



**SUBJECT: Fire Community Risk Assessment (CRA) 2021**

**TO: Environment, Infrastructure & Community Services Cttee.**

**FROM: Fire Department**

Report Number: BFD-02-22

Wards Affected: All

File Numbers: 755-01

Date to Committee: April 7, 2022

Date to Council: April 19, 2022

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**Recommendation:**

Receive and file Burlington fire department report BDF-02-22 regarding the 2021 Community Risk Assessment (CRA) attached as Appendix A.

**PURPOSE:**

**Vision to Focus Alignment:**

- Increase economic prosperity and community responsive city growth
- Support sustainable infrastructure and a resilient environment
- Building more citizen engagement, community health and culture
- Deliver customer centric services with a focus on efficiency and technology transformation

Fire Protection and Prevention Act (FPPA), Ontario Regulation 378/18 Community Risk Assessments (CRA), mandates every municipal fire department *must* complete a community risk assessment (CRA) and “*use its community risk assessment to inform decisions about the provisions of fire protection services.*”

This same Regulation mandates that fire departments must undertake a comprehensive community risk assessment every 60 months (5 years) and review its CRA every 12 months. The 2021 CRA (Appendix A) ensures the City of Burlington continues to meet the 5-year regulatory requirement. The previous CRA was completed in 2016 (BFD-03-16).

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## **Executive Summary:**

The CRA allows fire departments to ensure their levels of service, programs and activities for public fire safety education, fire safety standards and enforcement, and emergency response directly address the identified risks and the preferred treatment option(s). Risks are prioritized on the *probability* of occurrence and *impact* they would have on the community; fire departments must use this information to determine which risks to address and how best to manage them.

While the CRA is a standalone report it may also be used as a reference/companion document to other fire department plans and programs. The information provided from this CRA process was used to help form some of the recommendations that will be provided as part of the City's Fire Master Plan (forthcoming Q2 2022).

The Fire Master Plan and Community Risk Assessment will guide and support decision-making and set strategic priorities for the BFD over the next ten years (2022 – 2032), ensuring sustainable, efficient and effective delivery of fire services to the community.

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## **Background and Discussion:**

The Fire Protection and Prevention Act (FPPA) is the governing legislation outlining municipal responsibilities to provide a fire service to meet the needs and circumstances of the community it serves.

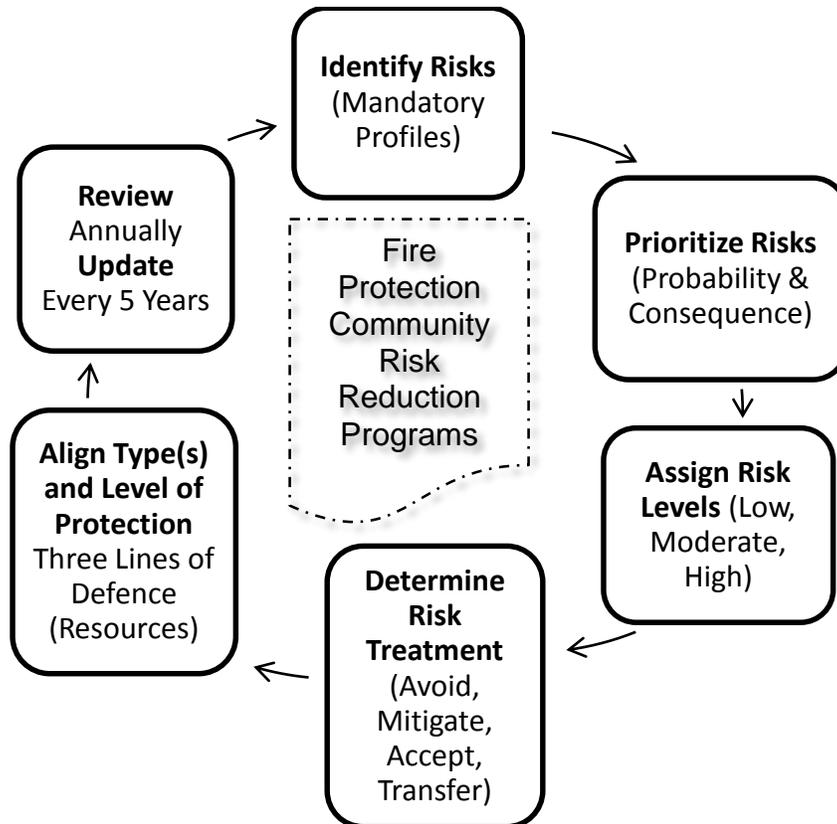
The FPPA mandates that every municipality in Ontario shall establish program elements which *must* include;

1. **Fire Safety Public Education** – provides awareness and knowledge to property owners and tenants of their legislative responsibilities under the Ontario Fire Code and delivers fire safety education programs within the community.
2. **Components of Fire Prevention** – provides fire code building inspection and compliance (enforcement) to achieve an acceptable level of fire safety, adequate detection of fire and warning to building occupants, containment of a fire should one occur, adequate means of egress to allow occupants time to safely evacuate, inspection of the installation and maintenance of building fire suppression safety systems, review and approval of legislated fire safety planning.
3. **Fire Protection (Emergency Response)** – provides the required number of fire resources (firefighters, apparatus and equipment) to an emergency scene to

effectively coordinate firefighters assigned tasks (offensively and defensively) to protect people, property and the planet.

These fire service elements are commonly referred to as the “*Three (3) Lines of Defence.*” Each of these elements are utilized to establish preferred risk treatment options and programs to mitigate identified risks within the CRA, where possible.

### O.Reg. 378/18 Community Risk Assessment Process



#### Identify Risks – Mandatory Profiles

To ensure a consistent approach to the CRA process, Schedule 1 of O. Reg. 378/18, outlines a minimum of nine (9) *mandatory* profiles that must be used as part of each CRA review and update. These Profiles are as follows:

1. Geographic – review of the city’s physical features
2. Building Stock – review of the types, numbers, uses, and ages of the various structures
3. Critical Infrastructure (CI) – review of the city’s CI to ensure occupied buildings are included in the fire departments fire safety inspections, enforcement and emergency response resource planning

4. Demographic – review of the community’s population considering factors such as population size, density, age, gender, culture, education, socio-economic, and transient population
5. Hazard – review of hazards in the community where fire departments may be expected to respond (i.e. vehicle collisions, hazardous materials, etc.)
6. Public Safety Response – review of other public safety response agencies and established agreements to supplement emergency response needs, where appropriate (i.e. mutual-aid agreement with bordering fire services)
7. Community Services – review of community service groups and agencies that may be able to provide community services, support, provisions of venues for training and access to groups within the community
8. Economic – review of economic sectors and environment affecting the community that are critical to its financial health
9. Past Loss and Event History – review of past fire emergency response experience, including analyzing the number and types of fire emergency responses, injuries, deaths, and dollar loss in comparison with Office of the Fire Marshal (OFM) provincial fire loss statistics.

These mandatory profiles were used for both the 2016 and 2021 Burlington fire department CRA.

### **Prioritize Risks**

Once risks have been identified they are prioritized based on the probability of them occurring and the impact they would have if they occurred. This allows fire departments to determine which risks to address and how best to address them.

- The *probability* of a fire emergency identified risk is estimated based on the frequency of previous experience and knowledge. Probability is categorized into five (5) levels of likelihood and is ranked from rare to almost certain.
- The *consequence* of a fire emergency identified risk is the potential for loss or negative outcome associated if an incident did occur. Consequence is categorized into five (5) levels from insignificant to catastrophic.

### **Risk Level**

A risk level is determined by considering both *probability* and *consequence* for each identified risk. Each risk is categorized as Low, Moderate or High, as reference in the Risk Level Matrix shown below.

Figure 1: Risk Level Matrix

**Risk Level Matrix**

Probability ↑	ALMOST CERTAIN	Moderate Risk	Moderate Risk	High Risk	High Risk	High Risk
	LIKELY	Moderate Risk	Moderate Risk	Moderate Risk	High Risk	High Risk
	POSSIBLE	Low Risk	Moderate Risk	Moderate Risk	Moderate Risk	High Risk
	UNLIKELY	Low Risk	Low Risk	Moderate Risk	Moderate Risk	Moderate Risk
	RARE	Low Risk	Low Risk	Low Risk	Moderate Risk	Moderate Risk
		INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
		→ Consequence				

### Risk Treatment

Once the risk level is assigned to each identified risk, the fire department then determines what the preferred treatment option is for each risk and the resources available/required. The options for treating each risk includes;

1. **Avoiding** – implement programs and initiatives to prevent a fire from occurring. As an example, public fire safety education initiatives focused on changing behaviours or establishing bylaws, so a fire can be prevented.
2. **Mitigating** – implement programs and initiatives to reduce the probability and/or consequence of a fire occurring. As an example, routine fire code inspections or specialized programs can help to reduce the consequence of a fire.
3. **Accepting** – when it is determined that no specific program or initiative can be implemented to address the risk. As an example, medical calls cannot be mitigated by a fire department program or initiative.
4. **Transferring** - it may be determined and decided that transferring an identified risk is the best treatment option, this often includes transferring to another organization or group. As an example, trench rescues require specialized training and is provided through an established agreement (BFD-01-17).

### Align Type(s) and Level of Protection with Three (3) Lines of Defence

As previously referenced, the FPPA outlines that a municipality must provide 1) public education with respect to fire safety, 2) components of fire prevention, and 3) provide other fire protection services as needed (Three Lines of Defence). Once fire services have determined the preferred treatment option(s) for each risk, they next plan and implement activities/programs utilizing the Three Lines of Defence. This process includes consideration of the following:

- ✓ Implementation of public fire safety education, Fire Code inspections and enforcement, and emergency response activities that are appropriate to address the causes, behaviours or issues associated with identified risks.
- ✓ Capabilities and capacity of the fire department (e.g. financial and staffing resources, training, equipment, jurisdictional authority, etc.) that may be required to implement preferred treatment options.
- ✓ Strategic partners with common interests, available resources, and/or skill/knowledge sets that could assist in addressing risks using the applicable risk assessment profiles.
- ✓ Establishing and Regulating By-laws, operational policies and standard operating guidelines that reflect the fire services to be provided to address the identified risks.
- ✓ Established goals and objectives, strategies, timelines, and evaluation for the proposed fire services to be provided.
- ✓ Communication with municipal council and the public to outline the types and levels of fire services that are provided.

Furthermore, there are risks identified where a fire department cannot adopt a risk reduction strategy and must accept that the risk will more than likely occur. As an example, motor vehicle incidents (collisions) are identified risks within the CRA. In this example the fire department accepts that vehicle collisions will occur and has established procedures, training programs and specialized equipment to align the fire services provided with the needs of the community.

### **CRA Review and Update**

As previously noted, the fire department must conduct a comprehensive CRA process every 60 months (5 years) and review its CRA every 12 months. This review ensures the CRA remains current with community needs. The next full CRA process will be required by 2026.

### **Burlington Fire Department Community Risk Assessments**

#### **2016 Community Risk Assessment and Standards of Cover (BFD-03-16) (Past)**

In 2016, Burlington fire undertook its first initiative and conducted a holistic review of Burlington fire services following the methodology provided by the Commission on Fire Accreditation International (CFAI), under the Center for Public Safety Excellence (CPSE).

*CPSE Overview: The CPSE assists fire departments in their efforts to continuously improve, through a formalized self-assessment process that identifies areas for improvement, instills principles of life-long learning, and how to remain at the forefront of the service(s) provided to the community.*

The outcome of the 2016 CPSE review was provided to council in staff report BFD-03-16 and showcased areas for recommended improvements, this was approved by council on July 4, 2016.

These recommendations are included in the Burlington Fire Protection and Prevention Service Business Plan and continue to be an area of focus for the department. It is important to note that some of these recommendations have been implemented and some have been delayed due to corporate-wide initiatives and pending priorities (i.e. COVID-19 Pandemic).

### **2021 Community Risk Assessment (Appendix A) (Current)**

Through a full request for proposal (RFP) process, the Burlington fire department acquired a consultant to complete the current 5-year Community Risk Assessment.

Staff are committed to providing additional information to council in the coming months/years based on specific recommendation(s). This will provide staff the opportunity to review and establish preferred risk treatment option(s), outline the specifics of a recommendation, provide data and comparators, standards, legislation/regulation, fiscal planning and all other details to provide council with the necessary information to make an informed decision.

Not all preferred risk reduction treatment options will require enhancement to existing service(s) delivery and will be adopted and integrated within the fire department as part of its usual service to the community.

The fire department will continue to utilize the Fire Protection and Prevention Service Business Plan as a communication tool to provide regular updates to residents and council. Furthermore, the fire department will submit enhancement requests and additional funding needs as part of the city's operating and capital budget process for council's consideration.

### **2021 CRA Key Findings**

A full list of identified risks are provided within the 2021 CRA Table 44 and Table 45 (Appendix A) for councils' reference. Many of the risks identified through the 2021 CRA process are already known and are part of an existing risk reduction program (e.g. daycare prevention inspections).

Some of the risks identified in the 2021 CRA are directly attributed to continued community growth, such as the number of residential buildings, increased high-rise and row housing occupancies, increased traffic congestion, increased number of

employment and business along QEW, number of daycares and schools and changes in demographic trends within the City. Each of these risks will require additional effort from BFD to align the Three Lines of Defence with risk treatment options where possible.

Below is a summarized reference of some of the key risk findings that can be attributed to community growth.

**Geographic:**

- Increased traffic congestion on the existing road network presents the potential for a delay in emergency response times.
- Motor vehicle-related incidents on the existing road network represent 89% of all rescue responses for BFD.

**Building Stock:**

- Residential occupancies represent 94% of the City's existing property stock and are associated with 72% of the structure fires within the City (Fire Incident Data 2015-2019).
- Approximately 50% of the City's residential building stock was built prior to the introduction of the 1981 Ontario Fire Code (Census, 2016).
- The City currently has 105 buildings defined by the Ontario Building Code as high-rise buildings.
- The City has 225 buildings with a total building area (footprint) that exceed 50,000 square feet (4,655 square metres). These buildings are predominantly located in the employment and business corridor along the QEW.
- The City of Burlington currently has forty-three (43) registered vulnerable occupancies.
- The City has 63 schools and 46 identified professional daycare centres, representing higher fire life-safety risks due to the number of children attending these facilities.
- Row housing comprises approximately 19% of the City's building stock, which is 9.74% higher than the Province (where 8.91% of provincial building stock is row housing) (Census, 2016)

**Demographic:**

- Seniors (65 and over) are considered to represent one of the highest fire risk groups across the province based on proportion of fire fatalities. The senior population within the City of Burlington is approximately 20% of the total population.

- The City's commuter population presents a factor that may impact traffic congestion, and the potential occurrence of motor vehicle accidents within the City.

### **Past Loss and Event History:**

- Most fire related civilian injuries occurred in residential occupancies.
- The leading cause of unintentionally set fires was due to misuse of an ignition source. The second most common cause of unintentionally set fires was due to mechanical/electrical failures.
- Approximately 25% of structure fires reported the ignition source as cooking equipment, which is higher than the Province (17%).
- Smoke alarms were not present in 16 of residential fire incidents, which is lower than the Province (17%).
- The highest percentage of emergency call volume responded to by Burlington Fire Department was medical/resuscitator calls representing 55% of total emergency call volume. The second highest percentage of emergency call volume responded to by Burlington Fire Department was false fire calls representing 13% of total emergency call volume.
- There is a higher concentration of medical/resuscitator, false fire and fire/explosion incidents in areas including near Fire Station 3 on Plains Road West and Plains Road East at King Road; south of Station 1 in the Downtown, including Lakeshore Road and along Brant Street; near Station 8 at Upper Middle Road and Appleby Line; and south of Station 4 on Lakeshore Road.
- Industrial occupancies account for 8% of total structure fires within the City and 36% of total structure fire loss.

### **Economic:**

- The city has identified top employers that contribute to the economic vitality of the community. If a fire were to occur, it may have a negative financial impact.

### **Strategy/process**

All risks identified within the 2021 CRA will be included within a fire protection community risk reduction program, where applicable. Programs will be created, revised and implemented within the community where they are most needed and will have the greatest benefit.

The 2021 CRA will be referenced to support some of the recommendations that will be provided with the Fire Master Plan staff and consultant report (Forthcoming Q2 2022).

The 2021 CRA is a snapshot of the current risks within the community when the assessment was completed, which considers data and findings up to December 2020.

In the coming months, the BFD will conduct its required CRA annual review to include the year 2021. Pending the outcome of this review, any risks that were not previously identified will be built into the community risk reduction program. The annual review also provides an opportunity for continuous improvement of existing programs and supports the need for new programs based on the current needs and circumstances of the community. The intent is to continue to align fire protection services (Three Lines of Defence) where they are most needed.

The BFD is committed to the CRA process and maintaining a proactive approach to identifying and reducing risks within the community where possible. Staff will continue to provide council with information to support fire protection service risk reduction efforts where applicable. This may include staff recommendations to council, to support and/or enhance the provision of fire service delivery and/or align current and future risk reduction strategies with the needs of a changing and growing City. It may also include budget business case submissions for enhancements to existing fire protection services and/or programs (e.g. Steps to Safety Program).

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### **Financial Matters:**

Future financial requirements to support risk reduction efforts and align fire service needs with community needs, will be addressed in additional staff reports and the city's budget process for council's consideration

### **Source of Funding**

The Community Risk Assessment (CRA) was funded from approved 2019 capital budget. (BFD-02-19).

### **Other Resource Impacts**

A full RFP process to select a consultant for both the Community Risk Assessment and Fire Master Plan was conducted by the city's procurement service

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### **Climate Implications**

Burlington fire response times have a direct link and impact to the environment. Through effective and efficient response, and on scene tactical efforts, Burlington firefighters work quickly to extinguish a fire, mitigating potential environment impact due to an incident, such as toxins, chemicals and carcinogens (e.g. asbestos) that are found or occur during/after a fire.

In addition, there are established agreements to support a timely response by third-party provided services to mitigate environmental impacts, where possible, such as a hazardous material calls that would require specialized response and cleanup efforts.

Furthermore, Burlington fire is continually researching, retrofitting and/or procuring available options to support climate actions to mitigate greenhouse gases (GHGs) and reduce energy consumption.

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### **Engagement Matters:**

City staff, fire department staff, community stakeholders, and council advisory committees were interviewed by the consultant as part of the CRA process. Further details are provided within the 2021 CRA (Appendix A).

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### **Conclusion:**

The CRA process takes a considerable amount of time and effort to complete; however, creates efficiencies in the short-term and long-term, by aligning available fire resources (staff, materials, funding, etc.) with identified risk reduction strategies; higher priority risks becoming the primary focus, while still having a good understanding of other fire risks in the community and strategies to manage these risks. This valuable information builds both effective planning and efficient programs to meet the needs of an ever-changing community. The CRA provides the fire department and council with important information to support effective decision-making and “*use its community risk assessment to inform decisions about the provisions of fire protection services.*”

The Fire Master Plan references the Community Risk Assessments and provides recommendations to council to address some of the risk identified within the 2021 CRA (Appendix A). The Fire Master Plan and staff report will be provided to council in the near future.

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### **Definitions and References:**

- BFD-02-19 Consulting Services for a Comprehensive Community Risk Assessment and Fire Master Plan
- BFD-03-16 Community Risk Assessment 2016
- [O. Reg. 378/18](#) Community Risk Assessments (CRA)
- [O. Reg. 213/07](#) Ontario Fire Code, as amended,
- [O. Reg. 364/13](#) Mandatory Inspection & Fire Drill in Vulnerable Occupancy
- [O. Reg. 365/13](#) Mandatory Assessments of Complaints & Requests

- OFM-TG-02-2019 Community Risk Assessment Guideline
  - NFPA – National Fire Protection Association Standards
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Respectfully submitted,

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**Appendices:** (if none delete section)

- A. 2021 Community Risk Assessment (Burlington Fire)
- B.

**Report Approval:**

All reports are reviewed and/or approved by Department Director, the Chief Financial Officer and the Executive Director of Legal Services & Corporation Counsel.