DILLON CONSULTING

TOWN OF OLDS

Fire Services Master Plan

Project Number: 19-9296

Final Report

September 2019

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Acronyms, Abbreviations, Definitions

A.B.C.	Alberta Building Code
A.F.C.	Alberta Fire Code
A.F.R.R.C.S.	Alberta First Responders Radio Communications System
A.H.J.	Authority Having Jurisdiction
A.N.S.I.	American National Standards Institute
B.C.	British Columbia
C.A.R.E.	Certified Airmask Repair Education
C.A.F.C.	Canadian Association of Fire Chiefs
C.A.O.	Chief Administrative Officer
C.E.F.P.	Community Emergency Management Program
C.F.A.I.	Commission on Fire Accreditation International
C.F.S.E.M.	Comprehensive Fire Safety Effectiveness Model
C.P.	Canadian Pacific
C.P.C.	Commission on Professional Credentialing
C.P.S.E.	Centre for Public Safety Excellence
C.R.A.	Community Risk Assessment
C.R.R.P.	Community Risk Reduction Plan
D.A.R.E.	Drug Abuse Resistance Education
E.O.C.	Emergency Operations Centre
E.R.F.	Effective Response Force
E.R.F.s	Emergency Response Facilities
E.R.P.	Emergency Response Plan
E.R.U.s	Emergency Response Units
E.S.S.	Emergency Social Services
E.V.T.	Emergency Vehicle Technician
F.C.B.	Fire Code Bulletins
F.C.I.	Fire Code Interpretations
F.P.O.	Fire Prevention Officer
F.S.M.P.	Fire Services Master Plan

F.T.E.	Full-time Equivalent
G.I.S.	Geographic Information Systems
H.I.R.A.	Hazard Identification and Risk Assessment
H.I.R.F.	High-Intensity Residential Fires
I.C.C.	Inter-municipal Cooperation Committee
I.C.S.	Incident Command System
I.D.H.L.	Immediately Dangerous to Health
I.D.P.	Inter-municipal Development Plan
I.F.S.A.C.	International Fire Service Accreditation Council
I.F.S.T.A.	International Fire Service Training Association
I.M.S.	Incident Management Systems
L.E.R.L.	Lower Effectiveness Response Level
M.D.P.	Municipal Development Plan
M.G.A.	Municipal Government Act
M.V.R.E.M.A.	Mountain View Regional Emergency Management Agency
M.W.	Megawatt
N.B.C.	National Building Code
N.F.C.	National Fire Code
N.F.P.A.	National Fire Protection Association
N.I.S.T.	National Institute of Standards and Technology
O.H.S.A.	Occupational Health and Safety Act
O.F.C.	Office of the Fire Commissioner
O.F.D.	Olds Fire Department
O.F.M.E.M.	Office of the Fire Marshal and Emergency Management
P.F.S.G.	Public Fire Safety Guidelines
P.O.C.	Paid on Call
P.P.E.	Personal Protective Equipment
Q.M.P.	Quality Management Plan
R.C.M.P.	Royal Canadian Mounted Police
S.C.A.	Safety Codes Act
S.C.B.A.	Self-Contained Breathing Apparatus

S.C.C.	Safety Codes Council
S.C.O.	Safety Codes Officer
S.O.G.s	Standard Operating Guidelines
S.O.P.s	Standard Operating Procedures
S.W.O.C.	Strengths, Weaknesses, Opportunities, Challenges
T.F.S.	Toronto Fire Service
T.O.	Training Officer
U.E.R.L.	Upper Effectiveness Response Level
U.S.	United States

Executive Summary

This ***Fire Services Master Plan*** (F.S.M.P.) was developed to provide Council and senior corporate staff, including the Fire Chief, with a strategic framework for the delivery of fire protection services within the Town of Olds over the next ten-year community planning horizon. The findings and recommendations contained within this F.S.M.P. have been informed by a ***Community Risk Assessment*** (C.R.A.) that was developed as a companion document to assess the existing fire risk within the community. Collectively the C.R.A. and the F.S.M.P. provide a clear picture of the existing fire risks within the community, and the existing fire protection capabilities of the Olds Fire Department (O.F.D.).

The C.R.A. and F.S.M.P. have been developed in consideration of the municipality's legislative requirements and current industry best practices, as informed by leading industry organizations such as the ***National Fire Protection Association*** (N.F.P.A.) and our knowledge and experience related to current municipal best practices. Consideration has also been given to the Town's 2017-2021 strategic planning document ***Creating Connections for the Future*** that reflects a strong commitment to ensuring a safe, secure and healthy community, and a strategic goal that in our view supports the provision of fire protection services that provide the most value to the community.

In addition to options and recommendations, this F.S.M.P. will present four "***strategic priorities"*** that are intended to form the guiding principles in Council's decision making process with respect to the future delivery of fire protection services by the O.F.D. These proposed ***"strategic priorities"*** have been informed by a comprehensive analysis of the existing fire risks within the community as defined by the companion C.R.A. as ***"key findings".*** Where applicable this F.S.M.P. will identify proposed fire risk reduction strategies through the application of an industry leading strategy referred to as the ***"Three Lines of Defence"*** that includes:

i. ***Public Education and Prevention;***
ii. ***Fire Safety Standards and Enforcement; and***
iii. ***Emergency Response (Fire Suppression).***

The recommendations presented within this F.S.M.P. leverage the leadership the municipal Council has already shown in supporting the hiring of a dedicated full-time Fire Inspector. Strategies are included to further enhance the services being provided by this new position and optimizing the current fire prevention and public education programs and services provided by the O.F.D. This will include a focused approach to the implementation of programs that target the utilization of the first two first lines of defence, including enhanced public education programs and the further application of fire safety standards and fire code enforcement.

The information presented within this F.S.M.P. will also confirm that the O.F.D. is defined within the fire service industry as a ***"volunteer / paid on-call"*** fire department, primarily relying upon the use of both

paid on-call (volunteer) firefighters. The analysis will identify that this fire department model has historically served the Town of Olds very well. However, this F.S.M.P. will also identify that the sustainability of utilizing paid on-call (volunteer) firefighters to provide fire suppression services is becoming an increasingly challenging strategy for communities across the country. The recruitment and retention of paid on-call (volunteer) firefighters has become a major challenge for many smaller communities like the Town of Olds. As such this F.S.M.P. will introduce strategies that target the sustainability of this historically beneficial organization and operational model. These strategies will include Council taking a broader leadership role in outreach to the community to seek the assistance of employers and the community in sustaining this valued resource.

This F.S.M.P. includes two types of recommendations to further enhance the fire protection services provided by the O.F.D. These include ***"Council Recommendations"*** defined as those recommendations that require a policy decision or financial commitment on behalf of the Town, and ***"Operational Recommendations"*** that are defined as recommendations that can be administered and implemented by the Fire Chief within his current authority, although possibly requiring further documentation and reporting to Council for approval.

This F.S.M.P. provides an implementation strategy that addresses the context of the recommendations in terms of the current financial and political realities of the Town of Olds. All decisions related to budget, policy, or bylaw will be brought back to Council prior to implementation.

Summary of Recommendations

Administration Division

Council Recommendations:

Council Recommendation #1: ***That consideration be given to approving the strategic priorities identified within the Fire Services Master Plan to guide the development and delivery of fire protection services within the Town of Olds over the next ten-year community planning horizon.***

- ✓ ***The analysis of fire protection services provided to the community shall be fully informed by the development and ongoing review and update of a Community Risk Assessment to identify the fire related risks within the Town of Olds;***
- ✓ ***The primary objective of the Olds Fire Department will be to optimize the use of public education and fire prevention programs and activities, and the utilization of fire safety standards and fire code enforcement, to enhance the fire and life safety within the community;***
- ✓ ***The Town of Olds will continue to prioritize the utilization of strategies that support the sustainability of paid on-call firefighters as the Town's primary providers of fire suppression services, and through the implementation of a comprehensive communication plan the Council of the Town of Olds will seek the support of residents and employers to assist in this strategic priority;***
- ✓ ***The Town of Olds will continue to prioritize the delivery of a comprehensive fire protection model that provides the most effective and efficient level of fire protection services resulting in the best value for the community.***

Operational Recommendations:

Operational Recommendation #1: That subject to Council's consideration and approval of the proposed Fire Services Master Plan the Town conduct a comprehensive review and update of all required job descriptions.

Operational Recommendation #2: That the Olds Fire Department implement a Senior Officer On-Call policy as presented within the proposed Fire Services Master Plan.

Operational Recommendation #3: That subject to Council's consideration and approval of the proposed Fire Services Master Plan that By-law No. 2018-28 – Fire By-law be reviewed and revised as may be required.

Operational Recommendation #4: That consideration be given to reviewing the current Rates By-law No. 2018-34 as presented within the proposed Fire Services Master Plan.

Operational Recommendation #5: That priority be given to updating and sustaining department Standard Operating Guidelines and Standard Operating Procedures to reflect current industry best practices and applicable legislation.

Operational Recommendation #6: That consideration be given to developing a Standard Operating Guideline for all records management practices within the Olds Fire Department.

Operational Recommendation #7: That consideration be given to enhancing the fire department's Annual Report to include performance benchmarking to further enhance the department's reporting to Council and the community.

Fire Prevention and Public Education Division

Council Recommendations:

Council Recommendation #2: That subject to Council's consideration and approval of the proposed Fire Services Master Plan consideration be given to updating the Town's current Quality Management Plan.

Operational Recommendations:

Operational Recommendation #8: That the training standards and qualifications for all staff assigned to the delivery of fire prevention and public education services and programs identified within the proposed Fire Services Master Plan be considered for implementation within the applicable job descriptions within the Olds Fire Department.

Operational Recommendation #9: That consideration be given to developing a Standard Operating Guideline or Procedure to provide direction to all Olds Fire Department personnel who may be required to work alone while out in the community, or County.

Operational Recommendation #10: That once compliance with the current Quality Management Plan has been achieved including supporting statistical data that consideration be given to re-instating the previous fire inspection cycles for Group D and E major building classifications.

Operational Recommendation #11: That consideration be given to developing a Standard Operating Guideline, or Standard Operating Procedure for Fire Safety Plans.

Operational Recommendation #12: That consideration be given to developing a department Standard Operating Guideline for conducting pre-plans, and that within the proposed guideline consideration be given to prioritizing the "key findings" of the Community Risk Assessment.

Operational Recommendation #13: That consideration be given to developing a letter of understanding, or other written agreement between the Building and Fire Departments to coordinate the construction plan review and approval process.

Operational Recommendation #14: That consideration be given to developing a Standard Operating Guideline to identify the roles and responsibilities, objectives, targets and procedures for the delivery of the Olds Fire Department Home Fire Safety Program as presented within the proposed Fire Services Master Plan.

Operational Recommendation #15: That consideration be given to developing and implementing a "pilot project" for facilitating a targeted fire safety program to children aged 10 to 12 within the community as presented within the proposed Fire Services Master Plan.

Operational Recommendation #16: That consideration be given to developing and implementing a targeted fire safety program for seniors (65+) within the community as presented within the proposed Fire Services Master Plan.

Operational Recommendation #17: That consideration be given to enhancing the current Home Fire Safety Program as presented within the proposed Fire Services Master Plan.

Training Division

Council Recommendations:

Council Recommendation #3: That subject to Council's consideration and approval of the proposed Fire Services Master Plan consideration be given to developing a Comprehensive Recruitment and Retention Strategy that targets the sustainability of Paid On-Call Firefighters as presented within the proposed Fire Services Master Plan.

Operational Recommendations:

Operational Recommendation #18: That consideration be given to consolidating all current firefighter training initiatives into one Comprehensive Annual Training Program including performance goals and objectives to be defined within a department Standard Operational Guideline.

Operational Recommendation 19: That the proposed Comprehensive Annual Training Program include minimum requirements for attendance to maintain the required competencies and experience required.

Operational Recommendation #20: That consideration be given to developing a department Standard Operating Guideline that describes the required qualifications that all firefighters must achieve in order to respond to emergency incidents, and to complete the firefighting tasks they may be assigned.

Operational Recommendation #21: That consideration be given to developing a comprehensive Company Officer Training Program and supporting Standard Operating Guideline.

Operational Recommendation #22: That consideration be given to including incident command training for all officers within the Olds Fire Department within the proposed comprehensive Company Officer Training Program and supporting Standard Operating Guideline.

Operational Recommendation #23: That consideration be given to the developing a succession plan for the Olds Fire Department.

Operational Recommendation #24: That consideration be given to developing department Standard Operating Guidelines for all approved specialized technical rescue services to be provided by the Olds Fire Department including the required training and qualifications necessary for all participating staff.

Operational Recommendation #25: That the Fire Chief further investigate the alternatives for providing specialized technical rescue services including partnerships, shared services and contracting services to reduce the existing operational and training requirements of the Olds Fire Department.

Operational Recommendation #26: That where applicable the further utilization of on-line training as a component of delivering the proposed Comprehensive Annual Training Program be considered.

Operational Recommendation #27: That the requirements for annual live fire training be included within the proposed Comprehensive Annual Training Program and department Standard Operating Guideline.

Facilities, Apparatus and Equipment

Operational Recommendations:

Operational Recommendation #28: That the consideration be given to retrofitting the fire station with a diesel emissions exhaust system to minimize the potential for diesel emissions exposure within the building.

Operational Recommendation #29: That consideration be given to enclosing the exercise facility to limit diesel emissions exposure from the apparatus bay and the installation of an independent ventilation system within the exercise facility.

Operational Recommendation #30: That consideration be given to providing additional public parking spots assigned to the fire station for use by the Emergency Operations Centre.

Operational Recommendation #31: That consideration be given to creating a major apparatus reserve capacity, including a minimum of one service ready pumper or pump/tender.

Fire Suppression Division

Council Recommendations:

Council Recommendation #4: That subject to Council's consideration and approval of the proposed Fire Services Master Plan that the proposed Initial Response Performance Benchmark including the response of a minimum of four firefighters assembled on scene prior to initiating any interior fire suppression operations be adopted by the Town of Olds.

Council Recommendation #5: That subject to Council's consideration and approval of the proposed Fire Services Master Plan that the proposed Depth Response Performance Benchmark including the response of a minimum of 15 firefighters assembled on-scene of a structure fire within a combined turnout and travel time of nine minutes be adopted by the Town of Olds.

Operational Recommendations:

Operational Recommendation #32: That consideration be given to including the performance benchmarks for emergency call taking and dispatch services, identified within N.F.P.A. 1221 - Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems, into current the dispatch service agreement, to be reviewed through a regular process.

Operational Recommendation #33: That consideration be given to initiating a process to collect detailed statistics in regards to the on-scene arrival times of all responding apparatus and all responding fire department personnel for all emergency calls.

Emergency Planning

Operational Recommendations:

Operational Recommendation #34: That further consideration be given to developing an ongoing Emergency Planning training strategy for members of Council and Town of Olds staff.

Proposed Staff Resource Strategies

Council Recommendations:

Council Recommendation #6: That consideration be given to prioritizing the transition of the existing 0.8 FTE administrative support position within the Olds Fire Department to a full-time equivalent

position, and revising the roles and responsibilities of this position to align more closely with a position such as a corporate Office Administrator.

Council Recommendation #7: That consideration be given to hiring a full-time Deputy Fire Chief of Operations and Training as presented within the proposed Fire Services Master Plan.

Council Recommendation #8: That consideration be given to hiring a full-time Deputy Fire Chief of Fire Prevention and Public Education as presented within the proposed Fire Services Master Plan.

Council Recommendation #9: That consideration be given to revising the roles and responsibilities of the current Paid on Call Deputy Fire Chiefs as recommended by the proposed Fire Services Master Plan.

Council Recommendation #10: That Council consider prioritizing the incremental hiring of 10 additional paid on-call volunteer firefighters to support enhancing the fire suppression services provided by the Olds Fire Department as presented within the proposed Fire Services Master Plan.

Council Recommendation #11: That the Olds Fire Department consult with the paid on-call firefighters in developing and implementing an on-call schedule as presented within the proposed Fire Services Master Plan.

Council Recommendation #12: That the Fire Chief be directed to conduct a review and update of the Fire Services Master Plan and Community Risk Assessment at the five-year midpoint of the plan's 10-year life cycle.

Operational Recommendations:

Operational Recommendation #35: That consideration be given to implementing the proposed Standard Operating Guideline Committee presented within the proposed Fire Services Master Plan.

Operational Recommendation #36: That consideration be given to implementing the proposed Fire Prevention and Public Education Division training qualifications presented within the proposed Fire Services Master Plan.

Operational Recommendation #37: That consideration be given to implementing the proposed Fire Prevention and Public Education Committee presented within the proposed Fire Services Master Plan.

Operational Recommendation #38: That consideration be given to implementing the proposed Training Division training qualifications presented within the proposed Fire Services Master Plan.

Operational Recommendation #39: That consideration be given to implementing the proposed Training Committee presented within the proposed Fire Services Master Plan.

1.0 Introduction

This ***Fire Services Master Plan*** (F.S.M.P.) was developed to provide Council and senior staff with a strategic framework to assist in guiding the delivery of fire protection services within the Town of Olds over the next ten-year community planning horizon. This plan presents a review of all current operations and divisions of the Olds Fire Department (O.F.D.) including the organizational structure and staffing, training, fire prevention and public education services and fire suppression apparatus deployment.

The analysis utilized to develop this F.S.M.P. was informed by current provincial legislation and regulations including the Municipal Government Act, Environmental Protection and Enhancement Act, Emergency Management Act, Health Discipline Act, Safety Codes Act, National Fire Code – 2019 Alberta Edition and the National Building Code – 2019 Alberta Edition. Where applicable the analysis presented also considers current industry standards as authored by the ***National Fire Protection Association*** (N.F.P.A.) and our knowledge of current industry and municipal best practices.

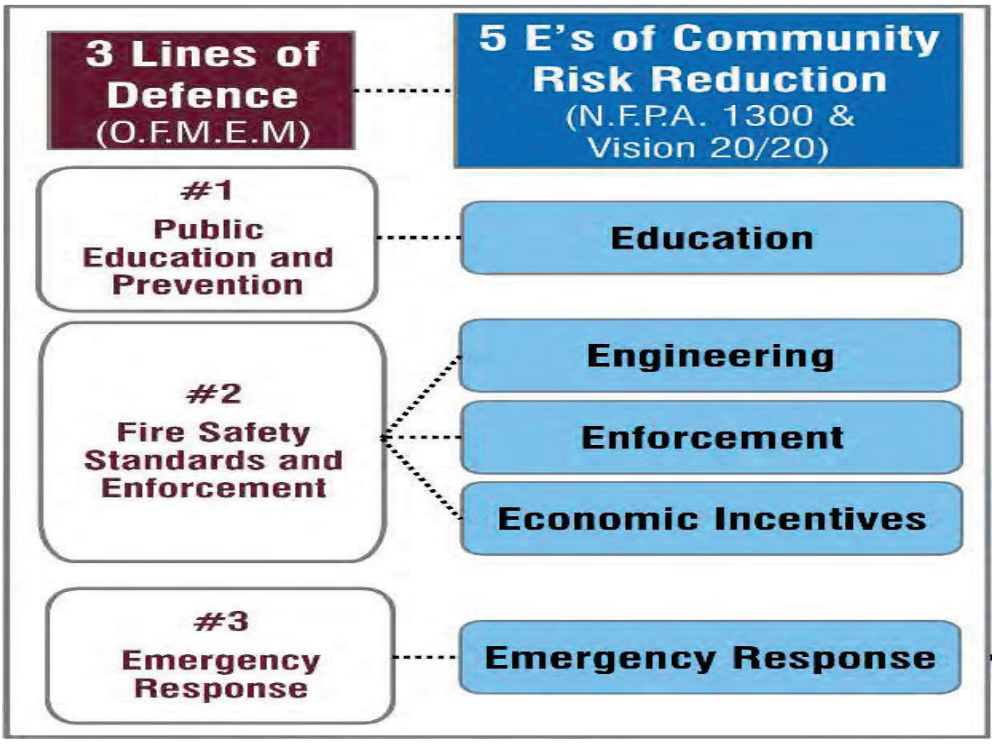
Over the past decade fire services and municipalities across Canada have been transitioning to the use of a comprehensive community fire risk assessment to guide their decision making with respect to the fire protection services that they should be providing. In our experience this transition represents current municipal best practices and as such this F.S.M.P. has been informed by a ***Community Risk Assessment*** (C.R.A.) that is included as (**Appendix A**).

The ***Town of Olds Community Risk Assessment*** has been guided by the methodology contained within the ***N.F.P.A. 1730 Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations*** (2019 Edition); ***N.F.P.A. 1300 Standard on Community Risk Assessment and Community Risk Reduction Plan Development***. The methodology presented within these standards has been further informed by Dillon's historical experience in applying Ontario's Fire-Risk Sub-model; and broader risk management industry best practices. The community risk assessment methodology contained within the ***N.F.P.A. 1300 Standard on Community Risk Assessment and Community Risk Reduction Plan Development*** and as a result the ***Town of Olds Community Risk Assessment*** reference the application of the five "***E's***" in response to the development of specific goals and objectives to be contained within a F.S.M.P. to guide the delivery of fire protection services. The five "***E's***" **include:**

- Education;
- Economic Incentives;
- Enforcement;
- Engineering; and
- Emergency Response

In our experience, specifically within the Province of Ontario we have found that ***Ontario's Comprehensive Fire Safety Effectiveness Model*** contains a very similar fire risk reduction strategy referred to as the ***"Three Lines of Defence".*** The three lines of defence include ***Public Education and Prevention***, ***Fire Safety Standards and Code Enforcement*** and ***Emergency Response***. Within Ontario this model has proven to be an effective strategy in reducing the number of fire-related fatalities and injuries. This model supports proactive fire prevention and public education initiatives that provide the most effective means to enhancing community safety, reducing the number of fire related injuries and deaths, reducing the financial loss associated with fires and reducing the overall impacts of fires while enhancing the safety of firefighters. In our view, the ***"Three Lines of Defence"*** model directly aligns with the five "***E's***" described in ***N.F.P.A. 1300*** and reflects a more applicable fire risk reduction model for the Town of Olds. Within this F.S.M.P. the ***N.F.P.A. 1300*** five ***"E's"*** model will be interpreted within the ***"Three Lines of Defence"*** models as illustrated in ***Figure 1.***

Figure 1: Alignment of Three Lines of Defence with the Five E's



The application of the "Three Lines of Defence" model for the Town of Olds aligns well with the proposed strategy of matching the Town's needs and circumstances by prioritizing public education and fire prevention activities within the proposed F.S.M.P. The analyses within this F.S.M.P. utilizes the findings of the ***Community Risk Assessment*** and the optimization of the ***"Three Lines of Defence"*** as a strategic priority towards reducing fire risk within the community and providing cost effective and efficient levels of fire protection services to the community.

1.1 Town of Olds

The Town of Olds is located in southern Alberta, directly north of Calgary and spans a land area of approximately 15 square kilometres. It is bordered by the Town of Bowden to the north and the Town of Didsbury to the south. According to the 2016 Census (Statistics Canada), the population of Olds (Town) was 9,184, having experienced a 10.3% growth from the 2011 total population of 8,235.

Situated at the intersection of Provincial Highways 2A and 27, the Town is well connected to larger city centres such as Calgary, Edmonton and Red Deer through the provincial road network. The Town has access to rail due to its proximity to the main Canadian Pacific Railway line. Nearby airports include the Olds – Didsbury Airport located 7.2 kilometres south of Olds, as well as Calgary International Airport located approximately 85 kilometres south of the Town.

The Town features botanic gardens and constructed wetlands, various retailers and cultural activities and a sportsplex arena offering a wide range of recreational activities throughout the year. Surrounded by an abundance of agricultural lands, the Town is an ideal setting for Olds College which provides educational opportunities to students specializing in agriculture, horticulture, land and environmental stewardship, attracting much of its student population from around the Province of Alberta.

1.2 Olds Fire Department

The Olds Fire Department has evolved from its historical roots as a volunteer fire brigade to its current organizational structure that includes both full-time and paid on-call staff resources. Through this evolution the department has prided itself on providing effective fire protection services including firefighting (fire suppression) emergency response to motor vehicle accidents including performing patient extrication, providing fire prevention and public education activities including attending numerous public events within the community and providing other emergency responses services.

The Olds Fire Department has also evolved into a leading partner in numerous mutual aid and other agreements to support neighbouring fire departments and receive supporting services from other communities and agencies. These agreements have been an integral part of the department's ability to maintain its historical level of fire protection services to a growing community.

Under the direction and leadership of the full-time Fire Chief the Olds Fire Department operates from a single fire station located at 5110 – 65th Avenue. The department is organized into five main divisions including administration, fire suppression/operations, training, fire prevention/public education, and fleet maintenance. The department purchases emergency call taking and fire dispatching from the City of Red Deer.

The analysis presented within this F.S.M.P. is intended to assist Council, the Fire Chief and members of the Olds Fire Department in strategically planning the evolution of the Olds Fire Department as it strives to provide the optimal level of fire protection services within an environment of continuous

challenge. These challenges include evolving legislative change including a dedicated focus on the health and safety of firefighters, the sustainability of paid on-call (volunteer) firefighters in recognition of work/life balance priorities, and evolving industry best practices that include more complex training requirements.

2.0 Applicable Legislation, Guidelines, Standards and Industry Best Practices

2.1 Province of Alberta Legislation and Fire Regulations

This study was prepared in consideration of the relevant provincial legislation and related regulations, including the *Municipal Government Act*, the *Environmental Protection and Enhancement Act*, the *Health Discipline Act, Emergency Management Act* and the *Safety Codes Act*. The *Safety Codes Act* governs safety standards and code regulations in Alberta, including the Building and Fire Codes. This report includes references and consideration of the following:

- National Building Code – 2019 Alberta Edition (N.B.C.);
- National Fire Code – 2019 Alberta Edition (N.F.C.);
- Emergency Health Services Act, 2008;
- Emergency Management Act, 2000;
- Emergency Management Act – Government Emergency Management Regulation;
- FireSmart – Provincial Guidebook for Community Protection for Wildland/ Urban Interface;
- Occupational Health and Safety Act, 2000;
- Municipal Government Act, 2000;
- Ministry of Municipal Affairs – Office of the Fire Commissioner, Alberta (O.F.C.);
- Ministry of Municipal Affairs – Fire S.T.A.N.D.A.T.A.;
- Safety Codes Act (S.C.A.), 1994; and
- Safety Codes Council (S.C.C.).

Although the Minister of Municipal Affairs has ultimate responsibility for the *Safety Codes Act*, public safety policy, and the safety codes system in Alberta, the public safety codes system depends on a strong partnership between Alberta Municipal Affairs and the Safety Codes Council. The Safety Codes Council, which was established under the *Safety Codes Act*, is responsible to the Minister of Alberta Municipal Affairs. Through this partnership, the safety codes system is administered in an effective, accountable, comprehensive and sustainable manner, which maintains public confidence in the system. The Safety Codes Council and its partners have been managing the safety codes system in Alberta since 1993.

2.1.1 Office of the Fire Commissioner, Alberta

The Office of the Fire Commissioner, Alberta (O.F.C.) is the provincial body responsible for the general oversight of the fire rescue and search and rescue portion of Alberta's public safety system. Activities that are the responsibility of this Office include:

- providing technical advisory services to Alberta communities and organizations that deliver fire and emergency response and prevention services for citizens;

- coordinating high-quality, uniform training and certification standards for Alberta's fire rescue and search and rescue personnel;
- providing various public safety education campaigns and materials aimed at encouraging Albertans and visitors to Alberta to act safely; and
- collecting, analyzing and publishing fire and emergency response data generated by fire rescue departments and search and rescue teams.

Other activities within the O.F.C.'s mandate include advising municipalities on delivery of their public safety education and providing technical inspection and fire investigation services to ensure compliance with Alberta's building and fire codes. The O.F.C. holds the provincial accreditation by the National Board on Fire Service Professional Qualifications and the International Fire Service Accreditation Congress on behalf of the Government of Alberta. The O.F.C. administers these accreditation and certification programs for the fire rescue and search and rescue services.[1]

2.1.2 Alberta Fire Code S.T.A.N.D.A.T.A.

Safety Services, as part of the Ministry of Municipal Affairs, and the Safety Codes Council jointly develop the Alberta Fire Code (now known as the National Fire Code – 2019 Alberta Edition) S.T.A.N.D.A.T.A.[2] Some are issued under the authority of the Code or the *Safety Codes Act* as province-wide variances or interpretations, while others are information bulletins that provide general advice. New S.T.A.N.D.A.T.A. are added on a regular basis. The Fire Code S.T.A.N.D.A.T.A. provides the industry and stakeholders with fire related information such as:

- Fire Code Variances (e.g., T.A.Q.A. North Ltd. - Portable Fire Extinguishers [A.F.C. 2.1.5.1.(1)]);
- Fire Code Interpretations (e.g., Questions Regarding Flood Impacted Fire Protection, Detection and Notification Equipment [F.C.I.-13-02]);
- Fire Code Bulletins (e.g., Inspection, Maintenance & Recharging of Portable Fire Extinguishers [F.C.B.-11-01]);
- Approved Guidelines (e.g., Approved Fire Safety Guidelines for Rooming Houses and Converted Buildings - Information Update [97-F.C.V.-006]); and
- Previous Codes.

2.1.3 Alberta Building Code S.T.A.N.D.A.T.A.

Similarly to the Alberta Fire Code S.T.A.N.D.A.T.A. the Safety Services and the Safety Codes Council also jointly develop Alberta Building Code (now the National Building Code – 2019 Alberta Edition) S.T.A.N.D.A.T.A. The Building Code S.T.A.N.D.A.T.A. for "Fire Department Response Time" is of specific importance to this F.S.M.P. In response to addressing high intensity residential fires (H.I.R.F.) in

[1] Source: "Office of the Fire Commissioner." Alberta Municipal Affairs. http://www.ofc.alberta.ca/about-us-main

[2] S.T.A.N.D.A.T.A. are province-wide variances, interpretations or information bulletins to provide general guidelines developed and issued by Safety Services and the Safety Codes Council.

Alberta, the Building Code S.T.A.N.D.A.T.A. for ***"Fire Department Response Time"*** is intended to help make homes safer from the spread of fire, and to provide more time for occupants to escape while firefighters are responding. High-intensity residential fires (H.I.R.F.) are defined as:

> ***"Fires involving rapid heat release and fire spread beyond the point of origin that usually involve adjacent buildings. The fires also typically include the early exposure of large amounts of combustible materials. H.I.R.F.s can occur in any of the following groupings:***
> - ***•Occupied residential buildings;***
> - ***•Unoccupied residential buildings that are under construction; and***
> - ***•A mix of occupied and under-construction residential buildings."***

Amendments to the Alberta Building Code were completed in 2006 to recognize that, where a fire department is unable to respond to a fire within 10 minutes, more than 90% of the time, the design and construction of buildings should include greater protection from exposure fires. These building code amendments are intended to recognize that increasing the physical distance of structures from each other and/or the property line is not necessarily required.

Two important interpretations of this S.T.A.N.D.A.T.A. with respect to fire department response time and this F.S.M.P. include:

> ***"Receipt of notification of a fire" - means the point in time that the fire dispatcher (who may or may not also be the 911 call taker) first receives the request for fire suppression assistance. The fire dispatcher is the person who directly notifies fire crews of the need to respond and whose actions are within the control of the fire department through direct employment, a shared services agreement or contract".***
>
> ***"Arrives at the building" – means the point in time that a rated fire department engine (i.e., pumper) capable of beginning exterior exposure protection and suppression activities arrives at the scene of the fire staffed with a crew of firefighters in accordance with local municipal policy".***

In our view these interpretations are important to differentiating the application of the Alberta Building Code requirements, and Council's decision with respect to the fire suppression emergency response performance for the community. This S.T.A.N.D.A.T.A. clearly recognizes that it is Council's role to determine the appropriate level of fire suppression emergency response performance, including the use of standards such as those developed by the National Fire Protection Association as presented within this F.S.M.P., and other industry guidelines and municipal best practices.

2.2 Municipal Governance

Through the legislative authority of the *Municipal Government Act* (M.G.A.), municipal Councils are responsible for creating and evaluating municipal policies and programs. The M.G.A. states that the purposes of a municipality are to provide services, facilities or other things that, in the opinion of

council, are necessary or desirable for all or part of the municipality, and to develop and maintain safe and viable communities. The Act also gives municipalities jurisdiction to pass bylaws for municipal purposes for specific purposes including ***"the safety, health and welfare of people and the protection of people and property"*** and ***"services provided by or behalf of the municipality"***. Bylaws, such as an establishing and regulating bylaw can therefore be created by a municipal Council to define fire service standards for their community. The M.G.A. works in concert with the Alberta Safety Codes Act which is the governing statute for all of the Provinces standards and code regulations, including both Building and Fire Codes. The Office of the Fire Commissioner is the provincial body responsible for general oversight of the fire rescue and search portion of Alberta's public safety program.

2.3 Industry Standards and Best Practices

Within Alberta there is currently no specific legislated standard that a community must achieve with regard to the type of firefighter (full-time/paid response/casual/volunteer) or the number of firefighters and apparatus required to respond to any given incident.

The following sections present an overview of common terminology, current industry standards and guidelines representing current best practices within the fire service.

2.3.1 National Fire Protection Association

The ***National Fire Protection Association*** (N.F.P.A.) is an international non-profit organization that was established in 1896. The Association's mission is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training, and education. With a membership that includes more than 70,000 individuals from nearly 100 nations N.F.P.A. is recognized as one of the world's leading advocates of fire prevention and an authoritative source on public safety.

N.F.P.A. is responsible for over 300 codes and standards that are designed to minimize the risk and effects of fire by establishing criteria for building, processing, design, service, and installation in the United States, as well as many other countries. N.F.P.A.'s more than 200 technical code and standard development committees are comprised of over 6,000 volunteer seats. Members vote on proposals and revisions in a process that is accredited by the American National Standards Institute (A.N.S.I.).

N.F.P.A. standards provide insight into best practices within the fire service industry. Applicable N.F.P.A. standards are presented within this F.S.M.P. as a resource / reference in presenting benchmarks for the Town of Olds to consider in providing the optimal level of fire protection services in response to the community's needs.

2.3.2 National Institute of Standards and Technology

The ***National Institute of Standards and Technology*** (N.I.S.T.) was founded in 1901 as a non-regulatory agency within the United States (U.S.) Department of Commerce. N.I.S.T.'s mission is to

promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life.

In April of 2010 N.I.S.T. released their Technical Note #1661 ***"Report on Residential Fireground Field Experiments"*** reflecting a collaborative research analyses conducted by leading fire service agencies. The analyses within this report investigated the effects of varying crew sizes, apparatus arrival times and response times on firefighter safety, overall task completion and interior residential tenability using realistic residential fires.

The result of a similar study identified in Technical Note #1797 ***"Report on High-Rise Fireground Field Experiments"*** was released in April 2013 that assessed the deployment of firefighting resources to fires in high-rise buildings. These studies are both examples of the technical research and analyses that is taken into consideration in order to develop and update the N.F.P.A. standards.

2.3.3 Commission on Fire Accreditation International

The ***Centre for Public Safety Excellence*** (C.P.S.E.) serves as the governing body for the two organizations that offer accreditation, education and credentialing: the ***Commission on Fire Accreditation International*** (C.F.A.I.) and the ***Commission on Professional Credentialing*** (C.P.C.).

The C.F.A.I. defines itself through its Mission: ***"to assist the fire and emergency service agencies throughout the world in achieving excellence through self-assessment and accreditation in order to provide continuous quality improvement and the enhancement of service delivery to their communities."***

The objective of the C.F.A.I. program is to define an accreditation system that is a credible, achievable, usable, and realistic model. The ultimate C.F.A.I. goal is to provide an accreditation process to improve the abilities of municipalities to both understand and recognize their respective community fire risks, provide balanced public/private involvement in reducing these risks and improve the overall quality of life for community members using the accreditation model. Of importance to this F.S.M.P. process is the C.F.A.I. strategy that seeks to achieve ***"continuous improvement"*** in the delivery of fire protection services.

2.3.4 Province of British Columbia – Structural Firefighters Competency and Training Playbook

The Office of the Fire Commissioner in British Columbia, in consultation with the Fire Chiefs' Association of British Columbia, and the British Columbia Fire Training Officers Association has developed the ***Structure Firefighters Competency and Training Playbook*** *(*Playbook*)*. In our view, the most recent addition, amended in May of 2015, reflects a further example of best practices within the fire service industry. The Playbook is applicable to all fire services personnel within the Province of British Columbia as defined by their *Fire Services Act*. The principles of the Playbook indicate that it is the direct responsibility of the *"authority having jurisdiction"* (A.H.J.) to declare its firefighting service

level. The declared fire suppression service level must then be established as a formal policy (by-law, policy or contract) and be fully reflected in operating guidelines within the fire department.

The service levels from which an A.H.J. may choose include: Exterior Operations Service Levels, Interior Operations Service Levels, and Full Service Level. In our view the Playbook provides valuable insight into identifying the options for fire suppression services that the Town of Olds may consider as part of this F.S.M.P. process.

3.0 Fire Services Master Planning Process

As previously referenced this F.S.M.P. has been informed by current provincial legislation, regulations and industry best practices. This includes a comprehensive analysis of current community fire risk and future community growth. The efficiency and effectiveness of the current services and programs provided by the Olds Fire Department including the current emergency response capabilities and fire station location, staffing resources and deployment procedures, fire protection and education programs, apparatus and all related requirements, and service agreements. In our view this process is consistent with current industry best practices that indicate:

- ***The residents of any community are entitled to the most effective, efficient and safe fire services possible; and,***
- ***Those responsible must work within these parameters in making recommendations for improving municipal fire services.***
- ***The overall objective of any fire protection program is to provide the optimum level of protection to the community, in keeping with local needs and circumstances;***
- ***Extensive research has demonstrated that there are a variety of factors that will have an impact on the fire department's capacity to fulfill this objective;***
- ***Conversely, there are many different options that a municipality may pursue to improve the efficiency and effectiveness of its fire protection system;***
- ***Local circumstances will have a profound effect on which factors are most important for any one municipality, and what options are available for its fire protection system;***
- ***Selecting among these options is an extremely complex task; and***
- ***Success will require a combination of specialized expertise in fire protection, and a thorough appreciation of your municipality's economic, social and political circumstances.***

3.1 Analysis and Recommendations

This F.S.M.P. has been informed by the findings of the ***Town of Olds Community Risk Assessment*** and a comprehensive analyses of the current fire protection services provided by the Olds Fire Department. This F.S.M.P. is intended to provide Council and senior staff with a strategic planning tool to assist in the decision making process for providing fire protection service over the next ten--year community planning horizon.

Options and recommendations for Council's consideration and approval are presented to clearly communicate the level of fire protection services to be provided to the community including where applicable proposed performance measures for ongoing monitoring and evaluation of the services to be provided.

To provide guidance and clarity around approval and implementation of the recommendations presented within this plan a classification system has been included to identify the recommendations as either ***"operational"*** or ***"council"*** that are defined as follows:

Operational Recommendations: *These include recommendations that can be administered and implemented within the current authority assigned to the Fire Chief. In some cases this may require the Fire Chief to prepare further documentation and internal reporting to Council for approval. An example of this is revising, or developing an Establishing and Regulating By-law. This is a process that can be led by the Fire Chief, and senior corporate staff and through normal reporting be brought to Council for consideration and approval.*

Council Recommendations: *These include recommendations that require the consideration and approval of Council related to a potential operating or capital financing impact or to inform a municipal policy decision including setting a municipal service level or where further direction to corporate staff may be needed.*

3.2 Strategic Priorities

In our experience, the fire services master planning process is intended to support the development and implementation of strategies that provide for effective and efficient delivery of fire protection services and therefore provide the most value to a community. Through the experience of our clients we have found that identifying guiding principles, or strategic priorities, to guide the decision making process provides a valuable tool for a municipal Council when considering the recommendations of a Fire Services Master Plan.

Through our analysis in preparing this F.S.M.P., including our review of related reports, plans, current operations of the O.F.D., and knowledge of current industry best practices we have identified the following strategic priorities for Council consideration to assist in the decision making process to approve and implement this F.S.M.P..

The proposed ***Town of Olds Fire Service Master Plan Strategic Priorities*** include the following:

- ✓ ***The analysis of fire protection services provided to the community shall be fully informed by the development and ongoing review and update of a Community Risk Assessment to identify the fire related risks within the Town of Olds;***

- ✓ ***The primary objective of the Olds Fire Department will be to optimize the use of public education and fire prevention programs and activities, and the utilization of fire safety standards and fire code enforcement, to enhance the fire and life safety within the community;***
- ✓ ***The Town of Olds will continue to prioritize the utilization of strategies that support the sustainability of paid on-call firefighters as the Town's primary providers of fire***

suppression services, and through the implementation of a comprehensive communication plan the Council of the Town of Olds will seek the support of residents and employers to assist in this strategic priority;

- ✓ ***The Town of Olds will continue to prioritize the delivery of a comprehensive fire protection model that provides the most effective and efficient level of fire protection services resulting in the best value for the community.***

Council Recommendation #1: That consideration be given to approving the strategic priorities identified within the Fire Services Master Plan to guide the development and delivery of fire protection services within the Town of Olds over the next ten-year community planning horizon.

3.3 Stakeholder Consultation

Stakeholders have provided valuable input during the preparation of this F.S.M.P. This has included the provision of a range of information regarding the context and background of Olds Fire Department from a variety of different perspectives. In our experience, this engagement process is essential to both the development and ownership of the F.S.M.P. as it is considered for implementation. The information provided by senior staff is informative to defining the local ***"needs and circumstances"*** both internally and externally to the Fire Department. The stakeholder engagement process to inform this F.S.M.P. included a council educational workshop, presentations, senior corporate and department staff interviews, telephone and e-mail correspondence throughout the project.

3.3.1 Council Educational Workshop

In our experience, it is extremely beneficial to engage members of Council in an educational forum at the onset of this type of project. The Dillon Project Team conducted an educational workshop with members of Council on March 21st, 2019. This educational workshop included a PowerPoint presentation attached as (**Appendix B**) to provide an overview of the scope of work, methodology, applicable legislation, and benefits of a Community Risk Assessment and Fire Services Master Plan.

The presentation served as an opportunity to educate members of Council in regards to current research related to fire behaviour, current industry standards and guidelines, and performance benchmarks. This session provided an opportunity to ensure that all members of Council have a clear understanding of the community risk assessment and fire master planning process.

Following the Council Educational Workshop the Mayor and each member of Council were offered an opportunity to meet with members of the Dillon Project Team to express their individual views on the current **S**trengths, **W**eaknesses, **O**pportunities and **C**hallenges (S.W.O.C.) within the O.F.D.

In summary, all members of Council expressed a high degree of appreciation for the Fire Chief and paid on-call firefighters. In our view there was also a strong consensus in regards to the importance of identifying strategies to further support the paid on-call firefighters. Members of Council also

commented on their support for additional fire prevention resources and the importance of fire prevention as the community continues to grow.

3.3.2 Paid On-Call Firefighter Consultation

The consultation process with the paid on-call firefighters included two sessions in order to provide the opportunity for all members to attend based on their individual availability. A similar PowerPoint presentation was provided by Dillon's Project Team to introduce the scope of work for the project.

The purpose of these group sessions was to seek feedback from the members in the form of identifying the current **S**trengths, **W**eaknesses, **O**pportunities and **C**hallenges of the Olds Fire Department. In addition to these sessions a separate session was held specifically for officers of the fire department. In addition to the consultation sessions the paid on-call firefighters were offered comment sheets and contact information for the Dillon Project Team if they wished to provide further feedback or input to inform the F.S.M.P. and review of the O.F.D.

In summary, the paid on-call firefighters expressed support for the Fire Chief and a recognition that his current workload was not sustainable. Those in attendance showed a high degree of interest in the scope of work of the project and interest in Council's support to conduct this review. Developing a sustainable fire department that recognizes the evolving demands on the individual paid on-call firefighters was of the upmost concern for those attending.

4.0 Previous Reports and Plans

In preparing this ***Fire Services Master Plan***, a number of related plans and reports were reviewed to provide context for the current delivery of fire protection services within the Town of Olds. These documents include ***Creating Connections for the Future*** and a ***Regional Fire Policy and Governance Review,*** both of which provided valuable insight into the community-driven goals that guide the Town in its current strategic planning framework as well as areas for increased efficiencies and effectiveness within the Town and interdepartmental fire service coordination within the greater regional context. The 2018 Municipal Development Plan (Draft) also informed the analysis within this F.S.M.P.

4.1 Creating Connections for the Future

Creating Connections for the Future is a strategic guide for 2017-2021 and reflects the Town's ongoing commitment to strategic community planning. This planning document places emphasis on the following key areas:

> ***Good Governance:*** *The Town of Olds will respect people and the process ensuring a healthy environment where great decisions are made;*
>
> ***Fiscal Health:*** *The Town of Olds will ensure responsible fiscal balance between community expectations and available revenues;*
>
> ***Service Sustainability:*** *The Town of Olds provides safe, affordable and cost-effective service delivery to our community and region;*
>
> ***Growth and Expansion:*** *The Town of Olds will lay the foundation to ensure responsible and sustainable growth;*
>
> ***Protective Services:*** *The Town of Olds will provide the necessary resources to ensure a safe, secure and healthy community; and*
>
> ***Communication and Engagement:*** *The Town of Olds is committed to transparent and inclusive processes that are responsive and accountable.*

Where possible, the analysis and methodology applied to this F.S.M.P. will consider the goals, strategies, and performance measures outlined in the *Creating Connections for the Future* document. The strategic priorities and recommendations made within this F.S.M.P. are in part guided by the goals of this strategic planning guide, specifically, with consideration to the following goal and desired outcomes:

Goal: The Town of Olds will provide the necessary resources to ensure a safe, secure and healthy community.

- Enhanced fire service through the establishments of strong legislative structure;
- Enhanced community awareness and decreased risk through prevention, education and code enforcement.

4.1 Regional Fire Policy and Governance Review

In 2019, a Regional Fire Policy & Governance Review (Regional Review) was completed by Behr Integrated Solutions Inc. on behalf of the participating municipalities within Mountain View County including Mountain View County, Village of Cremona, Sundre, Olds, Didsbury and Carstairs. The objective of this report was to identify strategies to sustain a collaborative working relationship between the participating municipalities and their fire departments with a focus on enhancing efficiencies and interoperability between the partners.

The ***Interview Observations Summary***[3] included within this review identified three general categories of observations from the stakeholder interviews including;

- *Concerns with 100% volunteer based system – longevity of this is uncertain, with changing times and demands/pressures on the fire departments will be hard to maintain this system;*
- *During the daytime, it can be difficult to assemble a five person crew when relying on the volunteer based system; and*
- *Not much concern on having a shortage of volunteer members at present time, all regions are continuously recruiting and advertising for members.*

The findings of the Regional Review conclude in seventeen observations that then inform seventeen specific recommendations. The consultant also identified four typical governance structures and concluded that ***"the best option is to increase efficiencies and effectiveness to enhance the current I.C.F., Fire Service sub agreements, and I.C.C. model."***[4]

The stakeholder consultation process for this F.S.M.P. supported the findings of the Regional Review that concluded, that the current mutual aid and information sharing between the partnering departments is working well. There was also further consensus that the current governance model has improved, however as referenced within the Regional Review it is ***"Important that each town keeps their own identity and autonomy, but also be able to collaborate and work together in improving service across the region, through effective budgets, budget planning, reporting, reviews, assisting in skill sets, and training across regions etc."***[5]

[3] 2019 Regional Fire Policy & Governance Review – Page i – Interview Observations Summary – Volunteer Service
[4] 2019 Regional Fire Policy & Governance Review – Page xiv – Summary and Conclusion
[5] 2019 Regional Fire Policy & Governance Review – Page ii - Governance

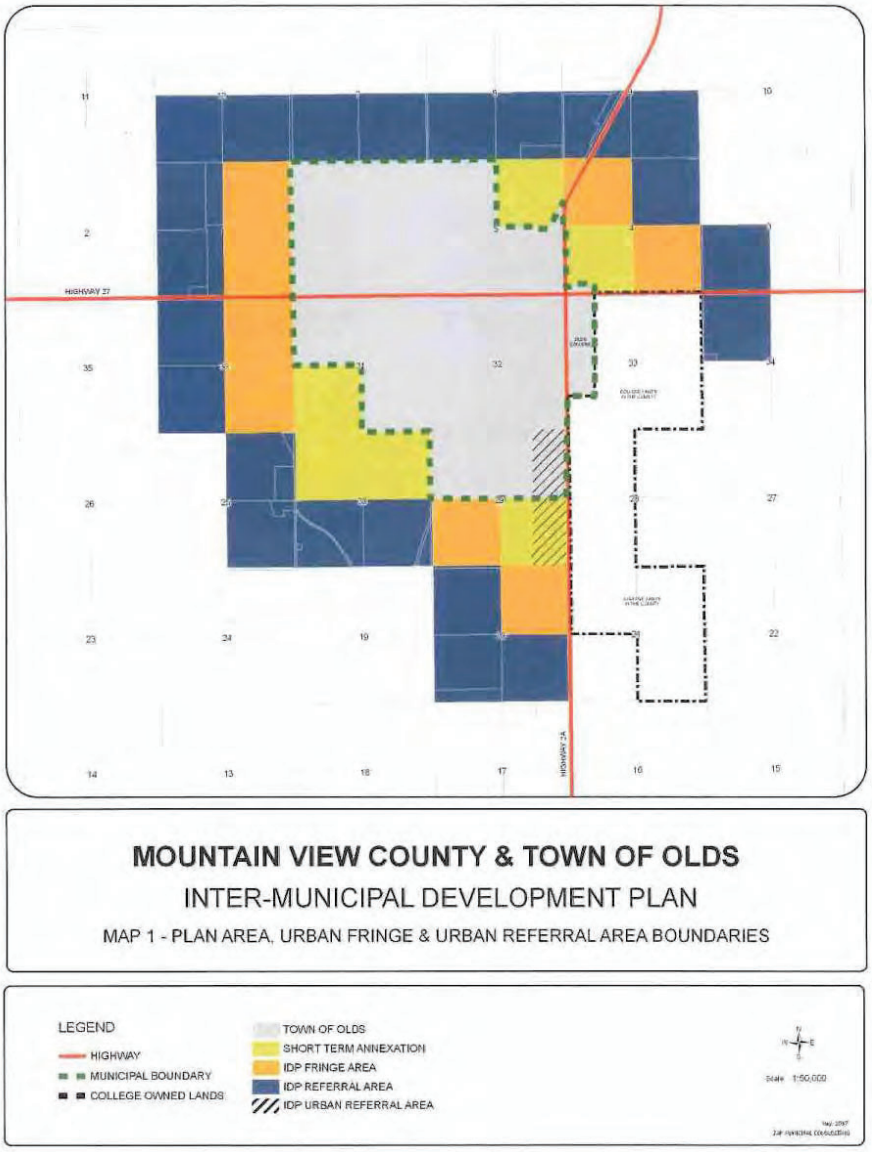
As required by the Town of Olds quotation request to complete this Fire Services Master Plan our scope of work includes our analysis to ***"Review and utilize any valued information that will be provided from a recent Mountain View County Fire Service Review"***. Where applicable this F.S.M.P. has considered the observations and recommendations of the Regional Review. However, the primary focus of this F.S.M.P. is to assess and recommend strategies to further improve the efficiency and effectiveness of the Olds Fire Department in serving the Town of Olds.

4.2 2018 Municipal Development Plan (Draft)

Land use planning in Alberta is governed by the *Municipal Government Act,* 2000 and is implemented through tools such as Inter-municipal Development Plans (IDP), Municipal Development Plans (MDP) and Area Structure Plans.

Currently under review, the I.D.P. between the Town of Olds and Mountain View County was signed in 2007 and coordinates land use and growth over a long-term horizon (i.e., 50+ years) between the two jurisdictions. To support this long term approach to growth, the I.D.P. identifies areas for short-term annexation from the County into the Town boundary, a fringe area (priority areas for future annexation), and a referral area (long-term growth areas of the Town and lands within the County to be provided with Town water/wastewater services). **Figure 2** is an excerpt from the I.D.P. and illustrates the short-term annexation, fringe, and referral areas.

Figure 2: IDP Short-term Annexation, Fringe and Referral Areas



The Town of Olds Municipal Development Plan establishes a vision for growth of the community which includes polices related to future land use, growth management, urban form, economic development, heritage conservation, environmental management, parks, recreation, and culture, and transportation. The in force and effect M.D.P. was approved in 2007 and is consistent with the 2007 I.D.P. In 2017, the Town initiated a review of its M.D.P. and Draft was released in June 2018. This M.D.P. has been reviewed and developed with input by Council.

The I.D.P. review will be informed by the outcomes of the M.D.P. update since the plans need to be consistent. A final version of the M.D.P. which incorporates comment received to date will be issued once the updated I.D.P. has been completed. As identified on the Town website, finalizing the I.D.P. is expected to take much of the 2019 calendar year to complete. Although still in Draft form, the Town

identified that it was appropriate to reference the 2018 M.D.P. for the purposes of the F.S.M.P. Further discussion on the M.D.P. as it pertains to this study can be found in **Section 10.16**.

5.0 Community Risk Assessment Summary

The process of assessing community risk is receiving increased attention within the fire protection industry in North America. A ***Community Risk Assessment*** (C.R.A.) is now considered fundamental to the development of a strategic ***Fire Services Master Plan***. Assessing community risk enables an understanding of local needs and circumstances which provides the foundation from which to develop and align the service levels established by the fire department. The results of the C.R.A., found in **Appendix A,** directly inform the recommendations of this F.S.M.P. and are used to identify existing service gaps across divisions, with particular connection to fire prevention, public education, training and emergency response.

The community risk assessment is based on methodology founded in part on the N.F.P.A. 1730 *"Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations"* (2019 Edition). Per this Standard, the purpose of a Community Risk Assessment is to assist in the development and implementation of community risk reduction planning and to determine appropriate service levels within a municipal fire department.

N.F.P.A. 1730 outlines seven profiles to assess in order to understand fire risk within the community. The exploration of the profiles is the first component of the C.R.A. methodology for this F.S.M.P. This includes the development of the following ***seven profile assessments:***

1. Demographic Profile;
2. Geography Profile;
3. Building Stock Profile;
4. Fire Profile;
5. Response Profile;
6. Hazards Profile; and
7. Economic Profile.

5.1 Key Finding Categorization

The results of the analysis of the seven profile assessments are categorised into "***key findings"*** based on how they will be used to inform the activities, strategies, and services provided by the O.F.D. Within the Community Risk Assessment the ***"key findings"*** are assigned utilizing to one of the ***Five "E's"*** of community risk reduction planning including; ***Education, Enforcement, Engineering, Economic Incentive and Emergency Response***. Within this F.S.M.P. the ***"key findings"*** are then assigned to one of the ***"Three Lines of Defence"*** in order to further illustrate the preferred risk reduction strategies that would be applicable within the Town of Olds, and implemented most effectively and efficiently by the Olds Fire Department.

Table 1 illustrates how the ***"key findings"*** identified by the Community Risk Assessment will be converted from the ***Five "E's"*** to the applicable categorization within the ***"Three Lines of Defence"*** risk reduction strategy to be applied within this F.S.M.P. The recommendations of this F.S.M.P. have been informed by these ***"key findings"*** and will focus on the implementation of strategies to reduce community fire risk. This will include a focused and proactive approach to the reduction of fire risk through enhanced public education programs, fire prevention inspections, and fire code enforcement. Although it is a necessary and critical component of the services the O.F.D. provides to the community, the provision of fire suppression services shall be considered as a last resort, or failsafe to providing the optimal fire protection services model to the community.

Table 1: Key Findings Categorization

		1st Line of Defence	2nd Line of Defence			3rd Line of Defence
Profile	C.R.A. Analysis Outcome: Key Finding	Education	Enforcement	Engineering	Economic Incentive	Emergency Response
		For consideration within the proposed Public Education Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Fire Inspection and Enforcement Program	For consideration within the proposed Emergency Response Program
Geographic	The road network is a contributor to emergency call volume due to motor vehicle-related incidents.					✓
	The Town's at-grade rail crossings and the direction and positioning of the rail line may impact the Fire Department's emergency response times.					✓
	The Town has a potential risk of wildland fire due to the wildland-urban interface.	✓	✓		✓	✓
Building Stock	The majority of the Town's existing building stock is comprised of Group C – Residential Occupancies (including non-inspectable occupancies) (88%).	✓				✓
	Group D – Business Occupancies and Group E – Mercantile Occupancies combined account for 7% of the Town's total building stock.	✓				✓
	Group F – Industrial Occupancies account for 2% of the Town's total building stock.	✓	✓		✓	✓

		1st Line of Defence	2nd Line of Defence			3rd Line of Defence
	The 2016 Census data indicates that 51% of the Town's residential building stock was built prior to the introduction of the 1992 Alberta Fire Code.					✓
	The 2016 Census data indicates that 33% of the Town's residential building stock is comprised of other attached dwellings. Attached dwellings have a higher risk of a fire spreading to an adjacent exposed buildings.	✓	✓	✓		✓
	There are 17 buildings that present an increased fire risk due to their large floor areas.		✓	✓	✓	✓
	Of the buildings with increased fire risk due to the large floor area, a number of the Group F – Industrial occupancies are not in compliance with the A.B.C.		✓	✓	✓	
	There are twelve properties within the Town that have fuel load concerns.	✓	✓	✓	✓	
	There are 13 identified occupancies with potential high life-safety risk within the Town of Olds and there is a school for students with special needs that presents unique life-safety risks.	✓	✓	✓	✓	✓
	There are seven registered heritage buildings within the Town of Olds, which are keystone features of the community's history.	✓				✓

		1st Line of Defence	2nd Line of Defence			3rd Line of Defence
Demographics	Seniors (those 65 years and over) are considered to represent one of the highest fire risk groups across the province based on residential fire death rate. The Town of Olds currently has a higher proportion of seniors compared to the Province (21% vs. 11%).	✓				
	The current total population of the Town includes a component of 24% of people between the ages of 45 and 64 who are aging towards the seniors demographic of 65 or over.	✓				
	There are shifts in student and commuter populations throughout the year which may impact the demand for fire protection services.					✓
Hazard	The top hazards within the Town of Olds include major road vehicular accidents, high intensity residential fires, tornados, and transportation hazmat related risks for rail and road.					✓
Economic	The Town has key facilities/employers that greatly contribute to the economic well-being of the municipality. This includes Olds College and Sundial Growers.					✓
Fire	Group C – Residential occupancies (including non-inspectable occupancies) account for 73% of property fires within the Town when analyzing the proportion of fires that occurred within an A.B.C.		✓	✓		✓

		1st Line of Defence	2nd Line of Defence			3rd Line of Defence
	major occupancy classification.					
	Group A – Assembly occupancies account for 11% of property fires within the Town when analyzing the proportion of fires that occurred within an A.B.C. major occupancy classification.	✓	✓	✓	✓	✓
	Properties that are not a part of an A.B.C. major occupancy classification (e.g., storage properties, special property and transportation equipment, etc.) account for 52% of the 153 fires occurring over the ten year period.	✓				✓
	Due to its economic role within the community, historic fire loss, and building area risks, Sundial Growers reflects a special risk consideration for the Town of Olds.					✓
	For the period 2007 to 2016, the two fatalities and one injury all occurred within Group C – Residential occupancies (including non-inspectable occupancies).		✓	✓		✓
	Of the fires occurring in the Town between 2007 and 2016, the leading causes of unintentionally set fires was due to Mechanical/Electrical Failure/Malfunction at 28% of fires followed by Human Failing at 12%.	✓	✓			

		1st Line of Defence	2nd Line of Defence			3rd Line of Defence
	Of the fires occurring in the Town between 2007 and 2016, 25% of fires were intentionally caused and classified as Arson or 'Set Fires'.	✓	✓			✓
	The most common known sources of ignition for fires within the Town is due to Smoker's Material & 'Open' Flame at 18% and Heating Equipment at 10%.	✓	✓	✓	✓	✓
	Provincial home smoke alarm statistics emphasize the importance for local fire department programs related to smoke alarms.	✓	✓	✓	✓	✓
Response	From 2015 to 2017, there was an increase in call volume.		✓		✓	✓
	From 2015 to 2017, O.F.D. call volume was comprised of 24% Alarm No Fire calls, 24% Medical calls, 19% Rescue calls, and 15% Fire calls.	✓	✓	✓	✓	✓

6.0 Administration Division

This section of the F.S.M.P. describes the roles and responsibilities of the Administration Division which provides strategic direction and overall administration and management to the Olds Fire Department. This section also outlines and reviews the fire department's primary administration practices, department organizational structure, mission, management roles and responsibilities, applicable by-laws, current service agreements, departmental standard operating guidelines, department reporting, and records management procedures.

The Fire Chief is directly responsible for the Administration Division, including overseeing all administrative and financial functions of the Olds Fire Department. This role also includes providing leadership, management and strategic direction for the overall fire department. Within this division the Fire Chief is supported by a full-time Administrative Support position (0.8 F.T.E.) and two paid on-call Deputy Fire Chiefs.

6.1 Department's Mission Statement

Industry best practices indicate that a mission statement should identify what an organization does, who it does it for, and how it does it. The Town of Olds Fire Department Mission Statement is:

"The Olds Fire Department is committed to creating a safer community through prevention, education and effective emergency response in a predictable and dependable manner. We strive to be a premier service utilizing experience combined with new technology and modern practices to provide a high level of service."

Mission statements are intended to be short, clear and powerful in defining the organization's purpose and primary objectives. They are also intended to express why the organization exists to both internal and external stakeholders. The current mission statement of the O.F.D. reflects these industry best practices.

Often, fire departments will have a vision statement in addition to a mission statement. A vision statement should identify a vision for the future that all individuals within the department can work towards. The second sentence of the current Olds Fire Department Mission Statement represents an element of vision, as it identifies what the department is aiming to be in the future.

6.2 Existing Department Organizational Structure

The current organizational structure of the department identifies the assignment of staff resources presented in **Table 2** and illustrated in **Figure 3**. The Administration Division is comprised of the Fire Chief who has complete responsibility and authority over the fire department. The full-time Fire Chief is

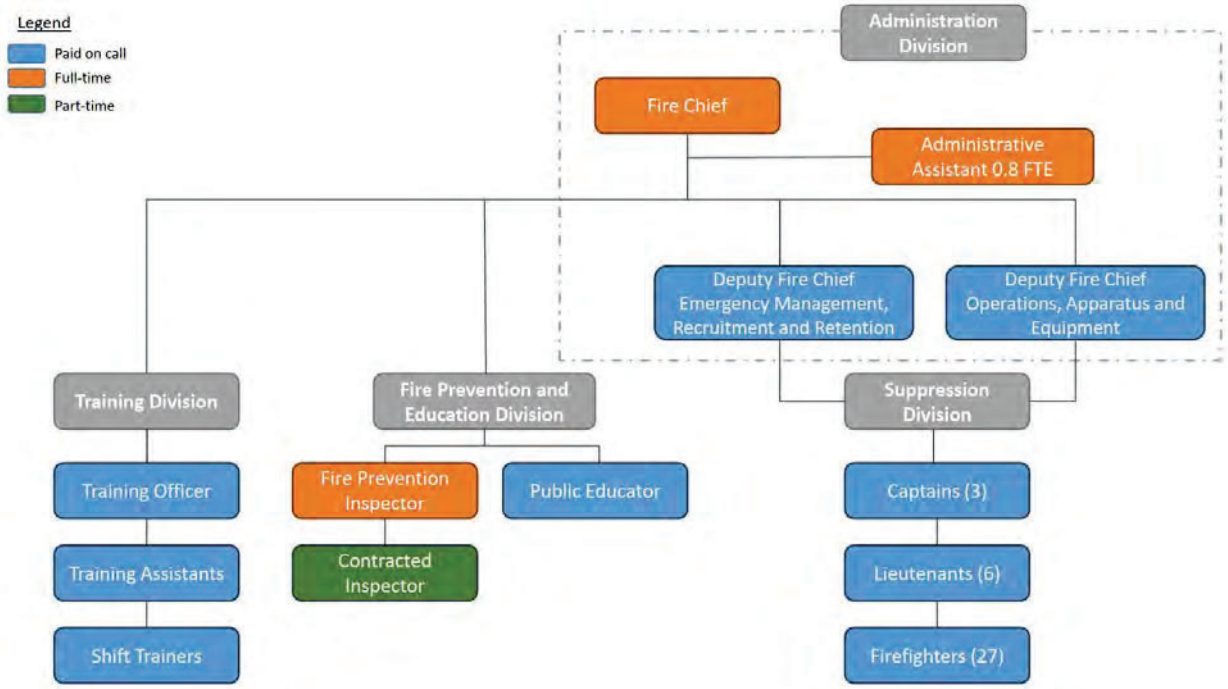
supported by two paid on-call Deputy Fire Chiefs and one full-time Administrative Support person (0.8 F.T.E.). Fire suppression is comprised of paid on-call firefighters including three captains, six lieutenants and 27 firefighters. The department has one paid on-call training officer, one full-time fire inspector/investigator, one paid on-call fire educator and one contracted fire inspector/investigator. O.F.D. fleet maintenance is overseen by one manager who occupies the position of paid on-call captain within the suppression division and all communications and dispatching is contracted to the City of Red Deer.

Table 2: Existing Department Staff Resources

Role / Division	# Full-time Staff Resources	# Paid on-call and Part-Time Staff Resources
Administration		
Fire Chief	1	-
Deputy Fire Chief	-	2
Administration Support	1 (0.8FTE*)	
Fire Suppression/Operations		
Captain	-	3
Lieutenant	-	6 (4 vacant)
Firefighters	-	27 (2 vacant)
Training		
Training Officer	-	1 (included in P.O.C. firefighters)
Fire Prevention		
Fire Inspector/Investigator	1	1 (contracted part-time)
Fire Education	-	1 (included in P.O.C. firefighters)
Auxiliary Members	-	2
Fleet Maintenance		
Manager		1 (included in Captains)
Total Staff Positions	**2.8**	**41**

Source: O.F.D.
**Full Time Equivalent*

Figure 3: Existing Organizational Structure



6.3 Existing Administration Division Staff Resources and Workspace

The current administration of the Olds Fire Department is comprised of one full-time Fire Chief, two paid on-call Deputy Fire Chiefs and one full-time Administrative Assistant (0.8 FTE). These positions are all non-unionized positions.

The Administration Division operates out of headquarters (the O.F.D.'s sole station) located on 65 Avenue south of Highway 27. There are six offices in total for the administration of the O.F.D. including an administration/reception area. Several of these workspaces are utilized by multiple positions within the department to accommodate the paid on-call staff who provide support to the activities within this division. As the department grows and transitions, there may be a need for a more dedicated workspace. In our opinion, current administrative workspace is meeting the needs of this division within the O.F.D.

6.3.1 Fire Chief

The Fire Chief is ultimately responsible for the overall management and leadership of the Town of Olds Fire Department. This position reports directly to the Chief Administrative Officer (C.A.O.). The Fire Chief is responsible for overseeing and administering all aspects of O.F.D., including the quality of fire protection services, fire prevention and public education program development and delivery, emergency response and technical rescue services, internal department training and fire safety inspection service delivery. This positions roles and responsibility also include overseeing the required health and safety programs within the department.

The Town hired the first full-time Fire Chief in 1999. The current Fire Chief has a long history of serving the Olds Fire Department and the Town of Olds. The stakeholder consultation process confirmed the current Chief's dedication and commitment to leading and supporting the growth and development of the Olds Fire Department to respond to the needs of the growing community. The initiation of this F.S.M.P. process is a demonstration of the dedication of the Fire Chief and the Town of Olds in investing in the future of the O.F.D. and fostering its transition to a modern fire service, focused on ***continuous improvement*** over time.

As illustrated by the existing organizational structure the Fire Chief has limited access to additional full-time staff resources to assist in conducting the ongoing administrative tasks required to sustain the internal (department) and external (corporate) administrative functions. Our research confirms that the Fire Chief can be consumed by administrative tasks on a daily basis, in part this can be attributed to his other responsibilities such as the need for him to respond to emergency incidents as a firefighter and incident commander.

Our review of the Fire Chiefs current job description provides valuable insight into the magnitude of roles and responsibilities currently assigned to this position including:

- ✓ *Provides strategic leadership and support the effectiveness and efficiency of the Town of Olds Fire Department through the use of established Quality Management System;*
- ✓ *Maintain and manage the Fire Services Agreements with Mountain View County and act as a resource to the Inter-municipal Cooperation Committee (I.C.C.);*
- ✓ *Carries out, both directly and indirectly through subordinates and in consultation with the Human Resources department human resource needs, planning, recruitment, selection, training, development, and evaluation and discipline;*
- ✓ *Ensure active firefighting, rescue and other emergency services (including disaster services) is provided for the municipality at standards approved by Council through a combination of service and mutual aid agreements;*
- ✓ *Participate in the creation of mutual aid agreements, policy preparation, communication systems, and the strategic planning processes;*
- ✓ *Plan, direct and co-ordinate firefighting strategies for fire departments;*

- ✓ *In consultation with stakeholder review and update Town of Olds Fire Department Quality Management Plan;*
- ✓ *Monitor, maintain and identity trends through the use of data analysis and measurements;*
- ✓ *Represents the Town and department within the community ensuring visibility and liaison with stakeholders;*
- ✓ *Initiates, develops and follows strategic communication plans and works with staff on Communication action plans & work plans;*
- ✓ *Builds effective communication processes to foster strong working relationships with internal and external customers;*
- ✓ *Ensure that inquiries and complaints regarding fire department activities or responsibilities are handled promptly, efficiently, effectively and with courtesy;*
- ✓ *In consolation and through Town of Olds Communication staff, regularly uses local and social media to inform the public such as to the role the fire department plays in the Community;*
- ✓ *Liaise with organizations as the Office of the Fire Commissioner (O.F.C.), mutual aid partners, and other agencies or organizations to stay current within the industry and determine trends and factors affecting the department;*
- ✓ *Determines budget requirements through service planning to identify funding requirements for projects, programs and services in the Department;*
- ✓ *Develop and revise a long-range capital plan to keep pace with development;*
- ✓ *Manages the development of risk management and safety programs, that are consistent with Town standards and policy as well as provincial and legislation, for employees and contractors working in the Department and for members of the public;*
- ✓ *During the activation of the Emergency Operations Center (EOC), responsible for coordination of emergency services resources;*
- ✓ *Implements and ensures the Municipal Emergency Response Plan is current and in accordance with industry best practices;*
- ✓ *Identifies and manages any risk/safety consequences and losses such as life, assets, reputation, etc.; and*
- ✓ *Develop and oversee the implementation of security and fire prevention campaigns.*

In our experience the roles and responsibilities identified within this job description are consistent with those of a typical Fire Chief in a larger full-time fire department. Where possible, with the support of Council and the C.A.O. there have been some administrative changes such as assigning the roles and responsibilities for the Town's Community Emergency Management Program to one of the paid on-call Deputy Fire Chiefs, and hiring a full-time Fire Inspector/Investigator. Indications are that these changes are having a positive impact on the overall administration of the department.

In our view further strategies need to be considered and prioritized for implementation to develop a more sustainable administrative and operational work load for the Fire Chief. The analysis within this F.S.M.P. will present recommendations for Council's consideration and approval to address this significant issue within a proposed staff resource strategy (***Section 12***).

The recommendations contained within this F.S.M.P. will impact a number of the current job descriptions including the need to revise the roles and responsibilities of several existing positions, and the need to develop new job descriptions to support the proposed staff resource strategy. This will require a complete review of all current job descriptions including roles and responsibilities for all department positions.

Operational Recommendation #1: That subject to Council's consideration and approval of the proposed Fire Services Master Plan the Town conduct a comprehensive review and update of all required job descriptions.

6.3.2 Paid on-Call Deputy Fire Chiefs

The current organizational structure of the O.F.D. includes a paid on-call Deputy Fire Chief of Operations, Apparatus and Equipment, and a paid on-call Deputy Fire Chief of Emergency Management, Recruitment and Retention. The current staff assigned to these positions are long standing highly respected senior members of the department. In addition to the administrative tasks associated with each of these positions the Deputy Fire Chiefs provide leadership and facilitate the function of incident command in support of the operational (fire suppression) services provided by the department.

Although there are two Deputy Fire Chiefs within the department, there is currently only one common job description for both positions. The most recent job description for Deputy Fire Chief highlights the following key responsibilities:

- ✓ *Responds to fire incidents and conducts tasks including interior attack, ventilation, salvage, overhaul, or fire ground operations as required;*
- ✓ *Responds to emergency medical incidents and serves as a medical team member as required;*
- ✓ *Participates in emergency rescue operations and supports specialized teams including incidents involving; water, vehicles, machinery, collapse, trench rescue, elevated or high angles;*
- ✓ *Drives and operates emergency vehicles including pumpers and aerial devices safely and efficiently;*
- ✓ *Assists in performing routine maintenance of all fire apparatus and tools of the department including non-powered tools;*
- ✓ *Performs routine facility maintenance including the equipment associated with the building;*
- ✓ *Participates in Fire prevention and education programs in the community and at the station such as hall tours;*
- ✓ *Responds to Hazardous materials incidents and supports specialized teams in mitigation activities;*
- ✓ *Participates in emergency management functions as field level personnel;*
- ✓ *Participates in training and development programming to enhance knowledge and performance;*
- ✓ *Directly supervises firefighters in the Company/Sector level, as well as Incident Commander;*

- ✓ *Responsible for Strategic and tactic level operations such as: Attack, Ventilation, Rescue, Salvage/Overhaul and Hazmat;*
- ✓ *Provides leadership at emergency scenes as well as in the station, and in public;*
- ✓ *Makes decisions based on policy/procedure in good judgement in emergent and non-emergent situations;*
- ✓ *Responsible for completion of administrative records such as: Fire reports, Alarm reports, Training reports, PCR's, WCB reports to the level of the assignment;*
- ✓ *Is able to read maps and determine locations based on information provided from dispatch; and*
- ✓ *Acts as Fire Chief as required.*

In our view the identified roles and responsibilities for these two positions are broad and ambitious for paid on-call roles. These roles extend beyond what is outlined within the job descriptions as it includes support of day-to-day challenges and special projects throughout the year. The level of effort and dedication requested of, and provided by, the two Deputy Chiefs, though honourable, is not considered to be sustainable in the long-term.

This F.S.M.P. includes proposed staff resource strategies (outlined in Section 12) that seek to prioritize the value and dedication that the incumbents in these positions have historically provided to the Town of Olds and the Olds Fire Department. In our view there is an identified need to consider a revised organizational structure for the Olds Fire Department that through an effective implementation strategy will balance the dedication and commitment of individuals such as these two Deputy Fire Chiefs with the identified need to develop a more effective and efficient organizational structure.

6.3.3 Administrative Support

The current organizational structure of the department includes one full-time (0.8 FTE) Administrative Assistant. This position is responsible for providing administrative and clerical support to the various divisions within the department and the Fire Chief. The administrative assistant also responds to general public inquiries and serves as the customer service representative for the fire department. The most recent job description includes the following duties:

- ✓ *Provide administrative assistance to the fires services section including but not limited to receiving, recording and preparing correspondence and reports, organizing, creating and maintaining records and files, organizing, creating and maintaining databases, and organizing, creating and maintaining any related record keeping and documentation;*
- ✓ *Respond to general inquiries from the public;*
- ✓ *Managing incoming and outgoing mail;*
- ✓ *Monthly reports – collection of honorarium data, training statistics, incident statistics, reports as requested by the Fire Chief;*
- ✓ *Complying with all policies, rules, and regulations of the municipality and the provincial government*

- ✓ *Conducts data input and maintains active and concluded incidents;*
- ✓ *Processing of all motor vehicle accidents reports for submission to A/P for reimbursement which includes the calculation of the man hours and equipment used during an incident;*
- ✓ *Radio communication as required;*
- ✓ *Enters and calculation of monthly stats and preparing and submission of the information by utilizing the Fire Pro Computer Program;*
- ✓ *Assisting with Emergency Management (disaster services);*
- ✓ *Leads administrative special projects as assigned;*
- ✓ *Assists with researching and compiling information on a variety of departmental topics;*
- ✓ *Responsible for filing system for department, involves working closely with Records & Management Clerk;*
- ✓ *Decisions regarding research and compositions are at the discretion of the Fire Chief;*
- ✓ *Provides excellent internal and external customer service using good judgement and tact; and*
- ✓ *Provides courteous, knowledgeable and professional communication with the public.*

The process to develop this F.S.M.P. included a significant component of data collection, data analysis and problem solving on behalf of this position to meet the needs of our analysis. Throughout this process and the stakeholder consultation process the incumbent in this position exhibited a high degree of proficiency and administrative experience. In our view there are additional administrative tasks that could be assigned to this position that would further enhance the overall administrative functions of the department, and thus provide some relief to the current administrative workload assigned to the Fire Chief.

The proposed staff resource strategies include consideration of assigning additional administrative tasks to this position, and increasing the number of hours assigned to this position to transition it to a full-time equivalent position. Expanding this job description to include financial administration and monitoring, including budget input, budget tracking and asset management tasks would enhance the level of administrative assistance provided to the Fire Chief. This role could also be expanded to act as a liaison between Town departments, represent the department for community engagement and promotional activities and monitor and update department websites.

6.4 Senior Officer On-Call Schedule

Current industry, and municipal best practices reflect the need to ensure that a senior officer with the skills and experience to oversee (manage) any large scale emergency incident, or manage any significant administrative issue (e.g., health and safety) is available to the department, and Council at all times, as required. For example, in the event of a major emergency incident within the community that results in the activation of the Town's Emergency Management Plan there is an expectation that a senior experienced officer from the fire department is available to Council to assist in managing any public safety matter.

Within the current organizational structure it is expected that the Fire Chief will fulfill this role both while on duty (normal business hours) and after hours. Our observations indicate that the Fire Chief is informally expected to be available 24 hours per day, and 365 days per year. Based on our review, this appears to include the Fire Chief's planned vacation period. There is some evidence to suggest that one of the paid on-call Deputy Fire Chefs would probably be available, and may have always been in the past, but there is no defined department policy and/or requirement for them to be available.
The proposed staff resource strategies include revisions to the department's current organizational structure that would support a rotating senior officer ('Chief' designation) on-call schedule. The implementation of this strategy is intended to provide Council and the department with a senior officer being available ***at all times***. In our view and experience this is a core element of an effective and efficient emergency response service.

Operational Recommendation #2: That the Olds Fire Department implement a Senior Officer On-Call policy as presented within the proposed Fire Services Master Plan.

6.5 By-laws and Agreements

The *Municipal Government Act* (M.C.A.) and the *Safety Codes Act* (S.C.A.) allow a municipality to pass bylaws to operate their municipality and specifically their fire and/or emergency services department(s). Bylaws provide the community with important information with regard to the level of service that their municipality intends to provide. Bylaws also provide municipal staff with the authorization to provide these services as well as the responsibility to achieve the prescribed service level.

The following represents our review of all current by-laws and agreements related to the operation of the O.F.D.

6.5.1 By-laws

6.5.1.1 By-law No. 2018-28 - Fire Bylaw

By-law No. 2018-28 authorizes the establishment and operation of the Olds Fire Department, the prevention of fires and the protection of people and property, the recovery of fire protection charges and regulation of the use and sale of fireworks. It establishes the Fire Chief as the appointed head of the fire department with complete responsibility and authority over the delivery of fire protection services. This by-law allows the Fire Chief to appoint other officers or members to the department and delegate any duties or functions to them as assigned. In its current state, By-law No. 2018-28 came into effect on January 24, 2019. Some key features identified within this by-law include:

- *Permitted and prohibited fires;*
- *General functions and purpose of the fire department;*
- *Authority and responsibility for incidents;*
- *Fire, fireworks, and fireworks sales permits;*

- *Fire bans;*
- *Fire protection charges;*
- *Contract and agreements;*
- *Prohibitions, offences and penalties; and*
- *Municipal tags and violation tickets.*

In our view By-law No. 2018-28 references a large percentage of the elements that would be expected for a municipality the size of the Town of Olds, and to inform the expected operation of the Olds Fire Department. Subject to Council's consideration and approval of the proposed F.S.M.P. there will be a need to make further revisions to this by-law. The revisions should include further consideration of referencing more definitive descriptions of expected service levels in areas such as fire prevention, public education and fire suppression. Municipal best practices support the need to ensure that the public is fully informed in regard to the types of services, and levels of services that will be provided by the fire department.

Operational Recommendation #3: That subject to Council's consideration and approval of the proposed Fire Services Master Plan that By-law No. 2018-28 – Fire By-law be reviewed and revised as may be required.

6.5.1.2 By-law No. 2018-34 – Rates By-law

By-law No. 2018-34 enables the Town to recover costs for the provision of fire protection, building, planning and various other services. Bylaw No. 2018-34 identifies the services provided by the O.F.D. for which fees are charged. Recoverable rates and fees used by the fire department include but not limited to the following key areas:

- Response fees;
- False alarm incidents;
- Various fire investigation services; and
- Permit issuance, installation, application fees and signage.

Our review indicates that there are a number of rates and fees that would typically be included within this type of by-law. These include recovery costs for activities completed by the fire department such as the review of Fire Safety Plans or fire extinguisher training that may be provided for commercial or industrial employers by the department. In our view there may be opportunity to consider adding additional services provided by the fire department for inclusion within the Rates By-law No. 2018-34.

Operational Recommendation #4: That consideration be given to reviewing the current Rates By-law No. 2018-34 as presented within the proposed Fire Services Master Plan.

6.5.2 Agreements

6.5.2.1 Mutual Assistance Agreement - Town of Olds and City of Red Deer

The Mutual Assistance Agreement between the Town of Olds and the City of Red Deer provides for the mutual exchange of emergency response services which includes but is not limited to fire, rescue, hazardous materials response or and other type of emergency response or resource as required. This ten-year agreement, effective January 10th, 2019, indicates that either requesting party will compensate the other for resources provided as per the rates and fees stated in their respective rates bylaws.

6.5.2.2 Mutual Aid Agreement for Fire Services

The purpose of this agreement between Mountain View County, Town of Carstairs, Village of Cremona, Town of Didsbury, Town of Olds and Town of Sundre is to provide for mutual assistance of fire services and emergency support in the event of a fire or emergency situation. Provisions under this agreement can also include emergency medical services, hazardous materials response or fire prevention activities. This agreement represents a reciprocal provision of fire services for which there are no fees for compensation of services requested. Command of an incident remains with the party requiring assistance unless the requesting party specifically asks for a senior officer from the responding party.

The agreement, which was entered into on October 1st, 2017, was renewed May 1st, 2019.

6.5.2.3 Inter-Municipal Cooperation Master Agreement

The Inter-Municipal Cooperation Master Agreement was established between the Town of Olds and Mountain View County to better serve the residents of both communities by ensuring effective collaboration between both parties in the areas of growth management and land use planning and through offering the services and programs established in each of the service areas to residents of both communities. This agreement serves as the master agreement through which multiple sub-agreements flow including the Fire, Disaster and Protective Services agreement described above.

The agreement is overseen by a collective committee comprised of Chief Elected Officials, two Councillors and a C.A.O. or designate of each participant who meet twice per year with the intent to foster meaningful cooperation between both parties. Effective January 1st, 2016 the agreement spans a term of nine years with the option for automatic renewal for a four year term afterwards.

6.5.2.4 Emergency Services Education Modules Training Agreement

In an original agreement between the City of Red Deer and First Response International Limited Partnership for the use of an online learning management system, the City was allowed to share access to the system with the Town of Olds. Within the parameters of this current Emergency Services Education Modules Training Agreement, between the City and The Town, the Town is responsible for compensating the City with an annual fee in a dollar amount per user for up to a total of 38 users. Once in possession of the website content material, the Town cannot alter or share the content in any way

unless authorized by the City. The agreement for the use of this internet-based learning material came into effect March 28th, 2018.

6.5.2.5 Fire Dispatch Services Agreement

Dispatch and Communications for O.F.D. are provided by the City of Red Deer, a separate municipal body that is responsible for calls received from the service area including emergency 9-1-1 calls for the Town of Olds. The City also provides this service for Mountain View County, Town of Carstairs, Village of Cremona, Town of Didsbury, and the Town of Sundre. The terms of the fire dispatch services agreement remain in effect from 2019 to 2023 and provides for the dispatching of fire apparatus, additional units when requested, and other response and emergency services agencies available under mutual aid agreements. The City is responsible for providing each member of the agreement with call records including but not limited to total calls received, dispatch time, unit arrival time, and unit return time. Each participant of the agreement pays the City a sum equal to the per capita fee per year multiplied by the number of persons in their respective service areas.

6.5.2.6 Alberta First Responders Radio Communications System (A.F.R.R.C.S.) Access Agreement

The Alberta First Responders Radio Communications System is a two way radio system owned and operated by the Province of Alberta with the benefit of improving coordinated joint response, integrated radio communications among first response agencies, and to offset the cost of radio system infrastructure. The A.F.R.R.C.S. can only be used by First Responders (including police, fire and ambulance) to support public security and improve responder safety. There is no cost associated with use of this system for first responders, however, secondary responders such as public works or public transit may use the system for a fee. The Town of Olds has entered into an agreement with the Province for the use of this system, which has an expiry date of December 31st, 2031.

6.5.2.7 Safety Codes Services Agreement

D.R. Inspections & Permits Ltd. conducted building safety codes services and inspections for the Town of Olds in accordance with the Safety Codes Act. To ensure the Town's compliance with the Act, standards and bylaws, the company monitored and reviewed programs and plans, performed site inspections and follow-up inspections throughout the municipality. This agreement was entered into by both parties on February 15th, 2018 and expired December 31st, 2018.

6.6 Departmental Standard Operating Guidelines and Procedures

Standard Operating Guidelines (S.O.G.s) and Standard Operating Procedures (S.O.P.s) are commonly used within O.F.D. to direct the performance or behaviour of departmental staff, whether functioning alone or in groups. S.O.G.s differ from policies and procedures in that there is more room for interpretation and variance in outcomes. In general, the S.O.G.s are intended to:

- *Enhance safety;*
- *Increase individual and team effectiveness;*
- *Improve training efficiency;*

- *Improve orientation for entry-level staff;*
- *Improve risk management practices;*
- *Prevent/ avoid litigation;*
- *Create objective post-incident evaluations; and*
- *Permit flexibility in decision making.*

Within the O.F.D, the S.O.G.s and S.O.P.s are divided into the following sections:

- Administration;
- Equipment and Maintenance;
- Fire Suppression Program;
- Hazmat – CBRN Program;
- Operation of Apparatus;
- Fire Prevention;
- Self-Contained Breathing Apparatus;
- Training Process;
- Rules and regulations; and
- Technical Rescue Program.

Our review indicates that there is a need to update many of the department's S.O.G.s and S.O.P.s and develop new ones to better reflect the programs provided within the O.F.D. subject to Council consideration and approval of this F.S.M.P. For example, upon review of the S.O.G.s under 'Training Process', there are references to operations that would be better suited for the 'Fire Suppression Program' categorization. There will be a need to further review all existing S.O.G.s and S.O.P.s and complete revisions where necessary. The fire department has targeted this area as one for improvement and is in the process of updating a number of its existing guidelines and procedures. References to specific S.O.G.s and S.O.P.s are made throughout this plan where applicable.

The process to update and maintain Standard Operating Guidelines and Standard Operating Procedures to reflect current industry best practices and to comply with applicable health and safety requirements of the Town is a time consuming administrative process. This is a further example of an important issue within the department that is being challenged by current work load capacity.

The proposed staff resource strategies have been developed to provide additional administrative work load capacity to address this current challenge.

Operational Recommendation #5: That priority be given to updating and sustaining department Standard Operating Guidelines and Standard Operating Procedures to reflect current industry best practices and applicable legislation.

6.7 Records Management Procedures

In addition to the by-laws previously mentioned within this report Bylaw 2018-22 provides for a records management retention schedule for all records within the Town's custody and control. It outlines the minimum amount of time all department documents are to be kept until they are subject to destruction. Property inspection documents are to be kept indefinitely while all other documentation (with the exception of general correspondence and fire prevention activities) are to be kept for a period of ten years.

Our review of the fire department's S.O.G.s and policies did not identify a guideline or procedure for the management of department records. Records management plays a role in every division of a fire department for a variety of reasons including, but not limited to, operations, emergency response, firefighter training records, as well as measuring the effectiveness of fire prevention and public education programs.

Currently, the O.F.D. manages its internal records with software specifically designed for fire department use referred to as Fire Pro2. The Town of Olds possesses the license to operate Fire Pro2 while neighbouring department's within the county share the use of this system as add-on agencies. For fire inspections, the Town has recently transitioned from using City Reporter, a checklist based program to Mobile Eyes. This new fire inspection software program allows for more accurate statistical reporting and fire inspection history review. There is also an opportunity to use the Mobile Eyes platform for pre-fire planning and for tracking emergency response information.

Records management is an area of the department that should be approached with a strategy of continuous improvement. Increasing the breadth and depth of use of Fire Pro2 would be one opportunity for the department to improve the current internal data collection and records management process. This would provide the opportunity to develop a more robust data set for application in the ongoing monitoring of department performance and review of the department's progress as it grows and transitions into the future.

Operational Recommendation #6: That consideration be given to developing a Standard Operating Guideline for all records management practices within the Olds Fire Department.

6.8 Annual Reports

The effective optimization and delivery of fire protection services requires the ongoing monitoring, evaluation and reporting to Council. The municipal fire service industry in Canada utilizes annual reports to Council as a tool to provide a high degree of accountability and transparency on behalf of the Fire Chief in reporting to the community and Council on the level of fire protection services provided. This regular reporting process is also an ideal opportunity to update the Community Risk Assessment and fire related bylaws and can provide further value in identifying evolving trends within the community.

The Town's most recent Annual Report, dated 2017, includes a brief overview of the training and fire prevention activities that the O.F.D. was involved in throughout the year as well as the types of emergency calls responded to within and beyond the Town of Olds. Our review of this report noted that there was no reference to any form of performance benchmarking or details of services provided. In our experience this is not uncommon in smaller fire departments such as Olds.

The data collection process to develop this F.S.M.P. has created a unique opportunity for the fire department to evaluate its historical records management and data analysis processes. The Fire Chief has also expressed is interest in collecting the required data and enhancing the reporting process in the future to include ongoing performance benchmarking. Our observations suggest that incremental improvements have already been initiated by the Fire Chief as a result of this fire master planning process.

The recommendations of this F.S.M.P. are intended to support the enhanced data collection and analysis process that has been initiated by the department. It is recommended that the Fire Department's Annual Report be sustained and enhanced to include performance benchmarking as presented within this F.S.M.P. In our experience the implementation of this strategy will provide further enhance the Fire Chiefs reporting to Council and the community.

Operational Recommendation #7: That consideration be given to enhancing the fire department's Annual Report to include performance benchmarking to further enhance the department's reporting to Council and the community.

6.9 Administration Division Summary and Recommendations

Our review of the Administration Division, including the current organizational structure, roles and responsibilities of staff assigned to administrative tasks, and current administrative processes reflects the symptoms of an organization that has exceeded its workload capabilities. There are multiple examples of the current administrative functions that have exceeded the current staff's ability to effectively and efficiently sustain the current organizational structure.

The historical organizational structure of the Olds Fire Department has served the community well in providing seamless fire protection services. However, the increasing demands to respond to evolving legislative changes including increasing health and safety requirements, data collection, data analysis and performance benchmarking have in our view exceeded the capabilities of the current organizational structure.

This F.S.M.P. includes strategies, including a proposed staff resource strategy, to address the identified workload challenges and enhance the sustainability of the division and the department, overall. As a result of the review of the Administrative Division, the following recommendations are presented for Council's consideration and approval:

Council Recommendations:

Council Recommendation #1: ***That consideration be given to approving the strategic priorities identified within the Fire Services Master Plan to guide the development and delivery of fire protection services within the Town of Olds over the next ten-year community planning horizon.***

- ✓ ***The analysis of fire protection services provided to the community shall be fully informed by the development and ongoing review and update of a Community Risk Assessment to identify the fire related risks within the Town of Olds;***

- ✓ ***The primary objective of the Olds Fire Department will be to optimize the use of public education and fire prevention programs and activities, and the utilization of fire safety standards and fire code enforcement, to enhance the fire and life safety within the community;***
- ✓ ***The Town of Olds will continue to prioritize the utilization of strategies that support the sustainability of paid on-call firefighters as the Town's primary providers of fire suppression services, and through the implementation of a comprehensive communication plan the Council of the Town of Olds will seek the support of residents and employers to assist in this strategic priority;***

- ✓ ***The Town of Olds will continue to prioritize the delivery of a comprehensive fire protection model that provides the most effective and efficient level of fire protection services resulting in the best value for the community.***

Operational Recommendations:

Operational Recommendation #1: That subject to Council's consideration and approval of the proposed Fire Services Master Plan the Town conduct a comprehensive review and update of all required job descriptions.

Operational Recommendation #2: That the Olds Fire Department implement a Senior Officer On-Call policy as presented within the proposed Fire Services Master Plan.

Operational Recommendation #3: That subject to Council's consideration and approval of the proposed Fire Services Master Plan that By-law No. 2018-28 – Fire By-law be reviewed and revised as may be required.

Operational Recommendation #4: That consideration be given to reviewing the current Rates By-law No. 2018-34 as presented within the proposed Fire Services Master Plan.

Operational Recommendation #5: That priority be given to updating and sustaining department Standard Operating Guidelines and Standard Operating Procedures to reflect current industry best practices and applicable legislation.

Operational Recommendation #6: That consideration be given to developing a Standard Operating Guideline for all records management practices within the Olds Fire Department.

Operational Recommendation #7: That consideration be given to enhancing the fire department's Annual Report to include performance benchmarking to further enhance the department's reporting to Council and the community.

7.0

Fire Prevention and Public Education Division

The analysis within this section examines the existing fire prevention and public education activities and services provided by the O.F.D. Where applicable the strategies and recommendations presented within this section the ***"key findings"*** of the ***"Community Risk Assessment"***, and are intended to support the proposed strategic priorities presented within this F.S.M.P. including:

- ✓ ***The analysis of fire protection services provided to the community shall be fully informed by the development and ongoing review and update of a Community Risk Assessment to identify the fire related risks within the Town of Olds;***

- ✓ ***The primary objective of the Olds Fire Department will be to optimize the use of public education and fire prevention programs and activities, and the utilization of fire safety standards and fire code enforcement, to enhance the fire and life safety within the community;***

Within the Province of Alberta the ***Safety Codes Act*** (S.C.A.), ***National Building Code*** (N.B.C.), and ***National Fire Code*** (N.F.C.) are the applicable legislating documents regarding fire safety. The N.F.C. and N.B.C. are 2019 editions of the previous ***Alberta Building Code*** 2014 and ***Alberta Fire Code*** 2014 which were adopted by provincial regulation in 2019.[6]

The ***Safety Codes Act*** allows for the Lieutenant Governor and the Safety Codes Council to make regulations governing fire protection and the safe design, manufacture, construction, sale, installation, etc. of buildings, electrical systems, fire protection systems and equipment, among others. The N.F.C. allows for the inspection of various facilities, and outlines specific fire prevention measures required at different facilities such as processing plants, child care facilities, distilleries, etc.

As stated in the ***Safety Codes Act***, the Minister or the Safety Codes Council may, ***"in accordance with the regulations, establish and operate safety information and education programs or services".***[7] The Town of Olds 2019 Quality Management Plan (Q.M.P.) outlines the department's existing approach to fire prevention, public education, and investigation in accordance with the S.C.A. Throughout this section

[6] Source: National Fire Code- 2019 Alberta Edition, NFC (AE), Government of Canada website, las updated 2019-05-29, https://nrc.canada.ca/en/certifications-evaluations-standards/codes-canada/codes-canada-publications/national-fire-code-2019-alberta-edition-nfcae

[7] Source: Safety Codes Act, Section 13(2).

the Q.M.P. is referenced to assist with describing existing conditions within the Town of Olds in terms of fire prevention.

7.1 Division Key Functions

Section 3.1 of ***Bylaw No. 2018-28*** identifies the key functions of the Fire Prevention and Public Education Division and specifically the following:

- ✓ *Providing fire inspection, investigation, and public education prevention services in accordance with Alberta's safety codes Act, R.S.A. 2000, c s-1, and the regulations thereunder, and the Town of Olds Quality Management plan; and*
- ✓ *Administrating Fire Permit approvals, occupancy levels and compliance inspections to ensure the Alberta Fire Code requirements are met and adhered to.*

7.2 Applicable Fire Prevention/Public Education C.R.A. Key Findings

Table 3 presents the ***"key findings"*** identified by the C.R.A. that are applicable to strategies designed to optimise the use of enhanced fire prevention and public education programs and services through application of the first two lines of defence including:

1. ***Public Education and Prevention; and***
2. ***Fire Safety Standards and Enforcement.***

Table 3: C.R.A. Key Findings Categorization

		1st Line of Defence	2nd Line of Defence		
		Education	Enforcement	Engineering	Economic Incentive
Profile	C.R.A. Analysis Outcome: Key Finding	For consideration within the proposed Public Education Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Fire Inspection and Enforcement Program
	The Town has a potential risk of wildland fire due to the wildland-urban interface.	✓	✓		✓
Building Stock	The majority of the Town's existing building stock is comprised of Group C – Residential Occupancies (including non-inspectable occupancies) (88%).	✓			
	Group D – Business Occupancies and Group E – Mercantile Occupancies combined account for 7% of the Town's total building stock.	✓			
	Group F – Industrial Occupancies account for 2% of the Town's total building stock.	✓	✓		✓
	The 2016 Census data indicates that 33% of the Town's residential building stock is comprised of other attached dwellings. Attached dwellings have a higher risk of a fire spreading to an adjacent exposed buildings.	✓	✓	✓	
	There are 17 buildings that present an increased fire risk due to their large floor areas.		✓	✓	✓

		1st Line of Defence	2nd Line of Defence		
	Of the buildings with increased fire risk due to the large floor area, a number of the Group F – Industrial occupancies are not in compliance with the A.B.C.		✓	✓	✓
	There are twelve properties within the Town that have fuel load concerns.	✓	✓	✓	✓
	There are 13 identified occupancies with potential high life-safety risk within the Town of Olds and there is a school for students with special needs that presents unique life-safety risks.	✓	✓	✓	✓
	There are seven registered heritage buildings within the Town of Olds, which are keystone features of the community's history.	✓			
Demographics	Seniors (those 65 years and over) are considered to represent one of the highest fire risk groups across the province based on residential fire death rate. The Town of Olds currently has a higher proportion of seniors compared to the Province (21% vs. 11%).	✓			
	The current total population of the Town includes a component of 24% of people between the ages of 45 and 64 who are aging towards the seniors demographic of 65 or over.	✓			
Fire	Group C – Residential occupancies (including non-inspectable occupancies) account for 73% of property fires within the Town when analyzing the proportion of fires that occurred within an A.B.C.		✓	✓	

		1st Line of Defence	2nd Line of Defence		
	major occupancy classification.				
	Group A – Assembly occupancies account for 11% of property fires within the Town when analyzing the proportion of fires that occurred within an A.B.C. major occupancy classification.	✓	✓	✓	✓
	Properties that are not a part of an A.B.C. major occupancy classification (e.g., storage properties, special property and transportation equipment, etc.) account for 52% of the 153 fires occurring over the ten year period.	✓			
	For the period 2007 to 2016, the two fatalities and one injury all occurred within Group C – Residential occupancies (including non-inspectable occupancies).		✓	✓	
	Of the fires occurring in the Town between 2007 and 2016, the leading causes of unintentionally set fires was due to Mechanical/Electrical Failure/Malfunction at 28% of fires followed by Human Failing at 12%.	✓	✓		
	Of the fires occurring in the Town between 2007 and 2016, 25% of fires were intentionally caused and classified as Arson or 'Set Fires'.	✓	✓		
	The most common known sources of ignition for fires within the Town is due to Smoker's Material & 'Open' Flame at 18% and Heating Equipment at 10%.	✓	✓	✓	✓

		1st Line of Defence	2nd Line of Defence		
	Provincial home smoke alarm statistics emphasize the importance for local fire department programs related to smoke alarms.	✓	✓	✓	✓
Response	From 2015 to 2017, there was an increase in call volume.		✓		✓
	From 2015 to 2017, O.F.D. call volume was comprised of 24% Alarm No Fire calls, 24% Medical calls, 19% Rescue calls, and 15% Fire calls.	✓	✓	✓	✓

7.3 Fire Prevention and Public Education Industry Best Practices

In addition to being informed by the ***"key findings"*** of the ***"Community Risk Assessment"*** our analysis of the existing fire prevention and public education services provided by the O.F.D. has considered the current applicable industry best practices as contained within the ***N.F.P.A. 1730: Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations to the Public*** (2019 Edition). This standard provides valuable insight into the development of programs and services in the following core areas:

1) *Organization;*
2) *Community Risk Assessment;*
3) *Fire Prevention Inspection and Code Enforcement Activities in Existing Occupancies;*
4) *Plan Review;*
5) *Investigations; and*
6) *Public Education Programs.*

The essence of this standard is to ensure that in addition to a ***Community Risk Assessment*** a municipal also has a ***Community Risk Reduction Plan (***C.R.R.P.) to inform and guide the delivery of fire prevention and public education programs within the community. A ***Community Risk Reduction Plan*** is utilized to identify the applicable services and programs that will be required to minimize and/or mitigate the existing fire related risks within the community. Risk mitigation strategies can include considering options such as enhanced fire inspection and fire code enforcement activities, plans review, fire investigations and targeted public education programs.

The N.F.P.A. 1730 standard has been instrumental to informing the current industry trend to emphasize fire prevention and public education within the fire service. Where applicable, this F.S.M.P. will present risk mitigation strategies in response to the findings of the C.R.A. to enhance the existing fire prevention and public education programs and services provided by the O.F.D.

7.3.1 N.F.P.A. Fire and Life Safety Ecosystem

The N.F.P.A. Fire and Life Safety Ecosystem is a framework of eight elements that work in conjunction with one another towards the minimization of fire risk. Together, they promote the prevention of fires and other hazard-related loss, injuries and fatalities. The eight components that comprise this framework include: government responsibility, development and use of current codes, reference standards, investment in safety, skilled workforce, code compliance, preparedness and emergency response. This ecosystem is premised on the notion that the cause of all life safety incidents can be traced back to the breakdown of one or more of these components. N.F.P.A. is dedicated to protecting lives and property through the implementation of this ecosystem.

The Fire and Life Safety Ecosystem recognizes that fire prevention is multifaceted and there are various key components that need to work in tandem in order to cultivate an environment and culture of fire

safety. Where applicable the recommendations presented within this F.S.M.P. seek to support the N.F.P.A. Fire and Life Safety Ecosystem.

7.4 Fire Prevention/Public Education Policy Direction

Current industry best practices support the value of a Council approved ***Fire Prevention Policy*** to define the fire prevention and public education services and programs to be provided to the community. Within the Province of Alberta municipalities are required by the ***Safety Codes Act*** to develop a ***Quality Management Plan*** (Q.M.P.). The Town of Olds recently (2019) updated the Q.M.P. that outlines the current fire prevention and public education services to be provided by the O.F.D. as approved by Council. In our view the Q.M.P. process reflects current industry best practices of ensuring all programs and service provided by the fire department are support by Council approved policy.

In our view this fire services master planning process provides an opportunity for Council to consider revising the current Q.M.P. based on the findings of the Community Risk Assessment and proposed risk reduction strategies.

Council Recommendation #2: That subject to Council's consideration and approval of the proposed Fire Services Master Plan consideration be given to updating the Town's current Quality Management Plan.

7.5 Existing Fire Prevention and Education Staff Resources

Within the current organizational structure of the O.F.D. the Fire Chief is directly responsible for the oversight of all fire prevention and public education activities. Under the direction of the Fire Chief the full-time Fire Prevention Officer (F.P.O.) is responsible for the delivery of all approved fire prevention and public education programs as defined by the current Q.M.P.

In addition to the full-time F.P.O. the O.F.D. also retains a contracted Fire Prevention Officer who provides additional workload capacity in this area one day per week. This division also includes one paid on-call firefighter who fulfills the roll of Public Educator and is responsible for the provision of the department's current public education and fire safety programs. Two auxiliary members of the fire department provide support services to the Fire Prevention Division. These personnel are assigned specific tasks, such as managing the department's Town website and utilized social media platform.

The key functions of the Fire Prevention and Education Division include:

- ✓ Responding to request/complaints and any inquiries relating to the N.F.C.;
- ✓ Inspection program as per the Quality Management Plan;
- ✓ Investigation of all dollar loss fires;
- ✓ Reporting to the O.F.C. for all dollar loss fires;
- ✓ Conducting occupant loads for all assembly occupancies;

- ✓ Educating the public regarding fire and life safety by conducting hall tours for kindergarten groups, and providing school tours to elementary groups and the youth fire setter program; and
- ✓ Researching possible tools and programs to educate commercial/industrial businesses.

The Fire Prevention office is located at the Town's Fire Station / Headquarters and consists of one office equipped with computers and a workspace to accommodate all fire prevention and public education activities. The division has been assigned one vehicle dedicated to travelling for building inspections.

7.6 Training Standards & Qualifications

At a minimum, all staff resources conducting fire inspections should have the skills and competencies included within the ***N.F.P.A. 1031 – Fire Inspector Level I***. Fire inspections involving more complex issues and requiring interpretation of various legislation and codes are recommended to have the Level II designation.

Table 4 summarizes the different fire inspector designations included within the N.F.P.A. 1031 standard.

Table 4: N.F.P.A. - 1031 Standard Fire Inspector Designations

Fire Inspector	N.F.P.A. 1031 Standard
Fire Inspector I	An individual at the first level of progression who has met the job performance requirements specified in this standard for Level I. The Fire Inspector I conducts basic fire inspections applies codes and standards.
Fire Inspector II	An individual at the second or intermediate level of progression who has met the job performance requirements specified in this standard for Level II. The Fire Inspector II conducts most types of inspections and interprets applicable codes and standards.
Fire Inspector III	An individual at the third and most advanced level of progression who has met the job performance requirements specified in this standard for Level III. The Fire Inspector III performs all types of fire inspections, plans review duties, and resolves complex code-related issues.

7.6.1 N.F.P.A. 1033 – Standard for Professional Qualifications for Fire Investigator

Staff responsible for conducting fire investigations should have the skills and competencies included in ***N.F.P.A. 1033- Standard for Professional Qualifications for Fire Investigator***.

Table 5: N.F.P.A. 1033 Standard for Professional Qualifications for Fire Investigator

Fire Investigator	N.F.P.A. 1033 Standard
Fire Investigator	An individual who has demonstrated the skills and knowledge necessary to conduct, coordinate and complete fire investigations.

7.6.2 N.F.P.A. 1035 – Standard for Professional Qualifications for Fire and Life Safety Educator, Public Information Officer, and Juvenile Firesetter Intervention Specialist

At a minimum, all staff resources responsible for developing and delivering public education programs should have the skills and competencies included within the ***N.F.P.A. 1035 – Fire and Life Safety Educator I***.

Table 6 summarizes the different public education designations included within the N.F.P.A. 1035 standard.

Table 6: N.F.P.A. - 1035 Standard for Public Education Designations

Fire and Life Safety Educator	N.F.P.A. 1035 Standard
Fire and Life Safety Educator I	The individual who has demonstrated the ability to coordinate and deliver existing educational programs and information.
Fire and Life Safety Educator II	The individual who has demonstrated the ability to prepare educational programs and information to meet identified needs.
Fire and Life Safety Educator III	The individual who has demonstrated the ability to create, administer, and evaluate educational programs and information.

It is recommended that the O.F.D. consider the skills and competencies required within the identified N.F.P.A. standards in updating and developing the applicable job descriptions and qualifications required to facilitate the fire prevention and public education services and programs provided by the Olds Fire Department. In our view these utilization of these standards reflect current municipal due diligence and best practices.

Operational Recommendation #8: That the training standards and qualifications for all staff assigned to the delivery of fire prevention and public education services and programs identified within the proposed Fire Services Master Plan be considered for implementation within the applicable job descriptions within the Olds Fire Department.

7.7 Current Fire Inspection Program

The current fire inspection services provided by the O.F.D. are outlined in the 2019 Quality Management Plan. The Q.M.P. establishes responsibilities and minimum performance criteria for compliance monitoring as required by the S.C.A. The current fire inspection services provided by the O.F.D. include:

- ✓ Fire Code advice;
- ✓ Plans examinations;
- ✓ Permit/permission issuance;
- ✓ Compliance monitoring site inspections;
- ✓ Occupant load certificates;
- ✓ Alternative solutions/variances;
- ✓ Orders and their enforcement;
- ✓ Verification of compliance;
- ✓ No-entry advisory;
- ✓ Identification and follow-up deficiencies and unsafe conditions;
- ✓ Collection and remittance of Safety Codes Council fees; and
- ✓ Maintaining files and records.

Research into preparing this F.S.M.P. identified that in 2018 a ***Safety Codes Council Audit*** was conducted and concluded that the Town was not complying with its Q.M.P. requirements. In response Council approved the hiring of the current full-time Fire Prevention Officer and authorized the hiring of the contracted Fire Prevention Officer. Council's immediate response to the findings of the ***Safety Codes Council Audit*** conclusions has resulted in substantial positive improvements being made towards compliance with the current Q.M.P.

To assist local business owners, store managers and maintenance personnel in ensuring compliance with the N.F.C., the O.F.D. has provided a ***Pre-Inspection Checklist*** on the Town's website. This document provides valuable information that property owners can follow prior to routine fire inspections conducted by the O.F.D.

7.7.1.1 Standard Operating Guideline INSP001

Our review indicates that this S.O.G. provides clear direction for conducting fire inspections within the Town of Olds and Mountain View County. It outlines the procedures that all ***Safety Code Officers*** are to follow while conducting fire inspection activities. However, our research indicates that at times, ***Safety Code Officers***, or other members of the O.F.D. may be required to work alone in the community while responding to non-emergency duties as assigned including fire inspections, fire investigations, public education events and serving official enforcement documents. In addition to considering the protective measures and equipment considerations for hazards in the workplace, we recommend that a department guideline, or procedure be developed to give clear direction to any members of the O.F.D. who may be required to work alone to reduce the risk of harm in the performance of their duties.

Operational Recommendation #9: That consideration be given to developing a Standard Operating Guideline or Procedure to provide direction to all Olds Fire Department personnel who may be required to work alone while out in the community, or County.

7.7.2 Current Fire Inspection Program

Our review indicates that the O.F.D. as made substantial positive improvements towards compliance with the current Q.M.P. that defines the Town's current fire inspection program associated with major building occupancy classifications. It is anticipated that the O.F.D. will be able to achieve compliance with the Q.M.P. prior to the end of 2019, or early in 2020 as a result of implementing the full-time Fire Inspectors position.

In addition to conducting fire inspections of these identified major building occupancy classifications the approved Q.M.P. requires the O.F.D. to conduct inspections related to new ***Fire Safety Plans.*** The Town's current fire inspection program as detailed in the current ***Quality Management Plan*** for all N.F.C. major building occupancy types is shown in **Table 7**.

Table 7: Current Fire Inspection Cycle

N.F.C. Major Building Occupancy Classification		Example Occupancies	Current Fire Inspection Cycle
Group	Division		
Group A - Assembly	1, 2, 3 & 4	Schools, Recreation Centres, Arenas, Theatres	Once every 12 months
Group B – Care or Detention	1 & 2	Nursery/Day Care Facilities, Seniors Care Facilities, Hospital, Licensed Properties, Care and Detention Facilities, Churches	Once every 12 months
Group C – Residential (inspectable)	1 – 5 Family 5 – 12 Family 12 to 25 Family 25 or more Families	Houses, Townhomes, Apartments, Condominiums, Hotels, Inns, Motels, Hostels, Bed & Breakfast Establishments	Once every 24 months
Group C – Residential	non-inspectable occupancies	Single-family dwellings, semi-detached dwellings, duplexes, triplexes, quad-plexes, etc.	n/a *(Address through public education programs)*
Group D - Business	---	Banks, Dental services, Dry Cleaning, Medical offices, small tool rental and service.	Upon request / complaint
Group E - Mercantile	---	Department store, market, shops, stores, supermarkets, exhibition hall.	Upon request /complaint
Group F - Industrial	1	Flammable liquid bulk plant, cereal mill, distillery, feed mill, grain elevator.	Once every 12 months
	2	Cold storage, laboratories, service station, printing plant, repair garage.	Once every 12 months
	3	Factories, power plants, warehouses, laboratories, workshops.	Once every 24 months

7.7.3 Proposed Fire Inspection Program

In our view the current fire inspection program provided by the O.F.D. responds to the majority of the "key findings" of the C.R.A. and specifically the Group C- Residential Occupancies (including non-spectable occupancies) that represent 88% of the Town's existing building stock. The proposed fire inspection program anticipates that the O.F.D. will be able to achieve compliance with the current

Q.M.P. requirements within the short-term (6 to 12 months). In our experience it will take more than one cycle of these inspections to sustain the intended level of fire safety associated with these fire inspections.
Therefore, in the short-term (1 to 3) years we are recommending that the O.F.D. continue to prioritize compliance with the current Council approved Q.M.P. Once compliance has been achieved, and there is supporting evidence (statistical) that the intended level of fire safety is being sustained we are recommending that the current Q.M.P. be reviewed, and that consideration be given to re-instating the previous fire inspection cycles for Group D and E major building classifications.

Operational Recommendation #10: That once compliance with the current Quality Management Plan has been achieved including supporting statistical data that consideration be given to re-instating the previous fire inspection cycles for Group D and E major building classifications.

To further support the current fire inspection program, and to further respond to the ***"key findings"*** of the C.R.A. this F.S.M.P. the following sections of this report will recommend that the O.F.D. consider an ***Enhanced Home Fire Safety Program*** that targets ***Group C- Residential Occupancies (including non-inspectable occupancies)***. Further analysis and recommendations related to this strategy will be presented in the following section of this Divisions review.

7.7.4 Fire Safety Plans

Fire safety plans are required for select occupancy types identified within the N.F.C. These occupancies include Group A – Assembly occupancies and Group B – Care or Treatment occupancies. All other occupancies require fire safety plans if the building requires a fire alarm system, demolition and construction sites or indoor/outdoor areas regulated under the N.F.C., or in areas where hazardous process are occurring. Fire safety plans, while approved by qualified personnel within a fire department, are utilized primarily by the occupants where appropriate, building staff, provide an avenue for training in the case of a fire incident; for example, care providers at a long-term care facility are made aware of their responsibility in an evacuation procedure.

Per the 2019 Q.M.P., the Town will support the development and implementation of fire safety plans, with emphasis on addressing the risk to occupied residential buildings. According to the newly updated 2019 Q.M.P., fire safety plans are developed or reviewed in conjunction with one on-site inspection where a risk to occupied residential buildings has been identified, and for all new construction, alteration, addition, renovation, reconstruction, or removal.

In addition to being a legislative requirement, fire safety plans are a core component of a communities approach to fire safety. Our review indicates that the O.F.D. does not currently have an S.O.G., or defined procedures for the development, review and approval of fire safety plans. It is recommended that a S.O.G. or department procedure be developed to provide guidance to staff in the process, and requirements to prepare and approve and inspect buildings requiring a Fire Safety Plan.

Operational Recommendation #11: That consideration be given to developing a Standard Operating Guideline, or Standard Operating Procedure for Fire Safety Plans.

7.7.5 Pre-Planning

The process of pre-planning within the fire service is intended to provide a proactive awareness about key building features, possible hazards, and other pertinent characteristics about an existing occupancy. Pre-planning is typically conducted by on duty fire suppression staff with information provided from a variety of sources including existing information from the Town, information gathered from the building owner, and site visits. The value of a building pre-plan is to provide site specific education and information to fire suppression crews in advance of responding to an emergency incident.

The O.F.D. currently conducts pre-planning and prioritizes pre-plans for buildings that are Group F1 – High-Hazard Industrial Occupancies, apartment buildings with high population densities and Group A – Assembly Occupancies. The department has recently transitioned to using mobilized software which contains a pre-planning component with which fire suppression personnel are able to input and access pre-plans as required.

Our review indicates that there is currently no S.O.G. or defined procedures for completing or prioritizing pre-planning within the Town. The findings of the C.R.A. provide valuable insight into identifying the fire related risks within the community, and specifically the types of building occupancies that should be prioritized for pre-planning. In our view, there would be added benefit to developing an S.O.G. for pre-planning procedures and pre-planning activities.

Operational Recommendation #12: That consideration be given to developing a department Standard Operating Guideline for conducting pre-plans, and that within the proposed guideline consideration be given to prioritizing the "key findings" of the Community Risk Assessment.

7.7.6 Building Construction Plans Review

Approval of plans for new construction or site alternations from the perspective of fire protection is a critical component of fire prevention. In our experience the degree of plans review performed by a fire prevention division varies between jurisdictions. Building plans can be reviewed for sprinkler, fire alarm and detection, and suppression systems; and site plan and subdivision approval for items affecting fire services, such as fire department access and water supply.

Our research indicates that the current process for reviewing new construction plans received by the Town's Building Inspector includes his review, and if necessary as a result of his review of the fire safety systems, or fire department access contacting the fire department for input. In our experience current municipal best practices reflect the importance of coordinating the plans review process between departments, including building and fire. Building departments typically have a stronger focus on the building codes in comparison to the fire code, however in our view there needs to be a broader

municipal strategy that considers that in the longer-term the fire department will be inspecting many of these buildings on an ongoing basis, and therefore having an understanding and input into the planning of the fire and life safety systems from the onset of design and construction can be beneficial.
Our review indicates that at the current time there is no formal process or guideline that defines the factors that should initiate consultation between departments. The current process appears to be inconsistent, and very informal which may in part be caused by the Building Inspectors limited availability two days a week. It is recommended that consideration be given to developing a letter of understanding, or some other type of written agreement between the Building Department and the Fire Department to formalise the roles and responsibilities, schedule, and process for consultation between these departments to review and approve construction plans.

Operational Recommendation #13: That consideration be given to developing a letter of understanding, or other written agreement between the Building and Fire Departments to coordinate the construction plan review and approval process.

7.7.7 Fire Investigations

The 2019 Q.M.P. states that a ***Fire Safety Codes Officer*** will conduct an investigation "to determine the cause, origin and circumstance of every fire in which a person dies or suffers injury that required professional medical attention, or in which property is damaged or destroyed". The results of the investigation are reported to the Fire Commissioner in accordance with the Administrative Items Regulation. Where fires meet specific criteria, a Fire Safety Codes Officer may need to work with additional law enforcement, agencies, or other resources as required. All fire investigations are to include the following information:

- File number;
- Location of fire;
- Date of fire;
- Date of investigation;
- Building / property use;
- Cause of fire;
- Origin of fire;
- Value of loss;
- Name and designation number of SCO conducting the investigation;
- Comments; and
- Date of completion/sign off.

The review completed for this F.S.M.P. indicates that O.F.D.'s S.O.P. INVES001 describes the department's activities with regards to fire investigations. The procedure states that activities of this nature are required to be conducted by a Fire Safety Codes Officer and that any investigations of fires and explosions are to be conducted in accordance with N.F.P.A. 921 Guideline for Fire and Explosion Investigations.

Currently there are six safety codes officers in the fire department certified to conduct fire investigations.

7.7.8 Home Smoke Alarm & Fire Escape Planning

Research indicates that the presence of working smoke alarms within the home will increase the survival rate of occupants during a fire emergency. Fire investigations indicate that occupants are most vulnerable when they are sleeping, which is when the majority of fatal fires occur. The risk of a fire related death or injury could be significantly reduced with the presence of working smoke alarms on every floor of the home and adjacent to sleeping areas. Working smoke alarms and a home fire escape plan provide occupants with the time necessary to successfully escape a fire.

As a component of a proactive public education program targeting the pre-fire department notification phase of a fire, the provision of a ***Home Smoke Alarm Program*** is an effective strategy to enhance public fire and life safety education, and reduce the probability of a fire related injury or death.

Benefits to the provision of a ***Home Smoke Alarm Program*** include:

- ✓ Validate the presence of properly installed and working smoke alarms in all residential occupancies;
- ✓ Reduce the probability of fire related deaths and injuries as a result of a fire;
- ✓ Provide valuable educational information to home owners about the importance of maintaining working smoke alarms; and
- ✓ Inform occupants about the importance of having an effective home fire escape plan, and practicing the plan on a regular basis.

Complimentary to a ***Home Smoke Alarm Program***, a ***Home Fire Escape Plan Program*** provides occupants of the home with a predetermined course of action in the event of a fire. Through advance planning and practice, a home fire escape plan can enhance the occupants' fire and life safety knowledge. In the event of a fire, human behaviour suggests that you exit the room or building in the same manner that you entered. During a fire, this exit path may not be available as a result of rising heat conditions or the presence of smoke and fire. Ensuring there are two exits from every room, which are easily accessible and functioning, is an important component of a home fire escape plan.

Providing public education including the process and benefits of preparing a home fire escape plan is also a critical component of the pre-fire department notification phase of a fire. Elements of a home fire escape plan should include:

- ✓ The identification of a secondary exit from all rooms;
- ✓ Floor plans of the home that identify alternate exits such as windows;
- ✓ Identification of alternate exit paths such as porch or garage roofs;

- ✓ Recognition of individuals with disabilities who may need assistance and a plan to facilitate evacuation of these individuals; and
- ✓ Identification of a meeting place outside of the home for all occupants.

7.7.8.1 Current Home Fire Safety Program

The O.F.D. current ***Home Fire Safety Program*** is coordinated by the paid on-call Public Educator. This program strives to educate residents of the potential fire risks within their homes; verify the presence of working smoke alarms; install or replace batteries where required; and provide smoke alarms to residents without one. The current ***Home Fire Safety Program*** is delivered by the paid on-call firefighters on pre-determined training nights. In its current form this program targets the paid on-call firefighters visiting approximately 300 homes per year. In 2019 this program prioritized the Olds Mobile Home Park and the area of 49th Avenue to 46th Avenue of town where the homes were built prior to the building code requiring hard wired smoke alarms to be installed. Our review indicates that the current home fire safety program is not described in a department S.O.P. or S.O.G.

In our view the current ***Home Fire Safety Program*** could be more effective with the addition of home fire escape planning educational materials and information, and information pertaining to the use of carbon monoxide alarms. In our experience the addition of this element would provide significant value in reducing the probability of injuries and fatalities.

It is recommended that the O.F.D. develop an S.O.G. that includes the goals and objectives of the ***Home Fire Safety Program***, procedures for conducting the door to door campaign, and the inclusion of performance benchmarks to report on the number of homes targeted and visited on an annual basis. An important element of the ***Home Fire Safety Program*** should be to identify and monitor the progress of achieving smoke alarm compliance as a method of evaluate the success of this initiative. The procedures for tracking the smoke alarm program statistics should also be included within the proposed S.O.G.

Operational Recommendation #14: That consideration be given to developing a Standard Operating Guideline to identify the roles and responsibilities, objectives, targets and procedures for the delivery of the Olds Fire Department Home Fire Safety Program as presented within the proposed Fire Services Master Plan.

7.8 Current Public Education Programs

The experience of municipalities across the country has shown that expanding and enhancing public education efforts can be an effective strategy to mitigate emergency call volume and increase the overall level of fire safety within a community.

The 2019 Q.M.P. states that the Town will support and provide one or more, but is not limited to, the following educational programs annually:

- *school curriculum;*
- *minority focused programs;*
- *seniors programs;*
- *community education; and*
- *other programs such as but not limited to:*

– *Risk Watch (an injury prevention program);*
– *Getting to Know Fire (fire educator lesson plans);*
– *Seniors Fire Safety Programs;*
– *Juvenile Firesetter Intervention Program;*
– *Fire Smart; and*
– *Shelter-in-Place.*

The O.F.D. educates the public about fire life safety through providing fire station tours annually to kindergarten groups, conducting elementary school visits and supporting the youth fire setter program. The public education program is led by the paid on-call Public Educator who is supported by paid on-call Firefighters, when required and available. Information provided by the department outlines the public education programs that are delivered annually including the workload associated with each activity. **Table 8** provides a summary of the department's current public education time requirements.

Table 8: Public Education Time Requirements

Target Group	Education Program	Number of Times the Program is Offered Annually	Number of Staff Required to Deliver Program	Hours Required to Prepare and Deliver Program	Total Number of Hours Annually
Age 1-4 (Infant)	Fire Station Tours	6-10	1	.5	12
	Story Time (Library)	1	1	1	1
Age 5-14 (Youth)	School Tours	6-10	4	1	40
	Girls and Boys Club	2	4	1	2
Age 15-64 (Adult)	Open House	1	40	5	5
Age 65 + (Senior)	Seniors Fire Safety	1	1	1	1
Total Hours					61

Our research indicates that the O.F.D. current conducts approximately 61 hours of public education related activities annually. The majority of these hours are assigned to activities that target youth and infants between the ages of 1 and 14 years of age. The ***"key findings"*** of the C.R.A. identify that the Town of Olds senior demographic (65+) represents 21% of the Town's population. In comparison to the same demographic analysis across the province the Town of Olds has a 10% higher population of seniors. The Town's demographic analysis also indicates that 25% of the Town's population is between the ages of 46 and 64 representing the percentage of population that is aging towards the senior's category.

Our research indicates that there are a number of public events within the community that occur on an annual basis that could provide the O.F.D. with further opportunities to promote public fire and life safety education to targeted demographic groups such as seniors. Some of these events include National Indigenous Peoples Day, Canada Day, 'Oldstoberfest', Olds Fashioned Christmas and more. There may also be an opportunity to collaborate with Mountain View County through the Inter-Municipal Cooperation Master Agreement to further enhance public fire and life safety education campaigns.

Our research indicates that there is some guidance in the 2019 Q.M.P. with respect to the department's current public education program however, there is very little information within the O.F.D.'s S.O.G.s to describe or outline how, when, and by whom these public education programs will be delivered. The development of supporting guidelines to promote consistent and targeted fire and life safety messaging is imperative. Consistent tracking of the delivery of public education materials and required resources is another area in need of improvement within the fire prevention and public education division.

7.8.1 Proposed Public Education Programs

A proactive approach to fire prevention and public fire and life safety education can have a significant positive impact on fire protection services delivered within a community. By prioritizing the delivery of public education programs, fire loss can be mitigated and fire call volume reduced.

7.8.1.1 Proposed Enhanced Child/Youth Education Program

A large percentage of the department's current activities targeting children and youth focus on fire station tours. In our view this is a very traditional approach to introducing children to the operations of a fire department with a limited amount of time targeted on fire safety education. The department does participate in other activities that interact with the age demographic, however these are very limited largely as a result of the availability of staff resources.

Teaching children/youth fire safety education during their early development years has proven to be an effective strategy towards changing human behaviour. Other emergency services across the province such as the police services have utilized this strategy to educate children/youth through programs such as the Drug Abuse Resistance Education (D.A.R.E.) program with positive outcomes. In our view the development of targeted fire safety education programs for children ranging in the age of 5 to 14 should

be a priority for the Olds Fire Department. In our experience education programs that target this demographic can have a further positive impact on their siblings, parents, extend family members and friends.

The proposed enhanced child/youth education program would target children attending either grade four or five representing children ages 10 to 12. Through consultation with local schools, parents associations and others within the community the department should consider the development of a ***"pilot project"*** including a curriculum to teach these children about fire safety. In our experience there are many examples of these types of programs available both commercially, and through other fire departments. The proposed "pilot project" should include identified performance benchmarks and opportunities to seek feedback to assess the effectiveness of the program. In our view the proposed ***"pilot project"*** should also consider partnerships within the community that may willing to provide financial or other support to mitigate any costs associated with printed or other required materials.

Operational Recommendation #15: That consideration be given to developing and implementing a "pilot project" for facilitating a targeted fire safety program to children aged 10 to 12 within the community as presented within the proposed Fire Services Master Plan.

7.8.1.2 Proposed Enhanced Seniors Fire Safety Program

Seniors and those aging towards being a senior represent approximately 40% of the population of the Town of Olds. Within the fire service, seniors are recognized as the most vulnerable demographic within our society. A large percentage of fire related injuries and deaths occur within the seniors demographic of a community.

As reflected in the analysis of demographics of the Town of Olds there is also a large percentage of people aging towards the seniors' category. Research indicates that the current seniors demographic of most communities, as well as the aging demographic have a strong desire to live in the family homestead has long has possible. The result is an aging demographic who live on their own and in many situations also have a diminishing capacity for personnel care and safety.

In our view these factors support the need to consider developing a dedicated adult/seniors fire safety education program. Enhancing existing community relationships and investigating additional partnerships may also be an effective strategy for consideration towards developing and implementing the proposed adult/seniors fire safety education program. Partnering with public facilities that see high volumes of people such as the care facilities could enhance public education efforts in terms of distributing printed fire safety information. The utilization of a "pilot project" could also be considered as an implementation strategy for this program.

Operational Recommendation #16: That consideration be given to developing and implementing a targeted fire safety program for seniors (65+) within the community as presented within the proposed Fire Services Master Plan.

7.8.2 Proposed Enhanced Home Fire Safety Program

In addition to recommending that the current ***Home Fire Safety Program*** be defined within a Standard Operating Guideline this F.S.M.P. recommends consideration of enhancing the utilization of this program as a priority of its public education programming. As previously referenced the current ***Home Fire Safety Program*** is delivered by the paid on-call firefighters in lieu of attending a regularly scheduled training evening. The impact is less hours available for the paid on-call firefighters to complete the required training exercises.

In our view consideration should be given to developing and implementing an independent schedule for facilitating the proposed ***Enhanced Home Fire Safety Program.*** Through consultation with the paid on-call firefighter's consideration should be given to identifying a minimum of two times a month during the period from May 1st to October 31st each year to broaden the scope of this program. These times could include an evening, or a weekend whereby a representative group of a minimum of four paid on-call firefighters could be scheduled for a minimum of three hours to facilitate the enhanced delivery of this program.

This F.S.M.P. has recommended that this program also include awareness of home fire escape planning and carbon monoxide alarms that may result in longer home visits, and less homes visited on an annual basis. As such one of the primary objectives of this strategy should be to increase the total number of homes that are visited on an annual basis, and priority of this significant public education activity.

Operational Recommendation #17: That consideration be given to enhancing the current Home Fire Safety Program as presented within the proposed Fire Services Master Plan.

7.9 Fire Prevention & Public Education Summary and Recommendations

The analysis within this section has highlighted the commitment that the Olds Fire Department has placed on fire prevention and public education activities. The information presented within this section confirms that the objectives of the department in this area have only been restricted by the availability of the staff resources to implement the identified programs. With the support of Council and the hiring of the full-time Fire Inspector the department is now on target to comply with the Council approved ***Quality Management Plan.***

In response to the ***"key findings"*** of the ***Community Risk Assessment*** the analysis and recommendations contained within this section are intended to further enhance the fire prevention and public education initiatives of the O.F.D. in response to the proposed strategic priorities of this F.S.M.P. including:

- ✓ ***The analysis of fire protection services provided to the community shall be fully informed by the development and ongoing review and update of a Community Risk Assessment to identify the fire related risks within the Town of Olds; and***

- ✓ ***The primary objective of the Olds Fire Department will be to optimize the use of public education and fire prevention programs and activities, and the utilization of fire safety standards and fire code enforcement, to enhance the fire and life safety within the community;***

It should be recognized that the implementation of the recommendations proposed within this section and within this F.S.M.P. will require Council's support of the proposed staff resource strategy presented within this report. Through our consultation as part of preparing this F.S.M.P. with Council, senior department staff and the paid on-call firefighters it is our interpretation that there is an existing consensus that enhancing the efficiency and effectiveness of the existing fire prevention and public education programs is a priority. The recommendations within this section are intended to provide the framework for moving forward.

As a result of the review of the Fire Prevention and public Education Division, the following recommendations are presented for Council's consideration and approval:

Council Recommendations:

Council Recommendation #2: That subject to Council's consideration and approval of the proposed Fire Services Master Plan consideration be given to updating the Town's current Quality Management Plan.

Operational Recommendations:

Operational Recommendation #8: That the training standards and qualifications for all staff assigned to the delivery of fire prevention and public education services and programs identified within the proposed Fire Services Master Plan be considered for implementation within the applicable job descriptions within the Olds Fire Department.

Operational Recommendation #9: That consideration be given to developing a Standard Operating Guideline or Procedure to provide direction to all Olds Fire Department personnel who may be required to work alone while out in the community, or County.

Operational Recommendation #10: That once compliance with the current Quality Management Plan has been achieved including supporting statistical data that consideration be given to re-instating the previous fire inspection cycles for Group D and E major building classifications.

Operational Recommendation #11: That consideration be given to developing a Standard Operating Guideline, or Standard Operating Procedure for Fire Safety Plans.

Operational Recommendation #12: That consideration be given to developing a department Standard Operating Guideline for conducting pre-plans, and that within the proposed guideline consideration be given to prioritizing the "key findings" of the Community Risk Assessment.

Operational Recommendation #13: That consideration be given to developing a letter of understanding, or other written agreement between the Building and Fire Departments to coordinate the construction plan review and approval process.

Operational Recommendation #14: That consideration be given to developing a Standard Operating Guideline to identify the roles and responsibilities, objectives, targets and procedures for the delivery of the Olds Fire Department Home Fire Safety Program as presented within the proposed Fire Services Master Plan.

Operational Recommendation #15: That consideration be given to developing and implementing a "pilot project" for facilitating a targeted fire safety program to children aged 10 to 12 within the community as presented within the proposed Fire Services Master Plan.

Operational Recommendation #16: That consideration be given to developing and implementing a targeted fire safety program for seniors (65+) within the community as presented within the proposed Fire Services Master Plan.

Operational Recommendation #17: That consideration be given to enhancing the current Home Fire Safety Program as presented within the proposed Fire Services Master Plan.

8.0 Training Division

Over the past decade the attention to firefighter training including applicable training standards, qualifications and competencies has come under significant scrutiny. The results of numerous investigations have concluded that firefighter training must be considered a high priority for municipalities, in their roles as employers, as fire service leaders, and as supervisors. The O.F.D. Training Division is responsible for ensuring that all O.F.D. personnel receive the training necessary to comply with the ***Occupational Health and Safety Act*** (O.H.S.A.). The Training Division is responsible for identifying training objectives and tracking the training needs of all members as required for alignment with established municipal service levels.

This section focuses on the provision of training to fire suppression staff and covers: training standards, division staff resources, current training program, recruit training, specialized rescue training, and online training. Where any gaps are identified in achieving compliance with the applicable legislative requirements, or current industry best practices further strategies and recommendations are provided for consideration.

8.1 Division Key Functions

Section 3.1 of ***Bylaw No. 2018-28*** identifies that providing training and development to fire department members is a key role of the department. The key functions of the Training Division include to:

- *Provide training to all O.F.D. personnel, including full-time staff and P.O.C. firefighters;*
- *Track department training needs;*
- *Ensure ongoing and maintenance training is provided, as needed, for all divisions;*
- *Provide officer development and succession planning; and*
- *Ensure there is an adequate number of staff trained to the levels required to safely and competently provide the service levels as established by Council.*

As part of meeting these key functions, the division addresses the training of firefighters per Part 1 of the ***Occupational Health and Safety Code Act***, as summarized in the next section.

8.1.1 Alberta Code of Practice for Firefighters

Training of firefighters is addressed in Part 1 of the O.H.S. Code under the definition of "*competent*" and in ***Section 15*** of the ***O.H.S. Regulation*** under "*Safety Training*".

Three characteristics are used to describe a worker as competent:

1) *Adequately qualified;*
2) *Suitably trained; and*

3) *With sufficient experience to safely perform work without supervision or with only a minimal degree of supervision.*

The required training provided to a firefighter must:

a) *Be provided before the firefighter is allowed to engage in emergency operations, except for on-the-job training assignments conducted under close supervision;*
b) *Be provided by competent persons (A competent person includes a person who has expertise or abilities in subject areas, whether or not the person is a member of a fire department);*
c) *Address occupational health and safety hazards associated with each of the operational assignments;*
d) *Match the duties, functions and role that the firefighter is expected to perform;*
e) *Address procedures required to perform operational assignments, including sudden changes in conditions;*
f) *Address the incident management system and personnel accountability systems used by the fire department;*
g) *Address the safe operation of equipment that is required to perform the operational assignments; and*
h) *Be reviewed periodically in consultation with workers to ensure its adequacy.*

8.2 Current Training Standards

There are three functioning bodies for recruitment training and continued career training for firefighters that apply in Alberta: the ***National Fire Protection Association*** (N.F.P.A.), the ***International Fire Service Training Association*** (I.F.S.T.A.), and the ***International Fire Service Accreditation Council*** (I.F.S.A.C.).

The Olds Fire Department follows the ***International Fire Service Training Association*** (I.F.S.T.A.) curriculum for its firefighter training program, specifically the I.F.S.T.A. Essentials firefighting textbook. I.F.S.T.A. was established in 1934 with a mission to develop training materials for the fire service. Since this time I.F.S.T.A. has become a leader in firefighter training modules. The I.F.S.T.A. curriculum reflects an industry best practice that aligns with the standards of the N.F.P.A. As such, throughout this divisional review, references will be made to applicable N.F.P.A. Pro-Qual standards, including N.F.P.A. 1041 Standard – Fire Instructor, N.F.P.A. 1001 – Firefighter, and N.F.P.A. 1021 - Company Officer.

Firefighting training begins at the recruit stage and requires commitment to an ongoing process of learning both theoretical and practical job-related tasks of firefighting. Training also includes the development of future officers through the delivery of leadership and supervisory programs. Preparing and administering the promotional process is another important function of department training. This F.S.M.P. recommends the development of a comprehensive annual training program based on the N.F.P.A. Professional Qualifications Standard. As part of developing this program, consideration should be given to requiring all P.O.C. firefighters to achieve the minimum required training competencies on an annual basis, as established through a Standard Operating Guideline. It was identified as part of the

stakeholder engagement conducted for this F.S.M.P. that one of the existing challenges of the Training Division is written documentation and guidelines regarding training standards and programs. Further discussion on S.O.G.s and training standards is presented throughout this section.

8.3 Current Training Division Staff Resources

Our review indicates that the staff resources available to the Training Division are currently in a state of transition. However the recent history of this division and the progress made over the past few years demonstrates the department's commitment to an understanding of the critical importance of training for firefighter safety and effective service delivery.

In recent history, the individual in the role of ***Training Officer*** (T.O.) had extensive experience (career firefighter/paramedic), training and certifications. This was to the benefit to the department as the individual was able to personally deliver all needed training programs, including technical rescue training, company officer training, emergency medical services and firefighting. At the same time, the level of experience in the Fire Suppression Division reflected a significant number of P.O.C. members with less than five years of experience. Therefore there was limited capacity with sufficient skills and competencies available within the Fire Suppression Division to support the delivery of training. This capacity challenge impacted the ability of the Training Officer to have time available to formalize an annual training plan, including the development of a schedule. Efforts instead were focused on ensuring that fire suppression staff were trained to N.F.P.A. 1001 Level 2.

When that individual left the role of Training Officer to become the current Fire Chief in February 2018, the interim training resource plan included dividing the Training Officer role amongst one of the P.O.C. Deputy Fire Chiefs and several individuals who were interested and now had the experience required to be trained as trainers (N.F.P.A. 1041 Level 1). During this time, the P.O.C. Deputy Fire Chief oversaw the scheduling and delivery of training. Attempts were made to establish written training plans with a formal schedule, but capacity challenges were encountered as the responsible individuals were primarily P.O.C. firefighters with other commitments, in addition to responding to emergency calls.

In early 2019, the Training Officer position was filled. With this appointment and the recent efforts to increase training capacity, the staff resources available to this Division presently include:

- Fire Chief;
- Two P.O.C. Deputy Fire Chiefs;
- One P.O.C. Training Officer; and
- Five P.O.C. Training Assistants.

At this time, the Fire Chief and P.O.C. Deputy Fire Chiefs provide strategic support and oversight to the Training Division. The Training Officer is responsible for overseeing the overall delivery of training, including program development and scheduling. This includes management of the development and

implementation of training to meet needs annually, including company officer training, recruit training, and specialized training. Primarily the delivery of training is being provided by the Training Officer and the five Training Assistants reflecting a "train the trainer" type approach that is a best practice within the industry. Presently, with the exception of the Fire Chief, all Training Division resources are P.O.C. whose primary responsibilities are responding to emergency incidents. It was identified as part of the review completed for this F.S.M.P. that the P.O.C. model impacts the capacity of the Training Officer position. Further discussion on the challenges and impacts of training needs on the workload of the Training Officer can be found throughout this section reviewing the Training Division.

8.4 Qualifications of Training Division Staff

Table 20 identifies the applicable N.F.P.A. 1041 Instructor Levels I, II and III, including the skills and competencies necessary to successfully achieve the requirements of each level. Each N.F.P.A. level is a progression of performance and capability. The O.F.D. currently trains to Instructor Level I and Instructor Level II, consistent with best practices within Alberta. Application of Instructor Level III is considered rare within the Province.

Table 9: N.F.P.A. 1041 Standard

Training Level	N.F.P.A. 1041 Standard
Instructor I	A fire service instructor who has demonstrated the knowledge and ability to: • deliver instruction effectively from a prepared lesson plan, including instructional aids and evaluations instruments; • adapt lesson plans to the unique requirements of the students and authority having jurisdiction; • organize the learning environment so that learning and safety are maximized; and • meet the record-keeping requirements of the authority having jurisdiction.
Instructor II	A fire service instructor who, in addition to meeting Instructor Level I qualifications, has demonstrated the knowledge and ability to: • develop individual lesson plans for a specific topic including learning objectives, instructional aids, and evaluations instruments; • schedule training sessions based on overall training plan of authority having jurisdiction; and • supervise and coordinate the activities of other instructors.
Instructor III	A fire service instructor who, in addition to meeting Instructor Level II qualifications, has demonstrated the knowledge and ability to: • develop comprehensive training curricula and programs for use by single or multiple organizations, conduct organization needs analyses; • design record keeping and scheduling systems; and • develop training goals and implementation strategies.

Industry best practices indicate that an instructor should have successfully completed the N.F.P.A. training and level for a given standard in addition to the equivalent instructor qualification. For

example, for a trainer to be qualified to deliver N.F.P.A. 1001 Level I training, he/she will have successfully completed N.F.P.A. 1001 Level I and N.F.P.A. 1041 Level I training. For a trainer to be qualified to deliver N.F.P.A. 1001 Level II training, he/she will have successfully completed N.F.P.A. 1001 Level II and N.F.P.A. 1041 Level II training. In addition, in Alberta the individual that delivers the course is not permitted to be the evaluator or exam proctor for that course.

Table 21 summarizes the current training and qualifications of the staff resources assigned to delivering and overseeing training programs to O.F.D. personnel. At the time of writing this report, the Fire Chief and one P.O.C. Deputy Fire Chief were trained to N.F.P.A. 1041 Level 2. It was identified as part of the review that the Training Officer is currently working to achieve N.F.P.A. 1041 Level 2, with a target completion of fall 2019. In addition, three of the five Training Assistants are trained to N.F.P.A. 1041 Level 1.

Table 10: Current O.F.D. Training Division Qualifications

Position	N.F.P.A. 1041 Level 1	N.F.P.A. 1041 Level 2
Fire Chief	X	X
Deputy Fire Chief Emergency Management, Recruitment and Retention (P.O.C.)	X	X
Deputy Fire Chief Operations, Apparatus and Equipment (P.O.C.)	X	
Training Officer (P.O.C.)	X	*(In progress)*
Training Assistants (P.O.C.)	X (3 of 5 T.A.s)	

The department is currently working towards achieving N.F.P.A. 1041 Level 1 for all five of the Training Assistants.

8.5 Current Training Program

As previously mentioned, it was identified within the stakeholder engagement process conducted for this F.S.M.P. that one of the leading challenges of the Training Division is written documentation regarding the training programing and delivery. Generally, O.F.D. follows an informal training program for core service training programs that are informed by the I.F.S.T.A. Essentials (and that are conducive to the weather) as shown in **Table 3**. In addition, the department would plan for, and deliver, recruit training, company officer training, and other technical rescues.

Table 11: O.F.D. Informal Training Program

Typical Delivery	Topic
Winter	Lecture based training on: • Fire Dynamics • Situational Awareness • Command And Control • Leadership • Driver Training Theory • Blue Card Command • First Aid/CPR And Medical
Spring/Summer/Fall	Practical training related to: • Pumping • Driving • Hose Handling • Fire Attack • Vehicle Extrication and Rescue • Hazmat • Traffic Management
Fall	• Certification examination as needed

The O.F.D. would benefit from developing a Comprehensive Annual Training Program as described within a department Standard Operating Guideline. The goals and objectives of this process should be targeted at developing the basis of one comprehensive annual training program for all Officers and firefighters within the O.F.D. The proposed Comprehensive Annual Training Program should be based on training requirements currently followed by the department (being I.F.S.T.A./N.F.P.A.).

In addition to responding to the relevant standards, curriculum, and health and safety requirements, a comprehensive annual training program should include the follow core functions:

- Identifying training needs in relation to services provided;
- Coordinating/scheduling theoretical and practical training;
- Monitoring and evaluating in relation to outcomes achieved;
- Evaluating (on an ongoing basis) in relation to industry best practices and legislative requirements;
- Overseeing program objectives and records management; and
- Assessing (on an ongoing basis) program delivery for efficiency and effectiveness.

Operational Recommendation #18: That consideration be given to consolidating all current firefighter training initiatives into one Comprehensive Annual Training Program including performance goals and objectives to be defined within a department Standard Operational Guideline.

8.5.1 Training Attendance

To carry out department training, training nights are held weekly on Wednesdays, with the exception of July and August when it is provided bi-weekly. Historically training was delivered every two weeks. The transition to weekly training sessions was made in an attempt to recognize the unique schedules of the paid on-call firefighters who are shift workers and to provide greater work/life balance for the paid on-call firefighters. It was identified as part of the review completed for this F.S.M.P. that this has helped to address some of the scheduling changes experienced by the paid on-call firefighters; however, the weekly delivery of training has created additional workload for those Training Division staff resources. In addition, some of the paid on-call firefighters feel obliged to attend each session which increases the overall demand on their time.

Currently the department does not have a S.O.G. in effect that relates to the requirements for training attendance. Industry best practices and occupational health and safety regulations identify the importance of ensuring that all firefighters maintain sufficient competencies, and experience to complete all tasks that they may be assigned. As such the proposed ***Comprehensive Annual Training Program*** and associated S.O.G. should include reference to the minimum competencies and experience that all firefighters must maintain at all times.

Operational Recommendation 19: That the proposed Comprehensive Annual Training Program include minimum requirements for attendance to maintain the required competencies and experience required.

8.6 Paid On-Call Firefighter Recruitment and Retention

Across Canada, paid on-call (or volunteer) firefighters made up 83% of the firefighting complement (for the period 2014-2016).[8] The service provided by paid on-call firefighters is integral to fire safety in their communities; however, municipalities are increasingly facing challenges in paid on-call firefighter recruitment and retention.

Historically, paid on-call firefighters represented a portion of the community that lived and worked in close proximity to the fire station where individuals were allowed to leave work and respond to emergency calls. Providing a service to the community and being active within the community was, and continues to be, a major point of pride for paid on-call firefighters. Financial compensation, although warranted, was not the only motivator for those seeking to become a paid on-call firefighter.

[8] N.F.P.A. (2018, January). News and Research. Retrieved from Canadian Fire Department Profile: https://www.N.F.P.A.org/News-and-Research/Data-research-and-tools/Emergency-Responders/Canada-Fire-Department-Profile

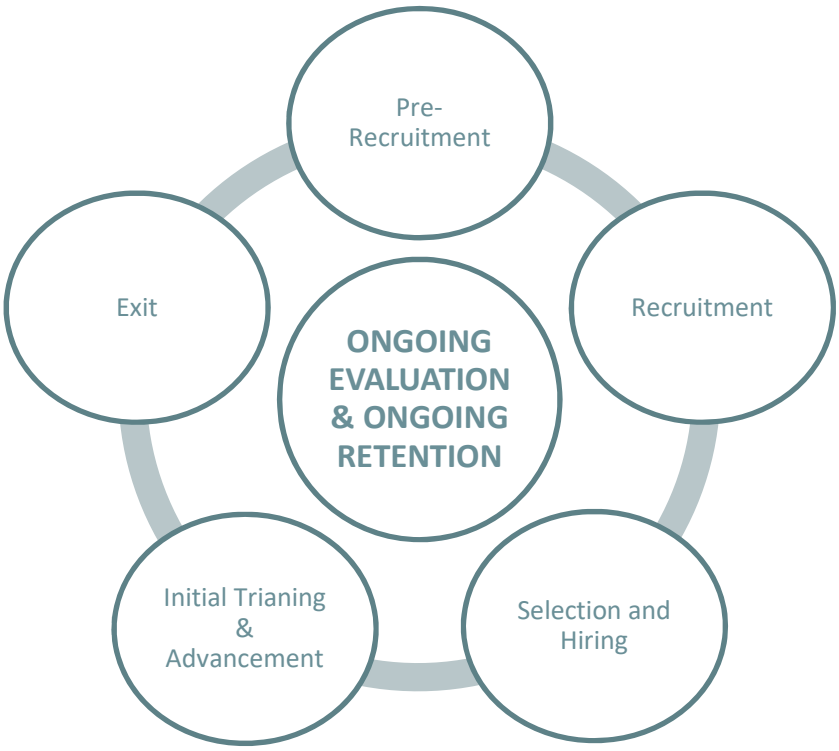
There are numerous factors impacting paid on-call firefighters across the province that can make recruitment and retention a challenge today. Some reasons could subjectively include shifting demographics, economic realities, household structures, and expectations of work-life balance. It is a certainty, however, that performance expectations, including sustaining training standards and attendance at training sessions, continue to increase the demands municipalities place on paid on-call firefighters in the interest of health and safety. Commonly, paid on-call firefighters must also sustain minimum response attendance to emergency calls.

This result is an increasing demand on personal commitment to sustain a high degree of training competency and experience gained through responding to calls. Maintaining an appropriate balance between the demands of being a paid on-call firefighter and those of family and other commitments is becoming more difficult. Municipalities must begin to develop recruitment and retention strategies for paid on-call firefighters that recognize this evolution. The following sections present examples of the recruitment and retention strategies that have bene initiated in other jurisdictions across the country as established by the resources resulting from provinces, including Ontario, Nova Scotia, and Alberta. In the following sections, the term volunteer firefighter is used. This is considered interchangeable with the term "paid on-call" firefighter, used in the Town of Olds.

8.6.1 Ontario – Office of the Fire Marshal and Emergency Management Public Fire Safety Guideline 04-84-13 - Volunteer Fire Service Personnel Recruitment and Retention (2006)

In October 2006, the Office of the Fire Marshal and Emergency Management (O.F.M.E.M.) in Ontario released **Public Fire Safety Guideline (P.F.S.G.) 04-84-13 – "Volunteer Fire Service Personnel Recruitment and Retention**". **P.F.S.G. 04-84-13** describes the benefits of having a Recruitment and Retention Program, including demonstrating the value and importance of volunteer (paid on-call) firefighters and proactive versus reactive leadership. The P.S.F.G. identifies that a Recruitment and Retention Plan is cyclical in nature as shown in **Figure 4**. It also highlights the long-term challenge of retention. Retention is especially critical with the evolution of the demands on volunteer / paid on-call firefighters since the time this P.F.S.G. was released.

Figure 4: Ongoing, Annual Recruitment and Retention Program (P.F.S.G. 04-84-13)



8.6.2 Nova Scotia - Volunteer Recruitment and Retention (2009)

In 2009, the Office of the Fire Marshal for the Province of Nova Scotia published a report on Volunteer Firefighter Recruitment and Retention that was developed in cooperation with the Fire Service Association of Nova Scotia.[9] Though targeted to Nova Scotia, this report has some tools that could be adapted to any department. For example, retention resources include guidance on performance management, progressive discipline, succession planning, rewards and recognition, critical incident stress management, and exit interviews.

8.6.3 Alberta - Volunteer Firefighter Recruitment and Retention Strategy (2010)

In May 2010, Volunteer Alberta released the *Volunteer Firefighter Recruitment and Retention Strategy* (Strategy*)* which was developed for the Alberta Fire Chiefs' Association.[10] The resulting document was

[9] The "*Volunteer Recruitment and Retention"* document released November 2009 is currently available at: https://novascotia.ca/dma/firesafety/docs/VolunteerRecruitmentandRetention.pdf

[10] The Volunteer Alberta "*Volunteer Firefighter Recruitment and Retention Strategy"* released May 2010 is currently available on the Alberta Fire Chiefs Association website at: https://afca.ca/latest-news/item/238-volunteer-firefighter-recruitment-and-retention-toolkit.

informed by a scan of best practices, literature review, and experience across departments in Alberta and beyond.

A separate study conducted by Volunteer Alberta identified six known issues and barriers that are having an impact on the ability of municipalities to recruit and retain volunteer firefighters. As described in the Strategy, these issues and barriers include those that are: employer-related; family-related; availability of people; time commitment; perceptions and public image; and structural challenges.

The Strategy goes on to provide local and centralized initiatives that include the identified target audiences including: business owners and employers; community groups; residents (women, immigrant populations, First Nations populations); fire department members; and political stakeholders. There are fifteen local recommended initiatives that are complimented by a comprehensive toolkit to assist with implementation. The recommended local initiatives that can be explored by any municipal fire department include initiatives such as involving current firefighters in planning for formal recruitment drives, and establishing a proper volunteer screening process.

8.6.4 C.A.F.C. National Recruitment Initiative (2016)

In recognition of the volunteer / paid on-call firefighter recruitment and retention challenge and the importance of volunteer / paid on-call firefighters across the country, the Canadian Association of Fire Chiefs (C.A.F.C.) signed an agreement with the Alberta Fire Chiefs Association to expand their volunteer / paid on-call firefighter recruitment strategy across Canada. As part of this initiative, the C.A.F.C. launched the *Answering the Call* website (answerthecall.ca). This website was launched near the end of 2016 and features a map that shows volunteer fire departments that is searchable based on postal code. The site features a "department portal" where a profile can be created for a fire department where the department information and listings.

8.6.5 Town of Olds Historical P.O.C. Recruitment & Retention Process

The overall recruitment process of O.F.D. has not changed significantly over the past decade. However, some attempts have been made at approaches to targeted recruitment of certain demographics. Unfortunately these approaches have had limited success (e.g., targeting Town employees). Part of the challenge is that over the past decade, there has been an overall decline in the number of qualified applicants who live and work within the community with the flexibility of leaving work during weekday hours. Historically, the department has had the greatest success with active members proactively recruiting friends and acquaintances.

The department currently experiences an average annual turnover of 5% to 10% (based on the departure of two to four candidates per year out of an approved complement of 40). In our experience, common turnover rates for paid on-call firefighters range from 10% to 20% each year. Overall, on a year by year basis, the turnover rates being experienced by O.F.D. are on the lower end of those experienced in the industry.

Turnover and the resulting need to provide recruitment training each year reflects a shift within the fire service. Historically, departments were able to provide recruitment training less frequently due to higher retention rates. The need to plan for and provide for recruit training on an annual basis impacts the training demands and resources required of the department. This includes the costs and time required to manage an ongoing recruitment process and in providing recruit training, including the resources of Training Division staff.

The approach to paid on-call firefighter retention has historically remained relatively consistent. While no formal strategies have been implemented recently, the Town of Olds received promotional materials (e.g., posters, challenge coins, etc.) highlighting the role of paid on-call firefighters through the Recruitment and Retention Program undertaken by the Alberta Fire Chiefs Association. However, this had limited positive impact locally. The current Fire Chief has focused retention efforts on member recognition (supported by a member appreciation budget), professional development including mentorship, as well as education and training.

8.6.6 Current P.O.C. Recruitment and Retention Process

Recruitment for paid on-call firefighters includes a selection and hiring process followed by training for successful applicants. Since the appointment of the current Fire Chief, a recruitment process has been initiated annually in the fall. While the process is not outlined in a formal policy, it generally includes a job posting period (approximately six weeks), a screening process by committee, initial interviews, physical testing, and written aptitude tests. Applicants are required to live within a ten minute drive of Olds. The entire recruiting process typically takes four to five months to complete. Advertisement of the opportunity and recruitment process is shared through traditional methods including the newspaper, flyers, and local radio ads, as well as through word of mouth, digital signs, and by having a presence at the Town's Community Showcase event. Recently, the department has partnered with other departments in the County who are also undertaking recruitment for advertising purposes. Once a potential candidate has successfully completed the recruitment process, they are provided with recruit firefighter training.

8.6.7 Proposed Paid On-Call Recruitment and Retention Strategy

The prior sections explore the current challenges regarding paid on-call firefighter recruitment and retention challenges. To sustain the current fire suppression model and provide the best value to the community, it is proposed that the Town of Olds, and the O.F.D. develop a **Comprehensive *Paid On-Call Firefighter Recruitment and Retention Strategy***. The developed strategy should recognize the evolution of the role in conjunction with the demographic, economic, and cultural realities of the community. This section presents a range of resources that should be given consideration in development of a recruitment and retention strategy.

In our experience the proposed **Comprehensive *Paid On-Call Firefighter Recruitment and Retention Strategy*** will require the direct involvement of Council and senior Town staff to be effective. In addition

to the operational effectiveness and efficiency of a paid on-call fire department like the Olds Fire Department it must recognized that the utilization of paid on-call firefighters is the most cost effective operating model for the Town of Olds. Our research indicates that the O.F.D. has directly and indirectly initiated many of the identified P.O.C. recruitment initiatives presented within this report. In our view members of the O.F.D. may be able to provide valuable insight including the identification of existing barriers (e.g., the physical ability test, communication methods, etc.) or retention strategies that may have the most local success (e.g., uniforms, support to attend conferences, insurance/access to benefit programs, mentorship, training opportunities, etc.).

However, based on our consultation and research to prepare this F.S.M.P. the sustainability of the P.O.C. operating model will in our view relay significantly on the leadership of Council and senior corporate staff to support the Fire Chief and the O.F.D. In our view the first step in this approach should be to focus a targeted recruitment campaign towards existing Town of Olds staff. This presents the Town as an example for other employers within the community. This should be followed by a comprehensive public education campaign that targets other Town employers or institutions (e.g., Olds College) about the critical importance of sustaining paid on-call firefighters.

Council Recommendation #3: That subject to Council's consideration and approval of the proposed Fire Services Master Plan consideration be given to developing a Comprehensive Recruitment and Retention Strategy that targets the sustainability of Paid On-Call Firefighters as presented within the proposed Fire Services Master Plan.

8.7 Current P.O.C. Recruit Firefighter Training

In the Olds Fire Department a firefighter going through recruit training is referred to as a "recruit firefighter". Once a firefighter graduates from the recruit program, but before they achieve N.F.P.A. 1001 Firefighter Level 1, they are considered a "probationary firefighter". As a recruit firefighter, members are expected to attend 90 to 100% of training sessions. Both firefighter levels have restricted duties as established by an informal, unwritten policy. A maximum of one recruit firefighter per truck is permitted to respond to emergency incidents. Recruit firefighters are not permitted to enter a structure or an environment that is immediately dangerous to life or health.

This informal policy demonstrates the department's awareness and commitment to the importance of the appropriate skills and competencies to safely and efficiently undertake fire suppression activities. In relation to the restriction of duties, the department would benefit from establishing a written policy that outlines the qualifications and certifications required to achieve the different firefighter classifications and related restriction of duties. Consideration should be given to the appropriate recruit/probationary firefighter role in interior attack, rapid intervention teams, command, and operation of an apparatus.

It was identified as part of this F.S.M.P. that it typically takes approximately six to eight months to achieve Level I training and exit the probationary firefighter classification. To achieve Level 2, an

additional time of approximately one month is required. This timeline is dependent on the candidates' commitment to completing the training in a timely manner. Following about a year in the role of probationary firefighter candidates are formally evaluated using a skills-based examination and written examination (based on N.F.P.A. 1001 Firefighter Level 1 for testing).

Our review indicates that there is currently no written, or formal documentation describing the skills, competencies and qualifications firefighters are required to attain, and then sustain in order to respond to emergency calls and complete the required firefighting tasks that may be assigned. Industry best practices indicate that this information should be clearly defined within a department S.O.G. Where applicable, such as for a "recruit firefighter" this S.O.G. should clearly define the restricted roles and responsibilities of this position.

Operational Recommendation #20: That consideration be given to developing a department Standard Operating Guideline that describes the required qualifications that all firefighters must achieve in order to respond to emergency incidents, and to complete the firefighting tasks they may be assigned.

8.8 Company Officer Training

The fire service is a para-military organization that relies on a rank structure to manage the roles and responsibilities of the organization and the operational services it delivers. This structure needs to include an appropriate span of control in order to be efficient and effective. Within the existing Olds Fire Department suppression organizational structure, Company Officers include Captains and Lieutenants.

A sufficient number of officers are also required to ensure the function of incident command can be implemented at all emergency scenes, and depending on the incident action plan, have sufficient additional officers to facilitate other roles such as sectoring of the scene and Safety Officer.

Municipalities in Alberta are required to ensure a sufficient number of supervisors (officers) are trained to oversee the workforce. Within *Occupational Health and Safety Regulation,* Part 1, General, Section 13, General Protection of Workers, subsection (1) states that: "*If work is to be done that may endanger a worker, the employer must ensure that they work is done," …."(b) by a worker who is working under the direct supervision of a worker who is competent to do the work."*

As an employer, the Town of Olds is legislated by this section of the Occupational Health and Safety Act to ensure that all supervisors, which includes the role of incident commander, be competent. The Occupational Health and Safety Regulation defines a "competent person" to mean a person who: Section 1, Definitions, subsection (g): "*'competent' in relation to a worker, means adequately qualified, suitably trained and with sufficient experience to safely perform work without supervision or with only a minimal degree of supervision;*
(h) "'direct supervision' means under the supervision of a competent work who is

(i) personally and visually supervising the other worker, and
(ii) able to communicate readily and clearly with the other worker.

Industry best practices reflect that a Company Officer training program should be ongoing as an element of a broader Officer Development Program. This strategy further supports succession planning and career development for future senior officers. The ***N.F.P.A. 1021 - Standard for Fire Officer Professional Qualifications*** is a recognized best practice for this type of training.

The O.F.D.'s recognition of the importance of a comprehensive Company Officer program is demonstrated through the recent development of such a program in 2019. This program has been developed to address the identified gap in qualifications between new and experienced members of the department and the lack of experience and training of new members to approve promotion to Company Officer. Historically, part of the challenge with promotion to Company Officer was limited access to opportunities for certification and evaluation. Candidates within the department would have to travel out of province, for example, for examination. Now opportunities for training and certification for Company Officer exist through the Office of the Fire Commissioner.

It was identified as part of the review completed for this F.S.M.P. that the minimum requirements for promotion to Company Officer are:

- N.F.P.A. 1021 Level 1 and Level 2 within two years;
- Blue card command training.

As discussed within this report, the department is currently developing a range of Standard Operating Guidelines and policies. It would be appropriate to develop a comprehensive Company Officer program guideline. Such a guideline should include:

- Recognition of the role of competent supervisors in Health and Safety;
- Requirements around maintaining a compatible rank structure for all firefighters to ensure a ratio of supervisors is maintained at all time;
- The minimum requirements to become a Company Officer, and promotional process; and
- Expectations and requirements around Company Officer maintenance training.

Consideration should be given to enhancing the requirements for promotion to company officer training to include pre-incident planning and incident safety officer, demonstrated leadership and communication, and thorough knowledge and understanding of applicable legislation and standards. In addition, should the department deem it appropriate, N.F.P.A. 1041 instructor Level 1 could also be a requirement for Company Officers.

Ongoing implementation and review of the Company Officer Program as part of the proposed Comprehensive Annual Training Program will help the department ensure that its commitment to and

recognition of the importance of a sufficient number of appropriately training company officers is maintained.

Operational Recommendation #21: That consideration be given to developing a comprehensive Company Officer Training Program and supporting Standard Operating Guideline.

8.8.1 Incident Command Training

Incident Command Training should be considered a core element of the proposed comprehensive ***Company Officer Training Program***. Incident Command Systems are an industry best practice designed to positively influence the outcome of an emergency scene operation and the health and safety of firefighters. These systems can have a dramatic effect on the efficiency and effectiveness of the emergency response and safety on the emergency scene. This includes all incidents that the fire department may respond to including the fireground, hazardous materials incidents, automobile extrications, water/ice rescues and any other incident the fire department responds to where emergency responders and apparatus must be coordinated.

Incident command should be established by the first arriving officer and be sustained until the emergency is mitigated. The Incident Commander (officer) is responsible for all aspects of managing the emergency incident including developing an ***"Incident Action Plan***" and managing all operations on scene. This includes:

- ✓ *Establish immediate priorities, especially the safety of responders, other emergency workers, bystanders, and people involved in the incident;*
- ✓ *Stabilize the incident by ensuring life safety and managing resources efficiently and cost effectively;*
- ✓ *Determine incident objectives and strategies to achieve the objectives;*
- ✓ *Establish and monitor incident organization;*
- ✓ *Approve the implementation of the written or oral Incident Action Plan; and*
- ✓ *Ensure adequate health and safety measures are in place.*

There are a number of recognized Incident Command Systems including the "Phoenix Fireground Command System". This system was developed by Alan V. Brunacini, the former Fire Chief of the Phoenix Fire Department. Chief Brunacini is a renowned expert on incident command. The ***"Blue Card"*** program, currently utilized by O.F.D., is a program that provides incident command training and is based on the work of Fire Chief Brunacini and is of one of the most widely utilized programs in the fire service. The program utilizes both on-line and in-class simulation training which focuses primarily on Incident Command training for structural fire responses, but is applicable to all emergency incident responses. Incident command training is core to the competencies required for a Company Officer.

It is recommended that the "Blue Card" incident command training program be included within the proposed comprehensive ***Company Officer Training Program*** and supporting ***Standard Operating Guideline.***

Operational Recommendation #22: That consideration be given to including incident command training for all officers within the Olds Fire Department within the proposed comprehensive Company Officer Training Program and supporting Standard Operating Guideline.

8.9 Succession Planning

Fire services and municipalities are recognizing the importance and value that succession planning has within the municipal fire service. Succession planning has not traditionally been an area of concern or consideration within the fire service. An effective succession plan requires the implementation of strategies to ensure that opportunities, mentorship and additional training are available for those staff that may be considering further advancement within an organization. A comprehensive succession plan also supports the concepts of coaching and mentoring in support of staff considering future career opportunities.

Within O.F.D., there is no formal succession planning process in place within the department. Succession plans can provide a framework of skills and experience that are required for each position in the department. For candidates seeking promotion or further responsibilities, the succession plan can provide a career path to the position of their choosing. Succession planning can also provide Council with the knowledge that there are trained and skilled candidates available in the event vacancies occur within the department.

Operational Recommendation #23: That consideration be given to the developing a succession plan for the Olds Fire Department.

8.10 Specialized Technical Rescue Services

Olds Fire Department provides a number of specialized technical rescue services. Specialized technical rescues are considered as those services that require a higher standard of training, competency and certification, in addition to regular firefighter training. Although the frequency of incidents requiring this type of training is significantly lower than that of traditional firefighting, the technical and health and safety requirements are typically significantly higher. The level of training required is established through the identified service level for each technical rescue service.

The department provides training for the following rescue operations:

- Rope Rescue,
- Confined Space Rescue,
- Ice Rescue,

- Trench Rescue,
- Hazardous Materials Response, and
- Vehicle Extrication.

8.10.1 Technical Rescue Training

The skills and competencies to complete technical rescues can be categorized into three levels of training as established in the NPFA 1670: *Standard on Operations and Training for Technical Search and Rescue Incidents*:

- ***Awareness Level*** *– reflecting the minimum capability of organizations;*
- ***Operational Level*** *– reflecting the capability of organizations to respond, use equipment, and apply techniques to support and perform a technical rescue; and*
- ***Technician Level*** *– reflecting the capability of organizations to not only provide the Operational Level of services but also to coordinate, perform, and supervise a technical rescue*.

Table 4 presents the current technical rescue training levels for the fire suppression staff. Trench rescue and confined space rescue are both provided at an Awareness Level with 15 and 10 staff trained to the level respectively. Due in part to the range of experience and training within the P.O.C. complement, rope rescue and vehicle extrication has staff trained to either Operations or Technician level. Ice rescue is provided at a Technician Level, over a weekend training course, and Hazardous Materials Response is provided at an Operational Level, to align with the requirements of N.F.P.A. 1001.

Table 12: Current Technical Rescue Training Levels

Program	Service Level	# of Staff Trained to Identified Level
Rope Rescue	Operational / Technician	15/4
Confined Space Rescue	Awareness	15
Ice Rescue	Technician	20
Trench Rescue	Awareness	10
Hazardous Materials Response	Operational	20
Vehicle Extrication	Operational / Technician	25/10

Technical rescues typically represent a small portion of the total emergency call volume of a fire department. Analysis of the historic calls for technical rescues for the period 2014 to 2019 confirms that the highest frequency for specialized rescue calls relate to motor vehicle collision. Based on the call coding of the historic call data, no other rescue type calls, as described above, were identified in the past five years within the municipal boundaries. In terms of responses outside of the municipal boundaries to Mountain View County, the department over the same period responded to 134 motor vehicle collision calls.

With consideration to the ***Community Risk Assessment*** which identifies the risks within the municipality, the Fire Chief should investigate options for developing partnerships, shared services, and purchasing contracted services for the delivery of technical rescues services. In addition, Council should be engaged to establish the level of service for each rescue type considering the cost for maintaining appropriate levels and the overall demand on training needs for P.O.C. staff in alignment with the identified risks.

There are currently two S.O.G.s pertaining to technical rescues as described in this section: TRP002 Ice Rescue Incident and TRP003 Motor Vehicle Collisions. These guidelines pertain to the operational aspects of these services including direction to incident command in carrying out these operations including consideration to ensuring that an appropriate number of qualified staff are on scene to carry out the rescue. The O.F.D. should develop guidelines regarding the training levels required to carry out all of the technical rescue types.

Operational Recommendation #24: That consideration be given to developing department Standard Operating Guidelines for all approved specialized technical rescue services to be provided by the Olds Fire Department including the required training and qualifications necessary for all participating staff.

Operational Recommendation #25: That the Fire Chief further investigate the alternatives for providing specialized technical rescue services including partnerships, shared services and contracting services to reduce the existing operational and training requirements of the Olds Fire Department.

8.11 Online Training

Access to online training programs can provide greater flexibility in delivering the comprehensive training program recommended, particularly for paid on-call firefighters. Online programs can be designed to meet varying learning styles and objectives. As well, they provide flexibility through access from the fire station or at home. Participation in online training can be delivered as either individual sessions or in groups. With online training, all participating firefighters can access course materials at any time, outside of the regular training schedule, to provide flexibility and convenience. This would support the schedules of the shift-workers and oilfield workers that exist within O.F.D. The availability of online training has the added benefit of allowing for better use of in-person class training time.

Currently the department has access to International Fire Service Training Associations (I.F.S.T.A.) ResourceOne for online training which provides training curriculum that references N.F.P.A. standards. Recently the department has initiated the use of online training as part of its N.F.P.A. 1001 Firefighter Level 1 and 2 training. It was identified as part of the review complete for this F.S.M.P. that there is an opportunity to enhance the use of online training for a range of training needs including N.F.P.A. 1021 Company Officer Level 1, and N.F.P.A. 1041 Instructor Level 1. In addition, ResourceOne enables online training for N.F.P.A. 1001 Firefighter Level 1 maintenance training. Enhanced use of online training could be used to support the proposed comprehensive annual training program.

In addition to ResourceOne, the department is a subscribing member of FIREEMS.ca. FIREEMS.ca is a provincial web portal for sharing information and includes a range of training resources complied by fire departments in Alberta (e.g., training videos, policies, procedures, etc.). There was a point in time where the portal met an interim need for training available online; however, with the department's increased use of ResourceOne, it is not as utilized as it once was.

Operational Recommendation #26: That where applicable the further utilization of on-line training as a component of delivering the proposed Comprehensive Annual Training Program be considered.

8.12 Live Fire Training

The purpose of live fire training is to provide realistic fire training simulations under safe and controlled conditions. With relatively low volumes of fire calls it is important that the department provides access for all firefighters to simulate safe and effective fire suppression operations in an appropriate training facility. Live fire training exercises are intended to simulate the actual fire conditions that a firefighter may encounter and provide simulated heat, humidity, restricted vision and smoke conditions. This type of training is also very beneficial for firefighters in learning to understand fire behaviour including identifying evolving smoke conditions as they may relate to the potential for fire extension or conditions such as "flashover."

To facilitate this type of training, the Olds Fire Department has a containerized training facility that was constructed located at 3701 70 Avenue, which is its permanent home. This facility and location includes access to fire behaviour and some training related to live burns (one room available for live fire training). In addition, there are exterior propane training props, hydrants, and a vehicle extraction pad to support a range of training needs. Through a fundraising effort and grants, the facility also now includes a confined space entry training maze. The facility and site also offers opportunities for expansion. With appropriate funding, there is the potential to add more live fire capability and to introduce enhanced training aides and props such as a commercial propane system.

The importance of sustaining practical training utilizing live fire simulations is directly related to enhancing firefighter safety and to providing an effective fire protection service to the community. This is especially significant in a municipality, such as Olds, with a relatively low volume of structure fire calls. Responding to fewer working fires increases the importance of regular training in live fire situations in order to sustain the required skills and competencies of today's firefighters and officers. Presently, firefighters receive live fire training at the facility on an annual basis which aligns with industry best practices.

Operational Recommendation #27: That the requirements for annual live fire training be included within the proposed Comprehensive Annual Training Program and department Standard Operating Guideline.

8.13 Training Division Summary and Recommendations

Under the leadership of the current Fire Chief the O.F.D. has enhanced its training program including the addition of a P.O.C. Training Officer and Training Assistants and the recent introduction of a Company Officer training program. The Training Division recommendations seek to build on this momentum while recognizing the current staff resource challenges within the department and the related evolution within the industry. This includes the trend whereby the continuing turnover of paid on-call firefighters results in recruitment becoming an ongoing, annual process. Although this is not uncommon across the country, the O.F.D. is being challenged to sustain its P.O.C. firefighter model in part due to the existing depth of training resources available.

In addition, the analysis and recommendations of this division highlight the need to formalize and expand many of the department's current training initiatives. This includes implementing a ***Comprehensive Annual Training Program*** supported by additional Standard Operating Guidelines. Implementing the proposed recommendations will require consideration of transitioning to the proposed staff resource plan contained within this F.S.M.P.

The recommendations relating to staff resources within the Training Division are included in the ***Section 12 Proposed Staff Resource Strategies***.

As a result of the review of the Training Division, the following recommendations are presented for Council's consideration and approval:

Council Recommendations:

Council Recommendation #3: That subject to Council's consideration and approval of the proposed Fire Services Master Plan consideration be given to developing a Comprehensive Recruitment and Retention Strategy that targets the sustainability of Paid On-Call Firefighters as presented within the proposed Fire Services Master Plan.

Operational Recommendations:

Operational Recommendation #18: That consideration be given to consolidating all current firefighter training initiatives into one Comprehensive Annual Training Program including performance goals and objectives to be defined within a department Standard Operational Guideline.

Operational Recommendation 19: That the proposed Comprehensive Annual Training Program include minimum requirements for attendance to maintain the required competencies and experience required.

Operational Recommendation #20: That consideration be given to developing a department Standard Operating Guideline that describes the required qualifications that all firefighters must achieve in order to respond to emergency incidents, and to complete the firefighting tasks they may be assigned.

Operational Recommendation #21: That consideration be given to developing a comprehensive Company Officer Training Program and supporting Standard Operating Guideline.

Operational Recommendation #22: That consideration be given to including incident command training for all officers within the Olds Fire Department within the proposed comprehensive Company Officer Training Program and supporting Standard Operating Guideline.

Operational Recommendation #23: That consideration be given to the developing a succession plan for the Olds Fire Department.

Operational Recommendation #24: That consideration be given to developing department Standard Operating Guidelines for all approved specialized technical rescue services to be provided by the Olds Fire Department including the required training and qualifications necessary for all participating staff.

Operational Recommendation #25: That the Fire Chief further investigate the alternatives for providing specialized technical rescue services including partnerships, shared services and contracting services to reduce the existing operational and training requirements of the Olds Fire Department.

Operational Recommendation #26: That where applicable the further utilization of on-line training as a component of delivering the proposed Comprehensive Annual Training Program be considered.

Operational Recommendation #27: That the requirements for annual live fire training be included within the proposed Comprehensive Annual Training Program and department Standard Operating Guideline.

9.0 Facilities, Apparatus and Equipment

This section provides a review of the department's facilities and outlines the department's apparatus and equipment.

9.1 Fire Station

The O.F.D. currently operates out of one fire station shown in the photo below. The station is located at 5110 - 65th Avenue adjacent to the Royal Canadian Mountain Police building. The two-storey headquarters station is six years old and in very good condition. The apparatus floor has four drive-thru bays. Station amenities include a boardroom and attached kitchenette (also functions as the Emergency Operations Centre), seven offices in total (six used for department purposes and one currently used for Citizens on Patrol activities), separate male and female washrooms (including showers on the second floor), common room/sitting area, classroom/training area, kitchen, four dormitory rooms (two outfitted with beds as dorms and two currently used as storage), a loft space above the apparatus floor (which is currently set-up to include a staff lounge area and office space for the Olds Firefighters Association), electrical room, laundry room and storage space. The fire station is also equipped with built in generator, commercial gear cleaning extractor unit and clothes dryer and a new gym facility.

9.2 Existing Fire Station Location

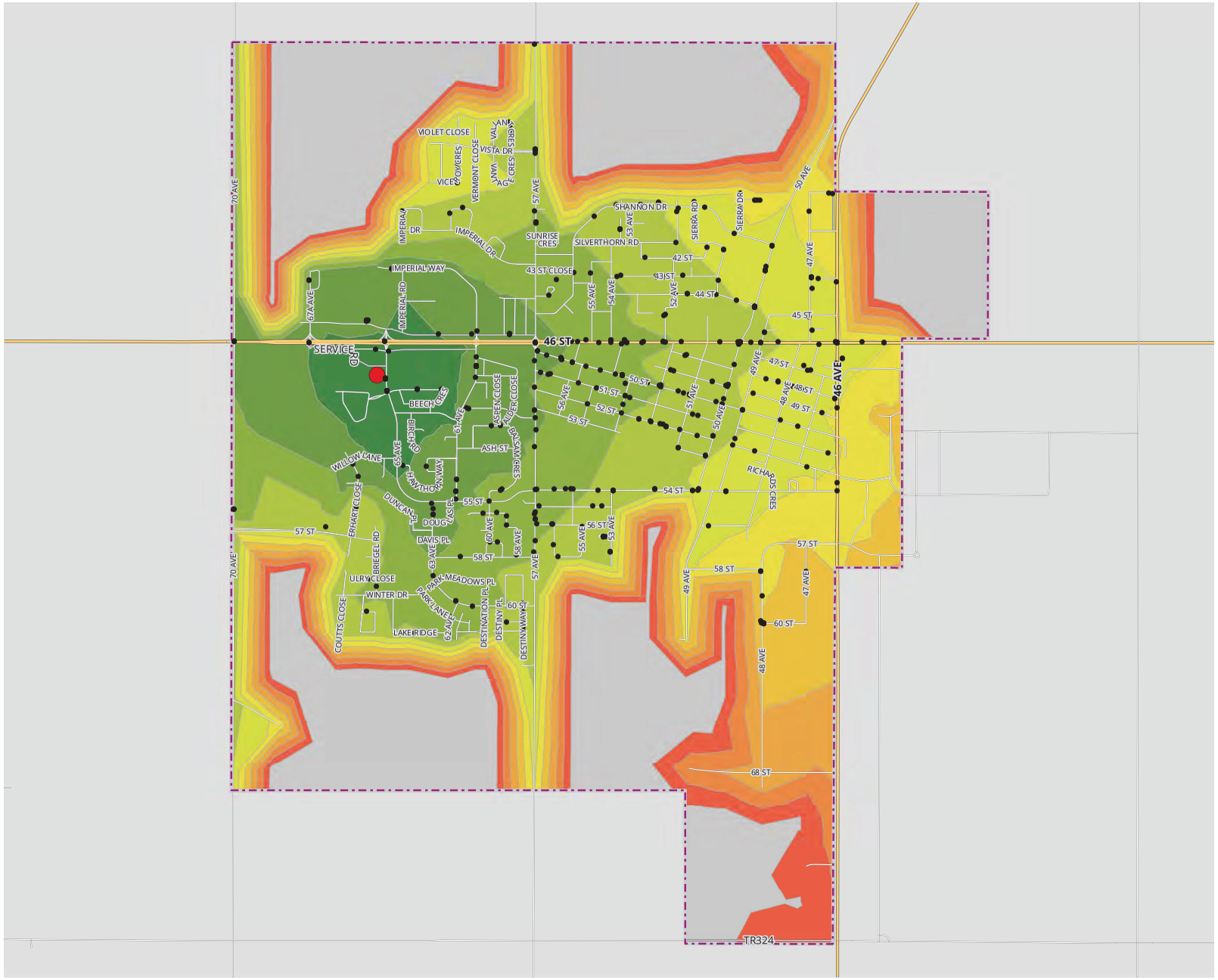
Current industry best practices for assessing fire station location includes the utilization of a four minute travel time emergency response performance benchmark. This process aligns with current industry standards related to fire suppression performance benchmarks.

The analysis within this section illustrates the existing initial responding apparatus capabilities of the first apparatus deployed from the existing fire station location and its emergency response coverage capabilities within ***"a four minute travel time"*** performance benchmark**.** It should be noted that this analysis only refers to the travel time coverage of the deployed apparatus and ***does not*** include any analysis of how many firefighters may be responding on this apparatus, or analysis of existing fire suppression capabilities of the O.F.D.

To assess the existing initial responding apparatus capabilities of the department the calibrated road network, combined with the fire station location, was used to build a graphical service area polygon around the fire station. This polygon represents the emergency response coverage that can be provided in the specified amount of time (i.e., initial response coverage) of the initial arriving apparatus. The locations of the historical calls for the period January 1st 2015 to December 31st 2017 are illustrated as black dots on the model.

The existing initial responding apparatus capabilities of the O.F.D. were assessed in comparison to the modelled travel time from the Town's fire station. Coloured travel time bands from one to ten minutes are shown in **Figure 5** to represent the geographical areas of the Town that can be reached within each time category. A visual review of the results indicate that a substantial portion of the Town's geographical area and historic calls (2015 to 2017) are covered within four minutes or less of travel time from the station, represented by the green areas. This aligns with the travel time component of the N.F.P.A. 1710 initial response performance target of four minutes and indicates that the existing station location provides for reasonably good initial response potential within the Town.

There is an area along the eastern side of the Town that experiences longer travel times, greater than four minutes. If the Town was to consider a second station in the future, a station located in the east side of Town could improve response to these areas.



TOWN OF OLDS

FIRE MASTER PLAN AND
COMMUNITY RISK ASSESSMENT

Existing Initial Responding Apparatus Travel Time

FIGURE 5

- Historic Call Location (2015-2017)
- Fire Station

Travel Time in Minutes at Network Speed

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- Town Boundary

SCALE 1:20,000

0 250 500 1,000 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY GOVERNMENT OF ALBERTA,
TOWN OF OLDS

MAP CREATED BY: GM
MAP CHECKED BY: SC
MAP PROJECTION: NAD 1983 UTM Zone 12N

DILLON CONSULTING

PROJECT: 19-9296
STATUS: FINAL
DATE: 2019-08-30

FILE LOCATION: I:\GIS\199296 - Olds Fire Master Plan\mxd\Existing Travel Time.mxd

9.2.1 Fire Station Diesel Emissions

Within the fire service there is a growing recognition of health and safety concerns related to diesel exhaust emissions from major apparatus stored within a fire station. Municipal best practices reflect a number of actions to limit the exposure of the diesel emissions. This includes the installation and use of a diesel exhaust system for the apparatus floors of all fire stations. The exhaust system may be a direct capture type exhaust system (or 'direct connection' system) that connects diesel exhaust hose lines to the exhaust pipes of individual vehicles or alternatively ceiling-mounted exhaust systems.
In our experience, the ceiling-mounted diesel exhaust systems are more effective. The direct connection systems are prone to human-error if they are not connected to the vehicle exhaust pipes at all time while in the station. The ceiling mounted systems are more consistent with industry best practices.

During the station tours conducted for this F.S.M.P. there were several items noted related to diesel emissions concerns. The station's apparatus bay does not currently have a diesel exhaust system in place. There is also a portion of the gym area that is open to the apparatus floor, exposing it to diesel emissions as well. From a health and safety perspective, it is recommended that the gym area be modified to be separate from the apparatus bay making it a fully enclosed space with its own ventilation.

On a related note, best practices for bunker gear storage reflects the use of separated, ventilated (exhausted to outdoors) storage rooms. The existing station does not have a separate, closed and ventilated room for the bunker gear. This practice is considered critical to the life span of the gear and the long term health of the firefighters. It protects the bunker gear from exposure to diesel emissions, which can cause deterioration of the equipment overtime. The bunker gear itself, after use at active calls, can also release toxins into the air of the station. It is therefore recommended that station revisions be considered to provide separate and exhausted storage for bunker gear within the fire station.

Operational Recommendation #28: That the consideration be given to retrofitting the fire station with a diesel emissions exhaust system to minimize the potential for diesel emissions exposure within the building.

Operational Recommendation #29: That consideration be given to enclosing the exercise facility to limit diesel emissions exposure from the apparatus bay and the installation of an independent ventilation system within the exercise facility.

9.2.2 Station Parking Spaces

From our review, it was noted that available parking is a challenge for the O.F.D. There are less than ten public parking spots shared between fire personnel and R.C.M.P. Given the location of the Emergency Operation Centre within the fire hall, it is important to have adequate parking available to accommodate all emergency personnel in the E.O.C.

Operational Recommendation #30: That consideration be given to providing additional public parking spots assigned to the fire station for use by the Emergency Operations Centre.

9.3 Fleet and Equipment

9.3.1 Staffing and Roles

Currently, all O.F.D. fleet and equipment resources are managed by a P.O.C. Fleet Manager position, under the oversight of the P.O.C. Deputy Fire Chief of Operations, Apparatus and Equipment. The Fleet Manager arranges regular maintenance and required repairs for all department apparatus. As of 2019, there is one Emergency Vehicle Technician (E.V.T.) certified mechanic on staff who possesses the qualifications to conduct annual pump servicing requirements on major apparatus. Major repairs and specialized testing of fleet and equipment is outsourced to third party vendors, as required. Two members of the department have been assigned to personal protective equipment (P.P.E.) maintenance, including helmets, turnout gear, boots, gloves and hoods. Although some annual testing is performed in house, annual inspection of more specialized gear is outsourced. An additional two P.O.C. members, Certified Airmask Repair Education (C.A.R.E.) technicians, are assigned to self-contained breathing apparatus (S.C.B.A.) maintenance and repair.

9.3.2 Records Management

The fleet and equipment manager arranges maintenance and mechanical issue repair through the platform 'Station Check' which allows for electronic trouble reporting and remote login.

9.3.3 Types of Major Fire Apparatus

N.F.P.A. 1901 *Standard for Automotive Fire Apparatus* (2009 Edition) is a reference for the standards that should be considered in determining the appropriate apparatus for a community. N.F.P.A. 1901 provides the following definitions of major fire apparatus:

Pumper: Fire apparatus with a permanently mounted fire pump of at least 750gpm (3000L/min) capacity, water tank and hose body whose primary purpose is to combat structural and associated fires.

Initial Attack Apparatus: Fire apparatus with a fire pump of at least 250gpm (1000L/min) capacity, water tank, and hose body whose primary purpose is to initiate a fire suppression attack on structural, vehicular, or vegetation fires and to support associated fire department operations.

Mobile Water Supply Apparatus (Tanker / Tender): A vehicle designed primarily for transporting (pick-up, transporting, and delivering) water to fire emergency scenes to be applied by other vehicles or pumping equipment.

Quint: Fire apparatus with a permanently mounted fire pump, a water tank, a hose storage area, an aerial ladder or elevating platform with a permanently mounted waterway, and a complement of ground ladders.

Special Services Fire Apparatus: A multipurpose vehicle that primarily provides support services at emergency scenes.

In addition to N.F.P.A. 1901, the industry commonly refers to the following types of major fire apparatus:

Rescue: A vehicle specifically designed for the purposes of transporting specialized rescue equipment such as vehicle extrication equipment, water/ice rescue equipment, hazardous materials equipment, and additional fire suppression support equipment such as additional self-contained breathing apparatus.

Pump/Rescue: A vehicle that combines the traditional functions of a pumper and a rescue apparatus into one multi-functional apparatus.

Aerial Device: A vehicle equipped with an aerial device, elevating platform, or water tower that is designed and quipped to support firefighting and rescue operations by positioning personnel, handling materials, providing continuous egress, or discharging water at positions elevated from the ground.

9.3.4 Existing Apparatus Fleet – Olds Fire Department

The current fleet is presented in **Table 13.** The review of information provided as part of this F.S.M.P. indicates that the majority of the major apparatus and equipment operated by the O.F.D. are currently in good condition and reflect the types of major apparatus that would be expected based on the fire risks present.

Table 13: Existing Apparatus Descriptions

Unit Number:	610	
Year/Make:	2013 Ford F-150	
Tank Capacity:	N/A	
Usage:	Command unit	
Town Percent:	50%	
County Percent:	50%	
Replacement year:	2022	
Unit Number:	620	
Year/Make:	2007 Pierce	
Tank Capacity:	652 Imp Gal, 1500 GPM pump	
Usage	2nd line Pumper, with compressed air foam (C.A.F.) system	
Town Percent	50%	
County Percent	50%	
Replacement year:	2027	
Unit Number:	621	
Year/Make:	2017 Rosenbauer	
Tank Capacity:	5678 L, 1500 GPM pump	
Usage	1st Pumper with C.A.F.	
Town Percent	50%	
County Percent	50%	
Replacement year:	2037	

Unit Number:	670
Year/Make:	2010 Pierce
Type:	100’ Aerial / Pump
Tank Capacity:	268 Imp Gal, 1750 GPM pump
Usage	3rd line pump Aerial Operations
Town Percent	70%
County Percent	30%
Replacement year:	2030

Unit Number:	630
Year/Make:	2014 SVI
Tank Capacity:	N/A
Usage:	Rescue
Town Percent:	50%
County Percent:	50%
Replacement year:	2034

Unit Number:	640
Year/Make:	2014 Ford F-550
Tank Capacity:	250 Imp Gal
Usage:	Wildland Rapid Attack with CAF System
Town Percent:	0%
County Percent:	100%
Replacement year:	2025

Unit Number:	641
Year/Make:	2003 Ford F-550
Tank Capacity:	200 Imp Gal
Usage:	Wildland Rapid Attack
Town Percent:	0%
County Percent:	100%
Replacement year:	2025

Unit Number:	660
Year/Make:	2004 FL-80 Freightliner
Tank Capacity:	3000 Imp Gal
Usage:	Water Tender
Town Percent:	0%
County Percent:	100%
Replacement year:	2020

Unit Number:	680
Year/Make:	2019 GMC 2500 Pickup Truck
Tank Capacity:	N/A
Usage:	Medical / Crew Response
Town Percent:	50%
County Percent:	50%
Replacement year:	2029

Unit Number:	681
Year/Make:	2008 Jeep
Tank Capacity:	N/A
Usage:	Fire Inspections
Town Percent:	50%
County Percent:	50%
Replacement year:	(Replaced in 2019 by 680)

9.3.5 Fleet Replacement Plan

Life cycle planning is a core component of the capital planning process for fire departments across Canada. While the O.F.D. does not currently have a formal asset management plan, O.F.D. apparatus is included in the department capital plan, integrated with the County of Mountain View Capital Apparatus Replacement and Disposal Plan. Replacement of apparatus and vehicles should be timed to avoid significant increases in maintenance costs, which can occur with units which are kept in-service beyond the recommended life-cycles.

The Fire Underwriters Survey (F.U.S.) requires that all major fire apparatus meet either the ***Underwriters Laboratory of Canada standard U.L.C. - S515 - 04*** or the ***N.F.P.A. 1901 - Standard for Firefighting Apparatus Construction, Equipment and Testing***. F.U.S. identifies the following major fire apparatus replacement guidelines:

- Major cities 12 – 15 years, with an additional five years in reserve;
- Medium size cities 15 years, with additional five years as back up, and five years in reserve; and
- Small municipalities 20 years, with an additional five years second line or reserve.

As a fire department of a relatively small municipality with predominantly paid on-call suppression resources, the applicable apparatus replacement strategy for the Town of Olds would reflect a 20 year front-line life cycle with five additional years in a reserve capacity. For light vehicles, including pick-up trucks, a replacement cycle of approximately ten years, with a total life-cycle of approximately 15 years, reflects industry best practices. The replacement years are identified within the apparatus descriptions, listed in **Table 13**.

9.3.6 Service-Ready (Reserve) Apparatus

The O.F.D. does not currently have any identified service-ready (reserve) apparatus capacity. This is an important consideration in the event that one of the current front-line apparatus is out of service for

maintenance or as a result of a mechanical breakdown. Therefore it should be recognized that in the event that any of the front-line apparatus are out of service at any time, the overall firefighting capability of the department is significantly reduced. This includes the department's ability to have firefighters respond as well as the equipment capacity to mitigate the emergency.

Current industry best practices indicates that a municipality the size of Olds should have a minimum of one service-ready (reserve) apparatus. Developing some reserve apparatus capacity for use in the event of a front-line apparatus breakdown, and to increase the depth of firefighting capacity could be achieved by extending the life cycle of the next major apparatus to be replaced (pump or pump/tender). Through the purchasing process the apparatus planned for replacement could be retained as a service ready apparatus when the new apparatus is but in service.

Operational Recommendation #31: That consideration be given to creating a major apparatus reserve capacity, including a minimum of one service ready pumper or pump/tender.

9.4 Equipment

The fire service requires an extensive inventory of equipment for fire suppression, technical rescues and firefighter safety. This includes firefighter protective clothing (bunker gear), self-contained breathing apparatus (S.C.B.A.) firefighting hose and nozzles, ladders, automobile extrication tools and many specialized pieces of equipment required for the specialized fire protection and rescue services provided. As previously mentioned, equipment maintenance is completed by assigned members of the O.F.D. at the fire hall for P.P.E. and S.C.B.A. maintenance and repair. The O.F.D. conduct in-house testing of MGA G1 breathing apparatus systems for the department as well as for neighbouring departments throughout the county. Equipment maintenance is also included in ***S.O.G. EM001- Maintenance of Equipment***.

Industry best practices and manufacturers' directions suggest personal protective equipment, such as firefighter bunker gear, should be replaced based on a ten-year life cycle. The O.F.D. indicates that current equipment stock is sufficient in meeting the needs of the fire department.

9.5 Facilities, Apparatus and Equipment Summary and Recommendations

Our review of the facilities, apparatus and equipment indicates that operations within this area are consistent with industry best practices. Overall the major fire apparatus operated by the O.F.D. are well maintained and in good condition and the maintenance and repair procedures and programs in place for fleet and equipment are sufficient in meeting the needs of the department.

As a result of the review of the department's facilities, apparatus and equipment the following recommendations are presented for Council's consideration and approval:

Operational Recommendations:

Operational Recommendation #28: That the consideration be given to retrofitting the fire station with a diesel emissions exhaust system to minimize the potential for diesel emissions exposure within the building.

Operational Recommendation #29: That consideration be given to enclosing the exercise facility to limit diesel emissions exposure from the apparatus bay and the installation of an independent ventilation system within the exercise facility.

Operational Recommendation #30: That consideration be given to providing additional public parking spots assigned to the fire station for use by the Emergency Operations Centre.

Operational Recommendation #31: That consideration be given to creating a major apparatus reserve capacity, including a minimum of one service ready pumper or pump/tender.

10.0 Fire Suppression Division

The Olds Fire Department aligns with the definition of a "*volunteer fire department*" according to N.F.P.A, 1720 that states "*A fire department having volunteer emergency service personnel comprising 85 percent or greater of its department membership*."[11] In the Town of Olds, the term '*paid on-call*' is used in place of the word '*volunteer*'. The department's Fire Suppression Division overseen by the Fire Chief, with support from the P.O.C. Deputy Fire Chief of Operations, Apparatus and Equipment and the P.O.C. Deputy Chief of Emergency Management, Recruitment and Retention. The existing division is comprised of a paid on-call complement of three Captains, six Lieutenants and 27 firefighters.

In addition to responding to fire-related situations the O.F.D. provides emergency response services for a range of other types of incidents, including motor vehicle collisions, medical-related and medical assistance responses, and technical rescues (i.e., rope, ice, confined space, trench, hazardous materials and vehicle extrication rescues). The department responds to these calls for service both within the Town of Olds as well as beyond the Town boundaries into Mountain View County.

The research and analysis presented within this F.S.M.P. provides a comprehensive review of current industry best practices related to delivering fire suppression services within the Town of Olds. It provides an overview of fire suppression staffing needs, operations and service levels, statistical trend analysis of historical performance and emergency response capabilities with consideration of future growth. This analysis is presented with recommendations for Council's consideration in adopting the most effective and efficient fire suppression deployment model that provides the most value to the community. This includes utilizing the findings of the ***Community Risk Assessment*** and related strategies to optimize public education and fire prevention programs, and further the use of fire safety standards and enforcement.

10.1 Existing Fire Suppression Staff Resources

The dedicated group of paid on-call members of the Olds Fire Department provide the backbone for the organization. Through this F.S.M.P. process, the members of the department themselves, including their service to the Town and their roles within the department, were identified as a clear strength of the O.F.D.

However, the increasing volume of emergency calls; increasing demand for training to respond to the wide variety of emergency response calls, and the additional roles and positions they fill within the department to assist the Fire Chief in the broader functions of the O.F.D. is not sustainable within the current organizational model. Through the internal consultation process conducted within this F.S.M.P.

[11] NFPA 1720 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments, Section 3.3.16.2

process there were clear signs and symptoms of burnout for many of the department members. There has also been a significant amount of personnel turnout over the past several years and many of the members of the department are still learning the roles and positions they have been assigned. The proposed staff resources plan outlined in Section 12 of this F.S.M.P. aims to support the paid on-call model of the department and enhance the sustainability of it going forward as the Town of Olds continues to grow and develop.

10.1.1 Captains

The role of Captain at the O.F.D. is a supervisory position, performing a wide range of fire protection duties including emergency response to fire, medical and other incidents as required in addition to non-emergency duties such as fire prevention, and routine maintenance. Captains fulfill emergency management functions in the field and participate in training and development. There are currently three P.O.C. Captains within the division.

10.1.2 Lieutenants

Lieutenants provide basic supervision to firefighters in the department when required. They provide leadership on emergency scenes, in the station and in the public, and are required to respond to emergency incidents of all types performing various operational tasks when needed. Lieutenants participate in facility and equipment maintenance, training and professional development activities as well as fire prevention and education programming within the community and at the station. There are six P.O.C. Lieutenant positions within the division, however, currently four positions are vacant.

Across the fire service industry there is a transition away from the position of Lieutenant, with the alternate rank of Acting Captain, gaining popularity in its place.

10.1.3 Paid on-call Firefighters

The Fire Suppression Division is comprised of a paid on-call firefighter complement of 27, who similar to captains and lieutenants respond to emergency situations conducting interior attack, ventilation, salvage, overhaul or fire ground operations as required. Firefighters participate in ongoing training and development to enhance their knowledge and performance and participate in non-suppression activities when needed performing tasks related to fire prevention and education.

10.2 Fire Suppression Industry Guidelines, Standards and Best Practices

Within Alberta, there is currently no specific legislated standard that a community must achieve with regard to the type of firefighter (full-time/ paid response/ casual/ volunteer) or the number of firefighters and apparatus required to respond to any given incident.

Over the past decade there has been a transition within the fire service industry across North America to the utilization of community risk-based analysis to determine the appropriate level of firefighter

deployment based on the critical tasks to be performed to effectively, efficiently and safely conduct fire suppression operations.

In our view, the process for determining best practices within the fire service across Canada should consider the research and experiments conducted by the National Institute of Standards and Technology including their report on *Residential Fireground Field Experiments* and *Report on High-Rise Fireground Field Experiments.* The results of these experiments contribute to expanding the knowledge and experience of the fire service in addition to providing the technical analysis that contributes to the development of the National Fire Protection Association standards.

10.3 National Fire Protection Association (N.F.P.A.)

The National Fire Protection Association develops and manages a series of codes and standards which guide fire protection service delivery across North American. The following standards are provided for background and consideration for assessing the delivery of fire suppression services by the Olds Fire Department.

10.3.1 N.F.P.A. 1710 Standard (2016 Edition)

N.F.P.A. 1710 *"Standard for the Organization and Deployment of Fire suppression Operations, Emergency medical Operations, and Special Operations to the Public by Career Fire Departments"* provides a resource for determining and evaluating the number of career firefighters required based upon recognized industry best practices. This standard is designed for larger municipalities that, as a result of many factors, are operating their fire department utilizing primarily full-time (career) firefighters. The applicable references within the N.F.P.A. 1710 standard include:

- *This standard applies to the deployment of resources by a fire department to emergency situations when operations can be implemented to save lives and property; and*
- *The standard is a benchmark for most common responses and a platform for developing the appropriate plan for deployment of resources for fires in higher hazard occupancies or more complex incidents.*

These N.F.P.A. references support the strategic priority of saving lives and property, as well as recognizing the standard as a ***"benchmark"*** for determining the appropriate level of resources based on the complexity and level of risk present. This standard identifies the recommended minimum number of firefighters to be deployed as either the "Initial Company", or the "Initial Full Alarm Assignment" required based upon the type of fire risk present.

10.3.1.1 Initial Company – "Initial Response"

The N.F.P.A. 1710 standard refers to the 'Initial Company' as an 'Engine Company' and further defines the minimum staffing level of an Engine Company as four firefighters whose primary functions are to

pump and deliver water and perform basic firefighting at fires, including search and rescue. Within the fire service the term "Engine Company" can also be described as a Pumper, Pump/Rescue or Quint.

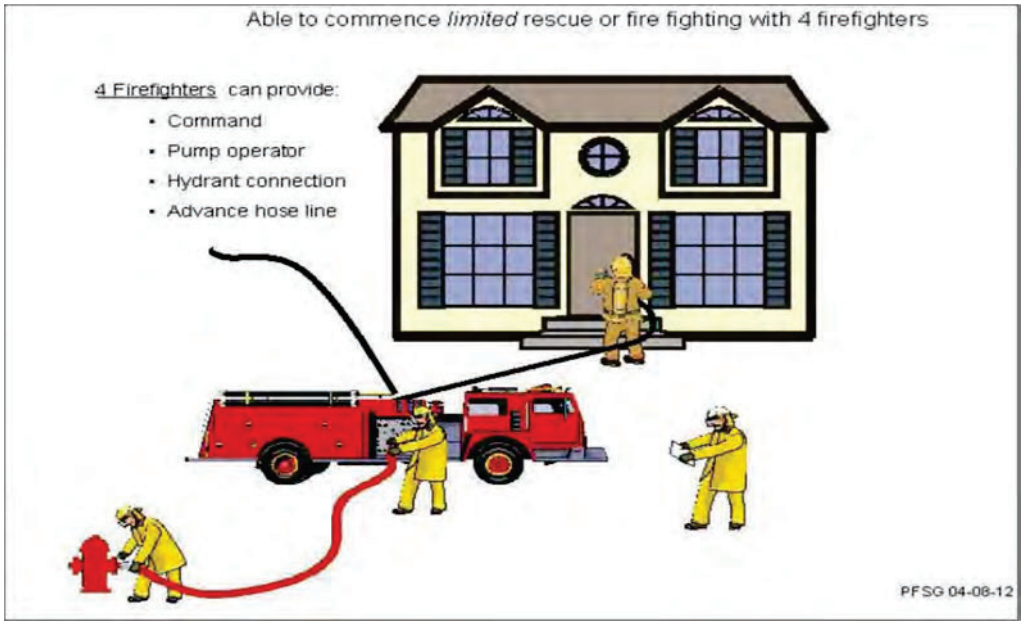
The Initial Company is also commonly referred to as the "***Initial Response"*** that is defined as the number of firefighters initially deployed on the first apparatus responding to an incident. Fire service leaders and professional regulating bodies have agreed that until a sufficient number of firefighters are assembled on-scene, initiating tactics such as entry into the building to conduct search and rescue, or initiating interior fire suppression operations are not safe practices. If fewer than four firefighters arrive on scene, they must wait until a second vehicle, or additional firefighters arrive on scene to have sufficient staff to commence these activities.

An initial response of four firefighters, once assembled on-scene, is typically assigned the following operational functions. The officer in charge shall assume the role of Incident Commander; one firefighter shall be designated as the pump operator; one firefighter shall complete the task of making the fire hydrant connection; and the fourth firefighter shall prepare an initial fire attack line for operation.

The assembly of four firefighters on the fire scene provides sufficient resources to safely initiate some limited fire suppression operations. This first crew of four firefighters is also able to conduct the strategic operational priority of "size-up" whereby the officer in-charge can evaluate the incident and where necessary, request an additional depth of resources that may not have been dispatched as part of the initial response.

Fire scene responsibilities of an ***Initial Company*** are highlighted in **Figure 6.**

Figure 6: Initial Arriving Company, Initial Response



(Office of the Fire Marshal, Ontario, Public Fire Safety Guideline 04-08-12, December, 2001)

10.3.1.2 Single-Family Dwelling - Initial Full Alarm Assignment – "Depth of Response"

In addition to defining the deployment requirements of the ***"Initial Company-Initial Response"*** the N.F.P.A. 1710 standard also identifies the recommended minimum number of ***"total firefighters"*** that should be deployed based on the building occupancy type and fire risk present.

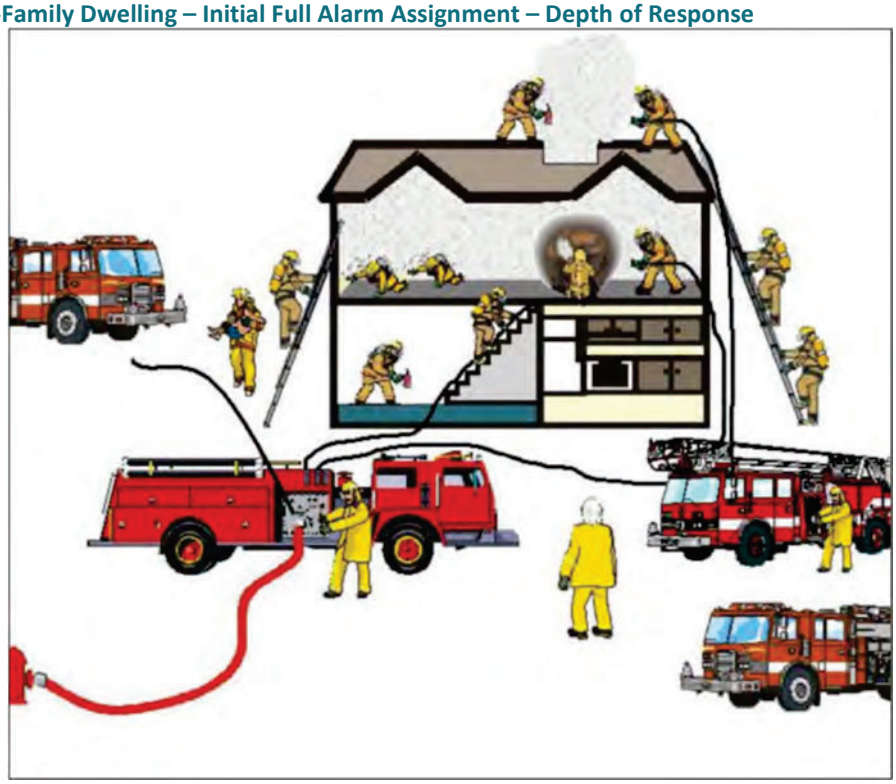
The N.F.P.A. 1710 standard defines a ***"Single Family Dwelling"*** as a 2,000 ft^2 (186 m^2), two-storey single-family dwelling without a basement and with no exposures present. This represents a typical home of wood frame construction located in a suburban neighbourhood having access to a municipal water supply including fire hydrants.

The N.F.P.A. 1710 standard recommends a minimum deployment of fourteen firefighters, and fifteen if an aerial device is required to respond to a fire in a single-family dwelling. This deployment represents the recommended initial full alarm assignment also referred to as the ***"Depth of Response".***

It is very important to recognize that the ***"Initial Full Alarm Assignment"*** representing the "***Depth of Response***" is referring to the ***"total number"*** of firefighters ***"initially"*** assigned to an incident. The total number of firefighters assigned to an incident can vary based on the type of occupancy and the level of fire risk present. Fires involving occupancies that have been assigned a higher level of fire risk such as high risk or high-rise high risk occupancies will require a higher number of firefighters as part of the initial full alarm assignment.

The N.F.P.A. 1710 fire scene responsibilities for a single-family dwelling including an aerial are highlighted in **Figure 7**.

Figure 7: Single-Family Dwelling – Initial Full Alarm Assignment – Depth of Response



(Shown including an aerial device – 15 firefighters) Modified from the Office of the Fire Marshal, Ontario, Public Fire Safety Guideline 04-08-12, December, 2001.

10.3.1.3 Apartment – Initial Full Alarm Assignment – Depth of Response

The N.F.P.A. 1710 standard defines an apartment as a typical 1200 ft^2 (111 m^2) apartment within a three-story, garden style apartment building. Based on this type of building occupancy and fire risk this standard recommends a minimum deployment of twenty five firefighters, and twenty six if an aerial device is required.

The N.F.P.A. 1710 standard recommends this same minimum initial depth of response deployment to an "Open-Air Strip Shopping Centre" as the initial full alarm assignment.

10.3.1.4 High-Rise – Initial Full Alarm Assignment – Depth of Response

High-rise buildings pose unique risks for fire suppression. The 2016 Edition of the N.F.P.A. 1710 standard introduces specific considerations and targets for response time and staffing levels for fire incidents in high-rise buildings. The standard recommends 610 seconds (10 minutes, 10 seconds) or less travel time for the deployment of suppression staff to a high-rise fire incident. Recommended staffing levels are outlined based on critical fire-scene tasks, totaling 39 firefighters for an initial full

alarm assignment to a fire suppression incident at a high-rise high risk building. The timelines and staffing levels correspond to the challenges related to vertical response and specific operational requirements for structural firefighting in high-rises.

Prior to the development of this standard, municipalities had begun to create their own guidelines and/or procedures to follow during a high-rise fire. The common guidelines or procedures found revolve around how to ascend a building when the fire service elevators are not working and how long it will take and how many firefighters or apparatuses are required to arrive at high-rise building fires.

10.3.2 N.F.P.A. 1720 Standard

N.F.P.A. 1720 *"Standard for the Organization and Deployment of Fire suppression Operations, Emergency medical Operations, and Special Operations to the Public by Volunteer Fire Departments"* provides a resource for determining and evaluating the number of paid on-call (volunteer) firefighters required based upon recognized industry best practices. This standard is most applicable to the delivery of fire suppression services by a paid on-call (volunteer) department, such as O.F.D.

The N.F.P.A. 1720 standard further supports the minimum initial response staffing to include four firefighters including *"Initial firefighting operations shall be organized to ensure that at least four fire fighters are assembled before interior fire suppression operations are initiated in a hazardous area"*. This particular standard recognizes that the four firefighters may not arrive on the same vehicle, but that there must be four on the scene prior to initiating any type of interior firefighting operations.

Within this standard the N.F.P.A. identifies five different categories described as ***"Demand Zones"*** that relate to the type of risk that may be found within a typical community; either by population density, travel distance, or special circumstances. The standard then identifies a minimum level of firefighters that would be recommended for each of these categories. **Table 14** presents the N.F.P.A. 1720 standard minimum staffing levels by demand zone.

Table 14: N.F.P.A. 1720 – Minimum Staffing Levels

Demand Zones	Demographics	Minimum # of Firefighters Responding	Response Time (Turnout + Travel) in Minutes	Performance Objective
Urban Area	>1000 people per square mile	15	9	90%
Suburban Area	500-1000 people per square mile	10	10	80%
Rural Area	<500 people per square mile	6	14	80%
Remote Area	Travel Distance + or – 8 miles	4	Dependent upon travel distance	90%
Special Risks	To be determined by municipality	To be determined by municipality	To be determined by municipality	90%

The N.F.P.A. 1720 standard utilizes population density as a factor in evaluating the minimum number of firefighters recommended for depth of response. As a standard primarily for use by paid-on-call (volunteer) fire departments it recognizes lower population densities are typically found in smaller communities in comparison to much higher population densities found in large urban centres.

The N.F.P.A. 1720 standard, in alignment with the N.F.P.A. 1710 standard, also identifies an initial response deployment of four firefighters to effectively, efficiently and safely conduct initial fire suppression operations.

The N.F.P.A. 1720 standard identifies a depth of response deployment range of four to 15 firefighters depending on the risks associated with fire demand zones to effectively, efficiently and safely conduct initial fire suppression operations.

10.4 National Institute of Standards and Technology (N.I.S.T.)

The National Institute of Standards and Technology (N.I.S.T.) is an industry recognized leader in fire service research. Many of the guidelines and standards referenced within this F.S.M.P. have considered the research completed by N.I.S.T. This research includes two significant reports including the *"Report on Residential Fireground Filed Experiments"* completed in 2010, and the *"Report on High-Rise Fireground Field Experiments"* completed in 2013.

In contrast to a fire in a typical single family dwelling that may include one or two storeys a fire in a mid-rise, or tall building requires fire suppression resources to access multiple stories above ground level. Within the fire service this is commonly referred to as ***"vertical response"***. Vertical response refers to the additional fire suppression resources and response time required to transition from the curbside of an affected mid-rise or tall building to the location of the actual emergency incident on an upper storey.

Research conducted by the Toronto Fire Services (T.F.S.) included within Briefing Note #14-Feb 13[12] confirms that there are currently no specific performance guidelines or benchmarks relating to responses in high-rise residential buildings. The T.F.S. analysis indicates that in 2014 the range of time required for the first crew of firefighters to ascend from the curbside to the area affected by fire in high-rise buildings is between 5 minutes and 11 seconds and 5 minutes and 53 seconds. As identified in the N.I.S.T. report, the T.F.S. confirms that fires in high-rise buildings require significantly more firefighters in order for fire suppression operations to be conducted in a safe and effective manner.

[12] City of Toronto, 2015 Operating Budget Briefing Note Vertical Response Times
Source: http://www.toronto.ca/legdocs/mmis/2015/bu/bgrd/backgroundfile-76355.pdf

10.5 Province of Ontario – Office of the Fire Marshal and Emergency Management (O.F.M.E.M.) Operational Planning: A Guide to Matching Resource Deployment and Risk

The O.F.M.E.M. is the agency responsible for overseeing the delivery of fire protection services within the Province of Ontario. ***Public Fire Safety Guideline 04-08-10 – Operational Planning: An Official Guide to Matching Resource Deployment and Risk*** was released by the O.F.M.E.M. in January of 2011. This guideline is intended to be an element of a municipality's risk management process. This guideline states that "*The purpose of this guideline is to encourage municipalities and fire departments to use this tool so that they can make informed decisions regarding the delivery of fire suppression services."*[13]

This guideline includes a *"Critical Task Matrix"* that is defined by the O.F.M.E.M. as *"The critical Task Matrix is based on the Incident Management System (I.M.S.). It will assist in identifying fireground staffing capabilities based upon low, moderate, high and extreme risk levels within your community. The O.F.M.E.M. has identified the critical tasks from the Incident Management System that are used during fireground operations. These tasks are consistent with applicable legislation, industry best practices and the Ontario Fire College Curriculum."*[14] The matrix recognizes that within the I.M.S. that:

- *Upon arrival and rapid size-up, the incident commander can upgrade or downgrade response*
- *Crews can be reassigned to other tasks once original assignments are complete;*
- *Response protocols can be established with specific risk levels used to assist with pre-planning to obtain more resources based on the escalating nature of the emergency;*
- *Fire departments perform rescue and building personnel conduct evacuations according to their approved fire safety plans; and,*
- *Some tasks will never be assigned based on the tactical approach chosen by the incident commander (offensive versus defensive).*

The matrix identifies the lower effectiveness response level (L.E.R.L.) and upper effectiveness response level (U.E.R.L.) indicating the range of firefighters required to effectively, efficiently and safely conduct fire the identified suppression fireground critical tasks associated with each level of risk present. For example, the range of firefighters required to respond to a fire in a single family residential dwelling (e.g., Group C- Residential (non-inspectable) Occupancy) identified within the Community Risk Assessment as a moderate risk occupancy would be from 16 to 43 firefighters. Whereas the response to a registered care facility (Group B- Care or Detention Occupancy) identified within the Community Risk Assessment as a high risk occupancy would be from 36 to 83 firefighters. **Table 15** reflects the fire suppression deployment ranges included within P.F.S.G. 04-08-10.

[13] PFSG 04-08-10 Operational Planning: An Official Guide to Matching Resource Deployment and Risk
[14] PFSG 04-08-10 Operational Planning: An Official Guide to Matching Resource Deployment and Risk

Table 15: O.F.M.E.M. P.F.S.G. 04-08-10 Critical Task Matrix

	Fireground Critical Task	Low Risk		Moderate Risk		High Risk		Extreme Risk	
		LERL	UERL	LERL	UERL	LERL	UERL	LERL	UERL
Incident Response (Note: Where zero or no number has been assigned, the task may be performed at the direction of the incident commander.)	Incident Command*	1	1	1	1	1	1	1	1
	Pump Operator	1	1	1	1	1	1	1	1
	Attack Line (Confine and Extinguish)	2	2	2	2	2	2	2	2
	Additional Pump Operator(s)	0	0	0	2	2	4	4	6
	Additional Attack Line Backup	0	0	0	4	4	8	8	**12**
	Search and Rescue	0	0	2	4	2	6	2	8
	Initial Rapid Intervention Team (IRIT)	0	0	4	6	8	**16**	**12**	**22**
	Ventilation	0	2	2	2	2	4	2	8
	Water Supply – Pressurized	0	1	1	1	1	1	1	2
	Water Supply – Non Pressurized	0	3	1	4	2	6	4	8
	Forcible Entry Team	0	0	0	0	0	1	0	1
	Utilities	0	1	1	1	1	1	1	1
	Laddering (Ground Ladders)	0	2	0	2	0	4	0	6
	Laddering (Aerial or Elevating Device Operator)	0	0	0	2	0	2	0	2
	Exposure Protection			0	4	2	6	2	6
	Incident Safety Officer			0	1	1	1	1	1
	Accountability			1	1	1	1	1	1
	Entry Control			0	2	1	4	1	4
	Rehabilitation			0	1	1	1	1	1
	Salvage			0	2	2	2	2	2
	Lighting					0	2	0	2
	Directing Occupants					0	4	0	4
	Scribe					1	1	1	1
	Sector Officers					1	4	1	4
	Air Management (Air Refilling Station, etc.)							1	2
Other Or Additional Response Considerations	Logistics Officer								
	Administrative and/or Finance Officer								
	Planning Officer								
	Evacuations (Large Scale)								

Fireground Critical Task		Low Risk		Moderate Risk		High Risk		Extreme Risk	
		LERL	UERL	LERL	UERL	LERL	UERL	LERL	UERL
	Communications (Dispatch)								
	Public Information Officer								
	Overhaul								
	Additional Firefighters								
Summary	Incident Response Range	4	13	16	43	36	83	49	108
	Total Fire Department Including External								
	Fire Call Incident Response Range								

Notes:

- L.E.R.L. = Lower Effective Response Level
- U.E.R.L. = Upper Effective Response Level (together form the critical staffing range)
- This tool provides a range of staffing requirements only. Actual numbers may vary depending on the fire risk that exists in the municipality. Tasks performed on fireground based on decisions made by Incident Commander.
- Planning moderate, high and extreme risk occupancies/locations will further validate staffing requirements to ensure the optimum level of protection for the municipality.
- Simultaneous events will require further consideration due to additional personnel requirements beyond the scope of the matrix.
- Incident Command will assume responsibilities for the accountability and entry control tasks when no person has been assigned, or until a person has been assigned the task.

Source: P.F.S.G. 04-08-10 - Operational Planning: An Official Guide to Matching Resource Deployment and Risk

10.6 Province of British Columbia – Structure Firefighters Competency and Training Playbook

The Office of the Fire Commissioner in British Columbia, in consultation with the Fire Chiefs Association of British Columbia, and the British Columbia Fire Training Officers Association has developed the ***Structure Firefighters Competency and Training Playbook*** *(B.C. Playbook)*.

In our view the most recent addition amended in May of 2015 provides valuable insight into determining the level of fire suppression services to be provided by a municipality including those in Ontario. In further support of the O.F.M.E.M Public Fire Safety Guidelines and N.F.P.A. standards, the B.C. Playbook identifies three specific fire suppression service levels for Council's consideration towards identifying the appropriate fire suppression service levels for the Town of Olds. In addition to response times, and the number of firefighters responding, the B.C. Playbook links the training qualifications of firefighters to fire suppression service levels.

The *Playbook* is applicable to all fire services personnel within the Province of British Columbia as defined by their ***Fire Services Act.*** The principles of the Playbook indicate that it is the direct

responsibility of the "*authority having jurisdiction*" (A.H.J.) to declare its firefighting service level. The declared fire suppression service level must then be established as a formal policy (by-law, policy or contract) and be fully reflected in operating guidelines within the fire department.

The Playbook identifies the following service levels from which an A.H.J. may choose.

10.6.1 Fire Department Providing - Exterior Operations Service Level

The B.C. Playbook recognizes that based on local needs and circumstances a fire department may only be able to attack (suppress) a fire from the exterior of the building or structure. Exterior Operations Level fire service firefighters shall not enter any building, vehicle dumpster or other object if an immediately dangerous to health (I.D.H.L.) atmosphere is present. If an I.D.L.H. atmosphere is present, Exterior Operation firefighters shall only engage in external fire suppression activities. Operational Guidelines that restrict them to Exterior Operations must be written and enforced by the department, even though they may possess equipment that would otherwise permit them to respond at a higher level.

On occasion where the department responds to a simple incident and an I.D.L.H. atmosphere does not yet exist, it is reasonable to address the issue from inside the structure. However, if an I.D.L.H. atmosphere develops or the fire progresses beyond the object of origin, or the environment or structure become compromised in any way, all firefighters must immediately withdraw to the exterior and combat the situation from the outside. Where the I.D.L.H. atmosphere no longer exists as a result of fire suppression operations or otherwise, subject always to an appropriate risk assessment by the Incident Commander, it may be appropriate for members of an Exterior Operations Service Level department to enter the structure.
Where there is a potential risk of an I.D.L.H. atmosphere developing, or risk from smoke or particulate matter when conducting external operations (including overhaul), Self-Contained Breathing Apparatus (S.C.B.A.) must be worn in accordance with WorkSafe BC requirements.

10.6.2 Interior Operations Service Level

Interior Operation Fire Departments may engage in internal fire suppression activities within simple structures or objects such as a vehicle, single family dwelling or other small structure. Interior Operations may also include larger or more complex structures that the A.H.J. has assessed and pre-planned for, such that it determines that structure to be safe for Internal Operations qualified firefighters. Firefighters must be trained specifically to the risks associated with these structures.

Interior Operations Level fire services will have Operational Guidelines, that must be written and enforced by the department, that describe advanced training in fire operations activities that allow for a calculated fire attack within permitted structures and objects.

Interior Operations must be undertaken in accordance with the requirements of WorkSafe B.C. (including, in particular, S. 31.23 of the Occupational Health and Safety Regulation). The Incident Commander must recognize the need, and staff appropriately, for a Rapid Intervention Team (R.I.T.) with trained firefighters following the WorkSafe B.C. requirements.

10.6.3 Full Service Level

Full Service Operations Fire Departments are equipped and have completed the appropriate training identified in the B.C. Playbook to provide a full spectrum of fire services. These services are based on the Competencies included within the 'N.F.P.A. 1001 Firefighter Level II Standard and relevant N.F.P.A. Fire Officer Standards.

Full service fire departments will have Operational Guidelines that must be written and enforced by the department, that describe advanced training in fire operations activities.

These fire departments are organized such that the suppression activities that occur are based on response protocols which include the appropriate staffing levels, and number and type of apparatus on scene.

10.7 Commission on Fire Accreditation International

The Centre for Public Safety Excellent (C.P.S.E.) serves as the governing body for the two organizations that offer accreditation, education and credentialing within the fire service across North America: the Commission on Fire Accreditation International (C.F.A.I.) and the Commission on Professional Credentialing (C.P.C.).

The Commission on Fire Accreditation International (C.F.A.I.) defines itself through its Mission: *"to assist the fire and emergency service agencies throughout the world in achieving excellence through self-assessment and accreditation in order to provide continuous quality improvement and the enhancement of service delivery to their communities."*

The objective of the C.F.A.I. program is to define an accreditation system that is a credible, achievable, usable, and realistic model. The ultimate C.F.A.I. goal is to provide an accreditation process to improve the abilities of municipalities to both understand and recognize their respective community fire risks, provide balanced public / private involvement in reducing these risks and improve the overall quality of life for community members using the accreditation model.

The '**Principles of Accreditation**' are defined by the C.F.A.I. as follows:

- ***Accreditation:*** *A process by which an agency evaluates and recognizes a program of study as meeting certain predetermined standards or qualifications. It applies only to institutions or agencies and their programs of study or their services;*
- ***Certification/Professional Designation:*** *Certification is a process whereby an individual is tested and evaluated in order to determine his or her mastery of a specific body of knowledge. Professional designation is similar to certification and is proven by which an individual is evaluated based upon experience, education and related accomplishments and is awarded a designation based upon this third party evaluation; and*
- ***Standardization:*** *A process by which a service is assessed against some fixed standard of performance and quality.*

The **"C.F.A.I. Accreditation Model"** is comprised of the following required elements:

- ***Organizational Self-Assessment;***
- ***Standards of Cover;***
- ***Community Risk Analysis; and***
- ***Strategic Plan.***

The C.F.A.I. accreditation process relies significantly on fire suppression standards such as N.F.P.A. 1710 and 1720. However, in many areas the C.F.A.I. utilizes broader and different definitions in comparison to those utilized by N.F.P.A. For example, the term ***"Effective Response Force"*** (E.R.F.) is used by the C.F.A.I. rather than the N.F.P.A. ***"Initial Full Alarm Assignment"***. The C.F.A.I. ***"Effective Response Force"*** is defined as the *"minimum amount of staffing and equipment that must reach a specific emergency response zone location within a maximum prescribed total response time and is capable of initial fire suppression, E.M.S. or mitigation. Effective Response Force is the result of critical tasking analysis as part of the community risk assessment."*

Of interest to this Fire Services Master Planning process is the importance of ***"continuous improvement"*** that is recognized by the C.F.A.I. accreditation process. In our view the development of the Community Risk Assessment and this Fire Services Master Plan support Council's commitment to sustaining and improving the services provided by the Olds Fire Department.

10.8 Importance of Time with Respect to Fire Growth

Time is a critical component with respect to the growth of a fire and the success of intervention by firefighters. Research conducted by the National Research Council of Canada and Ontario's O.F.M.E.M. indicates that a fire in a non-sprinklered residential occupancy can spread from the room where the fire

originates in ten minutes or less. Tests have shown that the fire can extend from the room of origin in as little as three minutes, under fast fire growth conditions.

As a component of the High-Intensity Residential Fires efforts, the Province of Alberta has launched a fire safety campaign called the '***3 minute drill***' to teach people how to prevent, detect and escape from residential fires. This campaign states that "*Unlike 25 years ago, a house fire today can turn deadly in as little as 3 minutes. When you consider it will take the fire department 7 minutes or more to respond, learning how to prevent, detect and escape a fire has never been more critical.*"[15] In this statement, the seven minute fire department response is likely referring to a career fire department. These response times would be further extended in a paid on-call model, such as O.F.D.

Fire growth rates, defined by the Society of Fire Protection Engineers as slow, medium and fast, are listed in **Table 16**. The fire growth rates are measured by the time it takes for a fire to reach a one megawatt (M.W.) fire. This is roughly equivalent to an upholstered chair burning at its peak. A two M.W. fire is approximately equal to a large upholstered sofa burning at its peak.

Table 16: Time to Reach 1 M.W. and 2 M.W. Fire Growth Rates in the Absence of Fire Suppression

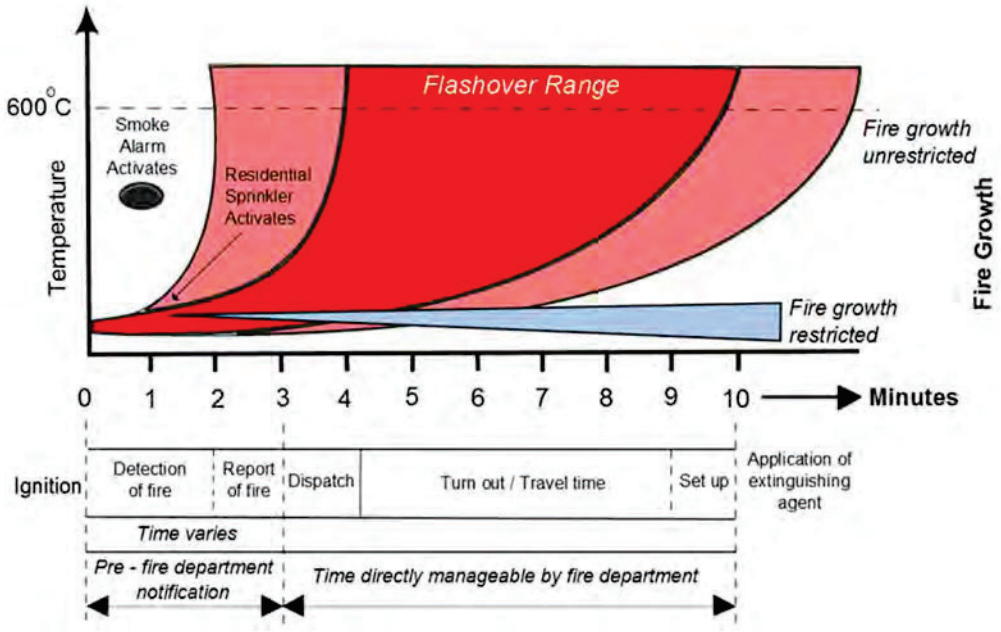
Time to Reach 1 MW and 2 MW Fire Growth Rates in the Absence of Fire Suppression		
Fire Growth Rate	**Time in Seconds to Reach 1MW**	**Time in Seconds to Reach 2 MW**
Slow	600 seconds	848 seconds
Medium	300 seconds	424 seconds
Fast	150 seconds	212 seconds

(Source: "Operational Planning: An Official Guide to Matching Resource Deployment and Risk", Office of the Fire Marshal and Emergency Management*, January 24, 2011, p. 4).*

Within the ten-minute time period, flashover conditions can occur. Flashover occurs when the combustible items within a given space reach a temperature that is sufficiently high for them to auto-ignite. The graph in **Figure 8** highlights the importance of the first two lines of defence including early detection actions of the occupants. Early detection occupant actions include working smoke alarms, home escape planning, and prompt notification of the fire department. The success of firefighting intervention, given the exponential increase in fire temperature and the potential for loss of property/loss of life with the progression of time, further support the importance of public education and prevention programs.

[15] http://www.3minutedrill.alberta.ca/

Figure 8: Example Fire Propagation Curve



Source: *Fire Underwriters Survey "Alternative Water Supplies for Public Fire Protection: An Informative Reference Guide for Use in Fire Insurance Grading" (May 2009) and N.F.P.A. "Fire Protection Handbook" (2001)*

The fire propagation curve reflects the importance of time during the Detection *'detection – report'* stage. This is the time period not impacted by any actions by the fire department. The time period controlled by the fire department begins when the call is initially received by dispatch and includes several other components leading up to the initiation of intervention by fire operations staff.

Understanding factors such as "growth rate" and "time" in terms of how quickly a fire can reach a critical stage such as flashover are important considerations in assessing fire operations performance targets. For example, where areas of the community may have extended response times due to long travel distances, (i.e., in excess of ten minutes), the potential for the fire to have spread from the room of origin or to have already reached a flashover state will be significantly higher.

In these situations, consideration should be given to the first two lines of defence including the provision of more public education and fire prevention activities as a means to inform the public on how to be prepared and react in the event of a fire.

10.8.1 Fire Suppression Response Times

Within the fire service fire suppression response times are measured and analyzed according to percentile ranking (i.e., percentage of responses meeting a specified timeframe). The 90th percentile (i.e., where 90% or 90 out of 100 responses meet a specific response time target) is a common industry best practice for reporting and understanding emergency first responder performance. Fire and

emergency services commonly measure and report 90th or 80th percentile response time data for system planning and resource deployment purposes.

Within the fire service, ***Total Response Time*** is calculated by assessing three primary factors that include the following:

Dispatch Time + Turnout Time + Travel Time = Total Response Time

10.8.1.1 Dispatch Time

Within the Town of Olds the process for emergency call taking (alarm answering) and fire dispatching (alarm processing) of the O.F.D. fire suppression services is provided through a fire dispatching contract with the City of Red Deer Fire Department. The applicable performance benchmarks for assessing these services is contained within the ***N.F.P.A. 1221 – Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*** (2016) that includes the following:
"Emergency Alarm Processing / Dispatching: A process by which an alarm answered at the communications centre is transmitted to emergency response facilities (E.R.F.s) or the emergency response units (E.R.U.s) in the field."[16]

The N.F.P.A. 1221 standard is an industry best practice for fire department dispatch time requirements. It requires that 95% of alarms received on emergency lines shall be answered within 15 seconds, and 99% of alarms shall be answered within 40 seconds. It requires processing of the alarm call (dispatching) to be completed within 64 seconds, for 90% of all calls (90th percentile), and within 106 seconds for 95% of calls. This means that 90 out of 100 calls are required to be dispatched within 64 seconds and that 95 out of 100 calls must be dispatched within 106 seconds. Further analysis of the current dispatch times provided to O.F.D. is included within the analysis below.

10.8.1.2 Turnout Time

Within the fire service the definition of turnout time is best defined within the by the *N.F.P.A. 1710 Standard for Organization and Deployment of Fire Suppression Operations by Career Fire Departments* as:

"the time interval that begins when the emergency response facilities (ERFs) and emergency response unit (ERUs) notification process begins by either an audible alarm or visual annunciation of both and ends at the beginning point of travel time."[17]

[16] N.F.P.A. 1221 2016 Edition
[17] N.F.P.A. 1710 Standard 2016 Edition

Within the Town of Olds this definition is applicable to both full-time positions (such as the Fire Chief) and the paid on-call firefighters. The turnout time begins when the firefighters are alerted by the dispatch provider to respond and ends when they arrive at the fire station and acknowledge they are responding on a fire apparatus, or alternatively, when they arrive at the incident in their personal vehicle. Further analysis of the historical O.F.D. turnout times is included within the following sections of this F.S.M.P.

10.8.1.3 Travel Time

Travel time is also appropriately defined within the *N.F.P.A. 1710 Standard for Organization and Deployment of Fire Suppression Operations by Career Fire Departments* as:

"The time interval that begins when a unit is enroute to the emergency incident and ends when the unit arrives at the scene."

Within this F.S.M.P. this reflects the amount of time from when the responding apparatus leaves the fire station until that apparatus arrives at the emergency incident. Further analysis of the historical O.F.D. travel times is included within the following sections of this F.S.M.P.

10.9 Applicable Community Risk Assessment - Key Findings

The C.R.A. identifies "Key Findings" that should be considered as part of assessing emergency response (fire suppression) deployment coverage in determining the local needs and circumstances, as well as the level of service provided by the municipality. **Table 17** illustrates the identified "Key Findings" applicable to the analysis of the existing fire suppression services provided by the O.F.D.

Table 17: C.R.A. Key Findings

C.R.A. Key Findings	Third Line of Defence (Emergency Response) For consideration
The road network is a contributor to emergency call volume due to motor vehicle-related incidents.	Emergency Response
The Town's at-grade rail crossings and the direction and positioning of the rail line may impact the Fire Department's emergency response times.	Emergency Response
The Town has a potential risk of wildland fire due to the wildland-urban interface.	Emergency Response
The majority of the Town's existing building stock is comprised of Group C – Residential Occupancies (including non-inspectable occupancies) (88%).	Emergency Response
Group D – Business Occupancies and Group E – Mercantile Occupancies combined account for 7% of the Town's total building stock.	Emergency Response
Group F – Industrial Occupancies account for 2% of the Town's total building stock.	Emergency Response

C.R.A. Key Findings	Third Line of Defence (Emergency Response) For consideration
The 2016 Census data indicates that 51% of the Town's residential building stock was built prior to the introduction of the 1992 Alberta Fire Code.	Emergency Response
The 2016 Census data indicates that 33% of the Town's residential building stock is comprised of other attached dwellings. Attached dwellings have a higher risk of a fire spreading to an adjacent exposed buildings.	Emergency Response
There are 17 buildings that present an increased fire risk due to their large floor areas.	Emergency Response
There are 13 identified occupancies with potential high life-safety risk within the Town of Olds and there is a school for students with special needs that presents unique life-safety risks.	Emergency Response
There are seven registered heritage buildings within the Town of Olds, which are keystone features of the community's history.	Emergency Response
There are shifts in student and commuter populations throughout the year which may impact the demand for fire protection services.	Emergency Response

The importance of public education programs relating to smoke alarms and carbon monoxide alarms are illustrated by "**key findings**" of the C.R.A. that confirm Group C – Residential Occupancies (including non-inspectable occupancies) account for 88% of the Town's building stock.

The Town has some unique industrial buildings and uses, some with large area concerns relating to fire-risks. Increasing staff capacity within the department to conduct proactive measures, such as pre-planning, is expected to increase the overall effectiveness and safety of the Fire Suppression Divisions.

10.10 Proposed Fire Suppression Performance Benchmarks

Based on our review of current industry guidelines, standards and best practices and in consultation with the Fire Chief, the analysis within this F.S.M.P. has identified the fire suppression performance benchmarks that would be considered applicable to the Town of Olds given the level of fire risk identified by the Community Risk Assessment.

10.10.1 Proposed Initial Response Fire Suppression Performance Benchmark

In our view the N.F.P.A. 1720 initial response performance benchmark outlined as *"Initial firefighting operations shall be organized to ensure that at least four fire fighters are assembled before interior fire suppression operations are initiated in a hazardous area"* supports the minimum initial response staffing to include four firefighters including. This recognizes that the four firefighters may not arrive on the same vehicle, but that there must be four on the scene prior to initiating any type of interior firefighting operations.

Proposed Initial Response Performance Benchmark: *The response of a minimum of four firefighters assembled on-scene prior to initiating any interior fire suppression operations.*

Council Recommendation #4: That subject to Council's consideration and approval of the proposed Fire Services Master Plan that the proposed Initial Response Performance Benchmark including the response of a minimum of four firefighters assembled on scene prior to initiating any interior fire suppression operations be adopted by the Town of Olds.

10.10.2 Proposed Depth of Response Fire Suppression Performance Benchmark

In our view the N.F.P.A. 1720 standard that utilizes population density to inform the recommended staffing and response time performance benchmarks is applicable to the Town of Olds and its fire department. The 2016 Census for the Town of Olds identifies the 2016 population as 9,184 people. The current land area of the Town of Olds, according to the 2016 Statistics Canada Census is 14.9 square kilometres. To determine the Town's 2016 population density the following calculation was completed:

Population: 9,184 people / 14.93 square kilometres = population density of 615 people per kilometre or 1,593 people per square mile

Based on the Town's 2016 population density (1,593 people per square mile), and paid on-call (volunteer) fire suppression operating model the ***N.F.P.A. 1720 Urban Area Demand Zone*** would be the applicable standard for assessing the O.F.D. current deployment model for firefighters. This is greater than the threshold of 1000 people per square mile and the Town's population is expected to have increased since the 2016 census. The urban response includes an integrated response of initial response and depth of response in deploying fifteen firefighters arriving on the scene of a fire related incident in a response time (turnout time + travel time) of nine minutes for 90% of the fire related incidents.

Proposed Depth of Response Performance Benchmark: *The response of a minimum of 15 firefighters assembled on-scene within a combined turnout and travel time of nine minutes.*

Council Recommendation #5: That subject to Council's consideration and approval of the proposed Fire Services Master Plan that the proposed Depth Response Performance Benchmark including the response of a minimum of 15 firefighters assembled on-scene of a structure fire within a combined turnout and travel time of nine minutes be adopted by the Town of Olds.

10.11 Historic Emergency Response Performance (Fire Suppression)

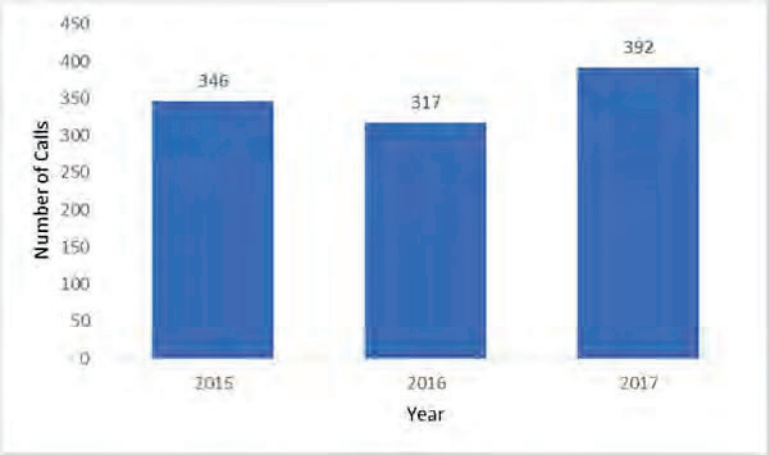
This section presents analysis of historical emergency response capabilities of the O.F.D. The information within this section was provided by the O.F.D. and represents the actual data collected by the department for the period from 2015 to 2017.

10.11.1 Emergency Call Volume

The annual call volume provides a high level understanding of the probability of incidents occurring within the Town. It is also a reflection of workload for the Fire Suppression Division. A summary of the total number of emergency calls within the Town is presented in **Figure 9**. Over a three year period, the number of emergency calls responded to by the O.F.D. increased with a difference of 46 calls. During this timeframe there was an average of 352 calls per year.

In our experience, and within the fire service an emergency call volume exceeding the benchmark of an average of one call per day places a significant strain on the abilities of an organizational model that is solely dependent on paid on call/volunteer firefighters. There are many instances within the industry where exceeding the benchmark of one call per day has led to the transition to use of full-time firefighters to provide initial response capabilities. In these instances the paid on call/volunteer firefighters continue to be a core element of the departments depth of response capabilities.

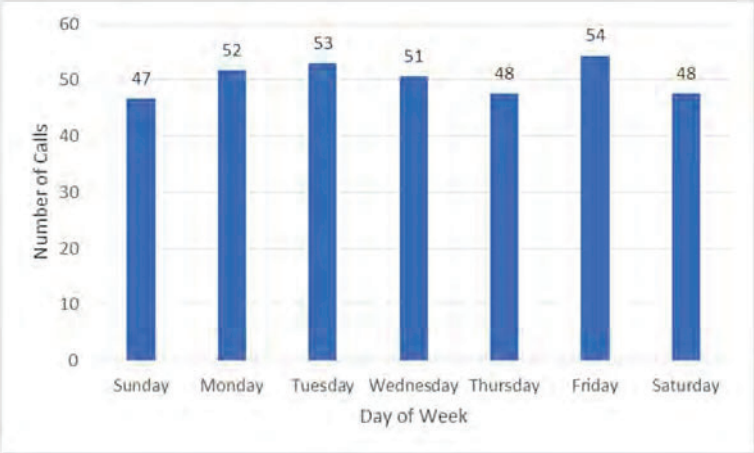
Figure 9: Annual Call Volume (2015-2017)



10.11.1.1 Average Call Volume by Day of Week – All Incidents

The results of our analysis of historical call volumes by day of the week for the period of 2015 to 2017 are shown in **Figure 10**. On average the highest call volume occurs on Fridays, while the lowest average call volume occurs on Sundays. The difference between the highest and lowest call volumes is only seven calls, so there is a pretty consistent workload of emergency calls throughout the week.

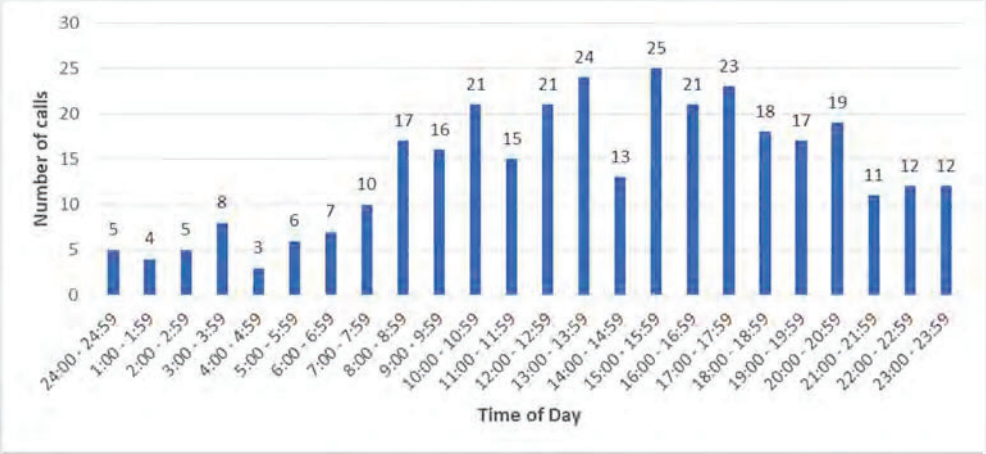
Figure 10: Average Call Volume by Day of Week (2015-2017)



10.11.1.2 Average Call Volume by Time of Day - All Incidents

Our analysis of the time of day emergency call data for the period from 2015 to 2017, shown in **Figure 11** indicates that on average, higher call volumes are experienced throughout day time hours between 8am and 8pm. It is important to note that daytime, and specifically Monday through Friday daytime is when a large portion of the current paid on call firefighters are not available do to their regular work commitments. The lowest average call volume takes place between the hours of 9pm and 7am. Historically the Town has a higher volume of calls while the community's residents and visitors are awake and active and the trend of low average call volume during night time hours occurs when the majority of the population is typically asleep. It should be recognized that this is the time period when residents and visitors are most vulnerable to the life safety risk of a fire.

Figure 11: Average Call Volume by Time of Day (2015-2017)



10.11.1.3 Call Volume by Emergency Response Type – Olds and County Responses

Analysis of emergency call response types for the period of 2015 to 2017 are presented in **Figures 12** and **13**. **Figure12** summarizes call volume by emergency response type for calls responded to within the Town of Olds and **Figure 13** summarizes emergency response types to which the O.F.D. responds to outside of municipal boundaries.

Within the Town of Olds, 'Alarm – No Fire' calls represent 36% of calls, which is the largest call volume by type, followed by medical calls accounting for 33% of call volume. Fire calls account for 9% of calls and rescue calls represent 10% of the total call volume experienced within Town boundaries.

Compared to the call volume experienced in the Town the O.F.D. responds to a much higher percentage of fire (26%) and rescue calls (34%) within Mountain View County. These tend to be more involved call types requiring more staff and longer on-scene times per call.

Figure 12: Call Volume by Response Type – Olds Responses (2015-2017)

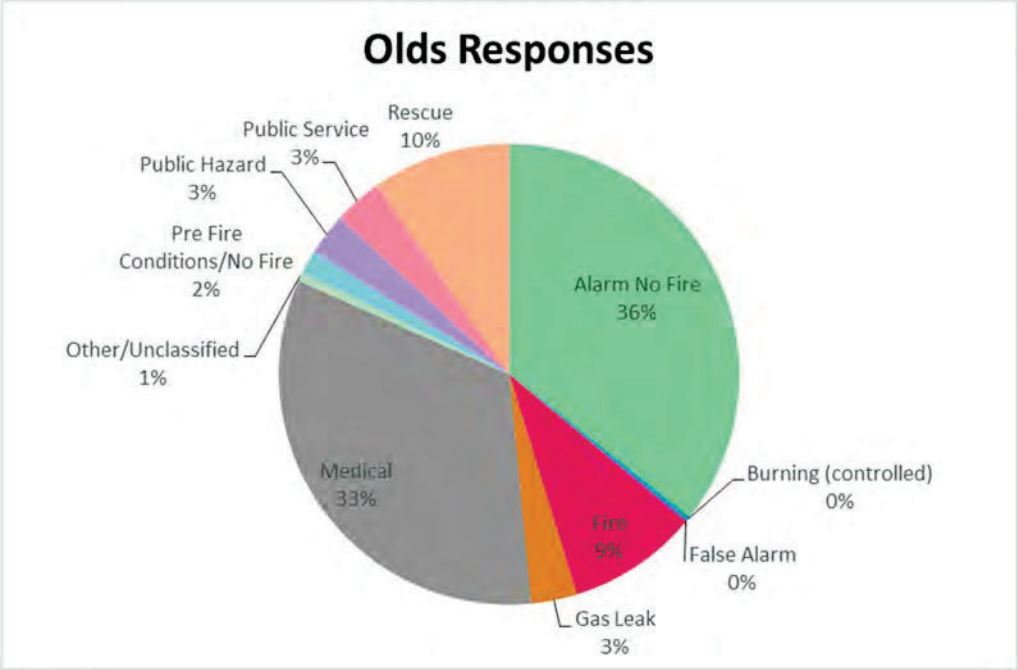
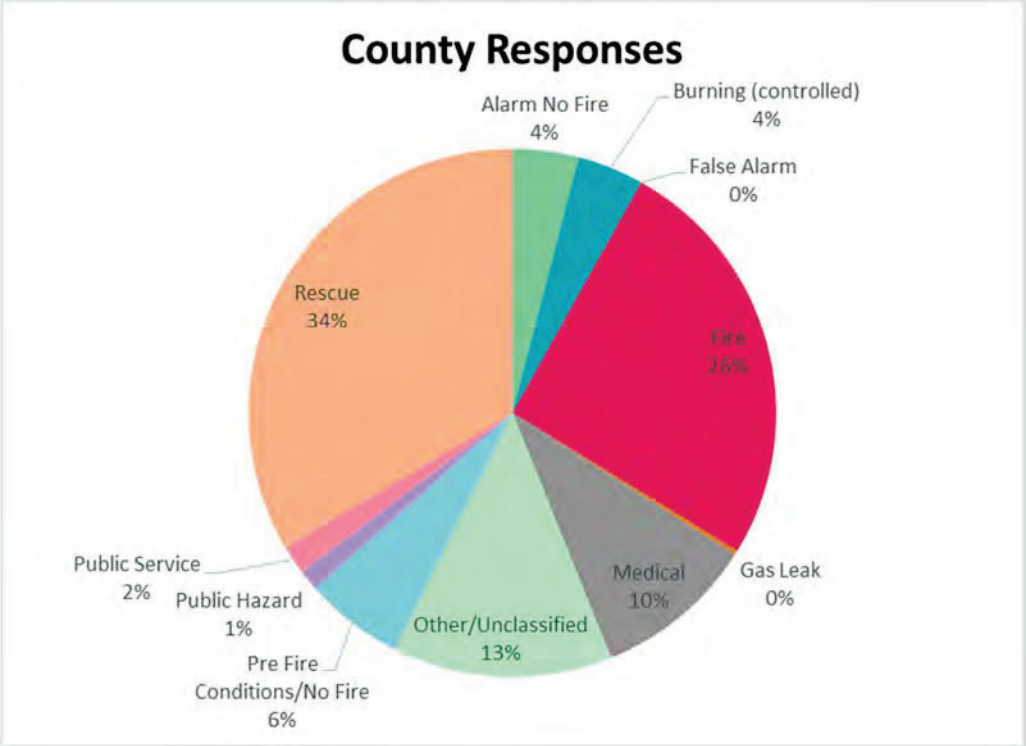


Figure 13: Call Volume by Response Type – County Responses (2015-2017)



10.12 Time Assessment (2015-2017)

10.12.1 Dispatch Time

As identified previously in this F.S.M.P., the Town contracts fire dispatching to the City of Red Deer. The applicable performance benchmarks for assessing dispatch time is contained within the ***N.F.P.A. 1221 – Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems (2016)*** that includes the following (Section 3.3.41):

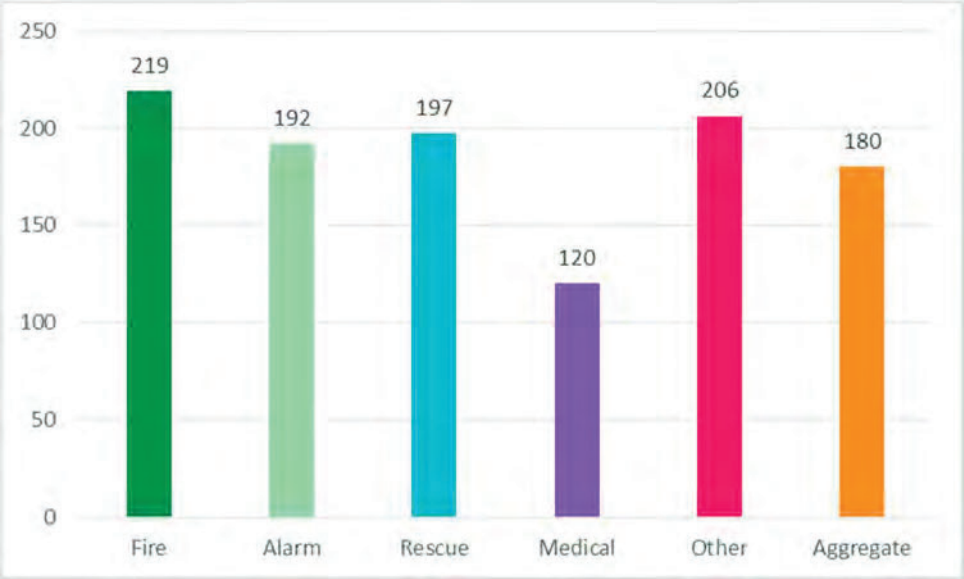
"Emergency Alarm Processing / Dispatching: A process by which an alarm answered at the communications centre is transmitted to emergency response facilities (E.R.F.s) or the emergency response units (E.R.U.s) in the field."

Identified in Section 7.4.2 of N.F.P.A. 1221 Standard, the applicable performance benchmarks for the O.F.D. include:

- •90% of emergency alarm processing shall be completed within 64 seconds; and,
- •95% of alarm processing shall be completed within 106 seconds.

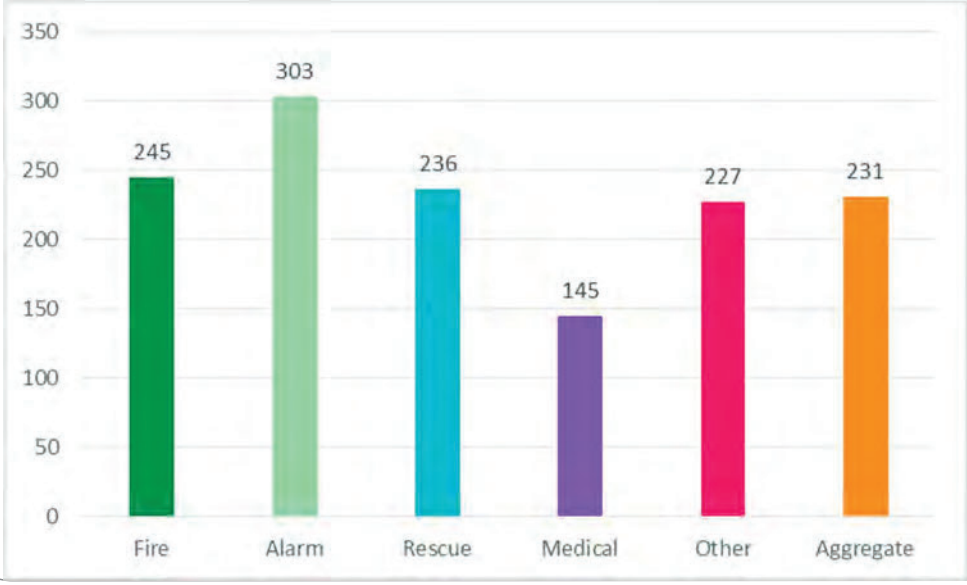
Figure 14 presents the analysis of all call types (fire, alarm, rescue, medical and other) occurring for the period from 2015 to 2017 which indicates that the 90th percentile aggregate dispatch times for the O.F.D. is 180 seconds (or three minutes) compared to the N.F.P.A. standard of 64 seconds. Over this period the aggregate dispatch time exceeds the N.F.P.A. benchmark by 116 seconds.

Figure 14: 90th Percentile Dispatch Times (2015-2017)



As shown in **Figure 15**, the 95th percentile aggregate dispatch times for the O.F.D. for the period from 2015 to 2017 is 231 seconds (or approximately four minutes) exceeding the N.F.P.A. Standard of 106 seconds by 125 seconds.

Figure 15: 95th Percentile Dispatch Times (2015-2017)



Overall, this analysis indicates that the dispatch times historically provided to O.F.D. are significantly longer than the 90th or 95th percentile performance benchmarks. It is recommended that the dispatch agreement with the City of Red Deer be revised to include N.F.P.A. 1221 standard as a performance benchmark and that the department continue to monitor dispatch performance over time to determine if the currently dispatch services are meeting the long-term needs of the O.F.D. and the Town of Olds.

Operational Recommendation #32: ***That consideration be given to including the performance benchmarks for emergency call taking and dispatch services, identified within N.F.P.A. 1221 - Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems, into current the dispatch service agreement, to be reviewed through a regular process.***

10.12.2 Turnout Time and Travel Time

Turnout Time within the fire service is defined as: "*the time interval that begins from when the emergency response staff receives the required dispatch notification, and ends at the beginning point of travel time."* Turnout times can vary significantly based on the use of either full-time or volunteer (paid on-call response) firefighters. Paid on-call response firefighters must first receive the call to respond (via pager or other device) and travel to the fire station, or the emergency scene. Paid response firefighter turnout times can vary significantly depending on the location and availability of the individual when the call is received. This variable can have a significant impact on a fire department's response time (turnout time + travel time).

Travel Time within the fire service is defined as *"the time interval that begins when a unit is enroute to the emergency incident and ends when the unit arrives at the scene."* The emergency response standards applied to the modelling analysis of this F.S.M.P., taken from N.F.P.A. 1720, assess a ***"response time"*** that is calculated by ***"turnout time + travel time = response time".***

In order to calculate existing turnout and travel times for this analysis, historic emergency call data was assessed for the period from January 1st 2015 to December 31st 2017. The applicable N.F.P.A. 1720 standard targets a minimum of 15 firefighters responding within a nine minute combined turnout + travel time for 90% of emergency calls for the urban area demand zone. For sub-urban and rural area demand zones, the N.F.P.A. 1720 Standard references an 80% performance objective. For reference purposes, we have provided the analysis of turnout + travel times at both the 90th and 80th percentile performance objectives.

Figure 16 illustrates the 90th percentile response times (turnout + travel time) for fire only calls. As shown, 90th percentile response times to fire calls over the period of 2015 to 2017 was 701 seconds. This is higher than the N.F.P.A. target of nine minutes (or 540 seconds). These response times represent the first apparatus arriving on scene. Looking at turnout time specifically for fire calls, the aggregate 90th percentile turnout time is 450 seconds, which leaves 90 (1.5 minutes) seconds for travel time for the first arriving apparatus.

Figure 16: 90th Percentile Response Times – Fire Calls

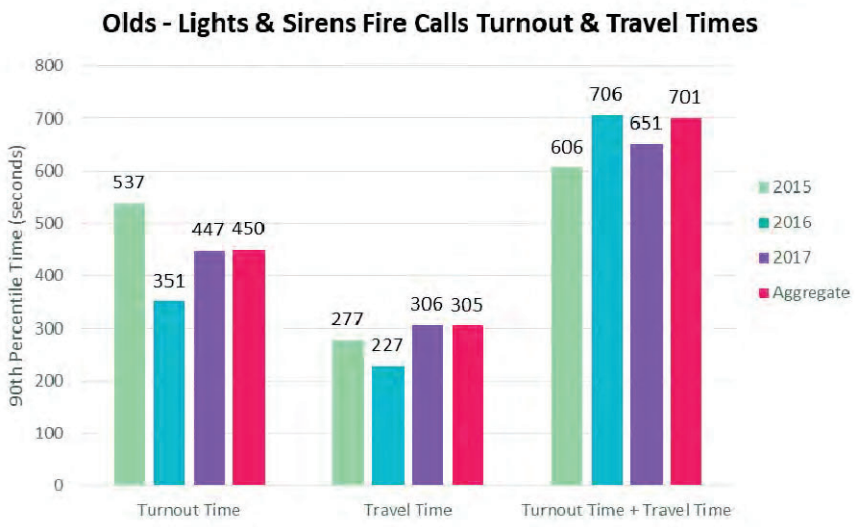


Figure 17 illustrates the 80th percentile response times (turnout + travel time) for fire only calls. As shown, 80th percentile response times to fire calls over the period of 2015 to 2017 was 561 seconds. This is still slightly higher than the N.F.P.A. target of nine minutes (or 540 seconds). These response times represent the first apparatus arriving on scene. Looking at turnout time specifically for fire calls, the aggregate turnout time is 362 seconds, which leaves 178 seconds (almost 3 minutes) for travel time for the first arriving apparatus.

Figure 17: 80th Percentile Response Times – Fire Calls

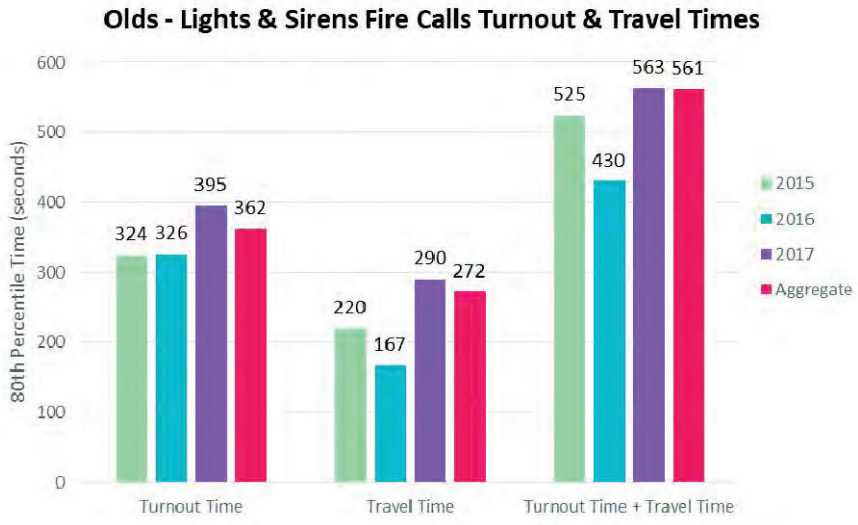


Figure 18 shows the 90th percentile response times (turnout + travel time) for all emergency calls. As shown, the 90th percentile response times to fire calls over the three year timeframe (2015 to 2017) was 754 seconds. This is higher than the N.F.P.A. target of nine minutes (or 540 seconds). The aggregate for

90th percentile turnout time for all lights and sirens (emergency) calls is 521 seconds which leaves only 19 seconds for travel time.

Figure 18: 90th Percentile Response Times – All Emergency Calls

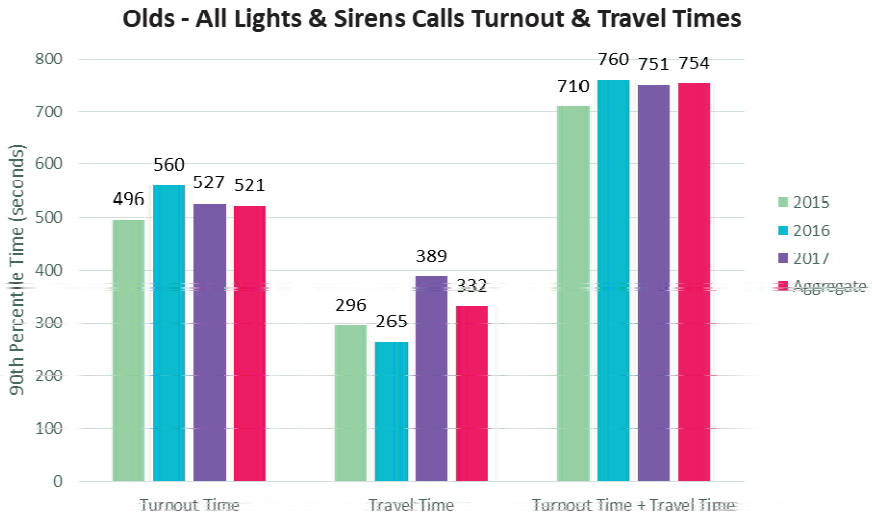
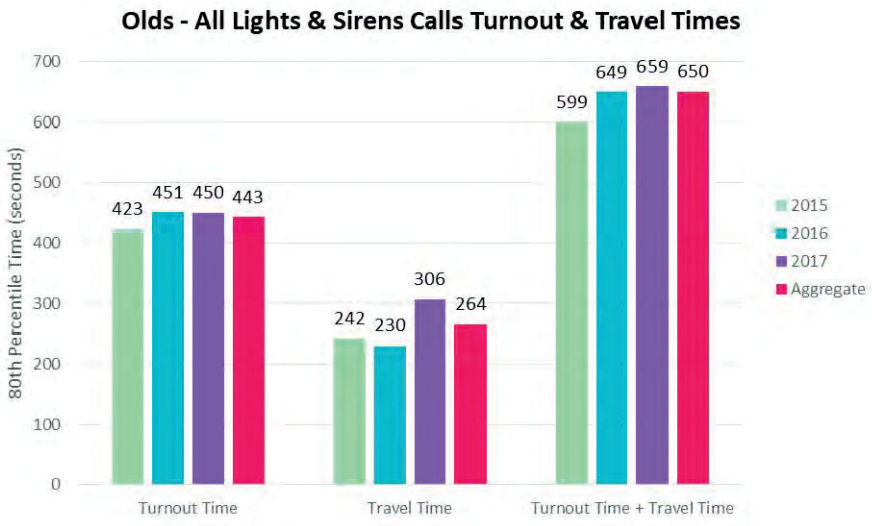


Figure 19 shows the 80th percentile response times (turnout + travel time) for all emergency calls. As shown, the 80th percentile response times to fire calls over the three year timeframe (2015 to 2017) was 650 seconds. This is higher than the N.F.P.A. target of nine minutes (or 540 seconds). The aggregate for 80th percentile turnout time for all lights and sirens (emergency) calls is 443 seconds which leaves 97 seconds (1 minute 37 seconds) for travel time.

Figure 19: 80th Percentile Response Times – All Emergency Calls



10.12.3 Average Personnel Arriving On-Scene

Within the fire service master planning process it is important to understand historical firefighter deployment to compare the average number of personnel arriving on scene to proposed performance objectives of the N.F.P.A. 1720 deployment standard.

Figure 20 summarizes average number of firefighter personnel on scene for 'lights and sirens' emergency calls within the Town of Olds. It shows that on average there are more firefighters on-scene to fire calls than medical or other calls within the Town. This is consistent with what would be expected, based on the nature of fire calls, compared to other call types.

The aggregate average number of firefighters on-scene for fire calls from 2015 to 2017 is nine. This is below the performance measure target (based on N.F.P.A. 1720, urban area demand zone) of 15 firefighters. Implementing strategies to increase the number of firefighters on-scene for fire calls is an important area of focus for the O.F.D. going forward. The staffing strategies presented within this F.S.M.P. aim to increase the available number of firefighters in an effort to increase on-scene staffing and overall sustainability of the paid on-call response model. The staffing resource strategies are outline within ***Section 12.0 – Proposed Staff Resource Strategies.***

Figure 20: Average Personnel On-Scene: Olds

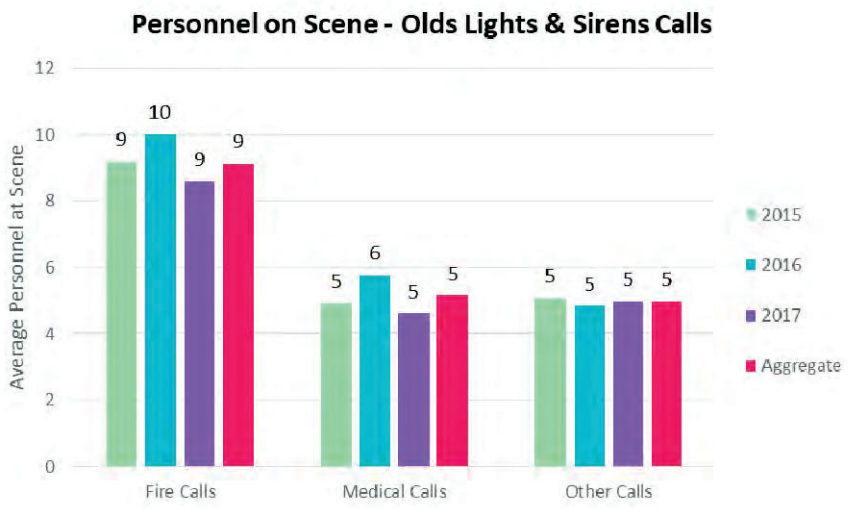
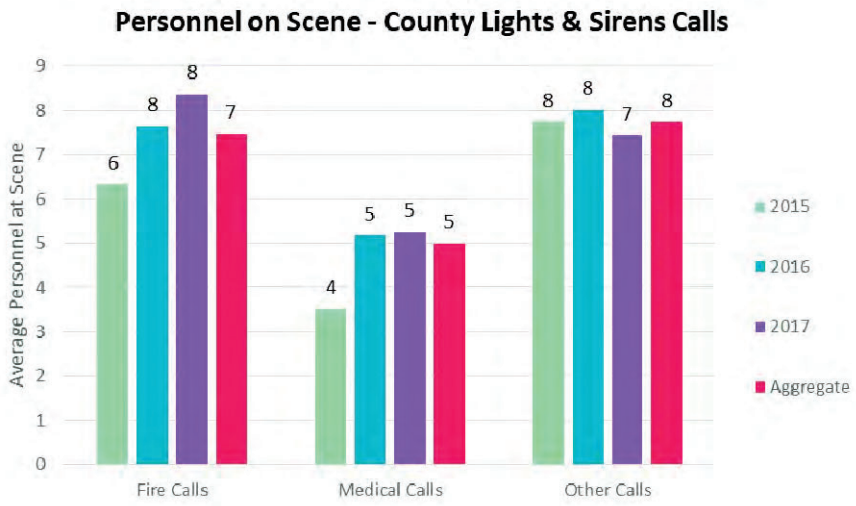


Figure 21 summarizes average number of firefighter personnel on-scene for 'lights and sirens' (emergency) calls responded to by O.F.D. in the County. It shows that historically (2015 to 2017) on average there have been more firefighters on-scene for 'other calls' within the County than within the Town. This is likely a reflection of the type of calls that O.F.D. typically responds to most often within the County, such as motor vehicle collisions or auto extrication technical rescue calls. These more complex call types require more personnel on-scene.

For fire calls, the average firefighters on-scene was measured at seven from 2015 to 2017. Again, as noted within the fire calls responded to within the Town of Olds, this is considerably less than the target of 15 firefighters.

Figure 21: Average Personnel On-Scene: County



10.13 Existing Fire Suppression Deployment Capabilities

This section details our analysis of the existing emergency response deployment capabilities of the O.F.D. The analysis was carried out using Esri's Network Analyst, a Geographical Information System (G.I.S.) tool developed specifically for the purpose of assessing networks, such as roads. The modelling scenarios assess the travel time-based response coverage currently experienced within the Town. This analysis is completed in reference to the proposed initial response and depth of response fire suppression performance benchmarks presented within this F.S.M.P. including:

Proposed Initial Response Performance Benchmark: ***A response of a minimum of four firefighters assembled on-scene prior to initiating any interior fire suppression operations***.

Proposed Depth of Response Performance Benchmark: ***A response of a minimum of 15 firefighters assembled on-scene of a structure fire within a combined turnout and travel time of nine minutes***.

10.13.1 Modelling Methodology

Esri's Network Analyst tool was used to create a model of the Town's current road network and simulate the fire suppression response coverage of the O.F.D. to navigate the Town's road network.

G.I.S. layers were provided by the Town for the existing road network. Relevant base road information, such as road length and road classification, was extracted from the G.I.S. data. The historic call locations

for all "lights and sirens emergency response" incidents such as structure fires, vehicle fires and medical calls as designated by the Olds Fire Department's response codes for the period from 2015 to 2017 were utilized to calibrate the model. Lights and Sirens codes are summarized below in **Table 18**. Any calls with a five second or less, or thirty minute or more dispatch time, turn out time or travel time were removed from the data set.

Table 18: Lights and Sirens (Emergency) Call Types

Response Type Description	Response Type
Alarm No Fire - detector activated	Alarm No Fire
Alarm No Fire - smoke or steam mistaken	Alarm No Fire
Alarm No Fire - sprinkler surge or discharge	Alarm No Fire
Alarm No Fire - unknown odours investigated	Alarm No Fire
False Alarm - miscellaneous	False Alarm
Fire	Fire
Gas Leak - natural gas	Gas Leak
Gas leak - response to carbon monoxide detector alarm	Gas Leak
Incident Situation Unclassified	Other/Unclassified
Investigation of smoke	Pre fire conditions/no fire
Medical Assist - Echo	Medical
Medical First Response	Medical
Motor Vehicle Collision	Rescue
Mutual Aid Request	Other/Unclassified
Outside Fire - Investigation	Pre fire conditions/no fire
Public Hazard - Electrical	Public Hazard
Public Hazard - gasoline or fuel spill (standby situation)	Public Hazard
Public Hazard - miscellaneous	Public Hazard
Public Service - citizens trapped in elevators	Public Service
Public Service - miscellaneous	Public Service
Rescue - miscellaneous	Rescue
Rubbish or grass fire (no dollar loss)	Fire

These types of calls represent incidents where the department operating guidelines require the use of all emergency lights and warning systems therefore representing the most consistent and expedited type of responses. These emergency calls were then added to the network and coded based on travel

time to reach the call. An iterative process was applied to assess the speeds throughout the road network to calibrate the model to reflect historic travel times and emergency response performance of the first responding apparatus for all calls with an emergency response code.

Table 19 identifies the current posted speeds (coded within the road network G.I.S. file) and the modelled road speeds applied within the calibrated road network. The G.I.S. calibrated model was then used to assess fire suppression response in reference to the proposed performance benchmarks.

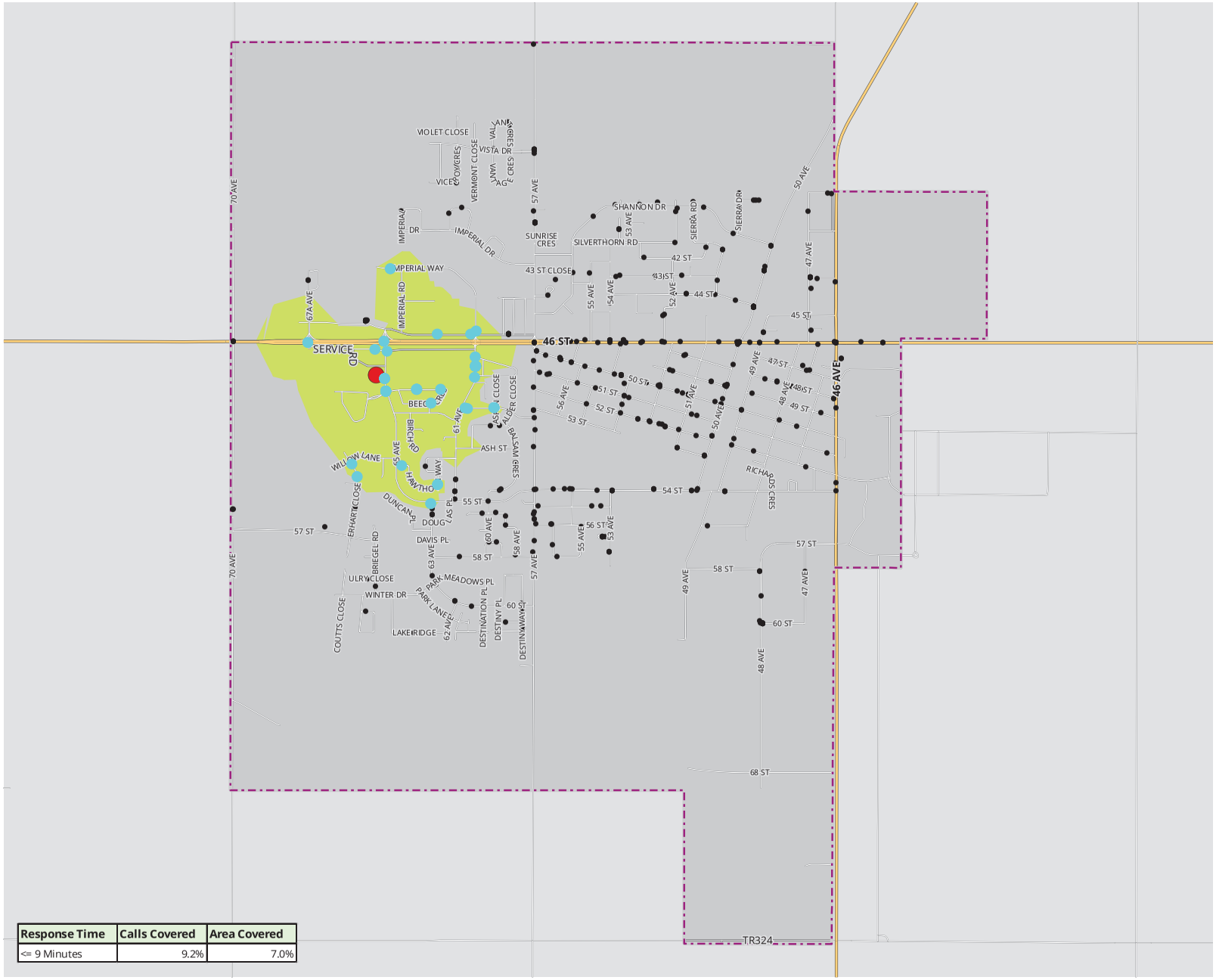
Table 19: Model Calibration

Posted Speed Limit (kilometres per hour)	Modelled Speed (kilometres per hour)
80	60
50	34.5
30	25
10	10

10.14 Existing Initial Response Capabilities

The existing initial response capabilities of the O.F.D. were assessed in comparison to the proposed Initial Response Fire Suppression Performance Benchmark including a "***response of a minimum of four firefighters assembled on scene prior to initiating any interior fire suppression operations".*** Department Standard Operating Guideline - ***RR011 Apparatus Deployment and Staffing*** designates that this initial responding apparatus will be staff with a minimum of four firefighters responding to all emergency calls defined as "Lights and Sirens".

Our analysis indicated that for the period of time from 2015 to 2017 the 90th percentile turnout time of the initial responding apparatus was *450 seconds (7.5 minutes).* This is the first responding apparatus only. This leaves a travel time for this performance benchmark of 90 seconds (1.5 minutes) from the fire station. **Figure 22** illustrates the locations of the historical emergency calls for the period from 2015 to 2017 and indicates that the initial responding apparatus ***is currently able to cover 7.0% of the Town's geographical area***, and ***9.2% of the historical emergency incidents*** within the Town within 1.5 minutes of travel time. This provides an existing benchmark from which the department can measure continuous improvement as the strategies from this F.S.M.P. are implementing with the goal of enhancing the capacity of the department and improving the effectiveness and the sustainability of the department's fire protection capabilities.



Response Time	Calls Covered	Area Covered
<= 9 Minutes	9.2%	7.0%

FILE LOCATION: I:\GIS\199296 - Olds Fire Master Plan\mxd\NFPA 1720 Urban Standard.mxd

TOWN OF OLDS

FIRE MASTER PLAN AND
COMMUNITY RISK ASSESSMENT

Existing Initial Apparatus Depth of Response

FIGURE 22

- Historic Call Location (2015-2017)
- Fire Station
- Town Boundary
- 9 Minute Response Time

1:20,000

0 250 500 1,000 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY GOVERNMENT OF ALBERTA,
TOWN OF OLDS

MAP CREATED BY: GM
MAP CHECKED BY: SC
MAP PROJECTION: NAD 1983 UTM Zone 12N

DILLON CONSULTING

PROJECT: 19-9296
STATUS: DRAFT
DATE: 2019-09-10

10.14.1.1 Data Collection for Depth of Response Monitoring

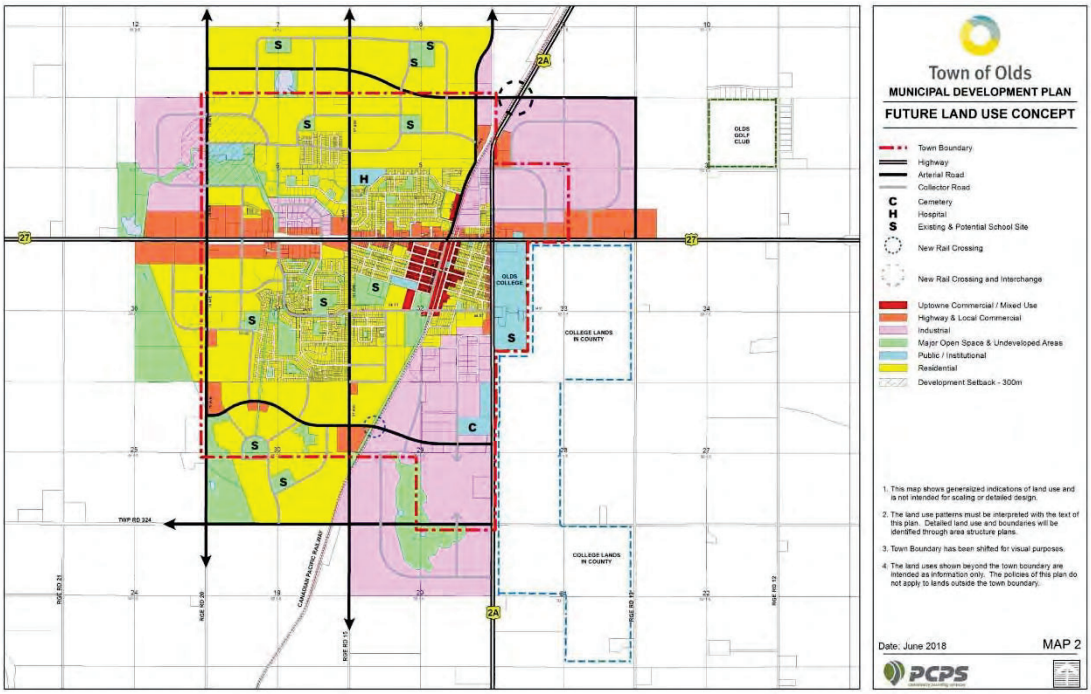
In order to assist with the future monitoring and analysis of the department's depth of response capabilities the department should collect statistics relating to the time each responding apparatus and or each responding firefighter arrives on-scene. This will provide the level of detail required to assess the department's actual performance against the Depth of Response Fire Suppression Performance Benchmark of *15 firefighters arriving on-scene within a combined turnout and travel time of nine minutes.* It is our understanding that as result of the data collection process of this F.S.M.P. the department has already made improvements to the data collection methods using its records management platform FirePro2.

Operational Recommendation #33: That consideration be given to initiating a process to collect detailed statistics in regards to the on-scene arrival times of all responding apparatus and all responding fire department personnel for all emergency calls.

10.15 Future Growth Considerations

Future growth consideration for the Town are informed by the 2018 Municipal Development Plan introduced in **Section 4.2**. The Town identified that for the purposes of this study it was appropriate to reference the Future Land Use Concept presented in the 2018 Draft MDP as shown in **Figure 23**. The future land use concept shows areas within and beyond the current municipal boundary that are slated for growth.

Figure 23: Future Land Use Concept (Draft MDP 2018)

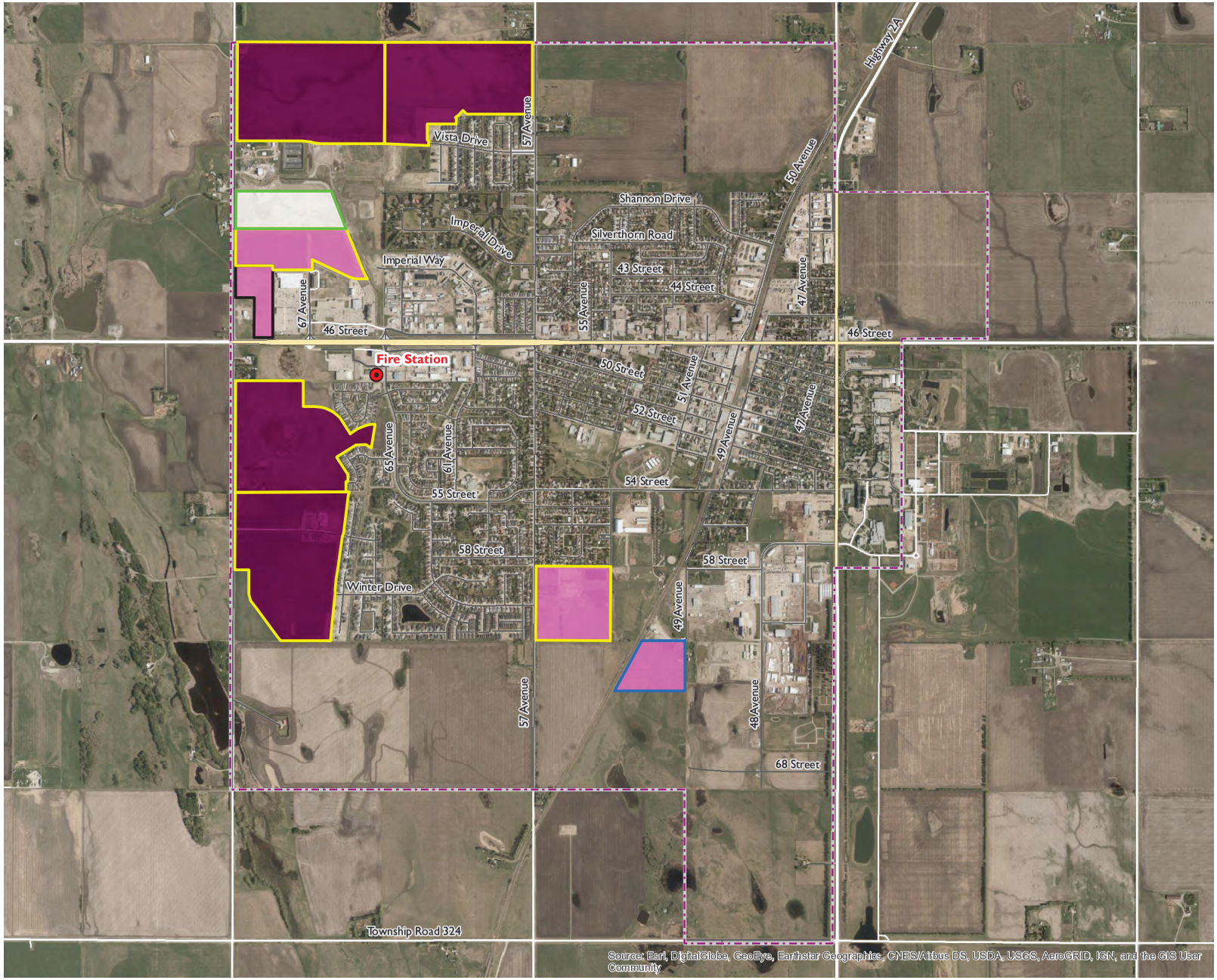


To support the analysis of the current and future fire suppression services provided by the O.F.D., the Town identified the future growth slated to occur within the Town boundaries over the short-term (1 to 3 years) and medium-term (5 year) horizon as shown in **Figure 24**. Most of the development will be residential and will occur over the medium-term. Some short term industrial development is anticipated to occur west of 49 Avenue. In addition, some mixed-use development will occur over the short term at the intersection of 46 Street and 70 Avenue and just north of that site there is recreational development currently underway. The satellite imagery shown in **Figure 24** shows where the Town can occur over a longer term horizon. It will be important for the Town to monitor the timing and pace of growth as it works to implement the recommendations within this F.S.M.P.

10.15.1 Fire Protection Services for Future Growth Areas

The growth and development areas identified within the horizon of this F.S.M.P. are nearly all located in the western half of the Town's geography or central within the Town (one short-term residential development and one short-term industrial development). It is anticipated that these new growth areas can be well-served from the existing fire station location once planned road infrastructure with sufficient connections are introduced to serve these areas.

The new residential growth will increase the demand within the Town for public education program delivery, with the addition of new residents. The recreational and industrial developments will increase the need for fire prevention activities, such as fire safety inspections and pre-planning.



TOWN OF OLDS

FIRE MASTER PLAN AND
COMMUNITY RISK ASSESSMENT

Future Growth and Development Considerations

FIGURE 24

- Town Boundary
- Fire Station
- Local
- Collector
- Highway

Future Land Uses

- Industrial
- Mixed Use
- Recreational Use
- Residential

Future Development Horizons

- Under Development
- Short Term (1-3 Years)
- Medium Term (5 Years)

SCALE 1:20,000

0 250 500 1,000 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY GOVERNMENT OF ALBERTA, TOWN OF OLDS

MAP CREATED BY: LK
MAP CHECKED BY: AN
MAP PROJECTION: NAD 1983 UTM Zone 12N

DILLON CONSULTING

PROJECT: 19-9296
STATUS: DRAFT
DATE: 2019-08-06

FILE LOCATION: I:\GIS\199296 - Olds Fire Master Plan\mxd\Fig1_GrowthPlan_v2_Aug2019.mxd

10.16 Fire Suppression Division Summary and Recommendations

The existing fire suppression deployment model of the Olds Fire Department has served the community well for many years. Based on our research the success of this history can be directly attributed to the commitment and dedication of the leadership and paid on call firefighters. The analysis within this F.S.M.P. has identified that the sustainability of the paid on call firefighters operating model is one of the most significant challenges facing the Town today.

It must also be recognized that the Town of Olds has grown from a historical small rural settlement community into a destination place for many of the surrounding communities. In addition, the future of the Town of Olds includes plans for further commercial/industrial growth and the expansion of residential development. The analysis within this F.S.M.P. and companion Community Risk Assessment further illustrate both the existing and future challenges the O.F.D. faces in providing the most effective and efficient level of fire services based on fire risks.

In comparison to current industry standards for the delivery of fire suppression services in response to identified community fire risk the O.F.D. is currently unable to achieve the level of fire suppression deployment capabilities that would is anticipated. In our view the O.F.D. has just not be able to maintain growth in its capabilities in response to the speed of which growth as occurred within the community.

The strategies and recommendations presented within this F.S.M.P. prioritize the sustainability of the paid on call firefighter model as the primary providers of fire suppression and emergency response services. In support of this strategy this report includes proposed fire suppression performance benchmarks to further monitor and evaluate both the initial and depth response capabilities of the O.F.D.

As a result of the review of the department's Fire Suppression Division the following recommendations are presented for Council's consideration and approval:

Council Recommendations:

Council Recommendation #4: That subject to Council's consideration and approval of the proposed Fire Services Master Plan that the proposed Initial Response Performance Benchmark including the response of a minimum of four firefighters assembled on-scene prior to initiating any interior fire suppression operations be adopted by the Town of Olds.

Council Recommendation #5: That subject to Council's consideration and approval of the proposed Fire Services Master Plan that the proposed Depth Response Performance Benchmark including the response of a minimum of 15 firefighters assembled on-scene of a structure fire within a combined turnout and travel time of nine minutes be adopted by the Town of Olds.

Operational Recommendations:

Operational Recommendation #32: ***That consideration be given to including the performance benchmarks for emergency call taking and dispatch services, identified within N.F.P.A. 1221 - Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems, into current the dispatch service agreement, to be reviewed through a regular process.***

Operational Recommendation #33: That consideration be given to initiating a process to collect detailed statistics in regards to the on-scene arrival times of all responding apparatus and all responding fire department personnel for all emergency calls.

11.0 Emergency Planning

As per the scope of requirements for this Fire Services Master Plan, all aspects of the Olds Fire Department, including its emergency management program, were assessed.

The legal framework for managing emergencies in Alberta is established within the *Emergency Management Act*, current as of November 19th, 2018. It is complemented by several regulations including:

- *Alberta Regulation 248/2007 - Government Emergency Management Regulation;*
- *Alberta Regulation 51/1994 - Disaster Recovery Regulation; and*
- *Alberta Regulation 203/2018 - Local Authority Emergency Management Regulation.*

Under the *Act*, the Lieutenant Governor in Council has authority to make regulations with respect to the duties, functions and responsibilities required of local authorities. Local authorities are responsible for the direction and control of local emergency response and have the authority to approve emergency plans and programs. Local authorities may also enter into agreements with external parties for emergency plan and program development and implementation.

Alberta Regulation 203/2018, made under the *Emergency Management Act*, lays out the minimum standards required by municipalities for emergency management programs. This regulation comes into force January 1, 2020. Some key elements of this regulation include:

- Appointing an emergency advisory committee and emergency management agency by bylaw;
- Completing annual mandatory emergency exercises;
- Completing prescribed training established by the Alberta Emergency Management Agency; and
- Developing an emergency plan that includes a hazard and risk assessment.

11.1 Town of Olds Emergency Response Plan

The Town's Emergency Response Plan (E.R.P.) was last updated in January of 2019. It is a comprehensive tool that assists emergency personal and users of the plan in their collective response efforts. The plan follows Incident Command System (I.C.S.) structure (which defines the roles and responsibilities of all personnel involved in incident management and provides standardized organizational structures, functions, processes and terminology for use at all levels of emergency response). The E.R.P. is complete with all Incident Command forms for easy comprehension and accessibility. Within the plan, there are a number of hazard-specific sub-plans, as well as an extensive list of resources (inclusive of 24-hour contact information) upon which the Town can call for support during an emergency event. Some of these resources include local partners such as Samaritans Purse, St. John Ambulance, Canadian National Baptist Convention, Mennonite Disaster Service; Salvation Army Emergency Disaster Service; Canadian Red Cross, and the Christian Reformed World Relief Committee.

Olds is also a member of the Mountain View Regional Emergency Management Agency (M.V.R.E.M.A.). The M.V.R.E.M.A. was established through agreements between six municipalities (Carstairs, Cremona, Didsbury, Olds, Sundre and Mountain View County) for the purpose of coordinating unified emergency preparedness, response and recovery efforts within the entire County. Within the parameters of this partnership, Olds provides support to the other municipalities with regards to Emergency Social Services (E.S.S.). The Olds E.R.P. contains an entire chapter dedicated to E.S.S. functions, resources and volunteer coordination.

The Town is well positioned to be in compliance with new Alberta Regulation 203/2018. Bylaw No. 2007-31 establishes the municipal emergency management agency and the Town regularly conducts exercises with the regional emergency management agency. Research into preparing this F.S.M.P. indicates that the E.R.P. has been updated substantially in the last twelve months by the Deputy Fire Chief (Director of Emergency Management) and that training has taken place. It is recommended that the O.F.D. continue to train staff in their Incident Command functions on a regular basis to familiarize all municipal staff with respect to their position, roles and responsibilities as outlined in the plan.

Operational Recommendation #34: That further consideration be given to developing an ongoing Emergency Planning training strategy for members of Council and Town of Olds staff.

11.2 Emergency Planning Summary and Recommendations

The Emergency Planning review completed within this F.S.M.P. concludes that the Town is currently meeting its legislative requirements set out within the *Emergency Management Act*. The following emergency management recommendation supports the need to ensure a safe, healthy and resilient community.

Operational Recommendations:

Operational Recommendation #34: That further consideration be given to developing an ongoing Emergency Planning training strategy for members of Council and Town of Olds staff.

12.0 Proposed Staff Resource Strategies

The Olds Fire Department is at a point of transition. The Town is experiencing continued growth, which increases the demands for service on the fire department. Management of the department requires a workload level that is currently exceeding the capacity of the full-time Fire Chief position and the existing support positions. The workload demands on the paid on-call members, both in leadership roles within the department and to facilitate the delivery of services including those related fire prevention, public education and fire suppression services has increased to the point where burnout symptoms are visible across the department. The sustainability of the paid on-call fire department model is at a point where considerations are required to add capacity through such strategies as additional full-time resources and alternate staffing model options.

The growth and transition of the department will need to occur strategically in order to be fiscally achievable for the Town. The proposed staff resource strategies have been developed to enhance the level of fire protection services being provided by the O.F.D. through prioritization of the findings of the Community Risk Assessment, application of the ***"three lines of defence"*** and in support of the proposed strategic priorities presented within this F.S.M.P. The proposed staff resource strategies are intended to recognize the current fiscal capabilities of the Town while balancing the need for providing an effective and efficient level of fire protection services that provides the most vale to the community.

The proposed staff resource strategies have been designed to provide the maximum optimization of additional staff resources through the use of multi-tasking wherever possible. This includes the need for enhancing the training and qualifications of staff to be diverse and enhance the department's ability to assign the ***"right person doing the right work."*** This F.S.M.P. includes proposed department management team, and department organizational structures to further illustrate the staff resource recommendations presented within this section.

In addition, through our experience working with paid on-call and volunteer fire departments across Canada, we have observed successful models of utilizing committees to oversee various organizational needs. In our view there is opportunity within the Olds Fire Department to engage an organizational committee structure to improve the effectiveness and efficiency of the department. Under the proposed committee structure, each committee would be chaired by either a full-time senior officer (e.g., Fire Chief or Deputy Fire Chief) or P.O.C. senior officer (e.g., proposed P.O.C. Assistant Chief positions). This structure is intended to provide a necessary link between the proposed full-time management team and the P.O.C. members of the department. The implementation of the committees needs to consider the available capacity of department members, and should be timed to align with the addition of full-time resources to the department.

The proposed organizational committees and related structures are proposed as follows:

- ✓ Proposed Standard Operating Guideline Committee;
- ✓ Proposed Fire Prevention / Public Education Committee;
- ✓ Proposed Training Committee; and
- ✓ Proposed Apparatus and Equipment Committee.

12.1 Proposed Administration Division Staff Resource Strategy

12.1.1 Proposed Administration Support

The current Administrative Assistant position is 0.8 of a full-time position. This position currently provides essential administrative support to the Fire Chief. As identified within this F.S.M.P. the Fire Chief role is currently over-loaded and operating beyond capacity. There is potential for the Administrative Assistant position to be expanded, both in function and working time, to provide added support to the Fire Chief and allow for additional tasks to be delegated from the Fire Chief's workload. This requires expanding the job description to include such duties as financial administration, financial monitoring, budget input, budget tracking, and asset management tasks. The role could also be expanded to act as a liaison between Town departments, represent the department for community engagement and promotional activities and monitor and update department websites. Purely administrative support work could be delegated to the department's auxiliary members, to assist with the balance of workload. The first part of this strategy includes increasing the administrative support role to a 1.0 full-time position. The second part of the strategy is to enhance and expand the roles and functions of the position by selecting the appropriate job-title and related job-description from the Town of Old's administrative positions grid, such as 'Office Administrator'.

Council Recommendation #6: That consideration be given to prioritizing the transition of the existing 0.8 FTE administrative support position within the Olds Fire Department to a full-time equivalent position, and revising the roles and responsibilities of this position to align more closely with a position such as a corporate Office Administrator.

12.1.2 Proposed Full-time Deputy Fire Chief of Operations and Training

The analyses within this F.S.M.P. outlines the existing workload challenges facing the Full-time Fire Chief in managing the entire department and all associated direct reports. There was also noted concern regarding the Fire Chief filling the only full-time management role and consistently being expected 'on-call' after hours throughout the year, with no scheduled relief or alternate coverage. There is also a noted challenge with workload demands and capacity limitations within the Training Division in the current model where all roles are filled by paid on-call personnel. As noted in the Training Division review within this F.S.M.P., increasing demands related to recruitment and retention, firefighter certification and training, company officer training, as well as the dual-role held by Training Division staff in also responding to emergency calls will further challenge the department in sustaining the current P.O.C. firefighter model. This staffing resources strategy also recommends increasing the complement

of paid on-call firefighters which will further increase workload for the Training Division and increase the number of direct reports within the Fire Suppression Division.

The department is also challenged today, under the P.O.C. model, to achieve emergency response staffing levels on-scene during weekday (Monday to Friday) daytime hours. Adding full-time resources to the department who work in the station during these same weekday, daytime hours, provides additional resources to support the emergency response operations.

In our view one of the most proactive and effective strategies the Town of Olds can implement to sustain this preferred P.O.C. firefighter operating model is a highly qualified and integrated fire department management team. As there is a direct connection between firefighter training and fire suppression, this F.S.M.P. is recommending the full-time position of Deputy Fire Chief of Operations and Training to further develop the leadership of integration between supporting training programs and fire protection service levels. At a minimum the successful candidate in this position should be required to have the N.F.P.A. 1041 - Instructor Level II accreditation. The portfolio of this individual should aim to relieve workload challenges from the Fire Chief, current P.O.C. Deputy Chiefs and the P.O.C. Training Officer.

Council Recommendation #7: That consideration be given to hiring a full-time Deputy Fire Chief of Operations and Training as presented within the proposed Fire Services Master Plan.

12.1.3 Proposed Full-time Deputy Fire Chief of Fire Prevention and Public Education

The strategic priorities presented within this F.S.M.P. focus on enhancing the overall effectiveness and efficiency of the fire protection services provided by the O.F.D. through use of the Community Risk Assessment, optimization of public education and fire prevention programs and through sustaining the paid on-call model. During the development of the F.S.M.P. the O.F.D. added capacity to the department's Fire Prevention and Public Education Division through the hiring of a full-time Fire Inspector. This position is dedicated to conducting fire safety inspections and code enforcement within the Town. In order to strategically enhance the department's overall prevention and education program development, there is a need to add further senior fire inspection and public education programming capacity, and broader management and leadership skills to these areas.

As referenced throughout this F.S.M.P., there is also a need to address the existing workload of the Fire Chief. Adding the Deputy Fire Chief of Operations and Training position will assist in offloading some of the tasks and responsibilities of the Fire Chief, however, there will still be a need to delegate department roles in order to free up the Fire Chief for strategic, corporate leadership of the department. In our experience, this need to balance workload is a common result of a fire department that is in transition - responding to community growth and managing a service that is experiencing many new demands e.g., new legislation and certification.

This F.S.M.P. recommends that a position titled Deputy Fire Chief of Fire Prevention and Public Education, with direct responsibility for the Fire Prevention and Public Education Division and a supporting role for assisting the Fire Chief in overall department management, be added to the department's senior officer team. In our view, at a minimum this position should be required to achieve the ***NFPA 1031 – Fire Inspector II*** certification, and when available the ***Fire Inspector III*** certification. This F.S.M.P. includes a proposed organizational structure to identify the proposed staff resource reporting structure to align with this recommendation.

It is anticipated that the contracted fire inspector position would be replaced by this role. The salary and benefits of the full-time position could be off-set by the current costs of the contracted fire inspector position.

One of the key roles of this position would be coordinating the proposed Public Relations Policy including enhancing the use of the department's website, use of Facebook and Twitter as tools in enhancing the department's public education fire safety programming.

As with the other recommended Deputy Fire Chief position, this role would provide emergency response, as required, during the weekday daytime period. There would also be a need to revise the management on-call schedule to be divided between the roles of Fire Chief, Deputy Chief of Training and Operations and Deputy Chief of Fire Prevention and Education.

Council Recommendation #8: That consideration be given to hiring a full-time Deputy Fire Chief of Fire Prevention and Public Education as presented within the proposed Fire Services Master Plan.

12.1.4 Proposed Revised Paid On-Call Deputy Fire Chiefs

To coincide with the implementation of the proposed full-time Deputy Fire Chief positions, there will be a need to revise the reporting structure of the department, revise some of the existing position titles and redistribute workloads and responsibilities. This is depicted in **Figure 25**.

As discussed within this F.S.M.P., the current P.O.C. Deputy Fire Chiefs play a key role in the management of the department. The existing portfolios and responsibilities of these positions are significantly broader than that of a typical paid on-call role. In order to manage the workload challenges of these positions, it is recommended that some of the existing portfolio items will be transferred to proposed full-time Deputy Fire Chief roles. It is also recommended that the existing P.O.C. Deputy Fire Chief positions be retitled 'Assistant Deputy Chief' positions as part of the transition to the recommended department structure.

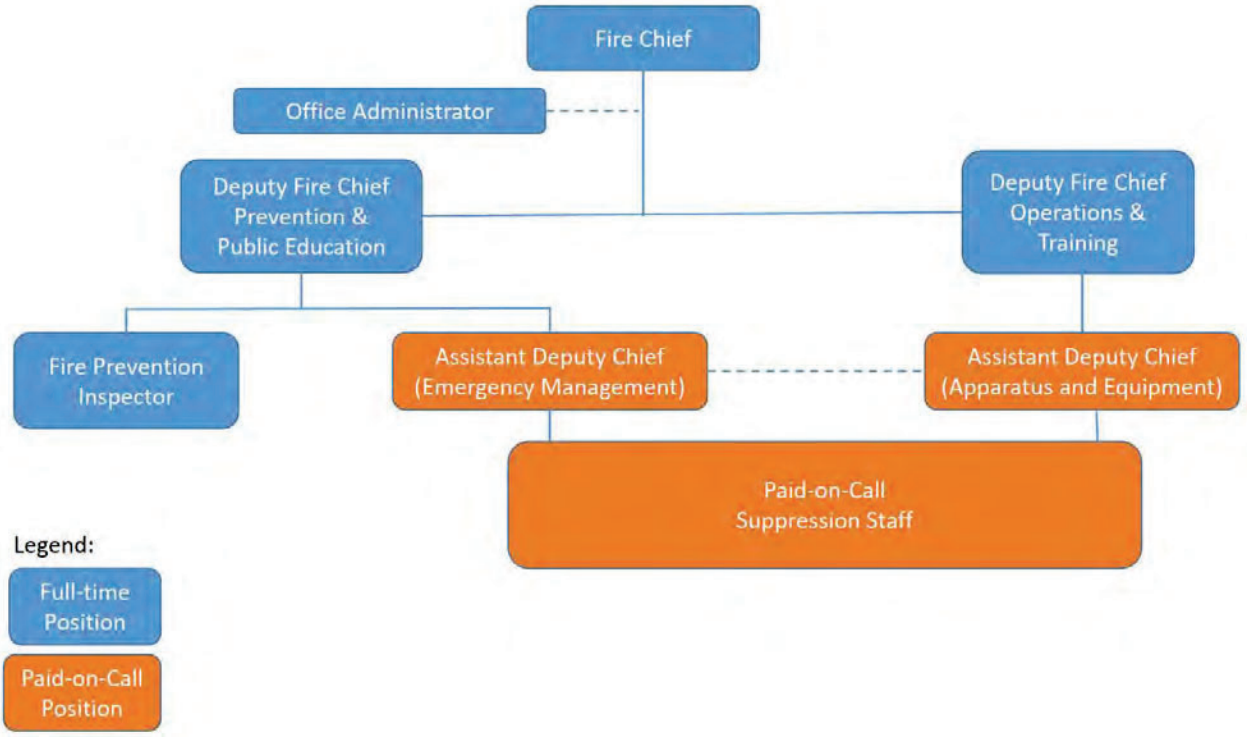
It was recognized within the analysis of this F.S.M.P. that the existing P.O.C. Deputy Fire Chief of Emergency Management, Recruitment and Retention has recently provided significant leadership to the Emergency Management portfolio. Assuming the current individual holding the position of P.O.C.

Deputy Fire Chief of Emergency Management, Recruitment and Retention was to transition to and hold the P.O.C. Assistant Deputy Chief position, we would recommend that the Emergency Management portfolio remain with the individual. Similarly, for the P.O.C. Deputy Fire Chief of Operations, Apparatus and Equipment, there would be value in maintaining the Apparatus and Equipment portfolio with this position, as long as the current individual maintains the P.O.C. Assistant Deputy Chief role.

In the event that the individuals currently holding the P.O.C. Deputy Fire Chief positions do not assume and maintain the role of P.O.C. Assistant Deputy Chief, the portfolios of these positions could be reassessed and balanced by the Fire Chief with consideration of the available staff at the time. It is especially important with paid on-call roles to ensure that the portfolios reflect the skills, competencies and interests of the individuals filling the roles.

Council Recommendation #9: That consideration be given to revising the roles and responsibilities of the current Paid on Call Deputy Fire Chiefs as recommended by the proposed Fire Services Master Plan.

Figure 25: Proposed Management Team and Full-time Positions



12.1.5 Proposed Standard Operating Guideline Committee

The proposed Operating Guideline Committee would be chaired by either the Fire Chief or the P.O.C. Assistant Deputy Chief of Emergency Management. The purpose of this committee would be to provide coordinated leadership and oversight of reviewing and updating all department operating guidelines. This committee would include a representative group of P.O.C. officers and firefighters. These

documents would incorporate and include a comprehensive and overriding operational and administrative structure of the Olds Fire Department. The proposed Standard Operating Guideline Committee would be required to benchmark and follow the principles of N.F.P.A., O.H.S. Act, municipal policies and procedures and the best practices within the fire service. Further, this Committee would be responsible for ensuring new policies and operating guidelines well as changes to existing policies and operating guidelines are communicated to all fire department personnel.

Operational Recommendation #35: That consideration be given to implementing the proposed Standard Operating Guideline Committee presented within the proposed Fire Services Master Plan.

12.2 Proposed Fire Prevention and Public Education Division Staff Resource Strategy

12.2.1 Proposed Full-Time Deputy Fire Chief of Fire Prevention and Education

As outlined above in ***Section 12.1.3,*** this F.S.M.P. proposes to add a full-time Deputy Fire Chief of Fire Prevention and Public Education to the Olds Fire Department. This position would provide direct supervision and leadership to the Fire Prevention and Public Education Division. Within this position the proposed Deputy Fire Chief of Fire Prevention and Public Education would facilitate a key role in the delivery of the proposed fire inspection and public education performance objectives, including actively conducting the higher risk fire inspections, fire investigations and implementing the proposed Fire Prevention Policy.

12.2.2 Proposed Fire Prevention and Public Education Division Training Qualifications

At a minimum, all staff resources **conducting fire inspections** should have the skills and competencies included within the ***N.F.P.A. 1031 – Fire Inspector Level I***. Fire inspections involving more complex issues and requiring interpretation of various legislation and codes are recommended to have the Level II designation. **Table 20** summarizes the different fire inspector designations included within the N.F.P.A. 1031 standard.

Table 20: N.F.P.A. - 1031 Standard Fire Inspector Designations

Fire Inspector	N.F.P.A. 1031 Standard
Fire Inspector I	An individual at the first level of progression who has met the job performance requirements specified in this standard for Level I. The Fire Inspector I conducts basic fire inspections applies codes and standards.
Fire Inspector II	An individual at the second or intermediate level of progression who has met the job performance requirements specified in this standard for Level II. The Fire Inspector II conducts most types of inspections and interprets applicable codes and standards.
Fire Inspector III	An individual at the third and most advanced level of progression who has met the job performance requirements specified in this standard for Level III. The Fire Inspector III performs all types of fire inspections, plans review duties, and resolves complex code-related issues.

Staff responsible for conducting **fire investigations** should have the skills and competencies included in ***N.F.P.A. 1033- Standard for Professional Qualifications for Fire Investigator***. **Table 21** summarizes the different fire investigator designations included within the N.F.P.A. 103.3 standard.

Table 21: N.F.P.A. 1033 Standard for Professional Qualifications for Fire Investigator

Fire Investigator	N.F.P.A. 1033 Standard
Fire Investigator	An individual who has demonstrated the skills and knowledge necessary to conduct, coordinate and complete fire investigations.

At a minimum, all staff resources responsible for developing and delivering **public education programs** should have the skills and competencies included within the ***N.F.P.A. 1035 – Fire and Life Safety Educator I***. **Table 22** summarizes the different public education designations included within the N.F.P.A. 1035 standard.

Table 22: N.F.P.A. - 1035 Standard for Public Education Designations

Fire and Life Safety Educator	N.F.P.A. 1035 Standard
Fire and Life Safety Educator I	The individual who has demonstrated the ability to coordinate and deliver existing educational programs and information.
Fire and Life Safety Educator II	The individual who has demonstrated the ability to prepare educational programs and information to meet identified needs.
Fire and Life Safety Educator III	The individual who has demonstrated the ability to create, administer, and evaluate educational programs and information.

It is recommended that the O.F.D. consider the skills and competencies required within the identified N.F.P.A. standards in updating and developing the applicable job descriptions and qualifications required to facilitate the fire prevention and public education services and programs provided by the Olds Fire

Department. In our view these utilization of these standards reflect current municipal due diligence and best practices.

Operational Recommendation #36: That consideration be given to implementing the proposed Fire Prevention and Public Education Division training qualifications presented within the proposed Fire Services Master Plan.

12.2.3 Proposed Fire Prevention and Public Education Committee

Under the leadership of the Deputy Fire Chief of Prevention and Education with the assistance of the existing Fire Prevention Officer and the P.O.C. Public Educator, the purpose of the proposed Fire Prevention and Public Education Committee would be to provide coordinated leadership and oversight of a unified fire prevention and public education program that meets the needs and circumstances of the community. It is expected that this committee would also include membership of the P.O.C. officers and firefighters responsible for delivering fire prevention and public education programs. The structure of the program would incorporate and include the development of a comprehensive and overriding fire prevention program for the O.F.D. The committee would provide input to develop the structure and program elements based on the Town's C.R.A. The proposed Fire Prevention and Public Education Committee would be required to benchmark and follow the principles of N.F.P.A., O.H.S. Act, municipal policies and procedures and the best practices within the fire service.

Operational Recommendation #37: That consideration be given to implementing the proposed Fire Prevention and Public Education Committee presented within the proposed Fire Services Master Plan.

12.3 Proposed Training Division Staff Resource Strategy

12.3.1 Proposed Full-Time Deputy Fire Chief of Operations and Training

O.F.D. has historically been and continues to be supported by a dedicated complement of Paid on-call firefighters resulting in the ability for the Town to rely solely on the response of POC firefighters to provide emergency response services. However, as explored in the Training Division review, increasing demands related to recruitment and retention, firefighter certification and training, company officer training, as well as the dual-role held by Training Division staff in also responding to emergency calls is going to further challenge the O.F.D. in sustaining the current P.O.C. firefighter model.

In our view one of the most proactive and effective strategies the Town of Olds can implement to sustain this preferred P.O.C. firefighter operating model is a highly qualified and integrated fire department management team, with the addition of the two full-time Deputy Fire Chief positions as described above. As there is a direct connection between firefighter training and fire suppression, this F.S.M.P. is recommending the full-time position of Deputy Fire Chief of Operations and Training to further develop the leadership of integration between supporting training programs and fire protection service levels.

12.3.2 Proposed Training Division Qualifications

Ensuring the staff resources delivering the proposed comprehensive training program and training initiatives have the required skill, competencies and certification should be considered a priority of this F.S.M.P. **Table 23** summarizes the different instructor levels included within the N.F.P.A. 1041: Standard for Fire Service Instructor Professional Qualifications.

Table 23: N.F.P.A. 1041 Professional Qualifications

Training Level	N.F.P.A. 1041 Standard
Instructor I	A fire service instructor who has demonstrated the knowledge and ability to: - deliver instruction and effectively from a prepared lesson plan, including instructional aids and evaluations instruments; - adapt lesion plans to the unique requirements of the students and authority having jurisdiction; - organize the learning environment so that learning and safety are maximized; and - meet the record-keeping requirements of the authority having jurisdiction.
Instructor II	A fire service instructor who, in addition to meeting Instructor Level I qualifications, has demonstrated the knowledge and ability to: - develop individual lesson plans for a specific topic including learning objectives, instructional aids, and evaluations instruments; - schedule training sessions based on overall training plan of authority having jurisdiction; and - supervise and coordinate the activities of other instructors.
Instructor III	A fire service instructor who, in addition to meeting Instructor Level II qualifications, has demonstrated the knowledge and ability to: - develop comprehensive training curricula and programs for use by single or multiple organizations, conduct organization needs analyses; - design record keeping and scheduling systems; and - develop training goals and implementation strategies.

At a minimum the internal staff resources delivering firefighter training should have the skills and competencies included within the N.F.P.A. 1041 – Instructor Level I including the Training Assistants. It is our interpretation of the N.F.P.A. 1041 standard that there should be at least one staff resource with a minimum of the Instructor Level II accreditation.

Operational Recommendation #38: That consideration be given to implementing the proposed Training Division training qualifications presented within the proposed Fire Services Master Plan.

12.3.3 P.O.C. Training Officer and Training Assistants (Existing)

The department should continue to maintain the P.O.C. Training Officer position to be trained to N.F.P.A. 1041 Instructor Level II. In addition, the department should continue with the Training Assistant

model to support the delivery of training. The Training Assistants should be trained to a minimum of N.F.P.A. 1041 Instructor Level I.

12.3.4 Proposed Training Committee

Under the leadership of the proposed Deputy Fire Chief of Operations and Training, the purpose of the proposed Training Committee would be to provide coordinated leadership and oversight of a unified department-wide training program within a defined terms of reference approved by the Fire Chief. This committee would include membership of the proposed Full-Time Deputy Fire Chief of Operations and Training, Training Officer, and Assistant Training Officers. This committee would be responsible for delivering the identified firefighter and Company Officer training. The roles and responsibilities of this committee would be to develop the structure and program elements of a comprehensive training program curriculum, including knowledge-based and practical training, sign-off components, and records management. The proposed Training Committee would be required to benchmark and follow the principles of N.F.P.A., Alberta Code of Practice for Firefighters, the National Fire Code – 2019 Alberta Edition, municipal policies and procedures and the best practices within the fire service.

Operational Recommendation #39: That consideration be given to implementing the proposed Training Committee presented within the proposed Fire Services Master Plan.

12.4 Proposed Fire Suppression Division Staff Resource Strategy

The analysis within this F.S.M.P. identifies the current gaps in the department's ability to achieve the proposed fire suppression performance benchmarks and to assemble the target of 15 firefighters on-scene. Our research and observations in preparing this F.S.M.P. conclude that the current fire suppression capabilities of the O.F.D. are insufficient in their capabilities to respond to the current fire risk present within the community based on current industry best practices.

In addition to this performance gap the department is facing further challenges related to the sustainability of the current "paid on-call" fire department model. The paid on-call model inherently has a reduced availability of firefighters during the weekday (Monday to Friday) daytime hours. Due to department turnover, the level of experience within the current paid on-call group is declining more rapidly than the skills and competencies can be replaced.

The proposed operational staff resource strategy has been developed in support of the proposed strategic priorities of this F. S.M.P. These recognize the importance of applying the ***"three lines of defence"*** and not prioritizing fire suppression as the only solution. As such the proposed operational staff resource strategy seeks to optimize the benefits when considering hiring additional full-time staff by enhancing services within multiple divisions of the O.F.D. resulting in an enhanced overall fire safety plan for the community.

This strategy includes the proposed hiring of the full-time management positions presented above, with the skills and competencies to support multiple areas of the O.F.D. service delivery model, including fire prevention, public education, training and fire suppression. This strategy also targets a staff resource approach designed to sustain the utilization of paid on-call firefighters, which is presented below.

12.4.1 Proposed Utilization of Paid On-Call Firefighters

The analysis within this F.S.M.P. indicates that the historical model of a paid on-call firefighters having a service of 15, 20 or 25 years is no longer the norm. In our experience this factor is becoming common across Canada. As referenced within this F.S.M.P. the recruitment and retention of volunteer firefighters is one of the largest challenge within the fire service across Canada.
In our view the O.F.D. has done well to sustain its current complement of paid on-call firefighters. However, the current recruitment and training process are overwhelming the ability of the current staff resources to sustain this model. In our experience this is also not uncommon. In our view the O.F.D. needs to revise its current recruitment and training process to accommodate the fact that there will be an annual turnover rate, and that service commitments may no longer achieve those of the historical experience of the department.

In our view the cost effectiveness and efficiency that the paid on-call volunteer firefighters provide to the Town support the importance of sustaining this model. The analysis within this F.S.M.P. support Council's consideration of the following strategies that target this goal.

12.4.2 Proposed Increase to Total Complement of Paid On-call Firefighters

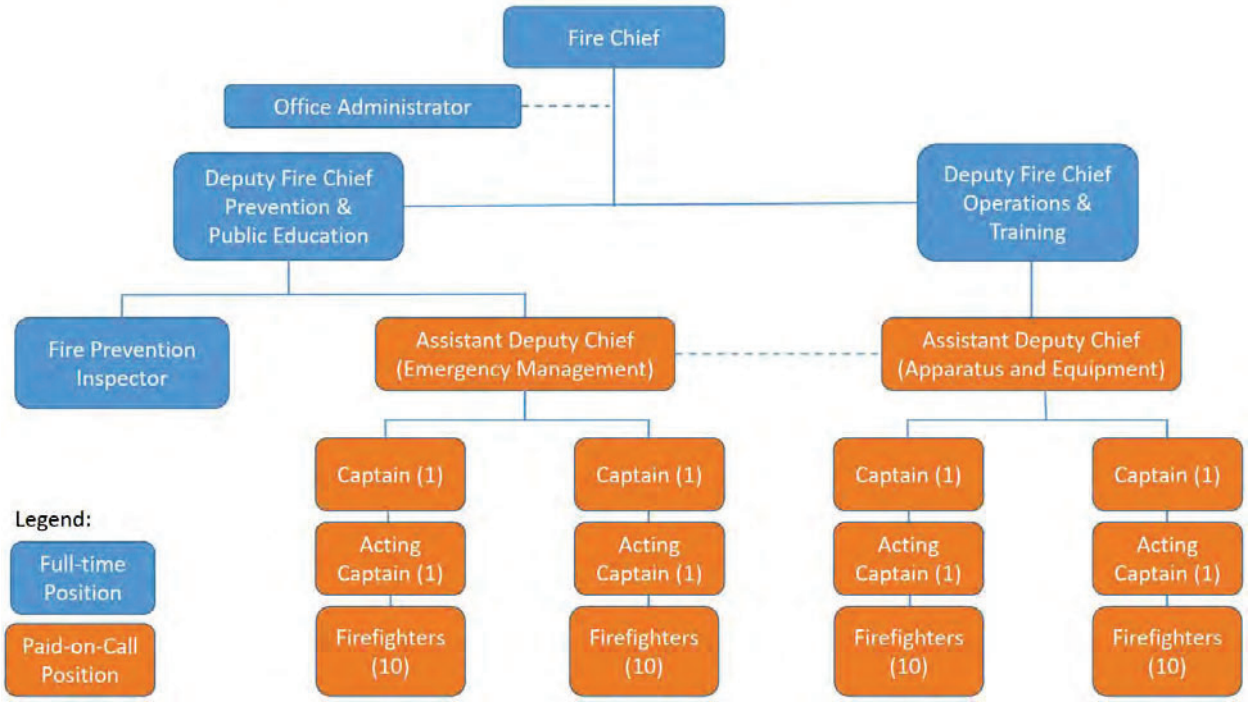
The analysis within this F. S.M.P. identifies an existing gap in the O.F.D.'s ability to assemble the number of firefighters required to achieve the proposed depth of response fire suppression performance benchmark of 15 firefighters arriving on-scene.

Historically paid on-call (or volunteer) fire departments have succeeded with a complement of 25 to 30 volunteer firefighters per station. This complement relied heavily on the availability of these individuals to leave their place of work, live in close proximity to the fire station and be available on a regular basis to train and respond. Today's P.O.C. firefighters are involved in more social activities, work priorities and life's priorities, making it increasingly difficult to commit the time necessary to sustain the required training competencies and response capabilities of a P.O.C. firefighter. As a result, recent trends within the industry are indicating the need to increase the total complement of volunteer firefighters within a fire department. These trends indicate a total complement of 40 to 50 volunteers per station as more reflective of today's operational needs.

Subject to Council's consideration and approval of adding the two full-time Deputy Fire Chief positions, there will still be a need to increase the total pool of paid on-call firefighters to achieve the proposed depth of response fire suppression performance benchmark. Increasing the total number of paid on-call firefighters is the most efficient and cost effective strategy to achieve this goal. It is recommended that

the Town increase the total number of paid on-call volunteer firefighters to 50. It is anticipated that this increase may need to occur incrementally within the short-term horizon, to be a manageable process, including the recruitment element. The proposed structure of the paid on-call complement, and the overall department, is presented below in **Figure 26**.

Figure 26: Proposed Organizational Structure



Council Recommendation #10: That Council consider prioritizing the incremental hiring of 10 additional paid on-call volunteer firefighters to support enhancing the fire suppression services provided by the Olds Fire Department as presented within the proposed Fire Services Master Plan.

12.4.3 Proposed Schedule for Paid On-call Firefighters

The current paid on-call emergency response model within the Town of Olds is exhibiting symptoms of stress and vulnerability. The department currently uses a cell phone-based application (app), Active911, to communicate within the department members who is available to respond to calls and who is actively responding to calls. It was discussed through the consultation component of this F.S.M.P. that, as a result of individual feelings of burnout, some members are using the information shared on Active911 to determine whether or not to respond to certain call types at select times of the day. One such example is for medical calls paged out in the middle of the night where members admitted to the situation of waiting for others to respond on the app and then declining the call. This symptom provides evidence that the current response model requires new approaches and strategies to improve the sustainability of the paid on-call model for the department members.

In our experience implementing a schedule for the paid on-call firefighters can be an effective strategy to support a fire department's initial and depth of response capabilities. An example of the successful strategy is the Township of Centre Wellington's Fire Department, who has utilized this process to sustain its use of volunteer (paid on-call) firefighters. Their fire department currently assigns their volunteer firefighters based on a platoon system consisting of six volunteers assigned to one of six platoons at each of their two fire stations. This represents a total complement of 36 volunteer firefighters at each of their fire stations.

In this model the volunteer firefighters are assigned a schedule on a rotating basis whereby they make a commitment to be readily available to respond to the fire station when altered. In recognition of this commitment the volunteers do receive a small compensation. It is also recognized that if a volunteer firefighter is working during his/her schedule they will not be available to respond. This is managed by the Fire Chief's ability to distribute the volunteer firefighters on their assigned platoons as evenly as possible based on their individual work commitments.

We are illustrating the Centre Wellington volunteer firefighter on-call schedule as what we believe to be a current industry best practice. This scheduling process does provide a higher level of certainty of the number of volunteer/paid on-call firefighters that will be responding at any given time. In our view this is a strategy that would be beneficial to enhancing the current firefighter deployment capabilities of the O.F.D. In addition to recommending that the O.F.D. increase the total number of paid on-call firefighters to 50 we are recommending that the department develop a platoon system, and scheduling process as utilized by the Centre Wellington Fire and Rescue Services.

An important element in the successful implementation of scheduling the paid on-call firefighters is consulting with the current members of the department to determine which elements of the program will and which initiatives will be most effective for the unique circumstances within the Olds Fire Department.

An alternate version to the platooning approach is to rotate through the platoons who are paged out for certain call types that require fewer on-scene staff (e.g., medical calls). In this case, there would be times of relief provided to the members when their platoon was not the one being paged out for these types of calls.

Council Recommendation #11: That the Olds Fire Department consult with the paid on-call firefighters in developing and implementing an on-call schedule as presented within the proposed Fire Services Master Plan.

12.5 Proposed Apparatus and Equipment Staff Resource Strategy

12.5.1 Proposed Paid On-Call Assistant Deputy Chief (Apparatus and Equipment)

As discussed above in ***Section 12.1.4***, it is proposed that the current P.O.C. Deputy Fire Chief Operations, Apparatus and Equipment be transitioned to the role of Assistant Deputy Chief (Apparatus and Equipment) following the implementation of the proposed full-time Deputy Fire Chief of Operations and Training position. The Assistant Deputy Chief would maintain the management of the Apparatus and Equipment portfolio with this position, as long as the current individual maintains the P.O.C. Assistant Deputy Chief role.

12.5.2 Maintain Existing P.O.C. Roles

As presented within the analysis of the Apparatus and Equipment Division, there are existing P.O.C. role managing the division's operations. This includes a Paid On-call Fleet Manager, one P.O.C. firefighter who is an Emergency Vehicle Technician (E.V.T.) certified mechanic, two P.O.C. firefighters who oversee the department's personal protective equipment and two P.O.C. firefighters who are certified C.A.R.E. technicians. These roles seem to be serving the department well. We recommend that these P.O.C. roles and functions be supported and maintained going forward.

12.6 Proposed Staff Resource Strategies Recommendations

In our view the implementation of the proposed full-time management team structure and corresponding proposed organizational structure for the Olds Fire Department form critical elements of supporting the strategic priorities presented within this F.S.M.P. and the organizational objective of sustaining the utilization of paid on-call firefighters as the primary providers of fire suppression services in the Town of Olds.

These proposed staff resource strategies are intended to assist the Olds Fire Department in sustaining the P.O.C. response model for as long as possible. Following the exhaustion of these strategies, the Town will need to consider the reality of adding further full-time resources and possibly considering the transition to a composite response model. These considerations are discussed further in the following section. It is consistent with industry best practices for a Fire Services Master Plan to be reviewed and updated at the plan's midpoint horizon (i.e., five year mark) of the plan's 10-year life cycle. A five-year review process would provide the department with an opportunity to assess the successes or challenges associated with the proposed staff resource strategies, and the necessary next steps for moving forward. The review should also consider the Town's growth and development to that point in time and the related impacts on fire and emergency service demands. Best practices would also recommend reviewing and updating the Town's Community Risk Assessment in parallel with a review of the plan itself.

Council Recommendation #12: That the Fire Chief be directed to conduct a review and update of the Fire Services Master Plan and Community Risk Assessment at the five-year midpoint of the plan's 10-year life cycle.

As a result of the review of all O.F.D. divisions, the following staffing-related recommendations are presented for Council's consideration and approval:

Council Recommendation:

Council Recommendation #6: That consideration be given to prioritizing the transition of the existing 0.8 FTE administrative support position within the Olds Fire Department to a full-time equivalent position, and revising the roles and responsibilities of this position to align more closely with a position such as a corporate Office Administrator.

Council Recommendation #7: That consideration be given to hiring a full-time Deputy Fire Chief of Operations and Training as presented within the proposed Fire Services Master Plan.

Council Recommendation #8: That consideration be given to hiring a full-time Deputy Fire Chief of Fire Prevention and Public Education as presented within the proposed Fire Services Master Plan.

Council Recommendation #9: That consideration be given to revising the roles and responsibilities of the current Paid on Call Deputy Fire Chiefs as recommended by the proposed Fire Services Master Plan.

Council Recommendation #10: That Council consider prioritizing the incremental hiring of 10 additional paid on-call volunteer firefighters to support enhancing the fire suppression services provided by the Olds Fire Department as presented within the proposed Fire Services Master Plan.

Council Recommendation #11: That the Olds Fire Department consult with the paid on-call firefighters in developing and implementing an on-call schedule as presented within the proposed Fire Services Master Plan.

Council Recommendation #12: That the Fire Chief be directed to conduct a review and update of the Fire Services Master Plan and Community Risk Assessment at the five-year midpoint of the plan's 10-year life cycle.

Operational Recommendation:

Operational Recommendation #35: That consideration be given to implementing the proposed Standard Operating Guideline Committee presented within the proposed Fire Services Master Plan.

Operational Recommendation #36: That consideration be given to implementing the proposed Fire Prevention and Public Education Division training qualifications presented within the proposed Fire Services Master Plan.

Operational Recommendation #37: That consideration be given to implementing the proposed Fire Prevention and Public Education Committee presented within the proposed Fire Services Master Plan.

Operational Recommendation #38: That consideration be given to implementing the proposed Training Division training qualifications presented within the proposed Fire Services Master Plan.

Operational Recommendation #39: That consideration be given to implementing the proposed Training Committee presented within the proposed Fire Services Master Plan.

13.0 Long-Term Staffing Considerations

The recommendations included within this F.S.M.P., including those outlined within the proposed staff resource strategies, are expected to carry the department forward through the short, medium and likely long-term horizons of this 10-year plan. The following section outlines some options for staffing considerations going forward, beyond the current 10-year plan.

13.1 Proposed Duty-Crew of Paid On-call Firefighters

The next step beyond platooning and use of an on-call schedule to increase the element of an 'assured response' provided by paid on-call firefighters is consideration of in-station duty crews. This option could see crews of either two or four firefighters working paid shifts within the station. The expectation would be that the paid time on-duty within the station could be used to support other functions of the department, such as public education, training or equipment management, when not active with emergency response to calls. The schedule of these duty crews could be targeted to certain time of the day when historical department data indicates a response challenge, such as weekday daytimes, or could be used around the clock to enhance the assuredness of response to the community.

Similarly to the on-call schedule for the paid on-call firefighters, this approach would require consultation with the department members to find a workable approach and determine the type and amount of compensation required to achieve participation in this strategy.

13.2 Proposed Staffing of Full-time Firefighters

In the event that the strategies implemented to support and sustain the paid on-call model presented in previous sections of this F.S.M.P. have been exhausted and the department continues to experience symptoms of stress, workload increases and risk of burnout, the Town would be considered at the point of moving the department into a composite model, and adding full-time fire suppression resources. This could take many forms, and could be phased-in with a staggered approach over several years. It could also be phased-in with a combined use of the P.O.C. duty-crew outlined above.

There would be a strong expectation that the job descriptions of these full-time firefighters would be developed prior to hiring with the qualifications and duties reflecting multi-functional roles. Therefore these full-time resources would provide support to other divisions of the department beyond suppression and emergency response.

A potential first implementation phase for consideration may be to focus full-time firefighting resources on the times of day which are most challenging for the P.O.C. firefighters to respond, such as weekday (Monday to Friday) daytimes (e.g., 8am to 6pm). This would maintain the current P.O.C. model, but provide enhancements to the areas of vulnerability.

Given the analysis conducted for this F.S.M.P. regarding the Olds Fire Department and Town of Olds, the maximum number of full-time suppression resources (e.g., firefighters) that we would consider for the foreseeable long-term future would reflect four full-time firefighters on-duty in the station 24 hours per day, seven days a week. This would require hiring 20 full-time firefighters, to maintain four firefighters on-duty at all times. At an estimated cost of $130,000 for salary and benefits, per firefighter, as well as approximately $10,000 per firefighter in capital costs for uniforms and personal protective equipment, this staffing level obviously reflects a significant investment on the part of the Town.

14.0 Implementation Plan

The recommendations of this F.S.M.P. have been developed in consideration of the strategic priorities identified within this plan. To achieve this objective, this F.S.M.P. includes an implementation strategy that categorizes the recommendations of this plan into those that can be implemented by the Fire Chief within the boundaries of his current authority delegated by Council, these are presented as Operational Recommendations. Recommendations that require direct Council approval related to policy decisions, or financial commitments are presented as Council Recommendations. The implementation horizons are identified as short-term (1 to 2 years), medium-term (3 to 5 years) and long-term (6 to 10 years).

14.1 Council Recommendations

Council Recommendations include those that require a policy decision or financial commitment on behalf of the Town. **Table 24** summarizes the recommendations of this F.S.M.P. that have been deemed as Council Recommendations.

Table 24: Council Recommendations

Recommendation No.	Council Recommendations	Additional Detail	Estimated Capital Budget Impact	Estimated Operating Budget Impact	Proposed Schedule
#1	That consideration be given to approving the strategic priorities identified within the Fire Services Master Plan to guide the development and delivery of fire protection services within the Town of Olds over the next ten-year community planning horizon. ✓ *The analysis of fire protection services provided to the community shall be fully informed by the development and ongoing review and update of a Community Risk Assessment to identify the fire related risks within the Town of Olds;*	-	-	-	Short-term (1-2 years)

Recommendation No.	Council Recommendations	Additional Detail	Estimated Capital Budget Impact	Estimated Operating Budget Impact	Proposed Schedule
	✓ *The primary objective of the Olds Fire Department will be to optimize the use of public education and fire prevention programs and activities, and the utilization of fire safety standards and fire code enforcement, to enhance the fire and life safety within the community;* ✓ *The Town of Olds will continue to prioritize the utilization of strategies that support the sustainability of paid on-call firefighters as the Town's primary providers of fire suppression services, and through the implementation of a comprehensive communication plan the Council of the Town of Olds will seek the support of residents and employers to assist in this strategic priority;* ✓ *The Town of Olds will continue to prioritize the delivery of a comprehensive fire protection model that provides the most effective and efficient level of fire protection services resulting in the best value for the community.*				

Recommendation No.	Council Recommendations	Additional Detail	Estimated Capital Budget Impact	Estimated Operating Budget Impact	Proposed Schedule
#2	That subject to Council's consideration and approval of the proposed Fire Services Master Plan consideration be given to updating the Town's current Quality Management Plan.	-	-	-	Short-term (1-2 years)
#3	That subject to Council's consideration and approval of the proposed Fire Services Master Plan consideration be given to developing a Comprehensive Recruitment and Retention Strategy that targets the sustainability of Paid On-Call Firefighters as presented within the proposed Fire Services Master Plan.	It is anticipated that the department may develop may than one strategy. Some strategies will be implemented in the short-term and others will be developed and implemented in the medium-term of the plan. Related costs will depend upon the nature of the strategies developed.	To be determined	To be determined	Short-term (1-2 years) to medium-term (3-5 years)
#4	That subject to Council's consideration and approval of the proposed Fire Services Master Plan that the proposed Initial Response Performance Benchmark including the response of a minimum of four firefighters assembled on scene prior to initiating any interior fire suppression operations be adopted by the Town of Olds.	-	-	-	Short-term (1-2 years)
#5	That subject to Council's consideration and approval of the proposed Fire Services Master Plan that the proposed Depth Response Performance Benchmark including the response of a minimum of 15 firefighters	-	-	-	Short-term (1-2 years)

Recommendation No.	Council Recommendations	Additional Detail	Estimated Capital Budget Impact	Estimated Operating Budget Impact	Proposed Schedule
	assembled on-scene of a structure fire within a combined turnout and travel time of nine minutes be adopted by the Town of Olds.				
#6	That consideration be given to prioritizing the transition of the existing 0.8 FTE administrative support position within the Olds Fire Department to a full-time equivalent position, and revising the roles and responsibilities of this position to align more closely with a position such as a corporate Office Administrator.	Operating impact reflects increased salary as a result of increased role and function.	-	$5K	Short-term (1-2 years)
#7	That consideration be given to hiring a full-time Deputy Fire Chief of Operations and Training as presented within the proposed Fire Services Master Plan.	Capital costs include items such as P.P.E., uniforms, radio, computer, etc., and a budget of $65K for an equipped vehicle. Operating costs include salary and benefits.	$83K	$150K	Short-term (1-2 years)
#8	That consideration be given to hiring a full-time Deputy Fire Chief of Fire Prevention and Public Education as presented within the proposed Fire Services Master Plan.	Capital costs include items such as P.P.E., uniforms, radio, computer, etc., and a budget of $65K for an equipped vehicle. Operating costs include salary and benefits.	$83K	$150K	Medium-term (3-5 years)
#9	That consideration be given to revising the roles and responsibilities of the current Paid on Call Deputy Fire Chiefs as recommended by the proposed Fire Services Master Plan.	Timing to be aligned with the development of roles and responsibilities of full-time Deputy Fire Chief positions, as hired.	-	-	Short-term (1-2 years) to medium-term (3-5 years)

Recommendation No.	Council Recommendations	Additional Detail	Estimated Capital Budget Impact	Estimated Operating Budget Impact	Proposed Schedule
#10	That Council consider prioritizing the incremental hiring of 10 additional paid on-call volunteer firefighters to support enhancing the fire suppression services provided by the Olds Fire Department as presented within the proposed Fire Services Master Plan.	The assumed capital cost per P.O.C. firefighter is $10K for items such as pager, P.P.E and uniforms. Operating costs are approximated at $2.5K per P.O.C. firefighter.	$100K	$25K	Short-term (1-2 years)
#11	That the Olds Fire Department consult with the paid on-call firefighters in developing and implementing an on-call schedule as presented within the proposed Fire Services Master Plan.	Costs will depend upon the approach determined to be workable for the O.F.D. P.O.C. personnel.	-	To be determined	Short-term (1-2 years)
#12	That the Fire Chief be directed to conduct a review and update of the Fire Services Master Plan and Community Risk Assessment at the five-year midpoint of the plan's 10-year life cycle.	Review could be conducted internally, if capacity allowed, or contracted.	$25K - $50K	-	5-year midpoint of the F.S.M.P.

14.2 Operational Recommendations

Table 25 summarizes the recommendations of this F.S.M.P. that have been deemed as Operational Recommendations that can be administered and implemented by the Fire Chief within his current authority. In some cases this may require additional work by the Fire Chief in preparing further documentation and reporting to Council for approval. An example of this is updating the current Fire By-law. This is a process that can be led by the Fire Chief, and senior corporate staff and through normal reporting be brought to Council for consideration and approval. The implementation horizons are identified as short-term (1 to 2 years), medium-term (3 to 5 years) and long-term (6 to 10 years).

Table 25: Operational Recommendations

Recommendation No.	Operational Recommendations	Additional Detail	Estimated Capital Budget Impact	Estimated Operating Budget Impact	Proposed Schedule
#1	That subject to Council's consideration and approval of the proposed Fire Services Master Plan the Town conduct a comprehensive review and update of all required job descriptions.	-	-	-	Short-term (1-2 years)
#2	That the Olds Fire Department implement a Senior Officer On-Call policy as presented within the proposed Fire Services Master Plan.	Compensation to be determined for the Fire Chief and Deputy Fire Chiefs providing on-call coverage beyond normal business hours. Capital costs required for Deputy Fire Chiefs to have assigned vehicles for on-call response are included in the considerations for adding the two new positions.	Refer to Deputy Fire Chief vehicles *(see Council Recommendations #7 and #8)*	To be determined	Short-term (1-2 years) to medium-term (3-5 years)
#3	That subject to Council's consideration and approval of the proposed Fire Services Master Plan that By-law No. 2018-28 – Fire By-law be reviewed and revised as may be required.	-	-	-	Short-term (1-2 years)
#4	That consideration be given to reviewing the current Rates By-law No. 2018-34 as presented within the proposed Fire Services Master Plan.	-	-	-	Short-term (1-2 years)
#5	That priority be given to updating and sustaining department Standard Operating Guidelines and Standard Operating Procedures to reflect current industry best practices and	-	-	-	Short-term (1-2 years)

Recommendation No.	Operational Recommendations	Additional Detail	Estimated Capital Budget Impact	Estimated Operating Budget Impact	Proposed Schedule
	applicable legislation.				
#6	That consideration be given to developing a Standard Operating Guideline for all records management practices within the Olds Fire Department.	-	-	-	Short-term (1-2 years)
#7	That consideration be given to enhancing the fire department's Annual Report to include performance benchmarking to further enhance the department's reporting to Council and the community.	-	-	-	Short-term (1-2 years)
#8	That the training standards and qualifications for all staff assigned to the delivery of fire prevention and public education services and programs identified within the proposed Fire Services Master Plan be considered for implementation within the applicable job descriptions within the Olds Fire Department.	Costs to train one person to N.F.P.A. 1035 Level 1 is approximately $2K.	-	Dependent upon number of staff to be trained	Short-term (1-2 years) to medium-term (3-5 years)
#9	That consideration be given to developing a Standard Operating Guideline or Procedure to provide direction to all Olds Fire Department personnel who may be required to work alone while out in the community, or County.	-	-	-	Short-term (1-2 years)
#10	That once compliance with the current Quality Management Plan has been achieved including supporting statistical data that consideration be	-	-	-	Medium-term (3-5 years)

Recommendation No.	Operational Recommendations	Additional Detail	Estimated Capital Budget Impact	Estimated Operating Budget Impact	Proposed Schedule
	given to re-instating the previous fire inspection cycles for Group D and E major building classifications.				
#11	That consideration be given to developing a Standard Operating Guideline, or Standard Operating Procedure for Fire Safety Plans.	-	-	-	Short-term (1-2 years)
#12	That consideration be given to developing a department Standard Operating Guideline for conducting pre-plans, and that within the proposed guideline consideration be given to prioritizing the "key findings" of the Community Risk Assessment.	-	-	-	Short-term (1-2 years)
#13	That consideration be given to developing a letter of understanding, or other written agreement between the Building and Fire Departments to coordinate the construction plan review and approval process.	-	-	-	Short-term (1-2 years)
#14	That consideration be given to developing a Standard Operating Guideline to identify the roles and responsibilities, objectives, targets and procedures for the delivery of the Olds Fire Department Home Fire Safety Program as presented within the proposed Fire Services Master Plan.	-	-	-	Short-term (1-2 years)
#15	That consideration be given to developing and implementing a "pilot project" for facilitating a targeted fire safety program to children aged 10 to 12 within the community as presented within the proposed Fire	-	-	$4K	Short-term (1-2 years)

Recommendation No.	Operational Recommendations	Additional Detail	Estimated Capital Budget Impact	Estimated Operating Budget Impact	Proposed Schedule
	Services Master Plan.				
#16	That consideration be given to developing and implementing a targeted fire safety program for seniors (65+) within the community as presented within the proposed Fire Services Master Plan.	-	-	$4K	Short-term (1-2 years)
#17	That consideration be given to enhancing the current Home Fire Safety Program as presented within the proposed Fire Services Master Plan.	-	-	$3K	Short-term (1-2 years)
#18	That consideration be given to consolidating all current firefighter training initiatives into one Comprehensive Annual Training Program including performance goals and objectives to be defined within a department Standard Operational Guideline.	-	-	-	Short-term (1-2 years)
#19	That the proposed Comprehensive Annual Training Program include minimum requirements for attendance to maintain the required competencies and experience required.	-	-	-	Short-term (1-2 years)
#20	That consideration be given to developing a department Standard Operating Guideline that describes the required qualifications that all firefighters must achieve in order to respond to emergency incidents, and to complete the firefighting tasks they may be assigned.	-	-	-	Short-term (1-2 years)

Recommendation No.	Operational Recommendations	Additional Detail	Estimated Capital Budget Impact	Estimated Operating Budget Impact	Proposed Schedule
#21	That consideration be given to developing a comprehensive Company Officer Training Program and supporting Standard Operating Guideline.	-	-	-	Short-term (1-2 years)
#22	That consideration be given to including incident command training for all officers within the Olds Fire Department within the proposed comprehensive Company Officer Training Program and supporting Standard Operating Guideline.	Blue card command program (on-going), cost is approximately $500 per person.	-	Dependent upon the number of staff receiving the training	Short-term (1-2 years)
#23	That consideration be given to the developing a succession plan for the Olds Fire Department.	-	-	-	Medium-term (3-5 years)
#24	That consideration be given to developing department Standard Operating Guidelines for all approved specialized technical rescue services to be provided by the Olds Fire Department including the required training and qualifications necessary for all participating staff.	-	-	-	Short-term (1-2 years)
#25	That the Fire Chief further investigate the alternatives for providing specialized technical rescue services including partnerships, shared services and contracting services to reduce the existing operational and training requirements of the Olds Fire Department.	-	-	Based on a fee for service, to be determined through contract negotiation.	Short-term (1-2 years)
#26	That where applicable the further utilization of on-line training as a component of delivering the proposed Comprehensive Annual	-	-	-	Short-term (1-2 years)

Recommendation No.	Operational Recommendations	Additional Detail	Estimated Capital Budget Impact	Estimated Operating Budget Impact	Proposed Schedule
	Training Program be considered.				
#27	That the requirements for annual live fire training be included within the proposed Comprehensive Annual Training Program and department Standard Operating Guideline.	Costs included within existing department budget.	-	-	Short-term (1-2 years)
#28	That the consideration be given to retrofitting the fire station with a diesel emissions exhaust system to minimize the potential for diesel emissions exposure within the building.	Operating costs for on-going maintenance.	$80K	$600	Short-term (1-2 years)
#29	That consideration be given to enclosing the exercise facility to limit diesel emissions exposure from the apparatus bay and the installation of an independent ventilation system within the exercise facility.	Anticipated that the operating budget for facility maintenance may cover associated costs.	$10K	-	Short-term (1-2 years)
#30	That consideration be given to providing additional public parking spots assigned to the fire station for use by the Emergency Operations Centre.	Anticipated that the operating budget for facility maintenance may cover associated costs.	To be determined	-	Medium-term (3-5 years)
#31	That consideration be given to creating a major apparatus reserve capacity, including a minimum of one service ready pumper or pump/tender.	Anticipated that costs will be included by accelerating the existing apparatus replacement cycle.	-	-	Medium-term (3-5 years) to Long-term (6-10 years)
#32	That consideration be given to including the performance benchmarks for emergency call taking and dispatch services, identified within N.F.P.A. 1221 -	-	-	-	Short-term (1-2 years)

Recommendation No.	Operational Recommendations	Additional Detail	Estimated Capital Budget Impact	Estimated Operating Budget Impact	Proposed Schedule
	Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems, into current the dispatch service agreement, to be reviewed through a regular process.				
#33	That consideration be given to initiating a process to collect detailed statistics in regards to the on-scene arrival times of all responding apparatus and all responding fire department personnel for all emergency calls.	-	-	-	Short-term (1-2 years)
#34	That further consideration be given to developing an ongoing Emergency Planning training strategy for members of Council and Town of Olds staff.	Costs have already been included in program development.	-	-	Medium-term (3-5 years)
#35	That consideration be given to implementing the proposed Standard Operating Guideline Committee presented within the proposed Fire Services Master Plan.	Timeline depends upon available capacity. Assumed to align with the hiring of Deputy Fire Chief of Operations and Training.	-	-	Short-term (1-2 years) to medium-term (3-5 years)
#36	That consideration be given to implementing the proposed Fire Prevention and Public Education Division training qualifications presented within the proposed Fire Services Master Plan.	Dependent upon level of existing qualifications of staff and new hires	To be determined	To be determined	Short-term (1-2 years) to medium-term (3-5 years)
#37	That consideration be given to implementing the proposed Fire Prevention and Public Education Committee presented within the proposed Fire Services Master Plan.	Timeline depends upon available capacity. Assumed to align with the hiring of Deputy Fire Chief of Prevention and	-	-	Medium-term (3-5 years)

Recommendation No.	Operational Recommendations	Additional Detail	Estimated Capital Budget Impact	Estimated Operating Budget Impact	Proposed Schedule
		Education.			
#38	That consideration be given to implementing the proposed Training Division training qualifications presented within the proposed Fire Services Master Plan.	Dependent upon level of existing qualifications of staff and new hires	To be determined	To be determined	Short-term (1-2 years)
#39	That consideration be given to implementing the proposed Training Committee presented within the proposed Fire Services Master Plan.	Timeline depends upon available capacity. Assumed to align with the hiring of Deputy Fire Chief of Operations and Training.	-	-	Short-term (1-2 years)

Appendix A

Community Fire Risk Assessment

DILLON CONSULTING

TOWN OF OLDS

Community Risk Assessment

Project Number: 19-9296

Final Report

September 2019

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1.0 Introduction

The process of assessing fire risk is receiving increased attention within the fire protection industry in North America. A Community Risk Assessment (C.R.A.) is fundamental to the development of a Fire Services Master Plan (F.S.M.P.). Assessing community risk informs the understanding of local needs and circumstances which can then be applied to align the service levels provided by the municipality. The results of this C.R.A. directly inform the recommendations of the Fire Services Master Plan and will be used to identify existing service gaps across divisions, with particular connections to fire prevention, training, and fire suppression.

1.1 Methodology

This C.R.A. is based on a methodology founded in part on: the *National Fire Protection Association (N.F.P.A.) 1730 Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations (2019 Edition); N.F.P.A. 1300 Standard on Community Risk Assessment and Community Risk Reduction Plan Development*; Dillon's historical experience in applying Ontario's Fire-Risk Sub-model; and broader risk management industry best practices. In addition, to guide some of the analysis, reference was made to the Office of the Fire Commissioner (O.F.C.)'s Fire Statistics Reporting Manual (March 2006). According to N.F.P.A 1730, the purpose of a Community Risk Assessment is to assist in the development and implementation of community risk reduction planning and determine service levels within the fire department. N.F.P.A. 1730 outlines seven profiles that should be assessed and used to understand risk within the community.

Exploration of the profiles is the first component of the C.R.A. methodology for this F.S.M.P. This includes the development of the following seven profile assessments:

1. Demographic Profile;
2. Geography Profile;
3. Building Stock Profile;
4. Fire Profile;
5. Response Profile;
6. Hazards Profile; and
7. Economic Profile.

These profiles are based on an analysis of several sources of information, including data provided by the Olds Fire Department (O.F.D.), Statistics Canada, Office of the Fire Commissioner, and desktop research. To link the C.R.A. to the risks unique to specific occupancy types, this analysis utilizes the major occupancy classifications of the National Building Code – 2019 Alberta Edition (N.B.C.) and the National Fire Code – 2019 Alberta Edition (N.F.C.) to define fire risk scenarios within Olds. Throughout this assessment, the outcomes of the analysis are highlighted and referred to as "**Key Findings**". This approach is designed to

feature the risk outcomes that will be used to explicitly inform recommendations within the F.S.M.P. More information on how the findings will be used to inform the F.S.M.P. can be found in **Section 9 – Applying Risk Outcomes.**

2.0 Geographic Profile

A geographic profile reviews key natural and human-made features within a jurisdiction. According to N.F.P.A. 1730, a geographic profile should consider highways, bridges, railroads, water features, geographic landforms, and the wildland-urban interface.

2.1 Geographical Snapshot of Olds

The Town of Olds is located north of Calgary and South of Red Deer, and is one of twenty-five rural communities situated in the municipal district of Mountain View County. The Town is surrounded by agricultural land in all directions, which is an important industry in the area, with the nearest municipality approximately 17 kilometres away. The Town is bordered by Bowden to the north and Didsbury to the south. Olds consists of residential, industrial and commercial land uses, covering a land area of approximately 15 square kilometres.

2.2 Road Network

The Town of Olds is situated at the intersection of Provincial Highways 2A and 27, known respectively as 46 Avenue and 46 Street in the Town. Provincial Highway 2A connects Olds with Calgary to the south and Red Deer to the north. Provincial Highway 27 through Olds can see upwards of 11,500 vehicles per day, which would be a combination of personal (over 90%) and freight/goods movement traffic (~6%).[1] Provincial Highway 2A sees significantly less traffic; only approximately 5,400 vehicles per day. It should be noted that speeds along these highways reduce to 50 kilometres per hour within town boundaries. With any volume of traffic, it is common within a municipality for road networks to be a contributor to emergency call volume due to motor vehicle collisions. Central Olds has a grid road network that is aligned with the rail line, and the residential areas surrounding central Olds have a more curvilinear street pattern common to more modern development.

Key Finding: The road network is a contributor to emergency call volume due to motor vehicle-related incidents.

2.3 Railways

A north/south freight-carrying Canadian Pacific (C.P.) rail line bisects the Town to the west of Provincial Highway 2A, and connects Edmonton and Calgary. This is the only rail line in the vicinity of Olds.

1

Source: http://www.transportation.alberta.ca/mapping/

The Town has three rail crossings that cross this C.P. rail line: one at Provincial Highway 27/46 Avenue, one at 50 Street, and the final crossing at 54 Street All three of these crossings are active at-grade crossings, meaning vehicles are warned with flashing beacons and bells, and protected with gates when a train is approaching/crossing.

It is important to note that these three crossings are all within an approximately 830 metre stretch of the rail line. Considering trains can sometimes have a length of up to a few kilometres, a long train could cause delayed travel times for an emergency vehicle needing to cross the rail line to respond to an emergency. Also, the fire hall is located west of the rail line which could also be factored into delayed travel times when fire apparatus are trying to reach the eastern portion of the Town.

Key Finding: The Town's at-grade rail crossings and the direction and positioning of the rail line have potential to impact the Fire Department's emergency response times.

2.4 Airport

Airports can be an essential component of a municipality facilitating the movement of goods and services and in providing another mode of transportation. However, they also present unique hazards with special considerations to aircraft accidents and incidents, hazardous materials and fuel load concerns. The Olds-Didsbury Airport is located between The Town of Olds and the Town of Didsbury along Township Road 320. The airport features a self-serve fueling system, on-sit storage, some minor repair services, and tie-down facilities. The Calgary Flight Training Centre also operates out of this location.

2.5 Bridges

Bridges are considered within a C.R.A. because of two main considerations: potential for crossing restrictions due to weight; and potential for impact on network connectivity if a bridge were to be out of service. Based on desktop review, there does not appear to be a risk from the perspective of connectivity and no weight restrictions on bridges within the Town were identified by O.F.D.

2.6 Waterways and Conservation Areas

Waterways (creeks and lakes) and Conservation Areas are important from a community risk perspective as they may be popular destinations for recreational activities. There will also be natural hazards such as flooding associated with waterways. There are no major waterbodies or conservation areas within the Town of Olds boundaries; however, there are a number of smaller greenspaces that serve as playgrounds and parks for recreational activities with a few retention ponds throughout the Town. A number of smaller lakes are located southwest of the Town, to which the fire department might respond in the event of a water related emergency necessitating some type of water rescue services.

2.7 Wildland-Urban Interface

N.F.P.A. 1730 identifies wildland-urban interface as geography-based risk for consideration. This interface refers to the area of transition between unoccupied land and human development. This transition area can be comprised of a mix of woodlots, bush or grass.

The Town is surrounded by an abundance of agricultural lands and many residential neighbourhoods are located in the vicinity of woodlots, bush or grass. Given the Province's history of wildfires, there may be a need to enhance training of personnel with regards to this type of fire.

Historically, wildfires were thought to be primarily a fuel load (forested/grass area) problem, and efforts were taken to combat the wildfire after ignition including direct firefighting costs. However, reflecting a shift towards mitigation/prevention, the impact of wildfires can more effectively be reduced by focusing on the vegetation surrounding buildings as well as the ignition potential of buildings.[2] Local policy approaches including municipal development plans, land use by-laws, development permits, and Alberta Building Code enforcement through planning authorities as well as fire prevention and enforcement policies (e.g., open air burning permit systems), emphasize the opportunity to mitigate wildland fire risk.

Key Finding: The Town has a potential risk of wildland fire due to the wildland-urban interface.

[2] Calkin, David E, Cohen, Jack D, Finney, Mark A, Thompson, Matthew P (2013) Proceedings of the National Academy of Sciences. How risk management can prevent future wildfire disasters in the wildland-urban interface.

3.0 Building Stock Profile

N.F.P.A. 1730 highlights a number of characteristics of building stock that should be considered pertaining to fire risk which are analyzed below. This includes: building stock, building density, building age and construction, potential high-fire risk occupancies, vulnerable occupancies, and historic or culturally significant buildings.

3.1 Alberta Building Code (A.B.C.) Occupancy Classifications

Buildings in Alberta are categorized based on their major occupancy classification according to the Alberta Fire Code (now the National Fire Code - 2019 Alberta Edition or N.B.C.) and these occupancy classifications as defined within the code provide a recognized definition and baseline for developing the community risk profile. The N.B.C. includes six major building occupancy classifications (groups). Within each group the occupancies are further defined by division. The N.B.C. major classification groups and divisions are presented in **Table 1.**

Table 1: N.B.C. Major Occupancy Classification

Group	Division	Description of Major Occupancy
Group A	1	*Assembly occupancies intended for the production and viewing of the performing arts*
	2	*Assembly occupancies not elsewhere classified in Group A*
	3	*Assembly occupancies of the arena type*
		Assembly occupancies in which occupants are gathered in the open air
Group B	1	*Detention occupancies*
	2	*Treatment occupancies*
	3	*Care occupancies*
Group C	---	*Residential occupancies*
Group D	---	*Business and personal services occupancies*
Group E	---	*Mercantile occupancies*
Group F	1	*High-hazard industrial occupancies*

Group	Division	Description of Major Occupancy
	2	*Medium-hazard industrial occupancies*
	3	*Low-hazard industrial occupancies*

Source: 2014 Alberta Building Code

All occupancies have unique risks based on their occupancy classification group. Within the groups, the buildings themselves can also be very different. For Group C - Residential occupancies, there are many types of buildings that can meet this description, each presenting its own unique risks - for example, mobile homes/travel trailers versus a single-detached dwelling. Consideration also needs to be given to high-rise residential occupancies which represent unique risk and operational challenges.

Group D – Business and Personal Services occupancies can also be located in different types of buildings, such as remodeled single-detached dwellings, low-rise and high-rise buildings. Each of these building types can present different risks, including egress for firefighting operations and evacuation by occupants. Group E – Mercantile occupancies also present varied risks depending on the type of building which houses them. They range in size and potential risk from smaller neighbourhood corner stores to the large "big box" industrial style buildings. Large volumes of combustibles may be present in all forms of mercantile and business and personal services occupancies. Within the fire service, these two occupancy types are often considered together as "commercial uses."

While building variation applies within Group B – Care or Detention occupancies, the important consideration in this case is the nature of the occupancy. Such occupancies are for individuals that require special care or treatment due to cognitive or physical limitations. These occupancies could also be for individuals who are incapable of self-evacuation in the event of an emergency due to restraint. Regardless of the type of building Group B – Care or Detention occupancies inhabit, this critical aspect of risk remains the same.

3.2 Town of Olds Property Stock by Major Occupancy Classification

A summary of the Town's property stock by major occupancy classification is provided in **Table 2**. The majority of Olds property stock is comprised of Group C- Residential (88%) with 4,529 residential dwellings overall. Of the 4,529 Group C – residential occupancies, 43 do not include residential dwellings. These occupancies include buildings that can be inspected by the O.F.D. The second largest major occupancy type (classified within the A.B.C.) is Group D – Business and Personal Services at 5%. Group F – Industrial occupancies account for 2% of the Town's total building stock and there are 153 Group A – Assembly (3%) occupancies.

Table 2: Town of Olds Building Stock

Occupancy Classification A.B.C.)	Occupancy Description	Number of Occupancies	Percentage of Occupancies
Group A – Assembly	Assembly occupancies	153	3%
Group B – Care or Detention	Care or Detention occupancies	4	0%
Group C – Residential	Residential Occupancies	4,529	88%
Group D – Business	Business and Personal Services	246	5%
Group E – Mercantile	Mercantile Occupancies	85	2%
Group F – Industrial	Industrial occupancies	118	2%
Other	Not classified within the A.B.C.	0	0%
	Total	**5,135**	**100%**

Source: O.F.D.

Group C – Residential occupancies represent the majority of building stock within most Canadian municipalities. Given the proportion of fire loss, fire related injuries and death rates within this occupancy classification, the prominence of Group C occupancies present a greater risk. The first two lines of defence – public education and prevention and fire safety standards and enforcement – are significant measures that can be taken to mitigate fire risk within residential occupancies. This entails implementing smoke alarm programs, home escape planning, the identification of vulnerable groups specific to each municipality, regular fire inspection cycles and programs specific to each occupancy type, as well as implementing stricter enforcement measures related to licencing and prosecutions for fire code violations. (Fire loss trends for the Town are discussed in greater detail in **Section 7.0**.)

Key Finding: The majority of the Town's existing building stock is comprised of Group C – Residential Occupancies (88%).

Key Finding: Group D – Business Occupancies and Group E – Mercantile Occupancies combined account for 7% of the Town's total building stock.

Key Finding: Group F – Industrial Occupancies account for 2% of the Town's total building stock.

3.3 Building Age and Construction

Adopted in 1974, the Alberta Building Code (A.B.C.), now the National Building Code – 2019 Alberta Edition, details technical and administrative requirements as well as minimum standards for building construction in Alberta. Complementary to the A.B.C., the Alberta Fire Code (A.F.C.), now the National Fire Code – 2019 Alberta Edition (N.F.C.), first adopted in 1992, sets forth the minimum requirements regarding fire safety for existing buildings and facilities. Together, the A.B.C. and A.F.C. provide the foundation for eliminating many of the inconsistencies in building construction and maintenance that were present before their adoption. These codes provide for specific fire safety measures that are designed to address the intended use of the building including requirements such as exits/means of egress including signs and lighting, fire alarm and detection equipment, fire department access and the inspection, testing, and maintenance of the building fire protection systems.

In many situations the age and construction of a building can be directly associated with whether the building was constructed prior to, or after the introduction of these codes. For example, during the late 19th century and early 20th century, balloon frame construction was a common wood framing technique that was used in both residential and small commercial construction. This technique allowed for exterior walls to be continuous from the main floor to the roof in some cases extending multiple stories through a building. The result was the potential for fire and smoke to spread unobstructed from the basement to the roof of a building. In many cases the result was a fire that started in the basement spreading to the roof very quickly and without the knowledge of building occupants or fire service personnel. Modern construction techniques have introduced the use of platform construction whereby each level is built as a component of the overall structure. This technique in addition to the use of fire stops has reduced the extension of fire and smoke by creating horizontal barriers.

Modern construction materials tend to burn faster and hotter than those built in the past. This is compounded by the amount of synthetic materials that are being used in today's furnishings. With fires growing faster and building failing sooner, occupants have less time to evacuate safely and there is increased risk for responding firefighters due to potential structural collapse. These risks may be mitigated through public education campaigns specific to home escape planning and smoke alarm initiatives.

Understanding building construction and building materials is a critical component for firefighters in determining the appropriate type of fire attack and safety measures that need to be in place. As such, having knowledge of the age of a building may be directly related to the type of construction methods and materials is why building age and construction is a component of this Community Risk Assessment.

Table 3 illustrates the age of residential buildings (2016 Census Data) within the Town, and in comparison to the Province of Alberta. This analysis indicates that 51% of the Town's residential building stock was built prior to 1991, preceding when A.F.C. came into effect in 1992. The percentage of building stock built prior to 1992 may be slightly higher given how the census years do not perfectly align with the timing of the A.F.C. This represents a key fire risk within the community. By comparison, 54% of the residential

building stock in the Province was built prior to 1991. This suggests that the Town of Olds has a similar risk as compared to the Province in regards to building age. Specific information, such as the census data, is not available for non-residential buildings; however, the experience of community planning and development provides a relative comparison when assessing the age and construction of a community.

Table 3: Age of Construction of Residential Dwellings (2016 Census)

Period of Construction	Town	% of Units	Alberta	% of Units
Prior to 1960	480	13%	177,780	12%
1961 to 1980	1,010	27%	439,505	29%
1981 to 1990	405	11%	193,360	13%
1991 to 2000	585	16%	216,410	14%
2001 to 2005	435	12%	157,420	10%
2006 to 2010	485	13%	180,645	12%
2011 to 2016	300	8%	162,560	10%
Total	**3,700**	**100%**	**1,527,680**	**100%**

Key Risk: The 2016 Census data indicates that 51% of the Town's residential building stock was built prior to the introduction of the 1992 Alberta Fire Code.

3.4 Building Density and Exposure

Closely spaced buildings, typical of historic downtown core areas and newer infill construction, have a higher risk of a fire spreading to an adjacent exposed building. A fire originating in one building could easily be transferred to neighbouring structures due to their close proximity. The close proximity of buildings can also impede firefighting operations due to the limited access for firefighters and equipment.

An understanding of the breakdown of residential dwelling type (presented in **Table 4**) can provide some indication of exposure risk for residential property stock within the Town. The Town has a residential dwelling profile that represents a higher building density and risk of exposure compared to the Province of Alberta. Through the data collection process for this C.R.A. it was identified that the building stock in the Town's uptown core area is typical of that of many Canadian towns and cities, and includes a mix of occupancy types. There are several buildings in the uptown core that are a mix of residential and commercial occupancies. Many of the buildings in the uptown area have inadequate fire separations and are constructed with shared basements and corridors. These areas present unique challenges for the fire department and building density and exposure areas warrant special consideration.

Residential structural dwelling type data from the 2016 Census reveals that Olds' structural dwellings consist mainly of single-detached houses (61%), higher than the provincial total number of single-detached dwellings (47%) by 14%. A significant portion (33%) of the Town's property stock includes other types of attached dwellings (semi-detached, row housing, apartments or flats in a duplex or apartment buildings with fewer than five storeys) (+9% compared to the Province)with a large portion of attached dwellings being apartments with fewer than five storeys (14%). These dwellings have a higher risk of a fire spreading to an adjacent exposed dwelling.

Overall, the Town has a residential dwelling profile that results in a risk from the perspective of building density and exposure.

Table 4: Residential Structural Dwelling Types (2016 Census)

Structural Dwelling Type	Town		Alberta	
	Total Dwellings	Total % Dwellings	Total Dwellings	Total % Dwellings
Single-detached house	2,255	61%	946,225	47%
Apartment in a building that has five or more storeys	0	0%	62,395	3%
Movable dwelling	215	6%	47,970	2%
Other attached dwellings	1,225	33%	471,090	24%
Semi-detached house	370	10%	86,765	5%
Row house	160	4%	116,625	6%
Apartment or flat in a duplex	165	4%	43,090	2%
Apartment in a building that has fewer than five storeys	515	14%	223,360	11%
Other single-attached house	15	0%	1,245	0%
Total	**3,695**	**100%**	**1,998,765**	**100%**

Key Risk: The 2016 Census data indicates that 33% of the Town's residential building stock is comprised of other attached dwellings. Attached dwellings have a higher risk of a fire spreading to an adjacent exposed buildings.

3.5 Building Height and Area

Buildings that are taller in height, or contain a large amount of square footage (footprint) can have a greater fire loss risk and life safety concern. One of the unique characteristics and risks of tall / multi-storey buildings is known as the "stack effect". This is characterized as vertical air movement occurring throughout the building, caused by air flowing into and out of the building, typically through open doors and windows. The resulting buoyancy caused by the differences between the indoor/outdoor temperature and elevation differences causes smoke and heat to rise within the building. This can have a dramatic effect on smoke permeation throughout the common areas and individual units within the

building. This can be directly related to the high percentage of deaths that occur in high-rise buildings as a result of smoke inhalation.

The nature of taller buildings also brings the presence of higher occupant loads and higher fuel loads due to the quantity of furnishings and building materials. Efficient evacuation can also be a challenging process due to a lack of direction, signage, knowledge, or familiarity of the occupants which may result in overcrowding of stairways and exit routes. Ensuring all required life safety systems are in place and functioning is a priority for these occupancies. Taller buildings can experience extended rescue / fire suppression response times for firefighters to ascend to the upper levels. This is commonly referred to as "vertical response" representing the time it takes for firefighters to gain entry into the building and ascent to the upper floors by the stairwells. Options such as "shelter-in-place" whereby occupants are directed by the fire department to stay within their units can be an effective life safety strategy. However, ensuring internal building communications systems are in place and functioning is critical to the success of this strategy. Targeted campaigns addressing strategies like shelter in place are also critical to educating building occupants.

Within this occupancy classification both the National Fire Code – 2019 Alberta Edition (previously the A.F.C.) and the National Building Code – 2019 Alberta Edition (previously the A.B.C.) classify residential low-rise buildings as up to and including five storeys (18 metres) in building height. Buildings in excess of five storeys (18 metres) are considered as high-rise buildings. The O.F.D. has not identified any high-rise buildings; however, there are several facilities that may present a risk due to their large floor areas, some of which may have the potential for fuel load concerns. Large buildings, such as industrial plants and warehouses, department stores, and "big box" stores, can contain large volumes of combustible materials. In many of these occupancies, the use of high rack storage is also present. Fires within this type of storage system can be difficult to access and cause additional risk to firefighter safety, due to building collapse. Buildings that occupy large areas are included in **Table 5.**

Table 5: Buildings with Large Area Considerations

Building Name	Address	Area (in square meters)	Description of Facility
Shur Gain	5902 48 Avenue	5600 Square Metres	Animal feed supplier
Sundial Growers	6102 48 Avenue	7500 Square Metres	Cannabis producer
Olds SoftGels	5807 47 Avenue	2000 Square Metres	Pharmaceutical research, manufacturing and packaging
Olds Fertilizers	5909 Imperial Way	Multiple buildings	Agricultural retailer
Olds College	4500 50 Street	Multiple buildings	College
Olds Hospital	3901 57 Avenue	6000 Square Metres	Hospital
Deer Meadow School	5411 61 Avenue	5000 Square Metres	School
Olds Elementary School	5413 53 Street	4000 Square Metres	School

Building Name	Address	Area (in square meters)	Description of Facility
Horizon School	5401 53 Street	1700 Square Metres	School
Ralph Klein Centre/Olds High School	4500 50th Street	9500 Square Metres	School
Walmart	6900 46 Street Unit 400	11000 Square Metres	Retailer
Canadian Tire	6900 46 Street Unit 600	6000 Square Metres	Retailer
Patryk's No Frills	6509 46 Street	4500 Square Metres	Grocery Store
Mountain View Financial Group	6501 51 Street	1000 Square Metres	Financial Institution
Proall Manufacturing	810 47 Avenue	6050 Square Metres	Concrete mixer manufacturer
Westeel Limited	5812 Avenue	3250 Square Metres	Steel tank manufacturer
Olds Regional Exhibition	5116 54 Street	2500 Square Metres	Exhibition centre

Source: O.F.D.

Many of the buildings identified in **Table 5** have large floor areas that exceed 6,000 square metres, some of which contain hazardous materials or high fuel load. Pre-planning of some of these facilities would benefit the fire department by providing awareness to suppression crews about key building features, possible hazards, and other pertinent characteristics about the occupancy and site.

In the preparation of this C.R.A. it was identified that many of these facilities, specifically those designated as Group F – Industrial according to the A.B.C. are not sprinklered or equipped with alarms. The O.F.D. is working with a number of these facilities to bring the buildings up to code.

Additionally, many of these facilities are schools (both elementary and high school) which have the potential for high fire life safety risk considerations. Day cares and schools are an important consideration for the fire service from the perspective of risk because children in particular may not be able to self-evacuate in the event of an emergency. High fire life safety risk occupancies are further described in **Section 4.6.1**.

Key Finding: There are 17 buildings that present an increased fire risk due to their large floor areas.

Key Finding: Of the buildings with increased fire risk due to the large floor area, a number of the Group F – Industrial occupancies are not in compliance with the A.B.C.

3.6 Potential High Fire Risk Occupancies

Potential high-fire risk occupancy consideration is another factor within the building stock profile per N.F.P.A. 1730. High fire risk can be linked to a combination of factors one of which is building density

(exposures). This section of the Community Risk Assessment will focus primarily on fuel load for industrial occupancies. Fuel load typically refers to the amount and nature of combustible content and materials within a building. This can include combustible contents, interior finishes, as well as structural materials. Combustible content tends to create the greatest potential fire loss risk. This can include industrial materials, commercial materials, or typical office furnishings. Higher fuel loads result in increased fire loss risk due to increased opportunity for ignition and increased fire severity.

In many communities, large amounts of fuel load can be contained within a single occupancy such as a building supply business, within a large multi-unit residential building, or within a historic downtown core. As presented previously within this report, age and construction of a building can also have an impact on fuel load given that older buildings likely have a larger volume of combustible construction such as wood framing rather than newer construction utilizing concrete and steel products. In addition to building construction type, the growth rate of fire depends on the flammability of the materials and contents within the building.

Occupancies with specific fuel load concerns within the Town as identified by the O.F.D. are included in **Table 6**. These units contain construction and building supplies and in some instances petroleum and various fuel products. The identified buildings contain products that could promote the rapid spread of smoke and fire due to the nature of the materials with which they are made, compounded by the large floor areas of the buildings which store a large quantity of these products at any given time.

Table 6: Buildings with Site Specific Fuel Load Considerations

Facility	Address
B and M Home Hardware Building Centre	6307 46 Street
Leo's Building Supplies Ltd.	6700 46 Street
Olds UFA Farm and Ranch Supply Store	4334 46 Avenue
Shur Gain	5902 48 Ave
Koch Fuel Products	4519 46 Ave
UFA Petroleum Agency	4514 Imperial Road
Bluewave Energy	5901 Imperial Way
Canadian Tire	6900 46 Street #600
Walmart	6900 46 Street #400
Premier Horticulture	4803 60 Street
Central Action Plastics	6420 Imperial Way
Olds Fertilizer	5909 Imperial Way

Source: O.F.D.

Key Finding: There are twelve properties within the Town that have fuel load concerns.

3.7 Potential High Life-Safety Risk Occupancies

Fire risk does not affect all people equally. Those who are at an increased risk of fire injury or fatality are known as vulnerable individuals. They can be someone with mobility limitations, cognitive limitations, persons with developmental disabilities or those who are unable to move on their own due to physical limitations or restraint. In the event of a fire, these individuals may be unable to self-evacuate and/ or require assistance in their evacuation efforts. Identifying the location and number of vulnerable individuals or occupancies within the community provides insight into the magnitude of this particular demographic within a community.

From an occupancy perspective, occupancies with potential high life-safety risk contain vulnerable individuals who may require assistance to evacuate in the event of an emergency due to cognitive or physical limitations. These occupancies house individuals such as seniors or people requiring specialized care. It is important to note, however, that **not all vulnerable individuals live in** potential high life-safety risk **occupancies**; for example, some seniors who are vulnerable due to physical limitation can live on their own or in subsidized housing making them a key demographic to reach.

Table 7 lists potential high life-safety risk occupancies within Olds as identified by the O.F.D.

Table 7: Potential High Life-Safety Risk Occupancies – Town of Olds

Occupancy Type	Number of Occupancies
Nursing Homes/Care Homes	3
Group Homes	5
Seniors Lodges	4
Hospital	1

Source: O.F.D.

Identifying additional potential high fire life-safety risk considerations is important from the perspective of risk and for the purposes of the services provided by the fire department, including enhanced and targeted fire inspections and public education programming. For example, this may include day care centres or schools, where due to their age, children might have limitations that prevent or delay self - evacuation in the event of an emergency. The O.F.D. has identified that there are several daycares within the Town and a specialty needs school that may require special considerations. Horizon School provides educational programming for special needs students in Olds and the surrounding communities and individual learning plans that meet the varying needs of each student.

To reduce life-safety within occupancies such as Horizon School, the fire department can administer public education on fire safety issues, conduct pre-planning activities to increase fire department personnel's familiarity with these facilities or encourage facility owners to update the buildings to code as needed.

Key Finding: There are 13 identified occupancies with potential high life-safety risk within the Town of

Olds and there is a school for students with special needs that presents unique life-safety risks.

3.8 Historic or Culturally Significant Buildings

In addition to the consideration of building age and construction, understanding the location of historic or culturally significant buildings or facilities is important. Such building or facilities may be keystone features to the community and may provide a sense of heritage, place, and pride acting as tourism destinations. As such, damage to or loss of these buildings could result in cultural or economic impacts and consequences.

The history of Olds is captured in a number of its historic buildings, seven of which have been registered to the Alberta Register of Historic Places. These buildings include:

- Brown Residence at 4809 – 49 Avenue;
- Maybank Drugstore at 5004 – 50th Avenue;
- Dr. Hartman Residence at 4830 – 50th Street;
- Kemp Block at 5006 – 5008 50th Avenue;
- Pokotilo Block at 5018 – 51 Street;
- Former Bank of Montreal at 5018 – 50th Avenue; and
- Former Canadian Bank of Commerce at 5009 – 51 Street.

Key Finding: There are seven registered heritage buildings within the Town of Olds, which are keystone features of the community's history.

4.0 Demographic Profile

As included in N.F.P.A. 1730, the demographic profile assessment includes analysis of age, gender, educational attainment and socioeconomic make-up, vulnerable individuals/occupancies, ethnic and cultural considerations, and population shifts. The following sections consider these demographic characteristics within the Town.

4.1 Population and Age

The total population of Olds has increased steadily over a 15 year timeframe (2001 – 2016). **Table 8** indicates that the Town experienced its highest growth in population between 2006 and 2011 (13.5%). The highest increase in total private dwellings occurred between 2001 and 2006.

Table 8: Historic Growth in Population and Households – Town of Olds (2016, 2011, 2006, 2001 Census)

Year	Population	% Change	Total Private Dwellings	% Change
2001	6,607	-	2,705	-
2006	7,253	9.8%	3,190	17.9%
2011	8,235	13.5%	3,702	16.1%
2016	9,184	11.5%	3,942	6.5%

Population and age are important risk topics to include within a Community Risk Assessment given that people are the source of emergency calls and certain demographics are at greater risk than others. Canada's aging population has been recognized as one of the most significant demographic trends. According to Statistics Canada, from 2011 to 2016 Canada experienced "the largest increase in the proportion of seniors since Confederation" due to the baby boomer generation reaching the age of 65. There are now more Canadians over the age of 65 (16.9% of the population) than there were children aged 14 years and younger (16.6%).[3]

Based on analysis of data from the Alberta Fire Commissioner's Statistical Report, 2013-2014, seniors represent one of the highest fire risk groups in the Province of Alberta. **Table 9** below was prepared using information found within the 2013-2014 report as well as demographic information reported in the 2016

[3] Source: Statistics Canada, The Daily: *Age and sex, and type of dwelling data: key results from the 2016 Census* http://www.statcan.gc.ca/daily-quotidien/170503/dq170503a-eng.htm?HPA=1, (date modified May 3, 2017; accessed May 23, 2017).

Census from Statistics Canada. The information displayed in the table indicates that although seniors represent only 11% of the provincial population, they account for 27% of fire fatalities.

Table 9: Fire Fatalities by Age Group (Alberta, 2014)

Category	Age	% of Provincial Population	% of Fire Fatalities
Children and Youth	14 years and under	18%	5%
Adults	15 to 64 years	71%	68%
Seniors	65 years and older	11%	27%

Source: Analysis of Data from the Alberta Fire Commissioner's Statistical Report, 2013-2014, 2016 Census, Statistics Canada

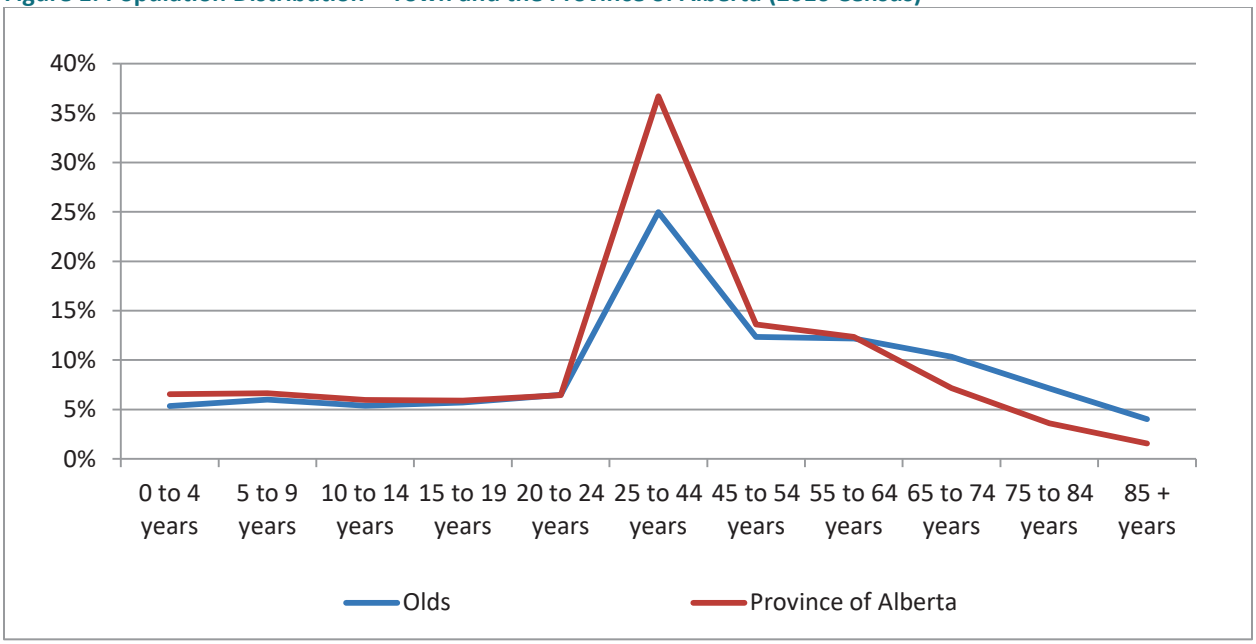
Identifying a community's population by age is a core component of developing a Community Risk Assessment and identifying specific measures to mitigate the risks associated with a specific age group such as seniors. **Table 10** provides a comparison of the Town's population by age group based on the 2016 Census compared to that of the Province.

Table 10: Population by Age Group (2016 Census)

Category	Town of Olds		Province of Alberta	
Age Group	**Population**	**%**	**Population**	**%**
0 to 4 years	490	5%	266,515	6%
5 to 9 years	550	6%	270,715	6%
10 to 14 years	495	5%	241,920	6%
15 to 19 years	525	6%	240,035	6%
20 to 24 years	595	6%	261,830	6%
25 to 44 years	2,295	25%	1,492,655	34%
45 to 54 years	1,135	13%	553,340	13%
55 to 64 years	1,120	13%	501,770	12%
65 to 74 years	950	10%	290,715	7%
75 to 84 years	655	7%	146,120	3%
85 + years	370	4%	63,385	1%
Total	**9,180**	**100%**	**4,329,000**	**100%**
Median Age of the Population	42	-	37	-
Population aged 14 and under	1,535	16%	779,150	18%
Population aged 65 and over	1,975	21%	500,220	11%

The 2016 census identified a total population of 9,180 for the Town. The age distribution of Olds and Alberta are further illustrated in **Figure 1** below. The figure indicates that the age distribution between the Town and the Province are evenly spread for a large portion of the population. Seniors represent a much higher percentage of the Town's population compared to the Province (21% vs. 11%). In addition, approximately 24% of the population are between the ages of 45 and 64 years of age, representing a portion of the population that is aging towards the seniors demographic of 65 and over. **Figure 1** also highlights that there are fewer youth between the ages of 0 and 14 years old when compared to the Province (16% versus 18%).

Figure 1: Population Distribution – Town and the Province of Alberta (2016 Census)



Key Finding: Seniors (those 65 years and over) are considered to represent one of the highest fire risk groups across the province based on residential fire death rate. The Town of Olds currently has a higher proportion of seniors compared to the Province (21% vs. 11%).

Key Finding: The current total population of the Town includes a component of 24% of people between the ages of 45 and 64 who are aging towards the seniors demographic of 65 or over.

4.2 Gender

N.F.P.A. 1730 considers gender as part of Comprehensive Risk Assessments due to the findings that, based on historic data, males are more likely to be injured or lose their life in a fire. [4] In examining the proportion

[4] National Fire Protection Association. (2014, October). Characteristics of Home Fire Victims. Retrieved July 2016, from http://www.nfpa.org/~/media/Files/Research/NFPA%20reports/Victim%20Patterns/oshomevictims.pdf

of males versus females overall for the Town, they are approximately evenly split at 48% male and 52% female as reflected in **Table 11**. Due to the minor variations in the proportions, it may be challenging to target public education information without considering this information spatially. When specific age groups are reviewed, there is a more noticeable difference in the age group of 85 years and over where males account for 34% and females 66% of that population. However, based on these statistics, it is not anticipated that public education programming would be refined based on gender. The impact of gender distribution on public education programming would be more notable in a community with unique demographics such as those that have transient populations due to employment, for example.

Table 11: Gender Distribution by Age Group – Olds (2016 Census)

Age Group	Total Population	Male	%	Female	%
0 to 4 years	495	255	52%	240	48%
5 to 9 years	550	275	50%	275	50%
10 to 14 years	495	250	51%	245	49%
15 to 19 years	525	285	54%	240	46%
20 to 24 years	600	310	52%	290	48%
25 to 44 years	2,305	1,175	51%	1,130	49%
45 to 54 years	1,135	530	47%	605	53%
55 to 64 years	1,125	525	47%	600	53%
65 to 74 years	940	430	46%	510	54%
75 to 84 years	665	295	44%	370	56%
85 + years	370	125	34%	245	66%
Total	**9,205**	**4,455**	**48%**	**4,750**	**52%**

4.3 Socioeconomic Circumstances

A significant factor that can impact fire risk is the socioeconomic circumstances of a community. Socioeconomic status is reflected in an individual's economic and social standing and is measured in a variety of ways accounting for a person's status in the labour force, their income, level of education and occupation. These factors can be reflected in the analysis of socioeconomic indicators such as labour force status, family structure, educational attainment and income as well as household tenure, occupancy, suitability, and cost.

Socioeconomic factors intersect in a number of ways and can have a direct and indirect impact on fire risk. For example, households with less disposable income may be less likely to purchase fire safety products (e.g., smoke alarms, fire extinguishers, etc.), which puts them at higher risk of experiencing consequences from a fire. Another consideration is that households living below the poverty line may have a higher

number of persons per bedroom in a household and/or children who are more likely to be at home alone. These circumstances would impact both the probability and consequence of a fire. While the complex relationships between socioeconomic circumstance and probability / consequence of a fire are not well understood within the fire service, this C.R.A. seeks to explore these factors at a high level for the Town in comparison to the Province of Alberta. It should be noted that, if viewed at a finer level of detail (e.g. census tract or neighbourhood level) consideration could be given to how these factors intersect and compound each other. For example, a neighbourhood that has a high proportion of seniors, immigrants, and unemployed residents may be at higher risk than a neighbourhood with just a high proportion of seniors.

The factors reviewed at a high level have been selected based on the data available from Statistics Canada. Factors that are highlighted in this section include:

- Labour force status;
- Immigrant status;
- Family structure;
- Educational attainment; and
- Household tenure, occupancy, suitability, and costs.

4.3.1 Labour Force Status

Labour force status is a possible indicator of income levels which directly influence fire risk (e.g. lower income, increased fire risk). The participation rate (i.e. the proportion of residents in the labour force) can also be an indicator of income and can be considered alongside unemployment rates (e.g. lower participation rate and higher unemployment could mean lower income, high fire risk). In terms of labour force status, **Table 12** below shows the Town of Olds has a slightly lower participation rate than the Province (68% versus 72%). The Town has a higher unemployment rate of 32% compared to the Province's 28%, suggesting a slightly higher fire risk from the perspective of labour force status.

In relation to fire risk, lower income levels could imply unsafe heating, lighting and cooking practices as well as less disposable income to purchase fire safety products. Studies have also shown a correlation between increased cigarette smoking among lower income groups which increases fire risk due to increased potential for fires due to cigarette ignition sources.[5]

5

Source: "Comprehensive Fire Safety Effectiveness Model." M.C.S.C.S., Last Modified: February 8, 2016: https://www.M.C.S.C.S..jus.gov.on.ca/english/FireMarshal/FireServiceResources/ComprehensiveFireSafetyEffectivenessModel/FireRiskSub-Model/Fire_risk_submodel.html#P190_7337

Table 12: Labour Force Status – Town and Province of Alberta (2016 Census)

Status	Town	%	Province of Alberta	%
In the labour force	4,955	68%	2,302,945	72%
Employed	4,510	62%	2,096,105	65%
Unemployed	450	6%	206,835	6%
Not in the labour force	2,330	32%	903,105	28%
Total	**7,290**	**100%**	**3,206,050**	**100%**

For the population aged 15 years and older in private households in the Town, 74% received employment income in 2015 whereas 77% received employment income for the Province (see **Table 13**). This suggests that the Town faces a slightly higher fire risk in comparison to the Province from the perspective of employment income status. These findings may be due to the higher proportion of seniors in the Town as compared to the Province.

Table 13: Employment Income Status in 2015 – Town and Province of Alberta (Census 2016)

Status	Town		Province of Alberta	
Without Employment Income (2015)	1,920	26%	732,385	23%
With Employment Income (2015)	5,370	74%	2,473,665	77%
Total	**7,290**	**100%**	**3,206,050**	**100%**

4.3.2 Family Structure

Family structure is another indicator of socioeconomic status and level of income. For example, single parent families are often more economically challenged due to the fact that there is only one income. These households may have fewer resources to arrange childcare, increasing the likelihood of fires caused by unsupervised children. For example, a higher proportion of lone-parent families could reflect lower household income and therefore a higher fire risk.

Table 14 indicates that of the families with children in Olds, 14% are lone-parent families, similar to the percentage of lone-parent families in Alberta (14%). This suggests that the Town does not experience a higher fire risk than the Province with respect to family structure and lone-parent families in particular.

Table 14: Family Structure – Town and Province of Alberta (Census 2016)

Family Structure	Town	%	Alberta	%
Couple-Only	1,240	48%	443,665	40%
Couple Families (with children)	980	38%	509,655	46%
Lone-Parent Families	350	14%	161,260	14%
Total	2,565	100%	1,114,585	100%

4.3.3 Educational Attainment and Income

The relationship between educational attainment and income is complex. An analysis conducted by Statistics Canada has found that high-income Canadians are generally more likely to be highly educated. Over two thirds (67.1%) of the top 1% had attained a university degree compared to 20.9% of all Canadians aged 15 and over.[6] Based on this national trend and for the purposes of this Community Risk Assessment it is assumed that a higher education is associated with more disposable income and lower fire risk. It is also assumed that these households are more likely to invest in the fire life safety products such as fire extinguishers and smoke alarms, reducing their fire risk.

Table 15 displays the educational attainment status for the portion of the population 15 years of age and older in private households.

Table 15: Educational Attainment – Town and Province of Alberta (2016 Census)

Educational Attainment	Town	%	Province of Alberta	%
No Certificate; Diploma or Degree	1,275	18%	540,665	17%
High School Diploma or Equivalent	2,160	30%	895,885	28%
Postsecondary Certificate; Diploma Or Degree	3,850	53%	1,769,500	55%
Total	**7,285**	**100%**	**3,206,050**	**100%**

According to the 2016 Census, 53% of residents in Olds have a postsecondary Certificate, Diploma or Degree, which is only 2% lower than the Province. This level of educational attainment could be linked to higher median household income. The median total income of households in 2015 for the Town was $78,517, which is below the Provincial median total income per household of $93,835. This suggests that the Town as a whole has a higher fire risk from the perspective of income using educational attainment as an indicator.

Another way to analyze income is through income decile groups. As stated by Statistics Canada, a "decile group provides a rough ranking of the economic situation of a person based on his or her relative position in the Canadian distribution of the adjusted after-tax income of economic families". Economic family income decile group for the population in private households is presented in **Table 16** illustrating that a higher portion of the population (44%) in Olds falls within the bottom distribution of income decile groups, 6% higher than the Provincial total (38%). These statistics are suggestive of higher fire risk within the Town from the perspective of income.

6 Source: "Education and occupation of high-income Canadians,: Statistics Canada, Last modified: 2018-07-25, https://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-014-x/99-014-x2011003_2-eng.cfm

Table 16: Economic Family Income Decile Group for the Population in Private Households (Town and Province of Alberta)

Income Decile Group	Town		Province of Alberta	
	Population	%	Population	%
In the bottom half of the distribution	3,855	44%	1,527,695	38%
In the top half of the distribution	4,965	56%	2,450,450	62%
Total	**8,820**	**100%**	**3,978,145**	**100%**

4.3.4 Household Tenure, Occupancy, Suitability and Costs

Table 17 summarizes household statistics for the Town and the Province of Alberta including tenure, occupancy, suitability and costs.

Housing tenure reflects socioeconomic status whereby a low home ownership rate may reflect lower incomes in the community and a higher overall fire risk. The Town has a slightly higher proportion of dwellings that are owned versus rented when compared to the Province (74% owned in Olds versus 73% in the Province). A higher proportion of multiple persons per household can result in increased fire loss (consequence) resulting in a higher risk. In the Town, only 1% of the households have more than one person per room, a lower percentage than the Province (2%).

Similarly, the 2016 Census reports on housing suitability which refers to whether a private household is living in suitable accommodations according to the National Occupancy Standard. Suitable accommodations are defined by whether the dwelling has enough bedrooms based on the age and relationships among household members. Based on this measure, only 2% (80) of the Town's households are not suitable compared to 5% for the Province as a whole (resulting in nearly 69,125 "not suitable" households across Alberta). From the perspective of housing suitability, the Town has a lower fire risk than the Province.

Shelter costs further provide some indication of the amount of disposable income within a household. Households with less disposable income have fewer funds to purchase household fire life safety items resulting in a higher risk. In Olds, 23% of households spend 30% or more of the household total income on shelter costs. This is similar to the Province, where 21% of households spend 30% or more of income on shelter costs.

Looking closer at shelter costs, the median value of dwellings in Olds is $320,510 ($79,594 less than the Province). The Town also has a lower median monthly shelter cost than the Province for owned and rented dwellings. This analysis suggests that from the perspective of shelter suitability, cost and the impact on income, the Town has a lower fire risk than the Province as a whole.

Table 17: Household Tenure, Occupancy, Suitability and Costs – Town and Province of Alberta (2016 Census)

Category	Town	%	Province of Alberta	%
Household Tenure				
Owner	2,720	74%	1,105,795	73%
Renter	980	26%	412,150	27%
Total Households	**3,700**	**100%**	**1,517,945**	**100%**
Household Occupancy				
One person or fewer per room	3,650	99%	1,494,875	98%
More than one person per room	50	1%	32,805	2%
Total Households	**3,700**	**100%**	**1,527,680**	**100%**
Housing Suitability				
Suitable	3,620	98%	1,458,550	95%
Not suitable	80	2%	69,125	5%
Total Households	**3,700**	**100%**	**1,527,675**	**100%**
Shelter Costs				
Spending less than 30% of household total income on shelter costs	2,895	79%	1,170,780	79%
Spending 30% or more of household total income on shelter costs	790	21%	308,485	21%
Total Households	**3,685**	**100%**	**1,479,265**	**100%**
Median value of dwellings	$320,510		$400,104	
Median monthly shelter costs for owned dwellings	$1,152		$1,481	
Median monthly shelter costs for rented dwellings	$1,103		$1,243	

(Source: Statistics Canada, 2016 Census)

As previously noted, it is important to keep in mind that all these factors can intersect with one another and have an impact on fire risk. For example, a community may have higher shelter costs, resulting in less disposable income, but also have a higher level of educational attainment. The impact of intersecting factors can have on fire risk (probability and consequence) is not widely understood at a detailed level within the fire service. This should be considered when assessing socioeconomic factors.

4.4 Ethnic and Cultural Considerations

Cultural diversity and ethnic background can be factors for fire service providers to consider in developing and delivering programs related to fire prevention and public education. Communication barriers, in terms of language and the ability to read written material, can have an impact on the success of these

programs. There may also be familiarity challenges related to fire safety standards within recent immigrant populations.

A high proportion of recent immigrants could demonstrate a higher fire risk due to a large population that may have the potential for lack of familiarity and/or experience with local fire life safety practices or possible language barriers. **Table 18** presents the overall immigration status of the population in Olds. The Town has a much lower proportion of immigrants overall (9%) compared to Alberta as a whole (21%). This trend is also seen when looking at recent immigrants (from 2011 to 2016).

Table 18: Immigration Status – Town and Province of Alberta (2016 Census)

Category	Town	%	Province of Alberta	%
Non-immigrants	7,920	90%	3,062,775	77%
Immigrants	815	9%	845,220	21%
Before 1981	285	3%	163,460	4%
1981 to 1990	75	1%	86,350	2%
1991 to 2000	50	1%	131,560	3%
2001 to 2010	130	1%	256,055	6%
2001 to 2005	55	1%	109,145	3%
2006 to 2010	75	1%	146,910	4%
2011 to 2016	275	3%	207,790	5%
Non-permanent residents	80	1%	70,155	2%
Total	**8,815**	**100%**	**3,978,150**	**100%**

Table 19 provides a breakdown of the knowledge of official languages based on the 2016 Statistics Canada census information. As shown, 96% or 8,565 people in the Town speak English only. In addition, 4% of the population or 345 individuals state that they know both English and French, and only 30 people have no knowledge of English or French. These percentages reflect a lower fire risk from the perspective of language within the Town. This finding is in alignment with the period of immigration analysis presented above. Overall, language barriers do not reflect a significant risk to the community. The potential for communication barriers should be considered and monitored, especially when working with specific groups (e.g., tourists).

Table 19: Knowledge of Official Languages (2016 Census)

Language	Town		Province of Alberta	
	Total	% Total	Total	% Total
Total population (non-institutional)	8,940	-	4,026,660	-
English Only	8,565	96%	3,698,765	92%
French Only	0	0%	3,895	0%
English and French	345	4%	264,720	7%
Neither English nor French	30	0%	59,280	1%

4.5 Population Shift

The population within a community can shift at various times during the day or week and throughout the year. Population shift can be a result of a number of factors including employment, tourism, and education. In some municipalities, residents occasionally leave the community for employment. Other communities may be major tourist and vacation destinations resulting in large population shifts related to seasonal availability of tourism activities. This can present a number of unique risks and associative challenges for response efforts. As such, it is important to consider population shifts from a fire protection, education and prevention standpoint. Specific fire protection strategies to address population shifts should be accommodated as part of broader services, such as pro-active fire inspections of the facilities occupied by these demographics.

Through the data collection process, the O.F.D. identified that the Town has a high population of people commuting for work who do not own property in the Town. This is due to the nearby oil and forestry industries that attract workers from nearby communities. With a high transient worker population there is an increased risk due to overnight accommodation which can impact the demand for fire protection services. This is an important consideration from an emergency response perspective as a high number of workers commuting to and from work could increase the number of vehicle collision calls to which the Fire Department responds. Additionally, an impact of population shift could mean potentially longer emergency response times, often attributed to commuter traffic.

In some communities, a key source for a population shift might be an educational institution that attracts students from outside the typical community. The Town of Olds is home to Olds College which offers programs in agriculture and agricultural technology, animal science, and horticulture among other streams of study. The 2017-2018 Olds College Annual Report indicates there has been an increase in annual enrollment and in the 2017-2018 academic year welcomed 3,842 students, of which 613 students lived on campus during the academic year. Colleges are an important consideration as they may have school-based residences such as this or contribute to a population that is not captured through the Census. With some students living away from home for the first time, there may be a higher risk of cooking fires

within campus residencies. As a result, there may be opportunities for the O.F.D. to distribute fire life safety information and messaging to the student population.

Key Finding: There are shifts in student and commuter populations throughout the year which may impact the demand for fire protection services.

5.0 Hazard

Hazards are important to consider from a fire risk, emergency response and overall public safety perspective. N.F.P.A. 1730 identifies three types of hazards: natural, human-caused, and technological. This section presents a summary of Hazard Identification Risk Assessments in Alberta and the Town.

5.1 Hazard Identification and Risk Assessment (H.I.R.A.) in Alberta

A hazard is defined as a phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.[7] Hazards can be natural, human-caused or technological. It is important to identify and consider these hazards from a fire risk, emergency response and public safety perspective in order to assist local emergency response personnel prepare for and mitigate the risks within their communities, allowing for the creation of exercises, training programs and plans based on hazardous scenarios.

Under the Local Authority Emergency Management Regulation (under the authority of the *Emergency Management Act*) which is anticipated to come into force on January 1, 2020, municipalities are required to conduct a hazard and risk assessment as a component of their individual emergency management program.[8] The hazard identification and risk assessment results are used to categorize the hazards into risk levels with the ultimate goal of aiding the municipality in its emergency management efforts and programming.

Alberta municipalities have access to the Community Emergency Management Program (C.E.M.P.), an on-line tool that provides access to emergency management related modules, one of which includes community risk assessment. The C.E.M.P. provides a risk assessment tool using Hazard Identification and Risk Assessment methodology.[9]

7

Source: "Terminology," United Nations Office for Disaster Risk Reduction website, last updated: Feb 2, 2017, https://www.unisdr.org/we/inform/terminology

8

Source: Alberta Regulation 203/2018, Section 4.d

9 Source: "Model Plan for Municipalities", Alberta Government website, https://www.alberta.ca/model-plan-for-municipalities.aspx

5.2 Town of Olds Hazard Identification and Risk Assessment (H.I.R.A.)

The most recent Hazard and Risk Assessment was conducted for the Town of Olds in 2018. Through the risk assessment process, the top risks for Olds that were identified as having a high risk score resulting in an extreme to very high risk level include the following:

- Major Road Vehicular Accidents;
- High Intensity Residential Fire;
- Tornado;
- Hazmat (Transportation) Rail;
- Hazmat (Transportation) Road;
- Oil and Gas Emergency;
- Pipelines; and
- Toxic Gas Release.

Although most emergency response plans and emergency management programs are inherently designed to address all hazards, the development of hazard-specific plans can enhance overall emergency planning efforts in preparing for specific hazards that are most likely to present the greatest risk to a community. The Fire Services Master Plan includes a review of the Town's emergency management program currently in place as well as the operational approaches to some of the hazards and risks identified within this Community Risk Assessment.

Key Finding: The top hazards within the Town of Olds include major road vehicular accidents, high intensity residential fires, tornados, and transportation hazmat related risks for rail and road.

6.0 Economic

According to N.F.P.A. 1730, the Economic Profile of a community considers particular facilities, employers, or events in a community that may contribute to its financial vitality and sustenance. If these facilities, employers, or events are impacted through a fire or emergency event, it could have a negative impact on the overall well-being of the Town.

6.1 Top Employers in Olds

Certain industries, employers and events contribute to the economic vitality and well-being of a community. If these facilities, employers or events are impacted through a fire or other emergency, it could have a negative effect on the overall financial stability and/or vitality of a municipality.

The Town of Olds is known as the centre of agriculture which is a large contributor to the Town's economy. The Smart Farm and Agriculture program at Olds College is a reflection of the Town's deep roots and history in the agricultural industry. The Smart Farm provides agricultural students with an opportunity to receive hands-on experience with the latest farming and crop technologies. The College itself is one of the Town's top employers, providing jobs to over 400 people in the Olds area and surrounding communities.

More recently (2018), Sundial Growers opened a cannabis greenhouse in the rural area of the Town, west of 46 Avenue. The facility currently measures over 400,000 square feet and is expected to expand and evolve into a major hub for the cannabis industry[10] which would solidify their presence as a top employer of the Town and major contributor to the economy in Olds. The Town's top employers according to the Town are listed in **Table 20** below.

Table 20: Olds Top Employers and Approximate Number of Employees

Employer	Number of Employees
Olds College	434
Sundial Growers	300
Olds Hospital	300
Walmart	200
Richardson Brothers	150

10

Source: "Marijuana facility that could produce 100M grams a year opens in Olds," CBC News, Last Updated: October 12, 2018: https://www.cbc.ca/news/canada/calgary/olds-marijuana-facility-sundial-growers-1.4859458

Employer	Number of Employees
Town of Olds	102
Olds SoftGels	100
ProAll Incorporated	90
Westeel	48
Premier Horticulture	N/A

Source: O.F.D.

Key Finding: The Town has key facilities/employers that greatly contribute to the economic well-being of the municipality. This includes Olds College and Sundial Growers.

7.0 Fire Profile

Past fire loss statistics can be assessed to understand trends within a community and design a community risk reduction plan accordingly including proactive public education programming and inspection cycles. This section reviews overall fire loss, fires loss by occupancy type, death or injury by occupancy type, source of ignition, reported fire cause, and smoke alarm status. Data for this profile was sourced from the Alberta Office of the Fire Commissioner website.

7.1 Overall Fire Loss

Analysis of historical data provides valuable insight into understanding the specific trends within a community. Assessing the key factors of life safety risk and fire risk in relation to provincial statistics provides a foundation for evaluating where specific programs or services may be necessary. The overall property loss as a result of fires is displayed in **Table 21** showing the total number of fires and property loss for the Town of Olds and the Province of Alberta for the period of 2007 to 2016. During this period, Olds experienced a total of 153 property fires leading to $4,600,724 in property loss.

Table 21: Town of Olds and Province of Alberta Property Loss Fires (2007-2016)

Year	Town of Olds		Province of Alberta	
	# of Fires	$ Loss	# of Fires	$ Loss
2007	21	$368,244	5,312	$336,369,045
2008	12	$315,012	5,711	$395,618,839
2009	14	$657,200	5,276	$524,773,346
2010	17	$178,928	5,059	$396,164,981
2011	10	$9,550	7,011	$836,538,313
2012	15	$176,592	5,456	$488,109,434
2013	19	$844,765	5,210	$498,323,983
2014	15	$118,250	5,157	$443,638,009
2015	20	$1,566,863	5,527	$619,620,130
2016	10	$365,320	16,268	$2,228,521,312
Total	**153**	**$4,600,724**	**65,987**	**$6,767,677,392**

Source: Alberta Office of the Fire Commissioner

*Note: These numbers could not be confirmed by the O.F.D.

The analysis of historical fires by occupancy type highlights the occupancies which may be more vulnerable to fires than others. To assess the fire loss by occupancy classification, data retrieved from the Office of the Fire Commissioner was analyzed with reference to the O.F.C.'s Fire Statistics Reporting Manual (March 2006). Data for fire loss within the Town by property classification is shown in **Table 22**

for a ten year period from 2007 to 2016. As previously mentioned, of the 153 property fires that occurred between 2007 and 2016, there was a total property loss of $4,600,724.

The majority of property loss (77%) took place in Group C – Residential occupancies with a dollar loss of $3,530,820. Group C – Residential occupancies also accounted for the highest proportion of fire at 35% (or 54 fires over the ten year period). When the categories that do not directly align with the A.B.C. major occupancy classifications are removed from the calculations, fires in Group C – Residential occupancies account for 73% of all fires and fires in Group A – Assembly occupancies accounts for 11% of fires. The high proportion of fire occurring in Group C – Residential occupancies may be aligned with the high overall proportion of Group C – Residential as part of the building stock. However, only 2% of the Town's building stock is comprised of Group A – Assembly occupancies.

Properties that are not a part of an A.B.C. major occupancy classification (e.g., storage properties, special property and transportation equipment) account for 52% of the 153 fires occurring over the ten year period.

Table 22: Town of Olds Fire Loss by Property Classification (2007-2016)

Group	Occupancy Classification	Fires	% Fires	Property Loss	% Property Loss
Group A	Assembly	8	5%	$48,250	1%
Group B	Care or Detention	1	1%	$600	0%
Group C	Residential	54	35%	$3,530,820	77%
Group D	Business and Personal Services	1	1%	$1,200	0%
Group E	Mercantile	5	3%	$37,782	1%
Group F	Industrial	5	3%	$41,250	1%
Other	Storage Properties	1	1%	$5,000	0%
	Special Property and Transportation Equipment	59	39%	$535,109	12%
	Miscellaneous Property	17	11%	$160,042	3%
	Unknown	2	1%	$240,671	5%
	Total	**153**	**100%**	**$4,600,724**	**100%**

Source: Alberta Office of the Fire Commissioner
*Note: These numbers could not be confirmed by the O.F.D.

Key Finding: Group C – Residential occupancies account for 73% of property fires within the Town when analyzing the proportion of fires that occurred within an A.B.C. major occupancy classification.

Key Finding: Group A – Assembly occupancies account for 11% of property fires within the Town when analyzing the proportion of fires that occurred within an A.B.C. major occupancy classification.

Key Finding: Properties that are not a part of an A.B.C. major occupancy classification (e.g., storage properties, special property and transportation equipment, etc.) account for 52% of the 153 fires occurring over the ten year period.

7.1.1 Recent Fire Loss

It is important to note that it was identified as part of the review completed for the C.R.A and F.S.M.P that in December 2018, there was a major fire loss within the community at Sundial Growers related to an electrical fire.[11] This incident resulted in an estimated loss of over $5,000,000 with the losses minimized due to response provided by O.F.D. The analysis presented within the C.R.A. has identified Sundial Growers as a major employer and a building with increased risk due to building area. Through this analysis, it has been demonstrated that Sundial Growers plays an important role within the community and has a number of fire risks associated with the facility.

Key Finding: Due to its economic role within the community, historic fire loss, and building area risks, Sundial Growers reflects a special risk consideration for the Town of Olds.

7.2 Civilian Fire Fatalities and Injuries

As shown in **Table 23**, during this ten period (2007-2016), there were two reported fatalities and one reported injury within Olds. All injuries and fatalities within the Town occurred in Group C – Residential occupancies. This finding is consistent with the fire loss statistics by occupancy, whereby the majority of fire losses within the Town occurred in Group C – Residential occupancies.

Table 23: Town of Olds Reported Civilian Injuries and Fire Fatalities (2007-2016)

Group	Occupancy Classification	Injuries	Fatalities
Group A – Assembly	Assembly occupancies	0	0
Group B – Care or Detention	Care or Detention occupancies	0	0
Group C - Residential	Residential occupancies	1	2*
Group D - Business	Business and Personal Services Occupancies	0	0
Group E - Mercantile	Mercantile occupancies	0	0

[11] "Fire hits licensed Alberta cannabis grow operation on eve of first shipment", Calgary Herald, January 2, 2019: https://calgaryherald.com/cannabis/cannabis-business/fire-hits-licensed-alberta-cannabis-grow-operation-on-eve-of-first-shipment

Group	Occupancy Classification	Injuries	Fatalities
Group F - Industrial	Industrial occupancies	0	0
Other	Storage Properties	0	0
	Special Property and Transportation Equipment	0	0
	Miscellaneous Property	0	0
	Unknown	0	0
Total		**1**	**2**

Source: Alberta Office of the Fire Commissioner
**Note: These numbers could not be confirmed by the O.F.D.*
**Note: The O.F.D. has indicated that both fire fatalities did not occur within the boundary of Olds, rather in the Fire District of Olds (within Mountain View County)*

Key Risk: For the period 2007 to 2016, the two fatalities and one injury all occurred within Group C – Residential occupancies.

7.3 Reported Fire Cause

Assessing the possible cause of the fires reported is an important factor in identifying potential trends, or areas that may be considered for introducing additional public education or fire prevention initiatives. Analysis was carried out on the Alberta Fire Commissioner's Statistical Reporting for fire losses by major act or omission for the Town of Olds data as presented in **Table 24**. This analysis was completed with reference to the O.F.C.'s Fire Statistics Reporting Manual (March 2006).

The highest proportion of fire causes by act or omission were unintentional fires classified as Mechanical/Electrical Failure/Malfunction (28%). The second highest proportion of fires were intentional fires caused by Arson or 'Set Fires'. These are related to acts of vandalism, vengeful or spiteful purposes, compulsive behaviour, or set by children under 12 years of age. There were 39 Arson or 'Set Fires' reported for this period totalling 25% of all fires. Over the ten year period, the act or omission was due to Human Failing for 12% of fires including being distracted or preoccupied, ignorance, or suspected impairment. Miscellaneous Act or Omission (23% of fires) includes fires with an act or omission that "cannot be determined".

Table 24: Town of Olds Fire Loss by Major Acts or Omissions (2007-2016)

Act or Omission	Fires	% of Fires	Property Loss ($)	% Property Loss
Mechanical/Electrical Failure/Malfunction	43	28%	$1,347,019	29%
Arson or 'Set Fires'	39	25%	$580,913	13%
Human Failing	19	12%	$319,232	7%

Act or Omission	Fires	% of Fires	Property Loss ($)	% Property Loss
Misuse of Source of Ignition	5	3%	$677,600	15%
Misuse of Material Ignited	1	1%	$5,000	0%
Construction, Design, Installation Def.	2	1%	$28,400	1%
Vehicle Accident	0	0%	$-	0%
Misuse of Equipment	7	5%	$30,161	1%
Miscellaneous Act or Omission	35	23%	$1,371,728	30%
Unknown	2	1%	$240,671	5%
Total	**153**	**100%**	**$4,600,724**	**100%**

Source: Alberta Office of the Fire Commissioner
*Note: These numbers could not be confirmed by the O.F.D.

Key Finding: Of the fires occurring in the Town between 2007 and 2016, the leading causes of unintentionally set fires was due to Mechanical/Electrical Failure/Malfunction at 28% of fires followed by Human Failing at 12%.

Key Finding: Of the fires occurring in the Town between 2007 and 2016, 25% of fires were intentionally caused and classified as Arson or 'Set Fires'.

7.3.1 Ignition Source

Table 25 illustrates the fire loss by source of ignition based on an analysis of the data provided from 2007 to 2016 from the Office of the Fire Commissioner for the Town of Olds and with reference to the O.F.C.'s Fire Statistics Reporting Manual (March 2006). The most common known ignition sources within the Town are Smoker's Material & 'Open' Flame (18%) followed by Heating Equipment (10%). Over this period, 67 fires (or 44%) were categorized as Miscellaneous. This includes ignition sources such as commercial and industrial machinery, a chemical reaction, as well as 56 instances of "igniting object – cannot be determined." The General category refers to cases where there was no igniting object, but were ignited through lightning.

Table 25: Town of Olds Fire Loss - Reported Source of Ignition (2007-2016)

Reported Ignition Source	Number of Fires	% of Fires	$ Losses	% Property Loss
Appliances & Equipment	6	4%	$82,332	2%
Cooking Equipment	9	6%	$184,350	4%

Reported Ignition Source	Number of Fires	% of Fires	$ Losses	% Property Loss
Electrical Distribution Equipment	10	7%	$500,500	11%
Heating Equipment	15	10%	$245,848	5%
Smoker's Material & 'Open' Flame	27	18%	$470,544	10%
Other Electrical Equipment	12	8%	$439,350	10%
Miscellaneous	67	44%	$2,289,079	50%
Exposure	4	3%	$91,350	2%
General	1	1%	$56,700	1%
Unknown	2	1%	$240,671	5%
Total	**153**	**100%**	**$4,600,724**	**100%**

Source: Alberta Office of the Fire Commissioner
*Note: These numbers could not be confirmed by the O.F.D.

Key Finding: The most common known sources of ignition for fires within the Town is due to Smoker's Material & 'Open' Flame at 18% and Heating Equipment at 10%.

7.3.2 Smoke Alarm Status

There is data publically available at the Provincial level, but not at the municipal level, for the smoke alarm status in the event of a fire. According to the 2011-2012 Alberta Fire Commissioner's Statistical Report, for the period of 2011 and 2012, there were 3,179 fires where a smoke alarm was not installed (totalling 69% of fires in 2011 and 58% in 2012). In the instances where a smoke alarm was present, a smoke alarm was activated 38% of the time. They were not activated in 28% of the time and it is unknown if they were activated 34% of the time.

If an alarm was activated but did not assist, the primary cause was that it was unnecessary to evacuate (at 76%) followed by individuals being under the influence of drugs and alcohol at 10%. The top reason an alarm was not activated over the 2011 to 2012 time period was due to not enough smoke (64%) followed by no battery in the smoke alarm (11%). According to the report, most of the fires originated outside of the home or in structural elements which meant that an adequate amount of smoke did not reach the detector.

These statistics support fire department programming regarding the importance of having a smoke alarm installed with working batteries.

Key Finding: Provincial home smoke alarm statistics emphasize the importance for local fire department programs related to smoke alarms.

8.0 Response Profile

As described in N.F.P.A. 1730, the Response Profile describes and presents an analysis of the types of emergencies to which the Olds Fire Department responds. The profile assesses the historical emergency response capabilities of the O.F.D. based on data collected by the department for the period from January 2015 to December 2017. This includes an analysis of annual call volume, call volume by day of the week, time of day and response type. The call volumes provided below consist of calls responded to within Town boundaries and in the surrounding Mountain View County.

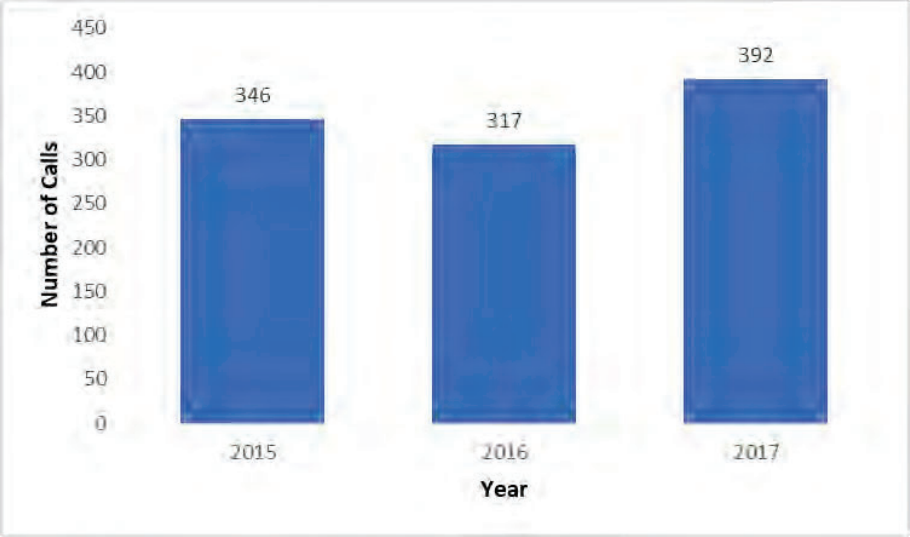
8.1.1 Call Volume – All Incidents

The response profile seeks to apply the historic call data to develop an understanding of community risks. The analysis provided within this profile is based on all historical calls responded to by the O.F.D. for the years 2015-2017. This section provides a statistical assessment of historic call volumes experienced by the O.F.D. by different time segments (e.g. annual calls, weekly calls, daily calls, etc.). It also provides detailed breakdowns of calls by type and corresponding volumes. The volume and frequency of historic calls informs the understanding of response probability. The combined consideration of these elements provides an understanding of community risk, based on past calls for service.

8.1.1.1 Annual Call Volume – All Incidents

The annual call volume provides a high level understanding of the probability of incidents occurring in the areas in which the O.F.D. responds. A summary of the total number of calls within the Town from 2015-2017 is shown in **Figure 2**. Overall, the number of calls responded to by the O.F.D. increased from 2015 to 2017, by a difference of 46 calls, with the lowest number of calls received in 2016 (317 calls). Within these three years, there was an increase in call volume which occurred between 2016 and 2017 with an increase in 75 calls. Based on this information, the O.F.D. responds to an average of 352 calls per year.

Figure 2 Annual Call Volume (2015-2017)

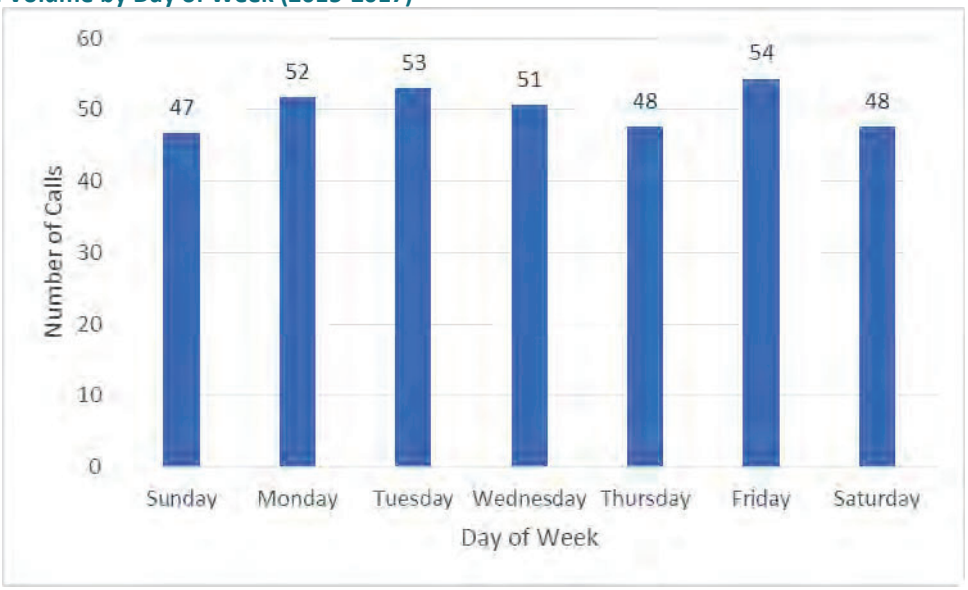


Key Finding: From 2015 to 2017, there was an increase in call volume.

8.1.1.2 Average Call Volume by Day of Week – All Incidents

Call volume is fairly consistent across all days of the week, as **Figure 3** below illustrates. On average, highest call volume occurs on Tuesdays and Fridays, while the lowest average call volume occurs on Sundays. The difference between the highest and lowest call volumes is only seven calls.

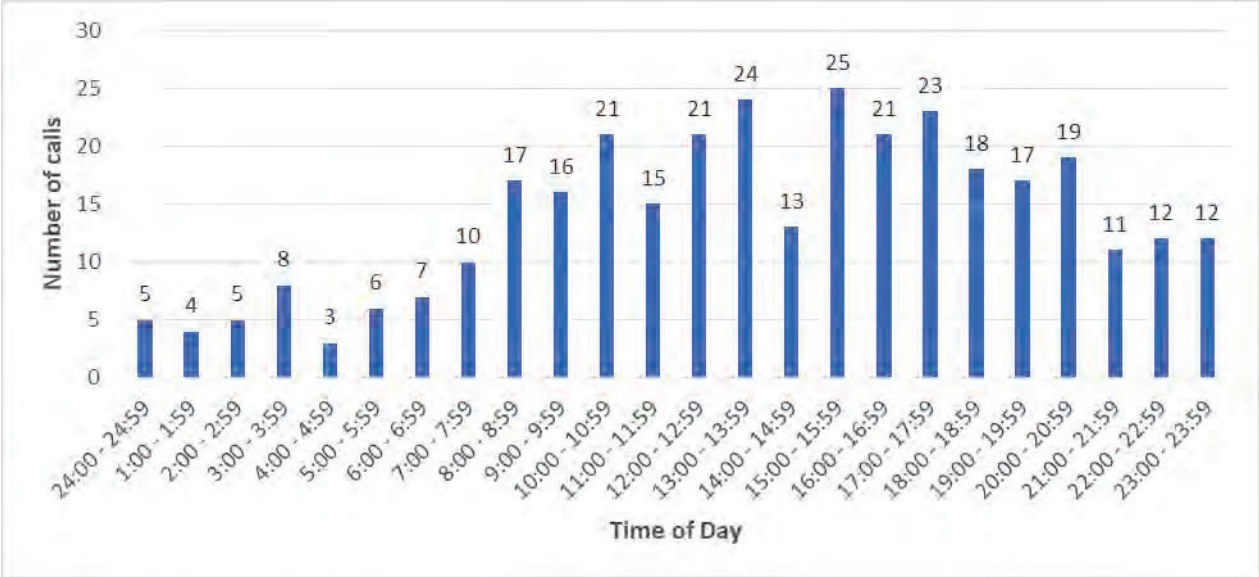
Figure 3: Call Volume by Day of Week (2015-2017)



8.1.1.3 Average Call Volume by Time of Day - All Incidents

Figure 4 indicates that on average, higher call volumes are experienced throughout day time hours between 8am and 8pm. The lowest average call volume takes place between the hours of 9pm and 7am. This trend of low average call volume during night time hours occurs when the majority of the population is typically asleep.

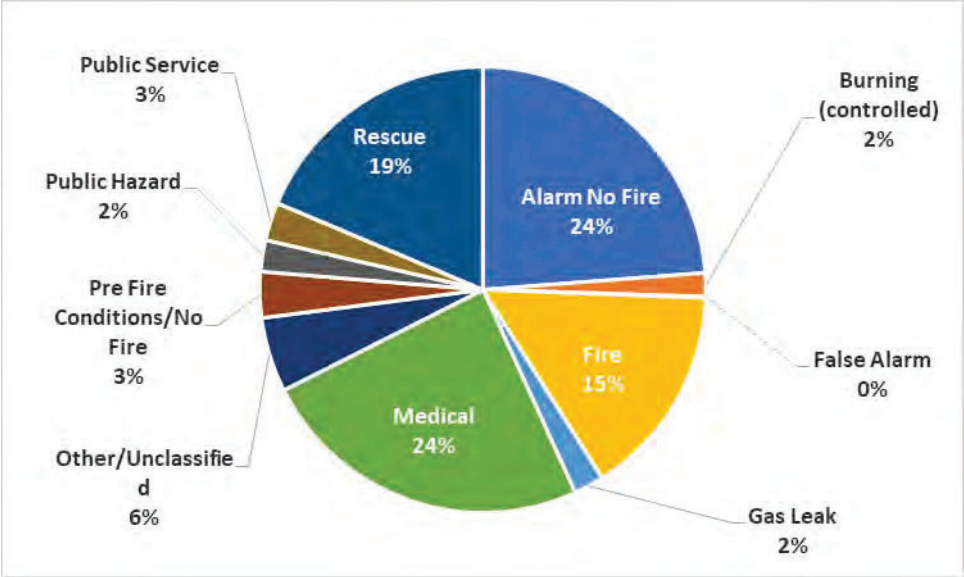
Figure 4: Average Call Volume by Time of Day (2015-2017)



8.1.1.4 Call Volume by Olds Response Type

Figure 5 shows the percentage of calls responded to by the O.F.D. by response type. Alarm, No Fire calls and Medical calls (both 24 %) are the most common response type. Fire calls account for 15% of calls responded to and rescue calls account for 19%. Alarm, No Fire calls include smoke or steam mistaken, sprinkler surge or discharge, detector activated, and accidental miscellaneous. Fire calls include fire calls, no loss rubbish or grass fires, and 'no alarm fire – not responded to by fire department'.

Figure 5: Call Volume by Response Type (2015-2017)



Key Finding: From 2015 to 2017, O.F.D. call volume was comprised of 24% Alarm No Fire calls, 24% Medical calls, 19% Rescue calls, and 15% Fire calls.

9.0 Applying Risk Outcomes

The Community Risk Assessment and Fire Service Master Plan are complementary documents. The findings of the C.R.A. help to define local needs and circumstances and ultimately inform the service levels provided by the fire department. This section of the C.R.A. brings together all of the risk assessment outcomes and frames how they will be used to inform the F.S.M.P. This includes an overview of the overall approach (**Section 9.1**) as well as the application of that approach (**Section 9.2 and 9.3**).

9.1 Overall Approach

To apply the risk outcomes, this C.R.A. considers the 5 "E's" of Community Risk Reduction and the application of a risk matrix in order to assign risk levels to the major occupancy types.

9.1.1 The 5 "E's" of Community Risk Reduction

According to N.F.P.A. 1300, identifying and prioritizing community risk is the first step in developing a Community Risk Reduction Plan (C.R.R.P.). A C.R.R.P. establishes the foundation for reducing the occurrence and impact of local fire and life safety risks, integrating fire suppression and prevention strategies. Although emergency response may be needed in some instances, there are other approaches that can be applied to reduce the need for emergency response and optimize public safety within the community.

Together, these risk reduction strategies form the ***five "E's"***, a framework outlined in N.F.P.A. 1300, and the Institution of Fire Engineers' *Vision 20/20 National Strategy for Fire Loss Prevention*. The five "E's" are summarized in **Table 26**. These strategies include increasing awareness (**E**ducation), changes to the physical environment (**E**ngineering), influencing change through economic incentives (**E**conomic Incentives), enforcing legislation through inspection programs (**E**nforcement) and mitigating injury, illness and saving lives (**E**mergency Response). For some risks, only one strategy may apply and others may require multiple strategies. Incorporating all "E's" into the risk reduction process will enable the fire department to provide the highest level of fire protection.

Table 26: Overview of the N.F.P.A. 1300 Five "E's"

Five E's	Description
Education	Education influences audiences to refrain from risky or unhealthy behavior or take positive action to reduce risk.
Enforcement	Enforcement reduces risks through enforcing legislation through inspections and fines for noncompliance.
Engineering	Engineering includes incorporating new products and technology to modify the environment to prevent or mitigate injuries and deaths.

Five E's	Description
Economic Incentives	Economic incentives are typically offered to encourage better choices and changes in behaviour.
Emergency Response	Effective emergency response can mitigate the effects of unintentional injuries and save lives.

Source: Community Risk Reduction: Doing More With More, The NFPA Urban Fire and Life Safety Task Force, June 2016.

This C.R.A. is designed to incorporate the framework of the five "E's" into the fire master planning process which results in a strategic document. It is important to note that N.F.P.A. 1300 discusses the application of the 5 E's to develop very specific goals and objectives to reduce risk. It also acknowledges that some strategies may require policy advocacy or legislative work. These are important considerations for a department but are beyond the purview of the recommendations found within a Fire Service Master Plan document. As a result, the recommendations of the F.S.M.P will focus on ways to reduce risk from the perspective of the typical operations of a department. This includes a focus on a proactive reduction of risk through education, prevention, and enforcement with fire suppression as the fail-safe. The manner in which this will be accomplished for the F.S.M.P. can be found in **Section 9.2**.

9.1.2 Risk Assignment

The risk assignment methodology used as part of this C.R.A is informed by N.F.P.A. 1730, Dillon's historical experience in applying the Ontario Office of the Fire Marshal's (O.F.M.E.M.) Fire Risk Sub-model, and risk management industry best practices.

At a high level, there are three steps included in the risk assignment exercise used for this C.R.A.:

1. Determine a probability level to assign to each event;
2. Determine a consequence level to assign to each event; and
3. Establish the risk level (e.g., numerical value / location on the matrix) and risk category (e.g., low, moderate or high) for each based on the identified probability and consequence for each event.

9.1.2.1 Probability Levels

The probability of a fire or emergency event occurring can be estimated in part based on historical experience of the community and that of the province as a whole. The application of broader risk management industry best practices is also a key element in assigning probability levels as shown in **Table 27**.

Table 27: Probability Levels

Likelihood Category	Value	Description
Rare	1	• May occur in exceptional circumstances • No incidents in past 25 years
Unlikely	10	• Could occur at some time, especially if circumstances change • At least one incident in past 10 years
Possible	100	• Might occur under current circumstances • More than one incident in the past 10 years
Likely	1,000	• Will probably occur at some time under current circumstances • More than one incident in the past 5 years
Almost Certain	10,000	• Expected to occur in most circumstances unless circumstances change • One or more incidents per year

9.1.2.2 Consequence Levels

The consequences as a result of an emergency event relates to the potential losses or negative outcomes associated with the incident. There are four components that should be evaluated in terms of assessing consequence. These include:

1. ***Life Safety:*** Injuries or loss of life due to occupant and firefighter exposure to life threatening fire or other situations.
2. ***Property Loss:*** Monetary losses relating to private and public buildings, property content, irreplaceable assets, significant historic/symbolic landmarks and critical infrastructure due to fire.
3. ***Economic Impact:*** Monetary losses associated with property income, business closures, downturn in tourism, tax assessment value and employment layoffs due to fire.
4. ***Environmental Impact:*** Harm to human and non-human (e.g., wildlife, fish and vegetation) species of life and general decline in quality of life within the community due to air/water/soil contamination as a result of fire or fire suppression activities.

Table 28 presents the consequence levels.

Table 28: Consequence Levels

Consequence Category	Value	Description
Insignificant	1	• No life safety issue • Limited valued or no property loss • No impact to local economy and/or • No effect on general living conditions
Minor	10	• Potential risk to life safety of occupants • Minor property loss • Minimal disruption to business activity and/or

Consequence Category	Value	Description
		• Minimal impact on general living conditions
Moderate	100	• Threat to life safety of occupants • Moderate property loss • Poses threat to small local businesses and/or • Could pose threat to quality of the environment
Major	1,000	• Potential for large loss of life • Would result in significant property damage • Significant threat to businesses, local economy, and tourism and/or • Impact to environment would result in a short term, partial evacuation of local residents and businesses
Catastrophic	10,000	• Significant loss of life • Multiple property damage to significant portion of the municipality • Long term disruption of businesses, local employment, and tourism and/or • Environmental damage that would result in long-term evacuation of local residents and businesses

9.1.2.3 Risk Level

Once probability and consequence are determined the level of risk is calculated by multiplying the numerical values for probability and consequence. The relationship between probability and consequence as it pertains to risk levels can be illustrated in a risk matrix. In a risk matrix, probability and consequence are defined on separate scales with varying descriptors providing direction on how to assign the probability and consequence of an event. While these descriptors will vary, probability and consequence must use the same logarithmic numeric scale to reflect the fact that they are equally important. It is human tendency to place a higher weight on consequence than on probability, but robust risk analysis methods value probability and consequence equally.

This study makes use of the risk categories identified in N.F.P.A. 1730 and the descriptions for each risk category provided in the O.F.M.E.M. Fire Risk Sub-Model. **Table 29** shows the risk matrix for this CRA.

Table 29: Risk Matrix

Probability \ Consequence		Insignificant	Minor	Moderate	Major	Catastrophic
		1	*10*	*100*	*1,000*	*10,000*
Almost Certain	*10,000*	10,000	100,000	1,000,000	10,000,000	100,000,000
Likely	*1,000*	1,000	10,000	100,000	1,000,000	10,000,000
Possible	*100*	100	1,000	10,000	100,000	1,000,000
Unlikely	*10*	10	100	1,000	10,000	100,000
Rare	*1*	1	10	100	1,000	10,000

Risk Category	Definition
Low Risk	• Manage by routine programs and procedures • Maintain risk monitoring
Moderate Risk	• Requires specific allocation of management responsibility including monitoring and response procedures
	•
High Risk*	• Community threat, senior management attention needed • Serious threat, detailed research and management planning required at senior levels

9.2 Categorization of Key Findings

When it comes to aligning service levels with risks that define local needs and circumstances, it is important to recognize that not all risk analysis outcomes align with the services provided by a fire department in the same way. For this reason, the risk outcomes - Key Findings - are categorized based on how they can be used to inform the activities, strategies, and services provided by the O.F.D. This categorization is then directly used within the Fire Services Master Plan.

As referenced above, the categories used for this process are based on the five "E's" of community risk reduction planning: Education, Enforcement, Engineering, Economic Incentive and Emergency Response as shown in **Table 30**.

Table 30: Risk Analysis Outcome Categorization

Five E's	Description	Purpose
Education	Education influences audiences to refrain from risky or unhealthy behavior or take positive action to reduce risk.	For consideration within the proposed Public Education Program
Enforcement	Enforcement reduces risks through enforcing legislation through inspections and fines for noncompliance.	For consideration within the proposed Inspection/Enforcement Program

Five E's	Description	Purpose
Engineering	Engineering includes incorporating new products and technology to modify the environment to prevent or mitigate injuries and deaths.	For consideration within the proposed Fire Inspection and Enforcement Program
Economic Incentives	Economic incentives are typically offered to encourage better choices and changes in behaviour.	For consideration within the proposed Inspection/Enforcement Program
Emergency Response	Effective emergency response can mitigate the effects of unintentional injuries and save lives.	For consideration within the proposed Emergency Response Deployment Options

The risk outcomes from each profile that inform local needs and circumstances are aligned with one or more of the five "E's". **Table 31** presents the Key Findings in a matrix format to indicate the ways in which the risks can be addressed by the fire department and ultimately considered within the Fire Services Master Plan analysis and recommendations.

Table 31: Categorization of Key Findings

Profile	C.R.A. Analysis Outcome: Key Finding	Education	Enforcement	Engineering	Economic Incentive	Emergency Response
		For consideration within the proposed Public Education Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Fire Inspection and Enforcement Program	For consideration within the proposed Emergency Response Program
Geographic	The road network is a contributor to emergency call volume due to motor vehicle-related incidents.					✓
	The Town's at-grade rail crossings and the direction and positioning of the rail line may impact the Fire Department's emergency response times.					✓
	The Town has a potential risk of wildland fire due to the wildland-urban interface.	✓	✓		✓	✓
Building Stock	The majority of the Town's existing building stock is comprised of Group C – Residential Occupancies (88%).	✓				✓
	Group D – Business Occupancies and Group E – Mercantile Occupancies combined account for 7% of the Town's total building stock.	✓				✓
	Group F – Industrial Occupancies account for 2% of the Town's total building stock.	✓	✓		✓	✓
	The 2016 Census data indicates that 51% of the Town's residential building stock was built prior to the introduction of the 1992 Alberta Fire Code.					✓

Profile	C.R.A. Analysis Outcome: Key Finding	Education	Enforcement	Engineering	Economic Incentive	Emergency Response
		For consideration within the proposed Public Education Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Fire Inspection and Enforcement Program	For consideration within the proposed Emergency Response Program
	The 2016 Census data indicates that 33% of the Town's residential building stock is comprised of other attached dwellings. Attached dwellings have a higher risk of a fire spreading to an adjacent exposed buildings.	✓	✓	✓		✓
	There are 17 buildings that present an increased fire risk due to their large floor areas.		✓	✓	✓	✓
	Of the buildings with increased fire risk due to the large floor area, a number of the Group F – Industrial occupancies are not in compliance with the A.B.C.		✓	✓	✓	
	There are twelve properties within the Town that have fuel load concerns.	✓	✓	✓	✓	
	There are 13 identified occupancies with potential high life-safety risk within the Town of Olds and there is a school for students with special needs that presents unique life-safety risks.	✓	✓	✓	✓	✓
	There are seven registered heritage buildings within the Town of Olds, which are keystone features of the community's history.	✓				✓

Profile	C.R.A. Analysis Outcome: Key Finding	Education	Enforcement	Engineering	Economic Incentive	Emergency Response
		For consideration within the proposed Public Education Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Fire Inspection and Enforcement Program	For consideration within the proposed Emergency Response Program
Demographics	Seniors (those 65 years and over) are considered to represent one of the highest fire risk groups across the province based on residential fire death rate. The Town of Olds currently has a higher proportion of seniors compared to the Province (21% vs. 11%).	✓				
	The current total population of the Town includes a component of 24% of people between the ages of 45 and 64 who are aging towards the seniors demographic of 65 or over.	✓				
	There are shifts in student and commuter populations throughout the year which may impact the demand for fire protection services.					✓

Profile	C.R.A. Analysis Outcome: Key Finding	Education	Enforcement	Engineering	Economic Incentive	Emergency Response
		For consideration within the proposed Public Education Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Fire Inspection and Enforcement Program	For consideration within the proposed Emergency Response Program
Hazard	The top hazards within the Town of Olds include major road vehicular accidents, high intensity residential fires, tornados, and transportation hazmat related risks for rail and road.					✓
Economic	The Town has key facilities/employers that greatly contribute to the economic well-being of the municipality. This includes Olds College and Sundial Growers.					✓
Fire	Group C – Residential occupancies account for 73% of property fires within the Town when analyzing the proportion of fires that occurred within an A.B.C. major occupancy classification.		✓	✓		✓
	Group A – Assembly occupancies account for 11% of property fires within the Town when analyzing the proportion of fires that occurred within an A.B.C. major occupancy classification.	✓	✓	✓	✓	✓
	Properties that are not a part of an A.B.C. major occupancy classification (e.g., storage properties, special property and transportation equipment, etc.) account for 52% of the 153 fires occurring over the ten year period.	✓				✓

Profile	C.R.A. Analysis Outcome: Key Finding	Education	Enforcement	Engineering	Economic Incentive	Emergency Response
		For consideration within the proposed Public Education Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Fire Inspection and Enforcement Program	For consideration within the proposed Emergency Response Program
	Due to its economic role within the community, historic fire loss, and building area risks, Sundial Growers reflects a special risk consideration for the Town of Olds.					✓
	For the period 2007 to 2016, the two fatalities and one injury all occurred within Group C – Residential occupancies.		✓	✓		✓
	Of the fires occurring in the Town between 2007 and 2016, the leading causes of unintentionally set fires was due to Mechanical/Electrical Failure/Malfunction at 28% of fires followed by Human Failing at 12%.	✓	✓			
	Of the fires occurring in the Town between 2007 and 2016, 25% of fires were intentionally caused and classified as Arson or 'Set Fires'.	✓	✓			✓
	The most common known sources of ignition for fires within the Town is due to Smoker's Material & 'Open' Flame at 18% and Heating Equipment at 10%.	✓	✓	✓	✓	✓
	Provincial home smoke alarm statistics emphasize the importance for local fire	✓	✓	✓	✓	✓

Profile	C.R.A. Analysis Outcome: Key Finding	Education	Enforcement	Engineering	Economic Incentive	Emergency Response
		For consideration within the proposed Public Education Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Inspection and Enforcement Program	For consideration within the proposed Fire Inspection and Enforcement Program	For consideration within the proposed Emergency Response Program
	department programs related to smoke alarms.					
Response	From 2015 to 2017, there was an increase in call volume.		✓		✓	✓
	From 2015 to 2017, O.F.D. call volume was comprised of 24% Alarm No Fire calls, 24% Medical calls, 19% Rescue calls, and 15% Fire calls.	✓	✓	✓	✓	✓

9.3 Risk Assignment by N.B.C. Occupancy Type

To support the application of the risk outcomes to the proposed Public Education programs, Inspection and Enforcement and Suppression, risk levels are assigned to the N.B.C. occupancy types based on the findings of the C.R.A. This approach is supported by N.F.P.A. 1730 which, for example, recommends establishing inspection cycles based on occupancy type risk levels.

Table 32 outlines the assignment of risk levels to the N.B.C. occupancy types with consideration to the findings of the profile assessments. The probability level is informed quantitatively by the average annual events from fire loss as well as the breakdown by property stock in building stock profile as described under the rationale. Consequence is informed qualitatively by property stock, demographic, fire loss, geography, and economic profile considerations as described under the rationale.

Our review of the historical emergency response data for the Town of Olds in preparing this C.R.A. indicates that there has been one incident in a Group B – Care or Detention Occupancy in the last 10 years. In our experience, this is an exceptional record that may be related to the minimal number of these occupancies types within the community, the relative age of the current occupancies or a high degree of maintenance and commitment to existing fire and life safety systems and procedures. Our research of the probability of a fire related incident in other comparable municipalities indicates a higher degree of probability of an incident in a Group B – Care or Detention Occupancy. As a result, we have adjusted the probability likelihood of Group B – Care or Detention Occupancy to "likely" to recognize broader municipal historical experience.

Although Group B occupancies within the Town have a rare history of fires and loss of life, these occupancies contain vulnerable individuals who typically require some assistance due to cognitive or physical limitations, disabilities, drug or alcohol use and others that may require assistance to evacuate in the event of a fire. In our view, industry standards also support the classification of Group B occupancies as high-risk due to the high dependency of occupants on built-in fire protection features or staff to assist in their evacuation during a fire.[12]

[12] N.F.P.A. 1730 (2019 Edition).

Table 32: Risk Assignment based on N.B.C. Occupancy Type

N.B.C. Major Occupancy Classification		Probability		Consequence							Risk Level
				Level	Rationale						
		Level	Rationale		Building Stock	Demographic	Fire Loss	Response	Geographic	Economic	
Group A	Assembly	Possible	Might occur under current circumstances. The Town's historical fire loss data recorded by the Province is available only for a ten year period, this data indicates that there is less than one incident per year on average over a ten year period. However there may have been one or more incidents in the past five years. Of the total property stock in the Town, 3% is Group A.	Moderate	Presence and maintenance of fire protection equipment; Large floor area risks. Currently no defined annual fire inspection and evacuation program provided.	Potential for large groups of vulnerable individuals; consumption of alcohol may impair judgement of occupants and impede evacuation in the event of an emergency.	Potential for moderate property loss and threat to life safety of occupants.			Some Group A occupancies play a key role in the economic well-being of the municipality.	Moderate
Group B	Care or Detention	Likely	Will probably occur at some time under current circumstances. Based on historical fire loss data, there has been only one incident over the past ten year period. However, there is currently only one Group B occupancy within the Town.	Major	Presence and maintenance of fire protection equipment; use of oxygen; Impeded egress in detention facilities; Large floor area risks. Currently no defined annual fire inspection and evacuation program provided.	Potential for large groups of vulnerable individuals with cognitive and/or physical limitations and/or combative behaviours who require assistance to evacuate; facility staff; visitors;	Potential for large loss of life and significant property damage.			Some Group B occupancies play a key role in the economic wellbeing of the municipality.	High
Group C	Residential	Likely	Will probably occur at some time under current circumstances. Based on historical fire loss data, there has been an average of five events per year over a ten year period. Of the total property stock in the Town, 88% is Group C.	Moderate	Exposure risk within some buildings as well as risk due to building age; Presence and maintenance of fire protection equipment.	Potential for vulnerable residents including elderly and young;	For the period 2007 to 2016, the two fatalities and one injury all occurred within Group C.			Within mixed-use occupancies, a residential fire could have an economic impact. In addition, economic impact could occur in the downtown where there is greater exposure risk and older buildings.	Moderate
Group D	Business	Possible	Might occur under current circumstances. Based on historical fire loss data, there has been one event over a ten year period. Of the total property stock in the Town, 5% is Group D.	Moderate	Presence and maintenance of fire protection equipment. Currently no defined annual fire inspection program provided.	Patrons may be unfamiliar with exit facilities;	Potential for moderate property loss and threat to life safety of occupants.			Some Group D occupancies play a key role in the economic well-being of the municipality.	Moderate
Group E	Mercantile	Possible	Could occur at some time. Based on historical fire loss data, events do not occur annually (0.5 calls annually on average). Of the total property stock in the Town, 2% is Group E.	Moderate	Presence and maintenance of fire protection equipment. Large floor area risks. Currently no defined annual fire inspection program provided.	Patrons may be unfamiliar with exit facilities;	Potential for moderate property loss and threat to life safety of occupants.			Some Group E occupancies play a key role in the economic well-being of the municipality.	Moderate

N.B.C. Major Occupancy Classification		Probability		Consequence						Risk Level
				Level	Rationale					
		Level	Rationale		Building Stock	Demographic	Fire Loss	Response	Geographic	Economic	
Group F	Industrial	Possible	Could occur at some time. Based on historical fire loss data, events do not occur annually (0.5 calls annually on average). Of the total property stock in the Town, 2% is Group F.	Major	"All Group F - Industrial occupancies could have building area, building height and/or exposure related risks. Presence and maintenance of fire protection equipment (e.g. fire alarm system, sprinklers, etc.). It was identified that some of the Group F - Industrial occupancies with large floor area risks are not in compliance with the A.B.C. Currently no defined annual fire inspection program provided.			Potential for hazardous materials impact on occupants and firefighters; preplanning opportunity;		Some Group F occupancies play a key role in the economic well-being of the municipality; the environmental impact of a fire in a Group F occupancy is a consideration.	Moderate
Group F - Special Considerations	Cannabis Growing Operations	Possible		Catastrophic						An incident at Sundial Growers could have a catastrophic impact on the community due to its role as a major employer.	High

Appendix B

Workshop Presentation

Town of Olds
Fire Services Master Plan

Council Workshop
Steve Thurlow &
Suzanne Charbonneau-Dent
Dillon Consulting Limited
March 21st, 2019

What is a Fire Services Master Plan (FSMP)

Comprehensive evaluation of a fire department's current operations, staffing and service delivery.

Assessment of current services in relation to legislated standards and municipal best practices.

Creation of a strategic, multi-year plan to deliver services based on the "**needs and circumstances**" of the community.

3

Benefits of a Fire Services Master Plan

- ✓ **Assess** a community's **compliance** with current **legislative** requirements.
- ✓ Inform **Council and the community** with respect to the programs and services provided.
- ✓ **Provide** Council and staff with an **evidence-based strategic framework** for delivering fire protection services in response to identified community fire risks.
- ✓ Opportunity for **stakeholder input** in developing performance goals and objectives.

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4

What is a Community Risk Assessment (CRA)

- Within the **fire service** a CRA is **recognized as the first step** towards the **management of risk** based on **local "needs and circumstances"**;
- The **methodology** to develop the CRA for the Town of Olds will be **guided by industry best practices** including:
  - ***National Fire Protection Association*** *(NFPA) – Related Standards*

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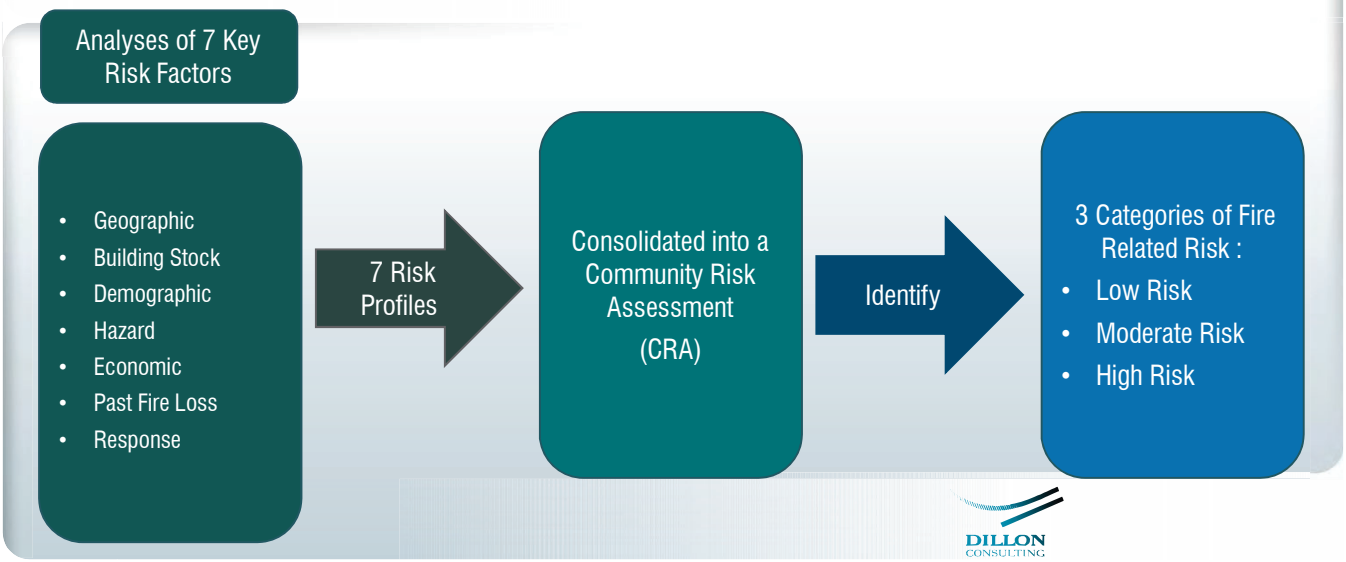
Community Risk Assessment (CRA)



6

Summary of Fire Master Planning Process

OLDS COMMUNITY RISK ASSESSMENT

- Analyses of 7 key risk factors
- Identification of low, moderate and high risk occupancies/risk
- GIS Risk Model

OLDS FIRE SERVICES MASTER PLAN

- 10-Year Strategic Planning Document for the delivery of all fire protection services
- Identify proposed service levels for:
  - Fire Prevention/Public Education
  - Fire Suppression
- Provide options for Council's consideration/approval

Municipal Responsibilities

- In consultation with **Municipal Affairs** and the **Safety Codes Council** develop and **provide relevant** information to:
  - » *Fire service industry*
  - » *Building Owners*
  - » *Authorities having jurisdiction*
- **Complying** with the **Safety Codes Act** of the **Alberta Fire Code (Alberta Building Code)**;
- Including all **relative standards** and **regulatory** requirements.

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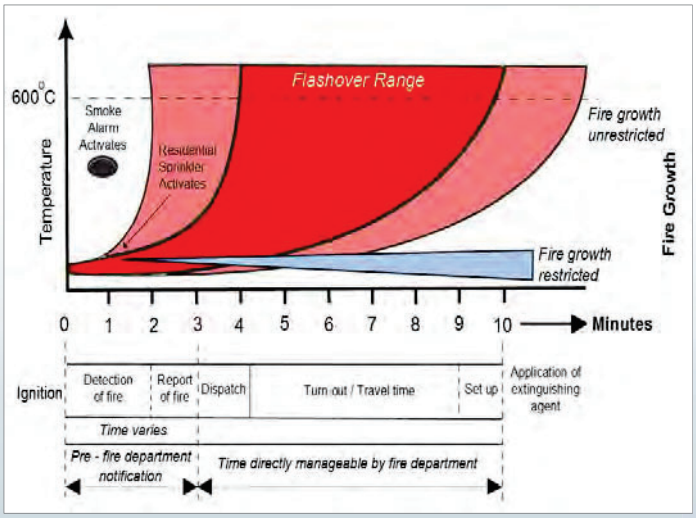
Fire Behaviour

Industry recognition that **fires** are **burning faster and hotter**.

Emphasis on the ***First Two Lines of Defence.***
(e.g., early detection; early notification; home escape planning, etc.)

Fire Suppression as the Fail Safe.

FIRE PROPAGATION CURVE



Source: *Fire Underwriters Survey "Alternative Water Supplies for Public Fire Protection: An Informative Reference Guide for Use in Fire Insurance Grading "May 2009 and NFPA "Fire Protection Handbook" 2001*

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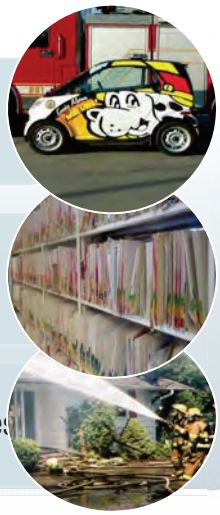
9

Three Lines of Defence Strategy

1	**Public Education and Prevention**	• Smoke Alarm Program, school and seniors education, risk management, etc.
2	**Fire Safety Standards and Enforcement**	• Occupancy Inspections, Licensing Approval, Violation Enforcement, Fire Investigations, etc.
3	**Emergency Response**	• Fire Suppression (guided by National Fire Protection Association Standards (NFPA), High Intensity Residential Fires (HIRF), Peer comparisons).



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Best Practices and Industry Guidelines/Standards

- The **National Fire Protection Agency** (NFPA) including:
  - » Fire Suppression Standards **1710** and **1720**
- Alberta Building Code (ABC) **High Intensity Residential Fires** (HIRF) Requirements; and
- **National Institute of Standards and Technology** (NIST) Research.

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11

Fire Suppression Performance Measures

TOTAL RESPONSE TIME =

Dispatch Time	+	Turnout Time	+	Travel Time
Time to receive and dispatch the call.		Time required for firefighters to react and prepare to respond.		Actual travel time from the fire station to the incident.

Initial Response: The number of firefighters initially deployed on the 1st apparatus.

Depth of Response: The total number of firefighters initially deployed to an incident.

12

Olds Fire Services Master Plan Scope

Review and Assessment of:

- Applicable legislation, industry best practices and municipal bylaws;
- Training, professional development and succession planning review;
- Administration and department structure;
- Emergency management program;
- Fire prevention and public education;
- Existing and future emergency response;
- Statistical trend analysis and historical performance; and
- Apparatus and equipment.

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13

Background Document Review

- 2019 Regional Fire Policy & Governance Review
- 2018 Service Level Review
- Fire Services Review (26 Recommendations)
- Strategic Areas of Focus 2017-2021
- Agreements (e.g. Mutual Aid, Inter-Municipal Cooperation Master Agreement with County, Safety Codes Services Transition Agreement, Fire Dispatch Services, etc.)
- By-Laws (e.g. Fire By-Law, Community Standards By-Law, Rates By-Law, etc.)

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Consultation with Council

- What are the **strengths** of the fire service as it exists today?
- Its **weaknesses**?
- Where are there **opportunities** for the department to improve in the short term and the long term?
- What are possible **challenges** to this improvement?

Strengths	Weaknesses
Opportunities	Challenges

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Questions/Next steps?