critical component in establishing the appropriate level of service. It is determined by various factors such as population growth, immigration/emigration, societal changes, changing demographics and changing community demands/expectations including the ability or desire to pay for the service.*

### **49. Explain how community demands were used to identify the size and scope of project components and/or establish the appropriate service levels provided by the project. \***

This Fire Hall project is sized to continue servicing the existing demands of our year-round (~400) and summer populations (1,200 including Moutcha Bay Resort). Specifically, it is designed to support the continuing delivery of Fire Services that meet the service standards (a.k.a. "Playbook standards") set by the Office of the Fire Commissioner, which all Fire Departments must meet. The scope of practice of our volunteer Fire Department does not include internal firefighting services (going into burning buildings), and as such the Fire Hall is designed largely to accommodate external structural firefighting equipment. The Fire Department does not see a need to accommodate any additional major apparatus in the new hall.

E.g. Drinking Water: For design of the water main the average per capita demand of 400 L/day/person was used to size the proposed main.

## RESOURCE RECOVERY

### **50. Explain how resources are recovered and reused in this project. \***

This is a large-scale salvage project, with ~90% of the structural materials required for the new Fire Hall being recovered/reused from the existing school woodshop building. Key elements from the old Fire Hall will also be reused including the large bay doors, tsunami siren, and reception desk.

E.g. Collection of biogas, heat, or reclaimed effluent/water

## ENVIRONMENTAL PROTECTION

### **51. What considerations have been or will be applied to protect the environment and/or reduce the demand on natural capital/resources? \***

Please refer to our response to Question 28 (above), where we detail eight discrete categories of environmental benefit/protection advanced by this project. In short, they include: waste reduction and diversion, improved energy efficiency, reduced energy use, avoided greenhouse gas emissions, cleaner indoor air, cleaner water, decreased water use, and the addition of an Indigenous/local plant garden.

E.g. Supporting water conservation, waste diversion, green building requirements, enhancing the natural areas.

## CLIMATE RESILIENCE

**52. How has this project considered climate risk and what considerations (climate mitigation and/or adaptation) have been considered and integrated into this project to make it more climate resilient. \***

Climate risk in the form of more intense flooding – resulting from a combination of more intense rainfall events and sea level rise – is a driving motivator for this project. Ever since the completion of our 2019 Flood Risk Assessment the Village has been planning and undertaking works to protect existing flood-prone sites or to relocate key infrastructure out of the floodplain. This project is an example of the latter. As described in response to Question 29, the new location for the Fire Hall will be outside of the 2019, 200-year floodplain limit, and will remain outside of the modeled 200-year flood limit for the entirety of its anticipated 50-year lifespan.

## **OTHER CONSIDERATIONS**

**53. What, if any, regulatory requirements, or standards apply to this project? How will the infrastructure and/or service provided by this project affect these requirements? \***

BC's Office of the Fire Commissioner maintains a set of service standards (called the "Playbook standards") that all Fire Departments must meet, including volunteer Fire Departments such as Tahsis'. The new Fire Hall will allow Tahsis' Fire Department to continue to meet these standards.

The standard Fire Code and Building Code also, of course, apply, and this project will meet all code requirements.

Include how the current and proposed infrastructure or services differ in regulatory standards.

**54. Describe the key project benefits(s) that led the community to make this project a priority for application for funding. (Include the key reason(s) why this project is important to the community.) \***

The key reasons this project has been a Strategic Priority of Council's for several years are as follows:

- (1) Tahsis depends on our Fire Department to support community health, safety, economic growth and renewal, and social and cultural programming.
- (2) Our Fire Department cannot sustainably operate without a Fire Hall.
- (3) Our current Fire Hall building is exposed to unacceptable and increasing risk from flooding due to climate change (more intense rainfall events combined with sea level rise), and has recently become structurally unsound (it can no longer be occupied).

**It is important that you frequently save the data entered in this form.**











For technical assistance please contact [PIMS@ubcm.ca](mailto:PIMS@ubcm.ca) or phone 250-356-5133 during regular business hours.



Attachments

Workflow

## Attachment

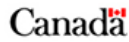
File Name	Updated On	Updated By	
Fire Hall Options Analysis (2021).pdf	Jun 27, 2022	Swanson, Eric	
Floodplain map.pdf	Jun 27, 2022	Swanson, Eric	
Council Strategic Priorities (2022).pdf	Jun 27, 2022	Swanson, Eric	
Existing Fire Hall Condition Assessment (2021).pdf	Jun 27, 2022	Swanson, Eric	
Tahsis Evacuation Plan (2020).pdf	Jun 27, 2022	Swanson, Eric	
Tahsis Official Community Plan (2020).pdf	Jun 27, 2022	Swanson, Eric	
Tahsis Community Wildfire Protection Plan (2020).pdf	Jun 27, 2022	Swanson, Eric	
Detailed Cost Estimate.xlsx	Jun 29, 2022	Swanson, Eric	
Tahsis Fire Hall Council Resolution.pdf	Jun 29, 2022	Swanson, Eric	
Tahsis Fire Hall - Proposed Floor Plan.pdf	Jun 29, 2022	Swanson, Eric	
Tahsis Fire Hall Feasibility Study and Design Report.pdf	Jun 29, 2022	Swanson, Eric	

Navigation controls: five buttons, the third of which contains the number 1.

15

items per page

1 - 11 of 11 items



## Canada Community-Building Fund in British Columbia

Strategic Priorities Fund  
Detailed Cost Estimate

Applicant Name:

Project Number:

Project Title: Fire Hall

Cost Estimate Developed By: Village of Tahsis/Sub Consultants/Quantity Surveyor

Date of Cost Estimate (DD-MM-YYYY): 30-06-2022

Cost Estimate Class - A,B,C,D (see guidance below) : C

Optional: Phase of Project

(if phases identified as part of application):

District of Tahsis

Please Note: If the project can be phased and each phase can independently meet program outcomes and requirements, use the additional tab(s) to provide costs estimate for each phase identified in the application on an individual sheet. Only include the works and the associated costs of the stand-alone phase(s) on the new sheet(s). This should present a breakdown of overall project costs, with totals corresponding with the amounts in the Project Cost section of the Application Form.

ELIGIBLE COSTS				
	Description	Quantity	Per Unit Amount	Total Cost
<b>Design / Engineering</b>				
Please separate cost associated with project management and project design/engineering	Architectural Fees - based on overall project construction cost, 11.25% (AIBC Scale of Fees)	0.11	#####	126,899.70
	Sub Consultant Fees - based on non-architectural construction costs, 15%	0.15	708,887.00	106,333.05
<b>Design / Engineering Sub-Total:</b>				<b>\$233,232.75</b>

<b>Construction / Materials</b>				
Items should reflect the major components in your project and align with the works described in the application without going into specific detail, add lines as necessary	Architectural/Interior Improvements			300,000.00
	Mechanical Improvements			214,037.00
	Electrical Improvements (Class D Estimate)			143,650.00
	Structural/Foundation Improvements (Class C?)			243,200.00
	Site Servicing			108,000.00
<b>Construction / Materials Sub-Total:</b>				<b>\$1,008,887.00</b>

<b>Other Eligible Costs</b>				
Items could include communications, surveying, testing, consultation, environmental assessments etc.	Eligible Furniture/Equipment			50,000.00
	Consulting Costs - Reimbursable Expenses			30,000.00
	Project Management Costs			40,000.00
	Remove corridor between buildings (demolition)			25,000.00
	Stationary Generator			30,000.00
	Old Firehall Demolition			50,000.00
	Composter			2,000.00
	Oil Separator			20,000.00
<b>Other Eligible Costs Sub-Total:</b>				<b>\$247,000.00</b>

<b>Contingency</b>				
Contingency is generally reflective of the Class of Cost Estimate	Class C Estimate - 40% Contingency (Normal 30% plus inflation 2022-2023 of 10%)	0.40		403,554.80
<b>Contingency Sub-Total:</b>				<b>\$403,554.80</b>
<b>TOTAL ELIGIBLE COSTS*:</b>				<b>\$1,892,675</b>

<b>INELIGIBLE COSTS</b>				
	Description	Quantity	Per Unit Amount	Total Cost
Land Acquisition Cost				
Legal Fees				
Own Force Equipment and Employee costs				
Direct or indirect operating or administrative costs				
Tax rebate				
Routine repair and maintenance costs				
Other	Foundation Investigation \$70k, Pre-Grant Consulting Costs \$32k arch, ?k others)			140,000.00
<b>TOTAL INELIGIBLE COSTS*:</b>				<b>\$140,000</b>

<b>TOTAL PROJECT COSTS (Eligible + Ineligible)*:</b>				<b>\$2,032,675</b>
--	--	--	--	--------------------

\*Totals must match totals in the Project Costs section of the Application Form and Project Record.

**Cost Estimate Comments**

Please add any information that you feel is relevant to your cost estimate

**Cost Estimate Classes - definitions & assumptions** [sourced from the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC)]

Cost estimate class	Features & Uses	Suggested Contingency for Associated Class
---------------------	-----------------	--

	Description	Quantity	Per Unit Amount	Total Cost
<b>Class A</b>	Detailed estimate based on final drawings and specifications Used to evaluate tenders			±10-15%
<b>Class B</b>	Prepared after completing site investigations and studies, and after defining major systems Based on a project brief and preliminary design Used for project approvals and budgetary control			±15-25%
<b>Class C</b>	Prepared with limited site information and based on probable conditions Captures major cost elements Used to refine project definition and for preliminary approvals			±25-40%
<b>Class D</b>	Preliminary estimate based on little or no site information Represents the approximate magnitude of cost, based on broad requirements Used for preliminary discussion and long-term capital planning			±50%

**RECONFIGURE ROOF.**

**OFFICE SPACE**  
9'-4"x25'-4"  
CEILING HEIGHT: 8'-0" 11/16"  
GROUP D OCCUPANCY.

**KITCHEN**  
9'-4"x8'-0"  
CEILING HEIGHT: 8'-0" 11/16"  
REF.

**ASSEMBLY ROOM**  
36'-2"x34'-9"  
(50 PERSONS MAXIMUM)  
CEILING HEIGHT: 13'-11"  
(5/8" GYPSUM BOARD CEILING IN ASSEMBLY ROOM)  
GROUP A, DIVISION 2 OCCUPANCY.

**WASHRM. 1**  
W.C.  
SHOWER  
LAV.

**WASHRM. 2**  
HWT  
SHOWER  
W.C.  
LAV.

**WASHRM. 3**  
LAV.  
W.C.

**DRY ROOM**  
15'-6" x 9'-2"  
CEILING HEIGHT: 7'-9 3/8"

**CORRIDOR**  
CEILING HEIGHT: 7'-9 3/8"  
DROP DOWN LADDER FOR ACCESS TO SPACE ABOVE.

**VESTIBULE**  
13'-1"x11'-0"

**ELECTRICAL ROOM**  
9'-3"x14'-0"

**COMPRESSOR ROOM**  
9'-3"x6'-9"  
SYMBOL IN WALL INDICATES PATH OF REQUIRED 1 HOUR FIRE RESISTANCE RATED SEPARATION.

**GEAR CUPBOARD**  
4'-1"x24'-3"

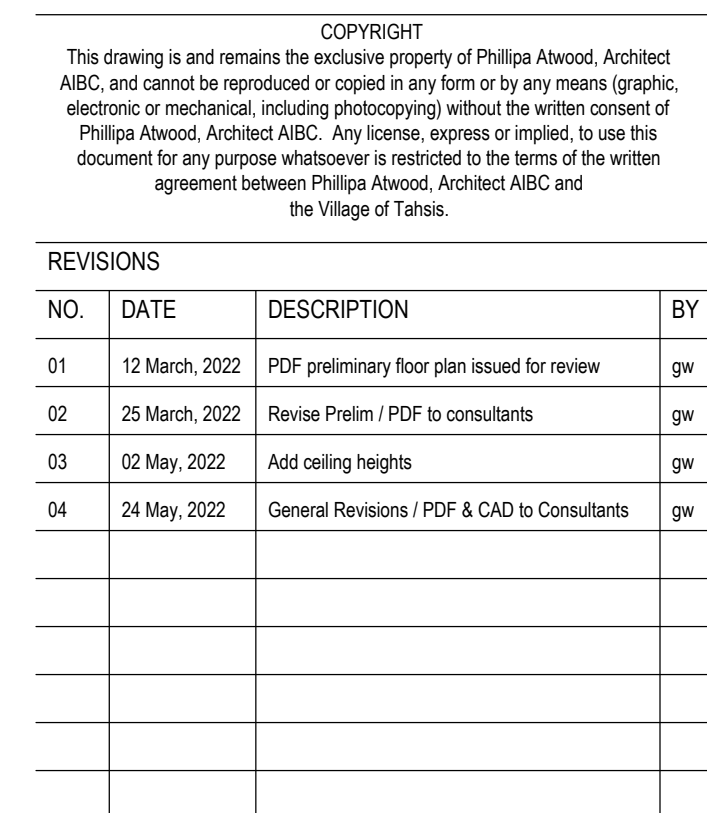
**TRUCK GARAGE & MAINTENANCE ROOM**  
34'-5"x60'-5"  
CEILING HEIGHT: 16'-9 3/4"  
UNDERSIDE OF JOISTS: 13'-11 5/16"  
OPEN WEB STEEL JOISTS SHALL REMAIN EXPOSED.  
GROUP F, DIVISION 2 OCCUPANCY.

**TRAILER GARAGE**  
25'-7"x25'-3"  
CEILING HEIGHT: 14'-0"

**STORAGE ROOM**  
25'-7"x8'-11"  
CEILING HEIGHT: 16'-9 3/4"  
UNDERSIDE OF JOISTS: 13'-11 5/16"  
OPEN WEB STEEL JOISTS SHALL REMAIN EXPOSED.

**Notes:**  
- SOLID SHADING INDICATES NEW CONSTRUCTION.  
- DIAGONAL SHADING INDICATES EXISTING CONSTRUCTION.  
- OUTLINE OF SUSPENDED CEILING FEATURE: PARALLEL WOOD 2x4's @ 6" oc. WITH UNDERSIDE AT 9'-0" ABOVE FLOOR.  
- 3'-0" HIGH WALL WITH WOOD CAP.  
- EXISTING HIGH LEVEL WINDOWS. (LOCATIONS APPROXIMATE.)  
- FILL IN EXISTING WINDOW AT INTERSECTION WITH NEW WALL.  
- SHED ROOF.  
- REMOVE EXISTING WALL AND METAL CEILING.  
- REMOVE EXISTING EXHAUST HOOD AND FAN.  
- SYMBOL IN WALL INDICATES PATH OF REQUIRED 2 HOUR FIRE RESISTANCE RATED SEPARATION.  
- SYMBOL INDICATES DOOR IS A REQUIRED EXIT DOOR.  
- EXISTING MOVEABLE WORK BENCH/CABINET.  
- MESH DOORS.  
- OUTLINE OF EXISTING STORAGE LOFT ABOVE.  
- UP

**Dimensions:**  
- 7'-4 1/2" [7.38 M.]  
- APPROXIMATELY 57'-6" [17.53 M.]  
- APPROXIMATELY 108'-3" [33.00 M.]



**PHI ARCHITECTURE INC**  
 Phillipa Atwood Architect AIBC, MRAIC, LEED AP  
 Five Little Bear Way Royston BC V0R 2V0  
 pippa@patwoodarchitect.ca 250.703.0433

DRAWING NAME: PRELIMINARY FLOOR PLAN.

FILE:  1277 Tahsis Fire Hall.dwg	SCALE:  1/4"=1'-0"
DRAWN BY:  GW	DATE:  11 MARCH, 2022
PROJECT NUMBER:  1277	DRAWING NUMBER:

09 June 2022

## **The Village of Tahsis Firehall**

### Project Overview

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The Village of Tahsis is in dire need of a new firehall to replace the existing firehall building that has been decommissioned. Their firefighting equipment is currently being stored in metal shipping containers located at the village works yard. This arrangement restricts the ability of the fire department to access their apparatus and to store and dry it adequately, thereby posing a risk to both their response times and their equipment. It also restricts efficient operation of the works yard for Village staff.

The high cost of delivering fire services in a remote community such as Tahsis is already challenged due to the small tax base and high capital costs incurred due to its remoteness. An adequate firehall facility is critical for recruiting and training local volunteer firefighters. This has been evident in the neighbouring community of Zeballos that recently disbanded its fire department due to a lack of facilities and volunteers, effectively leaving the town without services.

The Village engaged in a rigorous process to investigate and assess various options for procuring a new firehall. The result of their investigations was the innovative proposal to re-purpose the currently under-used woodworking shop at the local school. In collaboration with School District #84 the old wood shop was identified as a building that could be separated from the school and renovated to effectively meet the needs of the Fire Department. The school was built to accommodate hundreds of children when the Tahsis lumber mill was in full operation. The mill has since been closed and dismantled. The school's current enrolment is less than 30 children and is not expected to grow. The proposal to repurpose the wood shop was welcomed by the School District since it means that they will not be required to demolish it as planned to reduce their operating costs. This innovative collaboration between two jurisdictions will provide a much needed and valuable asset to the community.

A number of other village programs for children and seniors have been moved into the school creating a vibrant community hub. Locating the Firehall adjacent to this community hub further supports this location as the centre for community services.

The design strategy to renovate the existing facility includes removing a classroom from the school to fully separate the school from the proposed new firehall. The village has retained a team of consultants to develop discipline specific design strategies for the renovations proposed (Appendix A). The renovations will create a new dedicated firehall that will include the following interior spaces:

- Parking for 2 fire trucks (with space for existing workbenches)
- Parking for the Wildland Fire trailer
- Dry Room and Gear Cupboards for drying and storage
- Assembly room for training up to 50 persons
- Administration area for 3 desks
- Reception Counter (Install counter from old firehall)
- Kitchen with sink and fridge
- Accessible Washroom with accessible shower
- 2 Additional Washrooms
- Electrical Room
- Compressor Room
- Storage

The consultant team has developed design proposals to the schematic level. The consultants have confirmed that the proposal to renovate the old school wood shop is feasible. All the spaces required in the Firehall can be accommodated and these renovations would result in a fully functional and fully accessible facility to meet the Village's fire fighting commitments. It also means the Village will be better positioned to fulfill their emergency response commitment to the nearby First Nations community and on the local highway. In addition, the training room will become a community asset that can be used as a community resource as well as a post-disaster emergency facility if needed.



Energy efficiency and sustainability will be a high priority for all new mechanical equipment, light fixtures, finishes and materials specified for the renovations. The result will be improved energy efficiency and improved indoor air quality for an existing building. Re-purposed as a new Firehall, this building will be a valuable community asset for years to come.

### **Conclusion**

Re-purposing the under-utilized and out-dated school wood shop provides a number of benefits to the Village of Tahsis:

1. The Village gains a new Firehall and indoor training facility.
2. The community gains a gathering space in a central location that can also be used as an emergency shelter.
3. The new facility will assist in recruiting, training and retaining volunteers.
4. The school reduces the amount of facility it must operate.
5. A 5,000 square foot building will be 'recycled' and not demolished, saving tons of waste from the landfill.
6. A number of items will be recycled from the old Firehall, including light fixtures, an overhead door, reception desk and Tsunami sirens.
7. The cost and time to renovate will be less than to build a new building.
8. New HVAC equipment, appliances, lights and plumbing fixtures will be energy efficient thereby reducing Green House Gas emissions and operating costs.
9. This project proposal represents a unique opportunity for the Village to collaborate with the School District to the benefit of both.

### **APPENDIX A      Consultant Team**