



# MAPLE RIDGE

British Columbia

## Fire Protection Master Plan

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**DARKHORSE**  
EMERGENCY

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## Reliance

FireWise and Darkhorse relied on the accuracy and quality of the information for analysis provided by the client and from other research sources. The identification of any errors, omissions, or discrepancies should be reported to the writer for correction of inclusion in a supplement.

## Disclaimer

FireWise Consulting and Darkhorse Emergency are proud to submit this report for your review and consideration. FireWise Consulting (FWC) makes no representation or warranty to the recipient or readers about the information and shall not be liable for any errors or omissions in the information or the use thereof.

We have relied on the information from the City of Maple Ridge to prepare this report. FWC obtained additional information through research, site visits, and data submissions made by the customer. The report brings together all of these information resources to assess the current organization and administration of the Maple Ridge Fire Department and identify interim priority actions and a long-term master plan for fire protection.

FireWise's use of language and names follows standard use and definitions. In order of precedence, definitions follow the legislation of the jurisdiction, referenced standards or accepted Canadian definitions.

FWC has made every effort to ensure that this report reflects gender neutrality.

## Acknowledgement

FireWise would like to thank the Maple Ridge Fire Department members and the City of Maple Ridge staff for their support and cooperation throughout this project. It has been an absolute pleasure to meet the many professionals that protect the people and businesses of Maple Ridge. The fire department and city personnel responded to our requests for participation in surveys, access to data, and member insights with enthusiasm and transparency. We appreciate the openness and transparency of these people and their contribution to the final report.

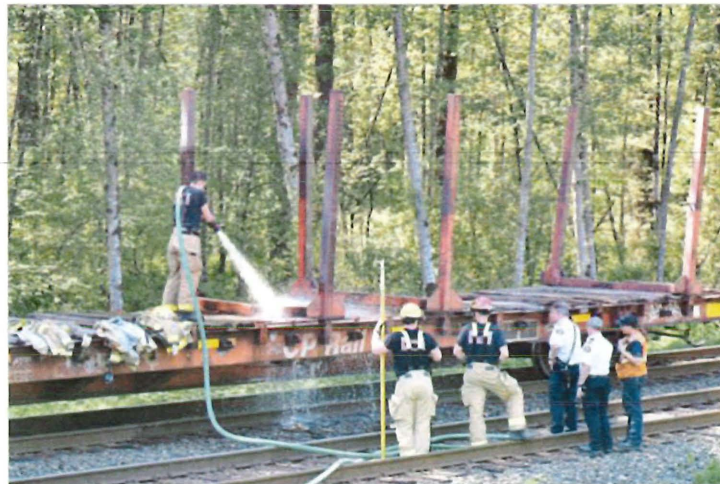
The City of Maple Ridge Council guides the delivery of services through a comprehensive package of public policies. The City Council recognized the importance of dependable and effective fire services to City residents and understood the responsibility of a leadership role in managing and delivering fire and rescue services. Administration implements that policy and makes it an operational reality ensuring the sustainable and effective delivery of fire services. The fire department implements a volunteer staffing model and works diligently to maximize its effectiveness and utility. The benefactors are the residents and businesses in Maple Ridge and the region.

## Use of Standards

The reference to any standard is to illustrate the industry's best practices. Unless expressly indicated, the reference should not be considered a recommendation to adopt any referenced standard in whole or part. Wherever possible, the report will reference standards included in British Columbia legislation like WorkSafeBC regulations and those referenced in the British Columbia Structure Firefighter Minimum Training Standards.

Others, related to professional qualifications, provide industry best practices for the various emergency services offered by Canadian fire services, commonly adopted by most fire departments. While not mandatory, they represent the widely accepted practices of the fire service and provide a degree of liability protection when followed.

Most of the standards we will reference for this report are from the National Fire Protection Association (NFPA). The NFPA publishes a broad range of standards to define minimum practical performance objectives for fire protection services. The NFPA is a standards development organization that develops standards through voluntary consensus. These standards reflect accepted industry best practices for most aspects of fire protection. In some cases, legislation adopts specific standards or portions thereof as a requirement.



Part of a train caught fire in Maple Ridge Monday afternoon (Colleen Flanagan/The News)

### VIDEO: Train car fire in Maple Ridge

Traffic was crawling eastbound along the Haney Bypass

COLLEEN FLANAGAN / May 15, 2023 2:25 p.m. / LOCAL NEWS / NEWS



*Figure 1: As a modern City, Maple Ridge has a diverse risk profile that requires a solid and progressive system to protect the City and its residents. As risk profiles change, so must the City's prevention, mitigation, response and recovery strategies.*



## 1.0 Executive Summary

Developing a fire protection master plan is an iterative process evaluating Community and organizational risk in context with service demands, declared service levels, and service standards informed by legislation, regulations, and industry-accepted practices. The first three phases of the Maple Ridge Fire Department Master Planning project informed an understanding of the current Maple Ridge Fire Department and the Community it serves. Phase 1 established a current state that is foundational to the balance of the project and the final master plan and recommendations. Phase 2 evaluated MRFR against comparators and industry standards and explored the feasibility of pursuing fire accreditation status. The third phase identified the service demands MRFR must address and used that information to develop forecast models for future demand growth. Maple Ridge's risk profile, internal and external, was the final segment of information required to inform the fire master plan's strategic direction.

These reports form a series of appendices supporting a Master Plan that reflects Maple Ridge City Council's 2023-26 Strategic Priorities and Goals.

This document contains two critical components for planning to provide fire protection for the future in the City of Maple Ridge. The first component includes Master Plan Policy Statements that will guide medium- and long-term decision-making. The second component comprises recommendations which are more operational and will provide a focus on the activities of the Maple Ridge Fire Department for the next three to five years. Together, they offer a strong vision for the City of Maple Ridge related to developing fire protection systems and processes to sustainably provide fire and rescue services to its residents, visitors and businesses.

### 1.1 Governance:

#### Master Plan Policy Statement

*The City Maple Ridge will maintain an appropriate legislative framework reflecting current and future organizational requirements for municipal fire departments, including service-level policies.*

- **Recommendation #1 Service Level Policy:** The administration should present a fire protection bylaw that accurately reflects Maple Ridge City Council's current expectations and provincial legislation.
  - **Timeline:** Q-4 2023
- **Recommendation #2 Service Level Policy:** City administration should present a fire protection service level policy detailing required services, clearly explaining the scope of those services and the resourcing requirements for each, including training and competency management processes. The service level policy should clarify those services to be provided by MRFR and those that may benefit from regional or contract service delivery supports.
  - **Timeline:** Q-1 2024

- **Recommendation #3 Corporate Integration:** MRFR is a City of Maple Ridge department and should work to continue the integration of its efforts and programs with other City departments' mandates. Corporate project planning processes should include the assessment of potentially affected departments, existing city infrastructure and programs, Departmental capacity to absorb additional work and recommendations for additional capacity as required to deliver on Corporate priorities.
  - **Timeline:** Ongoing business practice change
- **Recommendation #4 Accreditation:** Maple Ridge Fire Department should begin the Center for Public Safety Excellence (CPSE) accreditation process by applying for Registered Agency Status in 2024 and appointing an Accreditation Manager who is not the Fire Chief.
  - **Timeline:** Q-2 2024, pending resourcing
- **Recommendation #5 EP Leadership:** The City of Maple Ridge should implement a Disaster Risk Reduction Policy Group of the City's senior leadership team, chaired by the City Manager, to provide cross-departmental support and guidance to the Disaster Risk Reduction Team in MRFR. The Policy Group will ensure the City provides adequate resources to support MRFR's efforts to train and staff an effective planning and response capability for severe events.
  - **Timeline:** Q1- 2024

## 1.2: Managed Risk

### Master Plan Policy Statement

*The City of Maple Ridge will base MRFR service decisions on a comprehensive understanding of community and organizational risk with a specific focus on a community risk assessment.*

- **Recommendation #6 CRA:** The City of Maple Ridge should conduct and maintain a Community Risk Assessment (CRA). The CRA should be linked to all City of Maple Ridge strategic and operational plans and form the basis for business continuity and resumption planning.
  - **Timeline:** Q-3 2024 CRA Completed, annual updates after that.
- **Recommendation #7 Analytics:** Maple Ridge Fire and Rescue should continue the development of data analytics capabilities that reflect industry-leading practices to provide comprehensive support to all MRFR business planning processes.
  - **Timeline:** Immediate and ongoing



- **Recommendation #8 Climate Change:** The City of Maple Ridge should consider developing a Climate Change adaptation plan that includes strategies to improve the City's ability to respond to emergencies resulting from changing climatic conditions.
  - **Timeline:** Second Quarter 2025 completion, build from 2024 CRA
- **Recommendation #9 Vulnerable Populations:** The City of Maple Ridge should develop an improved understanding of the needs of the City's vulnerable residents, whose needs drive much of the day-to-day demands for fire department response, planning, and Disaster Risk Reduction services.
  - **Timeline:** Q-4 2023 Initial analysis complete, ongoing work with applicable agencies to maintain current state assessment
- **Recommendation #10 Standard of Cover:** Develop a standard of cover (SoC) for MRFR per CFAI accreditation standards.
  - **Timeline:** Q-2 2025
- **Recommendation #11 Development:** The City of Maple Ridge should develop a standard template for planning and development consultations and engagements to include fire and emergency management considerations in all development process phases and update the CRA-identified risk profile.
  - **Timeline:** Q-3 2024

### 1.3 Sustainability:

#### Master Plan Policy Statement

*Maple Ridge Fire Department will continue to explore and identify efficiencies and savings to help offset the costs of the needed expansion of the service.*

*The City should commit to regular investments in its fire service to ensure the department's capacity keeps pace with community demands and to ensure the department can meet Council directed service levels.*

*The approval process for new developments and master plans in the City should include an impact analysis of the costs and functional implications for existing fire protection systems.*

- **Recommendation #12 Regular Investments:** The City of Maple Ridge's long-range capital and operating plans should include a program of regular investments in its fire service to meet the demands identified in MRFR data analysis and changes in the Community, industry or regulatory environment.
  - **Timeline:** Ongoing, starting with 2024 Capital and Operating budget deliberations

- **Recommendation #13 Mitigation:** The City should evaluate policies and bylaws to further take pressure off response services through increased community resilience measures requiring risk generators to develop mitigation plans.
  - **Timeline:** Ongoing
- **Recommendation #14 Critical Tasking:** MRFR should build on critical tasking efforts to ensure resource allocations match incident demands to provide an effective balance of safety, effectiveness and efficiency.
  - **Timeline:** Ongoing
- **Recommendation #15 Staffing Benchmarks:** Establish staffing benchmarks aligning with Maple Ridge City Council-approved service levels across all MRFR business units and an approval process for future service level change requests. Suppression staffing benchmarks should reflect optimal utilization practices for career and Paid on Call firefighters based on performance against clearly defined performance standards.
  - **Timeline:** Build from the 2023 Master Plan project, ongoing monitoring, reporting and updates

## 1.4 People:

### Master Plan Policy Statement

*The City of Maple Ridge will regularly review the organizational structure and capacity of the MRFR staffing model to ensure it has sufficient capacity to address internal and external service delivery demands.*

*The City of Maple Ridge will continue to seek respectful, cooperative and collaborative relationships with its staff through respectful workplace and labour relations policies as part of the City of Maple Ridge's corporate strategies.*

- **Recommendation #16 Organization:** MRFR should implement a new organization chart that better supports the delivery of fire department services. The organizational chart should clarify roles and accountabilities and inform position descriptions and lateral (internal and external) accountabilities.
  - **Timeline:** Q-1 2024: Organizational design completed and adopted
- **Recommendation #17 Career Suppression Capacity:** The City of Maple Ridge should approve increases to the daily career staffing levels to ensure that minimum daily staffing is maintained at 16 firefighters.
  - **Timeline:** Firefighters' staffing increases should occur in each of the next three years:
    - **Immediate Need:** 16 firefighters on duty



- Five firefighters will move Station 4 staffing to 4 on shift at all times (including relief)
    - 15 firefighters to reinstate the second due crew to Station 1
    - Five firefighters to complete the Station 1 resourcing
  - **Current Risk Profile Need:** 26 firefighters on duty
    - Increase staffing to Critical Tasking for Garden Suite Apartments
    - Additional staff added with new station development.
- **Longer Term:** staffing levels will reflect the risk profile of the Community. The addition of high-rise and high-density developments will drive the need to change the staffing model. Striving for a ratio of 1.25 firefighters per on-duty position considers adequate staffing coverage and consideration for planned and unplanned absences.
  - **Timeline:** Business cases should be updated annually with an analysis of actual performance and service demands to allow for adjustments to sequencing and total staff numbers required. Annual and ongoing reporting on system performance will guide business case development for additional staffing model changes.
- **Recommendation #18 Leadership Capacity:** MRFR should hire the following management personnel to add capacity to the Chief and Deputy Chief roles and to ensure appropriate spans of control for department leaders:
  - **Timeline:**
    - Q-1 2024: Two (2) Assistant Fire Chiefs to provide out-of-scope suppression leadership 24 hours per day, seven days per week. The positions will assume responsibility for managing PoC personnel from Prevention and take on the daily command and response duties covered by the Fire Chief, Deputy Fire Chiefs, and non-Suppression Assistant Chiefs.
    - Q-1 2025: Hire an additional Chief Officer to assume responsibility for administrative, training, accreditation, and regional programs.
- **Recommendation #19 Composite Staffing Model:** The City of Maple Ridge should commit to a formal study to determine the future use of Paid on Call firefighters in the MRFR staffing model. The study should start with focused data collection and analysis over a set period to fill existing knowledge gaps.
  - **Timeline:**
    - Q-1 2024 Appoint a working group of firefighters under the leadership of DC Operations and Maple Ridge Human Resources to evaluate the staffing model and specific PoC needs and identify future roles.
    - Q4 2024 Completion and report to inform the 2025 budget and staffing plans.
- **Recommendation #20 Prevention Branch:** MRFR should restructure the Prevention program under a single Assistant Chief and staff the program appropriately.

- Q-1 2024: Hire two fire inspectors
- Q-1 2025: Hire an additional two fire inspectors
- **Recommendation #21 Training:** Training and competency programs should reflect the tasking and roles of the various employee groups to ensure clarity of training program deliverables and alignment with MRFR service levels with sufficient staffing to meet training and competency management demands.
  - **Timeline:** Ongoing
- **Recommendation #22 Succession Planning:** MRFR and the City of Maple Ridge Human Resources Department should establish a working group, including IAFF and management group representatives, to develop a succession plan based on existing practices and collective agreement considerations.
  - **Timeline:** Ongoing
- **Recommendation #23 Succession Planning - Mechanical:** MRFR requires a succession plan for the existing fleet maintenance contractor to ensure the continuity of fleet and equipment maintenance and repair programs.
  - **Timeline:** Q-1 2024

## 1.5 Resource Distribution

### Master Plan Policy Statement

*The City of Maple Ridge will provide fire stations that are suitably located to achieve Council-approved performance standards and that comply with WorkSafeBC and provincial building and fire codes.*

- **Recommendation #24 New Fire Station(s):** MRFR and the City of Maple Ridge should commit to developing a Fire Facility Master Plan (FFMP) that identifies current and future facility needs. The fire facility master plan must consider life cycle planning, staffing methodologies, and land acquisition strategies for existing and future fire stations. The FFMP should be part of the City's facility capital planning and development processes.
  - **Timeline:** Q-2 2025
- **Recommendation #25 Station 3:** Station 3 renovations or replacement plans should be linked to Lougheed Transit Corridor development plans to address land and integration plans.
  - **Timeline:** Q-4 2024 as the Lougheed Transit Corridor planning is in an active planning cycle

- **Recommendation #26 New Station:** Planning for an additional station to serve the developments north of the South Alouette River, including a resourcing plan, should focus on a 2028 opening.
  - **Timeline:** Station completion in 2028
- **Recommendation #27 Staffing Plans:** All station plans should include a proposed staffing and resource model in the project proposal.
  - **Timeline:** Immediate business practice update

## 1.6 Technology, Apparatus, and Equipment

### Master Plan Policy Statement

*MRFR apparatus and equipment capital programs will continue to reflect industry-leading practices for acquisition, life cycle management and replacement frequencies.*

*Business cases for capital upgrades of additions will be developed for exceptions to routine replacements, including staffing or other implications.*

- **Recommendation #28 Apparatus:** Apparatus replacement and maintenance programs should reflect industry best practices for approved MRFR service levels. Apparatus acquisitions for new capabilities should include staffing assessments to ensure the inclusion of deployment implications to maintain existing service level standards and demands while making growth decisions.
  - **Timeline:** N/A
- **Recommendation #29 Equipment:** Equipment replacement programs should continue to reflect approved service-level policies and standards, legislative or regulatory requirements, and industry best practices. Planning includes creating the appropriate funding reserves for major and minor equipment replacement life cycles.
  - **Timeline:** N/A
- **Recommendation #30 IT Systems:** Data management and information technology (IT) systems should focus on "off-the-shelf" or third-party-provided services reducing the impact on Corporate services and systems. Selection criteria should comply with the City of Maple Ridge IT procurement processes and reflect a careful analysis of data security and privacy protocols.
  - **Timeline:** N/A



## 1.7 Disaster Risk Reduction Program

### Master Plan Policy Statement

*The City of Maple Ridge will maintain a leading practice emergency program consisting of plans, trained personnel, and systems that will support all four pillars of emergency management- prevention, mitigation, response and recovery.*

- **Recommendation #31 Emergency Program Resourcing:** The City of Maple Ridge should develop and resource an emergency program that meets the City of Maple Ridge's risk management requirements, complies with British Columbia's modernized Emergency Program<sup>1</sup> legislation and regulations, and includes a critical infrastructure inventory and corporate climate change response provisions.
  - **Timeline:** Immediate and ongoing pending completion of the 2023 Emergency Program review.
  
- **Recommendation #32 Corporate EP Roles:** The City of Maple Ridge will begin implementing cultural change making disaster risk reduction, planning and management a Corporate function supported across all City Departments, coordinated by MRFR. Emergency program participation should become part of the performance plans for Maple Ridge management personnel with specific expectations related to planning and response roles.
  - **Timeline:** Q-1 2024

<sup>1</sup> <https://alpha.gov.bc.ca/gov/content/safety/emergency-management/emergency-management/legislation-and-regulations/modernizing-epa#next>

## 1.8 Integrated Services

### Master Plan Policy Statement

*The City of Maple Ridge will include MRFR in all strategic and community planning processes that have the potential to impact MRFR response, emergency planning or prevention services.*

*MRFR will continue to develop strong inter-departmental relationships with other City of Maple Ridge departments to ensure alignment with other master and strategic planning objectives.*

*Maple Ridge Fire Department will actively participate in regional emergency response, planning and other programs.*

- 
- **Recommendation #33 Corporate Planning:** The City of Maple Ridge should develop and implement a standard project planning process. Assessments of "interested departments" on any new projects or protocol development to identify those that should have a specific role(s) in the activity and to determine unique interests. Periodic program reviews of existing programs, master planning exercises, and corporate strategic planning processes should undergo similar assessments.
    - **Timeline:** Develop a base process in 2024 and implementation in 2025 onward.
  - **Recommendation #34 Shared Services:** Service-level agreements should be developed between MRFR and City departments to describe the nature and scope of inter-departmental cooperation and collaboration, including specific deliverables and levels of participation.
    - **Timeline:** Ongoing
  - **Recommendation #35 Regional:** MRFR should be encouraged to develop stronger regional relationships with area fire services and other emergency response providers, Disaster Risk Reduction agencies, and regional service delivery entities. MRFR has extensive experience that could be of value regionally, and the connections will aid operations when significant planning or response incidents occur.
    - **Timeline:** Ongoing
  - **Recommendation #36 Service Portfolio:** MRFR service level exercises should evaluate response services that Maple Ridge must deliver and those that would benefit from a more integrated regional response. Planning considerations should include demand frequency, availability of regional response resources, and capacity of MRFR to maintain adequate numbers of qualified personnel.
    - **Timeline:** Ongoing

- **Recommendation #37 Regional EP:** Maple Ridge's fire and Disaster Risk Reduction program should be encouraged to work closely with local and regional partners to integrate Maple Ridge into the wider response system.
  - **Timeline:** Ongoing and resource-dependent

## 1.9 Continuous Improvement

### Master Plan Policy Statement

*MRFR commits to a principle of continuous improvement in providing fire protection services to the City of Maple Ridge, as reflected in its key performance indicators.*

*Outcomes and key performance indicators identified and approved by the City of Maple Ridge Council will be used to track and assess progress through annual updates.*

*The City of Maple Ridge will set response time targets which provide for effective fire and rescue services to its citizens and form the basis for ongoing performance reporting.*

- 
- **Recommendation #38 Data Standards:** Data collection and reporting systems should follow CFAI/CPSE accreditation standards to ensure accurate and consistent collection, analytics, and reporting processes.
    - **Timeline:** Q-4 2023 onward
  - **Recommendation #39 Metrics:** Specific metrics that reflect the qualitative and quantitative performance of each of the business areas of MRFR reported in a publicly accessible dashboard. Those metrics should focus on MRFR's compliance with approved service levels and service level standards. Once approved, these metrics should be considered permanent measures supporting trend identification and accountability measures.
    - **Timeline:** Q-3 2023
  - **Recommendation #40 Reporting:** The City of Maple Ridge's Disaster Risk Reduction performance, business continuity and business resumption planning status for all essential services should be reported as part of the City's corporate dashboard. While MRFR is leading the emergency program, each City department is responsible for its critical service portfolio planning within the overarching program.
    - **Timeline:** Q-2 2023



## 2.0 Mision, Vision and Values

### 2.1 City of Maple Ridge

High-performing organizations are value driven and align their activities and employee efforts through clearly articulated strategic plans, including shared goals and objectives.

#### 2023-2026 City of Maple Ridge Mission Statement

"We strive for excellence as we deliver vital municipal services with innovation, accountability and efficiency to meet the needs of the community now and into the future."

#### Vision and Description

Maple Ridge has unparalleled access to nature and is as distinct as its neighbourhoods. **We don't fit a mould.** We are authentic, bold, adventurous and ambitious about our future.

- From the peaks of the Golden Ears to the roar of the Fraser River, we are a dynamic economic and innovation hub.
- We are a leader in providing a full spectrum of housing options and recreational infrastructure.
- We are a caring and environmentally sustainable community that supports healthy living.
- We are a socially and culturally friendly community- a place where people are connected to neighbourhoods, to their work, and to the natural environment.
- We offer high-quality services and prioritize a positive customer experience.
- The best and brightest seek to work with us, and employees are encouraged to share their ideas and are supported in taking initiative.

#### Core Values

1. **Excellence:** We are driven to exceed expectations.
2. **Integrity:** We lead with honesty, fairness, and transparency with our Community's needs at heart.
3. **Innovation:** We encourage and support a culture of continuous improvement, embracing risk while cultivating new ideas, methods, and processes to deliver our services.
4. **Leadership:** We inspire and empower everyone to be engaged and to champion building a better community.
5. **Equity, Diversity and Inclusiveness:** We embed equity, inclusion, dignity and respect for all in our service delivery to inform our decision-making and actions.

We share in the responsibility to create a positive, diverse culture to honour our differences.

6. **Strong Relationships:** Relationships are the core of all of our work. We strive to build and enhance strong, trusted relationships with our Community, other governments and agencies, Indigenous partners, and other key groups for improved information-sharing, collaboration and service delivery.

### Strategic Priorities

The following Strategic Priorities and goals establish Council's priorities. While MRFR has an interest in all of the Council's priorities, those goals most applicable to the work of the Fire Protection Master Plan are listed below.

- **Livable Community**
  - Develop infrastructure that positions the City to provide accessible and sustainable services while accommodating growth.
- **Climate Leadership and Environmental Stewardship**
  - Mitigate and adapt to the impacts of climate change.
  - Reduce municipal and community greenhouse gas emissions in alignment with adopted targets.
  - Enhance and protect the health of our natural environment.
- **Engaged, Healthy Community**
  - Ensure the safety and enhance the well-being of residents.
  - Improve community engagement with the City.
- **Diversified, Thriving Economy**
  - Attract, retain, and expand business investment to diversify the tax base and increase local employment.
- **Governance and Corporate Excellence**
  - Deliver an exceptional customer experience across City services.
  - Ensure organization and financial alignment to achieve Strategic Priorities and meet the needs of our growing Community.
  - Be accountable to the public through open and responsive governance.
  - Ensure the City is organizationally resilient, ready to adapt to a changing environment.



Figure 2: Talking to the Community is essential to leading a modern fire service and was embraced through this project.



## 2.2 Maple Ridge Fire Department

### Mission

**Protecting life, Property and the Environment.**

### Motto

**Everyone Goes Home**

## 2.3 Connection to the City of Maple Ridge Strategic Plan

The Maple Ridge Fire Department is delegated responsibility by Maple Ridge City Council for protecting lives and property within the City from various emergencies. The delegated roles include fire and rescue responses, emergency planning for significant emergency events, coordination of multi-disciplinary social, environmental and human-induced crises, leading prevention and public education activities, and ensuring the safety of residents, visitors, and fire department staff.

MRFR's services align favourably with Maple Ridge City Council's Strategic Priorities and Goals as laid out in their 2023-2026 Strategic Plan.

Those services will be accountable, efficient, effective, and sustainable in keeping with the City's Principles and Values. MRFR will utilize this Master Plan to ensure it remains linked to the Council and the Community's need for a leading practice fire protection system focused on efficiently addressing the City of Maple Ridge's risks.

This Master Plan is submitted to meet the City of Maple Ridge Strategic Plan requirements and promote the safety and security of the residents of Maple Ridge.

## 3.0 Environmental Scan

### 3.1 Growth Demographics

The City of Maple Ridge is between Mission and Pitt Meadows on the northeast corner of the Greater Vancouver area. Its southern boundary is the Fraser River, and the city boundaries extend north into the Garibaldi mountains. The City covers an area of 268 square kilometres, representing a diverse topography from flat valley lands adjacent to the Fraser to hilly regions of the north with steep slopes, rugged terrain and significant wildland interface zones.



Figure 1: Topographical map of Maple Ridge

The City's east end is primarily rural, with acreages and forested areas. This area will be a growth centre for the City with concept plans for the developing industrial and recreational areas. A sizeable agricultural reserve area spans the City from east to west, between the urban areas along the highways and the foothill areas of the north. The agricultural reserve will constrain new growth to developed areas or into forested and forest interface areas. Property consolidations are already occurring to support this redevelopment growth in areas along Highway 7 in new development plans like the Lougheed Transit Corridor Development Plan.

Traditionally, population growth has been along the two major east-west transportation corridors, Highway 7 (Lougheed Highway) and the Dewdney Trunk Road. The relatively recent addition of the Golden Ears Bridge has changed the transportation dynamic in and out of the City by providing a direct north-south link across the Fraser River to the Trans Canada Highway. New population centers are emerging, including those in Silver Valley and Albion, representing a change in the building dynamic in the City. Previously most residential developments were in the form of traditional single and two-family dwellings on larger lots. New developments reflect a more metro design with medium and high-density developments, condominiums, multi-storey apartments and forecasts for more high-rise buildings.

Maple Ridge has limited industrial development, primarily centred in the City's southwest corner. Traditionally, Maple Ridge depended on forestry and agriculture as the core drivers of its



economy. The mills along the Fraser River have largely closed, except along the border with Mission in the southeast. The lands along the Fraser are likely to be redeveloped, but there are limited development opportunities due to flood threats from the Fraser River. Little industrial lands are available for growth, although subdivisions in the Yennadon, 256 Industrial area, and Thornhill neighbourhoods will see development in the future.

The City's limited commercial and industrial development means that more than half of employed residents work outside the Community. The Golden Ears Bridge improved commuter access to Maple Ridge and from the City into the region. It drives more residential growth, capitalizing on the City's comparatively lower property values and developable industrial and residential properties. Future growth trends are likely to reflect developments in the Township of Langley with a high-density mix of commercial and residential properties with more of a focus on multi-family and higher buildings. Recent provincial changes to development regulations related to single-family zoning will further enhance higher-density developments across the city.

Of the 29,285 workers working outside of their homes, only 11,140 work within the City and Pitt Meadows, with over 18,000 people commuting daily to their workplace. The outward migration of employed people reduces the pool of available volunteers for the Paid on Call firefighter staffing. It also changes the Maple Ridge risk profile daily as the population changes drastically by the time and day of the week.

Natural features play a significant role in the development of the city. There are two rivers, the Alouette and the Fraser, with flooding histories. The City is interspersed by forested areas, with nearly 60% of the city being in a forest or interface zone. The Alouette Rivers cross the City's northern half with extensive flood and inundation zones. The City's neighbourhoods located north of the Dewdney Trunk Road and east of 240<sup>th</sup> Street see progressively more rugged landscapes with valleys, creeks, and other natural features. Communities in Albion and Cottonwood sit between ridges and other features that restrict east-west travel, complicating emergency access and servicing.

Transportation corridors include a busy CP Rail line transporting a broad range of intermodal and other commodities to and from the port facilities further west of the City. Several rural and urban level crossings permit road and rail traffic interaction throughout the City. Highway 7 and the Dewdney Trunk Road are the principal east-west traffic routes providing access to neighbouring north shore communities in the west and to Mission and Abbotsford to the east. The Golden Ears Bridge allows access to the Fraser River's south shore and the rest of the Greater Vancouver area. The bridge is a shared response area with the Township of Langley. Most road transportation of hazardous materials relates to materials used locally, with most bulk trucking continuing to use Highway 1 to the south. Aircraft landing and taking off from the Pitt Meadows Regional Airport may traverse the City on landing and takeoff approaches for the east-west oriented runway. The airport also operates a seaplane base.

### 3.12 Development Patterns

The City's Albion and Silver Valley areas have the highest population growth. The north, Silver Valley, has increased 26.4% between the 2016 and 2021 Census, representing a total population of 8,487 people. Similarly, the southeast portion of the City, representing Albion and

adjoining neighbourhoods, has seen significant development, with a population increase to approximately 16,000 people.

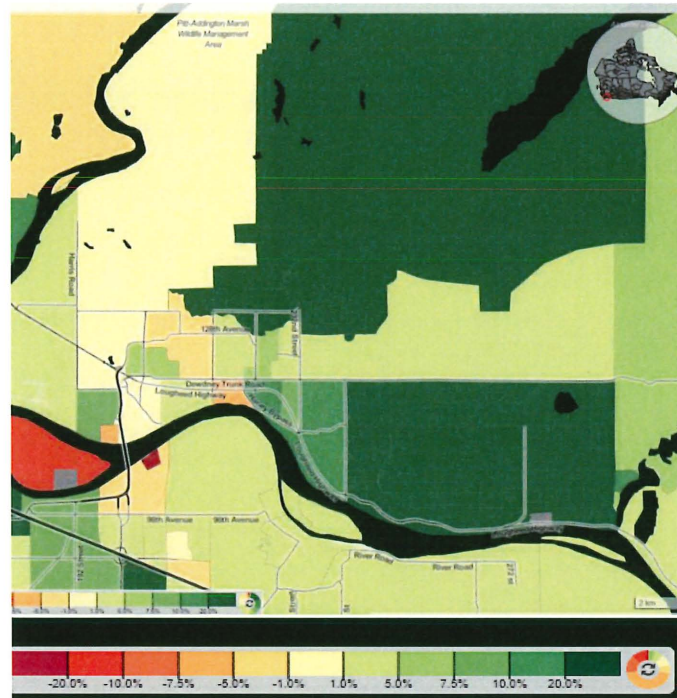


Figure 3: Population change Canada Census 2021- Population change 2016-2021

The city's southeast neighbourhoods are growing rapidly and are home to medium to high-density developments. The population has grown nearly 30% since the 2016 census and represents a growing service area demand driver for MRFR. The area's first response is served by Paid on Call Station 2 and a three-person career engine out of Station 4.

Densification puts more demand on city streets, causing congestion and making moving fire apparatus and other emergency vehicles more difficult and slower. Maple Ridge is beginning to develop higher-density neighbourhoods, mostly in new areas like Albion and Silver Valley. However, proposed and approved plans for increasing high-density development and land consolidations are occurring in the Town Centre. Proposals for high-rise towers, large apartment buildings and the expanded Loughheed Transit Corridor reflect Maple Ridge adopting a design form more commonly seen in jurisdictions south and west of the City. More people using less space will further restrict the ability of the department to move efficiently through the Community, requiring monitoring and adjustments to staffing and station plans to ensure appropriately distributed emergency response capabilities.

To meet the population projection of approximately 109,000 people by 2031, Maple Ridge will require an additional 6,250 to 7,500 dwelling units, depending on dwelling type mix and average household size.

Figure 4: Excerpt from the Maple Ridge OCP Bylaw 7060-2014.



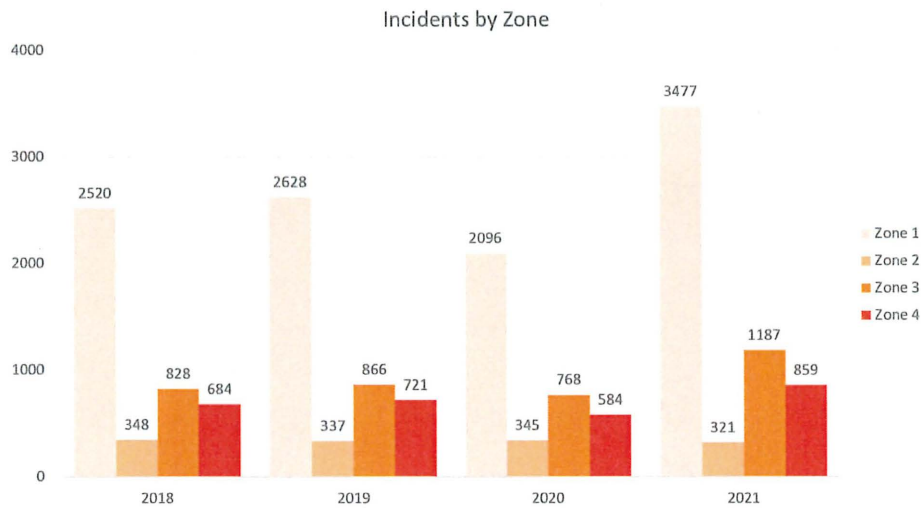


Figure 5: Fire station zones show that Zone 1 (the city's urban core) reflects the highest service demands but is staffed at a similar level to Station 3. Zone 2 is a Paid on Call staffed fire station.

Traffic corridors and streets are not keeping up with developments. Many new neighbourhoods are served with under-capacity roadways that restrict the effective deployment of resources to emergencies in these neighbourhoods.

The OCP forecast is for between 6,250 and 7,500 new residential units to meet forecasted demand and a 2031 population of 109,000 residents. Despite the city's large land area, most of the development will be in already developed regions due to natural features, including flood plains, agricultural land reserves and naturalized areas. Densification efforts will change the nature of the emergency response system in the City over time and will need to be monitored and reported.

Residential and industrial growth is occurring across the City. The highest growth areas identified in the 2021 Census are in the Siver Valley and south of the Dewdney Trunk Road between the urban core and the District of Mission boundary. The anticipated growth rate for the City is 1.4% per year, reaching a population of 118,000 by 2041. Development is occurring in several growth nodes across the City and will continue to escalate the pressure on fire services to achieve an acceptable response time and service level.

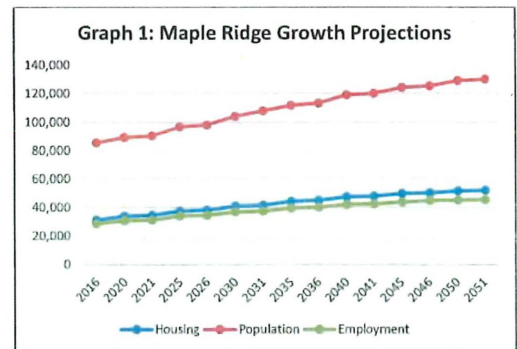


Figure 6: Source: Thornhill Background Report Council Workshop Agenda March 30, 2021

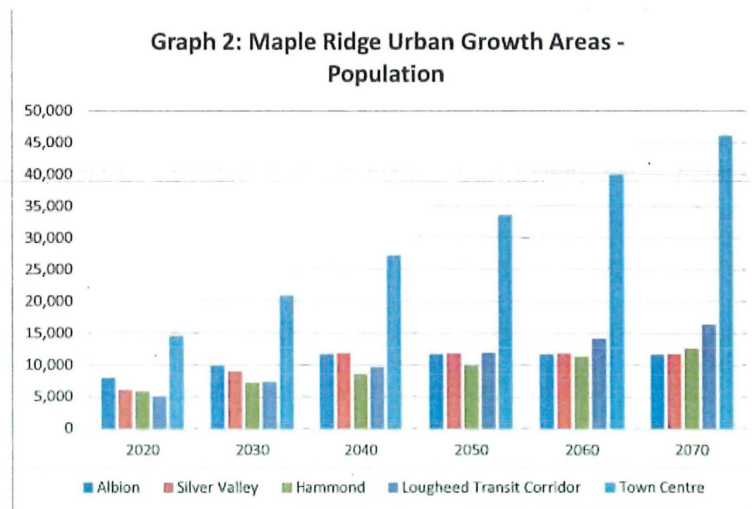


## Population and dwellings

Population, 2021 <sup>1</sup>	90,990
Population, 2016 <sup>1</sup>	82,256
Population percentage change, 2016 to 2021	10.6
Total private dwellings <sup>2</sup>	34,254
Private dwellings occupied by usual residents <sup>3</sup>	33,103
Population density per square kilometre	339.7
Land area in square kilometres	267.82

Figure 7: Canada Census 2021 results for Maple Ridge. Population growth is steady, with primary change in the south and northern areas of the City.

Development is distributed across the City but targets growth in the Town Centre area. Despite this, Albion and Silver Valley are major growth nodes expected to house 12,000 people.



Existing industrial lands are near capacity, with plans looking to the proposed 256 Street Industrial area and the Thornhill Urban Reserve as two of several sources of future industrial growth<sup>2</sup>. The areas will require municipal servicing and road infrastructure. It should also consider the ability of Paid-on-Call staffed MRFR Station 2 to provide first-response operations to the area and the City's ability to meet minimum ERF considerations for any proposed developments. Despite the importance of fire protection to industrial developments from a human and asset protection perspective, there is no discussion in the opportunity assessment related to fire protection services. The Yennadon Lands represent another industrial cluster.

<sup>2</sup> Urban Systems Thornhill Employment Lands Opportunity Assessment:  
[https://www.mapleridge.ca/AgendaCenter/ViewFile/Agenda/12142021-3798#page=\[11\]](https://www.mapleridge.ca/AgendaCenter/ViewFile/Agenda/12142021-3798#page=[11])

Industrial development impacts MRFR's future service demand drivers, illustrating the development of small groups of light industrial/commercial developments in residential and agricultural areas. The cumulative effects of these developments should be included in planning discussions to ensure fire services are aligned and able to address changing risk profiles.

Maple Ridge commissioned a report by the Coriolis Consulting Corporation titled **Residential, Commercial and Industrial Demand Forecasts for Maple Ridge 2022 to 2042**. The report takes a more robust view of population growth in the City that exceeds estimates in the OCP and was recently completed by other consultants. The report also affirms that industrial and residential development will continue to develop in multiple growth nodes throughout the City, putting increasing pressure on existing fire response infrastructure concerning performance and capacity.

**Exhibit 4: Maple Ridge Population Forecast – 2022 to 2042**

Population Forecast	2022 <sup>1</sup>	2032	2042	2022 to 2042 Total Growth
Population	96,542	116,536	135,244	38,702
Average Annual Growth Rate	1.9%	1.9%	1.5%	1.7%
Average Annual Population Increment	n/a	1,999	1,871	1,935

Although the OCP population growth statistics may likely be dated and somewhat conservative, this report uses the OCP estimates. These figures form the basis of Maple Ridge Council's long-range planning and vision for the Community. The population is only one indicator considered in evaluating the adequacy of fire protection services in a community. Risk profiles, service demands, service levels expectations of the jurisdiction, legislative requirements and a host of other factors are more relevant to evaluating the adequacy of existing systems and the need for change or additional investments.

### 3.13 Legal Environment

In British Columbia, other than a requirement to inspect public buildings, there are no legislated requirements to provide fire protection to a community. Fire protection is a service a local government chooses to provide with voter or taxpayer support. Once a community has decided to provide this service, it must meet a duty of care, which includes compliance with a range of legislative and regulatory requirements. In the case of the City of Maple Ridge, Bylaw 4111-1998, Fire Prevention and Regulation Bylaw establish the Maple Ridge Fire Department.

The delivery of fire, rescue and related services is subject to a complex legal framework that includes:

- British Columbia Community Charter (SBC 2003)
- Workers Compensation Act (SBC 2019)
- Occupational Health and Safety Regulation (WorkSafeBC)
- Fire Services Act (RSBC 1996)
- British Columbia Fire Code 2018
- Emergency Program Act (RSBC 1996)
- Local Authority Emergency Management Regulation 380/95
- Environmental Management Act (SBC 2003)

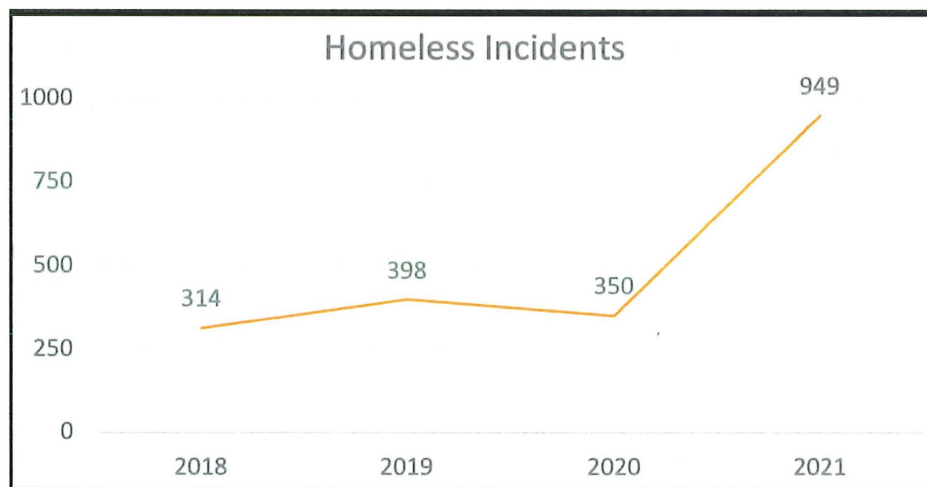


- Municipal Bylaws
- Bylaw 6487-2007: Emergency Program
- Bylaw 6401-2006: Fire Alarm
- Bylaw 4111-1998: Fire Prevention
- Bylaw 6184-2003: Sprinkler Bylaw
- Bylaw 6279-2004: Fireworks
- City of Maple Ridge Official Community Plan
- Municipal policies, regulations and processes
- MRFR policies, procedures and processes
- Industry Standards and best practices

Firefighting and rescue are inherently dangerous functions that require careful consideration, extensive training and competency management processes, and appropriate controls and equipment to ensure the service delivery model is safe for those delivering and receiving it. Careful consideration of existing and proposed services is necessary to ensure that the organization has sufficient capacity to meet the minimum performance standards required and that long-term plans are in place to sustain them.

### 3.14 Social Environment

The most significant impact on the MRFR across all business units is the demand by vulnerable populations for fire, medical and other emergency services. Across all business lines, the department is fully engaged in developing programs and services to meet the demand and community impacts of a growing under-housed population, increasing community mental health concerns and lack of capacity in provincial health systems, including ambulance services.



*Figure 8: This data only shows the demand for emergency medical services. Other jurisdictions suggest that homeless residents' needs impact all aspects of the fire department's functions, from training and administration to emergency management and prevention.*

Aging in place sees a relatively healthy individual move into a residence that may not fully support their needs as age and infirmity take their toll. Building Codes anticipate an ability for



Group C residential occupancies' residents to manage their evacuation, which may not be possible for the elderly or ill. The increased dependence on support impacts fire prevention, evacuation planning and other emergency response service planning. Fire departments must be responsive to the changing risk profiles these facilities pose.

### 3.15 Service Demand Projections

Over the past five years, Maple Ridge Fire Department service demands have increased more than population growth rates.

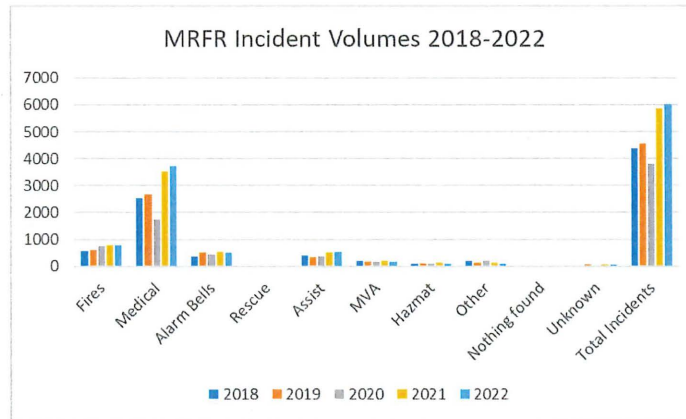


Figure 9: Incident volumes 2017-2022. The drop off in incident volumes in 2022 reflects Covid 19 protocols that reduced fire department responses to medical events. Post Covid increases have exceeded pre-Covid levels.

Drivers include demands for emergency medical responses, mental health and other vulnerable population demands. While the increases in medical-related incidents exceed all other incident types, it is essential to recognize that incident volumes are increasing across all MRFR services and include non-emergency services like prevention, inspection and Disaster Risk Reduction.

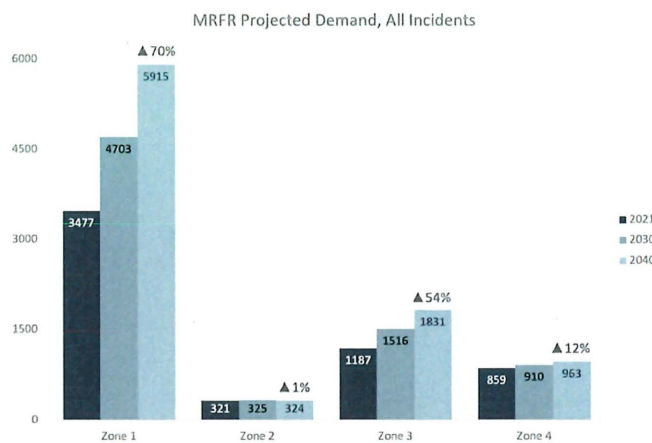


Figure 10: Incident demands are not evenly distributed across the City, reflecting a need for resource balancing to meet daily demands. Distribution will change over time and should be monitored and reported.

## 4.0 Governance:

### Master Plan Policy Statement

*The City Maple Ridge will maintain an appropriate legislative framework reflecting current and future organizational requirements for municipal fire departments, including service-level policies.*

Communicating Council's expectations for fire department service levels and service standards is part of determining the fire department's effectiveness. The current Fire Prevention Bylaw is outdated, having been adopted by Council in 1998. Other than vague service categories identified in the Fire Department Bylaw, there has been no formal approval or definition by the City of Maple Ridge for protection service and performance levels. A proper service level policy helps all system stakeholders understand the department and the implications for staffing, training, equipment, facilities and other factors related to the delivery of fire and rescue services.

Understanding the service standards for MRFR will also assist in identifying corporate integration opportunities to leverage cross-departmental needs into sustainable and efficient solutions. Fire department accreditation programs like those developed by the Center for Fire Accreditation International (CFAI) focus on optimal governance and organizational strategies with the objective of continuous service delivery improvement across the entire fire department. The business practice improvements in the accreditation process are considered industry best practices.

Corporate governance processes include oversight and responsibility for the City's emergency program. Municipalities must develop plans that identify risks and develop strategies to prevent, prepare for, respond to and recover from serious emergency events that may affect the City. Recent changes to the British Columbia Emergency Program Act and Regulations<sup>3</sup> are increasingly focusing on all four phases of emergency management- mitigation, preparedness, response and recovery. MRFR has the skills to coordinate most aspects of the City's emergency program but requires senior-level commitment and support to meet the objectives of a safe community with the overall capacity to respond to natural and human-induced emergencies.

- **Recommendation #1 Fire Protection Bylaw:** The Administration should present a fire protection bylaw that accurately reflects Maple Ridge City Council's current expectations and provincial legislation.
  - **Timeline:** Q-4 2023
- **Recommendation #2: Service Level Policy:** City administration should present a fire protection service level policy detailing required services, clearly explaining the scope of those services and the resourcing requirements for each, including training and

<sup>3</sup> <https://www2.gov.bc.ca/gov/content/safety/emergency-management/emergency-management/legislation-and-regulations/modernizing-epa>



competency management processes. The service level policy should clarify those services to be provided by MRFR and those that may benefit from regional or contract service delivery supports.

- **Timeline:** Q-1 2024
- **Recommendation #3 Corporate Integration:** MRFR is a City of Maple Ridge department and will work to integrate its efforts and programs with other City departments' mandates. Corporate project planning processes should include the assessment of potentially affected departments, existing city infrastructure and programs, Departmental capacity to absorb additional work and recommendations for additional capacity as required to deliver on Corporate priorities. Third-party agencies like the Greater Maple Ridge Harbour Authority and Tourism Maple Ridge should be encouraged to include MRFR in their project scoping to ensure emergency planning and first-response strategies are included.
  - **Timeline:** Ongoing business practice change
- **Recommendation #4 CPSE Accreditation:** Maple Ridge Fire Department should begin the Center for Public Safety Excellence (CPSE) accreditation process by applying for Registered Agency Status in 2024 and appointing an Accreditation Manager who is not the Fire Chief.
  - **Timeline:** Q-2 2024, pending resourcing
- **Recommendation #5 Emergency Management Policy Group:** The City of Maple Ridge should implement a Disaster Risk Reduction Policy Group of the City's senior leadership team, chaired by the City Manager, to provide cross-departmental support and guidance to the Disaster Risk Reduction Team in MRFR. The Policy Group will ensure the City provides adequate resources to support MRFR's efforts to train and staff an effective planning and response capability for severe events.
  - **Timeline:** Q1- 2024

## 5.0 Managed Risk

### Master Plan Policy Statement

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*The City of Maple Ridge will base MRFR service decisions on a comprehensive understanding of community and organizational risk with a specific focus on a community risk assessment.*

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The City of Maple Ridge is working with a 2009 Community Risk Assessment (CRA) that received a minor update in 2014. This document supported a joint emergency program with the City of Pitt Meadows. The report provides a superficial identification of risks jointly shared by Pitt Meadows and Maple Ridge, and it does not address changing risks, population growth, community dynamics or climate change. It does identify the creation of a new Integrated



Partnership for Regional Emergency Management but does not specify any risk assessment roles for the Partnership.

A CRA covers several purposes, including:

- Updating the Disaster Risk Reduction Plan,
- The development of allocation practices to resource the highest risk hazards,
- Enhance community preparedness and awareness programs,
- Develop processes and funding strategies for sustainable awareness, prevention, mitigation, response, and recovery programs,
- Inform the municipal business continuity and resumption plans for critical services, and
- Plan for changing risks related to growth, development, climate change and other factors.

While the document identifies the purposes of the CRA, it is unclear how the information has informed the City of Maple Ridge risk, business continuity and resumption planning, or other emergency response strategies.

An update completed in 2014 identified several risk areas but did not evaluate the frequency and severity of these risks or threats and vulnerabilities.

- Flood, Severe Weather.
- Dangerous Goods Spill Rail and Road.
- Dam Failure.
- Earthquake.
- Pandemic Human.
- Fire Industrial and Interface/Wildfire.
- Infrastructure Failure
- Technology Failures

The CRA is silent on many identified risks in the City, including:

- mass casualty events,
- multi-unit residential structure fires,
- climate change,
- heat and cold emergencies,
- Vulnerable populations, and
- other significant risks that have changed significantly include increasing rail shipments of crude and other dangerous commodities, pandemic impacts, and population growth pressures.

It is also silent on the City's ability to staff an effective response to identified emergency events.

- **Recommendation #6 CRA:** The City of Maple Ridge should conduct and maintain a Community Risk Assessment (CRA). The CRA should be linked to all City of Maple Ridge strategic and operational plans and form the basis for business continuity and resumption planning.
  - **Timeline:** Q-3 2024 CRA Completed, annual updates after that.

- **Recommendation #7 Analytics:** Maple Ridge Fire and Rescue should continue the development of data analytics capabilities that reflect industry-leading practices to provide comprehensive support to all MRFR business planning processes.
  - **Timeline:** Immediate and ongoing
  
- **Recommendation #8 Climate Change:** The City of Maple Ridge should consider developing a Climate Change adaptation plan that includes strategies to improve the City's ability to respond to emergencies resulting from changing climatic conditions.
  - **Timeline:** Second Quarter 2025 completion, build from 2024 CRA
  
- **Recommendation #9 Vulnerable Populations:** The City of Maple Ridge should develop an improved understanding of the needs of the City's vulnerable residents, who drive much of the day-to-day demands for fire department response, planning, and Disaster Risk Reduction services.
  - **Timeline:** Q-4 2023 Initial analysis complete, ongoing work with applicable agencies to maintain current state assessment
  
- **Recommendation #10 Standard of Cover:** Develop a standard of cover (SoC) for MRFR per CFAI accreditation standards.
  - **Timeline:** Q-2 2025
  
- **Recommendation #11 Development:** The City of Maple Ridge should develop a standard template for planning and development consultations and engagements to ensure that fire and emergency management considerations are included in all development process phases and updated to update the CRA.
  - **Timeline:** Q-3 2024

## 6.0 Sustainability:

### Master Plan Policy Statement

*Maple Ridge Fire Department will continue to explore and identify efficiencies and savings to help offset the costs of the needed expansion of the service.*

*The City should commit to regular investments in its fire service to ensure the department's capacity keeps pace with community demands and to ensure the department can meet Council directed service levels.*

*The approval process for new developments and master plans in the City should include an impact analysis of the costs and functional implications for existing fire protection systems.*

Business practices of MRFR and, to some degree, the City of Maple Ridge present significant enterprise and operational risks for the City. Increasing integration and cross-department relationships are a positive step forward, but will require resourcing to ensure leaders have the space to develop new and complex relationships, occupy strategic planning spaces within their departments and the City, and maintain effective operations within their respective departments. MRFR operational demands effectively absorb all of the leadership capacity of the department to support day-to-day operations at the cost of strategic focus.

## FIRE DEPARTMENT FUNCTIONS



Figure 11: MRFR is a complex organization which requires adequate staffing, leadership and corporate linkages to be effective.



Organizational design must reflect an organization's structure, processes and culture, which changes over time. MRFR has not undertaken a comprehensive review of its organizational elements since the creation of the current leadership and staffing model in the 2003 Fire Master Plan, despite a drastically changed operating environment and service demand portfolio. The staffing model and organization reflect outdated concepts of generalized service, focus on suppression and rescue, and are misaligned with modern human resource and leadership processes.

Leadership is focused on sustaining operational services, resulting in slippage in job description development, staff engagement and succession planning, and the specialized needs of various service areas. There is little capacity for work planning to ensure that all aspects of the department's business are resourced and able to achieve acceptable or approved service standards. Capacity gaps place MRFR and the City at risk of neglecting legislated responsibilities like requiring a comprehensive and functional Disaster Risk Reduction program, comprehensive training programs for all MRFR personnel, and effective participation in corporate and regional systems.



A SWOT Analysis (Strengths, Weaknesses, Opportunities and Threats) has identified opportunities to build on MRFR's well-deserved reputation for service excellence and explore corporate and regional opportunities. MRFR's issues are shared across other City Departments and jurisdictions and will benefit from integrated planning and resourcing.

- **Recommendation #12 Regular Investments:** The City of Maple Ridge's long-range capital and operating plans should include a program of regular investments in its fire service to meet the demands identified in MRFR data analysis and changes in the Community, industry or regulatory environment.
  - **Timeline:** Ongoing, starting with 2024 Capital and Operating budget deliberations
- **Recommendation #13 Mitigation:** The City should evaluate policies and bylaws to further take pressure off response services through increased community resilience measures requiring risk generators to develop mitigation plans.
  - **Timeline:** Ongoing
- **Recommendation #14 Critical Tasking:** MRFR should build on critical tasking efforts to ensure resource allocations match incident demands to provide an effective balance of safety, effectiveness and efficiency.
  - **Timeline:** Ongoing
- **Recommendation #15 Staffing Benchmarks:** Establish staffing benchmarks aligning with Maple Ridge City Council-approved service levels across all MRFR business units and an approval process for future service level change requests. Suppression staffing benchmarks should reflect optimal utilization practices for career firefighters based on performance against clearly defined performance standards.
  - **Timeline:** Build from the 2023 Master Plan project, ongoing monitoring, reporting and updates



## 7.0 People:

### Master Plan Policy Statement

*The City of Maple Ridge will regularly review the organizational structure and capacity of the MRFR staffing model to ensure it has sufficient capacity to address internal and external service delivery demands.*

*The City of Maple Ridge will continue to seek respectful, cooperative and collaborative relationships with its staff through respectful workplace and labour relations policies as part of the City of Maple Ridge's corporate strategies.*

MRFR career staffing has remained flat since implementing the 2003 Fire Master Plan staffing recommendations. Recent critical tasking efforts- determining the minimum number of staff required to complete various tasks safely- have been completed and indicate a shortage of personnel to meet "routine" demands of the City for fire, rescue and other services. Despite the broad nature of the services MRFR provides, the training division consists of two people, augmented by some PoC personnel. PoC training for recruits absorbs a large amount of training division capacity at the cost of other training programs.

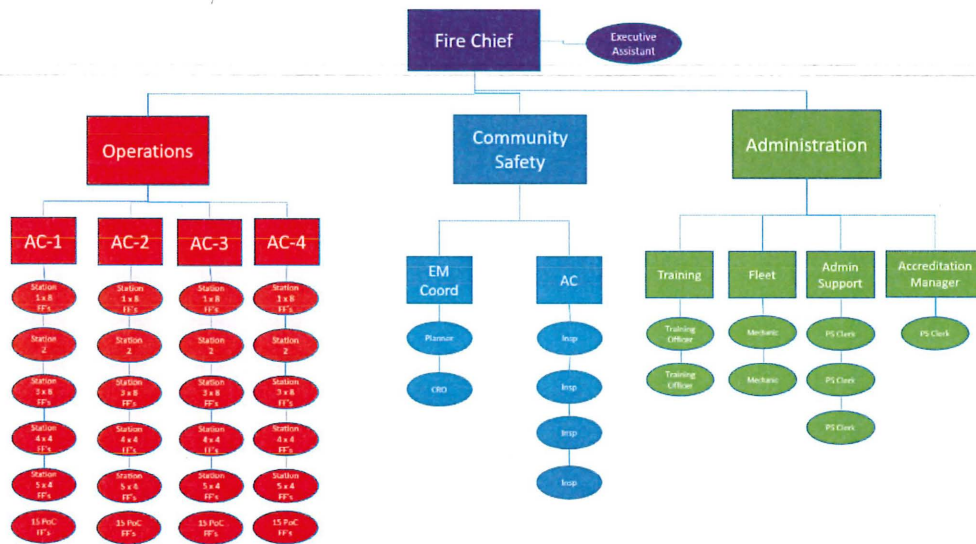


Figure 12: This organizational chart optimizes the leadership and specialization required in a modern fire service, recognizing the complex nature of the Maple Ridge Fire Department.

MRFR lacks sufficient capacity to lead, manage, and address the broad slate of services it is responsible for delivering. Chief Officers are fully engaged in the day-to-day operations of the fire department, to the detriment of strategic initiatives necessary to ensure that the department can keep pace with a changing response environment. The Chief Officers are counted in the daily staffing levels to achieve minimum effective staffing levels.



Service	Capability and Resource Description	Current Staffing Standards
Suppression	Deputy Chief- Operations	1
	2 x 4-person engines	32
	3 x 3-person engine	12
	Paid Call Firefighters	90
	Assistant Chief	2
	<b>Cross or PoC Staffed Equipment:</b>	
	Tower 1	4
	Rescue 1	4
	Tender 1	4
	Rescue 2	4
	Engine 2	4
	Tender 2	4
	Engine 3-2	4
	Tender 3	4
	Engine 7-2	Training
	Tender 4	4
	Engine 7	4
	OSU	4
	Tender 4	4
	Utility 1	2
Utility 1-2	2	
Utility 1-3 Van	2	
	Initial Attack Unit Trailer	-
	Sprinkler Protection Unit	-
	ESS Trailer	-
	ATV	-
Training	2 x Training Officers	2
Prevention	2 x Prevention Assistant Chiefs	2
Emergency Management	1 x Deputy Chief	1
Administration	3 x Administrative Support	3

Figure 13: These figures reflect the total staffing complement of MRFR and are not the actual number of personnel available for the individual functions on any given day. Cross or PoC-staffed units depend on off-shift personnel responding to an emergency, resulting in uncertainty and potentially extended deployment times.

The optimal span of control in a fire department depends on several factors, including the department's size, the level of training and experience of the firefighters, and the complexity of the operations. Generally, a supervisor or manager in a fire department should manage between three to seven personnel. If the span of control is too large, the supervisor may struggle to maintain effective communication, monitor the performance of all staff, and respond quickly to emergencies and other service demands. Conversely, if the span of control is too narrow, there may be excessive bureaucracy and a lack of flexibility in operations, which can be expensive and muddle supervisory and operational roles.

An effective span of control is critical for several reasons in a fire department. First, it allows supervisors to closely monitor the performance of firefighters and staff, providing feedback and coaching to ensure that they adhere to safety protocols and perform their duties efficiently and effectively. Secondly, it facilitates communications within the department, enabling staff to work together effectively and quickly respond to emergencies and service demands. Finally, an optimal span of control ensures that the department can respond flexibly to changing circumstances such as population growth, new equipment, or changing community demands.

- **Recommendation #16 Organization:** MRFR should implement a new organization chart that better supports the delivery of fire department services. The organizational chart should clarify roles and accountabilities and inform position descriptions and lateral (internal and external) accountabilities.
  - **Timeline:** Q-1 2024: Organizational design completed and adopted

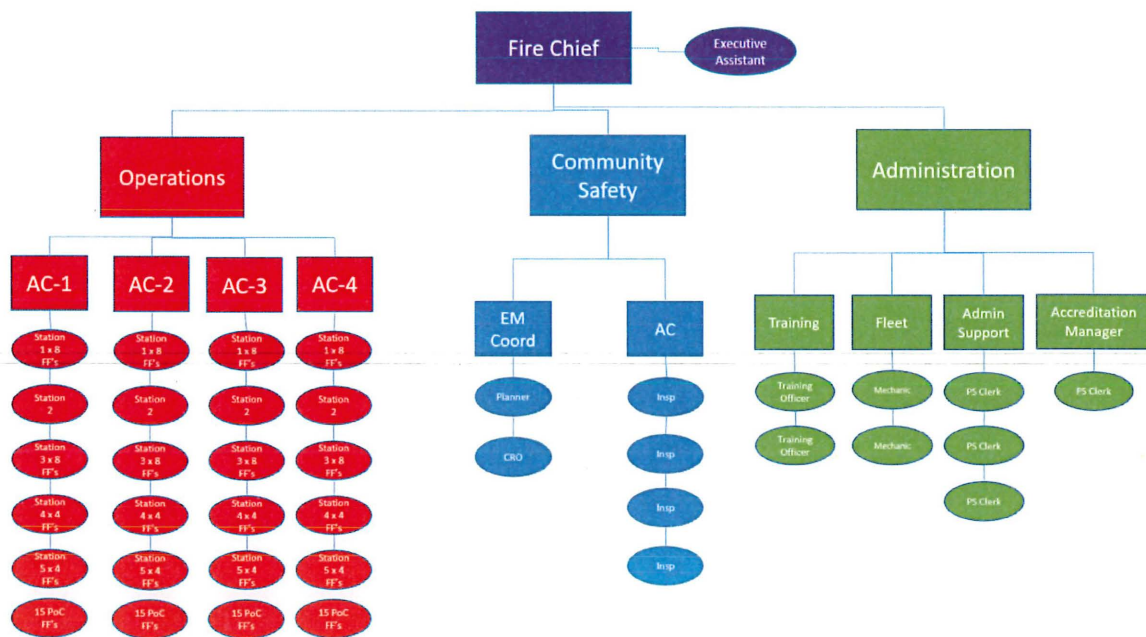


Figure 14: Draft organizational chart showing resource distribution across business units, including recommended staffing increases.

- **Recommendation #17 Career Suppression Capacity:** The City of Maple Ridge should approve increases to the daily career staffing levels to ensure that minimum daily staffing is maintained at 16 firefighters.
  - **Timeline:** Firefighters' staffing increases should occur in each of the next three years:
    - **Immediate Need:** 16 firefighters on duty
      - Five firefighters will move Station 4 staffing to 4 on shift at all times (including relief)
      - 15 firefighters to reinstate the second due crew to Station 1
      - Five firefighters to complete the Station 1 resourcing



- **Current Risk Profile Need:** 26 firefighters on duty
      - Increase staffing to Critical Tasking for Garden Suite Apartments
      - Additional staff added with new station development.
  - **Longer Term:** staffing levels will reflect the risk profile of the Community. The addition of high-rise and high-density developments will drive the need to change the staffing model. Striving for a ratio of 1.25 firefighters per on-duty position considers adequate staffing coverage and consideration for planned and unplanned absences.
    - **Timeline:** Business cases should be updated annually with an analysis of actual performance and service demands to allow for adjustments to sequencing and total staff numbers required. Annual and ongoing reporting on system performance will guide business case development for additional staffing model changes.
- **Recommendation #18 Leadership Capacity:** MRFR should hire the following management personnel to add capacity to the Chief and Deputy Chief roles and to ensure appropriate spans of control for department leaders:
  - **Timeline:**
    - Q-1 2024: Two (2) Assistant Fire Chiefs to provide out-of-scope suppression leadership 24 hours per day, seven days per week. The positions will assume responsibility for managing PoC personnel from Prevention and take on the daily command and response duties covered by the Fire Chief, Deputy Fire Chiefs, and non-Suppression Assistant Chiefs.
    - Q-1 2025: Hire an additional Chief Officer to assume responsibility for administrative, training, accreditation, and regional programs.
- **Recommendation #19 Composite Staffing Model:** The City of Maple Ridge should commit to a formal study to determine the future use of Paid on Call firefighters in the MRFR staffing model. The study should start with focused data collection and analysis over a set period to fill existing knowledge gaps.
  - **Timeline:**
    - Q-1 2024 Appoint a working group of firefighters under the leadership of DC Operations and Maple Ridge Human Resources to evaluate the staffing model and specific PoC needs and identify future roles.
    - Q4 2024 Completion and report to inform the 2025 budget and staffing plans.
- **Recommendation #20 Prevention Branch:** MRFR should restructure the Prevention program under a single Assistant Chief and staff the program appropriately.
  - Q-1 2024: Hire two fire inspectors
  - Q-1 2025: Hire an additional two fire inspectors



- **Recommendation #21 Training:** Training and competency programs should reflect the tasking and roles of the various employee groups to ensure clarity of training program deliverables and alignment with MRFR service levels with sufficient staffing to meet training and competency management demands.
  - Hire two Training Officers to staff the Training Division.
  - **Timeline:**
    - Hire One in Q-4 2023
    - Hire Second in Q-1 2024
  
- **Recommendation #22 Succession Planning:** MRFR and the City of Maple Ridge Human Resources Department should establish a working group, including IAFF, PoC, and management group representatives, to develop a succession plan based on existing practices and collective agreement considerations.
  - **Timeline:** Ongoing
  
- **Recommendation #23: Succession Planning:** MRFR requires a succession plan for the existing fleet maintenance contractor to ensure the continuity of fleet and equipment maintenance and repair programs.
  - **Timeline:** Q-1 2024

## 8.0 Resource Distribution

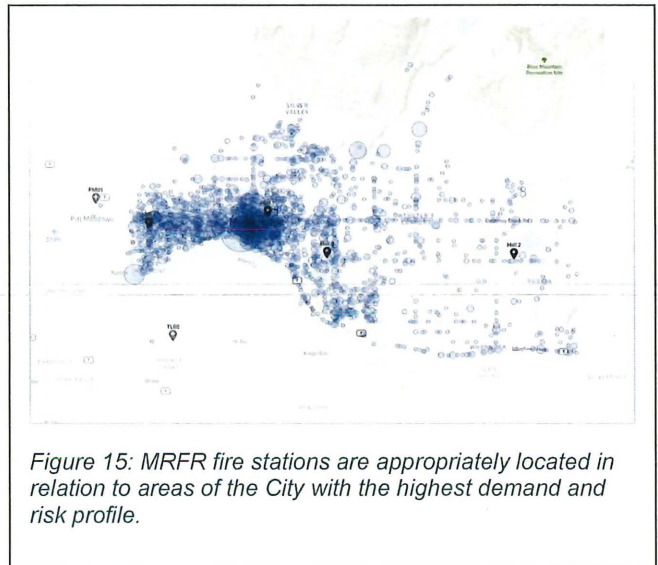
### Master Plan Policy Statement

*The City of Maple Ridge will provide fire stations that are suitably located to achieve Council-approved performance standards and that comply with WorkSafeBC and provincial building and fire codes.*

Fire station life cycles are 50 or more years in duration, and it is not uncommon to find active fire stations serving communities for more than a century. However, design and legal requirements for fire stations change over these extended life cycles. Regular reviews and updates are required to manage necessary changes in staffing models, a greater understanding of internal risks like toxic contamination, and changes in user experiences such as remote access training and full-time staff accommodations, in addition to many other changes that need to be identified and addressed to ensure these necessary facilities continue to support effective operations.

Fire Department staffing levels depend on having sufficient numbers of people in the right place to provide the services. The distribution of fire department personnel reflects fire station locations and the ability of the fire station to accommodate changes in personnel locations to address changes in service demands.

Maple Ridge Fire Department has adopted and reports on fire department response standards dating back to its 2003 Master Plan. While these standards reflected industry practice then, they do not reflect industry changes and the realities of fire behaviour in modern buildings. While the response time standards are included in dashboard reporting, it is unclear how the department's performance concerning the standards has any bearing on system development and improvements, particularly in staffing levels.



*Figure 15: MRFR fire stations are appropriately located in relation to areas of the City with the highest demand and risk profile.*

Maple Ridge Fire Department Deployment Model - <u>Proposed Urban</u>	<ul style="list-style-type: none"> <li>• Total of 12 personnel required to be on scene in 12 minutes or less (dispatch, turnout and travel time)</li> <li>• First four personnel required to be on scene in 7 minutes or less (dispatch, turnout and travel time)</li> </ul>
Maple Ridge Fire Department Deployment Model - <u>Proposed Rural</u> (East of 248 street)	<ul style="list-style-type: none"> <li>• Total of 12 personnel required to be on scene in 22 minutes or less (dispatch, turnout and travel time)</li> <li>• First four personnel required to be on scene in 18 minutes or less (dispatch, turnout and travel time)</li> </ul>
Maple Ridge Fire Department Deployment Model - <u>*Protected Growth Areas</u>	<ul style="list-style-type: none"> <li>• Total of 12 personnel required to be on scene in 16 minutes or less (dispatch, turnout and travel time)</li> <li>• First four personnel required to be on scene in 11 minutes or less (dispatch, turnout and travel time)</li> </ul>

Figure 16: The response time standard proposed in the 2003 MRFR Fire Master Plan has been used by MRFR as its service standard.

In 2022, MRFR complied with their performance standards 69% of the time for the first due engine and 42% on the minimum effective staffing standard, well below the expected 90%. The higher performance of Station 2 in achieving the effective response force (ERF) performance standard reflects several factors. **An effective response force is the minimum number of personnel required to perform all functions during an emergency incident.** First, the response standard is much less restrictive, allowing 22 minutes to pull together sufficient firefighters to manage the event. Secondly, many incidents in Station 2's response zone benefit from deploying career apparatus from Stations 1 and 4 and capitalize on the staffed fire apparatus turnout times.

Station	MRFR 1 <sup>st</sup> Engine Response Standard Performance	MRFR ERF Performance	NFPA 1710 -1720 1 <sup>st</sup> Engine Performance
Station 1	73%	43%	63%
Station 2	62%	71%	42%
Station 3	69%	20%	57%
Station 4	51%	20%	33%
2022 Overall Performance	69%	42%	56%

Figure 17: MRFR response time and ERF performance for 2022. Only fires are included in these calculations. Station 2 performance is measured against the rural response standard and lower call volumes giving the appearance of higher performance.

Critical tasking, the number of personnel required to safely and effectively manage specific call types, is the first step in determining the resources needed for the department to address daily business demands. The critical tasking is overlaid with service demand frequency to determine the number of concurrent demands that the department should reasonably be able to manage on its own. Once the minimum effective response force is set, call demand analysis showing incident types, and locations inform the positioning of the resources in the Community for best overall performance, either through station location, staffing concentration or a combination of the two. This exercise also informs the jurisdiction of those events that require special planning or external resources to manage that exceed the immediate capacity of the department.



The analysis of MRFR deployment data identifies two primary drivers for not achieving its response standards:

- **Distance:** Distance is significant in deploying fire department personnel and equipment in Maple Ridge. Distance is relevant in two ways. First, much development has occurred in the City in areas like Albion and Silver Valley that is geographically beyond existing station and staffing levels to reach within internal or external response guidelines.

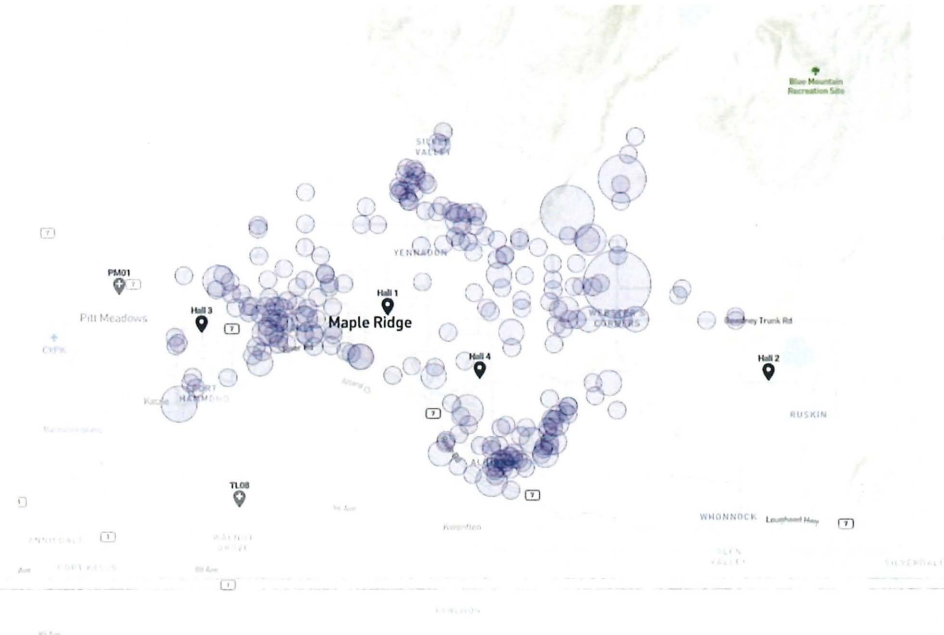


Figure 18: 2022 overgoal incidents where distance was the overriding factor.

**Capacity:** The department has minimal staff at each of the three staffed stations, requiring ERF muster to include all other stations and PoC firefighters to achieve minimum staffing levels for any medium to high-risk events. The linear layout of the stations, while reflecting the traditional form of the Community, does not lend itself to quickly mustering the larger forces required to manage these events. It also extends response times to northern areas of the City, including Silver Valley and Golden Ears Park.

The limited on-duty staffing cause consolidations of personnel at Station 1 or Station 4 for training and other departmental activities, resulting in vacant stations, which contributes to overgoal calls at incidents in their fire response zones.

The first response from Station 4 serves Albion, but the 3-person crew depends on Station 1 to achieve an adequate initial response capacity.

Station 2's comparatively high-performance levels reflect a low call volume and extended response time standard of 22 minutes. The Station 2 response zone also benefits from support from staffed units in Stations 1 and 4.

Demand is an essential driver of resource decisions. While Victoria, Maple Ridge and Saanich have roughly similar populations, there are significant differences in service demands. There are

differences between the three jurisdictions that will require different approaches to achieve acceptable service levels and outcomes—Maple Ridge, similar to many of its comparators, with 75.45 incidents per 1,000 population in 2022, has the lowest number of total staff, despite similar mandates. Paid on Call firefighters have traditionally been expected to fill that gap, but evaluation suggests that they are increasingly unable to meet the response demands of the community.

City	Population	Total Incidents	Incidents per 1,000 Population	No. Staff	No. of Stations
Maple Ridge	90,990	6965	75.45	71	4
Victoria	91,867	9186	102.38	120	3
Saanich	117,735	5534	47	140	3
Kamloops	97,902	10,325	105.46	142	7
Kelowna	144,576	12,927	89.41	150	7
Abbotsford	153,524	14,125	92.01	114	8
Regina	226,404	12,360	54.85	300	7

Figure 19: MRFR compared to other fire departments, with similar cities of Abbotsford, Kamloops, and Kelowna being busier. Maple Ridge compares favourably in terms of cost per capita and per dwelling unit to deliver fire protective services. The MRFR annual budget pays for all operational and administrative services required to provide fire suppression, rescue, training, emergency management and prevention programs in the City.

Maple Ridge has the lowest cost per capita for fire service delivery, and the higher per dwelling cost reflects a younger, family-oriented community. While this comparative analysis does not include non-residential contributions to fire protection, it does provide a consistent comparison of costs of service that is easily understood and that MRFR can replicate in the future. When community risk profiles and demand overlay the service delivery costs, it suggests that MRFR is under-resourced to meet its operational and administrative functions.

City	Cost Per Capita	Cost Per Dwelling Unit
Maple Ridge	\$151.67	\$422.02
Victoria	\$195.94	\$365.67
Regina	\$198.76	\$454.93
North Vancouver (City)	\$208.19	\$416.94
New Westminister	\$230.62	\$498.63
Saanich	\$171.97	\$418.91
Kelowna	\$200.76	\$466.56

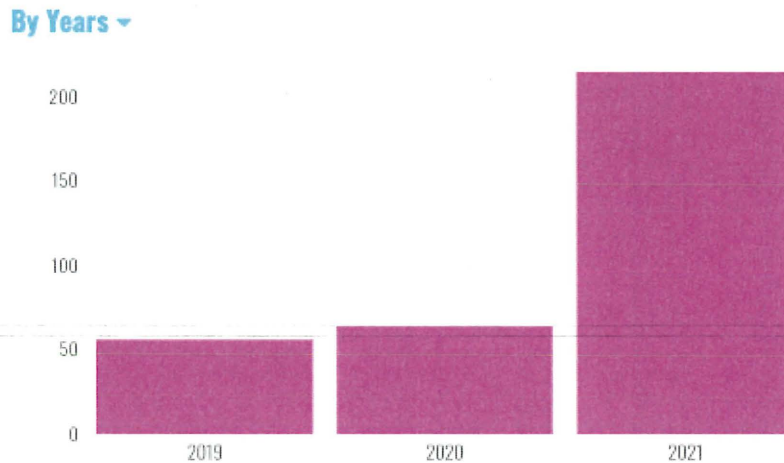
Figure 20: Maple Ridge has the lowest cost per person unit of all comparator jurisdictions. Differential by dwelling unit reflects the demographics of each community, including the number of people per dwelling unit.

Staffing levels are the other critical factor in overgoal calls, particularly ERF. The total on-shift capacity of MRFR is 11 firefighters and one Duty Chief to achieve the MRFR ERF standard for a single incident response. There are three staffed engines on duty at all times in Stations 1, 3 and 4. Paid-on-call personnel resource Station 2 and are responsible for staffing all other fire department response vehicles alongside off-shift career personnel. This staffing model is increasingly incapable of meeting the department's needs. While event numbers are lower in the Station 2 response area, increases in industrial development and residential nodes are



forecasted for the area. They should be monitored to ensure that the response system capabilities follow demand.

Data analysis and total call volumes confirm that concurrent calls are an operational certainty on most days. Existing staffing is inadequate to consistently meet the ERF for a single structure fire, let alone simultaneous events. Analysis of the causal factors for those incidents where MRFR performance standards were not achieved shows that the increasingly busy organization requires the deployment of the first response apparatus from outside of the response area, resulting in longer response times for the first due engine, with the potential for inadequate resources to achieve the effective response force necessary for fires and more severe incidents. The following chart illustrates those incidents where concurrent responses negatively affected MRFR first due to engine response and the mustering of an effective response force (ERF). It is essential to recognize that 2021 has seen a four-fold increase in these events, representing a trend that must be tracked and expanded to show all concurrent incident events.



*Figure 21: Concurrent or out-of-response zone incidents are indicators of concurrent demands for service, and these are only the incidents where the concurrency impacted service performance.*

As illustrated in Figure 15, the incident distribution shows that the largest cluster of responses in the City is in the Station 1 zone. This area's high volume of responses requires additional resources to meet initial emergency response demands without regularly removing critical first response capacity from most of the City. The existing staffing levels and model have a small group of career staff stretched across the City, with no capacity to balance workloads and responses. This results in significant pressure on staff and reduced ability to achieve response time performance.



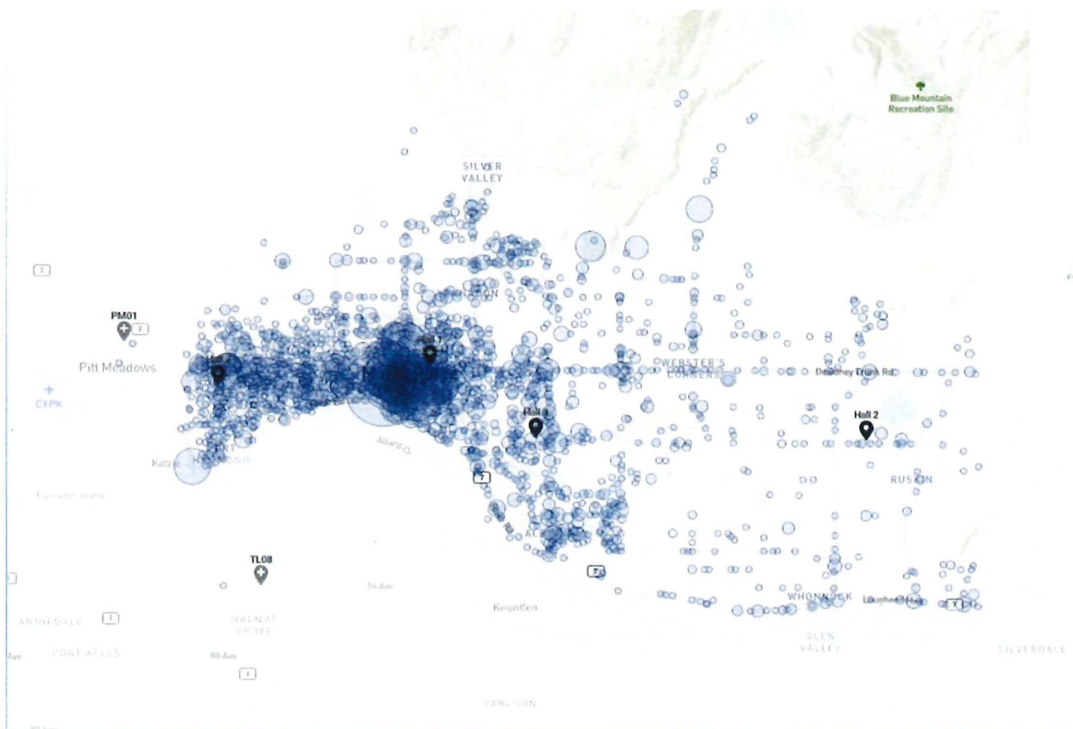


Figure 22: Incident distribution of 2021 emergency incidents.

- **Recommendation #24 New Fire Station(s):** MRFR and the City of Maple Ridge should commit to developing a Fire Facility Master Plan (FFMP) that identifies current and future facility needs. The fire facility master plan must consider life cycle planning, staffing methodologies, and land acquisition strategies for existing and future fire stations. The FFMP should be part of the City's facility capital planning and development processes.
  - **Timeline:** Q-2 2025
- **Recommendation #25 Station 3 Upgrades/Replacement:** Station 3 renovations or replacement plans should be linked to Lougheed Transit Corridor development plans to address land and integration plans.
  - **Timeline:** Q-4 2024 as the Lougheed Transit Corridor planning is in an active planning cycle
- **Recommendation #26 New Station:** Planning for an additional station to serve the developments north of the South Alouette River, including a resourcing plan, should focus on a 2028 opening.
  - **Timeline:** Station completion in 2028
- **Recommendation #27 Station Staffing Plans:** All fire station plans should include a proposed staffing model in the project proposal.
  - **Timeline:** Immediate implementation of business practice change.

## 9.0 Technology, Apparatus, and Equipment

### Master Plan Policy Statement

*MRFR apparatus and equipment capital programs will continue to reflect industry-leading practices for acquisition, life cycle management and replacement frequencies.*

*Business cases for capital upgrades of additions will be developed for exceptions to routine replacements, including staffing or other implications.*

Apparatus and vehicles must reflect authorized service levels as approved by Council. As the fire service evolves, the fleet must evolve to ensure that the apparatus is appropriate for the services provided and the changing nature of industry and community demands. Worker safety and operational practices have seen a change in perspective on what response vehicles need to be able to do. Function, reliability, safety and affordability are core replacement considerations. MRFR's processes for fleet and equipment management processes reflect industry-leading practices.

Timely replacement of fleet assets is essential for controlling vehicle availability, safety, reliability, and efficiency. A replacement schedule ensures the fleet is at its optimum regarding the condition and technological readiness. A fixed capital asset replacement schedule allows the City to monitor and amend its operating and deployment practices to minimize lifecycle costs. The City uses a fixed date lifecycle to determine fire apparatus replacement. This practice follows Underwriters Laboratories of Canada (ULC) S515-12 Standard for Automobile Fire Fighting Apparatus, closely aligned to NFPA 1901 Standard for Automotive Apparatus (2009 Edition). While generally acceptable, this is no longer a leading practice approach. Replacement programs based on dependability, function, cost of operations, and staffing model changes, may be a more relevant fleet management process.

- **Recommendation #28 Apparatus:** Apparatus replacement and maintenance programs should continue to reflect industry best practices for approved MRFR service levels. Apparatus acquisitions for new capabilities should include staffing assessments to ensure the inclusion of deployment implications to maintain existing service level standards and demands while making growth decisions.
  - **Timeline:** n/a
- **Recommendation #29 Equipment:** Equipment replacement programs should continue to reflect approved service-level policies and standards, legislative or regulatory requirements, and industry best practices.
  - **Timeline:** n/a
- **Recommendation #30 IT Systems:** Data management and information technology (IT) systems should focus on "off-the-shelf" or third-party-provided services reducing the impact on Corporate services. Selection criteria should comply with Maple Ridge IT



procurement processes and reflect a careful analysis of data security and privacy protocols.

- **Timeline:** n/a

## 10.0 Disaster Risk Reduction Program

### Master Plan Policy Statement

*The City of Maple Ridge will maintain a leading practice emergency program consisting of plans, trained personnel, and systems that will support all four pillars of emergency management- prevention, mitigation, response and recovery.*

The lack of a modern CRA reflects an underlying lack of Corporate understanding of the relevance of the City's Disaster Risk Reduction program. The Disaster Risk Reduction program is an integral part of MRFR's mandates. It is a good fit due to MRFR's emergency planning, response and mitigation roles and their experience leading complex responses to community emergencies and non-emergency events. Fire services personnel work daily with the internal and external organizations tasked with essential services during a large-scale crisis and understand how and when to escalate to enhanced municipal emergency response.

However, the responsibility for the municipality's Disaster Risk Reduction function belongs to Maple Ridge Corporate Executive team. While the fire department can fill planning and coordinating roles, the responsibility for providing staff and capacity is the municipality's responsibility. The fire department requires corporate support to be successful in leading this program.

Most progressive emergency programs see a designated agency, often the fire department, assigned responsibility for providing the coordinating and planning functions of the emergency management program. An emergency management Policy Group, usually reflecting members of the municipality's executive leadership team, oversees the delivery of the Disaster Risk Reduction program. It is responsible for ensuring the program meets provincial and municipal policy requirements. The executive-level committee assigns corporate resources and staff to emergency functions and mandates continuity and resumption plans and staff training.

The Maple Ridge Disaster Risk Reduction function is mostly unstaffed. While the job is attached to a Deputy Fire Chief's role, operations and other fire department functions have made this a "corner of the desk" function that gains little support or attention, despite best efforts. The lack of corporate commitment to Disaster Risk Reduction has led to a belief that participation by other City personnel is a "voluntary" or optional function rather than the critical and mandatory function required of city employees. Lack of capacity has led to an ill-prepared emergency management organization to deal with a community or regional emergency, despite the real threats displayed by heat domes, atmospheric rivers, flood threats and being on a busy rail corridor. Maple Ridge's response depends heavily on individuals instead of an effective and capable organizational response based on well-written plans, training, and engagement.



Recent changes in legislation<sup>4</sup> require a complete modernization of plans to better prepare for existing and future threats. Legislative changes will require municipalities to upgrade their planning, training and exercise capabilities, which is beyond the current capacity of the MRFR Disaster Risk Reduction program. As the snow events of 2023 have demonstrated, there is a high level of expectation from residents and businesses that municipalities will be able to mount an effective response to a broad range of threats. Residents demand timely and accurate messaging, effective deployment of emergency and other required resources, and effective regional and provincial integration of efforts.

- **Recommendation #31 Emergency Program Resourcing:** The City of Maple Ridge should develop and resource an emergency program that meets the City of Maple Ridge's risk management requirements, complies with British Columbia's modernized Emergency Program<sup>5</sup> legislation and regulations, and includes a critical infrastructure inventory and corporate climate change response provisions.
  - **Timeline:** Immediate and ongoing pending completion of the 2023 Emergency Program review.
- **Recommendation #32 Corporate EP Roles:** The City of Maple Ridge should begin implementing cultural change making disaster risk reduction, planning and management a Corporate function supported across all City Departments, coordinated by MRFR. Emergency program participation should become part of the performance plans for Maple Ridge management personnel with specific expectations related to planning and response roles.
  - **Timeline:** Q-1 2024

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<sup>4</sup> <https://www2.gov.bc.ca/gov/content/safety/emergency-management/emergency-management/legislation-and-regulations/modernizing-epa>

<sup>5</sup> <https://alpha.gov.bc.ca/gov/content/safety/emergency-management/emergency-management/legislation-and-regulations/modernizing-epa#next>

## 11.0 Integrated Services

### Master Plan Policy Statement

*The City of Maple Ridge will include MRFR in all strategic and community planning processes that have the potential to impact MRFR response, emergency planning or prevention services.*

*MRFR will continue to develop strong inter-departmental relationships with other City of Maple Ridge departments to ensure alignment with other master and strategic planning objectives.*

*Maple Ridge Fire Department will actively participate in regional emergency response, planning and other programs.*

#### 11.1 City of Maple Ridge Collaboration

While there is some evidence of coordination between MRFR and other City departments in long-range capital and operating programs, there appears to be a lack of deliberate efforts to link MRFR's strategic planning with those other departments. This gap reflects limited references to MRFR's priorities or contributions in other long-range planning documents. However, there are significant potential benefits to enhancing internal relationships between the fire department and other City departments. By doing so, MRFR can better align its planning efforts with those of other departments, which could lead to more efficient and effective use of resources, improved service delivery, and better outcomes for the Community. Therefore, it would be advantageous for the City and MRFR to work together to establish stronger connections and better collaboration across departments.

The City can improve the relationship between the various planning functions of the City, including development services, tourism, and harbour planning and development, to ensure engagement at all MRFR levels regarding developments that change the City's risk profile related to fire and rescue. A defined consultation guide that lists all interested agencies, including MRFR, would help ensure that fire protection is one of the functions of the City assessed when approving new developments. Fire department participation does not hinder planned growth but ensures that protective services can sustain defined service levels in new and existing areas.

#### 11.2 Regional Integration

The participation of MRFR in regional fire and rescue initiatives provides a range of benefits to the department and the Community it serves. The MRFR's involvement in these initiatives can lead to improved coordination, enhanced training opportunities, and sharing of resources and expertise across multiple departments. No jurisdiction can meet all of the demands alone.



One significant advantage of participating in regional initiatives is the ability to share best practices and learn from other departments. By engaging in regular meetings and training exercises with neighbouring fire departments, MRFR can gain valuable insights into how other departments operate, practice joint command and control processes, and identify areas for improvement within their department. These learnings can increase efficiency, better resource allocation, and more robust responses to emergencies and disasters.

Another benefit of participating in regional initiatives is accessing additional necessary resources. MRFR may need to call neighbouring departments for support in a large-scale emergency or disaster. Having established relationships and shared training with these departments, MRFR can more easily integrate these resources and respond to the situation effectively. There are numerous successful programs that Maple Ridge can look to, including the Integrated Partnership for Regional Emergency Management (IPREM) in Metro Vancouver.

Effective internal and external relationships require resourcing. These are complex relationships that require significant amounts of effort to establish and maintain. The City of Maple Ridge should ensure senior personnel have sufficient space to develop these critical relationships.

- **Recommendation #33 Corporate Planning:** The City of Maple Ridge should develop and implement a standard project planning process. Assessments of "interested departments" on any new projects or protocol development to identify those that should have a specific role(s) in the activity and to determine unique interests. Periodic program reviews of existing programs, master planning exercises, and corporate strategic planning processes should undergo similar assessments.
  - **Timeline:** Develop a base process in 2024 and implementation in 2025 onward.
- **Recommendation #34 Shared Services:** Service-level agreements should be developed between MRFR and City departments to describe the nature and scope of inter-departmental cooperation and collaboration, including specific deliverables and levels of participation.
  - **Timeline:** Ongoing
- **Recommendation #35 Regional:** MRFR should be encouraged to develop stronger regional relationships with area fire services and other emergency response providers, Disaster Risk Reduction agencies, and regional service delivery entities. MRFR has extensive experience that could be of value regionally, and the connections will aid operations when significant planning or response incidents occur.
  - **Timeline:** Ongoing
- **Recommendation #36 Service Portfolio:** MRFR service level exercises should evaluate response services that Maple Ridge must deliver and those that would benefit from a more integrated regional response. Planning considerations should include demand frequency, availability of regional response resources, and capacity of MRFR to maintain adequate numbers of qualified personnel.
  - **Timeline:** Ongoing



- **Recommendation #37 Regional EP:** Maple Ridge's Disaster Risk Reduction program should continue its leadership role in regional Disaster Risk Reduction planning.
  - **Timeline:** Ongoing

## 12.0 Continuous Improvement

*MRFR commits to a principle of continuous improvement in providing fire protection services to the City of Maple Ridge, as reflected in its key performance indicators.*

*Outcomes and key performance indicators identified and approved by the City of Maple Ridge Council will be used to track and assess progress through annual updates.*

*The City of Maple Ridge will set response time targets which provide for effective fire and rescue services to its citizens and form the basis for ongoing performance reporting.*

### Master Plan Policy Statement

Continuous improvement programs and effective data collection and reporting measures are essential for enhancing fire department performance. These measures provide departments with critical information about their operations, enabling them to identify areas for improvement and develop strategies to improve their overall effectiveness. Many North American fire departments consider accreditation the vehicle to achieve systemic improvements.

Continuous improvement programs provide a structured framework for departments to review and analyze their operations. By regularly evaluating their processes and procedures, departments can identify inefficiencies and implement changes to improve performance. This approach fosters a culture of continuous learning and development, encouraging personnel to seek ways to enhance their skills and knowledge constantly.

Effective data collection and reporting measures are also critical for enhancing department performance. Departments can gain valuable insights into their operations by tracking key performance indicators, such as dispatch and call handling times, chute times to get apparatus out of the fire station, drive times, incident types, and outcomes. This information can identify trends and patterns, allowing departments to develop targeted strategies to address specific challenges. Following a standard data collection protocol, data collection over multiple years will provide long-term observations with high reliability and accuracy.

Effective data collection, analytics, and reporting measures also enable departments to demonstrate their value to stakeholders. By providing accurate and timely data on department performance, departments can illustrate their effectiveness and the impact of their services on the Community. This information can help secure funding, support strategic planning efforts, and demonstrate compliance with regulatory requirements. The work completed through the

MRFR Master Planning project has updated data collection practices and developed rules that ensure all data processes' consistency and support accurate reporting.

The following performance indicators provide an example of the range of potential performance indicators that measure the effectiveness of the program and service delivery model. This data's ongoing and consistent collection will inform future decisions and identify trends, allowing time

<b>Service Level Performance Indicators</b>	
<i>Outcome</i>	<i>Indicator</i>
Responsive fire service meeting agreed upon service target	<p>Total response time (call handling + dispatch + chute + drive) as fractal (% of calls responded to within X minutes)</p> <p>Compliance with NFPA 1710 response time measures for call handling:</p> <ul style="list-style-type: none"> <li>• Alarm handling 15 seconds 95% of the time</li> <li>• Alarm Processing 64 Seconds 95% of the time</li> </ul> <p>First-in engine response within 420 seconds at an Urban fire event</p> <p>First-in engine response within 1,080 seconds at a Rural fire event</p> <p>Total Urban and Rural time to achieve minimum effective staffing for structure fires based on MRFR critical tasking for various incident types</p>
Effective Fire/Injury Prevention Program	<p>% of planned inspections conducted</p> <p>% of inspections for which time since the last inspection is greater than the department's target cycle time</p> <p>% of fires that were preventable or could have been mitigated by inspection or by the educational and motivational elements of inspection</p> <p>Percentage of people in target population reached annually through non-emergency initiatives</p> <p>Changes in participants' safety knowledge, attitudes, and beliefs</p> <p>Number of fire safety programs delivered</p>

to consider options carefully. All reflect data already being collected by MRFR and its dispatch provider.

Community Performance Indicators	
<i>Outcome</i>	<i>Indicator</i>
Freedom from injury or Loss of life or property from fire	\$ Loss of property Number of fire deaths or injuries Fire Underwriter Survey (FUS) Insurance rating Code Compliance: Percentage of code violations noted that were corrected/abated Changes in fire incidents in target populations Changes in property damage costs in target populations
The general perception of security	Citizens' perception of the municipality as a safe place to live Percentage of citizens surveyed who are satisfied with the Maple Ridge Fire Department.

Employee Development Performance Indicators	
<i>Outcome</i>	<i>Indicators</i>
Well trained workforce	% of FT staff who have exceeded basic NFPA certification. % of PoC staff taught to minimum MRFR standards % of staff compliant with minimum training certifications and skills management standards. # of Officers who have completed Incident Command training
Effective recruitment	Recruitment- actual versus target across all business units. Diversity targets for hiring performance in recruitment Turnover rates for each business unit
Staff health and satisfaction	Sickness/injury rates Overtime rates Staff satisfaction as reported via a staff survey



<b>Management Performance Indicators</b>	
<i>Outcome</i>	<i>Indicators</i>
Financially prudent service provision	\$ per resident Actual to net budget costs
Support City's strategic direction	Progress on Master Plan initiatives. Progress on Corporate Strategic Plan initiatives.
Effective Fire/Injury Prevention Program (Report to Council as information)	Percentage of citizens reached annually through non-emergency initiatives – gathered via citizen survey question  # of joint education programs with schools
Management processes (Report to Executive Team)	Currency of Master Plan

<b>Emergency Program Performance Indicators</b>	
<i>Outcome</i>	<i>Indicators</i>
A city prepared	% of emergency program plans in place and exercised  CRA annual update completed and reported  % of City departments with three or more staff trained for Emergency Operations Centre operations  % of City staff that participated in annual exercises  # of exercises conducted with internal and external stakeholders
Mitigation	# of hazard-specific plans developed and exercised for top-tier community risks  % of City business units with an approved business continuity plan
Response	Number of times Disaster Risk Reduction plans and programs used for emergency and non-emergency event coordination or response
Recovery	Relative capacity of community support services (# of residents able to be accommodated)

- **Recommendation #38 Data Standards:** Data collection and reporting systems should follow CFAI/CPSE accreditation standards to ensure accurate and consistent collection, analytics, and reporting processes.
  - **Timeline:** Q-4 2023 onward
  
- **Recommendation #39 Metrics:** Specific metrics that reflect the qualitative and quantitative performance of each of the business areas of MRFR reported in a publicly accessible dashboard. Those metrics should focus on MRFR's compliance with approved service levels and service level standards. Once approved, these metrics should be considered permanent measures supporting trend identification and accountability measures.
  - **Timeline:** Q-3 2023
  
- **Recommendation #40 Reporting:** The City of Maple Ridge's Disaster Risk Reduction performance, business continuity and business resumption planning status for all essential services should be reported as part of the City's corporate dashboard. While MRFR is leading the emergency program, each City department is responsible for its critical service portfolio planning within the overarching program.
  - **Timeline:** Q-2 2023



## 13.0 Conclusion

The City of Maple Ridge is well served by Maple Ridge Fire Rescue. MRFR is a well-respected and well-led organization providing high-quality fire and emergency response services. The observations in the Master Plan and Annexes identify solid foundations and opportunities to build on the great work already underway.

The Master Plan, Council Policy Statements, and Recommendations reflect a comprehensive fire protection strategy to move Maple Ridge and its fire department forward sustainably and reflect the changing risks the City faces. They also reflect Council's strategic vision for a livable and safe city. Climate change, a struggling volunteer sector, increased expectations of City residents, and a significantly more regulated fire and Disaster Risk Reduction industry mean historic service delivery models must change. This plan provides the framework and medium-term steps to begin that change.

Change is an ongoing reality, meaning the Master Plan must be flexible and able to respond to those changing needs. FireWise and Darkhorse have provided a Master Plan, a living document Maple Ridge can readily update to reflect a changing environment. If the pandemic taught us anything, our plans must be able to address the unforeseen. When taken as a whole, the framework, data collection and reporting standards set Maple Ridge and Maple Ridge Fire and Rescue up for ongoing success.

Thank you for the opportunity to work with Maple Ridge. It has been a pleasure getting to know the City and the professionals who serve the community so well.

Respectfully Submitted,



Ernie Polsom

## 14.0 Annex 1: Definitions

FireWise uses commonly accepted word definitions that follow, in order of precedent, definitions used in British Columbia legislation, accepted fire protection standards, and those widely used in the Canadian language.

**Automatic Aid:** A plan developed between two or more fire departments to immediately notify multiple agencies for response to first alarms.

**British Columbia Emergency Health Services (BCEHS):** BC Emergency Health Services provides pre-hospital emergency services and inter-facility patient transfers throughout the province and oversees the BC Ambulance Service and BC Patient Transfer Services.

**British Columbia Office of the Fire Commissioner (BCOFC):** The Office of the Fire Commissioner (OFC) provides applicable legislation and codes, firefighter standards and training, fire incident reporting, structure protection program (SPP), Local Assistant to the Fire Commissioner (LAFC), and fire service awards

**Benchmark:** a standard or point of reference against which things may be compared or assessed.

**Career Firefighter:** Means one whose primary employment is directly related to the fire service.

**Composite Fire Department:** A fire department having emergency service personnel comprising less than 85% majority of either volunteer or career membership.

**Critical Tasking:** Critical tasking is a process that entails analyzing resourcing specific tasks, including a detailed description of both manual and mental activities, task and element durations, task frequency, task allocation, task complexity, environmental conditions, necessary clothing and equipment, and any other unique factors involved in or required for one or more people to perform a given task.

**Demand Zone:** (also, response zone) An area used to define or limit the management of a risk situation. A jurisdiction may have multiple demand zones reflecting its varied nature.

**Densification:** Densification is a term used by planners, designers, developers, and theorists to describe the increasing density of people living in urban areas.

**Effective Response Force (ERF):** An effective response force is the minimum number of firefighters and equipment that must reach a specific emergency incident location within a maximum prescribed travel [driving] time. The prescribed travel time acts as one indicator of resource deployment efficiency.

**Emergency Incident:** Any situation to which an emergency services organization responds to deliver emergency services, including rescue, fire suppression, emergency medical service, special operations, law enforcement and other forms of hazard control and mitigation.

**Fire Equipment:** This means all fire apparatus and other fire equipment, emergency response vehicles and equipment and all other equipment commonly used by the Department, together with replacements and additions.



**Fire Apparatus:** A vehicle designed to be used under emergency conditions to transport personnel and equipment and to support the suppression of fires and mitigation of other hazardous situations.

**Fire Department:** An organization providing emergency planning, fire prevention, rescue, fire suppression, emergency medical services, and related activities to the public.

**Fire Underwriters Survey (FUS):** Fire Underwriters Survey™ (FUS) is a national organization administered by OPTA Information Intelligence, formerly CGI Insurance Business Services, formerly the Insurers' Advisory Organization and Canadian Underwriters Association. FUS provides data on public fire protection for fire insurance statistical work and underwriting purposes of subscribing insurance companies. Subscribers of the Fire Underwriters Survey represent approximately 85 percent of Canada's private sector property and casualty insurers.

**First Due Engine Company:** Defined as the first engine to arrive on the scene of an incident in a given response zone.

**Full-Service Fire Department:** (The BC Office of the Fire Commissioner) The service level that includes activities of firefighters and officers trained in the full spectrum of Competencies outlined in the NFPA 1001 Firefighter 2, Standard for Fire Fighter Professional Qualifications as well as the relevant competencies of NFPA 1021, Standard for Fire Officer Professional Qualifications for Officers as described at Page 18 of the BC Fire Service Minimum Training Standards- Structure Firefighters Competency and Training Playbook.

**Hazardous Material:** a substance that is capable of creating harm to people, the environment or property due to its toxicity, chemical reactivity, decomposition, or corrosivity; is capable of explosion or detonation; or presents etiological hazards, whether used for its intended purpose or as a weapon of mass destruction (WMD), for illicit lab purposes, environmental crimes or industrial sabotage.

**Housing Insecurity:** The state of not having stable or adequate living arrangements, mainly due to the Risk of eviction or because one lives in unsafe or uncomfortable conditions

**Interface Fire:** Interface fires are fires that have the potential to involve buildings and forest fuel or vegetation simultaneously.

**National Fire Protection Association (NFPA):** The association publishes more than 300 consensus codes and standards to minimize the possibility and effects of fire and other risks. The administration of these codes and standards is performed by more than 250 technical committees and approximately 8,000 volunteers.

**Overgoal Response:** Describes emergency responses exceeding the times for first due and effective response force development established by service level policy, legislation or standard.

**Paid-on-Call (PoC) Firefighter:** This term describes volunteer firefighters who are paid for their services, which may include training, responses and on-call or standby hours. The terms Paid on Call, Volunteer, Part Time and Auxiliary are used interchangeably within the fire service.

**According to Canada Census, a Rural Demand Zone has less than 500 people per square mile.**

**Service Level:** Service level measures the performance of a system. Specific goals are defined, and the service level gives the percentage to which those goals should be achieved as determined by the department's Authority Having Jurisdiction (AHJ).

**Structural Firefighting:** The activities of rescue, fire suppression, and property conservation in buildings or other structures, vehicles, rail cars, marine vessels, aircraft or like properties.

**Technical Rescue:** The use of specialized tools and skills for rescue, including vehicle extrication, confined space rescue, rope rescue, trench rescue, structural collapse rescue, water rescue, and wilderness search and rescue.

**Urban Demand Zone:** An area with at least 1,000 people per square mile based on Canada Census data.

