



# City of Richmond

## Report to Council

**To:** General Purposes Committee **Date:** June 11, 2021  
**From:** Tim Wilkinson  
Fire Chief **File:** 99-Fire Rescue/2021-  
Vol 01  
**Re:** **Emergency Response Equipment and Fire Boat Options**

### Staff Recommendation

That the staff report titled “Emergency Response Equipment and Fire Boat Operations Options”, dated June 11, 2021, from the Fire Chief, be received for information.

Tim Wilkinson  
Fire Chief  
(604-303-2701)

REPORT CONCURRENCE		
<b>ROUTED TO:</b> Finance Department	<b>CONCURRENCE</b> <input checked="" type="checkbox"/>	<b>CONCURRENCE OF GENERAL MANAGER</b> 
<b>SENIOR STAFF REPORT REVIEW</b>	<b>INITIALS:</b> Mo	<b>APPROVED BY CAO</b> 

## Staff Report

### Origin

In the regular meeting of City Council held on July 22, 2019, staff were directed to report back to Council on the options of deploying a Richmond fire boat in consideration of the Vancouver Airport Fuel Delivery Project.

*“That if funding is received from the Vancouver Airport Fuel Facilities Corporation, that those funds be allocated towards emergency response and that staff explore options to establish a Richmond fire boat.”*

This report supports Council’s Strategic Plan 2018-2022 Strategy #1 A Safe and Resilient City:

*Enhance and protect the safety and well-being of Richmond.*

*1.1 Enhance safety services and strategies to meet community needs.*

### Analysis

To address Council’s July 2019 referral “that if funding is received from the Vancouver Airport Fuel Facilities Corporation (VAFFC) that those funds be allocated towards emergency response and to explore options to establish a Richmond fire boat”, staff have researched the following considerations:

1. The potential land based hazards and risks associated with the VAFFC Fuel facility and pipeline;
2. The potential marine based hazards and risks associated with the VAFFC docking and fuel offloading system and maritime vessels navigating the South Arm of the Fraser River;
3. The mitigation strategies associated with the identified risks; and
4. The equipment that would be required to ensure that Richmond Fire-Rescue (RFR) could action the identified mitigation strategies.

### Land Based Hazards and Risks

The hazard, risk profile of the VAFFC Fuel Facility and Pipeline is categorized as “High Impact/Low Probability” meaning that there is a small chance of a fire or spill, however, should a fire or spill occur there could be a significant impact to the City. The City has addressed much of the risk profile through the Municipal Access Agreement. The additional risks can be mitigated by upgrading current firefighting vehicles and equipment during the Richmond Fire-Rescue Fleet replacement cycle. This upgrade would see a traditional fire pumper being replaced with a High Flow Industrial Pumper. A High Flow Industrial Pumper is a multifunctional piece of equipment that is excellent at addressing the needs of the fuel facility while also being able to act as a front line fire engine, a super pumper during a major disaster, a high volume foam pumper for major semi-tractor/trailer fires on the highways and an assistance fire engine during an aircraft fire should it occur away from the airport.

The cost of a traditional fire pumper is approximately \$1.1 million and the cost for future replacement of this type of apparatus has been built into the City's Budget through the Fire Equipment Reserve. An upgrade to a High Flow Industrial Pumper would result in an increase in capital costs of approximately \$800,000 over a traditional pumper and an increased Operational Budget Impact (OBI) of approximately \$60,000 per year.

#### Marine Based Hazards and Risks

The hazard, risk profile of the VAFFC docking and offloading system is categorized as "High Impact/Low Probability" meaning that there is a small chance of a fire or spill however should a fire or spill occur there could be a significant impact to the environment and the City.

The City has addressed much of the risk associated with the docking system through the Municipal Access Agreement. In addition the marine based spill response capability is addressed within the Federal and Provincial Government Environmental Assessment where specific conditions are set out that VAFFC must comply with to continue operations. One risk not specifically addressed is the risk of fire and/or a spill emanating from a vessel transporting fuel while navigating the South Arm of the Fraser River. It is expected that when the Fuel Facility is operating at full capacity it will require a Panamax sized vessel to restock the fuel on a regular basis. While there is not a fire boat of any description operating on the South Arm of the Fraser River, there are several vessels that regularly work on the river that have firefighting capabilities; however, they are not specifically tasked with that role.

The Vancouver Fire Boat Consortium vessels are available, however, they are stationed at the Trade and Convention Centre in Vancouver and, in the end, and they do not have the firefighting capacity to handle fires aboard large vessels. A fire boat capable of effectively fighting a fire onboard of a Panamax sized vessel is a large singular use vessel, \$10-25 million dollar asset that would require permanent highly trained staff assigned to its operation. Staff are unable to provide an estimate of the OBI for this type of vessel as there are none in operation locally to provide the data.

#### Fire Boat Options

In considering fire boat options staff considered three scenarios. Firstly, status quo, which is to rely on vessels of opportunity to assist with firefighting in an immediate sense and/or call the Vancouver Fire Boat to the scene. The Vancouver Fire Boat service has only been called upon twice in the last 10 years at a cost of approximately \$100,000 per event.

The second option is to purchase a boat similar in size and operational capability as the Vancouver Fire Boat. A vessel of this type will not mitigate fires at the VAFFC Fuel Facility and pipeline nor on board a large vessel. However, a fire boat is useful for shorefront fires, marina fires and medium sized vessels fires and water based emergencies. A vessel of this type can be purchased for approximately \$2.2 million. The OBI, including maintenance, replacement and training, is anticipated to be approximately \$250,000 per year.

The third option is the purchase of a large fire boat that is capable of fighting fires onboard large vessels. While a vessel of this type would be able to mitigate fires on board large vessels, it

would not be able to mitigate fires at the VAFFC Fuel Facility or pipeline and it is too large to service most of the City's marinas or navigate within many areas on the North Arm of the Fraser River. A vessel of this type is expensive to purchase and operate and would require a dedicated highly trained staff to ensure its safe operation. Vessels of this type can be purchased for approximately \$10-25 million. Staff were unable to provide an estimate of the OBI due to a lack of data from operating such a vessel.

*Table 1: Summary of Potential Costs for All Options Discussed in this Report:*

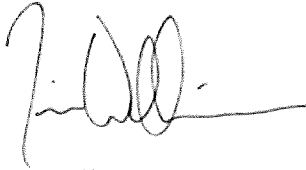
<b>Option</b>	<b>New Capital Equipment</b>	<b>Cost Summary</b>	<b>Potential Source of Funding</b>
Status Quo	N/A (Continue to rely on Vancouver Fire Boat or Port Metro)	Approx. \$100,000 per use	RFR Operating Budget
Land Based Option	High Flow Industrial Pumper	\$0.8 million additional Capital Cost & \$60,000 additional OBI	The cost of a traditional fire pumper is approximately \$1.1 million and the cost for future replacement of this type of apparatus has been built into the City's Budget through the Fire Equipment Reserve. An upgrade to a High Flow Industrial Pumper would result in an increase in capital costs of approximately \$800,000 over a traditional pumper and an increased Operational Budget Impact (OBI) of approximately \$60,000 per year.
Medium Fire Boat Option	Type IV Fire Boat	\$2.2 M Capital Cost & \$250,000 OBI	Capital from the funding received from the VAFFC Reserve. OBI will require consideration in future budget process.
Large Fire Boat Option	Type II Fire Boat	\$10 -\$25 million OBI To be determined	A portion of the capital can be covered by the funding received from the VAFFC Reserve. The remainder of the capital and OBI will require consideration in future budget process.

### **Financial Impact**

None.

**Conclusion**

Through this report, staff have presented a number of options to respond to Council's direction to identify how "*funds could be allocated towards emergency response and explore options to establish a Richmond fire boat.*"

A handwritten signature in black ink, appearing to read 'Tim Wilkinson', with a horizontal line extending to the right.

Tim Wilkinson  
Fire Chief  
(604-303-2701)

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