

**DATE:** January 24, 2017

**TO:** MAYOR AND COUNCIL

**NAME AND TITLE:** Dave Dyer, General Manager of Engineering and Public Works

**SUBJECT:** Fire Hall 1 Assessment and Proposed Replacement

**ATTACHMENT(S):** Map of Proposed Site Location for Fire Hall 1

**RECOMMENDATION(S):**

That the report dated January 24, 2017 from the General Manager of Engineering and Public Works titled "Fire Hall 1 Assessment and Proposed Replacement", BE RECEIVED FOR INFORMATION.

**PURPOSE:**

To present the results of the Fire Hall 1 condition and functional assessment draft report and to advise on its proposed replacement.

**STRATEGIC PRIORITIES:**

The Fire Hall 1 assessment supports Council's focus area, "*prioritized service, transportation, recreation, and facility infrastructure needs and investment.*" It also aligns with the key corporate strategy, "*Assess, prioritize, and align all capital, operating, and maintenance activities.*"

**BACKGROUND:**

With over 120 members, 14 fleet vehicles and 4 halls, Fire and Rescue Services provides suppression, prevention and investigation, and training and communications services to the residents of Prince George.

Fire Hall 1, located on the corner of 7<sup>th</sup> Ave and Dominion St, has been the cornerstone of the Fire and Rescue Services since it was first constructed in 1956. As the city has grown, the coverage area for Fire Hall 1 has expanded to include most of the area east of Hwy 97 and north of Ferry Ave, the BCR industrial site, the Prince George Airport and the Blackburn/Giscome area. The building has gone through a series of renovations including a major addition in 1976 and other interior renovations in 1991, 2001 and 2006.

In addition to fire suppression services, Fire Hall 1 is the headquarters for the City's four-person Fire Prevention and Investigation team.

The Fire Operations Communications Centre (FOCC) is located on the second floor of Fire Hall 1. The FOCC is a centralized call answer and dispatch centre for 79 fire/rescue agencies throughout the Fraser-Fort George, Cariboo, Kitimat Stikine and Bulkley-Nechako Regional Districts. The eleven staff of the FOCC provide comprehensive "end-to-end" fire dispatch service and agency support throughout emergency incidents.

## Recent Assessments

In 2013 the City received a Fire Underwriters Survey (FUS) review which was presented to Council March 31, 2014. This report provided a review of the City's fire protection programs and an update to the fire insurance grading classification.

A Standards of Coverage (SOC) report was completed in 2016 to review incident response and levels of service. It was presented to Council June 13, 2016.

In November 2016, AECOM was retained to perform a condition and functionality assessment of Fire Hall 1. A draft of the report was just received in January 2017. The condition assessment portion of the report follows the same methodology, as for the other Halls and civic facilities, that was presented to Council November 9, 2016. In addition to reporting on the condition of the existing Fire Hall 1 building components, the report also assesses functionality and lists concerns with the limitations of the aging building to meet current and expected levels of service for an emergency facility.

### **DISCUSSION:**

Collectively, the FUS review, the Standards of Cover report and the Condition and Functionality Assessment provide a comprehensive evaluation of Fire Hall 1 and its lack of suitability to meet current standards as an emergency response (fire and rescue) facility, emergency operations centre (EOC) and Fire Operations Communications Centre (FOCC), and its vulnerability to flooding and seismic events.

### Standards of Cover

Council received the Prince George Fire Rescue Standards of Cover report at its June 13, 2016 Open Council meeting. The report was prepared by Dave Mitchell & Associates Ltd. The purpose of the Standards of Cover analysis was to determine the level of service being provided under Prince George Fire Rescue Service's current mandate. The goal was to determine whether the current standard of service is appropriate and if not, how it might be adjusted. The review was also seen as a way of addressing a potential downgrade of the Fire Underwriters' rating.

With respect to the current Fire Hall 1, the response time to the industrial area south of Hall 1 was an issue identified for attention. The analysis indicated that Fire Hall 1 is not centrally located in the response area that it serves. The reason is history and growth. Fire Hall 1 has been in its location since the 1950's and the area that it serves has changed and grown significantly since that time. Fire Hall 1 handles 52% of the Department's entire call volume. The analysis indicated that Fire Halls 2, 3 and 4 are appropriately located for the response areas they serve.

The report recommended that due to the physical condition and location of Fire Hall 1, it should be replaced with a new Fire Hall 1 in a location further south of the current location. Locating Fire Hall 1 further south provides better coverage for the majority of Hall 1's calls and provides more immediate coverage to the industrial area to the south.

### Functional Deficiencies

During the various assessments conducted on Fire Hall 1 and fire services in general, several issues were identified relating to functionality and location of Fire Hall 1:

1. Fire Hall 1 does not currently serve the functionality requirements of a modern fire hall in terms of its present location, size, and post-disaster structural requirements.
2. The building is located in a floodplain and is prone to flooding during storm events. Storm water has ponded at the intersection of Dominion Street and 7<sup>th</sup> Avenue backing up to the bay doors of the fire hall making it impossible for trucks to leave the building.
3. Bay doors and inside height are insufficient for the size of modern fire trucks – only one manufacturer has been willing to modify new trucks to allow them to fit through the bay doors and

into the bay areas. This limits competitive bidding options for new fire trucks. This situation cannot be remedied because the building roof trusses of the truck bay are already at capacity and height cannot be added without substantial structural modifications to the building.

4. The building does not meet Building Code requirements for proper fire separation and fire resistant ratings between different occupancies, nor does it meet code requirements for environmental separation (for exhaust fumes) between the truck bay and the space above, including the FOCC.
5. There is a reported presence of asbestos used in the construction of the building.
6. The building, including the FOCC on the second floor, is not fully accessible to people with disabilities and lacks proper non-slip floor surfaces.
7. Recent events have indicated problems with the back-up power supply and with voltage surges that have damaged the uninterrupted power supply (IPU) to FOCC servers.
8. The overall poor condition of Fire Hall 1 adversely affects the morale of the employees and the capacity of the department to remain in a state of readiness.

Condition Assessment Deficiencies

Fire Hall 1 building condition (BCI) and system conditions (SCI) of inspected assets are in fair condition (ND=no data/not assessed):

Facility Number	Facility Name	BCI	SCI										
			B10 Superstructure	B20 Exterior Enclosure	B30 Roofing	C10 Interior Construction	C20 Stairs	C30 Interior Finishes	D10 Conveying	D20 Plumbing	D30 HVAC	D40 Fire Protection	D50 Electrical
25	Firehall No 1 - Main	72	ND	68	70	76	82	76	ND	75	69	73	71

“ND” = “No Data” indicates that no components for that system were assessed or observed in the field.

Table 1: Fire Hall #1 Building and System Condition

The cost of required capital maintenance and replacement is \$1.29 million. The 10-year average annual requirement of the work plan is estimated at \$128,800 per year.

The various renovations have created a mixture of assets with different ages and manufacturers built to different codes. An example to highlight this concern has to do with an electrical expansion utilizing Federal Pacific Electric panel boards which are now known to have failures in the circuit breaks leading to fire hazards and life safety risks.

Risk Assessment

The functionality of a facility relates to the suitability to function as intended and required by the agency.

Based on a high-level, qualitative assessment of Fire Hall 1’s facility risk according to the City’s Facilities Risk Framework, AECOM determined that Fire Hall 1 falls within the “High Risk Zone”, as presented in Figure 1 below.

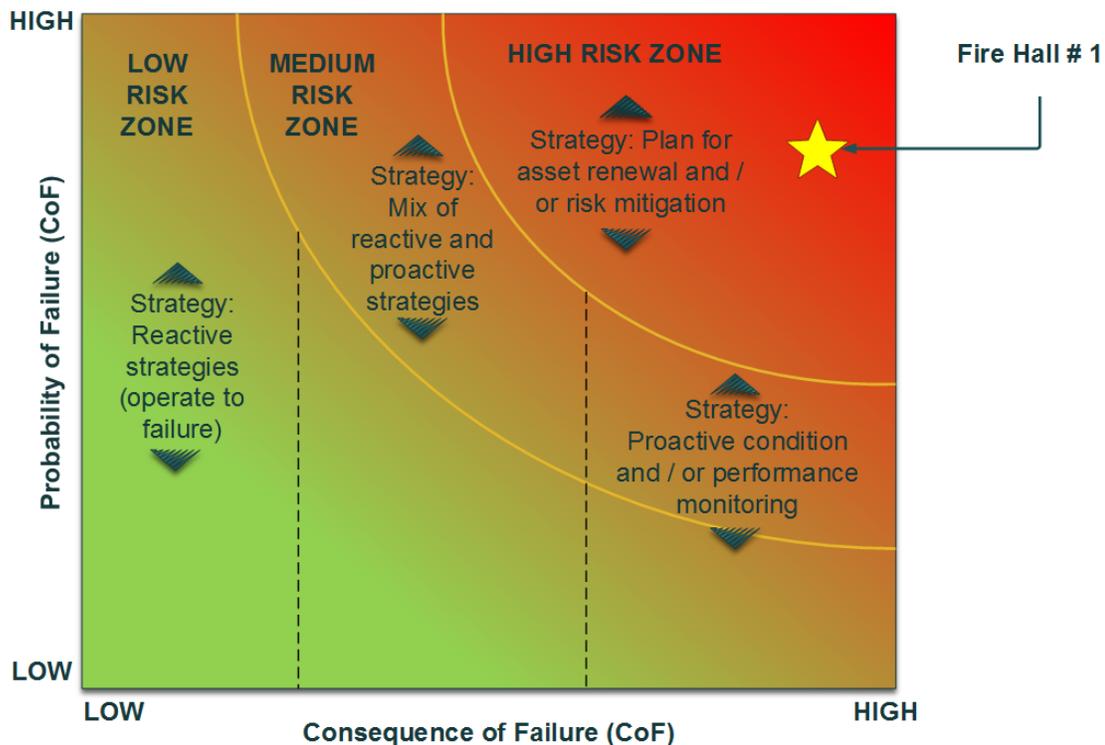


Figure 1 – Facility Risk for Fire Hall 1

The probability and consequence of failure are unacceptable and mitigation measures need to be implemented to reduce the facility risk. Having evaluated the current condition of Fire Hall 1, together with the functionality assessment, AECOM recommends that Fire Hall 1 be replaced.

As mentioned above, both the FUS and SOC reviews also find Fire Hall 1 deficient. Both reports recommend replacing the facility with a new hall as well as selecting a new site. These changes would not only help to improve the level of service to the community but would also improve the City’s fire insurance grading, thus reducing insurance premiums for residents and businesses.

#### Fire Hall 1 Replacement – Proposed Location

Based on the recommendation Administration, in consultation with Dave Mitchell and Associates Ltd., assessed sites that could improve the response/coverage of Fire Hall 1. A City owned location on the south side of Massey Drive, immediately east of the YMCA of Northern BC facility, has been identified as the proposed location for Fire Hall 1. A map showing the proposed siting of the new fire hall is attached. This is the optimal location from a response coverage area perspective. This location represents a 48% improvement in response coverage over the current Fire Hall 1 location.

A conceptual design was prepared to determine the building layout, size of site, servicing requirements, physical constraints and the potential access upgrades needed to construct a new fire hall at the Massey Drive location. The 2.7 hectare site will provide for the proposed 2000m<sup>2</sup> two-story building with 20m hose tower, onsite staff and public parking, and training grounds. Upgrades are required for Massey Boulevard to install a pre-emptive traffic signal when fire trucks exit the site to respond to an emergency and to accommodate left turn movements accessing and exiting the site.

#### **FINAL CONSIDERATIONS:**

The financial impact related to the Fire Hall 1 issues discussed above could be significant. The future required reinvestment based on asset condition will total \$1.29 million over the next ten years – approximately \$128,800 per year. However, this does not include betterments such as post-disaster

structural requirements for seismic events, fire wall separation between occupancies, accessibility improvements and other code upgrades.

AECOM noted that the significant seismic upgrades that would be needed to meet the post-disaster requirements for Fire Hall 1 would likely be greater than the costs to construct a new facility.

The estimated cost of the new fire hall constructed at the proposed location on Massey Drive is \$15 million. This includes provision for the FOCC, traffic pre-emptive signal, and road improvements on Massey Drive to accommodate left turn movements.

**SUMMARY AND CONCLUSION:**

Fire Hall 1 is an integral part of the City's Fire and Rescue Service. In addition to fire suppression, Fire Hall 1 is also the headquarters for the Prevention and Inspection group and the FOCC, which services four northern Regional Districts. City Administration has undertaken assessments of the facility for condition, functionality, Standards of Cover and insurance.

Though major historical renovations have been completed over the years, the building still requires \$1.29 million over the next ten years to maintain and improve asset condition. This cost does not include upgrading costs for betterments such as post-disaster structural requirements for seismic events, fire wall separation between occupancies, and addressing accessibility deficiencies and other code issues. The location of Fire Hall 1 does not meet current Standards of Cover requirements at its current location and needs to be located further south to improve emergency response within the coverage area it serves. Administration recommends the construction of a new fire hall as supported by these assessments and Standards of Cover review.

A new fire hall to replace Fire Hall 1 is proposed on Massey Drive adjacent to the YMCA at a cost of \$15 million.

**RESPECTFULLY SUBMITTED:**



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Dave Dyer, P.Eng  
General Manager of Engineering and Public Works

Report prepared by:  
Dave Dyer and Josh Kelly, Asset Engineer (EIT)

**APPROVED:**



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Kathleen Soltis, City Manager  
Meeting date: February 1, 2017