

DATE: July 5, 2019

FILE: 7200-20

TO: Chair and Directors
Electoral Areas Services Committee

FROM: Russell Dyson
Chief Administrative Officer

Supported by Russell Dyson
Chief Administrative Officer

R. Dyson

RE: Mt. Washington Fire Service Building Update

Purpose

The purpose of this report is to update the Board regarding the Mount (Mt.) Washington fire service building project and to provide conceptual building design drawings and preliminary cost estimates.

Recommendation from the Chief Administrative Officer:

This report is provided for information purposes.

Executive Summary

The project coordinator for the fire service building has provided a report (attached as appendix A) which introduces:

- Conceptual design,
- Conceptual siting of the building on the donated property, and
- Preliminary construction cost estimates.

Conceptual design

Based on information provided by the steering group, CVRD staff, and the previous consultant's reports, the project coordinator has developed a conceptual building design that:

- Meets the basic requirement of securely storing Mt Washington fire apparatus,
- Provides a washroom and decontamination space for the firefighters,
- Provides storage space along the walls within the lower floor, and
- Provides opportunity to utilize the attic as second floor usable space if required.

Conceptual siting of the building

The project coordinator's report shows how the building could be sited on the property within the normal set-back requirements. This siting however is conceptual only and is not yet based on the actual site topography.

The property is within a steep-slopes development permit area. That is: the construction of the fire service building within 7.5 metres of the top or toe of a bank requires a development permit for hazardous conditions.

During a recent site visit the coordinator identified a potentially substantial slope issue on the northern property line. The team is currently waiting for a topographical site review of the property to better inform the final building orientation.

Preliminary cost estimate

Based on the conceptual design the project coordinator developed a preliminary cost estimate for construction of the fire service building. Table 1 below provides a summary of the preliminary cost estimate and its various components.

Based on the project coordinator's research and input from several local contractors the preliminary construction cost estimate is approximately \$500,000 in 2019.

The adopted 2019-2023 financial plan for the service includes the accumulation of capital reserve funds towards construction anticipated in 2021. Annual escalation of construction costs is estimated at three per cent per year which may add an additional \$30,450 to the cost of construction.

Not included within the estimated construction costs are the soft costs associated with the project. Soft costs include the expense for non-tangible items such as design consultants, permits, any additional works or analysis required to successfully complete the project. These soft costs are estimated 20 per cent of the hard construction costs.

Also not included in the estimate at this time is the cost of site preparation. In the context of a potentially substantial slope issue, staff have engaged the services of a land surveyor to provide a detailed topographical site review. Following the topographical site review, the project coordinator will advise staff of the options available and provide recommendations to move this project forward.

Table 1

Item	Cost estimate
Estimate of construction of fire service building (\$350 X ~1400 sq. ft.)	\$500,000
Estimate of escalation cost of 3% per year to 2021	\$30,450
Estimate of soft costs including: <ul style="list-style-type: none"> • Design costs • Permit costs • Geotechnical analysis costs • Financing costs 	\$106,000
Estimated sub-total	\$636,450
Site preparation costs	Unknown at this time
Estimated total project costs	TBD

Financial plan implications

The adopted 2019-2023 financial plan and capital expenditures program for the service is based on the following aspects:

- Construction of a fire service building in 2021 at an estimated cost of \$544,000,
 - \$415,000 from long-term debt proceeds financed over a ten year period, and
 - \$129,000 from transfer from reserve.

The previous estimated construction cost of \$544,000 was the result of informal discussions with local contractors and did not anticipate slope issue site preparation costs.

The fire service building construction cost estimates will be further refined with:

- Analysis of the topographical site review information in the context of the potentially substantial slope issue.
- A geotechnical assessment of the property.
- Further development of the design prepared by architect and structural engineer.
- Confirmation that the design complies with Mt Washington’s style guide

As project costs are further refined, future financial plans will be recommended that move the project forward within the parameters of:

- The current maximum tax rate of \$1.15 per \$1,000 of assessed value, and
- The maximum authorized borrowing of \$415,000.

Prepared by:

Concurrence:

J. Bast

D. DeMarzo

James Bast
Manager of Fire Services

Doug DeMarzo
Acting General Manager of
Community Services

Stakeholder Distribution (Upon Agenda Publication)

Mt Washington Fire Service Steering Group	✓
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Citizen/Public Relations

The steering group continues to assist the CVRD at an advisory level in the development of the service. At its meeting of July 9, 2019, the steering group reviewed the project coordinator’s conceptual design drawings and preliminary cost estimates.

Attachments: Appendix A – “RDH Building Science: Conceptual Design and Class D Estimate”

TO **Mr. James Bast**
EMAIL **jbast@comoxvalleyrd.ca**
Comox Valley Regional District
600 Comox Road
Courtenay BC V9N 3P6

20493.000
Mt. Washington Fire Services Building
Project Coordinator
DATE July 3, 2019

REGARDING **Conceptual Design & Class D Estimate**

Dear Mr. Bast,

As requested, this report provides a conceptual design and Class D estimate for the Mount Washington Fire Services Building.

Background

In a Comox Valley Regional District (CVRD) staff report dated March 3, 2016, including a Fire Protection Study by Defero – West and Leftside Partners dated January 2016, the following information and recommendations were presented regarding a Mount Washington Fire Services Building (FSB).

EQUIPMENT	BUILDINGS
<p>Vehicles Minimum of two fire service vehicles available at all times, appropriately equipped for defensive firefighting, able to access all areas of the community in all weather conditions, and capable of transporting the equipment necessary to serve a broad range of building types/sizes, from chalets to large condominium buildings.</p> <p>Apparatus Basic equipment and apparatus as determined in consultation with Fire Chief of contracted fire department (hoses, nozzles, pumps, radios, axes, foam, oxygen). Potential to purchase some components from Strata 799.</p>	<p>Equipment Storage Building Garage-style structure (wood construction, approximately 1,000 square feet) with heating, lighting, back-up generator and security that satisfies snow-loading and post disaster requirements. A structure built to these specifications could be expanded into a small fire hall in the future, if warranted.</p> <p>Land Building located on land donated by MWAR (adjacent to MWAR maintenance shop near general store)</p> <p>Firefighter Facilities Arrangements made with Vancouver Island Mountain Centre for firefighters' use of shower facilities during/following an emergency.</p>

3.4.1 Start-Up Capital Costs (Building and Equipment)

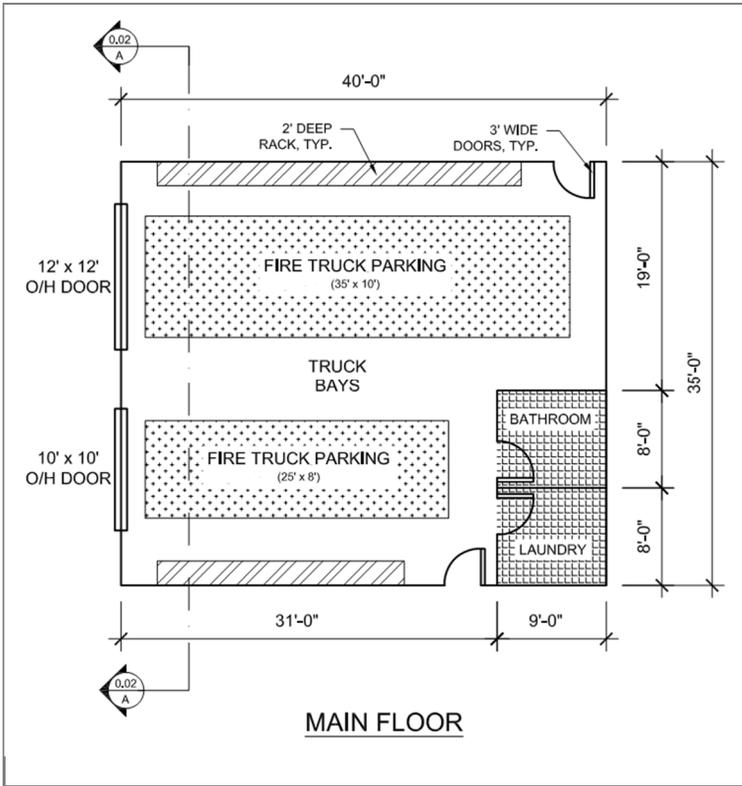
- A cost of \$250,000 was estimated for the building, at approximately 1,000 square feet. As referenced in Figure 1, the building would be required to meet snow loading as well as post-disaster building regulations. Furthermore, the building will be heated, and include a security system to track entry, and a back-up generator. The building would be constructed with the intention of adding on at a future date should additional space be required, including the ability to expand to become a fire hall with permanent work and/or accommodation space.
- Site preparation costs (including utility connections) were estimated at \$35,000, including geotechnical analysis.

Conceptual Design

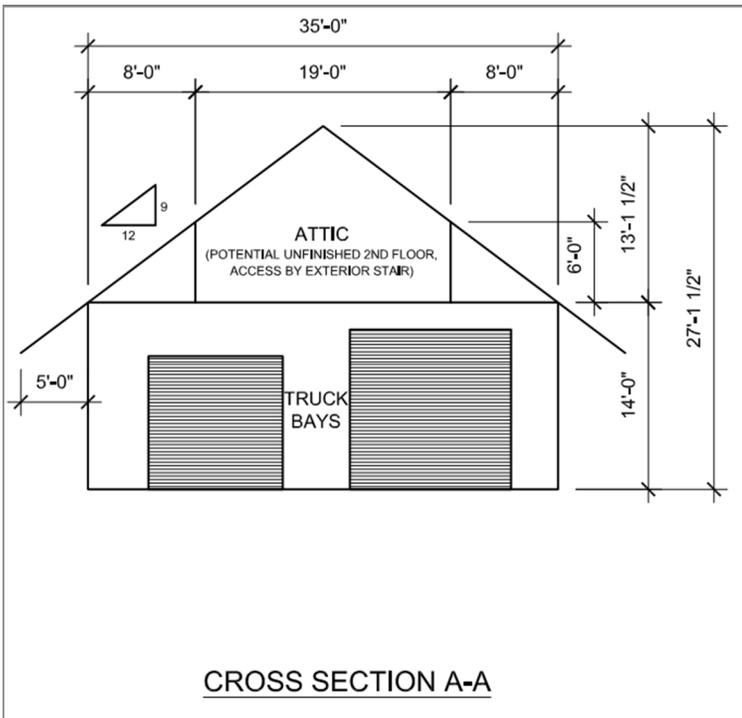
Based on recent discussions with James Bast, the following general FSB design requirements were identified:

- Provision for two fire trucks in the building. An allowance of 35' by 10' for one truck and 25' by 8' for the other truck. In addition, some minimal circulation space around the trucks.
- 12' by 12' overhead door for the larger fire truck and 10' by 10' overhead door for the smaller truck.
- Equipment racks adjacent to the fire trucks.
- One bathroom with a shower for post-fire decontamination.
- One laundry room.
- Room to park fire trucks in front of the building.
- Parking for 8 vehicles on site.

The drawings below (see large scale versions attached) present a conceptual design that addresses the identified design requirements. It should be noted that the conceptual design has not been reviewed by design consultants such as an architect or structural engineer.



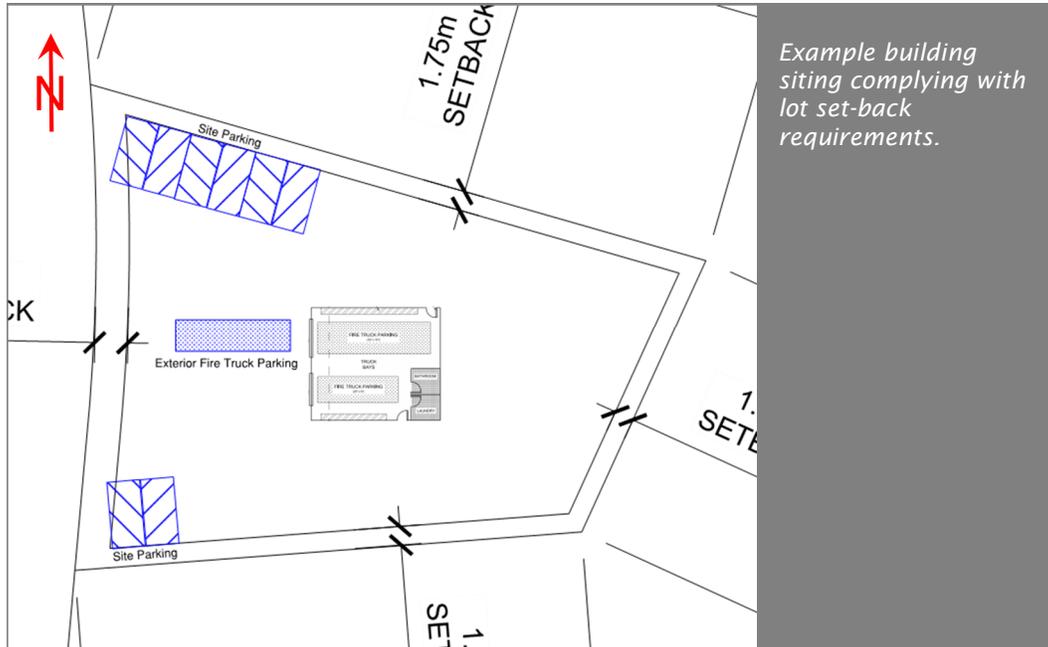
Main floor conceptual design.



Conceptual design cross-section.

Siting Of The Building

The drawing below shows how the conceptual design building could be sited on the property and comply with the lot set-back requirements.



The building siting shown above has not taken into consideration the actual site topography and Mount Washington's steep-slope set-back requirements. Those requirements state:

Any land alterations or construction of a building within 7.5 meters of the top of the bank and 7.5 metres from the toe of the bank requires a development permit for hazardous conditions.

We are currently waiting for the submission of a topographic survey of the site and adjacent slopes. Presuming that we have correctly identified the lot corners during a recent site walk-around, we suspect that the site has substantial slope issues.



Photo presumed to be looking across the lot towards the north side property line.

Class D Estimate

The intent of the conceptual design was to get a sense of the required building size for the purpose of providing a Class D estimate for preliminary budgeting purposes.

As a reminder, a Class D estimate, as defined by the Consulting Engineers of BC, is as follows:

Class D estimate ($\pm 50\%$):

A preliminary estimate which, due to little or no site information, indicates the approximate magnitude of cost of the proposed project, based on the client's broad requirements. This overall cost estimate may be derived from lump sum or unit costs for a similar project. It may be used in developing long term capital plans and for preliminary discussion of proposed capital projects.

Regarding our Class D estimate, it:

- Includes the building only.
- Includes the general FSB design requirements.
- Presumes a post-disaster building.
- Does not include the preparation of the site for the building. It assumes a serviced, flat site.
- Does not include fire fighting equipment for the building.
- Does not include finishes to the second floor attic.
- Does not include soft costs such as design consultant fees, development or building permit fees, off-site charges, etc. In an owner design and contractor lump sum tender format, soft costs may end up being in the order of an 20% of the hard cost charges. In a design-build procurement format, soft costs will still occur, but many of them will be built into the total design-build charge.

Our estimate is based on our own research for buildings of this nature, as well as input from several local contractors.

Bearing the above in mind, considering a building with approximately 1,400 square feet of finished ground floor, a Class D estimate based on 2019 construction rates is in the order of \$500,000. The construction industry can be quite volatile regarding pricing; significant swings can occur. On average, a price escalation of approximately 2% or 3% per year should be allowed for construction in the future.

Refinement of Costs

To identify costs with a narrower range of variability, and including exclusions listed previously, the following would be required:

- An analysis of the actual building potential of the site based on a topographic survey of the site, and adjacent lands, and a geotechnical assessment.
- A further developed design prepared by design consultants, including an architect and a structural engineer.
- Confirmation that the building architectural style complies with the Mount Washington’s style guide.

Key Changes - 2016 To 2019

The evaluation changes from the original 2016 report, to this 2019 report, are summarized in the following table:

	2016	2019
Site conditions	\$35,000 allowance for site preparation and geotechnical analysis.	Substantial slope issues anticipated. Awaiting topographic survey information.
Post-disaster design allowance	Yes.	Yes.
Building size	1,000 square feet.	1,400 square feet of finished ground floor space.
Building cost	\$250,000 (\$250/sq. ft.)	~\$500,000 (\$350/sq. ft.)
Soft costs	Not identified.	Additional 20% allowance recommended.

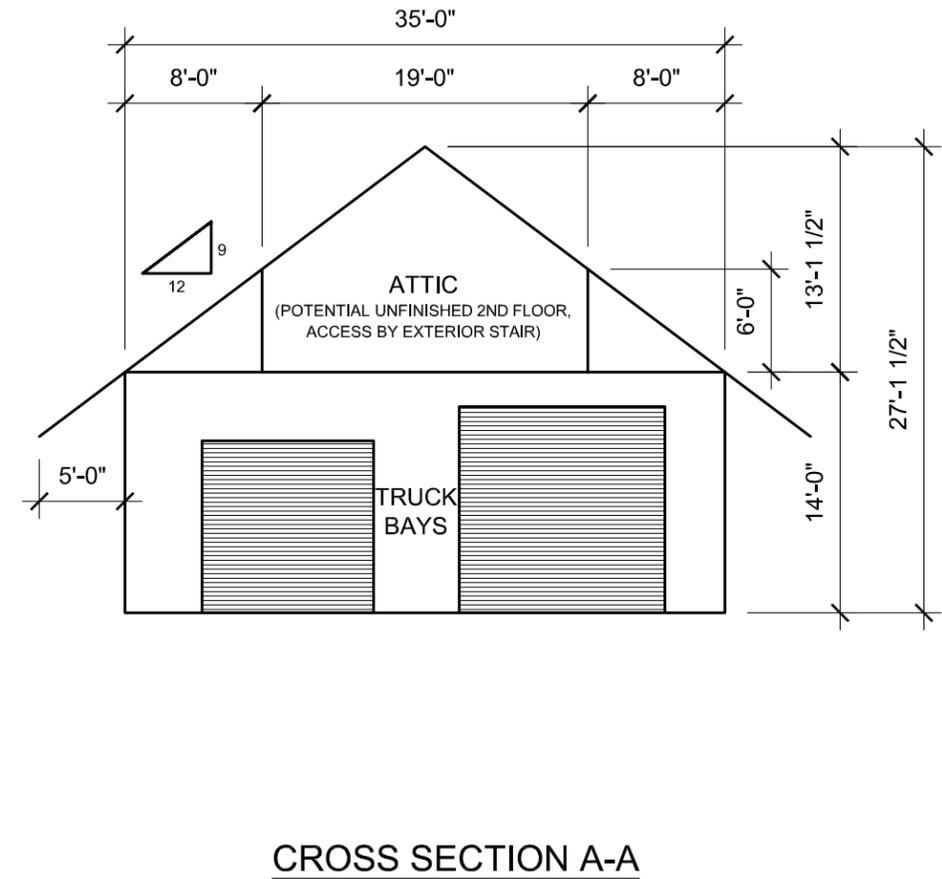
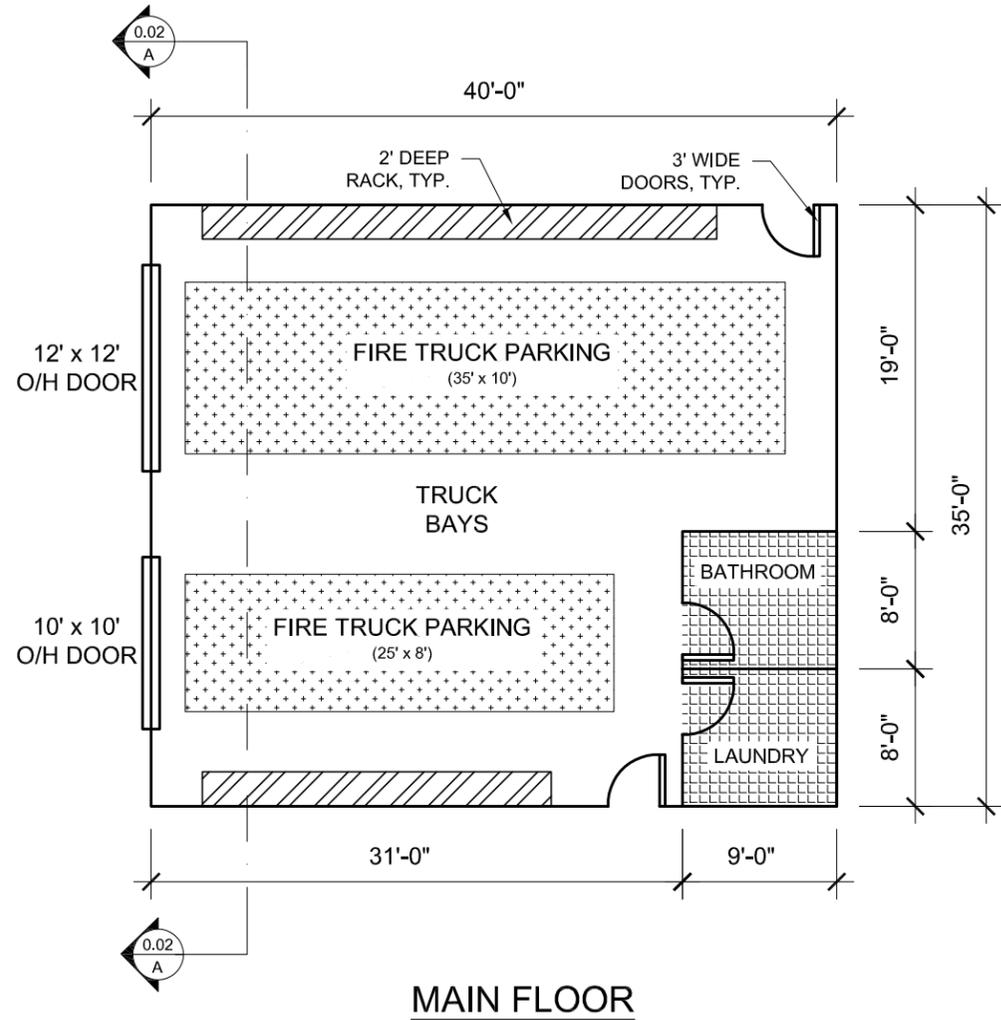
Yours truly,

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Reviewed by:

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 Building Science
 Technologist
 Reviewed by

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208 - 730 GRANT AVENUE COURTENAY BC V9N 2T3 WWW.RDH.COM TEL 250 703 4753	ISSUE	DESCRIPTION	DATE	SCALE: 3/32" = 1'-0"
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	DRAWING TITLE: FLOOR PLAN & SECTION	PROJECT NO.: 20493.000