

DATE OF MEETING JULY 21, 2021

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**SUBJECT LIVE FIRE TRAINING CENTER REMEDIATION**

## **OVERVIEW**

### **Purpose of Report**

To provide the Finance and Audit Committee with an update on the repairs needed to the Nanaimo Fire Rescue's Live Fire Training Center facility. |

### **Recommendation**

That the Finance and Audit Committee recommend that Council add a Live Fire Training Facility Remediation project in the amount of \$275,300 to the 2021 budget funded from the General Asset Management Reserve Fund.

## **BACKGROUND**

Currently, Nanaimo Fire Rescue (NFR) conducts live fire training at NFR's Training Center facility that was constructed in 1985. This training is required to ensure personnel are prepared to respond to fire emergencies and perform their duties safely and effectively.

NFR's Live Fire Training facility has been in place for thirty-six years, has been home to NFR's live fire training, and has hosted external stakeholders who come here to perform live fire training. Unlike many other fire departments, the City of Nanaimo had the forethought to build the Live Fire Training Center in Nanaimo to promote effective training and reduce costs as compared to the training being conducted elsewhere.

As recommended by Herold Engineering, to ensure structural integrity due to the extreme heat that this building experiences during live fire training, the Training Center is inspected every year with a more detailed comprehensive Engineering review performed at five year intervals. |

## **DISCUSSION**

During the most recent comprehensive Engineering review conducted in 2021, Herold Engineering reported that some areas of the building need remediation due to structural damage. Specifically, Herold Engineering stated the following:

- Concrete cracking
- Surface concrete spalling

- Deep concrete spalling
- Exposed reinforced steel
- Loose heat resistant panels
- Corrosion of heat resistant panel suspension framework
- Damaged door and window structures
- Damaged heat resistant panels

Herold Engineering speculates, *“For the existing building, it is likely that most of the damage has started to appear within the last 5 years. Therefore, it is likely reasonable to presume that a new ‘like structure’ will function sufficiently, without the need for repair, for 30 years. However, the term ‘like structure’ is a key aspect to this determination. The current structure was likely designed to the standard of the day (1985), which intentionally or unintentionally provided very good resistance to the negative effects of carbonation. This is due to the large amount of concrete cover (distance between the surface of the concrete and the reinforcing steel) as the walls were provided only one ‘mat’ of reinforcing steel roughly centered within the wall thickness. It may be that if the structure was redesigned today, it may require two mats of reinforcing steel which would substantially decrease the concrete cover and therefore decrease the expected time to first damage. Specific attention will be required to avoid these design pitfalls if the building is to be replaced... I think it is reasonable to say [for the existing building] that the threshold of the repair costs outweighing replacement costs could be reached in approximately 20 years ...”*

Currently, NFR performs live fire training on shift with the exception of a small contingent of in-house instructors that are paid to facilitate live fire training. If Nanaimo does not repair the Training Center and Firefighters are trained outside of the City at a live fire training facility elsewhere, it would require training to be scheduled off shift and Firefighters would be remunerated at our training rate (straight time) in addition to travel costs, instructor costs, food, and facility rental. Additionally, due to the distance from Nanaimo and the costs incurred if we had to abandon a training session, Firefighters would be unavailable to respond to emergencies.

In contrast, if NFR Firefighters are trained on shift in Nanaimo:

- They are available to respond to emergency incidents, albeit somewhat delayed.
- There are no wages associated with the on duty trainees
- There is a higher probability that off duty Firefighters are available for emergency call-in for larger incidents because they’re not out of the community training
- When Nanaimo Fire Rescue performs live fire training in Nanaimo, the Fire Department gains the opportunity to perform live fire training with greater frequency because NFR personnel are trained on shift and there are no overtime costs
- In-house expertise is strengthened among our own staff which promotes performance, safety, increased morale and the ability to call upon this experience to enhance our practices

By repairing the Live Fire Training Center, the City also has the opportunity to generate revenues through facility rentals to other fire departments. Likewise, if the Vancouver Island

Emergency Response Academy (VIERA) expands, possibilities to generate additional revenue through new programming supported by NFR's fire training facility could be explored.

### **FINANCIAL CONSIDERATION**

While there is a cost to maintaining a Fire Training Center, the alternative – training Nanaimo Fire Rescue personnel elsewhere is costly. When travel, wages, backfill, emergency response, and other logistical concerns are weighed, the picture becomes clearer. For example, if Nanaimo Fire Rescue were to utilize Comox Fire Training Center, the estimated annual cost would be approximately \$104,700 to train all Firefighters for one session per year.

If the remediation work is not performed, and Nanaimo Fire Rescue wishes to continue training personnel in Nanaimo, alternative facility options have been considered. Firstly, Nanaimo could build a like-for-like structure. This structure would be new and gas training props would be incorporated. The estimated cost for this structure is \$1,238,000 - \$1,299,500 while the gas burning props are estimated to cost \$491,900. Another option would be to build a modular facility and remove the existing structure. A modular facility consists of Sea Cans with gas props incorporated into them. The estimated cost to construct a modular facility and remove the existing facility is \$880,700.

Due to the feasibility of relocating the Fire Training Center to another site, a comprehensive study has not been performed for the following reasons:

- Operational issues with response time
- Off duty training costs similar to training personnel at a facility elsewhere
- The cost associated to demolish the existing Fire Training Center and restore the current site
- Significant real estate costs
- Significant construction costs for a new facility and the accompanying infrastructure to support a Fire Training Center that already exist at the current location such as: fencing, classroom room facilities, storage, washroom facilities, SCBA fill station, and parking.

Lastly, if the remediation work is performed, it puts the current facility in a state of readiness for future conversion to gas. Converting this facility would eliminate the smoke currently produced by burning solid fuels which would be safer for the adjacent community and Public Works. Importantly, if Public works undergoes future development, converting the Live Fire Training facility will strengthen the development potential to utilize the South end of the Public works site due to the elimination of smoke. The estimated cost to convert the current Live Fire facility to gas at a future date is \$491,900 and is not currently part of the 2022 – 2031 Draft Project Plan. ]

### **OPTIONS**

1. That the Finance and Audit Committee recommend that Council add a Live Fire Training Facility Remediation project in the amount of \$275,300 to the 2021 budget funded from the General Asset Management Reserve Fund.
  - Advantages
    - Continue to train Firefighters in the City Nanaimo

- Avoid the associated yearly cost to NFR personnel at another facility outside of Nanaimo
    - Strengthened in-house expertise
    - Opportunity to train NFR personnel at a greater frequency
    - Emergency response readiness
    - Lowest cost option
  - Disadvantages
    - Unforeseen repair costs
  - Financial Impact
    - Concrete Repair Work - \$275,300
    - Anticipated increase to the annual maintenance budget in the 2022 - 2026 Draft Financial Plan
    - 2021 - 2025 Financial Plan will be amended at a future date to include the additional project.
2. That the Finance and Audit Committee recommend that Council direct Staff to perform live fire training at a facility outside the City of Nanaimo
- Advantages
    - Meets training objective
    - No facility maintenance costs
  - Disadvantages
    - Annual live fire training costs are significant and outweigh repairing the facility
    - Firefighters are only trained one session per year
    - In-house expertise diminished
    - Future costs are determined by an external provider
  - Financial Impact
    - External Training - \$104,700 approximately

### **SUMMARY POINTS**

- NFR currently performs live fire training in Nanaimo
- Performing live fire training in Nanaimo is a cost saving measure as compared to training elsewhere
- Performing live fire training in Nanaimo gives NFR the opportunity to train personnel at a higher frequency as compared to training elsewhere
- In-house live fire training strengthens department knowledge and practices
- Performing live fire training in Nanaimo keeps first responders in the community and strengthens emergency response if responders are needed
- For future considerations - repairing NFR's Live Fire Training Center will put it in a state of readiness to be converted to gas

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**Concurrence by:**

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