



# Community Risk Assessment

A GUIDE FOR CONDUCTING A  
COMMUNITY RISK ASSESSMENT





# Community Risk Assessment

Loyalist Township Emergency Services

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## Mayor

Jim Hegadorn

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# 1. Executive Summary

Loyalist Township Emergency Services Department conducted a Community Risk Assessment (CRA) for Loyalist Township, examining public safety risks from a Fire Services perspective.

The CRA process followed the Ontario Fire Marshall and Emergency Management (OFMEM) Guidelines. The Fire Chief, Deputy Fire Chief, and Fire Department Officers assisted in the process by providing vital information to determine risks for the township.

The CRA is a living document that must remain current, updated as circumstances change and reviewed annually, at a minimum, to stay compliant with the regulation.

The following is a list of considerations used to develop the CRA as it relates to Loyalist Township:

- Loyalist's approximate population is 17,940.
- 38% of the population is aged 55 and over.
- Loyalist comprises a blend of rural and urban areas with smaller hamlets, farmland, some industry and an island community.
- There are three vulnerable occupancies / care and treatment centres in Loyalist.
- Loyalist's building stock is a mixture of residential housing with single-family dwellings, multi-resident buildings and commercial and industrial areas.
- A rail line runs through Loyalist and through Amherstview, the largest population centre in the township with risk to residents high if any hazardous spill due to the proximity of homes surrounding the rail line.
- A review of past incidents and dollar loss for the last three years.
- A review of inspection and violations for the last three years.

The first step in conducting the CRA was to identify the hazards and risks to the Town using community profiles. The community profiles included: geography, building stock, demographics, hazards, public safety response entities, critical infrastructure, community services, economics and past emergency responses and loss history.

The final stage of the process was developing a risk treatment plan for each identified risk that included recommended strategies and actions to avoid, mitigate, share, or transfer the risk or to determine its acceptance.

The chart found in the Risk Summary section results from the assessment and outlines the top risks, issues and concerns in Loyalist and their preferred treatment options. Details are included for the following:

- Extreme weather events
- Energy supply pipelines, storage terminals, electricity, natural gas & oil facilities
- Lake Ontario water rescues and marine vessel fires offshore
- Human health emergencies
- Significant proposed industrial development - lithium battery materials
- Structure fires



## 2. Introduction

The Community Risk Assessment was conducted by Loyalist Township Emergency Services in accordance with the Office of The Fire Marshal and Emergency Management (OFMEM), Regulation 378/18, that came into effect July 1, 2019. Part of this regulation requires that a new Community Risk Assessment (CRA) be completed every five years. The regulation also requires fire departments to review their CRA every 12 months to ensure it accurately reflects the mandatory profiles and fire and emergency risks. The completion of a CRA will allow a municipality and its fire service to make sound decisions on the level of fire protection it will provide its residents.

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*Risk is the measure of the probability and possibility of an event occurring that will have adverse effects on the community including the health, property, organization, environment, and/or community.*

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### Community Risk Assessment

The following flow chart sets out the steps that must be taken to formulate a complete community risk assessment that allows informed decisions about the provision of fire services.



Identifying and prioritizing fire and life safety risks will provide a baseline to produce a plan to prevent and mitigate such events from occurring. It is this assessment that also directs fire services in identifying the levels of service to be provided in relation to public fire safety education, Fire Code inspections and enforcement, and emergency response in preventing and mitigating the events identified.

## Mandatory Profiles

The CRA profile is based on nine mandatory profiles.

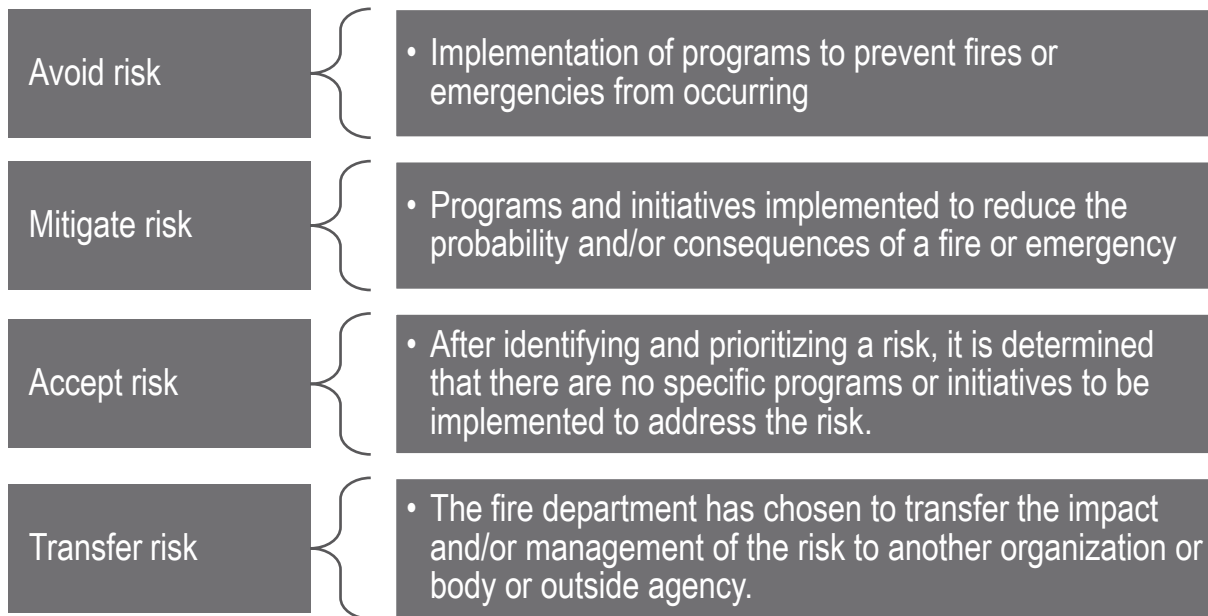
1. Geographic	<ul style="list-style-type: none"><li>• The physical features of the community</li></ul>
2. Building stock	<ul style="list-style-type: none"><li>• Types, numbers, uses and ages of various buildings within the community</li></ul>
3. Critical infrastructure	<ul style="list-style-type: none"><li>• Interconnected facilities/services that meet vital human needs, sustain economy, protect public safety/security</li></ul>
4. Demographic	<ul style="list-style-type: none"><li>• Population composition: size &amp; dispersion, age, gender, cultural background, socio-economic, education</li></ul>
5. Hazard	<ul style="list-style-type: none"><li>• Natural hazards, hazards caused by humans and technological hazards</li></ul>
6. Public safety response	<ul style="list-style-type: none"><li>• The agencies and organizations in community that may respond to certain types of incidents</li></ul>
7. Community services	<ul style="list-style-type: none"><li>• Community agencies, organizations, associations that can provide services to support the fire department</li></ul>
8. Economic	<ul style="list-style-type: none"><li>• Sectors affecting the community that are critical to its financial sustainability</li></ul>
9. Past loss and event history	<ul style="list-style-type: none"><li>• Analysis of community's past emergency response experience &amp; comparison to provincial fire loss statistics</li></ul>



The evidence and analysis of these profiles helps in the development of a community plan to treat the associated public safety risk. The data worksheets for each profile can be found in Section 5 of this document.

## Treatment Risks

There are four different levels of treatment risks.



## Review

Fire departments should maintain documentation required by O. Reg 378/18. This documentation should include:

- Any changes to any of the mandatory profiles.
- Any changes to assigned risk levels or fire protection services that occur because of the review.
- Any other information the fire department deems appropriate to the review or any resultant changes to fire protection services.

If it is found upon completion of the review within the 12-month period that no changes are required to any of the profiles or fire protection services, then a review could consist of documentation that reflects these findings.

### 3. Dates of Review & Updates

#### Year 2024

Profile	Issues/Concerns	Treatment of Risk	Preferred Treatment Option

#### Year 2025

Profile	Issues/Concerns	Treatment of Risk	Preferred Treatment Option

#### Year 2026

Profile	Issues/Concerns	Treatment of Risk	Preferred Treatment Option

Year 2027

Profile	Issues/Concerns	Treatment of Risk	Preferred Treatment Option

Year 2028

Profile	Issues/Concerns	Treatment of Risk	Preferred Treatment Option



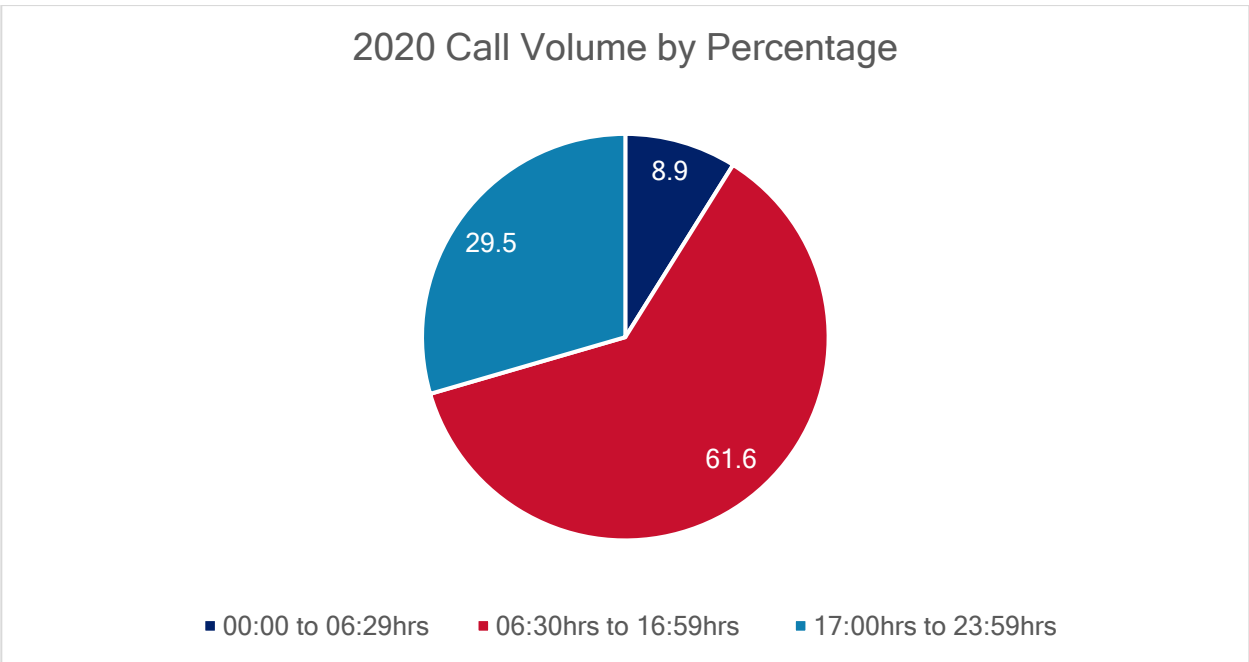
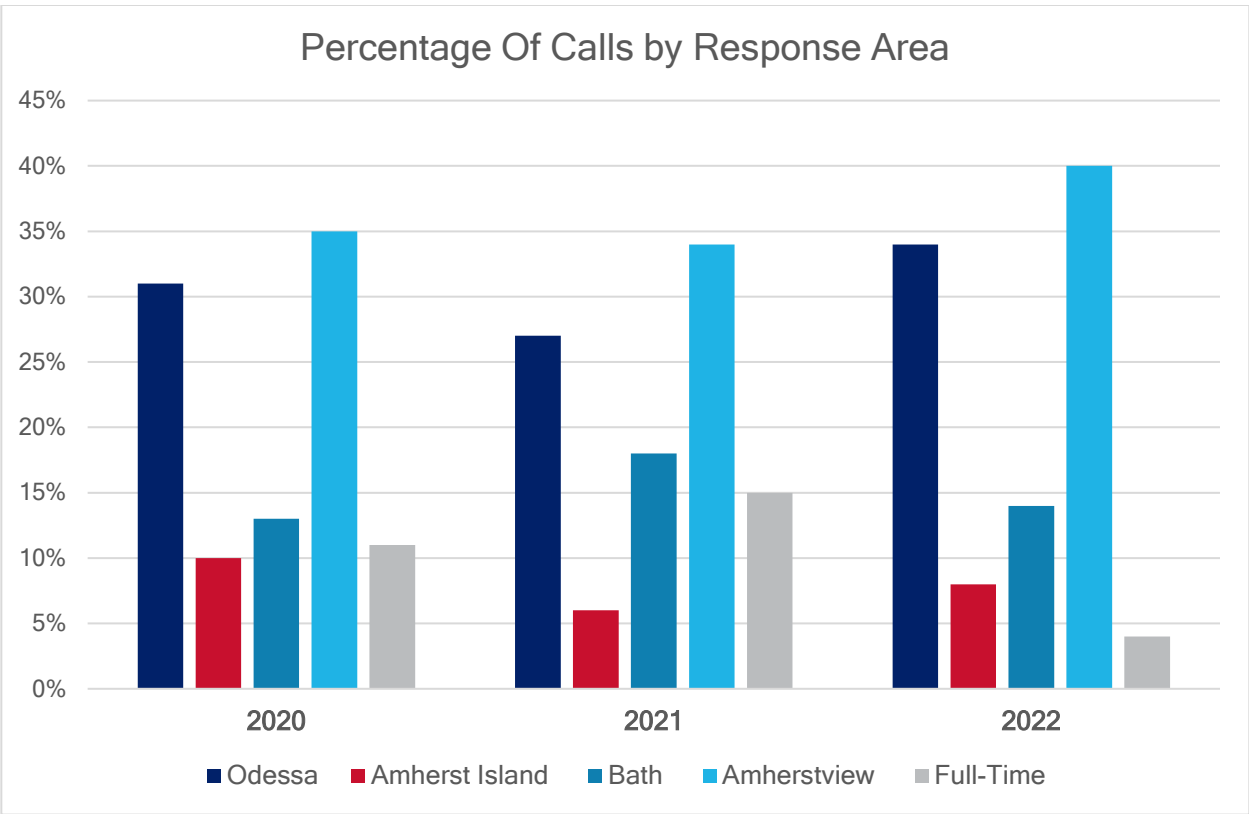
## 4. Risk Summary

The following summary outlines the top risks to life safety and property along with the suggested means of reducing or mitigating the risks. The Fire Chief will use the Preferred Treatment Options to put forward ideas and strategies to address the risks, including public education and Fire Code enforcement, within the level of fire service provision. It is Council that will set the level of service. These decisions will form the basis of the Corporation of Loyalist Township’s community risk mitigation strategies.

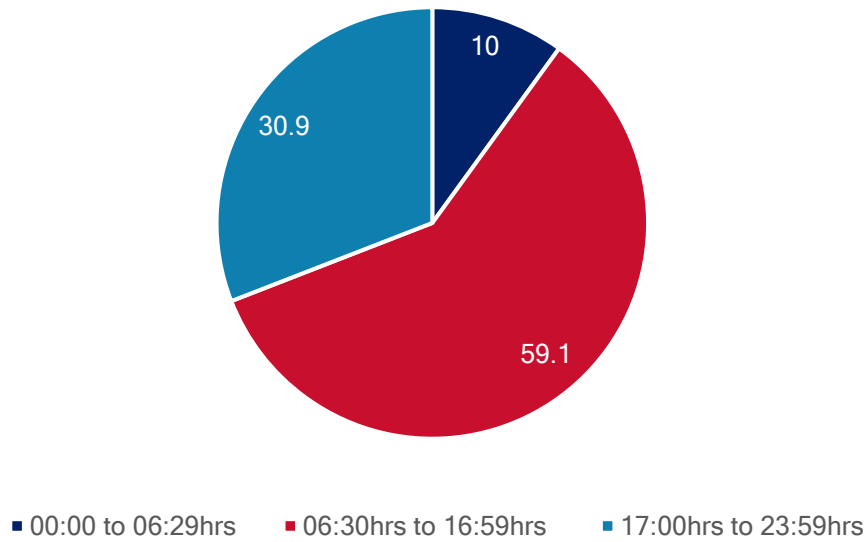
A thorough review coupled with sound strategic planning will reap successes in the form of fewer fires, reduced fire related injuries, lower dollar property loss through ongoing fire prevention initiatives, early warning detection systems, proactive inspections, and/or public education.

		IMPACT				
		VERY LOW	LOW	MEDIUM	HIGH	VERY HIGH
PROBABILITY	VERY LIKELY	Yellow	Orange	Red	Red	Red
	LIKELY	Green	Yellow	Orange	Red	Red
	POSSIBLE	Green	Yellow	Yellow	Orange	Red
	UNLIKELY	Green	Green	Yellow	Yellow	Orange
	RARE	Green	Green	Green	Green	Yellow

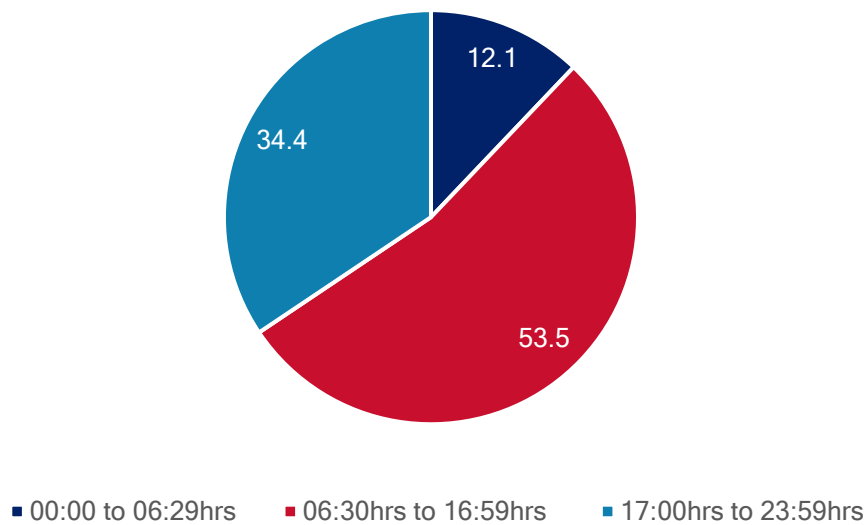
Table 1. Risk Summary



2021 Call Volume by Percentage



2022 Call Volume by Percentage



Note: The following features are not identified in the order of their level of risk.

Top Risk or Issues/Concerns	Preferred Treatment Option(s)
<p><b>Bodies of Water</b></p>	<p><b>Lake Ontario / Streams and rivers within the municipality flow into Lake Ontario.</b></p> <ul style="list-style-type: none"> <li>• Review water rescue requirements under present legislation, regulations, and costs.</li> <li>• LTES provides both shore-based &amp; water/ice rescue responses as per NFPA Standard 1006.</li> <li>• LTES has developed response protocols, Standard Operating Guidelines, Mutual Aid Agreements, and enhanced level of service provisions for water/ice rescue responses outside our scope of operations.</li> <li>• Promote safety equipment that should accompany those that venture onto the ice such as whistles, wearing of flotation suits, air horns, throw ropes, etc.</li> <li>• LTES does not have the means to mitigate marine vessel fires, offshore. We mitigate this through a mutual aid agreement &amp; through public education.</li> </ul>
<p><b>Loyalist Township Emergency Services</b></p> <p><i>New developments will bring an increase in population and building stock.</i></p>	<p><b>The Corporation of Loyalist Township will see considerable growth in the coming years.</b></p> <ul style="list-style-type: none"> <li>• There are two (2) significant proposed residential developments in Amherstview &amp; Odessa.</li> <li>• A combined total of approximately 1100 housing units upon completion of all current and proposed residential developments, over the next 10 years.</li> <li>• Estimated population growth of approximately 2760 residents.</li> <li>• There is one (1) significant proposed industrial development (Umicore) producing new lithium battery materials in Loyalist Township.</li> <li>• May require additional staffing, possibly additional apparatus, as additional developments are brought forward.</li> </ul>
<p><b>Technical Rescues – Trench/ Confined Space/ High &amp; Low</b></p>	<p><b>LTES does not perform technical rescues such as confined space, trench, or low and high angle. The Department attends motor vehicle collisions (MVCs) and performs auto extrications.</b></p> <ul style="list-style-type: none"> <li>• Have mutual aid procedures in place to call in resources to</li> </ul>

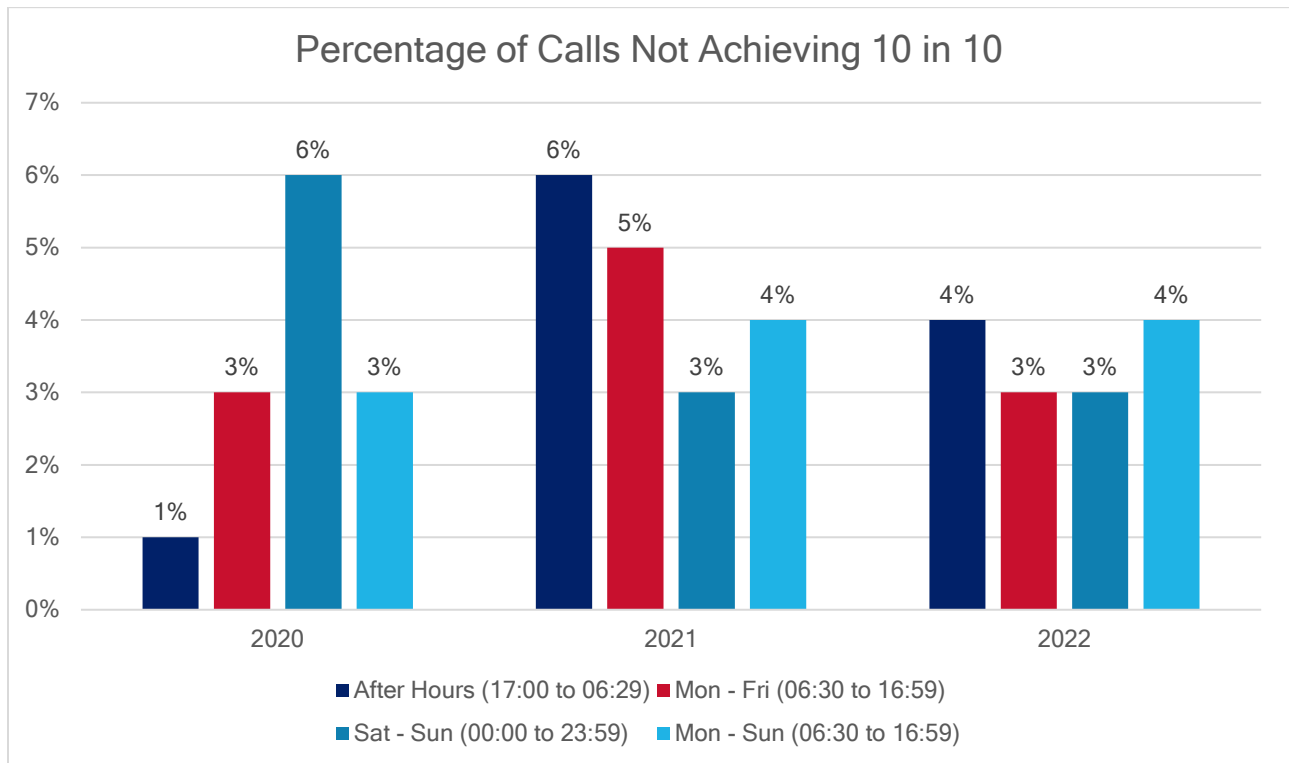
Top Risk or Issues/Concerns	Preferred Treatment Option(s)
<b>Angle/ Vehicle Entrapment</b>	mitigate such incidents.
<b>Extreme Weather Events</b> <i>Freezing rain / Ice &amp; snowstorms / Severe windstorms &amp; micro-bursts / Extreme temperatures (heat &amp; cold)</i>	<p><b>All Weather Events – early warning notification</b></p> <ul style="list-style-type: none"> <li>• Historical extreme weather events in our region each year.</li> <li>• Environment Canada issues warning via media.</li> <li>• News media messages sent out via TV, radio &amp; social media.</li> <li>• LTES messages sent out via social media platforms.</li> <li>• Loyalist Township messages sent out via the CodeRED alerting system (to our subscribed residents) notifying our community of all significant emergency events.</li> </ul>
<b>Structure Fires</b>	<ul style="list-style-type: none"> <li>• Continue in person Fire Prevention Public Education programs (OFMEM Fire Safety Lesson Plans; Remembering When, A Fire &amp; Fall Prevention Program for Older Adults; Wake Up Loyalist) to promote fire safety &amp; educate our residents of Loyalist Township in a comfortable environment conducive to learning.</li> <li>• Continue to promote Fire Safety both in-person (Fire Prevention Public Education Sessions &amp; Special Events) &amp; online via social media platforms (Official Loyalist Fire Website / Facebook / Twitter all trending Fire Safety).</li> <li>• Continue to promote (both in person &amp; on social medial platforms), of specific fire safety &amp; Emergency Preparedness themes during specified weeks &amp; seasons (Fire Prevention Week; Carbon Monoxide Awareness Week; Holiday Fire Safety; 12 Days of Christmas Fire Safety; Emergency Preparedness Week; etc.)</li> <li>• Continue to promote our annual burn ban initiative township-wide (Total burn ban signs at all main entry roadways into our township; social media messaging).</li> <li>• Implement an online platform for our residents to request / schedule a home visit for alarm safety checks to enhance our Wake-Up Loyalist Program</li> <li>• Continuing with our regular fire inspections based on the frequency outlined in Schedule A, By-law 2019-080</li> <li>• Enforcement of Fire Code Violations.</li> </ul>



Top Risk or Issues/Concerns	Preferred Treatment Option(s)
<b>Energy Supply</b>  <i>Pipelines, storage terminals, electricity, natural gas &amp; oil facilities</i>	<ul style="list-style-type: none"> <li>• Ensuring Internal Emergency Response Plans from the facilities are shared with LTES for our Pre-Incident Plan program.</li> <li>• Continue with our Pre-Incident Plan program; and explore the implementation of annual reviews which will include the transitioning of all plans to the standards set in NFPA 1620.</li> <li>• Continue with our regular fire inspections based on the frequency outlined in Schedule A, By-law 2019-080</li> </ul>
<b>Human Health Emergencies</b>	<ul style="list-style-type: none"> <li>• Continue with our response protocols, Standard Operating Guidelines &amp; Tiered Response Agreements within our scope of operations.</li> </ul>
<b>Loyalist Township Emergency Services</b>	<p><b>In 2020 there was \$444,000 in property loss. This marked the start of the Covid-19 pandemic. As more people were directed to remain home during the pandemic, our property loss increased by 270% in 2021 for a total of \$1,641,000. As the Covid-19 pandemic tapered down and residents were returning to work and getting out of their homes on a regular basis, our property loss had a significant decrease by 84% in 2022 for a total of \$267,000. These figures include structure fires only.</b></p> <ul style="list-style-type: none"> <li>• Monitor high dollar loss fires to see if trends are developing.</li> <li>• Continue with our fire prevention public education, fire inspection &amp; enforcement initiatives (noted above in Structure Fire section)</li> </ul>
<b>Loyalist Township Emergency Services</b>	<p><b>Continue monitoring response times to ensure compliance with NFPA 1720 &amp; the OFMEM Fireground Effectiveness Sub-Model (FGESM) Appendix 2: Fireground fire suppression staffing chart.</b> This includes the following:</p> <ul style="list-style-type: none"> <li>• Achieve a goal of 6 firefighters on the scene within 14 minutes 80% of the time within rural areas, which have less than 500 people/ mi<sup>2</sup> (2.6 km<sup>2</sup>). (NFPA 1720)</li> <li>• Monitor the turnout and response times.</li> <li>• Continue to achieve a goal of having 4 firefighters arriving on scene of an incident in which the travel distance is greater than 8 miles within a predetermined travel time, as directed by the AHJ.</li> </ul>

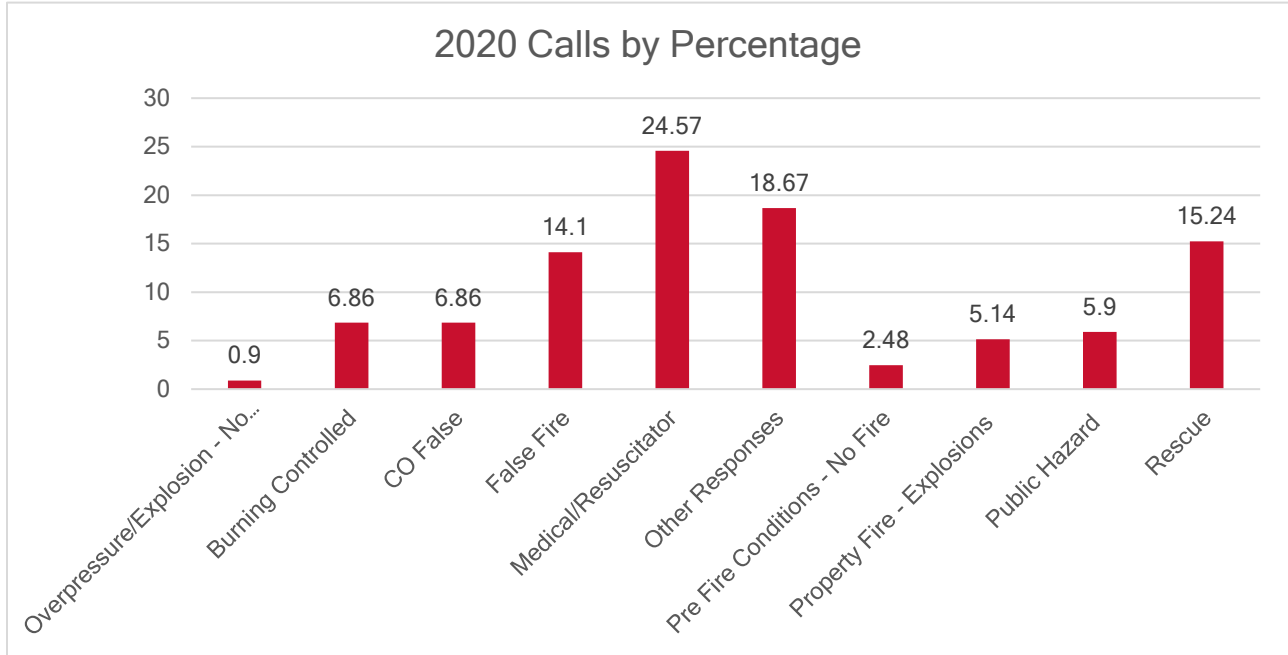
Top Risk or Issues/Concerns	Preferred Treatment Option(s)
	<ul style="list-style-type: none"> <li>Achieve a goal of 10 firefighters on the scene within 10 minutes for all fire related calls. (OFMEM FGESM Appendix 2)</li> </ul> <p>Travel time is directly affected by the travel distance.</p>

## CALL ANALYSIS



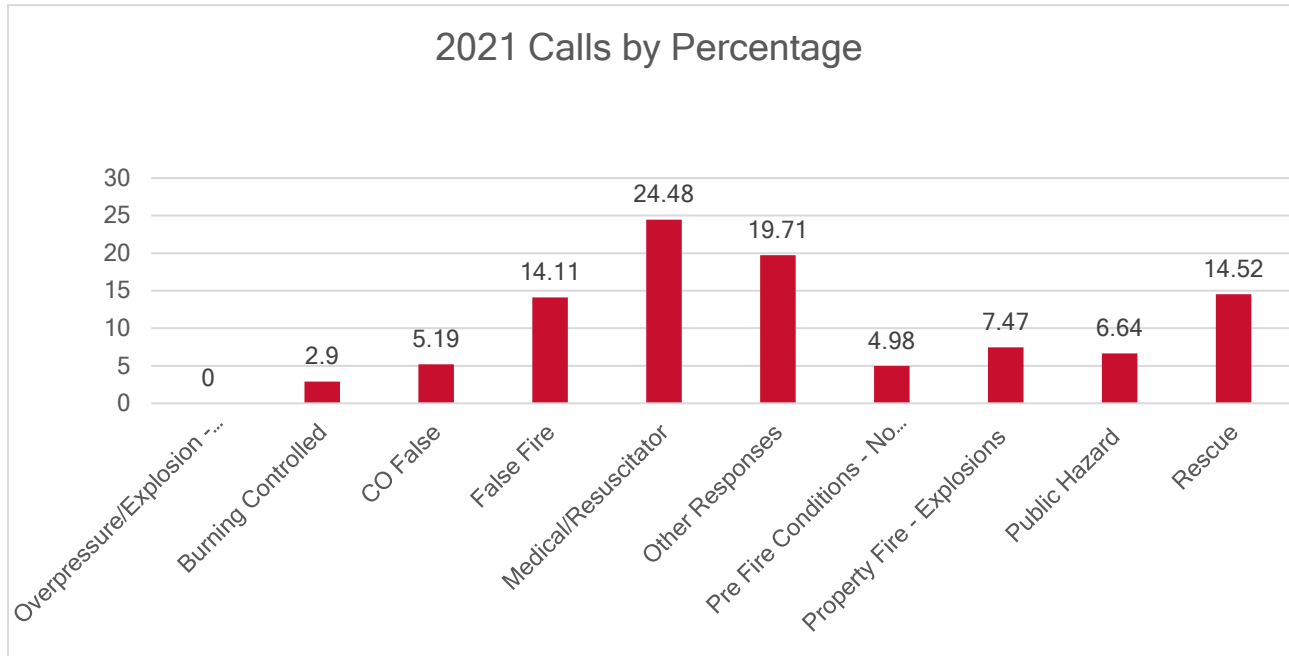
## OFMEM Fire Statistics 2020-2022

### OFMEM FIRE STATISTICS FROM 2020



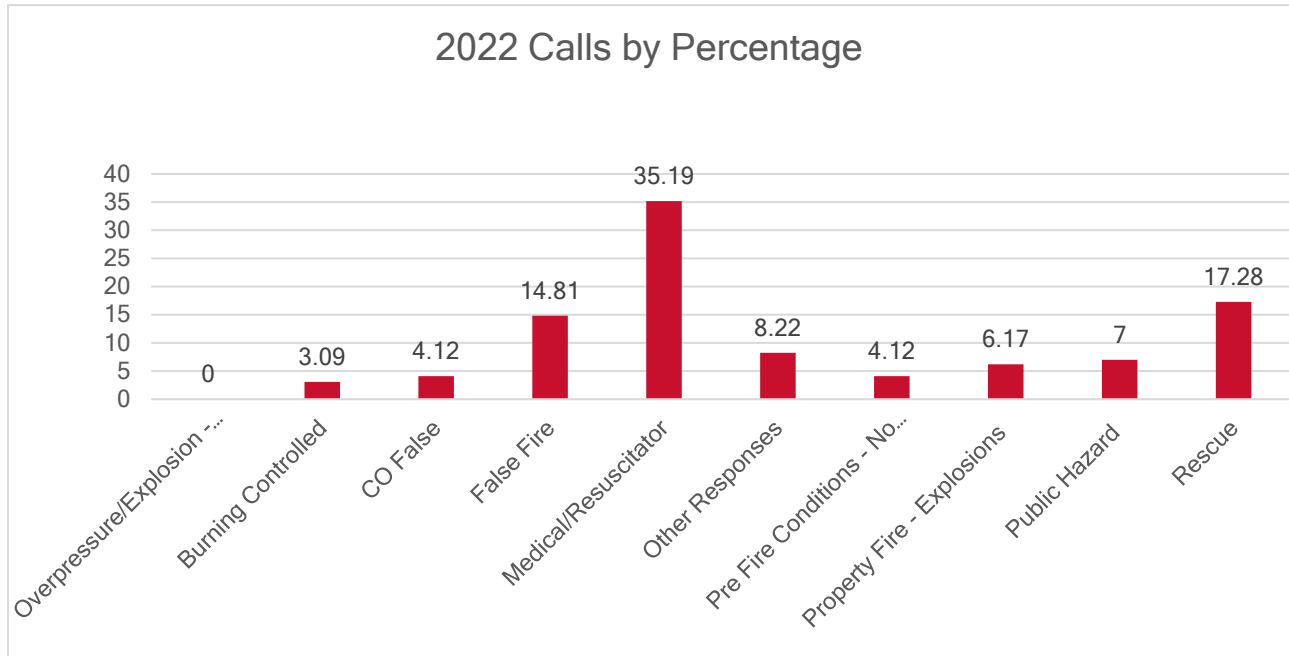
2020	
Number of Structure Fires	9
Number of Firefighter Injuries	0
Number of Firefighter Deaths	0
Number of Civilian Injuries	1
Number of Civilian Deaths	2
Total Dollar Loss	\$444,000
Fire Cause Determination(s)	<ul style="list-style-type: none"> <li>• Suspected Arson</li> <li>• Mechanical / Electrical Failure</li> <li>• Misuse of Ignition Source (x6)</li> <li>• Undetermined Cause</li> </ul>

**OFMEM FIRE STATISTICS FROM 2021**



2021	
Number of Structure Fires	11
Number of Firefighter Injuries	0
Number of Firefighter Deaths	0
Number of Civilian Injuries	0
Number of Civilian Deaths	0
Total Dollar Loss	\$1,641,000
Fire Cause Determination(s)	<ul style="list-style-type: none"> <li>• Mechanical / Electrical Failure (x2)</li> <li>• Misuse of Ignition Source (x3)</li> <li>• Undetermined Cause (x3)</li> <li>• Design / Construction / Maintenance Deficiency (x3)</li> </ul>

**OFMEM FIRE STATISTICS FROM 2022**



2022	
Number of Structure Fires	13
Number of Firefighter Injuries	0
Number of Firefighter Deaths	0
Number of Civilian Injuries	0
Number of Civilian Deaths	0
Total Dollar Loss	\$267,000
Fire Cause Determination(s)	<ul style="list-style-type: none"> <li>• Mechanical / Electrical Failure (x3)</li> <li>• Misuse of Ignition Source (x6)</li> <li>• Exposure Fire</li> <li>• Undetermined Cause (x2)</li> <li>• Design / Construction / Maintenance Deficiency (x3)</li> </ul>



PROFILE  
WORKSHEETS

## 5. Profile Worksheets

The following tables represent the compilation of an in-depth analysis of the risks identified during the completion of the nine mandatory profiles. Each worksheet contains the related risks and associated information that were identified. Within each profile, the recommended level of treatment and the suggested means of handling the risks have been included (where applicable).

The Loyalist Township Council, with the assistance of the Fire Chief, will be able to use this information in the formulation of the community risk mitigation strategies.

### PRIORITISING RISKS

The mandatory profiles allow fire departments to identify the features and characteristics of their community that may impact fire and life safety risks. Once risks have been identified they should be prioritized. This section discusses how risks can be prioritized based on the probability of the risk happening and the consequence if the risk occurs. **Table 1: Probability Levels** and **Table 2: Consequence Levels on the following pages** can be used to help determine the probability and consequence of each risk identified on the worksheets. The probability and consequence of each risk can then be noted in the appropriate columns on the relevant worksheets in this section and Appendix A. s noted in the introduction,

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*Risk is defined as a measure of the probability and consequence of an adverse effect to health, property, organization, environment, or community as a result of an event, activity or operation.*

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### PROBABILITY

The probability or likelihood of a fire or emergency within a community is often estimated based on the frequency of previous experiences. A review of past events involves considering relevant historical fire loss data, learning from the experiences of other communities, and consulting members of the community with extensive historical knowledge. Professional judgment based on experience should also be exercised in combination with historical information to estimate probability levels. The probability of an event can be categorized into five levels of likelihood detailed in Table 1.

**Table 1: Probability Levels**

Description	Specifics
Rare	<ul style="list-style-type: none"> <li>• May occur in exceptional circumstances</li> <li>• No incidents in past 15 years</li> </ul>
Unlikely	<ul style="list-style-type: none"> <li>• Could occur at some time, especially if circumstances change</li> <li>• 5 to 15 years since last incident</li> </ul>
Possible	<ul style="list-style-type: none"> <li>• Might occur under current circumstances</li> <li>• 1 incident in the past 5 years</li> </ul>
Likely	<ul style="list-style-type: none"> <li>• Will probably occur at some time under current circumstances</li> <li>• Multiple or recurring incidents in the past 5 years</li> </ul>
Almost certain	<ul style="list-style-type: none"> <li>• Expected to occur in most circumstances unless circumstances change</li> <li>• Multiple or recurring incidents in the past year</li> </ul>

Assign a probability level to each identified risk or hazard on the relevant worksheets in Section 5 and Appendix A.

## CONSEQUENCE

The consequence of a fire or emergency is the potential losses or negative outcomes associated with the event. The application of professional judgment and reviews of past occurrences are important methods used for determining consequence levels. Estimating the consequence level of an incident or event should involve an evaluation of four components:

**Life Safety:** Injuries or loss of life due to occupant and firefighter exposure to life threatening fire or other situations.

**Property Loss:** Monetary losses relating to private and public buildings, property content, irreplaceable assets, significant historic/symbolic landmarks and critical infrastructure.

**Economic Impact:** Monetary losses associated with property income, business closures, a downturn in tourism and/or tax assessment value, and employment layoffs.



**Environmental Impact:** Harm to human and non-human (i.e. wildlife, fish and vegetation) species of life and a general decline in quality of life within the community due to air/water/soil contamination as a result of the incident and response activities.

The consequence of an event can be categorized into five levels based on severity.

**Table 2: Consequence Levels**

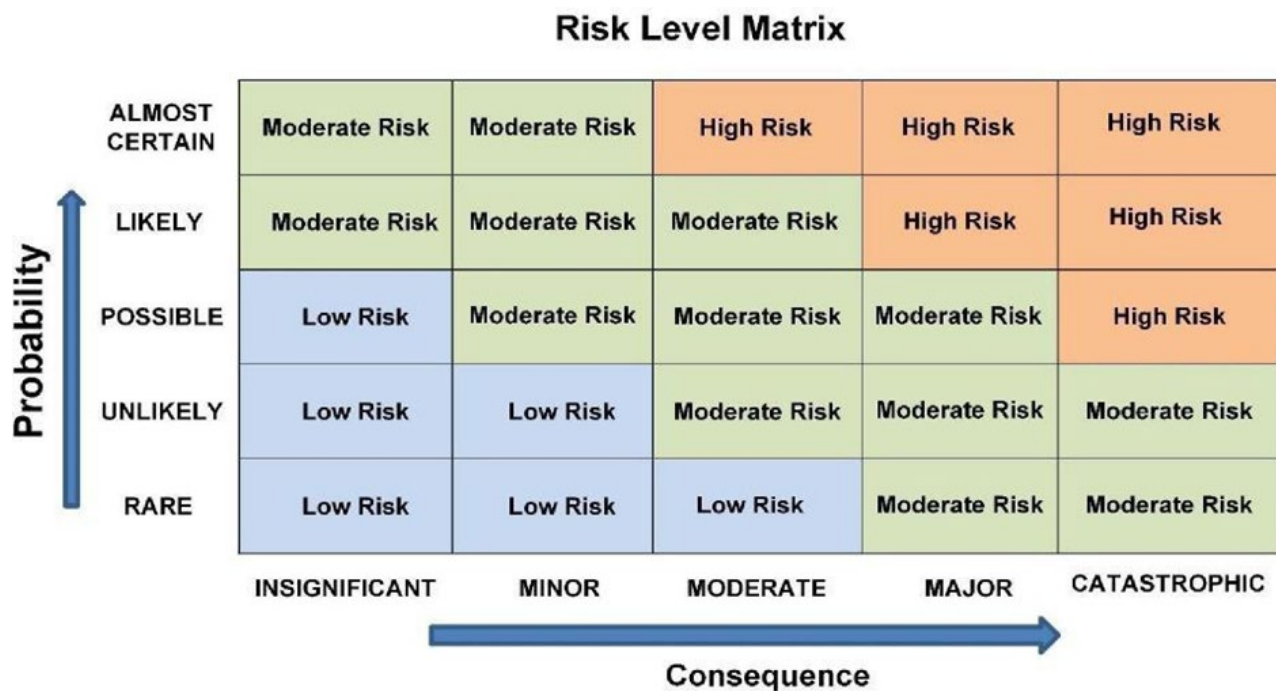
Description	Specifics
Insignificant	<ul style="list-style-type: none"> <li>• No life safety issue</li> <li>• Limited valued or no property loss</li> <li>• No impact to local economy, and/or</li> <li>• No effect on general living conditions</li> </ul>
Minor	<ul style="list-style-type: none"> <li>• Potential risk to life safety of occupants</li> <li>• Minor property loss</li> <li>• Minimal disruption to business activity, and/or</li> <li>• Minimal impact on general living conditions</li> </ul>
Moderate	<ul style="list-style-type: none"> <li>• Threat to life safety of occupants</li> <li>• Moderate property loss</li> <li>• Poses threat to small local businesses, and/or</li> <li>• Could pose a threat to the quality of the environment</li> </ul>
Major	<ul style="list-style-type: none"> <li>• Potential for a large loss of life</li> <li>• Would result in significant property damage</li> <li>• Significant threat to large businesses, local economy and tourism, and/or</li> <li>• Impact to the environment would result in a short term, partial evacuation of local residents and businesses</li> </ul>
Catastrophic	<ul style="list-style-type: none"> <li>• Significant loss of life</li> <li>• Multiple property damage to a significant portion of the municipality</li> <li>• Long-term disruption of businesses, local employment, and tourism, and/or</li> <li>• Environmental damage that would result in long-term evacuation of local residents</li> </ul>

Assign a consequence level to each identified risk or hazard on the relevant worksheets in Section 5 and Appendix A.

**ASSIGNING RISK LEVEL**

Assigning a risk level assists fire departments in prioritizing risks, which helps to determine how to address or treat each risk. The **Risk Level Matrix** in this section can assist fire departments to determine risk levels based on the probability and consequence levels of each identified risk. Risks can be assigned as low risk, moderate risk, or high risk. The risk levels for each risk can be noted in the **Assigned Risk Level** column on the relevant worksheets in Section 5 and Appendix A.

The matrix below can be used to determine the assigned risk level. Plot the assigned probability and consequence levels on the relevant worksheets to assign a risk level for each identified risk.



**RISK TREATMENT OPTIONS**

Once risk levels have been assigned, fire departments can determine how best to treat each risk and the resources required to do so.

Options for treating risks are described in detail in Worksheet 10.

## Worksheet 1 Geographic Profile

**Loyalist** is a lower-tier township municipality in central eastern Ontario, Canada on Lake Ontario. It is in Lennox and Addington County and consists of two parts: the mainland and Amherst Island. It was named for the United Empire Loyalists, who settled in the area after the American Revolutionary War.

Loyalist Township was formed on January 1, 1998, through the amalgamation of Amherst Island Township, Ernestown Township, and The Village of Bath.

The primary centres of settlement in Loyalist are Amherstview, Bath and Odessa. Smaller communities include Asselstine, Bayview, Emerald, Ernestown, Links Mills, McIntyre, Millhaven, Morven, Nicholson’s Point, Stella, Storms Corners, Switzerville, Thorpe, Violet, and Wilton. Since Loyalist Township is the only municipal level of government in the area, the boundaries of most *mainland* settlements are unofficial and matters of tradition.

### GEOGRAPHIC PROFILE RISKS

**NB.** The following features are not identified in the order of their level of risk.

Geographical features in the community that influence fire protection services are listed in the table below.

Geographic Profile Risks	
Geographic Feature	Potential impact on the delivery of Fire Protection Services
Large body of water	<ul style="list-style-type: none"> <li>• Impacts training, equipment for response activities</li> <li>• Impacts response times/travel time to calls</li> <li>• Recreational/tourist activities impact public fire safety education and Fire Code inspections and enforcement activities</li> </ul>
Waterways	<ul style="list-style-type: none"> <li>• Impacts training, equipment for response activities</li> <li>• Impacts response times/travel time to calls</li> <li>• Impacts response protocols</li> </ul>

Geographic Profile Risks	
Geographic Feature	Potential impact on the delivery of Fire Protection Services
Railway tracks	<ul style="list-style-type: none"> <li>• Impacts station location</li> <li>• Impacts response protocols</li> <li>• Impacts response times/travel time to calls</li> <li>• Impacts training, equipment for response activities</li> </ul>
Highways / Roadways	<ul style="list-style-type: none"> <li>• Impacts training, equipment for response activities</li> <li>• Impacts response times/travel time to calls</li> <li>• Impacts response protocols</li> <li>• Impacts station location</li> </ul>
Ferry	<ul style="list-style-type: none"> <li>• Impacts station location</li> <li>• Impacts response protocols</li> <li>• Impacts response times/travel time to calls</li> <li>• Impacts training, equipment for response activities</li> </ul>
Conservation Area	<ul style="list-style-type: none"> <li>• Impacts training, equipment for response activities</li> <li>• Impacts response times/travel time to calls</li> <li>• Impacts response protocols for remote response areas</li> </ul>
Recreational Trails	<ul style="list-style-type: none"> <li>• Impacts training, equipment for response activities</li> <li>• Impacts response times/travel time to calls</li> <li>• Impacts response protocols for remote response areas</li> </ul>
Wildland Urban Interfaces	<ul style="list-style-type: none"> <li>• Impacts training, equipment for response activities</li> <li>• Impacts response times/travel time to calls</li> <li>• Impacts response protocols for remote response areas</li> </ul>
Quarry / Open Pits	<ul style="list-style-type: none"> <li>• Impacts training, equipment for response activities</li> <li>• Impacts response times/travel time to calls</li> <li>• Impacts response protocols for remote response areas</li> </ul>

*Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all information on all worksheets together to make decisions about the provision of fire protection services in their municipality / community.*

# Community Risk Assessment Guide



Loyalist Township Fire Response Areas

## Worksheet 2 Building Stock Profile

The building stock profile assessment should consider the characteristics of the buildings in the community. This can include the use of the buildings, density, age, construction, and height and area. This information will assist fire departments to identify the issues/concerns that will impact the delivery of fire protection services.

The Fire Prevention Branch should develop a means of reviewing each structure within their community in which they conduct inspections. It would be a monumental task to review every structure within a community and list them individually within this document. Prior to developing this database, decisions should be made in advance as to which occupancy classification(s) the Department will focus on, based on the history of fires in those occupancies.

The items listed in the Issues/Concerns column in Worksheet 2 are issues for consideration and are not specific to any single building. The items listed could be used as a method of identifying areas of concern within a particular occupancy.

It is this data that is used in conjunction with other information from other related Worksheets and the Integrated Risk Management Web Tool, that will assist in the development of the Community Risk Reduction Plan for the municipality.

### **ASSIGNING PROBABILITY, CONSEQUENCE AND RISK LEVELS**

The Probability and Consequence Tables and Risk Matrix diagram at the beginning of Section 5: Profile Worksheets will assist in determining the appropriate levels for building stock.

### **BUILDING STOCK PROFILE RISKS**

List the building stock/occupancy types in your community and the fire and other emergency issues/concerns for each.

Please see Appendix A

## Worksheet 3 Critical Infrastructure Profile

Consider the community’s critical infrastructure including electricity distribution, water distribution, telecommunications, hospitals, and airports and how they relate to fire and other emergency risks in the community.

**NOTE:** The information contained within this section should be considered confidential. The following features are not identified in the order of their level of risk.

### CRITICAL INFRASTRUCTURE PROFILE RISKS

List the critical infrastructure in your community and the fire and other emergency issues/concerns relating to each.

Critical Infrastructure Profile Risks	
Identified Critical Infrastructure	Issues / Concerns
Electricity distribution / Hydro one	Hydro lines go down / loss of electricity can affect dispatch, communication equipment & food distribution centers.
Care Centres	Large number of immobile people at risk if a fire occurs / evacuation concern.
Telecommunications	Telephone lines, cell & pager towers, radio towers & Internet go down / communications compromised for both 911 service & dispatching & Emergency Services operations.
Water Treatment Plant(s)	Loss of potable water; Limited or no water supply for firefighting & township residents. Contaminated water in our potable water distribution system.
Sanitary Sewage Collection System(s) / Pumping Stations	Sewage back up in homes; environmental / waterway contamination.
Natural Gas / Embridge	Sewage back up in homes; environmental / waterway contamination.

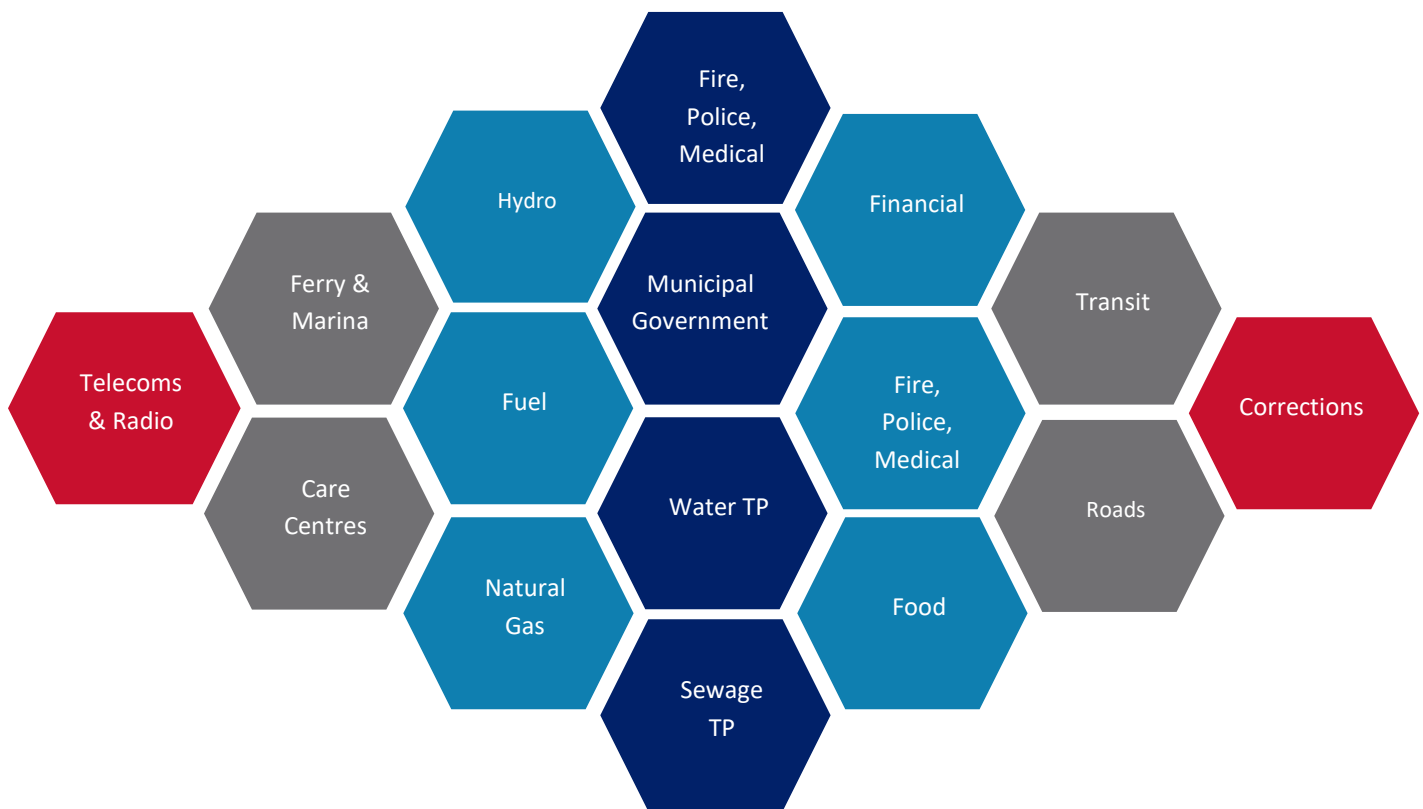


Critical Infrastructure Profile Risks	
Identified Critical Infrastructure	Issues / Concerns
Fire Service	Sewage back up in homes; environmental / waterway contamination.
Policing Service	Sewage back up in homes; environmental / waterway contamination.
Paramedic Service	Sewage back up in homes; environmental / waterway contamination.
Food Distribution / Grocery Stores	Loss of power; equipment failure; supply loss to community could impact residents basic living conditions (food & water).
Fuel Distribution / Gas Stations	Loss of power; equipment failure; supply loss to community could impact mobility; environmental hazards, spills, highly flammable petroleum products.
Post Office	Equipment failure / Limited personnel; Mail delivery stoppage / delay(s) in delivering essential mail (cheques, etc.).
Banks & Trust Companies	Loss of power; equipment failure; service disruptions to residents.
Radio Station	Loss of Power; equipment failure; broadcasting disruptions to residents.
Marina Port Facilities/Ferry Service	Equipment failure: Limited personnel could impact access between A.I. & mainland & impact resources & response capabilities with emergency services & residents' access to essential services.
Highways / Roadways / Railways	Extreme weather conditions / accidents could impact the operation of the roadway/railway; commuting & freight distribution service disruptions; environmental disasters; etc.
Snow Removal Services / Township & High Road Maintenance	Equipment failure / Limited personnel & resources could impact highway & roadway access; EMS response.
Public Transit – Bus / Private Bus – Schools	Extreme weather conditions / Equipment failure; Limited personnel could impact service.



Critical Infrastructure Profile Risks	
Identified Critical Infrastructure	Issues / Concerns
Municipal Government	Loss of Power; equipment failure; Limited personnel could impact service to community.
Corrections (Federal & Provincial)	Loss of Power; equipment failure; Limited personnel could impact internal operations / delayed access for emergency services.
Emergency Operations & Evacuation Centres/Shelters	Loss of Power; equipment failure could impact heating, lights, etc. / Limited personnel could impact operations.

*Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all information on all worksheets together to make decisions about the provision of fire protection services in their municipality / community.*



## Worksheet 4a Demographic Profile

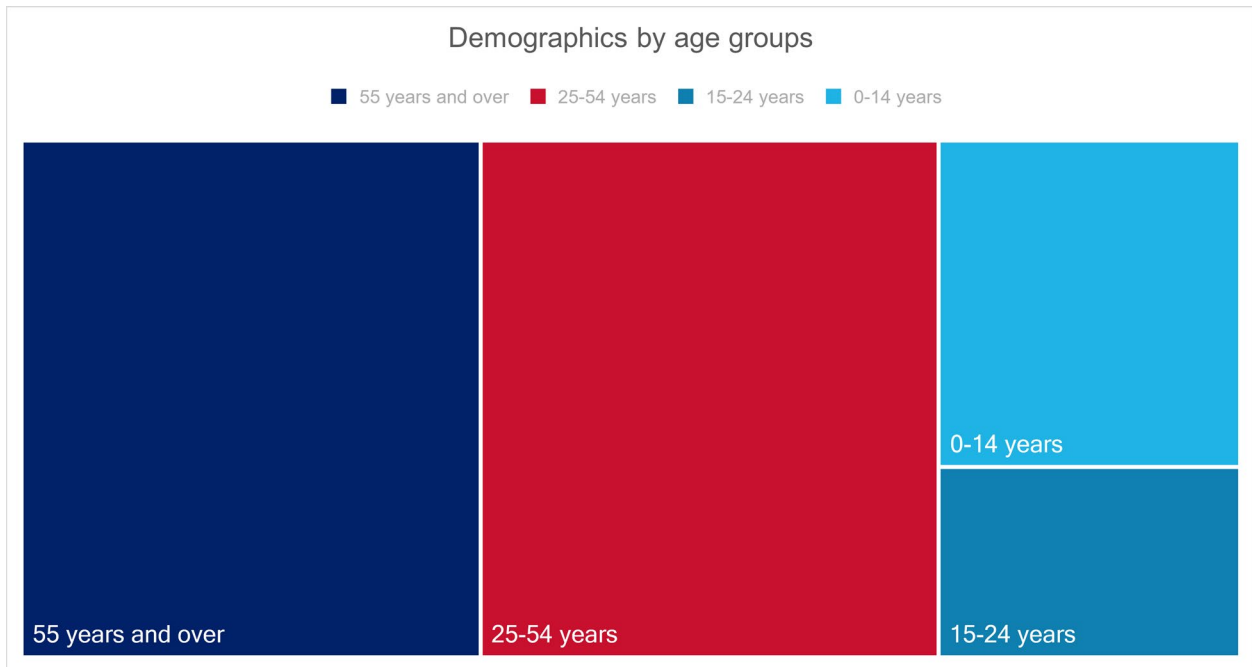
Consider the characteristics of your community’s demographic profile to identify potential fire safety issues/concerns. This will help the fire department prioritize its overall risk and decisions about the provision of fire protection services. For example, traditionally older adults, young children, recent immigrants, and people with disabilities are at the highest risk of fire. Knowing the population in any of these demographic groups helps your fire department prioritize your public fire safety education and Fire Code inspection and enforcement programs.

The following population distribution chart can assist with identifying high-risk or vulnerable demographic groups in your community.

*Source Statistics Canada 2021*

Demographic Numbers by Age		
Age of Population	Number of People	% of Total Population
0-4	870	4.8%
5-9	940	5.2%
10-14	995	5.5%
15-19	865	4.8%
20-24	770	4.3%
25-29	995	5.5%
30-34	1,160	6.5%
35-39	1,210	6.7%
40-44	1,160	6.5%
45-49	1,090	6.1%
50-54	1,125	6.3%
55-59	1,400	7.8%
60-64	1,345	7.5%
65-69	1,240	6.9%
70-74	1,150	6.4%
75-79	735	4.1%
80-84	455	2.5%
85 and over	435	2.4%
<b>Total Population</b>	<b>17,940</b>	<b>100%</b>

Demographic profile characteristics include age, culture, education, socioeconomics, transient populations, or other unique population characteristics in your community.



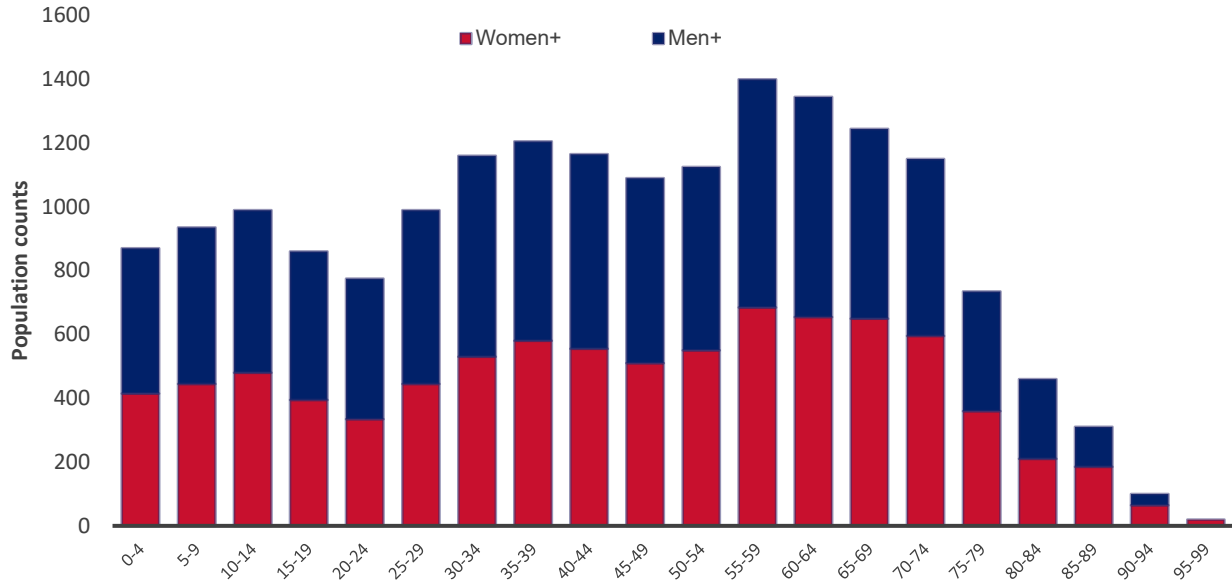
## STATISTICS CANADA

The charts below from Statistics Canada are based on the data from the 2021 census and help illustrate the following demographic profiles in the township:

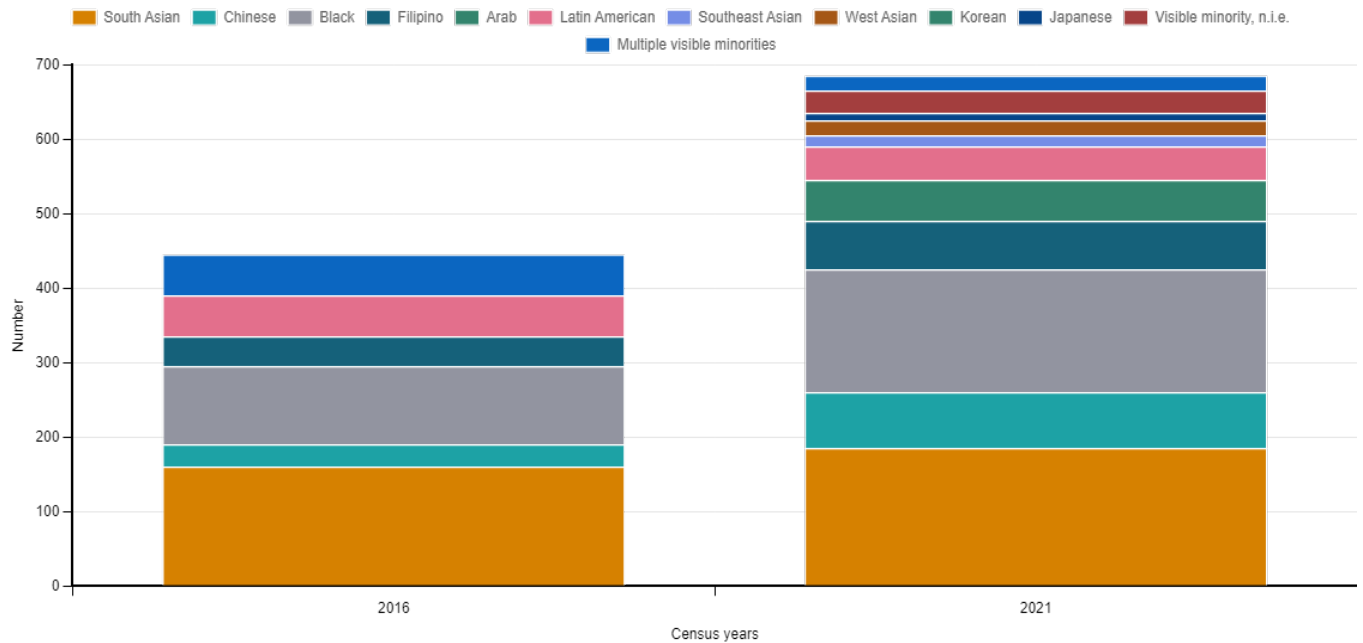
- Age groups and gender
- Visible minority group counts
- Age distribution and increase from 2016 to 2021
- Age distribution by indigenous identity within the township.

**N.B. Random rounding - To ensure confidentiality, Statistics Canada randomly rounds values, including the totals, up or down to a multiple of '5' or '10'.**

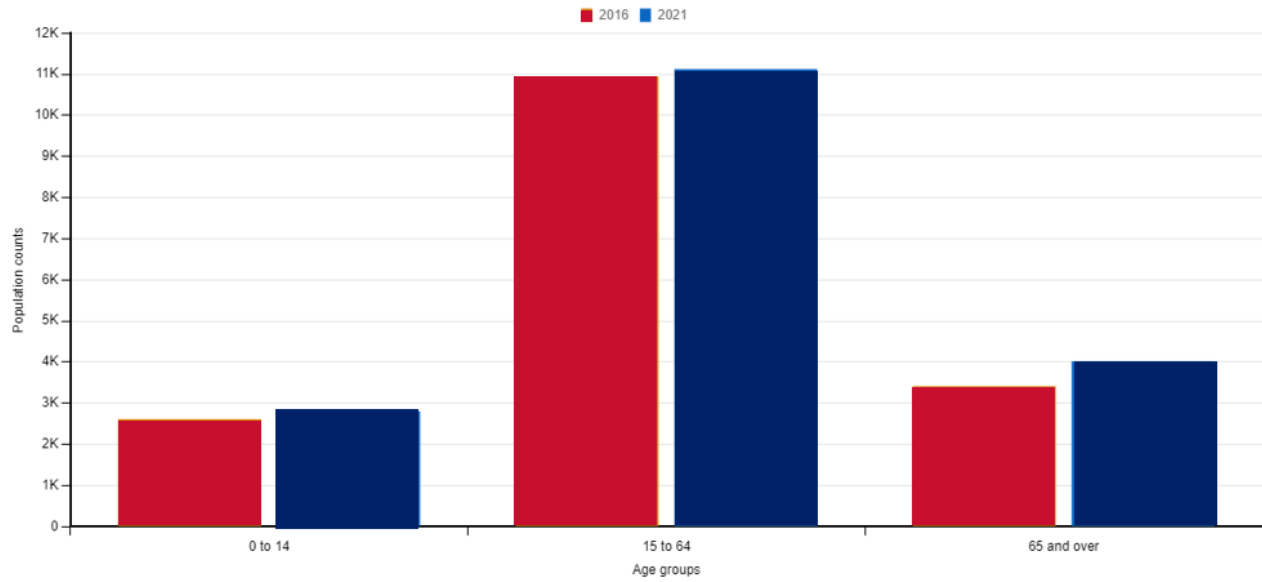
Population by five-year age groups and gender, 2021



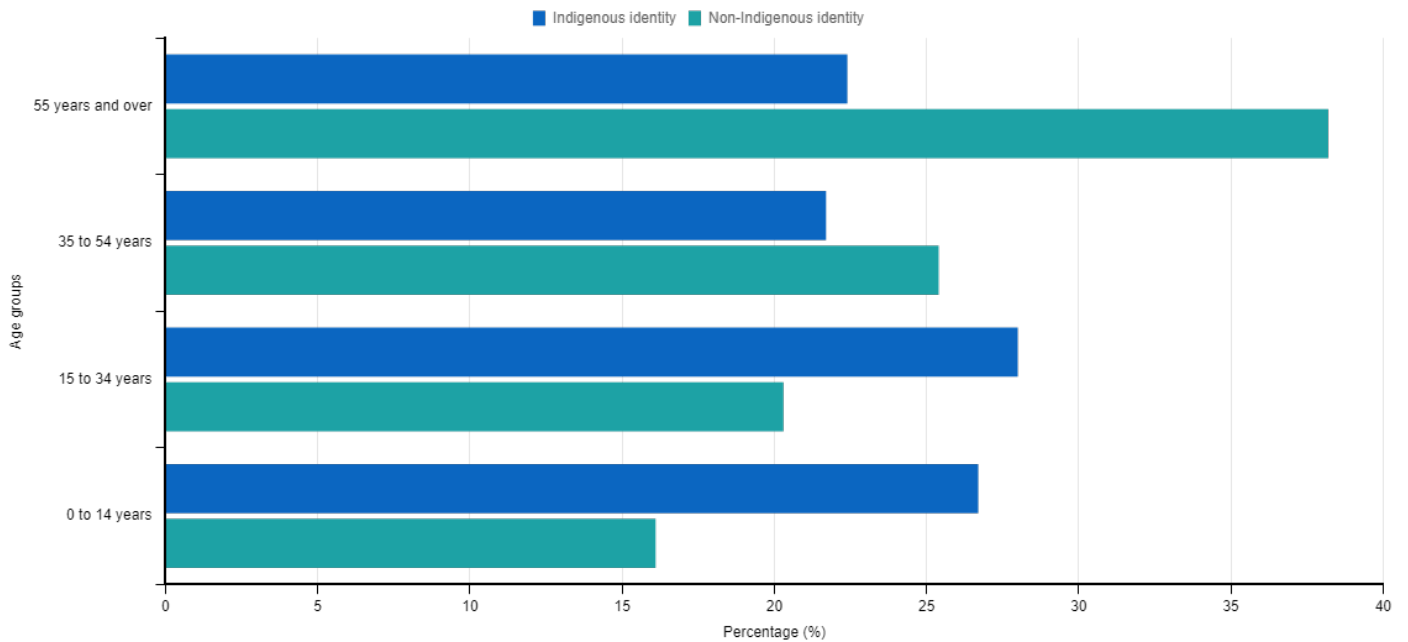
Counts of visible minority groups[2], Loyalist (Township), 2016, 2021



Loyalist (Township) – Age distribution, 2016 to 2021



Age distribution by Indigenous identity, Loyalist (Township), 2021



## INFOGRAPHICS OF STATS CAN 2021 CENSUS DATA

<b>Area</b>	<b>342.72 sq km</b>	The land area of Loyalist is <b>342.72</b> square kilometres, and the population density was <b>52.4</b> people per square kilometre.
<b>Growth</b>	<b>5.7%</b>	In 2021 the enumerated population of Loyalist was <b>17,943</b> , which represents a change of <b>5.7%</b> from 2016. This compares to the provincial average of <b>5.8%</b> and the national average of <b>5.2%</b> .
<b>Private dwellings</b>	<b>6.3%</b>	In 2021, there were <b>6,830</b> private dwellings occupied in Loyalist, which represent a change of <b>6.3%</b> from 2016.

<b>Children</b>	<b>15.6%</b>	In 2021, <b>2,800</b> children aged 0 to 14 were enumerated in Loyalist, representing respectively <b>15.6%</b> of the total population.
<b>Working age</b>	<b>62%</b>	The working age population (15 to 64) represented <b>62%</b> of the total population. This compares to the national figure of <b>64.8%</b> in 2021.
<b>Seniors</b>	<b>19%</b>	In 2021, <b>4,020</b> persons aged 65 and over were enumerated in Loyalist, representing <b>22.4%</b> of the total population. In comparison, the national proportion of seniors was <b>19%</b> in 2021.

<b>Immigrant status</b>	<b>8.2%</b>	According to the 2021 Census, <b>1,380</b> people, or <b>8.2%</b> of the population, were foreign born (immigrants), <b>15,490 (91.7%)</b> were Canadian born (non-immigrants) and <b>25 (0.1%)</b> were non-permanent residents.
<b>Recent immigrants</b>	<b>5.8%</b>	Among immigrants in 2021, <b>80</b> came between 2016 and 2021. These recent immigrants made up <b>5.8%</b> of the immigrant population.

## Ethnic or cultural origins

**73.6%**

In 2021, the most frequently reported ethnic or cultural origin was English, with about **4,550** persons or **26.9%** of the total population. The second origin was Irish, with about **4,270** persons or **25.3%** of the total population. The third origin was Scottish, with about **3,610** persons, or **21.4%** of the total population.

## Visible minorities

**2.5%**

In 2021, the largest visible minority was South Asian, with about **185** persons or **1.1%** of the total population. The second group was Black, with about **165** persons, or **1%** of the total population. The third group was Chinese, with about **75** persons, or **0.4%** of the total population.

## Younger Indigenous

**34 years**

In general, the Indigenous population in Loyalist is younger than the non-Indigenous population with an overall average age of **34 years** compared with **44 years** for the non-Indigenous population. The average age was **32.5** years for First Nations people; **35.4** for Métis; and **30** years for Inuit.

## Indigenous Children

**26.7%**

Indigenous children aged **up to 14** represented **26.7%** of the total Indigenous, while non-Indigenous children aged **up to 14** accounted for **16.1%** of the non-Indigenous population.

## Higher education

**20.1%**

In 2021, 20.1% of those aged 25 to 64 in Loyalist had a bachelor's degree or higher. Compared to 36.8% in Ontario and 32.9% in Canada.

## Youth education

**39.4%**

Among youth aged 18 to 24 in Loyalist, 39.4% were attending postsecondary school compared to 51.5% in Ontario and 50.2% in Canada overall.

## Worksheet 4b Demographic Profile

List the demographic groups of concern in your community and the fire and other emergency issues/concerns relating to each group.

**NOTE:** The following features are not identified in the order of their level of risk.

Demographic Profile Risks	
Identified Demographic Infrastructure	Issues / Concerns
General population	<ul style="list-style-type: none"> <li>• Population continues to grow as more subdivisions are built.</li> <li>• Population growth estimation of approximately 2510+ new residents between 2023 and 2033.</li> <li>• Increased population will result in an increase in fire call volume.</li> <li>• May live in illegal second units.</li> </ul>
Seniors population	<ul style="list-style-type: none"> <li>• Three Care &amp; Treatment Centres in Municipality.</li> <li>• Some of the seniors will have mobility &amp; cognitive / behavioural issues that may require constant care.</li> <li>• May lack knowledge of escape routes due to mental confusion.</li> <li>• Low number of seniors receiving assistance/care from personal support worker organizations.</li> <li>• Outdated, incorrectly installed or absent residential alarms due to mobility restrictions.</li> </ul>
Visible Minority population	<ul style="list-style-type: none"> <li>• Language barriers.</li> <li>• Cultural traditions that present fire safety concerns.</li> <li>• May lack knowledge on fire safety matters.</li> <li>• May lack knowledge on fire escape plan.</li> <li>• Outdated or absent residential alarms.</li> </ul>

*Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all of the information on all worksheets together in order to make decisions about the provision of fire protection services in their municipality/community.*



## Worksheet 5 Hazard Profile

List potential hazards in the community including but not limited to hazardous materials spills, floods, freezing rain/ice storms, forest fires, hurricanes, tornadoes, transportation emergencies (e.g., air, rail, or road), snowstorms, windstorms, extreme temperature, cyber-attacks, human health emergencies, and energy supply (e.g., pipelines, storage and terminal facilities, electricity, natural gas, and oil facilities).

**NOTE - The information contained within this section should be considered confidential. The following features are not identified in the order of their level of risk.**

### HAZARD PROFILE RISKS

List the hazards in your community and the fire or other emergency risk of each. Assign probability, consequence and risk levels to each risk identified.

Hazard Profile Risks			
Identified Hazard	Probability <sup>1</sup>	Consequence <sup>2</sup>	Assigned Risk Level <sup>3</sup>
Freezing rain/Ice storms (power interruptions or disruptions in communications/delayed access)	Likely	Minor	Moderate
Flood (obstructed access/increased calls for rescue/assistance)	Possible	Minor	Moderate
Hazardous materials spills (environmental disaster/air, water, soil contamination)	Rare	Major	Moderate
Energy supply (pipelines, storage & terminal facilities, electricity, natural gas & oil facilities)	Likely	Major	High Risk
Wildland Fires	Likely	Minor	Moderate

Hazard Profile Risks			
Identified Hazard	Probability <sup>1</sup>	Consequence <sup>2</sup>	Assigned Risk Level <sup>3</sup>
Severe windstorms & micro-bursts (power interruptions/disruptions in communications/delayed access)	Likely	Moderate	Moderate
Snowstorms (increased with MVCs)	Almost certain	Minor	Moderate
Extreme temperatures (extreme heat wave/extreme cold fronts)	Almost certain	Minor	Moderate
Cyber-attacks	Rare	Minor	Low Risk
Human health emergencies	Almost certain	Moderate	High Risk
Transportation emergencies - ferry	Rare	Moderate	Low Risk
Transportation emergencies - air	Unlikely	Major	Moderate
Transportation emergencies - rail	Unlikely	Major	Moderate
Transportation emergencies - road	Almost certain	Minor	Moderate

<sup>1</sup> Refer to Table 1 at the beginning of Section 5 for suggested probability levels.

<sup>2</sup> Refer to Table 2 at the beginning of Section 5 for suggested consequence levels.

<sup>3</sup> Refer to Risk Level Matrix at the beginning of Section 5 for suggested risk levels

*Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all information on all worksheets together to make decisions about the provision of fire protection services in their municipality / community.*

## Worksheet 6 Public Safety Response Profile

Consider other public safety response agencies (e.g., police, EMS, rescue) that might be tasked with or able to assist in the response to emergencies or in mitigating the impact of emergencies. Also consider the types of incidents each can respond to and any issues or concerns that may impact fire department response.

### PUBLIC SAFETY RESPONSE PROFILE RISKS

List the other public safety response agencies in your community and the incidents they respond to.

Public Safety Response Profile Risks			
Identified Public Safety Response Agency	Incident Types Response	Role at Incident	Issues / Concerns
Ontario Provincial Police / Kingston Police	<ul style="list-style-type: none"> <li>MVCs on network of roads, streets, highways</li> <li>Fire scenes</li> <li>Acts of crime, violence &amp; terrorism</li> <li>Emergency Response Plan initiation</li> <li>Search &amp; rescue (land &amp; water)</li> </ul>	<ul style="list-style-type: none"> <li>Scene control, traffic control, investigations</li> <li>Establish perimeters</li> <li>Provide marine support</li> <li>Canine services</li> <li>Coordinate CRCC / search &amp; rescue</li> </ul>	None
Paramedics	<ul style="list-style-type: none"> <li>All types of medical calls</li> <li>Fire stand-by</li> <li>Mass casualty</li> <li>Emergency Response Plan initiation</li> </ul>	<ul style="list-style-type: none"> <li>Take control on arrival &amp; provide direction in treatment of sick/injured</li> <li>Triage patients at mass casualty incident</li> <li>Transport casualties to hospital</li> </ul>	None
CN Police	<ul style="list-style-type: none"> <li>Rail line emergencies - (jurisdiction is 500m surrounding rail line system)</li> </ul>	<ul style="list-style-type: none"> <li>Scene control, investigations</li> <li>Establish perimeters</li> </ul>	None

Public Safety Response Profile Risks			
Identified Public Safety Response Agency	Incident Types Response	Role at Incident	Issues / Concerns
Outside/Neighbouring Fire Departments	<ul style="list-style-type: none"> <li>Automatic or Mutual Aid Incidents</li> <li>Respond to structure fires with tanker support in specified areas</li> </ul>	<ul style="list-style-type: none"> <li>Support role to requesting Fire Department</li> <li>Fire suppression</li> <li>Provide staff &amp; equipment as requested</li> </ul>	Resource availability at time of request
Coastguard	<ul style="list-style-type: none"> <li>All marine emergencies (distress calls from mariners or to those in need of assistance)</li> <li>Marine Search &amp; Rescue</li> </ul>	<ul style="list-style-type: none"> <li>Scene control of rescue operations on Lake Ontario</li> <li>Work collaboratively with other agencies to support emergency services</li> </ul>	Resource availability (inshore rescue boats) at time of request
Royal Canadian Air Force (JRCC)	<ul style="list-style-type: none"> <li>All Air &amp; marine incidents involving Search &amp; Rescue</li> <li>Rescues in remote areas</li> </ul>	<ul style="list-style-type: none"> <li>Coordinating the Search &amp; Rescue response to air &amp; marine incidents</li> <li>Work collaboratively with other agencies to support emergency services</li> </ul>	Resource availability at time of request

*Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all information on all worksheets together to make decisions about the provision of fire protection services in their municipality / community.*

## Worksheet 7 Community Services Profile

Consider community service agencies, organizations or associations that provide services that support the fire department in the delivery of public fire safety education, Fire Code inspection and enforcement, and emergency response. This may include services in-kind, financial support, provisions of venues for training, increased access to high-risk groups in the community, and temporary shelter for displaced residents following an incident.

### COMMUNITY SERVICES PROFILE RISKS

List the community service agencies and the types of services they can provide.

Community Services Profile Risks		
Community Service Agencies	Types of Assistance Available	Issues/Concerns
Canadian Red Cross	Temporary shelter, clothing, food following an incident	None
Service Clubs (Lions Club's in Amherstview, Bath & Odessa / Kingston & District Civitan Club)	Services in-kind (e.g. funding / physical labour / facilities)	None
Prince Edward - L&A Social Services (PELASS)	Emergency housing / shelter, internal incidents where persons require assistance	Availability of resources at time of request
Addictions & Mental Health Services – KFLA	Mental Health assistance to person(s) requiring services	Availability of resources at time of request
Immigrant Services Kingston & Area (ISKA)	Assistance with government documents, Individualized mentoring and solution-focused counselling, Support with finding a home for you and your family, Support with enrolling children in school and daycare & connecting you with resources in your community.	None

Community Services Profile Risks		
Community Service Agencies	Types of Assistance Available	Issues/Concerns
Salvation Army	Client Choice Pantry, Emergency and Disaster Response, Emergency Assistance & Homelessness Prevention Fund.	None
Morningstar Mission	Hot lunches & dinners, Take home food basket program, Community food preparation program, personal development & support & Income tax program.	None

*Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all information on all worksheets together to make decisions about the provision of fire protection services in their municipality / community.*



## Worksheet 8 Economic Profile

Consider the industrial or commercial sectors that provide significant economic production and jobs to the local economy and the impact on the community’s economy if a fire or other emergency occurred in occupancies housing those sectors.

### ECONOMIC PROFILE RISKS

List the industrial or commercial occupancies that provide significant economic production and jobs in the community. List the fire or other emergency risks in each occupancy. Assign probability, consequence, and risk levels for each risk identified.

*NOTE: The following features are not identified in the order of their level of risk.*

Economic Profile Risks				
Identified Occupancy	Key Risk	Probability <sup>1</sup>	Consequence <sup>2</sup>	Assigned Risk Level <sup>3</sup>
Vulnerable Occupancies (x3)	Fire	Rare	Minor	Low
Federal Institutions (x2)	Fire	Likely	Moderate	Moderate
Willis Manufacturing	Fire	Rare	Minor	Low
Green Infrastructure Partners Inc (Liquid asphalt & emulsion plant)	Fire	Possible	Major	Moderate
Kiley Paving	Fire	Rare	Moderate	Low
Direct Coil (engineering & manufacturing facility)	Fire	Rare	Moderate	Low
Alstom	Fire	Rare	Minor	Low
Validus Power Corporation (natural gas fired power generating facility)	Fire	Rare	Minor	Low
Lafarge Holcim Bath Cement Plant	Fire	Possible	Moderate	Moderate



Economic Profile Risks				
Identified Occupancy	Key Risk	Probability <sup>1</sup>	Consequence <sup>2</sup>	Assigned Risk Level <sup>3</sup>
Latham Pools	Fire	Rare	Major	Moderate
Li-cycle	Fire	Rare	Moderate	Low
Midstream LPG	Fire	Rare	Major	Moderate
Algonquin – Amherst Island Windfarm	Fire	Rare	Minor	Low

<sup>1</sup> Refer to Table 1 at the beginning of Section 5 for suggested probability levels.

<sup>2</sup> Refer to Table 2 at the beginning of Section 5 for suggested consequence levels.

<sup>3</sup> Refer to Risk Level Matrix for suggested risk levels

*Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all information on all worksheets together to make decisions about the provision of fire protection services in their municipality / community.*



*Latham Pools, Loyalist Township*



## Worksheet 9a Past Loss & Event History Profile

Consider the industrial or commercial sectors that provide significant economic production and jobs to the local economy and the impact on the community's economy if a fire or other emergency occurred in occupancies housing those sectors.

### FIRES BY PROPERTY CLASSIFICATION

Causes of Fire
Arson
Design / construction / maintenance deficiency
Mechanical or electrical failure
Misuse of ignition source or materials first ignited
Other unintentional
Undetermined
Exposure fire

### MUNICIPAL FIRE LOSSES, DEATHS, INJURIES & CAUSES

The table above can be used in conjunction with the annual statistical information on the following three pages.

Municipal Fire Losses, Deaths, Injuries & Causes						
Year 1 2020						
Occupancy Classification		Number of Fires	Loss Total	Number of Injuries	Number of Deaths	Causes
Group A	Assembly	0	0	0	0	N/A
Group B	Detention	0	0	0	0	N/A
	Care & Treatment/Care	0	0	0	0	N/A
Group C	Single Family	7	\$314,000	0	0	See classification table below
	Multi-Unit Residential	2	\$130,000	1	2	See classification table below
	Hotel/Motel	0	N/A	N/A	N/A	N/A
	Mobile Homes & Trailers	0	N/A	N/A	N/A	N/A
	Other	0	N/A	N/A	N/A	N/A
Groups D & E	Business & Personal Services / Mercantile	0	N/A	N/A	N/A	N/A
Group F	Industrial	0	N/A	N/A	N/A	N/A
Other		0	N/A	N/A	N/A	N/A
<b>Totals</b>		<b>9</b>	<b>\$444,000</b>	<b>1</b>	<b>2</b>	

Municipal Fire Losses, Deaths, Injuries & Causes						
Year 2 2021						
Occupancy Classification		Number of Fires	Loss Total	Number of Injuries	Number of Deaths	Causes
Group A	Assembly	0	0	0	0	N/A
Group B	Detention	1	0	0	0	Suspected arson
	Care & Treatment / Care	0	0	0	0	N/A
Group C	Single Family	11	\$1,641,000	0	0	See classification table below
	Multi-Unit Residential	0	N/A	N/A	N/A	N/A
	Hotel/Motel	0	N/A	N/A	N/A	N/A
	Mobile Homes & Trailers	0	N/A	N/A	N/A	N/A
	Other	0	N/A	N/A	N/A	N/A
Groups D & E	Business & Personal Services / Mercantile	0	N/A	N/A	N/A	N/A
Group F	Industrial	0	N/A	N/A	N/A	N/A
Other		0	N/A	N/A	N/A	N/A
<b>Totals</b>		<b>12</b>	<b>\$1,641,000</b>	<b>0</b>	<b>0</b>	

Municipal Fire Losses, Deaths, Injuries & Causes						
Year 3 2022						
Occupancy Classification		Number of Fires	Loss Total	Number of Injuries	Number of Deaths	Causes
Group A	Assembly	0	0	0	0	N/A
Group B	Detention	0	0	0	0	N/A
	Care & Treatment/Care	0	0	0	0	N/A
Group C	Single Family	8	\$167,000	0	0	See classification table below
	Multi-Unit Residential	3	N/A	0	0	See classification table below
	Hotel/Motel	0	N/A	N/A	N/A	N/A
	Mobile Homes & Trailers	2	\$100,000	N/A	N/A	See classification table below
	Other	0	N/A	N/A	N/A	N/A
Groups D & E	Business & Personal Services / Mercantile	0	N/A	N/A	N/A	N/A
Group F	Industrial	0	N/A	N/A	N/A	N/A
Other		0	N/A	N/A	N/A	N/A
<b>Totals</b>		<b>13</b>	<b>\$267,000</b>	<b>0</b>	<b>0</b>	

## PAST LOSS AND EVENT HISTORY PROFILE – NON-FIRE EMERGENCY CALLS

Consider previous response data to identify the types of non-fire emergency calls to which the fire department responds. This assists in determining the equipment, training, resources, etc. the fire department requires to respond to non-fire emergency calls.

Non-fire Emergency Calls						
Call Type	Year 1 – 2020		Year 2 – 2021		Year 3 – 2022	
	Total Calls	% of Calls	Total Calls	% of Calls	Total Calls	% of Calls
Burning	36	7%	14	3%	15	3%
CO False calls	36	7%	25	5%	20	4%
False Fire calls	74	14%	68	14%	72	15%
Medical / Resuscitator calls	129	25%	118	24%	171	36%
Other Response	98	19%	95	20%	30	6%
Overpressure / Rupture / Explosion	0	N/A	0	N/A	0	N/A
Pre-fire Conditions / No Fire	13	2%	24	5%	20	4%
Public Hazard	31	6%	32	7%	34	7%
Rescue	80	15%	70	15%	84	18%
<b>Totals</b>	<b>497</b>	<b>95%</b>	<b>446</b>	<b>93%</b>	<b>362</b>	<b>93%</b>

## Worksheet 10 Treatment Options for The Top Risks

When assessing and identifying treatment options, once risk levels have been assigned, fire departments can determine how best to treat each risk and the resources required to do so.

### TREATMENT OPTIONS



#### AVOID THE RISK

Avoiding the risk means implementing programs and initiatives to prevent a fire or emergency from happening.

For example, public fire safety education initiatives aim to change people's behaviours so that fires may be prevented, and people react appropriately when fires occur. Fire Code inspections and enforcement help to ensure that buildings comply with the Ontario Fire Code.

#### MITIGATE THE RISK

Mitigating the risk means implementing programs and initiatives to reduce the probability and/or consequence of a fire or emergency. For example, a routine Fire Code inspection and enforcement program to ensure Fire Code compliance helps to reduce the probability and consequence of a fire.

A pre-planning program involving fire suppression crews allows the fire department to gain knowledge about specific buildings in the community and their contents, fuel load, fire protection systems, etc. This information can be provided to the fire inspection staff who can ensure the building is compliant with the Fire Code. It can also assist suppression crews to plan fire suppression operations should a fire occur in a building. These activities can reduce the probability and consequence of a fire.

### **ACCEPT THE RISK**

Accepting the risk means that after identifying and prioritizing a risk, the fire department determines that no specific programs or initiatives will be implemented to address this risk. In this treatment option, the fire department accepts that the potential risk might happen and will respond if it occurs.

For example, typically fire departments do not implement programs to prevent motor vehicle collisions. It is generally accepted, however, that collisions will happen and that the fire department will respond when they do. Similarly, environmental hazards (e.g., ice storms) and medical calls cannot be prevented by a fire department program or initiative, yet fire departments typically respond when these emergencies occur.

When accepting risks, fire departments should consider their capacity (i.e., equipment, personnel, training, etc.) to respond.

### **TRANSFER THE RISK**

Transferring the risk means the fire department transfers the impact and/or management of the risk to another organization or body. Contracting public fire safety education, Fire Code inspection and enforcement, or emergency response services to a neighbouring municipality or another organization are examples of transferring the management of risks to another body. A community may enter into a fire protection agreement with a neighbouring community with respect to any, or all, of the Three Lines of Defence.

### **SETTING THE TYPE AND LEVEL OF FIRE PROTECTION SERVICES**

When setting the type and level of fire protection services, all Three Lines of Defence should be considered in terms of the impact each will have on the probability or consequence of the identified risks. Once fire departments have determined the preferred treatment option for each risk, they can plan and implement activities that address those risks. Things to consider include the fire department's current

resources, staffing levels, training, equipment, and authority versus those that may be required to implement the preferred treatment options.

After considering these issues, the preferred treatment option (avoid, mitigate, accept, or transfer the risk) can be noted in the *Preferred Treatment Option* column of worksheet 10.

Fire departments should also ensure that operational policies and SOGs address the levels of service and activities required to address each risk. This includes setting goals and objectives and determining resources, training, equipment, activities, and programs required across each of the Three Lines of Defence.

The process of making informed decisions about the provision of fire protection services should include careful 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, authority, etc.) that may be required to implement preferred treatment options.
- Strategic partners with common interests, available resources, or skill sets that could assist in addressing risks using the applicable risk assessment profiles.
- Establishment & Regulation of By-laws, operational policies, and standard operating guidelines that reflect the fire protection services to be provided to address the identified risks.
- Establishment of goals and objectives, strategies, timelines, and evaluation for the proposed fire protection services to be provided.
- Communication with municipal council and the public to outline the types and levels of fire protection services that will be provided.



## TREATMENT OPTIONS FOR THE TOP RISKS

Mandatory Profiles	Top Risk or Issues/Concerns	Preferred Treatment Option(s)
<b>Geographic Profile</b>	<b>Large body of water</b>  <i>Body of water impacts training, equipment for response</i>	<p><b>Accept Risk</b> – Maintain and update ice/water rescue training protocols, SOGs, policies and activities on an ongoing basis.</p> <p>Evaluate the need of updating equipment specific to ice/water rescues.</p> <p>Lake Ontario could become a risk of flooding its shoreline when water levels are high. The high-water levels may affect watersheds inland.</p>
	<b>Body of water impacts response time</b>	<p><b>Accept Risk</b> – Implement appropriate response protocols, SOGs, and activities in the event access points may not be accessible at the time of an incident.</p>
	<b>Waterways</b>	<p><b>Accept Risk</b> – Maintain and update ice/water rescue training protocols, SOGs, policies and activities on an ongoing basis.</p> <p>Evaluate the need of updating equipment specific to ice/water rescues.</p>
	<b>Railways</b>	<p><b>Accept Risk</b> – There are lines running through the municipality. The risk to residents is high if there is a large toxic chemical / hazardous materials spill due to the proximity of homes surrounding the rail line.</p> <p>Implement appropriate response protocols, SOGs, and activities in the event of a train derailment.</p>
	<b>Highways / Road Network</b>  <i>MVC</i>	<p><b>Accept Risk</b> – Maintain and update extrication rescue training &amp; road safety protocols, SOGs, policies and activities on an ongoing basis.</p>
	<b>Ferry</b>	<p><b>Accept Risk</b> – Implement appropriate response protocols, SOGs, and activities in the event the ferry may not be accessible / offshore at the time of an incident.</p>
	<b>Conservation Areas &amp; Wildland Urban Interfaces</b>	<p><b>Avoid and Mitigate Risk</b> – Promote no burning / fire bans through public education (annual signage at all major points of roadway entry into the township &amp; social media platforms), and the outdoor burning by-law.</p>
	<b>Recreational Trails</b>	<p><b>Avoid and Mitigate Risk</b> – Promote no burning / fire bans through public education (annual signage at all major points of roadway entry into the township &amp; social media platforms), and the outdoor burning by-law.</p>

# Community Risk Assessment Guide

Mandatory Profiles	Top Risk or Issues/Concerns	Preferred Treatment Option(s)
	<b>Quarry / Open Pits</b>	<b>Accept Risk</b> – Implement appropriate response protocols, SOGs, and activities.
<b>Building Stock Profile</b>	<b>Fires</b>	<p><b>Mitigate Risk</b> – Regular scheduled inspections.</p> <p>Maintain Wake Up Loyalist Program to check Smoke &amp; CO alarms in single family homes and provide fire prevention &amp; public education information &amp; material during each visit.</p> <p>Maintain providing fire prevention &amp; public education information &amp; material to all residents of Loyalist Township through social media platforms, public events, talking groups, public schools &amp; workshops.</p>
	<b>Inspections &amp; Enforcement</b>  <i>Assembly / Care &amp; Treatment / Multi-Unit Residential / Business &amp; Personal Service/ Mercantile / Industrial</i>	<p><b>Avoid and Mitigate Risk</b> – Maintain frequency of fire inspections of high risk and vulnerable sector structures and ensure enforcement of the OFC. Public education may assist in reducing the risk of fire occurring in these occupancies.</p> <p>When conducting all inspections, take the opportunity to provide public education on the advantages of completing preventive maintenance to mechanical and electrical equipment to reduce the risk of incurring a fire due to design/ construction/ maintenance deficiencies or mechanical/ electrical failures, including fires caused by processing equipment as well as the misuse of ignition source/ materials first ignited.</p> <p>Educate the building’s owner(s) and staff on fire prevention, fire extinguisher use, etc.</p> <p>A schedule for the inspections of vacant structures should be developed and implemented.</p> <p>The Integrated Risk Management Tool is an effective tool in assisting to prioritize the fire inspections and public education.</p>
<b>Building Stock Profile</b>	<b>Residential Dwellings</b>  <i>Lack of and / or expired smoke and CO alarms, home escape plans, fire extinguishers, poor housekeeping practices</i>	<p><b>Mitigate Risk</b> – Continue Wake Up Loyalist program &amp; public education initiatives promoting smoke/CO alarms, escape plans to the school children, fire extinguishers, and residential sprinklers.</p> <p>Continue to promote the need for well-maintained fuel burning appliances/chimneys, maintenance and their cleaning before the season begins.</p>

## Community Risk Assessment Guide

Mandatory Profiles	Top Risk or Issues/Concerns	Preferred Treatment Option(s)
	<p><b>Vulnerable Occupancies</b></p> <p><i>Inspections and enforcement</i></p>	<p><b>Avoid and Mitigate Risk</b> – Continue to provide public education on escape planning. Train personnel of fire extinguisher usage. Know and practice escape routes out of buildings. Address the needs of those that may have mobility and cognitive behavioral issues in escaping a fire.</p> <p>There are currently three vulnerable occupancies / care &amp; treatment centers in Loyalist Township.</p> <p>Follow legislated direction including the need for Fire Safety Plans, practice, fire safety education, and conduct escape drills. Maintain pre-incident plans for these occupancies to assist the Incident Commander should there be an emergency at any of these locations.</p> <p>Recommend the installation of sprinklers where possible.</p>
<b>Critical Infrastructure Profile</b>	<p><b>Electricity</b></p> <p><i>Loss of power</i></p>	<p><b>Accept Risk</b> – Loss of power will adversely affect all forms of daily life. Businesses, schools, industries, residences, emergency services all rely heavily on power.</p> <p>Loss of power at water pumping stations may result in a reduction of water supply for firefighting purposes if the back-up power supply fails.</p> <p>Fire dispatch &amp; communication equipment will be affected until backup generator power is energized.</p>
	<p><b>Care Centres</b></p>	<p><b>Mitigate Risk</b> – Large number of residents are mobility restricted and at risk if a fire occurs.</p> <p>Follow legislated direction including the need for Fire Safety Plans, practice, fire safety education, and conduct escape drills. Maintain pre-incident plans for these occupancies to assist the Incident Commander should there be an emergency at any of these locations.</p>
<b>Critical Infrastructure Profile</b>	<p><b>Telecommunications</b></p>	<p><b>Accept Risk</b> – Loss of land &amp; cell phone / pager &amp; radio towers / internet coverage in the municipality – communications compromised for both 911 service, dispatching &amp; emergency services operations.</p>
	<p><b>Water Treatment Plants</b></p> <p><i>System failures / loss of potable water</i></p>	<p><b>Accept Risk</b> – Continue the proactive approach in preventing a failure of potable drinking water from water supply system.</p> <p>Failure due to mechanical or human means will place the community at risk for public safety.</p>

Mandatory Profiles	Top Risk or Issues/Concerns	Preferred Treatment Option(s)
	<b>Water Treatment Plants</b>  <i>Infrastructure / Hydrants</i>	<p><b>Avoid and Mitigate</b> – Loyalist Township draws its water supply from Lake Ontario. Water is pipes to numerous communities throughout the township.</p> <p>Proactively replacing older, poor-quality mains to reduce the number of repairs each year due to leakage or a failure of the water main itself.</p> <p>Loyalist Township supplies water to the populated areas and has approximately 500 hydrants in service.</p> <p>All hydrants should be inspected and tested as required in Articles 6.6.5.2. through 6.6.5.7. of Ontario Regulation 213/07 of the Municipal Act. NFPA 24, Standard for the Installation of Private Fire Service Mains Their Appurtenances, along with NFPA 291, Recommended Practices of Fire Flow Testing and Marking of Hydrants.</p> <p>Hydrants out of service should be repaired and placed in service in a timely manner. The LTES should be notified of hydrants that are out of service and a time when they will be back in service.</p> <p>Hydrants on private property are technically the responsibility of the property owner to maintain.</p> <p>The LTES promotes co-operation of residents via social media for hydrants located in front of their homes to be clear of snow to make them more accessible and unobstructed in the winter months.</p>
<b>Critical Infrastructure Profile</b>	<b>Sanitary Sewage Collection Systems / Pumping Stations</b>	<p><b>Avoid and Mitigate</b> – Proactively replacing older, poor-quality municipal sewer main lines to reduce the number of repairs each year due to leakage or a failure of the sewage main itself. Residential sewer lines (between the home &amp; municipal sewer main) are the responsibility of the property owner to maintain.</p>
	<b>Natural Gas</b>	<p><b>Accept Risk</b> – Loss of supply of natural gas in the event of transmission line breakages. Work with local service authorities in relation to public education initiatives in such events.</p> <p>Ongoing risk of leaks/accidents involving distribution and use of natural gas.</p>

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Mandatory Profiles	Top Risk or Issues/Concerns	Preferred Treatment Option(s)
	<b>Fire Stations</b> <i>Emergency Standby Back-up Power Supply</i>	<p><b>Avoid and Mitigate</b> – LTES has an automatic standby emergency generator to supply power to the Amherstview Fire Station.</p> <p>The Amherst Island, Bath &amp; Odessa Fire Stations all have a generator, but a firefighter must attend the station to start it and plug it into the electrical system. Lack of power supply will result in a delayed response as the overhead doors will need to be manually opened; the radio system will be down; etc.</p>
	<b>Policing Service</b>	<p><b>Accept Risk</b> – Delayed response of police service &amp; response due to unforeseen circumstances (high call volume, weather emergencies, etc.)</p> <p>Work with local service authorities in relation to public education initiatives in such events.</p>
	<b>Paramedic Service</b>	<p>Accept Risk – Delayed response of Ambulance service &amp; response due to unforeseen circumstances (high call volume, weather emergencies, etc.)</p> <p>Work with local service authorities in relation to public education initiatives in such events.</p>
	<b>Food Distribution / Grocery Stores</b>	<p><b>Mitigate Risk</b> – Loss of food and basic living supplies will adversely affect all forms of daily life for our vulnerable residents who rely on the location (walking distance) &amp; delivery service.</p> <p>Follow legislated direction including the need for Fire Safety Plans, practice, fire safety education, and conduct escape drills. Maintain pre-incident plans for these occupancies to assist the Incident Commander should there be an emergency at any of these locations.</p>
<b>Critical Infrastructure Profile</b>	<b>Fuel Distribution / Gas Stations</b>	<p><b>Accept Risk</b> – Loss of fuel will affect all forms of daily life. Businesses, schools, industries, residences, emergency services all rely heavily on gas &amp; diesel fuel.</p>
	<b>Post Office</b>	<p><b>Mitigate Risk</b> – Loss of mail distribution could affect daily life for our vulnerable residents who rely on regularly scheduled mail / cheque delivery.</p> <p>Follow legislated direction including the need for Fire Safety Plans, practice, fire safety education, and conduct escape drills. Maintain pre-incident plans for these occupancies to assist the Incident</p>

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Mandatory Profiles	Top Risk or Issues/Concerns	Preferred Treatment Option(s)
		Commander should there be an emergency at any of these locations.
	<b>Banks &amp; Trust Companies</b>	<p><b>Mitigate Risk</b> – Loss of financial services would adversely affect daily life for all our residents.</p> <p>Follow legislated direction including the need for Fire Safety Plans, practice, fire safety education, and conduct escape drills. Maintain pre-incident plans for these occupancies to assist the Incident Commander should there be an emergency at any of these locations.</p>
	<b>Radio Station</b>	<p><b>Mitigate Risk</b> – Loss of and / or disruption of broadcasting services would affect daily life for all our residents.</p> <p>Follow legislated direction including the need for Fire Safety Plans, practice, fire safety education, and conduct escape drills. Maintain pre-incident plans for these occupancies to assist the Incident Commander should there be an emergency at any of these locations.</p>
	<b>Marina Port Facilities / Ferry Service</b>	<p><b>Accept Risk</b> – Loss of Marina Port Facilities (Coast Guard) &amp; Amherst Island Ferry Service will adversely affect all forms of daily life. School, industries, residences, emergency services all rely heavily on these services.</p> <p>Loss of ferry service would result in a reduction of medical, Mutual Aid &amp; firefighting response from the mainland.</p>
	<b>Highways / Roadways / Railways</b>	<p><b>Accept Risk</b> – Loss and / or disruption would affect daily life for all our residents.</p>
<b>Critical Infrastructure Profile</b>	<b>Snow Removal Services / Township &amp; High Road Maintenance</b>	<p><b>Mitigate Risk</b> – Loss and / or disruption of snow removal services due to extreme inclement weather / closing of roadways would adversely affect daily life for all our residents. This would negatively impact response times for Police, Ambulance &amp; Fire Services.</p> <p>Work with Township Roads Department &amp; MTO (contracted services) for continued snow removal during extreme inclement weather.</p>
	<b>Public Transit – Bus / Private Bus - Schools</b>	<p><b>Accept Risk</b> – Loss of public &amp; private commuting services will affect some residents' daily life routines. Schools, employment &amp; industries &amp; residences all rely heavily on these services.</p>
	<b>Municipal Government</b>	<p><b>Mitigate Risk</b> – Loss and / or disruption could affect daily life for</p>

## Community Risk Assessment Guide

Mandatory Profiles	Top Risk or Issues/Concerns	Preferred Treatment Option(s)
		<p>some of our residents.</p> <p>Follow legislated direction including the need for Fire Safety Plans, practice, fire safety education, and conduct escape drills. Maintain pre-incident plans for these occupancies to assist the Incident Commander should there be an emergency at any of these locations.</p>
	<b>Correctional Facilities (Adult Federal / Young Offender Provincial)</b>	<b>Accept Risk</b> – Delayed response of Fire service & response due to unforeseen circumstances (high call volume, weather emergencies, delay in gaining access the institutions, Institution not secured, etc.)
	<b>Emergency Operations &amp; Evacuation Centres / Shelters</b>	<p><b>Mitigate Risk</b> – Loss and / or disruption could affect daily life for some of our residents.</p> <p>Follow legislated direction including the need for Fire Safety Plans, practice, fire safety education, and conduct escape drills. Maintain pre-incident plans for these occupancies to assist the Incident Commander should there be an emergency at any of these locations.</p>
<b>Demographic Profile</b>	<b>Senior Citizens</b>	<p><b>Mitigate Risk</b> – Continue public education targeted at seniors in the community. Continue offering Fire &amp; Fall Prevention Programs for Older Adults.</p> <p>Explore opportunities of involving seniors of the community in providing public education to their peers during club meetings, special events held in their residential building, and promotional events such as fire prevention week.</p> <p>Further public education opportunities should discuss the following topics of interest: importance of working smoke and CO alarms; emergency preparedness in the event of evacuation, prolonged power loss, or severe weather events; safe cooking practices, dangers of using oils and grease for cooking; develop and practice an escape plan for their place of residency; how to extinguish a cooking fire; fall prevention; how to operate a fire extinguisher; burn prevention; etc.</p>
<b>Demographic Profile</b>	<b>Adult Population</b>	<p><b>Mitigate Risk</b> – Continue public education targeted at adults in the community.</p> <p>Further public education opportunities should discuss the following topics of interest: importance of working smoke and CO alarms; emergency preparedness in the event of evacuation, prolonged</p>



Mandatory Profiles	Top Risk or Issues/Concerns	Preferred Treatment Option(s)
		power loss, or severe weather events; safe cooking practices, dangers of using oils and grease for cooking; develop and practice an escape plan for their place of residency; how to extinguish a cooking fire; how to operate a fire extinguisher; burn prevention; etc.
	<b>Youth Population</b>	<p><b>Mitigate Risk</b> – Continue public education targeted at youth in the community.</p> <p>Continue with OFMEM based Fire Prevention Public Education lesson plans for all students in grades 2 / 4 / 6 including fire safety through developing and rehearsing a home escape plan; teaching children how to crawl on the floor through smoke; dangers of playing with ignition sources; and conducting a fire drill at the schools.</p> <p>Other topics that are discussed within the schools include 9-1-1, smoke alarms, fire safety in the home, safe cooking practices, playground safety, injury prevention, Emergency Preparedness, carbon monoxide safety, Learn Not to Burn Program, Risk Watch program, etc.</p> <p>Continue to provide TAPP-C services when required.</p>
	<b>Immigrant Population</b>	<p><b>Mitigate Risk</b> – There is a low number of immigrants in Loyalist Township.</p> <p>Continue public education (easy-to-read educational messages for audiences that have limited English proficiency) targeted at our population with language barriers and diverse cultural traditions that present fire safety concerns.</p>
<b>Hazard Profile</b>	<b>Weather Events</b>  <i>Tornadoes, ice and snowstorms, extreme heat and cold events, intense rainstorms, flooding, severe windstorms &amp; micro-bursts.</i>	<p><b>Accept Risk</b> – Although these cannot be completely avoided, they can, in most cases, be predicted, which will allow for public awareness through media releases.</p> <p>Promote the need for families to maintain 72-hours' worth of food, drinking water, and cash in the event of losing power for long duration.</p>
	<b>Municipality of Loyalist Township</b>  <i>Weather events / Evacuations</i>	<p><b>Mitigate Risk</b> – During a severe weather event such a tornado or snowstorm, or evacuation due to hazardous materials spills, residents and transient public may need a location to take refuge for a duration of time.</p> <p>Fire Stations are equipped with an emergency stand-by generator capable of energizing the entire building. Residents need a warm and safe location to go to, that has capabilities of food being</p>



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Mandatory Profiles	Top Risk or Issues/Concerns	Preferred Treatment Option(s)
		served, people may take a shower and have Wi-Fi available so people may access the internet to send messages or make phone calls.
	<b>Transportation Emergencies</b>  <i>Road / Rail / Air / Ferry</i>	<b>Accept Risk</b> – Mass casualties and road closures of long durations. Fire service to assess roads and frequency of events to ensure they are prepared for any type of event.
	<b>Wildland Fires</b>	<b>Mitigate Risk</b> – Follow legislated direction including the need for Fire Safety Plans, provide fire safety education & implement Burn Bans.
	<b>Human Health Emergencies</b>	<b>Accept Risk</b> – Delayed response of Ambulance service & response due to unforeseen circumstances (high call volume, weather emergencies, etc.)  Work with local service authorities in relation to public education initiatives in such events.
	<b>Cyber Attack</b>	<b>Mitigate Risk</b> – Loss and / or disruption could affect daily life for some of our residents.  Maintain pre-incident plans for Critical infrastructure to assist the Incident Commander should there be an emergency at any of these locations.
<b>Public Safety Response Profile</b>	<b>MVCs / Rail Line, Marine &amp; Air Emergencies</b>	OPP/ Kingston Police / CN Rail Police / Coast Guard / Royal Canadian Air Force (JRCC) – Coordinate scene control & rescue operations.  Fire Department to coordinate fire suppression & extrication activities and provide a supporting role to the other departments having jurisdiction for scene & traffic control, search & rescue operations.
	<b>Medical Emergencies</b>	Paramedics to coordinate medical response calls on arrival.  Fire to respond in accordance with set response protocols, Standard Operating Guidelines & Tiered Response Agreements within our scope of operations.

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Mandatory Profiles	Top Risk or Issues/Concerns	Preferred Treatment Option(s)
Community Services Profile	No Concerns	<p><b>Accept Risk</b> – There are many community groups who would be more than willing to assist at an emergency incident if requested.</p> <p>Opportunities should be further investigated to partner with a service club in promoting a specific fire safety message. Assistance may be financial or the provision of a location to conduct a fire safety presentation to the public.</p>
	<p><b>Vulnerable Occupancies</b></p> <p><i>Fire &amp; Evacuation</i></p>	<p><b>Mitigate Risk</b> - Continue in person Fire Prevention Public Education programs (Remembering When, A Fire &amp; Fall Prevention Program for Older Adults) to promote fire safety &amp; educate our residents of Loyalist Township in a comfortable environment conducive to learning.</p> <p>Continue to promote Fire Safety both in-person (Fire Prevention Public Education Sessions &amp; Special Events) &amp; online via social media platforms (Official Loyalist Fire Website / Facebook / Twitter all trending Fire Safety) // including specific fire safety &amp; Emergency Preparedness themes during specified weeks &amp; seasons (Fire Prevention Week; Carbon Monoxide Awareness Week; Holiday Fire Safety; 12 Days of Christmas Fire Safety; Emergency Preparedness Week; etc.)</p> <p>Continuing with our regular fire inspections based on the frequency outlined in Schedule A, By-law 2019-080.</p> <p>Enforcement of Fire Code Violations / Fire Drills &amp; Evacuation exercises.</p> <p>Ensuring Fire Safety Plans are current for occupancies legislated to have them on site and readily available for firefighters to acquire.</p> <p>Continue with our Pre-Incident Plan program; and explore the implementation of annual reviews which will include the transitioning of all plans to the standards set in NFPA 1620.</p>
	<p><b>Federal Institutions</b></p> <p><i>Fire &amp; Evacuation</i></p>	<p><b>Accept Risk</b> – Implement appropriate response protocols, SOGs, and activities in the event we respond to Bath (medium security) or Millhaven (maximum security) Institutions.</p>

Mandatory Profiles	Top Risk or Issues/Concerns	Preferred Treatment Option(s)
	<p><b>Industrial Sector</b></p> <p><i>Fire &amp; Evacuation</i></p> <ul style="list-style-type: none"> <li>- Willis Manufacturing</li> <li>- Green Infrastructure Partners Inc.</li> <li>- Kiley Paving</li> <li>- Direct Coil</li> <li>- Alstom</li> <li>- Brendar Environmental Inc.</li> <li>- Cando Rail &amp; Terminals</li> <li>- GIP Materials &amp; Engineering</li> <li>- Validus Power Corporation</li> <li>- Lafarge Holcim Bath Cement Plant</li> <li>- Algonquin - A.I. Windfarm</li> <li>- Latham Pools</li> <li>- Li-cycle</li> <li>- Midstream LPG</li> </ul>	<p>Mitigate Risk – Continue with our regular fire inspections based on the frequency outlined in Schedule A, By-law 2019-080 Enforcement of Fire Code Violations.</p> <p>Ensuring Fire Safety Plans are current for occupancies legislated to have them on site and readily available for firefighters to acquire.</p> <p>Continue with our Pre-Incident Plan program; and explore the implementation of annual reviews which will include the transitioning of all plans to the standards set in NFPA 1620.</p>
	<p><b>Fires</b></p>	<p><b>Mitigate Risk</b> – Continue in person Fire Prevention Public Education programs (OFMEM Fire Safety Lesson Plans; Remembering When, A Fire &amp; Fall Prevention Program for Older Adults; Wake Up Loyalist) to promote fire safety &amp; educate our residents of Loyalist Township in a comfortable environment conducive to learning.</p> <p>Annual reviews to ensure we are meeting the standards set out in NFPA 1720 &amp; the OFMEM Fire Ground Effectiveness Sub Model (staffing levels &amp; response times).</p> <p>Continue to promote Fire Safety both in-person (Fire Prevention Public Education Sessions &amp; Special Events) &amp; online via social media platforms (Official Loyalist Fire Website / Facebook / Twitter)</p>

Mandatory Profiles	Top Risk or Issues/Concerns	Preferred Treatment Option(s)
		<p>all trending Fire Safety).</p> <p>Continue to promote (both in person &amp; on social medial platforms), of specific fire safety &amp; Emergency Preparedness themes during specified weeks &amp; seasons (Fire Prevention Week; Carbon Monoxide Awareness Week; Holiday Fire Safety; 12 Days of Christmas Fire Safety; Emergency Preparedness Week; etc.).</p> <p>Continue to promote our annual burn ban initiative township-wide (Total burn ban signs at all main entry roadways into our township; social media messaging).</p> <p>Implement an online platform for our residents to request / schedule a home visit for alarm safety checks to enhance our Wake-Up Loyalist Program.</p> <p>Continuing with our regular fire inspections based on the frequency outlined in Schedule A, By-law 2019-080 Enforcement of Fire Code Violations.</p> <p>Work with OPP and OFMEM to come to a fire cause conclusion and address as required.</p> <p>Continue with our TAPP-C program with local youth fire setters when requested by our Courts.</p> <p>Ensuring Fire Safety Plans are current for occupancies legislated to have them on site and readily available for firefighters to acquire. Continue with our Pre-Incident Plan program; and explore the implementation of annual reviews which will include the transitioning of all plans to the standards set in NFPA 1620.</p>

## Public Education Programs

The Fire Prevention Public Education Division educates the public on fire prevention and life safety through public education and community engagement programs in accordance with the Province of Ontario, Fire Protection and Prevention Act.

Activities include season fire prevention messaging and Agency activities designed to target specific behaviours that may lead to injury or death by fire.

The Fire Prevention Public Education Division in collaboration with the Fire Chief coordinates the issuance of media releases, including relevant and timely information for posting to the Loyalist Township Emergency Service's Website, Facebook & Twitter accounts.

In 2023, a public education review and plan was completed analyzing fire losses using historical response data, occupancy types and demographic information. The applicable trends will be used to form part of the fire prevention program planned fire loss reduction goals.

### **PRE-SCHOOL FIRE SAFETY PROGRAM / DAYCARE VISITS**

Loyalist Township Firefighters attend numerous daycares upon request so the young youngest community members may meet the firefighters and learn about community helpers & fire safety from the NFPA Learn not to Burn curriculum.

### **KINDERGARTEN FIRE SAFETY PROGRAM**

The Kindergarten School Fire Safety Program educates all kindergarten children within the Township how to identify hot things that burn and know to avoid touching them & how to cool a burn, understanding the importance of smoke alarms, what they sound like and what to do when they sound



in an emergency, know to tell an adult if they find matches or lighters & know how to stop, drop and roll.

### **GRADE TWO FIRE SAFETY PROGRAM (MANDATORY)**

The Grade Two School Fire Safety Public Education Program educates all Grade two children within the Township how to identify what smoke alarms sound like and why they are important, what to do when the smoke alarms sound, how to report a fire, matches and lighters are for adults, how to identify hot things that can burn and know how to cool a burn.

### **GRADE FOUR FIRE SAFETY PROGRAM (MANDATORY)**

The Grade Four School Fire Safety Public Education Program educates all Grade four children within the Township how to identify what a hazard is and how to identify hazards in the home, how to identify and report an emergency, why smoke alarms are important & what to do when the smoke alarms sound and that matches and lighters are for adults.

### **GRADE SIX FIRE SAFETY PROGRAM (MANDATORY)**

The Grade Six School Fire Safety Public Education Program educates all Grade six children within the Township on smoke alarms and home fire escape planning, how to recognize fire hazards in the kitchen and prevent fires, how to prevent burns in the kitchen & the consequences of fire play.

### **TAPP-C PROGRAM**

The TAPP-C Program addresses juvenile fire setting in children ages two to seventeen. It is a collaborative program working towards eliminating dangerous fire setting behaviours.





## **WAKE UP LOYALIST - SMOKE ALARM PROGRAM**

The Fire Prevention Public Education Division coordinates a smoke and carbon monoxide alarm programs to reinforce the importance that working smoke alarms save lives. The program includes strategic social media educational messaging coordinated with home visits throughout the Township.

## **MUTUAL AID FIRE PREVENTION COMMITTEE**

Loyalist Township Emergency Services participates in the KFLA Fire Prevention Committee in collaboration with fire prevention staff from ten area fire departments.

## **FIRE PREVENTION WEEK**

As part of Fire Prevention Week, the Fire Prevention Public Education Division conducts focused events, fire station tours, fire drills and fire safety demonstrations during our training center open house to enhance fire and life safety throughout the community.

## **STATION TOURS**

The Fire Prevention Public Education Division provides various groups the opportunity to visit a fire station, meet the firefighters and receive fire prevention tips.



## Public Relations Events

Loyalist Township Firefighters attend numerous events throughout the community to interact with the public and distribute fire prevention materials.

## Community Risk Reduction Planning

Once the CRA is completed and all risks identified, then begins the process of developing a Community Risk Reduction Plan (CRRP). When properly applied, the CRRP coordinates emergency operations with prevention and mitigation efforts throughout the community and at the fire station level. Involvement of the personnel in the fire stations is critical for both gathering local risk data and performing activities necessary to implement the CRRP.

Aside from the main benefits to the community, a CRRP can contribute positive impacts on the fire department. The CRRP improves firefighters and emergency responder safety and occupational health, along with reducing line-of-duty deaths.

In addition to firefighter safety, there are several other reasons why departments should begin the process of developing a CRRP. These reasons include:

- The presence of new and emerging hazards.
- Declining budgets among fire departments and local governments - thereby better allocation of resources.
- Rapidly changing community demographics.
- Engagement of members of the community.
- Remaining underserved high-risk residents.
- Avoiding the potential ramifications of hazards that were ignored or not fully addressed.
- Better defining the fire department's purpose and value within the community, beyond just fighting fires.

A CRRP is not just for fire prevention to be responsible; it is to include all members of the fire department participation. There are six steps in the development of a CRRP, two steps of which were identified and completed with the CRA (Identifying Risks and Prioritizing Risks).



## SIX STEPS OF CRRP

1

2

### Identification and Prioritization

Upon the completion of the CRA, in which the various community risks were identified and the priorities determined, the results should all have been documented for use in the remaining planning process. The document does not need to be complex or complicated, but in clear and concise format that enables the reader to understand the risks and those that should have the highest priority.

During this process consider the following:

- Why and how the risk occurs and, in some cases, when.
- Who, does the risk affect the most and why?
- How is the community and the fire department affected by the risk?
- What about this risk ranks it higher than others?

3

### Develop Mitigation Strategies & Tactics

This requires input with a variety of individuals involved, including those most affected by the risk. Stakeholder involvement is paramount and should always be included in some of the decision-making processes. It will necessitate decisions to determine what tactics and strategies will be necessary to prevent and/or mitigate those risks with the highest priority.

During the development of the plan, there are five elements that should be included:

- **Education:** Determining the appropriate type and mix of educational messaging necessary to inform the public and effect behavioural change. More encompassing education through different mediums of social media.
- **Enforcement:** Identifying whether stronger enforcement is necessary or if newer codes and standards need adoption. Notification of the public on successful convictions through the justice system.
- **Engineering** - Determine whether there are engineering or technological solutions to address the identified risk(s).
- **Emergency Response** - Changes to the emergency response protocols, SOGs, SOPs, and policies to better meet a specific risk or need. This may require additional resources such as stations, apparatus, equipment, staffing, and/or enhanced levels of

- training.
- **Economic Incentive** - Identifying whether financial incentives will improve compliance or help increase awareness of community needs.

4

### Prepare the CRRP

Once the risks are identified and prioritized, and strategies and tactics determined for prevention and mitigation, it will be necessary to develop a written plan.

5

### Implementation of the CRRP

The implementation of the completed CRRP usually involves several steps. The process should include timelines, which can be quick and focused or slow and methodical. The implementation may rely on the fire department, community partners, or a combination of both.

6

### Monitor the Progress, Evaluate Your Findings & Modify the CRRP

The final step involves monitoring and evaluating the effectiveness of the plan and adjusting as necessary. This will enable the organization to determine if they are achieving their desired goals and/or if the plan is having an impact. Ongoing monitoring allows for plan modifications in a timely manner.

The CRRP is a gateway to the reinvention of the fire service culture. It requires buy-in from Council along with visionary, strong leadership to champion needed change and to navigate the process. By having a successful CRRP will bring additional resources to the effort through partnerships within the fire department as well as the community it serves. The community-based approach increases public safety because of the collective work within the community to understand, assess, and provide inclusive solutions to community safety issues.



# APPENDIX

## Appendix A

Building Stock Profile Risks						
Occupancy Classification		ID# <sup>1</sup>	Issues/Concerns <sup>2</sup>	Probability <sup>3</sup>	Consequence <sup>4</sup>	Assigned Risk Level <sup>5</sup>
Group A	Assembly	1	Older Recreation center /arena / pool: not sprinklered; large gatherings of people throughout the year; many diverse uses (e.g., hockey games, public & lessoned skating, public, & lesson swimming & aqua-fit & party room rentals).	Unlikely	Moderate	Moderate
		1	One older Leisure Activity Center / not sprinklered; moderate gatherings of people throughout the year; many diverse uses (e.g., fitness classes, meeting room rentals, senior's special events, pre-school, children, youth & adult classes.	Rare	Minor	Low Risk
		10	Various Faith Churches / not sprinklered; large gatherings of people throughout the year; many diverse uses (e.g., masses, weddings, funerals, special event gatherings)	Rare	Minor	Low Risk
		1	One Dance Studio / not sprinklered; large gatherings of people throughout the year; main use for dance sessions & social gatherings.	Rare	Minor	Low Risk

## Appendix A Building Stock Profile Risks

Building Stock Profile Risks						
Occupancy Classification		ID# <sup>1</sup>	Issues/Concerns <sup>2</sup>	Probability <sup>3</sup>	Consequence <sup>4</sup>	Assigned Risk Level <sup>5</sup>
		1	One Martial Arts Studio / not sprinklered; moderate gatherings of people throughout the year; main use for training & competition sessions.	Rare	Minor	Low risk
		7	Six Public Schools & One Secondary School / not sprinklered; extremely large gatherings of people continuous September thru June each year; many diverse uses (e.g., classroom learning, house & intramural sports in gym, special event gatherings).	Possible	Minor	Low risk
		2	High Occupancy Day Cares / not sprinklered; moderate gatherings of people throughout the year; main use to provide supervised child care.	Unlikely	Minor	Low risk
<b>Group B</b>	Detention Occupancies	3	<p>One Maximum Security Institution - Federal (1970) / large occupancy (500+) year round; controlled access to compound; restricted egress from all internal locations.</p> <p>One Medium Security Institution - Federal (1972) / large occupancy (500+) year round; controlled access to compound; both free &amp; restricted egress from internal buildings. Unit 2 is LWC.</p> <p>One Youth Detention Center - Provincial (1974); low to moderate occupancy year</p>	Likely	Moderate	Moderate

## Appendix A Building Stock Profile Risks

Building Stock Profile Risks						
Occupancy Classification		ID# <sup>1</sup>	Issues/Concerns <sup>2</sup>	Probability <sup>3</sup>	Consequence <sup>4</sup>	Assigned Risk Level <sup>5</sup>
	Care and Treatment / Care	3	Three Care & Treatment Centers; high occupancy year-round; combination of both ambulatory & non-ambulatory residents; residents that may suffer from cognitive impairment(s); restricted/controlled egress.	Rare	Minor	Low risk
Group C	Single Family	1497	Older subdivisions: 1497 (20%) houses built before 1970; old wiring; is there smoke alarm compliance; combustible insulation.	Almost certain	Major	High risk
		2245	Pre-LWC subdivisions: 2245 (30%) houses built between 1970 to 1998; row housing lacking fire breaks in every common space of the attached dwellings (attics).	Almost certain	Minor	Moderate risk
		3742	LWC subdivisions: 3742 (50%) houses built between 1998 to 2023; wooden I-beams & trusses notorious for rapid fire spread & early catastrophic failure.	Likely	Moderate	Moderate risk
	Multi-unit Residential	40	Forty separate multi-residential properties with units ranging from 3 to 75 individual units / not sprinklered; predominately older construction.	Almost certain	Moderate	High risk
	Hotel / Motel	N/A	N/A	N/A	N/A	N/A
	Mobile Homes &	45	2 mobile home subdivisions; predominately older units; proximity to each other; road access	Almost certain	Major	High risk

## Appendix A Building Stock Profile Risks

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	Trailers	restrictions.				
	Other	N/A	N/A	N/A	N/A	
<b>Groups D &amp; E</b>	Business & Personal Service / Mercantile	9	Restaurants in older subdivisions; using commercial cooking systems & flammable materials; proximity to both residential & community adjoining units, homes.	Rare	Minor	Low risk
		12	Restaurants located in strip malls & commercial buildings; LWC; using commercial cooking systems & flammable materials; proximity to adjoining units.	Rare	Minor	Low risk
		3	Food Trucks located in open areas using commercial cooking systems & flammable materials	Rare	Minor	Low risk
		24	Mercantile in older subdivisions; not sprinklered; proximity to adjoining units, homes.	Rare	Minor	Low risk
		151	Mercantile located in strip malls & commercial buildings; LWC; not sprinklered; proximity to adjoining units.	Rare	Minor	Low risk
<b>Group F</b>	Industrial	1	Propane transfer station; handling of combustible and explosive materials; 30 years old; (1) 80,000 usg & (5) 30,000 usg pressure storage tanks; potential for 17 rail	Rare	Major	Moderate

## Appendix A Building Stock Profile Risks

Building Stock Profile Risks					
Occupancy Classification	ID# <sup>1</sup>	Issues/Concerns <sup>2</sup>	Probability <sup>3</sup>	Consequence <sup>4</sup>	Assigned Risk Level <sup>5</sup>
		cars; proximity to residential homes & detention complex			
	1	Liquid Asphalt & Emulsion plant; 40 years old; not sprinklered; 26 storage tanks; handling of combustible materials; proximity to residential homes	Possible	Major	Moderate
	1	Paving plant; 5 years old; LWC; not sprinklered; handling of combustible materials.	Rare	Moderate	Low risk
	1	Coil manufacturing plant; 40 years old; 190,000 square foot building; large propane storage tank with multiple brazing lines.	Rare	Moderate	Low risk
	1	Electric Railcar Plant; 32 years old; 1850 square meter workshop with 5 work bays; 2.3 km oval track; 1.9 km monorail track; high voltage.	Rare	Minor	Low risk
	1	Power Generating Plant; 26 years old; 110-megawatt natural gas power station.	Rare	Minor	Low risk
	1	Cement Plant; 50 years old; not sprinklered; highly flammable Biomass stored in large silos; storage & use of Aqua-Ammonia; high heat kiln (1450c);	Possible	Moderate	Moderate risk



## Appendix A Building Stock Profile Risks

Building Stock Profile Risks					
Occupancy Classification	ID# <sup>1</sup>	Issues/Concerns <sup>2</sup>	Probability <sup>3</sup>	Consequence <sup>4</sup>	Assigned Risk Level <sup>5</sup>
		1.5 km conveyor system.			
<b>Other</b>	Occupancies not classified in OBC such as farm buildings.	Agricultural Structures (various); housing of livestock; storage of machinery; production of agricor products.	Likely	Minor	Moderate risk

1. Identify number of buildings of each type and identify # of LWC buildings where presence is known.
2. Age of buildings; use of buildings; building density, height, and area; historic and culturally significant buildings etc.
3. Refer to Table 1 – Probability Levels [beginning of Section 5] for suggested probability levels.
4. Refer to Table 2 – Consequence Levels [beginning of Section 5] for suggested consequence levels.
5. Refer to Risk Level Matrix in Section 5. Worksheet 2 for suggested risk levels.

*Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all of the information on all worksheets together in order to make decisions about the provision of fire protection services in their municipality/community.*

**END OF CRA REPORT**