

CITY OF NANAIMO

BUSINESS CASE – Implement Recommendation #1 of the 2022 Fire Master Plan

CURRENT OVERVIEW

The City of Nanaimo (the City) has a population exceeding 100,000 spanning 91.3 km²; approximately 20 km long and 5 km wide.

Nanaimo Fire Rescue (NFR) provides all hazard response to the City, including emergency response to fires, medical calls, rescue incidents, and natural disasters. NFR also provides specialized services such as hazardous materials and technical rescue response.

NFR consists of 103.8 FTEs including IAFF, CUPE and Management and operates five stations and the Vancouver Island Emergency Response Academy (VIERA). Stations 1, 2, 3, and 4 are located across Nanaimo and are operated 24/7 by 85 career firefighters. Minimum staffing at these stations results in at least 16 firefighters being on shift at all times amounting to 4 firefighters at each station. Station 7, located on Protection Island, is served by on duty NFR firefighters and paid on call firefighters.

In March 2022, the Nanaimo Fire Department completed the 2022 Fire Master Plan. The 10-year plan included a comprehensive review of the delivery of fire protection, rescue, and emergency medical services to the Nanaimo area, identifying key shortcomings and risks. To address these key shortcomings and risks, the comprehensive review put forth three recommendations:

1. Staff two rescue units in Stations 1 and 2.
2. Add a new station midway between Stations 1 and 2.
3. Add a second crew at Station 1.

As part of the Master Plan review, Nanaimo's fire services were compared to peer communities: Saanich, Victoria, Kamloops, Kelowna and Prince George. The analysis revealed that NFR:

- Responds to more incidents than all but one peer;
- Has less firefighters than all peers;
- Responds to more incidents per firefighter than all peers; and
- Has less firefighters per 1,000 population than all but one peer.

This business case addresses recommendation #1 of the 2022 Fire Master Plan while business cases for the future phases of the Fire Master Plan will be presented in their respective budget cycles.

BUSINESS ISSUE

Nanaimo has undergone significant growth. According to the 2022 State of the Nanaimo Economy report, "Nanaimo's population growth rate over the last census was 10.3%, significantly higher than BC at 7.6% and Canada at 5.2%. Population projections up to 2046 indicate strong growth will continue."

From 2017 – 2019, NFR responded to 23,803 incidents, averaging 7,934 incidents per year. A breakdown of the types of incidents is shown in the table on the next page.

Medical	62.5%
Fire & Alarms	14.1%
MVI & Rescue	9.1%
Other	10.5%
Cancelled	3.8%

Similar to the rest of BC, Nanaimo is facing broader population based trends such as an aging population, homelessness, and the impact of the opioid crisis. These trends will likely be accompanied by a future increase in emergency incidents response due to a rise in medical emergencies, fires due to negligence, and a continued requirement to serve a more vulnerable population.

In 2016, the Province announced a public health emergency relating to the opioid crisis. Five years have passed since that declaration, and conditions have worsened. The crisis has reverberated throughout communities, and frontline emergency workers have been deeply impacted by the re-occurring traumatic nature of these incidents. In 2018, the Province of British Columbia enacted Bill 9 – Mental Disorder Presumption in recognition of the profound impact on individuals “who are exposed to one or more traumatic events as part of their employment”. Alarmingly, the IAFF Supporting Mental Health website suggests that 16% to 37% of firefighters will experience Post Traumatic Stress (PTS) symptoms or develop PTS due to the stressful situations firefighters encounter. The Canadian Mental Health Association states that firefighters rate of suicide is 30% greater than the public. More calls equals more accumulated trauma for firefighters.

In 2020, during the onset of Covid, the Province removed certain types of incident responses due to a worldwide shortage of personal protective equipment. In 2021, the incidents that were removed at the beginning of Covid were restored to the fire service and Nanaimo emergency incident response levels returned to pre-Covid levels. For 2022, NFR is trending to respond to over 9,000 incidents.

When considering fire service emergency response fundamentals, the National Fire Protection Association (NFPA) codes and standards are used to guide best practices throughout North America. NFPA is widely embraced across North America by authorities having jurisdiction such as fire service educational institutions, BC Office of the Fire Commissionaire, WorkSafe BC, building and safety authorities, local governments, and manufacturers use NFPA codes and standards to align themselves with best practices.

NFPA standard 1710-2020 recommends the following hazard-based Effective Response Force (ERF) during initial deployment:

- Low hazard (e.g. single family residence) 17 firefighters
- Medium hazard (e.g. strip mall or low rise apartment building) 28 firefighters
- High hazard (e.g. high rise, industrial, mass assembly) 43 firefighters

Effective fire service deployment is about the speed and weight of the response.

- Speed refers to the initial response (First Due), the time for the first unit or crew to arrive on scene. When an emergency incident occurs, all-risk intervention resources need to respond within an appropriate time to control routine to moderate emergencies without the incident escalating to greater size or severity.
- Weight refers to multiple-unit responses for more serious emergencies, such as building fires, multiple-patient medical emergencies, or technical rescue incidents. In these situations, an

adequate number of firefighters - an Effective Response Force (ERF) – must be assembled within a reasonable time to safely control the emergency and prevent it from escalating into a more serious event. An ERF can include mutual aid from other communities.

During the Master Plan Review period 2017 -2019 NFR's targeted response was as follows:

Medical incidents:

- First Due 6 mins, 90% of the time

Non-Medical Incidents:

- First Due 6 mins 20 secs, 90% of the time
- Full Alarm* low/medium hazard 3 units 10 mins 20 secs, 90% of the time
high hazard 3 units 12 mins 20 secs, 90% of the time

* 3 units does not conform to an NFPA 1710-2016 Full Alarm

Post 2020, NFR endeavored to respond with 4 units to non-medical incidents (structure fires) to align more closely with NFPA 1710-2020.

A typical response is divided into three intervals, including:

- Alarm handling time, which is comprised of call processing and dispatch;
- Turnout time, which represents the time from unit dispatch to responding; and
- Travel time, which is the time it takes a unit to reach the scene once it is responding.

An analysis of 2017 – 2019 incident response shows that NFR did not meet the travel time goals:

- 19% of the time for First Due response speeds, and
- 44% of the time for the arrival of Full Alarm to larger emergencies.

The top two reasons that NFR did not meet the travel time goals were concurrent incidents and distance to incidents. NFR responds to concurrent incidents approximately 25% of the time. Concurrent incidents and distance impact First Due response times and diminish the capability to form an ERF because:

- The responding unit is from another station zone because the unit in the closest station was already on another call;
- The closest station was too far away to get there on average; or
- The unit is too far away to get there if there was any additional delay from traffic.

An important consideration, NFR does not have the ability to form an ERF for medium or high-risk incidents requiring 28 or 43 firefighters and unlike many of NFR's peer departments, NFR does not have the ability to call upon other career departments to support serious emergencies in a timely manner.

Robust development, population growth, an emergent public health opioid emergency, a trend towards densification with an accompanying emphasis on the construction of more medium to high-risk multi-storey housing units, has resulted in community growth outpacing fire department resources.

EXPECTED OUTCOME

Implementing recommendation #1 of the 2022 Fire Master Plan by staffing two rescue units, one in Station 1 and one in Station 2, will mitigate many of the key shortcomings and risks identified in the Plan

and will bring NFR operations closer in line with travel times, First Due Response and ERF goals recommended by NFPA 1710-2020 for low and medium hazard/risk incidents.

Implementation of recommendation #1 will take the first steps to:

- Significantly improve First Due performance;
- Significantly improve ERF performance and work toward NFPA standard for medium hazard structure fires with an ERF;
- Bring NFR closer to parity with its peers;
- Increases minimum number of firefighters on shift at all times from 16 to 18 in 2023, and to 20 in 2024;
- Improve coverage in the downtown core and bring ERF performance up to 60% city-wide;
- Reduce problems caused by concurrent incidents;
- Reduce risk exposure - offset not having other career departments for rapid support;
- Enhance ability to assemble a larger force in an appropriate amount of time;
- More reasonably distribute number of incidents per firefighter, reducing potential for PTSD and other mental health issues.

OPTIONS

Option #1 - Implement Recommendation #1 from the Fire Master Plan in 2 Phases

1. Phase 1: staff one rescue unit in Station 1 with 10 new firefighters, starting August 1st, 2023.
2. Phase 2: staff one rescue unit in Station 2 with 10 new firefighters, starting January 1st, 2024.

Benefits:

- Significantly improves First Due performance;
- Significantly improves ERF performance and works toward NFPA standard for medium hazard structure fires with an ERF;
- Brings NFR closer to parity with its peers;
- Increases minimum number of firefighters on shift at all times from 16 to 18 in 2023, and to 20 in 2024;
- Improved coverage in the downtown core and brings ERF performance up to 60% city-wide;
- Reduces problems caused by concurrent incidents;
- Reduces risk exposure - offset not having other career departments for rapid support;
- Enhances ability to assemble a larger force in an appropriate amount of time;
- More reasonable distribution of incidents per firefighter, reducing potential for PTSD and other mental health issues.

Weaknesses:

- Increase to annual operating costs;
- NFR will still be unable meet NFPA 1710 standards for medium or high risk incidents.

Financial Analysis:

- In addition to annual wage increases, firefighters progress on an escalating wage scale until 10 years of service.
- The estimated annual impact to the operating budget including recruitment, wages, benefits, training and outfitting is shown in the table below.

2023	2024	2025	2026	2027
\$ 553,561	\$ 2,203,910	\$ 2,460,720	\$ 2,855,311	\$ 3,305,147

The rescue unit added to Station 1 will be using a Light Rescue Vehicle (LRV) that will be purchased in 2022.

In addition to the LRV purchased in 2022, the 2023 Fire Fleet 10 Year Replacement Plan includes the purchase of a Heavy Rescue Vehicle (HRV) in 2023.

An LRV is smaller and carries less equipment than an HRV. The LRV carries enough auto extrication equipment for accidents involving passenger vehicles and has limited capacity for accidents involving larger commercial vehicles. Its smaller size makes it more appropriate for medical responses. An LRV is based on a quad cab one ton pick-up chassis.

An HRV carries the same equipment as an LRV plus additional auto extrication equipment and cribbing to better handle accidents involving larger commercial vehicles or multiple vehicles. The HRV can also be equipped for hazmat response, decontamination, portable filling of self-contained breathing apparatus, and provide communication facilities for a mobile command post. Due to the additional equipment, an HRV is significantly larger, similar in size to an engine.

There are three options for the vehicle to be used by the rescue unit added to Station 2 in 2024.

Option #1a - Station 2 Rescue Unit to use the HRV.

Benefits:

- This vehicle is already included in the 2023 Fire Fleet 10 Year Replacement Plan and is planned to be purchased in 2023.

Weaknesses:

- This vehicle is larger than required for most incidents that it will be responding to.
- Fuel costs will be higher than an LRV.

Financial Analysis:

- No financial impact.

Option #1b - Purchase a New LRV for the Station 2 Rescue Unit.

Benefits:

- This vehicle is more appropriately sized and equipped for most incidents that it will be responding to.
- This vehicle would be similar to that use by the Station 1 rescue unit.

Weaknesses:

- Additional capital cost for the purchase of the vehicle.

Financial Analysis:

- Based on the cost of the LRV to be purchased in 2022, it is estimated that the capital cost for an additional LRV would be approximately \$637,000.

Option #1c - Cancel the Planned Purchase of the HRV and Purchase a new LRV

- Station 2 rescue unit would use the LRV instead of an HRV.
- Additional vehicles and/or equipment would be purchased to offset the operational abilities of the HRV.

Benefits:

- The LRV is more appropriately sized and equipped for most incidents that it will be responding to.
- It is estimated that significant capital expenditure savings would be achieved by replacing the HRV with the LRV.

Weaknesses:

- The HRV is designed and outfitted to carry all the equipment needed to respond to large or special incidents (e.g. commercial or multi-vehicle accidents, hazmat response, communication facilities for a mobile command post).
- Replacing all of the capabilities of the HRV may be difficult.

Financial Analysis:

- It is estimated that replacing the HRV with an LRV would save \$520,000 in capital expenditures in 2023.
- The cost to replace other equipment available on the HRV is undetermined at this time, but is anticipated to be less than the \$520,000 savings realized above.

Option #2 - Implement Part of Recommendation #1 from the Fire Master Plan

Staff one rescue unit in Station 1 with 10 new firefighters, starting August 1st, 2023.

Benefits:

- Increases minimum number of firefighters on shift at all times from 16 to 18 in 2023;
- Improved coverage and ERF performance in the downtown core;
- Improvement in both First Due response times and ERF performance;
- Reduces problems caused by concurrent incidents;
- Reduces risk exposure - offset not having other career departments for rapid support;
- Enhances ability to assemble a larger force in an appropriate amount of time;
- More reasonable distribution of incidents per firefighter, reducing potential for PTSD and other mental health issues;
- Brings NFR closer to parity with its peers.

Weaknesses:

- Increase to annual operating costs;
- Less significant improvement for city-wide First Due and ERF performance;
- It will take longer for NFR to work toward reaching the NFPA 1710 standards for medium hazard structure fires;
- NFR will still not meet NFPA 1710 standards for medium or high risk incidents.

Financial Analysis:

- In addition to annual wage increases, firefighters progress on an escalating wage scale until 10 years of service.

- The estimated annual impact to the operating budget including recruitment, wages, benefits, training and outfitting is shown in the table below.

2023	2024	2025	2026	2027
\$ 553,561	\$ 1,063,613	\$ 1,263,238	\$ 1,471,767	\$ 1,673,132

Option #3 – Status Quo

Do not implement the recommendations of the Fire Master Plan.

Benefits:

- No increase to annual operating costs for NFR.

Weaknesses:

- Key risks identified in the Fire Master Plan will not be addressed;
- Concurrent incidents will continue to impact First Due performance and diminish the capability to form an ERF;
- NFR will not have the ability to form an ERF for medium or high-risk incidents requiring twenty-eight or forty-three firefighters;
- The distribution of incidents per firefighter increases exposure to trauma and mental health problems.

RECOMMENDATION

Option #1 - Implement recommendation #1 from the Fire Master Plan in 2 phases:

1. Phase 1: staff one rescue unit in Station 1 with 10 new firefighters, starting August 1st, 2023
2. Phase 2: staff one rescue unit in Station 2 with 10 new firefighters, starting January 1st, 2024.

and,

Option #1c – Cancel the purchase of the Heavy Rescue Vehicle and purchase a new Light Rescue Vehicle and other vehicles and/or equipment to offset the operational abilities of the Heavy Rescue Vehicle.