Lakeshore Fire Department Community Risk Assessment 2023

Lakeshore

OUR COMMUNITIES. OUR HOME.

LAKESHORE FIRE

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Acronyms

CAD	Computer Aided Dispatch
CRA	Community Risk Assessment
CEMC	Community Emergency Management Coordinator
CRRP	Community Risk Reduction Plan
EMG	Emergency Management Group Inc.
EMO	Emergency Management Ontario
ERP	Emergency Response Plan
FPO	Fire Prevention Officer
FPPA	Fire Prevention and Protection Act
HAZMAT	Hazardous materials
IFSAC	International Fire Service Accreditation Congress
IMS	Incident Management System
LFD	Lakeshore Fire Department
LPG	Liquified Petroleum Gas
LWC	Lightweight construction
MECG	Municipal Emergency Control Group
MVC	Motor Vehicle Collision
NFPA	National Fire Protection Association
OBC	Ontario Building Code
OFC	Ontario Fire Code
OFM	Office of the Fire Marshal
PFLSE	Public Fire Life Safety Educator
PPE	Personal protective equipment

PTSI	Post-Traumatic Stress Injury
SCBA	Self-contained breathing apparatus
SOG	Standard Operating Guideline
SOP	Standard Operating Policy
TSSA	Technical Standards and Safety Authority
WETT	Wood Energy Technical Transfer
WFRS	Windsor Fire & Rescue Service

Introduction

This Community Risk Assessment (CRA) for the Municipality of Lakeshore (the Municipality) and the Lakeshore Fire Department (LFD) has been completed by the Emergency Management Group Inc. (EMG). This assessment follows the Office of the Fire Marshal's (OFM) *Regulation 378/18*, which came into effect on July 1st, 2019.[1] Completing a CRA allows the Municipality and its fire service to make sound decisions on the fire protection it will provide its residents. The OFM regulation requires municipalities to complete a new CRA every five years.

The reader will be able to obtain an overview of the municipality's in the Section 1 on Risk and Treatment Options. This section will provide the reader with a general overview of the community's identified risk along with suggested treatment options to mitigate those risks. Immediately after the section on Risk and Treatment Options is Section 2 that contains the Appendices in which all of the OFM recommended worksheets can be found.

Community Overview

The Municipality of Lakeshore became incorporated in 1999 and is the most populated member municipality of the County of Essex, situated on the southern shore of Lake St. Clair between the municipalities of Tecumseh and Chatham-Kent. The municipality was the former municipalities of the Town of Belle River and the townships of Maidstone, Rochester, Tilbury North, and Tilbury West. Its land mass of 529.0 km² has a population density of 76.4 km².[2]

The Municipality is experiencing significant growth toward urbanization while maintaining its primarily rural setting. Currently, 76% of the population lives in the northwest corner of the municipality. The majority of the industry is located along the Patillo Road corridor. Along with the people and industry, it is worth noting that approximately 40 kilometres of 401 highway runs through the community. This highway sees thousands of vehicles daily running through the municipality. This creates a risk to the community due to motor vehicle collisions involving hazardous materials spills and vehicle fires. Along with the Highway 401, two rail lines (VIA and freight) run through the community.

[1] O. Reg. 378/18: COMMUNITY RISK ASSESSMENTS, Accessed December 13, 2022, https://www.ontario.ca/laws/regulation/180378

[2] Profile table, Census Profile, 2021 Census of Population - Lakeshore, Town (T) [Census subdivision], Ontario (statcan.gc.ca), Accessed May 25, 2023, https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Lakeshore&DGUIDlist=2021A00053537064&GENDERlist=1,2,3&STATISTIClist=1,4&HEADERlist=0

From a water risk perspective, Lake St. Clair's shoreline can create water rescue challenges in the summer and ice/water rescues in the winter.

Significant energy infrastructure runs through the municipality, including a gas transmission main, multiple high-voltage electrical corridors, a large Hydro One switch station, and 150 windmills, with planned electrical storage battery facilities forecasted in the municipality,

Office of the Fire Marshal's Protection Planning Concept

To develop an effective community fire and life safety program, the OFM identifies a fire protection planning strategy known as the "Three Lines of Defence." (Refer to TABLE #1). Applying this strategy highlights the importance of recognizing that there are options for developing an effective community safety plan through education, code enforcement, and emergency response. Although emergency response will always be required, this is a reactive endeavour. A fire service must proactively optimize public fire and life safety programs within the community.

TABLE #1 – overview of the Three Lines of Defence

Line of Defence	Description
Public Education and Prevention	Educating community residents on ways to fulfill their fire and life safety responsibilities is a proven method of reducing the incidence of fire and other risks. Only by educating residents can fires and other risks to life safety be prevented and reduce injury and the impact of fires.
Fire Safety Standards and Enforcement	Completing inspections and enforcing the Ontario Fire Code (OFC) will ensure that buildings have the required fire protection systems and safety features. This necessity may require property owners or tenants to complete fire safety plans and maintain functioning smoke alarms and sprinkler systems, which will aid in minimizing the effects of a fire. Inspections may not only address fire hazards but may also reduce other indirect risks, such as trip or fall hazards due to the cluttered condition of a facility.

Line of Defence	Description
Emergency Response	Fire departments need to have well-trained and equipped firefighters directed by capable officers in suppressing the spread of fires once they occur and assisting in protecting residents' lives and safety.

Note: Some comments may appear generalized and may not be considered relevant or specific to the organization.

Along with the three lines of defence, the community and its fire service also have partnerships with other agencies, such as police and ambulance, and some non-government agencies, like St John Ambulance, to create a safer community.

Mandatory Profiles

The CRA process guides fire services in determining the service levels concerning public fire and life safety education, Fire Code inspections and enforcement, and emergency response. Based on nine mandatory sections, the CRA examines the following:

- Geographic Profile - A general overview of the community's geography includes the topography, waterways and wetlands, and the road system, and identifies any related challenges.
- Building Stock Profile - This profile includes an assessment of the building stock within the community and the risks posed by each occupancy's classification.
- Critical Infrastructure Profile - This profile examines risks that may or could exist in the critical infrastructure found within a municipality and includes municipal services and outside resources such as oil and gas, allied emergency services, etc.
- Demographic Profile - This profile identifies age groups, economic groups, visible minorities, Indigenous populations, and any risks.
- Hazard Profile - This profile identifies the critical hazards based on the community's Hazard Identification and Risk Assessment (HIRA) data.
- Public Safety Response Profile - Examines the response capabilities of other safety organizations, such as other fire departments, police, and EMS, while identifying any

issues and concerns. Also reviewed were other allied non-emergency agencies, i.e., power, natural gas, and telecommunications.

- Community Services Profile - Services presently offered by non-government organizations.
- Economic Profile - Economic sectors affecting the community that are critical to its financial stability. Identifies challenges relating to a community if an event occurs, such as the loss of power, telecommunications, water, and weather.

- Past Loss and Event History Profile - A review of past loss statistics can help identify present and possible future challenges.

The reader should interpret each profile as relevant to fire protection service delivery.

In addition to these mandatory sections, the Fire Marshal Directive 2022-001[3] identifies the need for municipalities to determine the number and locations of applicable structures incorporating lightweight construction (LWC) as found in O. Reg 217/22.[4] This requirement does not include houses per the Ontario Building Code (OBC) amendments. LWC is in the following construction materials: wooden "I" beams, fastening systems, lightweight steel frame construction, other engineered construction components, and roof trusses. This type of construction can lose its integrity and fail quickly once flame impingement occurs, which is a high risk to the occupants and firefighter safety.

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

- All 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 changes to fire protection services.

During the annual review, any changes in risk identified in the document will need to be updated accordingly.

[3] Office of the Fire Marshal's communiqués 2022, Accessed December 13, 2022, https://www.ontario.ca/page/office-fire-marshals-communiques-2022#section-6

[4] O. Reg. 217/22: BUILDING CODE (ontario.ca), Accessed April 26, 2023, https://www.ontario.ca/laws/regulation/r22217

Note(s): Due to the confidential nature of the information contained within this CRA, access to this report should be discrete. This CRA includes information from the municipality's Critical Infrastructure and HIRA documents.

Risk and Treatment Options

This section outlines risks to life safety and the suggested means of reducing or mitigating the risks. Using the preferred treatment options noted in this document, the Fire Chief can put forward strategies to address the risks, including public education and Fire Code enforcement, within the level of fire service provision approved by the council. Ultimately, these decisions for community risk management will form the basis of the Municipality of Lakeshore's Community Risk Reduction Plan (CRRP).

1.1 Risk Overview

There is always the possibility of an event that could adversely affect the community, including health, property, organization, environment, and community. The best possible mitigation of any fire or life safety risk is to deal with the threat before it occurs.

Definition of Risk

NFPA 1300, *Standard on Community Risk Assessment and Community Risk Reduction Plan Development,* defines what low, moderate and high risks are:

Low Risk: A risk that is unlikely to occur or have a significant impact on life, property, operations, the environment, and/or economic and social factors. A low risk does not require immediate action or attention but should be monitored periodically.

Moderate Risk: A risk within the acceptable risk range but not considered low risk.

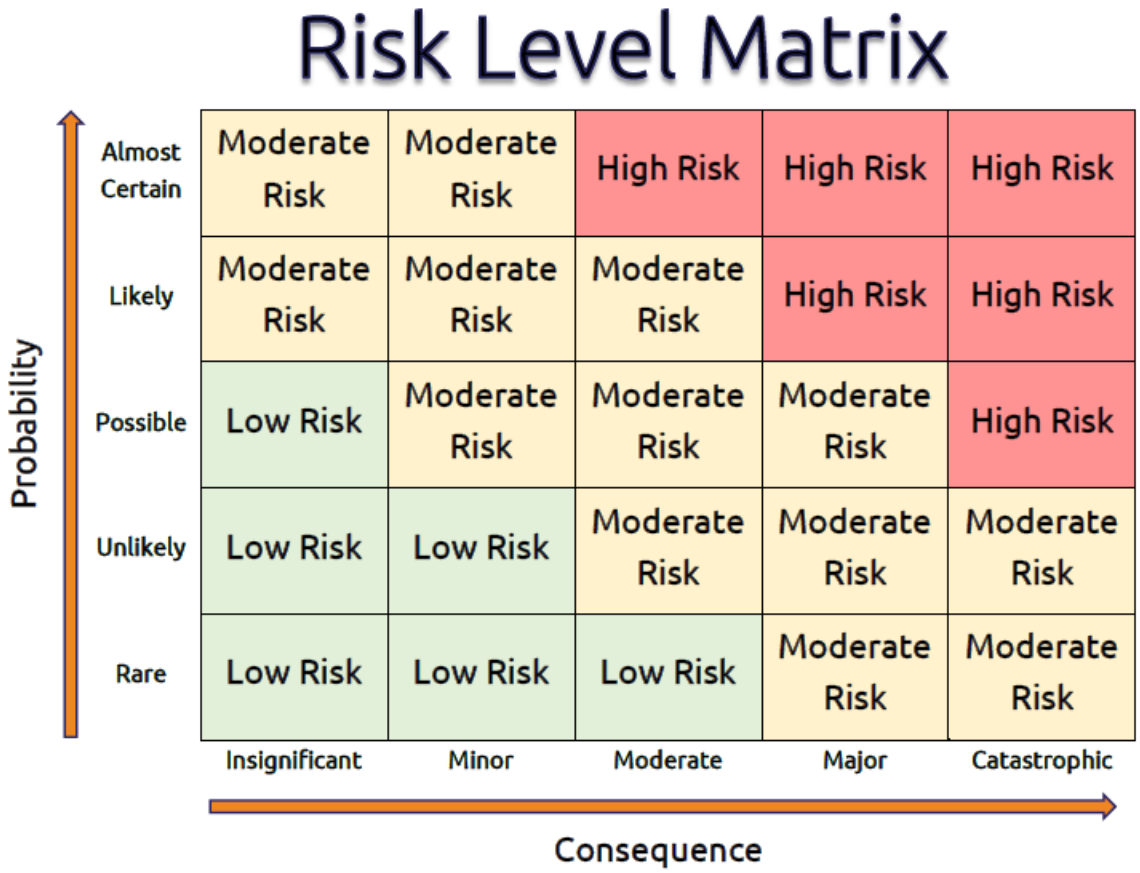
High Risk – A high risk is a risk that has a high probability of occurrence and a high potential for impact. High risks are usually given the highest priority in developing a community risk reduction plan.

Within this document, the charts that identify risks have been colour-coded and listed (where applicable) from high to low:

Low	Moderate	High

Risk Matrix

The following risk matrix chart has been utilized in this risk assignment process.



1.2 Identifying Treatment Options for the Top Risks in the Community

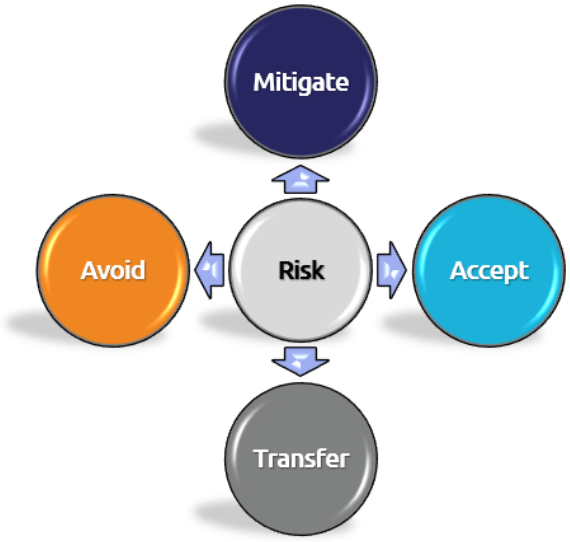
While compiling the nine mandatory profiles, this summary overview was prepared. It outlines the key risks, issues and concerns, and preferred treatment options. For more information on each of the mandatory profiles, please refer to the appendix, which begins on page 70.

When assessing and identifying treatment options, communities and their fire departments can determine how best to treat each risk and the resources required once risk levels are assigned.

Options for treating risks include the following:

Avoid the Risk

Avoiding the risk means implementing programs and initiatives to prevent the threat from happening. For example, public fire safety education initiatives aim to change people's behaviours. Inspections and enforcement help to ensure that buildings comply with the OFC.



Mitigate the Risk

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

A pre-planning program involving fire suppression crews allows the fire department to learn about specific community buildings and their contents, fuel load, fire protection systems, etc. These activities can reduce the probability and consequence of a fire. It can also assist suppression crews in planning fire suppression operations should a fire occur in a building. Information gathered should be shared with fire inspection prevention staff, who ensure the building complies with the OFC. Pre-incident plans should comply with NFPA 1620: *Standard for Pre-incident Planning*, which requires funding and training for personnel.

Accept the Risk

Accepting the risk means that after identifying and prioritizing a threat, the fire department may determine that no specific programs or initiatives are required to address this risk. In this treatment option, the fire department accepts the potential risk and will respond if it occurs.

For example, typically, fire departments do not implement programs to prevent motor vehicle collisions (MVCs). Fire departments accept that collisions will happen and that the fire department will respond when they occur. Similarly, a fire department program or initiative cannot prevent environmental hazards (e.g., ice storms) and medical calls, but 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

A community may enter into a Fire Protection Agreement with a neighbouring community for service providers to address some or all the Three Lines of Defence. Transferring the risk means the fire department transfers the risk's impact and management 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 risk.

1.3 Setting the Type and Level of Fire Protection Services

When setting the type and level of fire protection services, the Three Lines of Defence will aid in establishing the impact each will have on the probability or consequence of the identified risks. Once the fire department has determined the preferred treatment option for each risk, they can plan and implement activities that address those possibilities. Things to include are the fire department's current resources, staffing levels, training, equipment, and authority versus those that may be required to implement the preferred treatment options.

Fire departments should also ensure that SOPs and SOGs address the levels of service and activities required to handle each risk. Setting goals and objectives and determining resources, training, equipment, activities, and programs are necessary across 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:

- Implementing public fire safety education, Fire Code inspections and enforcement, and appropriate emergency response will aid in addressing 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.) may be required to implement preferred treatment options.
- Strategic partners with common interests are part of the process while reviewing the available resources or skill sets that could assist in addressing risks using the applicable risk assessment profiles.
- E&R By-Law, operational policies, and SOGs reflect the fire protection services that address the identified risks.

- Establish goals, objectives, strategies, timelines, and evaluations for the proposed fire protection services.
- Communicate with the council and public on the types and levels of fire protection services available.

The following worksheet and summary chart is a compilation of the nine mandatory profiles.

1. Geographic profile
2. Building stock profile
3. Critical infrastructure profile
4. Demographic profile
5. Hazard profile
6. Public safety response profile
7. Community services profile
8. Economic profile
9. Past loss and event history profile

Information about each profile is available in the appendix starting on page 70.

TABLE #2 – Summary of Risks

The following summary worksheet identifies the risk and its level (high, moderate, or low) in the order of where they are found in the profile worksheets. A "Preferred Treatment Options to Consider" section has been added to each worksheet as recommended by the OFM for each identified risk. This information is presented to the Fire Chief for consideration.

Note(s): No timing for implementation or costing has been presented due to the multitude of variations in achieving the suggested options noted within this document. Implementation will depend on the extent of performance and available resources (staffing and finances).

- *The chart below identifies the worksheet number (found in the Appendices) and the colour coding.*
- *This worksheet is the compilation of the OFM Worksheet #10.*
- *The summary of risks noted here are taken from the OFM Worksheets 1 to 9. However, only the risks that could impact on the fire department's operations have been noted here. The risks have been listed from High to Low (through colour coding).*

Occupancy & Profile Legend		Worksheet #
	Geographic Profile	**1**
	Building Stock Profile	**2**
	Critical Infrastructure Profile	**3**
	Demographic Profile	**4**
	Hazard Profile	**5**
	Public Safety Response Profile	**6**
	Community Services Profile	**7**
	Economic Profile	**8**
	Past Loss and Event History Profile	**9**

A spreadsheet providing an overview of all the risks and related treatment options has been included in Appendix N. This spreadsheet is set up to identify the risks from high to low.

A final companion spreadsheet noting the FMP and CRA recommendations within specific topic related sections has been included in Appendix O to assist the fire chief in identifying how each of the two documents recommendations are connected.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #1 - Geographic Profile *(Refer to Appendix A for more information.)*	Body of Water, including, Lakes, Rivers, Streams, and Wetlands *Body of Water Impacts Training, Equipment, and Response Time*	Risks – There is a history of flooding, primarily in Tisdelle Drive and surrounding streets. Area roads did not become impassable, but the risk of property damage was present. Lakeshore has not experienced significant flooding and cannot access their homes by car. Some streets along the lake experienced high water levels a few years ago from significant rainfall or sustained northerly winds (storm surge) that resulted in water over low-lying roads and property. Nothing of which prevents residents from access to homes. A greater risk is the potential for fast-moving water in ditches and tributaries, eventually leading to Lake St. Clair. Waterway restrictions due to excessive water volumes or debris restrictions during heavy rainfall/ snow melt can create challenging rescue conditions for anyone who has fallen in or a vehicle that, for some reason, enters a flooded ditch. The level of public knowledge or the limited understanding of the hazards of bodies of water and their location in an emergency can also be a risk. For many years, discussions have evolved with no definitive resolve on whether a fire department has the legal authority to operate in federal waters. A fire chief authority is only within the municipal boundaries under the *FPPA*. LFD is fortunate to have the OPP, Canadian Coast Guard (CG) or United States Coast Guard (USCG) available to call for support under their federal water's authority. The indemnification provided under the FPPA does not apply outside the municipal boundaries.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		Treatment Options to Consider: Avoid and Mitigate Risk – This may be achieved by: • LFD must maintain and update ice/water rescue training protocols, SOGs, policies and activities on an ongoing basis. • Evaluate the need to update equipment specific to ice/water rescues. • Assess the need to move to the operations level of ice rescues with crews leaving shore utilizing an inflatable raft and tethered to a maximum of 305 m (1,000 ft) from the shoreline. • Ensure all federal and provincial laws and regulations relating to water rescues are followed, including levels of training. **Recreational/ Tourist Activities:** • Install signage at key locations of bodies of water identifying the risks of water bodies and thin ice. • Have pamphlets available at lodging locations warning of the dangers of thin ice and how a person may self-rescue. • List items persons should carry for self-rescue, including ice picks, throw rope, a whistle or loud horn, and cellphones in a waterproof kit. • Review the need for enhancements in the number of social media platforms LFD uses in providing fire safety messaging.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		• Enter into a response agreement with a neighbouring fire service that provides operations-level ice/water rescue, including responding with a vessel. **Flooding:** • LFD should conduct a needs analysis to upgrade their level of response to operations, including adherence to NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications regarding floodwater rescues.

Worksheet #1 - Geographic Profile	Climate Change
	
	(See also Appendix F - Profile Worksheet #5 – Hazard Profile)
		Risks –Extreme weather due to climate change is a reality, and fire services have a role in preparing for the effects and adjusting their response accordingly.
		
		Treatment Options to Consider:
		
		Avoid and Mitigate Risk – This may be achieved by:
		• The fire department's fire prevention staff could include, during fire inspections, a discussion about:
		  ○ Installing back-flow valves on septic lines and that sump pumps are operational.
		  ○ In cooperation with other departments of Lakeshore, there is a role for the fire department to build and maintain a resilient community, especially as it relates to overland flooding.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #1 - Geographic Profile	Oil/Gas Wells	Risks - Many oil and gas wells in the Municipality of Lakeshore are inactive and abandoned. Either soil staining or dead vegetation would identify product leakage to the surface. There has never been an incident involving oil or gas wells in the Municipality of Lakeshore. These pose a risk of having an explosion or fire. Other emergencies include spills and blowouts. • The still active wells may not have any infrastructure visible above ground level. • Several hazards exist with oil and gas wells, which include:[5] o Hydrogen sulphide may escape from a leaking well. o High-pressure oil and highly flammable gas may be present from a leaking well. o A blowout occurs when natural gas is encountered during drilling operations. The oil/gas fluid is then released around the drilling rig, creating an environmental hazard from the spill, and a fire may occur. **Treatment Options to Consider:** With the ongoing investigation into what caused the Wheatley explosion in 2021 taking place, its findings will not be released for a while yet. Wheatly is in the Municipality of Chatham-Kent, the Municipality of Lakeshore's neighbour. The

[5] "Oil and gas," Ontario, Accessed May 9, 2023, https://www.ontario.ca/page/oil-and-gas

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		Municipality of Lakeshore should examine its findings, as some of the recommendations from the investigation may affect Lakeshore. Avoid and Mitigate Risk - This may be achieved by: • Ensure maps of the well locations are available, whether active or not. This information is available at: https://geohub.lio.gov.on.ca/datasets/lio::petroleum-well/explore?location=42.284364%2C-82.667605%2C11.00 • Ensure an area in the Emergency Response Plan (ERP) addresses oil/gas well emergencies. • The Municipality could reference the *Oil, Gas and Salt Resources Act, R.S.O. 1990*, for additional material. • The Planning Division needs to be aware of the locations of wells to ensure no structures are located over them.
Worksheet #1 - Geographic Profile	Topography	Risks - The land is primarily flat, with a low risk of flooding along the Lake St. Clair shoreline. Most of the population lives in the northwest corner of the Municipality. There are many inland water courses that flow to the lake. There are numerous parks and open recreational lands for many sporting activities. With many residents and visitors using the trail systems there is the risk of individuals becoming injured on the trails. Some heavily forested rural areas may experience a lightning strike, causing a fire. This threat has a low risk of occurring.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		Treatment Options to Consider: Avoid and Mitigate Risk - This may be achieved by: LFD has two four-wheel drive pick-up trucks to use along the paths if needed at present. The department should analyse the need for a UTV to use for this purpose which could also be used to fight wildland fires making it a multi-purpose apparatus.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #1 - Geographic Profile	Railways	Risks –Trains pass through Lakeshore and could be transporting hazardous materials. There is, therefore, a risk of train/passenger vehicle incidents and derailments. **Treatment Options to Consider:** LFD conducts joint training evolutions with the Provincial HAZMAT Team from Windsor Fire & Rescue Services (WFRS). Avoid and Mitigate Risk - This may be achieved by: • HAZMAT response SOGs, policies, and training should be reviewed and updated.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #1 - Geographic Profile	Provincial Highways, County, Municipal Roads	Risks – **Electric Vehicles** By February 2022, 75,274 electric vehicles were registered in Ontario[6]. By 2030, one out of every three vehicles sold will be electric. Generally, fire services are behind in preparing firefighters for incidents involving electric vehicles. Fire service personnel are accustomed to responding to conventional vehicle fires. Electric vehicles run on high-voltage lithium-ion batteries, which can result in dangerously high temperatures if these cars catch fire. Firefighters are also at risk of electric shock from damaged lithium batteries. Firefighters must ensure the vehicle is de-energized during an extrication incident to prevent electrical shock if electrical cabling becomes compromised by the accident. **Roads Closures** For Roads Department staff to execute repairs, roads may need to be closed. The same applies during construction projects, MVCs, weather events, etc. To the Municipality's credit, road closures are entered into the Municipal 511 website for the public's reference.

[6] Ontario Making it Easier to Access Electric Vehicle Chargers, (Ontario.ca), Accessed December 17, 2022, https://news.ontario.ca/en/release/1001827/ontario-making-it-easier-to-access-electric-vehicle-chargers

HAZMAT Incidents

MVCs involving transport trucks carrying HAZMAT can be highly complex. The LFD can mitigate some HAZMAT calls as personnel train at the operations level. The LFD may call for the provincial HAZMAT team from Windsor Fire & Rescue Services (WFRS) to address and reduce complex HAZMAT incidents. With the high traffic flow along Highway 401 daily, unknown quantities of hazardous materials are transported through Lakeshore.

Treatment Options to Consider:

Avoid and Mitigate – This may be achieved by:

Electric Vehicles:

- The LFD should consider taking the NFPA online training course Alternative Fuel Vehicles Training Program for Emergency Responders.
- Download electrical vehicle information apps on the Department's tablets/phones/laptops.
- LFD must ensure that all SOGs, procedures, and training are current when responding to electric vehicle emergencies.

Road Closures:

- Public Works should notify the LFD and WFRS, LFD's dispatch centre, of all full closures.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		• When the road reopens, the Roads Department should again call LFD and WFRS to advise members that the road has reopened. • As new traffic control systems are installed, ensure they include pre-emptive signal control systems. Upgrade current traffic lights to have control devices and sensors. **HAZMAT Incidents:** • As with any HAZMAT incident, Lakeshore may need to implement its ERP or open its reception centres.
Worksheet #1 - Geographic Profile	Highway 401	Risks - Highway 401 runs for 25 miles through the Municipality of Lakeshore. Daily many transport trucks carry hazardous cargo, which could leak/spill during an MVC, creating a HAZMAT situation and requiring additional resources. For example, on September 3rd, 1999, one of the worst MVCs in history occurred on Highway 401 in the Municipality of Lakeshore.[7] The response times for apparatus enroute to an incident on the highway may be adversely affected by the road's closure, congestion on arterial routes as traffic leaves the 401, alternate detour route may be established, highway debris from the MVC, or weather. There is an increasing number of electric vehicles on the roadways and when on fire they present several challenges to fire personnel..

[7] "20 years later: Remembering the Highway 401 Fog Crash," CBC News, Accessed April 27, 2023, https://www.cbc.ca/news/canada/windsor/highway-401-fog-crash-1999-windsor-manning-road-1.5267759

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		Treatment Options to Consider: **Avoid and Mitigate Risk** • It may require a level of vehicle rescue and HAZMAT equipment and training over and above the department's current level. • Consider annual road safety and traffic control training for the firefighters. • Ensure SOGs, policies, and training align with Section 21 Guidance Notes and NFPA Standards.
Worksheet #2 - Building Stock Profile *(Refer to Appendix B for more information.)*	Fires	Risks – Fires can be due to design, construction, maintenance deficiencies, human error, or mechanical or electrical failures. **Treatment Options to Consider:** The Fire Prevention Division completes a systematic inspection that includes reviewing any required documentation, physically inspecting the site, identifying opportunities and code shortcomings, educating the customer on the requirements, and setting a timeline for follow-up for compliance. Avoid and Mitigate Risk – The risk of fires occurring may be reduced by: • Discuss the misuse of ignition sources, such as candles, related fire safety practices, and possible evacuation protocols.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		• LFD requires additional resources in Fire Prevention to make the inspection program more encompassing of all occupancies. Present staffing levels prevent inspection levels from being where they should be. • Insufficient volunteer firefighter levels responding to fires place the safety of firefighters at risk and may result in higher property loss and possibly loss of lives. This shortage of firefighters is concerning during the day when most are at their place of employment. A resolution includes hiring full-time firefighters who may be qualified to complete fire inspections while on duty.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #2 - Building Stock Profile	Municipality of Lakeshore *Single Family Residences*	Risks – Single-family dwellings experience the most fires in Lakeshore, with 44 residential fires between 2019 and 2021. In 2021, the estimated dollar loss was over $3.7 million. Most fire fatalities occur in residential fires. LFD has attempted to publicize how having residential fire sprinklers may lessen the risks when a fire occurs. While sprinklers may not extinguish the fire, they will assist in managing it, which may provide time for the occupants to escape. New home purchasers need to be mindful of the importance of sprinklers as a fire safety feature and the savings available in their insurance. Statistics show that residential sprinklers save lives and reduce fire loss. In turn, property owners will reap savings on insurance costs and see an increase in the property value. LFD cannot promote their value due to the lack of resources. **Lightweight Construction** These roof trusses and floor joists are made at a manufacturing facility off-site and then transported to the on-site location. Roof truss failures have killed many civilians and firefighters.

Secondary Suites, Garden Suites, and Short-Term Accommodations

An unknown number of illegal rental suites could exist in Lakeshore. The Official Plan allows for the construction of Secondary Suites and Garden Suites. There is no by-law governing the operation of short-term accommodations, including registration, licencing, and required fire inspections.

It is becoming a challenge to control the location of short-term accommodations. Historically, the municipality has required short-term accommodations to operate in mature neighbourhoods away from the shoreline where flooding frequently occurs. The older infrastructure in those neighbourhoods needs to meet the increased demand.

Wood Energy Technical Transfer (WETT) Inspections

Homes rely on wood burning as their primary or secondary means of heat. Historically, solid fuel-burning appliances are a source of many house fires in the province. With an increase in occupancies burning wood to reduce the cost of heating, the incidence of chimney fires would increase, which may result from poor maintenance. LFD has not been conducting WETT inspections and is not forecasting that they will do so in the future.

Treatment Options to Consider:

Avoid and Mitigate Risk – The risk of fires occurring may be reduced by:

		Single Family Dwellings: • LFD should continue to provide public fire safety education during Fire Prevention Week on smoke alarms, beginning with school children in grades junior kindergarten to grade 3. In school, fire prevention promotes the need for students to remind their parents of the importance of testing smoke alarms. **Secondary Suites, Garden Suites, and Short-Term Accommodations:** • Add the Secondary and Garden Suites inspection and short-term accommodations to the fees by-law. • Consider requiring any accommodations with a wood-burning appliance to complete a WETT inspection. • If the staff of Lakeshore completes a WETT inspection, a fixed fee becomes established, which the municipality includes in its fees by-law. **WETT Inspections:** Lakeshore requires building permits for all solid fuel-burning appliance installations. This inspection ensures all new installations or upgrades meet the needs of the OBC and manufacturer. The building department should include the condition that a WETT inspection is completed during installation to determine compliance with the inspection requirements. Insurance companies often require these to be completed when buying a residential structure equipped with a wood-burning appliance.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		• A WETT inspection should become mandatory as part of the licensing requirements for garden suites, secondary suites, and short-term accommodations. • Discussions with the Municipality's insurance provider should review possible liability exposures when requiring WETT inspections. • The Municipality should direct residents to hire a third party qualified to complete these specialized inspections. **Lightweight Construction:** • Complete an inventory list of all lightweight construction per the OFM Directive 2022-001. • Develop pre-incident plans for high-life risk occupancies in the municipality with lightweight construction. • Include lightweight construction training for firefighters, including identifying such buildings physically or through the WFRS CAD information.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #2 - Building Stock Profile	Larger Higher Structures *Response Protocols and Training*	Risks - A fire occurring in a higher construction could strain fire service resources. The OBC permits structures up to six floors to be built using ordinary wood construction materials. These construction changes limit firefighters' effectiveness in containing the fire to the apartment of origin. In designs made of wood construction, a fire could spread rapidly and be difficult to manage and control. Including LWC components will increase the risk level for firefighters who fail to contain and control the fire. The water supply in Lakeshore influences the development of higher structures. LFD is fortunate in that it owns an aerial device. With the increased residential developments, the municipality should anticipate an increase in industrial, manufacturing, commercial and mercantile occupancies. These buildings are growing in both size and height (wherever possible) to allow tenants to expand their operations without expanding the structure's footprint. When a fire occurs, more significant sized buildings may require additional resources from LFD and neighbouring fire services. Requests like this become a challenge and a liability if the non-LFD firefighters have not received training to fight fires in more extensive and higher structures. NFPA 1710 has established a standard for the number of firefighters required to fight a fire in different-sized occupancies. These include:

<table>
<tr><th>Mandatory Profiles</th><th>Risks or Issues and Concerns</th><th>Risk and Treatment Options for Consideration</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Occupancy Description</th><th>Number of Firefighters Required</th></tr>
<tr><td>A two-storey single-family dwelling that is a minimum of 186 m² (2,000 sq ft), with no basement and no exposures present.</td><td>Require 16 firefighters, 17 if an aerial device is in use.</td></tr>
<tr><td>Open-air strip shopping center ranging from 1203 m² (13,000 sq ft) to 18,209 m² (196,000 sq ft)</td><td>Requires 27 firefighters, 28 if an aerial device is in use.</td></tr>
<tr><td>Apartment within a three-storey garden-style apartment building of 111 m² (1,200 sq ft)</td><td>Requires 27 firefighters on the scene, 28 if an aerial device is operating.</td></tr>
<tr><td>A high-rise in which the highest floor is greater than 23 m (75 ft) above the lowest level of fire department vehicle access.</td><td>It requires 38 firefighters on the scene and 39 if an aerial device is in use.</td></tr>
</table>
During the daytime, LFD has difficulty attaining the minimum number required for a residential structure, let alone fighting a fire in a high-rise. The officer in charge can call in mutual aid, but concerns become whether those responding have training in fighting a high-rise fire. Is the responding fire department already at a fire, and does it have resources it could send to assist LFD? Mutual aid is not to be used to support LFD's normal operations. Their neighbours may also be experiencing the same firefighter shortages and do not have extra to send.
</td></tr>
</table>

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		A fire at a large industrial or commercial complex will also stretch LFD's daytime resources to the limit, resulting in the need to call in assistance from neighbouring fire departments. The same questions come into play as with a high-rise fire. It is time for LFD to determine the feasibility of employing full-time firefighters from Monday to Friday during the daytime. **Treatment Options to Consider:** Avoid and Mitigate Risk – This may be achieved by: • It may require additional staffing, equipment, and training. • OBC requires structures over four levels to be sprinklered. Promoting the installation of sprinklers should be part of the fire prevention inspections and pre-planning by the fire department. • Ensure SOGs, policies, equipment, and high-rise training are in place to fight fires in higher structures. • Follow FUS – Table of Effective Response – Re: Ladders and Aerials: When are they required or needed. • Enter into a response agreement with a neighbouring fire department for the immediate response of an aerial when Lakeshore receives a confirmed fire in residential structures over three storeys, industrial and commercial occupancies.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		• Consider when the next engine is due for replacement to acquire a Quintuple combination pumper (Quint), a more versatile apparatus to operate as the front-line apparatus out of the station to which it is assigned. • LFD lacks the resources to develop and maintain an active pre-incident plan program. Pre-planning before an incident occurs, such as fires in high-rises, is essential for efficient operations and the safety of the firefighters at the incident.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #2 - Building Stock Profile	Fuel Retail Outlets *Gasoline, Diesel*	Risks - A large fuel spill is a HAZMAT incident. There are retail outlets that have storage tanks underground. Marinas have fuel storage on-site; a leak could create an environmental hazard if it enters the waterways. The risk of fires exists with high fire loads onsite (i.e., boats, fuel, and retail outlets). **Treatment Options to Consider:** Avoid and Mitigate Risk – This may be achieved by: • Inventory of all locations that have bulk fuel storage. • Contact TSSA for a list of sites with non-retail fuel tanks. • Complete pre-incident plans for each area with fuel storage. • Provide training on fighting flammable liquid fires, including the use of foam.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #2 - Building Stock Profile	Properties with Solar Photovoltaic Systems	Risks - There are locations in Lakeshore where solar photovoltaic systems panels are installed either on top of roofs or at ground level. These panels produce high voltage, which must be disconnected. A fire in structures with solar panels on a roof has a higher potential of early roof failure due to the extra weight load. Lakeshore requires building permits when installing solar equipment. **Treatment Options to Consider:** Avoid and Mitigate Risk – This may be achieved by: • Ensure documented identification of these locations. • LFD should ensure SOGs, training, and pre-incident plans are in place and current. • Ensure that warning signage is in place as required at each location.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #2 - Building Stock Profile	Vulnerable Citizens and Caregivers *Inspections and Enforcement*	Risks – Having the most vulnerable residing in occupancies with fire safety violations is a risk. Currently, 15 vulnerable occupancies, as defined in the OBC or Municipal Property Assessment Corporation (MPAC) classifications, are in Lakeshore. Fire prevention inspects this occupancy annually. Personal residences do not fall under the vulnerable occupancy classification. Families often look after loved ones in their homes rather than placing them in a long-term care facility. **Treatment Options to Consider:** Avoid Risk – This may be achieved by: • Provide public education on escape planning. • Train personnel on fire extinguisher usage. • Promote education regarding knowing and practicing building escape routes. • Address the needs of those with mobility and cognitive behavioural issues in escaping a fire. • LFD should reach out to caregivers to provide public education on fire safety and what to do in the event of a fire. The visit would be crucial when the one they care for has mobility issues.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #2 - Building Stock Profile	Water *Including Domestic Water Supply, Wet Hydrants, Dry Hydrants, Cisterns and Rural Water Supply*	Risks –Some communities experiencing high growth and development activities experience challenges in supplying enough water. Many developers are coming forward with plans for residential growth and anticipating over 2,000 new residential units over the next ten years, primarily in the Emeryville, Belle River, and Maidstone areas. **Hydrants** Lakeshore has 1,636 municipal hydrants, 93 private, and 45 still under the developer's control. No matter how short the period, the hydrant system's failure could become a life safety risk. **Dry Hydrants and Cisterns** Lakeshore's dry hydrants for the LFD's water supply are available in rural areas not serviced by hydrants. There are no locations with a cistern available for the department's use. Dry hydrants and cisterns are typically found in rural settings for fire protection. Dry hydrants and cisterns are regulated under NFPA 22 *Standard for Water Tanks for Private Fire Protection* and NFPA 1142, *Standard on Water Supplies for Suburban and Rural Firefighting*. Maintenance of the Municipality's hydrants must meet the OFC's *Part 6, Fire Protection Equipment*. Within FUS's *Alternate Water Supplies for Public Fire Protection* document, it states that "recognition of Shuttle Service for fire insurance grading purposes is limited to the flowing road travel distances from the insured property":

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		Commercial Lines for Public Fire Protection Classification (PFPC) • 5 km by road of the first responding pumper, AND mobile water supply apparatus, AND • 2.5 km (1.6 miles) by road of an approved water supply point • Personal Lines, Dwelling Protection Grade 8 km (5 miles) by road of first responding pumper, AND mobile water supply apparatus, AND • 5 km (3.1 miles) by road of an approved water source Savings on insurance costs may be available to residents and businesses that install a cistern containing a large quantity of water for fire protection. It may be a significant investment of between $20,000 and $35,000, but the insured may save approximately $20,000 in insurance costs. **Rural Water Supply** The LFD has achieved their Superior Tanker Shuttle Certification, which meets FUS requirements for three fire stations. Having this accreditation assists in lowering insurance premiums for those living outside the built-up areas. **Treatment Options to Consider:** Mitigate Risk – This may be achieved by:

		Domestic Water • Having developers assume new infrastructure costs aids in planning for sustainable growth. **Hydrants** • Increase the minimum size of the water mains from the current 50 mm (2”) to 150 mm (6”) or greater to ensure adequate water supply for firefighting operations while continuing to provide domestic water. Doing so will enhance the flow rate, water pressure and volume of water available, which could lead to additional building construction as supply meets the demand. • Replace old cast iron water pipes with newer technologies. • Water flow from hydrants should meet the FUS Water Supply for Public Fire Protection guide. • Develop a hydrant maintenance program that complies with the OFC, Article 6.6.4 and NFPA 291, *Recommended Practice for Water Flow Testing and Marking of Hydrants.* **Dry Hydrants and Cisterns:** • LFD should complete an analysis to determine the need for additional dry hydrant installations. • Once dry hydrants are in place, develop maps identifying their locations, with circles determining the response distances, which become available to

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		the residents to provide to their insurance provider. This service may permit the residents to take advantage of savings on their insurance premiums. • Promote installing dry hydrants to property owners with access to a water supply. • Cisterns must be installed and maintained according to NFPA 22, *Standard for Water Tanks for Private Fire Protection*. **Rural Water Supply:** • The LFD should explore the opportunity of achieving Tanker Shuttle accreditation for the remaining two fire stations.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #2 - Building Stock Profile	Fire Stations *Standby Generators*	Risks – As an emergency services facility, the loss of power at any fire station could negatively affect the response capabilities of the LFD. Presently, only three fire stations have an automatic standby generator. At two of those three stations, it is unknown whether those in place energize the entire structure. One of the generators may be undersized and could be relocated to another station that does not need as much power. While portable generators could be utilized, they require someone to attend the fire station, start the generator, lay out power cords, and in priority items. Power cords lying across the floor are a health and safety risk. LFD is in the process of completing the installation of generators at each station. **Treatment Options to Consider:** Avoid and Mitigate Risks – This may be achieved by: • Ensure standby generators installed at all the fire stations can energize the entire building. • Complete an electrical audit to identify the generator size required for each location.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #2 - Building Stock Profile	Lakeshore Fire Department *Radio System and Infrastructure*	Risks – While the radio coverage throughout the Municipality is good, there is a risk of a radio system failure and power loss. It is unknown when the radio system was last upgraded. There are eight transmission towers across the Essex-Windsor area, each with a battery or generator for backup power. The LFD should have an audit completed on its radio infrastructure and coverage. This review is especially prudent as Motorola will no longer support the technology currently in use by the LFD after 2024. The system operates using digital technologies with repeaters. Digital signals are stronger than analogue signals as radio signals lose strength with distance; digital signals are at consistent power. A reliable radio system is imperative for the health and safety of firefighters. The increase in population intensified in high-rise structures where large quantities of concrete and steel are used in construction, impeding radio signals. LFD should review the need to add mobile repeaters in some apparatus to enhance radio coverage. **Treatment Options to Consider:** Avoid and Mitigate Risks – This may be achieved by: • Complete a radio system audit. • A radio system upgrade that includes purchasing mobile repeaters.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		• LFD, in cooperation with the Building and Planning Departments, investigates the value of requiring bi-directional antennas to be installed in high-rises or other structures that use high amounts of concrete and steel.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #2 - Building Stock Profile	Natural Gas Liquified Petroleum Gas (LPG) *Propane*	Risks - Loss of natural gas supply in transmission line breakages. There is an ongoing risk of leaks/accidents involving the distribution and use of natural gas. **Propane** Some residences will have large LPG storage tanks for heating, cooking, and fuel for standby generators. Construction sites may have LPG tanks over 200 kg (441 lbs) for heat during the colder months. There is a risk of leaks going undetected and creating an explosion. There are fewer than five Level I retail outlets in Lakeshore. **Treatment Options to Consider:** Accept Risk – This may be achieved by: **Natural Gas** • For the safety of its firefighters, LFD has a “do-not-touch” approach when responding to natural gas facilities. **Propane** When a dedicated Public Fire & Life Safety Educator is in place, begin: • By providing public education on transporting, storing LPG tanks, and connecting hose lines.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		• Promote safe BBQ and portable stove usage to prevent leaks and fires involving propane tanks. • Contact TSSA for all locations with permanently installed LPG tanks.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #4 - Demographic Profile *(Refer to Appendix D for more information.)*	Public Education	Risks - The LFD needs more Public Education Programs. The lack of time for an effective program hinders progress in fire safety messaging. The FPOs are not responsible for delivering Public Education Programs. As such, neither officer is NFPA 1035, *Standard for Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist and Youth Firesetter Program Manager Professional Qualifications* certified. **Treatment Options to Consider:** Avoid and Mitigate Risk – This may be achieved by: • A part-time dedicated PFLSE would greatly assist LFD. Public education opportunities require completion as the first line of defence. Public education programs need to meet the needs of Lakeshore as, presently, there is no dedicated PFLSE. • Many areas of public education could be either enhanced or implemented if additional resources were available in the form of a part-time dedicated PFLSE.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #4 - Demographic Profile	General Population	Risks – Ontario growth projections for Essex County indicate a growth rate of 25%-40% between 2021 and 2046. Historically, LFD has only been able to complete public education during Fire Prevention Week's fire station open houses and focuses on the NFPA topic for the week. **Seniors** The senior demographic should receive fire safety messaging, which is not occurring for various reasons. Namely, the LFD requires a dedicated PFLSE, as the FPOs are too busy with inspections to provide public education. Between 2021 and 2046, the senior population in Essex County will grow between 50% and 70%. Estimates indicate that by 2046, between 22% and 27% of the people living in Essex County will be seniors.[8] **Visible Minorities** Based on the 2021 census, there are 4,435 visible minorities in Lakeshore. Even though this demographic is not identified as a significant risk at this time, with the forecasted growth that may take place, this issue could become more prevalent in the coming years.

[8] "Ontario population projections," Accessed December 20, 2022, https://www.ontario.ca/page/ontario-population-projections#:~:text=Ontario%27s%20population%20is%20projected%20to%20increase%20by%2035.8,Ontario%27s%20population%20has%20been%20affected%20by%20the%20COVID-19

Youth and The Arson Prevention Program for Children (TAPP-C)

Troubled youth who have created fires may need to attend a Juvenile Fire Setter Intervention/ The Arson Prevention Program for Children (TAPP-C). This program includes the involvement of family members and could consist of other community partners. This program should continue as an active program within LFD and the responsibility of the dedicated PFLSE once they are in place.

Documenting Events

The OFM has provided a means of documenting public education events; LFD has taken advantage of this opportunity.

Indigenous

In 2021, there were 1,365 Indigenous members in the community. LFD has not previously reached out to this demographic. Indigenous members should not miss receiving fire safety messages.

Treatment Options to Consider:

Avoid and Mitigate Risk – This may be achieved by:

General Population

- An increase in population, as well as an increase in residential buildings, will bring an increase in the number of fire calls.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		• LFD will see growth in the mercantile building stock, which will need to be inspected and may require additional resources in fire prevention. <u>Seniors</u> • Future public education opportunities should discuss the following topics of interest: the sound of fire, the importance of working smoke and CO alarms; emergency preparedness in the event of an 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; the senior's safety book; open-air burning; etc. • The department could enhance public education for the senior demographic by incorporating the dangers of wearing loose-fitted clothing near stovetops, especially those with open flames, into their Safe Cooking Program. **Visible Minorities** • Work towards having a bi-lingual Fire Prevention and PFLSE staff that reflects the multicultural community.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		• Another option is the contractual employment of personnel to assist the LFD with interpreting and delivering fire prevention messages if English is not their second language. **Youth** • Some fire services have implemented junior firefighter programs for the youth to assist around the fire stations and learn about fire safety and firefighting. Opportunities may be available to have the youth of Lakeshore achieve their required community service hours by helping around the fire station or at public education events by dressing as Sparky, the fire service mascot. Under the current staffing levels, this may be not easy to achieve, but it should be considered in the future when staffing permits its implementation under the PFLSE. • Before a Junior Firefighter Program becomes active, complete a needs analysis on its value and targeted age group. • Once in place, the dedicated PFLSE should complete The Arson Prevention Program for Children (TAPP-C) program and become certified in its delivery. **Indigenous – First Nation Peoples** • LFD should develop a smoke alarm Outreach Program for the Indigenous demographic and local stakeholders to support their efforts. Having a PFLSE in the department would be able to spearhead this promotion.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		• Complete a needs analysis before implementing based on fires within the demographic and increased smoke alarm calls. • Implementing this may be not easy without a dedicated PFLSE on staff.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #4 - Demographic Profile	Public Education *Public Education Programs for Schools* *Festive Seasons*	Risks – School visits by Fire Prevention are an essential demographic, which would promote fire safety in the home. The LFD delivers numerous topics to the school children during fire prevention week, which includes smoke alarms, home escape planning, and stop-drop-roll from kindergarten to grade three. They also bring a fire truck for the students to tour. The schools are to conduct fire drills as required, and the LFD should monitor these by attending. No formal programs are in place for high school students. **Festive Seasons** During festive times of the year, fires may occur. Dried-out Christmas trees may catch fire when exposed to hot Christmas lights or the failure of a strand of lights. Fires are also caused by burning candles when residents leave to go out or forget to blow them out before retiring for the evening. LFD promotes the 12 Days of Christmas fire safety messaging through social media and the municipality's website. **Treatment Options to Consider:** Avoid and Mitigate Risk – This can be achieved by: **Schools** • A PFLSE should promote fire safety by developing and rehearsing a Home Escape Plan, teaching children how to crawl on the floor through smoke,

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration

		teaching children the dangers of playing with ignition sources and conducting fire drills at the schools.
		• Discuss topics that include the following:
		  ○ 9-1-1
		  ○ Smoke and CO alarms
		  ○ Fire safety in the home
		  ○ Safe cooking practices
		Festive Season
		• Provide public education messaging on the dangers of unattended cooking, uncleaned or unmaintained chimneys, aged electrical and mechanical equipment, and lack of good housekeeping practices.
		• Promote artificial candles during the holiday season to reduce the risk of fires.
		• In some traditions, educate the public on the dangers of using real candlesin , sprays, or wreaths on Christmas trees.
		• Provide year-round education on preventing injuries from and causing cooking-related fires.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #5 - Hazard Profile *(Refer to Appendix F for more information.)*	Weather Event/Reception Centres *Tornadoes, Ice and Snowstorms, Extreme Heat and Cold Events, Intense Rainstorms, and Flooding.*	Risks - During a weather event or forest fire, residents, visitors, and the transient public may need a location to take refuge. Lakeshore has one location, which is a designated reception centre. It does not have an emergency standby generator capable of energizing the entire building. Reception centres require food preparation and washroom facilities, including showers and rooms that could become dormitories. All locations must comply with the *Accessibility for Ontarians with Disabilities Act (AODA)*. **Treatment Options to Consider:** Avoid and Mitigate Risk – This may be achieved by: • Arrange for the Red Cross to evaluate each location to assess its suitability as a reception centre, considering the number of residents it may need to accommodate. Also, consider whether the site is suitable for long-term operations, whether there is an emergency power supply, and what amenities are available. • Ensure all sites are *AODA* compliant.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #5 - Hazard Profile	Municipality of Lakeshore *Domestic Terrorism*	Risks - The threat of domestic terrorism exists in Canada, with numerous incidents producing havoc and terror among the populace. Attacks have occurred in several Canadian cities with devastating consequences. Active shooter incidents may occur in factories, schools, supermarkets, seasonal facilities, and within the family home. Too often, communities wait until an event has occurred with catastrophic consequences and loss of life before identifying the need for public education and preparedness to handle such incidents. Terrorism attacks quite often focus on those of religious faith. While a low risk, and even though the police would be the primary responding agency, the Municipality and LFD need to have response strategies because such acts can result in a fire or rescue situation. **Treatment Options to Consider:** Avoid and Transfer Risk – This may be achieved by: • Emergency responders and community groups should work together to develop and deliver education programs to the responders and public on avoiding or mitigating a situation to preserve life and prevent further harm. • Focus groups should include camps and campgrounds, places of worship, financial institutions, and schools.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		• LFD should have SOGs and policies for responding to locations experiencing a terrorist/active shooter attack. • Ensure procedures are in place for every municipally owned building for responding to active shooters and hostage situations, including identifying safe rooms. • Reference NFPA 3000*, Standard for an Active Shooter/Hostile Event Response (ASHER) Program,* and Section 21 Guidance Note 6-37 Active Attacker Events for information during the development of SOGs and policies. • Reference materials should also include NFPA 1600 – Standard on Continuity, Emergency, and Crisis Management and the Emergency Management Standard developed by the Emergency Management Accreditation Program in the United States. • NFPA 3000 – Standard for an Active Shooter/Hostile Event Response (ASHER) Program, defines ASHER as "an incident where one or more individuals are or have been actively engaged in harming, killing, or attempting to kill people in a populated area by means such as firearms, explosives, toxic substances, vehicles, edged weapons, fire, or a combined thereof." • It further describes the ASHER Program as "a community-based approach to preparedness, mitigation, response, and recovery from an ASHER incident, including public or private partnerships, emergency management, the medical community, emergency responders, and the public."

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #6 - Public Safety Response Profile *(Refer to Appendix G for more information.)*	Agriculture *Livestock*	Risks – Many first responders are unfamiliar with animal handling during a barn fire or MVC involving livestock, making the scene more dangerous or challenging. Additionally, it is not uncommon for farmers to try and rescue animals, putting themselves at risk of severe injury or death. Having emergency livestock plans in place before an incident can significantly reduce risks. Community assistance can include groups such as Animal Control, law enforcement, and veterinarians. **Treatment Options to Consider:** Avoid and Mitigate Risk - This may be achieved by: • Acquire rescue equipment and develop SOGs, procedures, and training for livestock rescue and handling.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #6 - Public Safety Response Profile	Wind Farms *Response Protocols*	Risks - Lakeshore has become well known for having 150 wind turbines. Numerous codes, regulations, and standards govern the installation and operation of wind turbines. Wind turbines present risks such as high-angle rescue and fires within the units. Rescues or fires in structures of this height and complexity are challenging for fire services. If a fire were to occur, most fire services would not risk the lives of firefighters to scale the structure due to the risk of a catastrophic failure. Lakeshore Fire Department's chief officers need to be aware of the operations of the units and the company that owns the turbine response team capabilities. LFD does not perform high-angle rescues and provides ground support only. **Treatment Options to Consider:** Avoid and Transfer Risk – This is achieved by: • The owner/operator of the wind turbine is responsible for mitigating high-angle rescues from these units.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #6 - Public Safety Response Profile	Marinas/ Boat Launches	Risk – With busy marine vessel activity on Lakeshore's many bodies of water and waterways, the area marinas look after the needs of the travellers using marine vessels. The summer months produce high maritime traffic. There are multiple locations throughout Lakeshore for residents and visitors to launch their boats. Some may have gone the extra step and built their boat ramp on their waterfront property. Due to the construction materials used in making a vessel, they present challenges when ignited. Marinas, retail, service, and houses all varieties of marine vessels. They may also have merchandise and fuel available, which poses a risk to the environment in the event of a spill. Boats are kept in boat slips in the summer months. During winter, they may keep boats on-site. This storage creates a high fire load during a fire. **Treatment Options to Consider:** Avoid and Mitigate Risk – This may be achieved by: • If a fire involves fuel or a fibreglass vessel, LFD may require abundant foam concentrate. Following a fuel spill into the water, containment booms and porous materials may be necessary.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #6 - Public Safety Response Profile	OPP – North Bay is Lakeshore's Central Emergency Reporting Bureau (CERB) NG 9-1-1 Public Safety Answering Point (PSAP)	Risks - Prepare for the Next-Generation 9-1-1 and its effects on the emergency services in Lakeshore. There has yet to be a confirmed cost provided by the federal government, which is bringing this new system into effect. Some large municipalities, such as Hamilton, that operate communications centres are budgeting as much as $31 million for upgrades. Once installed and operational, there will be an annual operating cost. There have yet to be any communications regarding the anticipated yearly operating expenditures. **Treatment Options to Consider:** Avoid Risk – This may be achieved by: • Early estimates are that the NG 9-1-1 system could cost communications centres between $500,000 to $1 million or more, which inevitably will be passed on to the clients. This transition will impact the Fire Department budget. Municipalities should begin budgeting for when this system goes into effect, starting in 2025.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #7 - Community Services Profile *(Refer to Appendix H for more information.)*	Lakeshore Fire Department	No risks have been identified for this section.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #8 - Economic Profile *(Refer to Appendix I for more information.)*	Lakeshore Fire Department	No risks have been identified for this section.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
Worksheet #9 - Past Loss and Event History Profile *(Refer to Appendix J for more information.)*	Fire Cause Determination *NFPA 921, Guide for Fire and Explosion Investigations, and 1033, Standard for Professional Qualifications for Fire Investigators*	Risks – The fire chief and deputy chief are trained and certified to NFPA 1033, *Standard for Professional Qualifications for Fire Investigators*, on fire cause and origin determination. With arson and undetermined fires, the department should ensure additional officers complete training in this discipline. Fire investigations are very time-consuming to complete. Sometimes, this time is limited, resulting in the fire's origin and cause being undetermined. LFD ensures that documentation and a reasonable effort are met to establish an apparent cause. **Treatment Options to Consider:** Avoid and Mitigate Risk – This can be achieved by: • Having additional trained members on-scene may assist in observing items or events that are overlooked and may prompt further investigation by more experienced personnel. • LFD must ensure members who have completed the NFPA 1033 Standard for Professional Qualifications for Fire Investigators course also achieve their certification to Pro Board/IFSAC standards certification. Failure to do so may come into question during litigation, where the qualifications of investigators may be questioned. • Following the agency's directives, notify outside agencies such as the OFM, TSSA, ESA, and OPP.

Mandatory Profiles	Risks or Issues and Concerns	Risk and Treatment Options for Consideration
		During investigations, the investigator should note if ongoing fire-cause trends are developing and act accordingly.

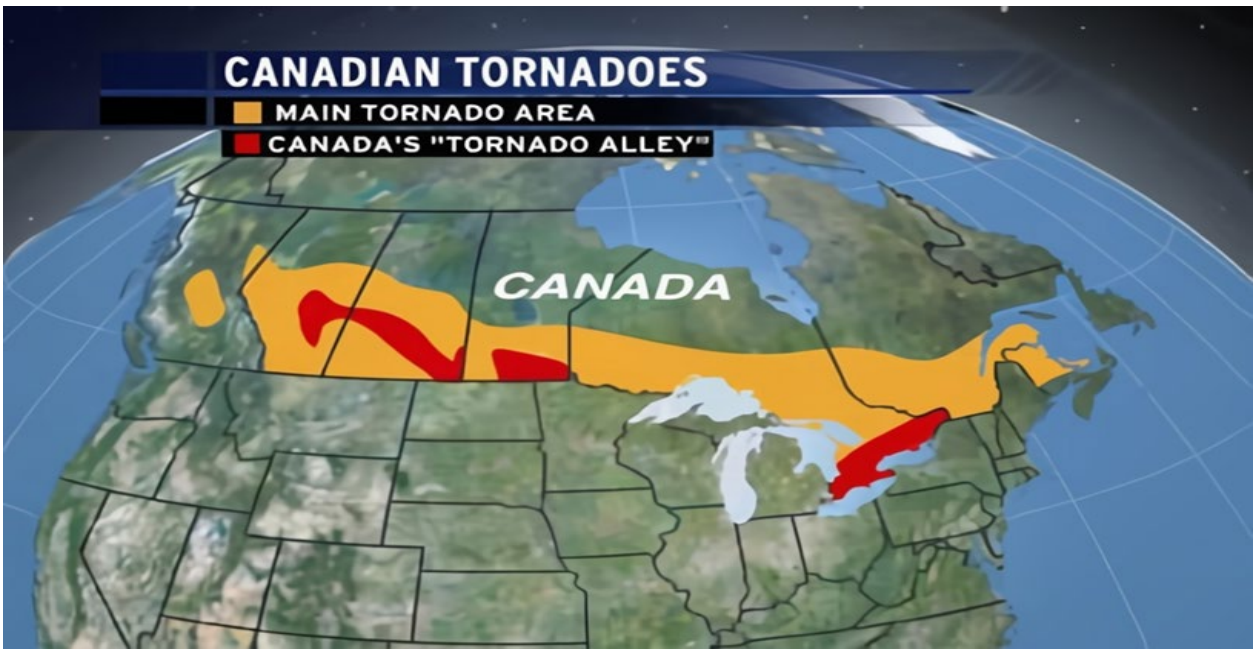
Appendix A - Worksheet #1-Geographic Profile

The Municipality's geographic profile describes the community's physical features. Such features may present current or potential risks that may impact the fire service in an emergency.

Located on the south shore of Lake St. Clair, the Municipality of Lakeshore is a prime destination in the summer months. The municipality experiences severe thunderstorms that could produce into tornadoes. Because of its geographic location, it is in a prominent area of Canada and is at risk of experiencing a tornado at some time.

The topography is flat, and the terrain slopes downward from the south to the north. Due to the flatness of the Municipality of Lakeshore, drainage is slow, and storage for runoff in the rivers and streams is limited. Slow-moving creeks and rivers support drainage flow into Lake St. Clair. This lack of space for excess water creates the risk of flooding, which could occur with little to no notice due to severe weather.

FIGURE #1: Map of Prominent Tornado Risk Areas in Canada



Each feature has been assigned a level of risk based on the probability and consequence per the following definitions found in NFPA 1300, Standard on Community Risk Assessment and Community Rick Reduction Development.

Low Risk: A risk that is unlikely to occur or have a significant impact on life, property, operations, the environment, and/or economic and social factors. A low risk does not require immediate action or attention but should be monitored periodically.

Moderate Risk: A risk that is within the range of acceptable risk but is not considered low risk.

High Risk: A high risk is a risk that has a high probability of occurrence and a high potential impact. High risks are usually given the highest priority in developing a community risk reduction plan.

Worksheet #1 rows are assigned a level of risk by colour code as below and are in order of risk.

Low	Moderate	High

Geographic Feature	Potential Impact on the Delivery of Fire Protection Services
Railways	• Canadian National Railway and Canadian Pacific Railway lines operate through the Municipality of Lakeshore. They carry freight, and VIA Rail carries passengers on the Canadian National Railway's rail system. • In extreme cases, a train derails that is transporting hazardous materials results in residents' evacuation. • Depending on the seriousness of the incident, it may become a mass casualty, requiring resources from outside the county to assist. **Response/ Mitigation Options and Capabilities of LFD** **Current Capacities** • The ERP may need to be activated along with the EOC. **Mitigation Strategy** • LFD should have SOGs, policies, and training to mitigate rail traffic incidents. • Lakeshore should obtain copies of the response plans for VIA Rail and the Canadian National Railway line, which are included as a point of reference in the appendix of the ERP. • LFD should organize a real-time emergency training exercise that includes a rail accident involving mass casualties or hazardous materials involving all the MECG members. Collaboratively work with the railways to install signage at crossings, warning of the risks of persons walking along train tracks or crossing trestles.

Geographic Feature	Potential Impact on the Delivery of Fire Protection Services
Highway 401	• Highway 401 runs for 25 miles through the Municipality of Lakeshore. • Many transport trucks carry hazardous cargo, which could leak/spill during an MVC, creating a HAZMAT situation and requiring additional resources. • On September 3rd, 1999, one of the worst MVCs in history occurred on Highway 401 in the Municipality of Lakeshore. 9 • Response times may be affected by road closures, congestion, detours, debris, or weather. **Response/ Mitigation Options and Capabilities of LFD** **Current Capacities** • There is an increasing number of electric vehicles on the roadways. **Mitigation Strategy** • It may require a level of vehicle rescue and HAZMAT equipment and training over and above the department's current level. • Consider annual road safety and traffic control training for the firefighters. • Ensure SOGs, policies, and training align with Section 21 Guidance Notes and NFPA Standards.

[9] "20 years later: Remembering the Highway 401 Fog Crash," CBC News, Accessed April 27, 2023, https://www.cbc.ca/news/canada/windsor/highway-401-fog-crash-1999-windsor-manning-road-1.5267759

Geographic Feature	Potential Impact on the Delivery of Fire Protection Services
Rivers, Lakes, Streams, Wetlands, and Watersheds	Will impact: • *Training* – Aids in the mitigation of ice and water rescues, members must be trained per NFPA 1006, *Standard for Technical Rescue Personnel Professional Qualifications*. • *Equipment* - LFD will need to ensure its equipment is tested per manufacturer specifications and aligning regulations to ensure it is in a state of readiness. • *Response and travel timelines* – Measure response time according to NFPA 1720 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments*. It may also create an impact if the caller cannot provide accurate directions to the location of the incident. When there is severe flooding, it may impact: • *Infrastructure* - Roads, culverts, and bridges may be damaged or destroyed. This damage includes non-municipally owned infrastructure such as power and telecommunications equipment. • *Response times-* may be longer due to road closures or damaged access routes that may be impassable. Callers may be unable to provide accurate directions to the incident. Lakeshore does not have a proprietary Emergency Flood Response Plan in place yet. Once the flood plan is in place, Lakeshore may need to implement it during flooding. Flooding is caused by: • Extreme rainfall/runoff from intense storms or rapid snow melting. • Severe weather overloads the storm and sanitary sewer system, creating water back-up. • Along the shoreline of Lake St Clair due to high lake levels or a storm surge by strong winds.

Geographic Feature	Potential Impact on the Delivery of Fire Protection Services
	LFD does not have the capacity, ability, and training to perform swift water rescues. LFD has no marine vessels to use on Lake St. Clair, nor does the department have the authority to respond on the lake. Snowmobiles or people walking on the ice may fall through in the winter. The highest risk of persons falling through the ice is the water retention ponds, as their levels fluctuate under the ice. ## Response/ Mitigation Options and Capabilities of LFD ## Current Capabilities With a shoreline close to 40 km (25 mi), the risk level to the community is heightened due to the travel distances and the travel time to arrive on the scene. Add to the timeline the time it takes the volunteer firefighters to respond to the station, muster and then respond. A crew of full-time firefighters in the station at the time of the call would, in most cases, be enroute to the scene within 80 seconds. LFD has the training and equipment to perform ice and water rescues at the operations level and provides offshore-based rescues up to 90 m (300') from shore. Response levels are identified as either Awareness, Operations, or Technician. For this CRA, the following best describes the levels, based on NFPA 1006, *Technical Rescue Personnel Professional Qualifications.* The levels of response, as quoted from NFPA 1006, are: • 1.5 Operational Levels. The AHJ shall establish written standard operating procedures (SOPs) consistent with one of the following operational levels for each of the disciplines defined in this document:

Geographic Feature	Potential Impact on the Delivery of Fire Protection Services
	• (1) Awareness level. This level represents the minimum capability of individuals who provide response to technical search and rescue incidents. • (2) Operations level. This level represents the capability of individuals to respond to technical search and rescue incidents identify hazards, use equipment, and apply limited techniques specified in this standard to support and participate in technical search and rescue incidents. • (3) Technician level. This level represents the capability of individuals to respond to technical search and rescue incidents and to identify hazards, use equipment, and apply advanced techniques specified in this standard necessary to coordinate, perform, and supervise technical search and rescue incidents. **Mitigation Strategy** • The Municipality of Lakeshore could install lifebuoys along public beaches with signage promoting water safety. • LFD should review and update current response protocols and SOGs and develop new ones as required. • Ensure these meet industry standards, such as Section 21 Guidance Notes and NFPA 1006, Technical Rescue Personnel Professional Qualifications. • The Municipality of Lakeshore will be reviewing its storm sewer size policy through a Fire Master Plan currently being developed. Also, create an ongoing maintenance program of clearing blocked maintenance hole covers & brush debris from driveway culverts. Retention ponds are engineered and are a risk as water levels change significantly in the winter. When the water level lowers when the pumps turn on to remove water, a void is created under the ice that could collapse, putting those walking on it into the water.

Geographic Feature	Potential Impact on the Delivery of Fire Protection Services
Provincial Highways, Municipal and Private Roads	• Road closures or detours, special events, and construction may cause traffic to become congested and adversely affect the responding firefighters enroute to the station to board an apparatus response times. There is a volume of large trucks transporting goods into and out of the area, with an unknown number of loads that may contain hazardous materials. • During severe snowstorms, visibility could be zero, and the roads impassable. • Emergency services have not experienced delays during responses due to flooding. • Growth in northwest areas of Lakeshore has increased traffic, which impedes firefighters when responding to the fire station. • LFD does not have pre-emptive traffic control devices in any of its apparatus. • Lakeshore does not have a by-law regulating the building and maintenance of private roads. The Municipality has a policy regarding the assumption of private roads. **Response/ Mitigation Options and Capabilities of LFD** **Mitigation Strategy** • Pre-emptive devices may improve response times as the fire apparatus will have priority at traffic control signals and not be required to stop for a red light. • LFD should engage the traffic department of Essex County to review opportunities for installing pre-emptive devices on county roads.

Geographic Feature	Potential Impact on the Delivery of Fire Protection Services
	• The primary focus for installing these devices should be along Essex County Road. 22, as that is the leading travel route for stations 1 and 3.
Topography	The land is primarily flat, with a low risk of flooding along the Lake St Clair shoreline. Most of the population lives in the northwest corner of the Municipality. • Many inland water courses exist. • There are numerous parks and open recreational lands for many sporting activities. • Risk of individuals becoming injured on the trails. • Some heavily forested rural areas may experience a lightning strike, causing a fire. This threat has a low risk of occurring. **Response/ Mitigation Options and Capabilities of LFD** **Current Capacities and Mitigation Strategy** • LFD has two four-wheel drive pick-up trucks to use along the paths if needed.

Geographic Feature	Potential Impact on the Delivery of Fire Protection Services
Climate Change	Climate change is a worldwide issue most evident with the deterioration of the upper atmosphere, droughts, and floods. Extreme weather due to climate change is a reality, and fire services have a role in preparing for the effects and adjusting their response accordingly. **Response/ Mitigation Options and Capabilities of LFD** **Current Capacities and Mitigation Strategy** • The fire department's fire prevention staff could include, during fire inspections, a discussion about: ○ Installing back-flow valves on septic lines and that sump pumps are operational. • In cooperation with each other, the Departments of Lakeshore, has a part to play to build and maintain a resilient community.
Oil and Gas Wells	• Many oil and gas wells in the Municipality are inactive and abandoned. • The still active wells may not have any infrastructure visible above ground level. • There are approximately 27,000 oil/ gas wells in Ontario.10 • Either soil staining or dead vegetation would identify product leakage to the surface. • Several hazards exist with oil and gas wells, which include:[11]

[10] "Wheatley explosion could be 'tip of the iceberg' in Ontario given number of abandoned wells: expert. "CBC News, Accessed May 9, 2023, https://www.cbc.ca/news/canada/windsor/wheatley-explosion-gas-wells-1.6161023

[11] "Oil and gas," Ontario, Accessed May 9, 2023, https://www.ontario.ca/page/oil-and-gas

Geographic Feature	Potential Impact on the Delivery of Fire Protection Services
	○ Hydrogen sulphide may escape from a leaking well. ○ High-pressure oil and highly flammable gas may be present from a leaking well. ○ A blowout occurs during drilling operations when natural gas is encountered. The oil/gas fluid is then released around the drilling rig, creating an environmental hazard from the spill, and a fire may occur. **Response/ Mitigation Options and Capabilities of LFD** **Mitigation Strategy** • LFD must ensure that SOGs, policies and training are in place for responses to oil/gas well emergencies. • LFD to complete pre-incident plans for each active well based on available resources at LFD. • Develop a mitigation strategy for oil/gas well fires with the operator. • Ensure maps of all wells' locations are available, whether active or not. • To locate oil/gas wells in the Municipality of Lakeshore, refer to the maps provided by the Province of Ontario at: https://geohub.lio.gov.on.ca/datasets/lio::petroleum-well/explore?location=42.284364%2C-82.667605%2C11.00. • Establish a database of all active wells and emergency contact information. • Conduct joint training on-site familiarity and drilling operations with companies that may be drilling in the municipality.

Geographic Feature	Potential Impact on the Delivery of Fire Protection Services
	• Ensure there is a section in the ERP that addresses oil/gas well emergencies and complete training on these types of emergencies. • The Municipality could reference the Oil, Gas and Salt Resources Act, R.S.O. 1990, for additional material. • Monitor the ongoing investigation of the Wheatley explosion.

Appendix B - Worksheet #2-Building Stock Profile

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

LFD must identify facilities that may contain LWC and maintain their inclusion in decision-making during a fire. Structures containing LWC are known to fail in as little as 20 minutes upon fire ignition. This hazard is a severe health and safety consideration, as many firefighters have died in the line of duty due to truss failure. The Building Department should work with the LFD to ensure they know of any new buildings containing this component during construction.

While developing this database, prioritize which occupancy classification(s) the Department will focus on based on the history of fires in those occupancies and the Department resources available.

By using data obtained from the MPAC, the Municipality of Lakeshore and the LFD identify properties as single-family residential, multi-unit residential, assembly, detention/ care/ treatment, mercantile, commercial, industrial, and those not applicable to the OBC, such as farm buildings.

TABLE #3 - Total Number of Occupancies Based on MPAC Data

Property Code: Occupancy Classification	Total Number of Occupancies				
	2023	2024	2025	2026	2027
100 Series: Vacant Land	1,687				
200 Series: Farm	2,221				
300 Series: Residential	13,581				
400 Series: Commercial	276				
500 Series: Industrial	171				
600 Series: Institutional	24				
700 Series: Special and Exempt	49				
800 Series: Government	10				
Total of All Occupancies	**18,019**				

TABLE #4 – Total Number of Occupancies Based on the OBC Occupancy Classifications

Occupancy Classification Based on 2023 Data		Number of Occupancies 2010	Number of Occupancies 2023	Number with LWC
Group A	Assembly	67		
Group B	Institutional	11		
Group C	Single-Family	10,647		Not Required*
	Multi-Unit Residential	100		
	Motel/Hotel	6		
	Mobile Homes and Trailers	374		
	Other	0		
Group D	Business and Personal Services	125		
Group E	Mercantile	11		
Group F	Industrial	136		
Occupancies not classified in the OBC, such as farm buildings. Includes farms with businesses, residents, outer buildings and commercial.		1,089		
Total of all Occupancies		**12,566**		
Total of all occupancies with LWC components				

Note: O. Reg. 332/12[12] states that occupancies incorporating LWC must be identified, except for houses. Fire departments should assume all new residential occupancies contain LWC and respond accordingly.

[12] "O. Reg. 217/22: BUILDING CODE," Ontario, Accessed January 9, 2023, https://www.ontario.ca/laws/regulation/r22217

TABLE #5 - Census Canada - Household and Dwelling Characteristics by Year

	2011[13]	2016[14]	2021[15]
Total Occupied Private Dwellings by Structural Type of Dwelling	12,330	13,185	14,385
Single-detached Home	11,340	12,130	13,230
Semi-detached Home	0	200	220
Row House	270	310	370
Apartment or flat in a duplex	60	60	55
Apartment in a building that has fewer than five storeys	180	220	235
Apartment in a building that has five or more storeys	0	0	0
Other single-detached houses	10	10	15
Moveable dwelling*	235	255	255

***Note:** The "moveable dwelling" category includes mobile homes and other moveable dwellings such as houseboats, recreational vehicles, and railroad cars.*

[13] "Census Profile," Statistics Canada, Accessed December 15, 2022, https://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CSD&Code1=3537064&Geo2=PR&Code2=01&Data=Count&SearchText=Lakeshore&SearchType=Begins&SearchPR=35&B1=All&Custom=&TABID=1

[14] Census Profile, 2016 Census - Lakeshore, Town [Census subdivision], Ontario and Essex, County [Census division], Ontario (statcan.gc.ca), Accessed December 15, 2022, https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CSD&Code1=3537064&Geo2=CD&Code2=3537&SearchText=Lakeshore&SearchType=Begins&SearchPR=01&B1=All&TABID=1&type=0

[15] Profile table, Census Profile, 2021 Census of Population - Lakeshore, Town (T) [Census subdivision], Ontario (statcan.gc.ca), Accessed December 15, 2022, https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Lakeshore&DGUIDlist=2021A00053537064&GENDERlist=1,2,3&STATISTIClist=1&HEADERlist=0

Building Stock Profile Risks

The following table is a list of community building stock/occupancy types and the fire and other emergency issues/concerns for each.

NOTE: *Assigned Risk Level is not prioritized but based on OBC Occupancy Classifications and per O. Reg. 378/18.*

Occupancy & Profile Legend	
	Group A – Assembly
	Group B – Detention and Care Treatments
	Group C – Single Family, Multi- Unit, Residential, Hotel/Motel Homes, Trailers and Others
	Group D & E – Business, Personal Service and Merchantile
	Group F – Industrial
	Occupancies not Classified in OBC – Farm Buildings Fall under the National Building Code

TABLE #6 – Building Stock Analysis

Occupancy Classification		Issues/ Concerns (i.e., age of buildings, use of facilities, building density, height and area, historic and culturally significant buildings, etc.)	Probability	Consequence	Assigned Risk Level	Identify the # of Buildings in Each Classification & # of LWC Buildings Where Presence is Known
Group A	Assembly	• It may have heavy timber construction. • There could be a high fire load. • Large open spaces • It may lack fire stops and sprinklers. • It may lack a monitored fire alarm system. • They may have poor housekeeping practices. • High occupancy (based on the type of meeting(s) • May experience overcrowding by patrons. • Where alcohol is available, patrons may be impaired, which could slow their exit	Possible	Moderate	Moderate	Total number of structures that fall in this occupancy classification – Unknown The total number using LWC – Unknown

Occupancy Classification		Issues/ Concerns (i.e., age of buildings, use of facilities, building density, height and area, historic and culturally significant buildings, etc.)	Probability	Consequence	Assigned Risk Level	Identify the # of Buildings in Each Classification & # of LWC Buildings Where Presence is Known
		from the building when the fire alarms sound. • Large quantities of combustible furnishings and decorations • Attendees may not be familiar with the building's safety features, such as the fire alarm pull station, emergency exits, and fire hose cabinets (if available). • Loud performances may lead to delayed notification in the event of an alarm or fire. • Some music concerts may want to use pyrotechnics as part of the performance. • The roof trusses may have LWC.				

Occupancy Classification		Issues/ Concerns (i.e., age of buildings, use of facilities, building density, height and area, historic and culturally significant buildings, etc.)	Probability	Consequence	Assigned Risk Level	Identify the # of Buildings in Each Classification & # of LWC Buildings Where Presence is Known
Group B	Detention Occupancies	• This occupancy classification includes holding cells in police detachments and extensive detention facilities. • Restricted access • High occupancy load • Potential for violent interaction • Potential for civil disobedience • It may have a maze of hallways that are difficult to navigate in smoke conditions.	Rare	Minor	Low	Total number of structures that fall in this occupancy classification – 2 The total number using LWC - Unknown
Group B	Care & Treatment	There are 15 Vulnerable Occupancies in the Municipality. • Elderly residents with mobility and cognitive behavioural issues • Some homes are not required to install sprinklers. • High occupancy	Unlikely	Minor	Low	Total number of structures that fall in this occupancy classification – 15 The total number using LWC - Unknown

Occupancy Classification		Issues/ Concerns (i.e., age of buildings, use of facilities, building density, height and area, historic and culturally significant buildings, etc.)	Probability	Consequence	Assigned Risk Level	Identify the # of Buildings in Each Classification & # of LWC Buildings Where Presence is Known
		• Increased building construction for seniors indicates an increase in the aged demographic. • Staff may not be familiar with emergency evacuation procedures. • Many of these facilities experience a high staff turnover, which may mean some new personnel have not received emergency protocol training.				
Group C	Single Family*	**The Fire Department / Municipality considers the presence of LWC probable.** • A lack of working smoke and CO alarms may exist. • May lack a home escape plan. • They may lack fire extinguishers. • No residential sprinklers.	Likely	Moderate	Moderate	Total number of structures that fall in this occupancy classification – **13,581 (MPAC 300 Series Total)** The total number using LWC– **Unknown**

Occupancy Classification		Issues/ Concerns (i.e., age of buildings, use of facilities, building density, height and area, historic and culturally significant buildings, etc.)	Probability	Consequence	Assigned Risk Level	Identify the # of Buildings in Each Classification & # of LWC Buildings Where Presence is Known
		• Most of the newer residential structures have LWC within the roof, floors and, in some instances, the walls. • Some older buildings may have balloon construction practices. • This risk arises when a fire occurs inside walls due to the lack of braces between the studs on the walls. During a fire, the flames will proceed upward inside the wall without any means of impeding their spread. • There could be hoarding or poor housekeeping practices. • High fire load in older structures with large support timbers. • Lack of distance between structures – creates exposure risks.				

Occupancy Classification		Issues/ Concerns (i.e., age of buildings, use of facilities, building density, height and area, historic and culturally significant buildings, etc.)	Probability	Consequence	Assigned Risk Level	Identify the # of Buildings in Each Classification & # of LWC Buildings Where Presence is Known
		• Fires not monitored for safe operation or left unattended (e.g., candles, fireplaces, wood stoves, smoker's articles). • It may lack direct egress from the basement to the outside. • Property owners may not understand their responsibilities regarding fire safety and fire code.				

Occupancy Classification		Issues/ Concerns (i.e., age of buildings, use of facilities, building density, height and area, historic and culturally significant buildings, etc.)	Probability	Consequence	Assigned Risk Level	Identify the # of Buildings in Each Classification & # of LWC Buildings Where Presence is Known
Group C	Multi-unit Residential	**The Fire Department/ municipality considers the presence of LWC probable.** • The units have a higher occupancy (than that of a single-family dwelling). • It may lack an escape plan. • May be a lack of operable fire extinguishers, and residents may lack knowledge of their operation. • Human behaviour (cooking, use of candles, smoking, alcohol, hoarding, etc.) • Delayed detection due to improper placement, lack of maintenance, or missing smoke alarms • It may be a lack of knowledge of the location of emergency exits. • It may be a lack of knowledge of shelter-in-place procedures.	Possible	Moderate	Moderate	Total number of structures that fall in this occupancy classification – **Unknown** The total number using LWC – **Unknown**

Occupancy Classification		Issues/ Concerns (i.e., age of buildings, use of facilities, building density, height and area, historic and culturally significant buildings, etc.)	Probability	Consequence	Assigned Risk Level	Identify the # of Buildings in Each Classification & # of LWC Buildings Where Presence is Known
		• The building may have LWC within the roof. • Fires in higher structures will be challenging for fire service resources. • Fires in higher structures may necessitate specialized training for firefighters on elevator operation, ventilation systems, smoke travel, firefighter deployment, thermal/smoke columns in stairways, sprinklers, and hose connections. • Tenants may not respond appropriately to fire alarms due to malicious false alarms. • Fires could occur above and below ground level and in apartment buildings.				

Occupancy Classification		Issues/ Concerns (i.e., age of buildings, use of facilities, building density, height and area, historic and culturally significant buildings, etc.)	Probability	Consequence	Assigned Risk Level	Identify the # of Buildings in Each Classification & # of LWC Buildings Where Presence is Known
Group C	Hotel/ Motel	**There are opportunities for future growth in this occupancy classification.** • Include bed and breakfast facilities in this category. • There may be LWC within the roof. • Inspections need to check for fire safety standard violation(s). When required, enforcing the OFC should be prioritized.	Rare	Minor	Low	Total number of structures that fall in this occupancy classification – **Unknown** The total number using LWC – **Unknown**
Group C	Mobile Homes, Trailers, and Other	• There are residential trailer parks in the Municipality. • The units are highly combustible due to the construction materials used. • The risk of high fire loads exists, and, in some cases, hoarding may be evident. • Seasonal usage for out-of-town visitors. • It may lack smoke and CO alarms.	Unlikely	Moderate	Moderate	Total number of structures that fall in this occupancy classification – **Unknown** The total number using LWC – **Zero**

Occupancy Classification		Issues/ Concerns (i.e., age of buildings, use of facilities, building density, height and area, historic and culturally significant buildings, etc.)	Probability	Consequence	Assigned Risk Level	Identify the # of Buildings in Each Classification & # of LWC Buildings Where Presence is Known
		• Trailer parks can have limited access routes. This issue can hamper the response by LFD. • Lack of fire separation between trailers may present an exposure risk if a fire occurs. • Using propane cylinders for heating and cooking could be an explosive hazard. • Turnover of visitors, if not weekly, bi-weekly. • Visitors may not consider fire safety a concern while at camp. • Multiple structures for administration, medical facilities, washrooms, crafts, and dining require inspections. • Yearly staff rotation could be an issue due to the knowledge of the area/facility.				

Occupancy Classification		Issues/ Concerns (i.e., age of buildings, use of facilities, building density, height and area, historic and culturally significant buildings, etc.)	Probability	Consequence	Assigned Risk Level	Identify the # of Buildings in Each Classification & # of LWC Buildings Where Presence is Known
		• Staff require fire safety training and first aid training. • As with any facility, smoke alarms must be installed and operational in sleeping quarters. • LFD may need to address any safety concerns with bonfires. • Many will use LPG for heating and cooking, which increases the risks of leaks and fires.				
Group D & E	Business & Personal Service & Mercantile	• Small local business • Numerous small businesses will need to have fire inspections. Inspections may be an opportunity to provide public education.	Possible	Moderate	Moderate	The total number of structures that fall in this occupancy classification – is 277 (MPAC) Group D – Business & Personal

Occupancy Classification		Issues/ Concerns (i.e., age of buildings, use of facilities, building density, height and area, historic and culturally significant buildings, etc.)	Probability	Consequence	Assigned Risk Level	Identify the # of Buildings in Each Classification & # of LWC Buildings Where Presence is Known
		• LFD may require additional resources for the completion of inspections and to meet the needs of public education. • It may have heavy timber constructions or common basements. • When a joined main street business incurs a fire, it may spread quickly from one unit to another. • A high volume of occupants. • The roof, floors, and walls may have LWC. • Most lack fire sprinklers. • Staff may not be familiar with the building's services or the layout. • It may lack a monitored fire alarm system. • Possibly be missing or have vandalized fire extinguishers.				Services Occupancies – **Unknown** **Group E** – Mercantile Occupancies – **Unknown** The total number using LWC – **Unknown**

Occupancy Classification		Issues/ Concerns (i.e., age of buildings, use of facilities, building density, height and area, historic and culturally significant buildings, etc.)	Probability	Consequence	Assigned Risk Level	Identify the # of Buildings in Each Classification & # of LWC Buildings Where Presence is Known
		• May lack fire safety plans. • Exit routes from the building may become blocked with the merchandise.				
Group F	Industrial	LFD responded to six fires in this occupancy over the past five years. Lakeshore has many locations focused on the auto industry per supply, tool, and mould plants. A sizeable electrical battery storage facility is planned for the Municipality. • May lack a current emergency or fire safety plan for the occupancy. • High fire loads may exist due to the type of industry or stock.	Possible	Major	Moderate	Total number of structures that fall in this occupancy classification – 170 (MPAC) The total number using LWC – Unknown

Occupancy Classification		Issues/ Concerns (i.e., age of buildings, use of facilities, building density, height and area, historic and culturally significant buildings, etc.)	Probability	Consequence	Assigned Risk Level	Identify the # of Buildings in Each Classification & # of LWC Buildings Where Presence is Known
		• During manufacturing, there is the possibility of hazardous chemicals being present. • Processing activities with ignition sources. • Possible poor housekeeping and maintenance. • There may be insufficient fire safety training for the staff. • Lack of sprinklers and fire alarm systems (possibly not required by OBC when built). • Lack of structural fire breaks with multiple lines of manufacturing. • May lack outer perimeter access, based on OBC requirements, which could hamper fire department response.				

Occupancy Classification		Issues/ Concerns (i.e., age of buildings, use of facilities, building density, height and area, historic and culturally significant buildings, etc.)	Probability	Consequence	Assigned Risk Level	Identify the # of Buildings in Each Classification & # of LWC Buildings Where Presence is Known
Other	Occupancies not classified in OBC. Farm buildings fall under the National Building Code	Consider the following points when dealing with occupancies not classified under the OBC or National Building Code. • Old construction of heavy timbers. • High fire loads (e.g., hay, straw, farm equipment). • The lack of fire separations in driving sheds and barns allows fires to spread quickly throughout the structure. • Structures near each other become exposure risks. • Possibly poor housekeeping practices. • Farm structures used for non-intended purposes (e.g., illegal drug activity). • Lack of water supply close by for fire suppression operations.	Possible	Moderate	Moderate	Total number of structures that fall in this occupancy – 2,222 (MPAC) The total number using LWC – Unknown

TABLE #7 – Registered Residential Developments

Note: Data provided by the Municipality of Lakeshore Planning Department

Registered Unbuilt					
Housing Units					
Name of Development	**Settlement Area**	**Single/ Semi-Detached Units**	**Townhouses**	**Apartment Units**	**Total Units**
River Ridge	Emeryville	148	0	0	148
Discovery Estates	Stoney point	73	0	0	73
Bacon 4D	Belle River	5	0	0	5
Admiral Cove	Lighthouse Cove	23	0	0	23
Forest Hills	Belle River	224	0	0	224
Woodslee Estates	Woodslee	37	0	0	37
				Total Units	**400**

TABLE #8 – Approved Residential Developments

Draft Approved					
Housing Units					
Name of Development	**Settlement Area**	**Single/Semi-Detached Units**	**Townhouses**	**Apartment Units**	**Total Units**
King Townhouses	Emeryville	0	12	0	12
Tracey Estates	Comber	37	0	0	37
River Ridge Phase 7B	Emeryville	10	62	0	72
River Ridge Phase 7C	Emeryville	37	0	0	37
Serenity Bay/ Walkerview Subdivision	Maidstone	0	0	0	62
LNCE 3B, 3C & 3D	Emeryville	136	51	0	187
Forest Hills	Emeryville	229	0	0	229
				Total Units	**636**

TABLE #9 – Proposed Residential Developments

Proposed or Pending					
Housing Units					
Name of Development	**Settlement Area**	**Single/Semi-Detached Units**	**Townhouses**	**Apartment Units**	**Total Units**
Giorgi	Emeryville	107	0	0	107
Cooper Estates	Emeryville	8	101	0	109
Northshore Estates	Emeryville	14	48	0	62
Lakeland – Girard	Emeryville	6	53	84	143
River Ridge Phase 8	Emeryville	0	114	0	114
Optimist Street	Emeryville	92	0	0	92
Beachside Condo Phase 3	Maidstone	0	0	174	174
Manning Developments	Maidstone	2	8	155	165
S. Valante Townhouses	Maidstone	0	36	0	36
540 Old Tecumseh	Maidstone	0	28	0	28
350 Rourke	Emeryville	0	20	0	20
0 Dupuis (rental units)	Belle River	0	0	6	6
				Total Units	**1,056**

Appendix C – Redacted. Information provided in confidence by Emergency Management Group

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Appendix D - Worksheet #4(a) - Demographic Profile

When completing the demographic worksheets, the characteristics of the Municipality of Lakeshore's demographic profile will aid in identifying potential fire safety issues and concerns. The information will help the LFD prioritize overall risk and decisions about providing fire protection services. For example, seniors, young children, recent immigrants, and people with disabilities are at the highest fire risk. Understanding if the community has an increased number of people in these demographic groups will help the LFD prioritize its public fire safety education and Fire Code inspection and enforcement programs.

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

The following population distribution charts will assist in identifying high-risk or vulnerable demographic groups in the community.

Note: The data and explanations behind each table in this profile are from the Government of Canada's 2011, 2016, and 2021 Census.

TABLE #10 – Demographic Numbers By Age

Age of Population	2011[16]	2016[17]	2021[18]
0-4	1,980	1,880	1,970
5-9	2,480	2,435	2,480
10-14	2,545	2,665	2,875
15-19	2,480	2,575	2,915
20-24	1,915	2,075	2,375
25-29	1,450	1,545	1,730
30-34	1,840	1,795	2,020
35-39	2,535	2,290	2,395
40-44	2,750	2,755	2,780
45-49	3,050	2,825	3,080
50-54	2,815	3,120	3,015
55-59	2,440	2,825	3,285
60-64	2,170	2,415	2,765
65-69	1,560	2,090	2,395
70-74	975	1,410	1,905
75-79	695	865	1,205
80-84	460	565	655

[16] Census Profile, Accessed December 15, 2022, https://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CSD&Code1=3537064&Geo2=PR&Code2=01&Data=Count&SearchText=Lakeshore&SearchType=Begins&SearchPR=35&B1=All&Custom=&TABID=1

[17] Census Profile, 2016 Census - Lakeshore, Town [Census subdivision], Ontario and Essex, County [Census division], Ontario, Accessed December 15, 2022, https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CSD&Code1=3537064&Geo2=CD&Code2=3537&SearchText=Lakeshore&SearchType=Begins&SearchPR=01&B1=All&TABID=1&type=0

[18] Profile table, Census Profile, 2021 Census of Population - Lakeshore, Town (T) [Census subdivision], Ontario, Accessed December 15, 2022, https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Lakeshore&DGUIDlist=2021A00053537064&GENDERlist=1,2,3&STATISTIClist=1&HEADERlist=0

Age of Population	2011[16]	2016[17]	2021[18]
85 & over	400	475	570
Total	**34,546**	**36,611**	**40,410**
Percentage Increase/ Decrease from Previous Census	**+3.9%**	**+6.0%**	**+10.4%**

Note: For data on the population by single years of age, refer to the table titled 'Age (in single years) and the average age in the census data tables. The data is directly from Statistics Canada; the statistics can be conflicting and inconsistent. Statistics Canada allows for discrepancies in calculations.

TABLE #11 – Population Distribution

Total – Distribution (%) of the population by broad age groups*	2016 – 100%	2021 – 100%
0 to 14 years	19.1	18.1
15 to 64 years	66.1	65.2
65 years and over	14.8	16.7
85 years and over	1.3	1.4
Average Age	39.9	40.8
Median Age	41.9	42.8

**Note: Total - Age groups and the population's average age - 100% data.*

TABLE #12 – Breakdown Of Population By Ethnicity

Total – Visible minority for the population in private households *	2016 Total = 36,365	2021 Total = 40,230
Total Visible Minority Population	2,105	4,435
South Asian	640	1,610
Chinese	160	345
Black	345	550
Filipino	160	155
Latin American	85	250
Arab	275	575
Southeast Asian	215	375
West Asian	0	220
Korean	30	65
Japanese	20	35
Visible minority (not identified elsewhere)	65	60
Multiple visible minorities	105	195
Not a visible minority	34,260	35,785

***Note:** 'Visible minority' refers to whether a person belongs to a visible minority group as defined by the Employment Equity Act and, if so, the visible minority group to which the person belongs.*

TABLE #13 – Indigenous Population

Total – Indigenous Identity for the population in private households*	2016 Total = 36,365	2021 Total = 40,230
Indigenous Identity	1,030	1,365
Single Indigenous Responses	995	1,290
First Nations (North American Indian)	255	365
Métis	745	925
Inuk (Inuit)	0	0
Multiple Indigenous responses	15	35
Indigenous responses not included elsewhere	20	40
Non- Indigenous identity	35,330	38,865

**Note:* *'Indigenous identity' refers to whether the person identifies with the Indigenous peoples of Canada.*

TABLE #14 – Low-Income Population

Low-income Status for the Population in Private Households to Whom Low-Income Concepts are Applicable*	2016	2020
Total	35,365	40,230
0-17 years	8,575	9,130
0-5 years	2,295	2,445
18-64 years	22,570	24,505
65 years and over	5,215	6,595

**Note:* Low-income status – The income situation of the statistical unit concerning a specific low-income line in a reference year. Statistical units with income below the low-income line.

TABLE #15 – Income Population

Total Income Groups in the Population Aged 15 years and Over in Private Households*	2015	2020
Total	29,380	32,900
Without Total Income	1,320	1,180
With Total Income	28,065	31,720
Under $10,000	3,470	2,565
$10,000 to $19,999	3,565	3,215
$20,000 to $29,000	3,095	3,775
$30,000 to $39,999	2,885	3,435
$40,000 to $49,999	3,200	3,465
$50,000 to $59,999	2,445	3,040
$60,000 to $69,999	1,900	2,345
$70,000 to $79,999	1,650	1,970
$80,000 to $89,999	1,350	1,605
$90,000 to $99,000	1,225	1,465
$100,000 to $149,000	2,220	3,220
$150,000 and over	1,065	1,620

**Note:* *Total Income – The sum of certain incomes (in cash and, in some circumstances, in kind) of the statistical unit during a specified reference period.*

TABLE #16 – Forecasted Population Growth

Year	Population (Excluding Census Undercut)	Population (Including Census Undercut)[1]	Households				Persons per Unit
			Low Density[2]	Medium Density[3]	High Density[4]	Total	
2016	36,600	37,800	12,595	360	220	13,175	2.87
2021	40,400	42,700	13,640	530	220	14,390	2.90
2031	45,800	47,200	14,845	990	720	16,555	2.85
2041	51,000	52,600	15,950	1,545	1,205	18,700	2.81
2051	55,100	56,800	16,860	2,050	1,700	20,610	2.76
Incremental							
2016 -2021	3,800	3,900	1,045	170	- -	1,215	
2021 -2031	5,400	5,500	1,205	460	500	2,165	
2021 -2041	10,600	10,900	2,310	1,015	985	4,310	
2021 -2051	14,700	15,100	3,220	1,520	1,480	6,220	

Note: Data provided by the Municipality of Lakeshore Community Planning Department

[1] Population includes an undercount of approximately 3%.

[2] Includes single and semi-detached homes and "other" homes per Statistics Canada.

[3] Includes all townhomes and apartments in duplexes.

[4] Includes all apartments with less than or greater than five storeys.

Appendix E - Worksheet #4(b) – Demographic Profile

Demographic Profile Risks

The following is a list of the demographic groups of concern within the community and the fire and other emergency matters relating to each group.

Note: The level of risk of the following features is not in order.

Identified Demographic Group	Issues/ Concern
Visible Minority Population	There are approximately 4,500 visible minorities living in Lakeshore in 2023, an increase of roughly 2,400 from 2016.[19] • This demographic may experience language barriers, social barriers, and socioeconomic inequalities. • Like other demographic groups, some may lack knowledge on fire safety matters, including smoke and CO alarms and the need to develop and practice fire escape plans for their residence. • They may not be familiar with the building's fire safety system(s). • LFD should review the need for multi-language and multi-cultural fire safety brochures and signage. • The significant growth in this demographic identifies that Lakeshore is becoming more diverse. • The LFD does not reach out to this demographic due to the lack of resources. However, it has not been an identified issue. The Department should review this opportunity.
General Population	The population has increased by approximately 3,800 residents, a 10.4% increase from 2021.

[19] Profile table, Census Profile, 2021 Census of Population - Lakeshore, Town (T) [Census subdivision], Ontario, Accessed December 19, 2022, https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Lakeshore&DGUIDlist=2021A00053537064&GENDERlist=1,2,3&STATISTIClist=1&HEADERlist=0

Identified Demographic Group	Issues/ Concern
	• The current population density is 76.4 persons per km^2, based on the 2021 census.[20] • The County of Essex's forecasted population growth is between 25% and 40% between 2021 and 2046.[21] • Increased drug-related medical events province-wide may increase the number of medical calls. Of all the calls LFD responds to, approximately 12% are medical-related. • With Lakeshore having several tourist attractions, pedestrians, cyclists, and distracted drivers may disregard the movement of emergency vehicles. • When a fire alarm is activated, individuals may not understand the importance of vacating a building. • The employed demographic is challenging for the fire department to reach with fire safety messages. This issue may be due to their availability and accessibility. Employers could have concerns about employees disrupting their duties to pay attention to fire safety messaging. • It may require additional resources that deliver public education messaging.
Crime in the Municipality of Lakeshore	Lakeshore experiences few crime-related fires, such as arson/vandalism. There are several undetermined fires each year, some of which might be crime-related due to the economic downturn. • Based on 2020 statistics, Lakeshore's crime rate is 64% lower than the national average.[22] • Violent crime is 63% lower than the national average.

[20] Profile table, Census Profile, 2021 Census of Population - Lakeshore, Town (T) [Census subdivision], Ontario (statcan.gc.ca), Accessed December 19, 2022, https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Lakeshore&DGUIDlist=2021A00053537064&GENDERlist=1,2,3&STATISTIClist=1&HEADERlist=0

[21] Ontario Population Projections, 2020–2046 (gov.on.ca), Accessed December 19, 2022, https://www.ontario.ca/page/ontario-population-projections

[22] Lakeshore, ON Crime Rates & Map, Accessed December 19, 2022, https://www.areavibes.com/lakeshore-on/crime/

<table>
<tr><th>Identified Demographic Group</th><th>Issues/ Concern</th></tr>
<tr><td></td><td>
Property crime is 65% lower than the national average.
<table>
<tr><th>Index</th><th>Lakeshore / 100,000 People</th><th>Ontario / 100,000 People</th><th>National / 100,000 People</th></tr>
<tr><td>Total Crime</td><td>1,512</td><td>3,086</td><td>4,223</td></tr>
<tr><td>Violent Crime</td><td>388</td><td>792</td><td>1,042</td></tr>
<tr><td>Property Crime</td><td>1,124</td><td>2,294</td><td>3,181</td></tr>
<tr><td colspan="4">Note: Information is from 2020 Statistics Canada data.</td></tr>
</table>
</td></tr>
<tr><td>Service Industry Workers</td><td>Some students and international workers may move to the area during the summer months for employment.
May lack a fire escape plan at their place of residency.
May not be familiar with fire safety features in their building.
Residents may not be familiar with shelter-in-place procedures.
They may require public education on safe cooking practices.
There could be language barriers.
They may need to be reminded not to leave candles or other flame-related articles burning when they leave the premises or retire for the night.</td></tr>
<tr><td>Indigenous Community</td><td>The Huron and Wyandot First Nations occupied areas along Lake St. Clair and the Puce, Belle, and Ruscom Rivers.
1,365 Indigenous people were living in Lakeshore in 2021. Most of these are either First Nations or Métis.
A Statistics Canada survey has identified the following:
The Indigenous population in Canada is five times more likely to die from fire than the general population; the risk increases to 10 times if they live on a reserve and 17 times if they are Inuit[23]. The problem may,</td></tr>
</table>

[23] Fire Risk for Indigenous People, written by Len Garis and Mandy Desautels for Firefighting in Canada magazine June 07, 2021, Accessed December 19, 2022, https://www.firefightingincanada.com/fire-risk-for-indigenous-people/

Identified Demographic Group	Issues/ Concern
	in some cases, be attributed to social determinants such as poverty, inadequate housing, and the lack of working smoke alarms. o The fire-related death rate for First Nations people living on the reserve was 3.2 per 100,000 person-years. This figure is over ten times the rate of 0.3 among non-Indigenous people. o The CO death rate is 0.5 for First Nations, 0.7 for Métis, and 0.6 for Inuit people per 100,000 person-years, similar to 0.6 among non-Indigenous people. *Note*: Person-years is a measurement that accounts for the number of people involved in a study and the time spent by each person. o Indigenous males statistically suffer more fire-related deaths than Indigenous women. • Provide pamphlets in their respective dialects if a language barrier exists. If required, contact the OFM to see if they have any available; failing that, discuss with an Indigenous community fire department where LFD may obtain the literature. • It is necessary to promote the inclusion of this demographic within the community.
Senior Population	In 2021, approximately 9,500 seniors are living in the community aged 60 and older. • The projected percentage of the senior population within the County of Essex in 2046 is between 22% and 27%. • Forecasts indicate that the County of Essex's senior population will grow between 50% and 70% between 2021 and 2046[24]. • There are 15 senior vulnerable sector occupancies in the municipality at this time, and there could be additional ones in the future.

[24] Ontario population projections, Accessed December 19, 2022, https://www.ontario.ca/page/ontario-population-projections

Identified Demographic Group	Issues/ Concern
	• Some of the seniors have mobility and cognitive and behavioural issues that may require constant care. • At vulnerable sector occupancies, there could be a shortage of personal care workers during evening and night shifts. • The residents may lack knowledge regarding escape routes due to mental confusion. • Some seniors may receive assistance and care from personal support worker organizations.
Seasonal Visitors	Being near the border with the United States results in many cross-border visitors each year. • Persons requiring assistance may not understand English, resulting in a language barrier. • Some fire services have language cards with multiple questions. Research if communication cards that comprise emergency-associated phrases are available. • Arrange for translating services to be made available. • There is a lack of multi-lingual fire safety messaging within locations that provide overnight accommodations. • Lack of knowledge of escape routes from buildings • Lack of knowledge regarding shelter-in-place procedures. • May reside in a short-term rental that lacks fire safety measures. • Some may not know their location and have difficulty communicating when calling 9-1-1. • Marine emergencies may be due to some individuals lacking training in boat operations and experience (i.e., not knowing the waterway, water depths, and submersed rocks/logs). • Even though there are few summer campgrounds, a yearly priority for the LFD should be public education events for staff, such as fire safety around

Identified Demographic Group	Issues/ Concern
	firepits, fireworks, training on operating a fire extinguisher, information required when calling 9-1-1, etc. • Enforce the need for working smoke alarms in locations with sleeping quarters, including trailers.

Appendix F – Redacted. Information provided in confidence by Emergency Management Group

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Appendix G - Worksheet #6 - Public Safety Response Profile

This section considers other public safety response agencies (e.g., police, EMS, rescue) that might be tasked with or able to assist in responding to emergencies or mitigating the impact of crises. The types of incidents each can respond to, and any issues or concerns that may impact the fire department response are considered.

Public Safety Response Profile Risks

The chart lists the public safety response agencies in the Lakeshore area and the types of incidents they may attend.

Identified Public Safety Response Agency	Types of Incidents They Respond To	What is their Role at the Incident	Issues and Concerns
Ontario Provincial Police (OPP)	• MVCs on the network of roads and streets. • Fire scenes • Marine emergencies • Acts of crime • Acts of violence • Acts of terrorism • When the ERP is imposed. • Security of dignitaries	• Scene and crowd control, traffic control, investigations • Establish perimeters. • Provide marine support. • Protective services • Canine services • Provide air support – helicopter and fixed-wing. • Search and rescue • Tactical response teams	• Concerns with human trafficking and drug trade activities taking place along the 401. • OPP resources have a large geographical area to cover. • Lack of staffing during some shifts results in resources responding from detachments further away, such as Leamington, Essex, Kingsville or Tecumseh. Doing so reduces the police protection in those

Identified Public Safety Response Agency	Types of Incidents They Respond To	What is their Role at the Incident	Issues and Concerns
	• Medium Urban Search and Rescue (MUSAR) • Major structural collapse • Entrapments • Earthquakes • Tornadoes • Severe weather events • Explosions	• Chemical Biological Radiation Nuclear Explosive (CBRNE) support team	communities when the officer is in Lakeshore. • The lack of available on-duty resources may result in a delayed response when LFD calls for them to attend an incident they are at.
Royal Canadian Mounted Police (RCMP)	• Acts of terrorism or sabotage • Criminal activity of international significance • Illegal importing of goods such as drugs • Human trafficking • Security of dignitaries	• Investigations that fall under their jurisdiction • Notification of Interpol and other international police agencies as required. • Provide the following services: • Canine services • Marine • Aircraft	• There are concerns about the amount of human trafficking and drug trade activities along the 401.

Identified Public Safety Response Agency	Types of Incidents They Respond To	What is their Role at the Incident	Issues and Concerns
Canadian National Railway Police Service Canadian Pacific Railway Police Service	• Transit incidents • Missing persons • Responsible for ensuring public safety on passenger trains and transportation terminals	• Provide security. • Conduct investigations. • Assist police, fire, and agencies. • Public and scene safety • Protect railway personnel, assets, information, and operations. • Protect customer's property and resources	None known

Identified Public Safety Response Agency	Types of Incidents They Respond To	What is their Role at the Incident	Issues and Concerns
Essex-Windsor Emergency Medical Services	• Medical calls • Fire standby and administer cyanokit to victims suffering from smoke inhalation. • Acts of violence • Acts of terrorism • Mass casualty • Any time the ERP is implemented and required.	• Take control and provide direction upon arrival; in treating the sick and injured. • Triage patients at mass casualty incident • Transport sick and injured to medical facilities. • Liaise with local hospitals on patient condition	• In 2023 the tiered medical response agreement is being updated • EWEMS has a single base on Renaud Line with a varying number of ambulances available at any time to cover the region. EMS coverage on Lakeshore's east end is shared and prioritized through simultaneous dispatching with Chatham Kent EMS. • Based on limited EMS coverage in the large Lakeshore geographical area, EMS may be delayed depending on overall system patient offloading (code Black) time and what the call volume/priorities are at the time of the fire department request to respond.

Identified Public Safety Response Agency	Types of Incidents They Respond To	What is their Role at the Incident	Issues and Concerns
Outside Fire Services	• Automatic or Mutual Aid Incidents • Respond to structure fires with tanker support due to the lack of hydrants (very long response timeline). • Light Urban Search and Rescue Team – Windsor trained to NFPA 1670 - Operations and Training for Technical Rescue Incidents. • Windsor Fire & Rescue Services responds to Lakeshore to mitigate: • HAZMAT Incidents • Elevator Rescue • Technical Rescues	• Fire Suppression • Provide staffing and equipment as requested. • Perform all duties requested by the LFD's Incident Commander. • LFD has one automatic aid agreement in place. • LFD is a member department of the County of Essex Mutual and Automatic Aid Plan & Program	• Any automatic aid or response agreements should meet the needs and circumstances of the residents living in the response area of that agreement.
Canada Border Services Agency (CBSA)	• Illegal immigrants	• Scene control, traffic control, investigations	None known

Identified Public Safety Response Agency	Types of Incidents They Respond To	What is their Role at the Incident	Issues and Concerns
	• Smuggling of goods into the country • Border security • Marine operations at major ports • Threats to the welfare and the protection of Canada	• Establish perimeters. • Detain individuals who enter the country illegally. • Seizure of illegal goods coming into the country. • Protect food supply entering the country. • Provide detector dogs. • Work collaboratively with Canadian and International agencies.	
United States Department of Homeland Security *Air and Marine Agents* *Border Patrol Agents*	• Protect the border. • Respond to illegally transporting weapons, drugs, contraband, and people. • Terrorist threats and attacks	• Provide security for the United States • Land, Air, and Marine support	None known

Identified Public Safety Response Agency	Types of Incidents They Respond To	What is their Role at the Incident	Issues and Concerns
St. John Ambulance – Windsor	• Assist with medical services at large public gatherings	• Support local paramedic services by providing basic first aid at events. • Do not transport patients to medical facilities. • Provide a first aid post/rest area.	None known
Canadian Red Cross – Windsor	• Public events in which many people are in attendance. • Attend major incidents where people have become displaced from their homes	• Supporting LFD at public events and extreme disasters. • Sheltering and connecting family members. • Provide emergency and disaster services (e.g., temporary shelter, food, clothing).	None known
Ontario Fire Marshal	• Suspicious fires • Attend fires in which there is either a civilian or firefighter fatality.	• Investigation – Lead agency working in conjunction with the police. • Provide technical support	None known

Identified Public Safety Response Agency	Types of Incidents They Respond To	What is their Role at the Incident	Issues and Concerns
	• High dollar loss fires • Fires at vulnerable occupancies • Fires which may be in the public's best interest • Incidents that require a provincial specialty team, such as HAZMAT, CBRNE • Emergency Preparedness and Response Unit • Support communities when local resources are exhausted. • Maintains command and control and is responsible for the results management of the incident.		
Emergency Management Ontario – Heavy Urban Search and Rescue (HUSAR)	• Major structural collapse • Entrapments • Earthquakes	• Leverage technical specializations to conduct search and rescue.	• Units will be responding from either Toronto or Winnipeg.

Identified Public Safety Response Agency	Types of Incidents They Respond To	What is their Role at the Incident	Issues and Concerns
	• Tornadoes • Severe weather events • Explosions		
Ministry of Natural Resources and Forestry	• Forest Fires • Flooding • Mining incidents • Dam failures • Erosion and unstable land • Responsible for provincial parks • Land and wildlife management • Lands and waters management	• Responsible for Crown Lands belonging to the province. • Coordinate the response of resources to suppress and extinguish forest fires. • Coordinate evacuations if required. • Manage, monitor and, in some cases, control flood waters. • Coordinate mine rescue teams	None known
Transport Canada	• Respond to transportation accidents involving some road vehicles and all rails, marine, and aviation incidents.	• Take the lead investigation role in many transportation accidents with the support of other agencies. • Many transportation regulations are the	None known

Identified Public Safety Response Agency	Types of Incidents They Respond To	What is their Role at the Incident	Issues and Concerns
		department's responsibility to develop and monitor. • The findings of these investigations may lead to changes in some of the transportation regulations. • Canadian Transport Emergency Centre aids communities by responding and providing mitigation strategies for dangerous goods emergencies.	
Canadian Armed Forces (CAF)	• Airlifts, medical evacuations, and disaster assistance • Respond at the request of the Municipality through the OFM to declared emergencies. • Attend natural disasters. • Aid in evacuations during wildfire season and flooding in the spring.	• Responsible for the defence of Canada. • Provide support by providing equipment and staffing. • Operation LENTUS follows an established plan of action to support communities during a crisis.	None known

Identified Public Safety Response Agency	Types of Incidents They Respond To	What is their Role at the Incident	Issues and Concerns
Trenton Search and Rescue – Joint Rescue Co-Ordination Centre Trenton	• Air and marine incidents • Rescues in remote areas • Searches for lost persons	• Perform search and rescue operations not only for crash incidents but also humanitarian responses such as lost hunters, removal of injured hikers or other medical evacuations due to the remote location they may be in or weather conditions. • Remove and treat injured persons. • May direct other resources to the incident location.	None known
Canadian Coast Guard *Sarnia – Regional Headquarters* *Stations in Port Lambton and Amherstburg*	• Responsible for marine safety and the environmental protection of aquatic life and waters. • Marine search and rescue • Navigational or transportation emergencies in Canadian waters	• Perform search and rescue. • Respond to vessels in distress. • Respond to medical emergencies. • Respond to support local emergency services.	None known

Identified Public Safety Response Agency	Types of Incidents They Respond To	What is their Role at the Incident	Issues and Concerns
	• Ice breaking to free vessels. • Marine HAZMAT/ pollution emergencies	• Collaborate with other government agencies. • Issue warnings about navigational emergencies • Provide marine security	
United States Coast Guard *Marine Stations located in St. Clair Shores and Belle Isle* *Air Station located in Detroit*	• Marine search and rescue • Navigational or transportation emergencies in United States waters • Ice breaking to free vessels. • Marine HAZMAT/ pollution emergencies • Terrorism and the smuggling of goods into the United States • Natural disasters on the waterways	• Perform search and rescue. • Respond to vessels in distress. • Respond to medical emergencies. • Respond to support local emergency services. • Collaborate with other government agencies. • Issue warnings about navigational emergencies • Provide marine security	None known
Technical Standards and Safety Authority	• Attend fires and explosions involving fuel-fired appliances such as gas kitchen appliances,	• Investigations relating to cause and origin.	None known

Identified Public Safety Response Agency	Types of Incidents They Respond To	What is their Role at the Incident	Issues and Concerns
	furnaces, water heaters, barbeques, gas fireplaces, etc. • Gas leaks from pressurized vessels and pipelines. • CO leaks • Boilers and pressurized vessel failures • Elevator, ski lift and amusement park ride failures	• Investigations that involve the failure of a pressurized vessel (e.g., boilers, LPG tanks) • Assist other agencies during investigations. • Assist with enforcement. • Technical support	
Enbridge Gas	• CO alarms • Natural gas leaks in residences • Leaks within their infrastructure	• Coordinate response with LFD. • Responsible for making areas safe that involve gas leaks. • Monitor air for explosive limits. • Attend emergencies to either turn off or lock and tag out gas lines.	None known
Electrical Safety Authority	• Fires that involve electrical equipment	• Assist with fire investigations. • Electrical code enforcement	None known

Identified Public Safety Response Agency	Types of Incidents They Respond To	What is their Role at the Incident	Issues and Concerns
Hydro One Power Distribution Inc. and E.L.K. Energy	• Downed power lines • Severe weather events • Structure fires • Incidents requiring the disconnecting of the power	• Terminate power supply on transmission systems as needed. • Reinstate the power supply as required.	None known
Essex Region Conservation Authority Lower Thames Valley Conservation Authority	• Provides services to the municipality and the public to protect life and property from natural hazards such as flooding and erosion.	• They monitor watersheds and weather conditions. • Operate a flood forecasting system to provide warning of anticipated or actual flood conditions. • Issuing Water Level Notices • Provide advice on preventing or reducing the effects of flooding. • Maintaining communications with the municipality and other agencies • Has a Flood Contingency Plan	None known

Identified Public Safety Response Agency	Types of Incidents They Respond To	What is their Role at the Incident	Issues and Concerns
Non-Governmental Organizations (NGO) Alliance of Ontario	• Non-governmental agencies that support the emergency management needs within Ontario	• Provide support in emergency planning, preparedness, response, and recovery before and during declared emergencies.	None known

Appendix H - Worksheet #7 - Community Services Profile

Worksheet 7 reviews community service agencies, organizations or associations that support the fire department's delivery of public fire safety education, Fire Code inspection and enforcement, and emergency response. This profile 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

The following is a list of the community service agencies and the types of services they can provide.

Community Service Agencies	Types of Assistance They Can Provide	Issues and Concerns
Municipality of Lakeshore – *Community Emergency Management Coordinator*	• Assist residents during emergency evacuations. • Arrange buses for temporary shelter.	None known
County of Essex Social Services, managed by the City of Windsor *Services provided include:* *Children's Services* *Employment and Training Services* *Ontario Works* *Housing Services*	• Early Years Services • Integrated social services. • Community Outreach • Community housing services • Financial support services	None known
Ministry of Community and Social Services *Ontario*	• Housing • Financial support	None known

Community Service Agencies	Types of Assistance They Can Provide	Issues and Concerns
Windsor Essex Compassion Care Community	• Housing • Social and human services	None known
Windsor Essex County Health Unit	• General well-being support • Continuous improvement in the quality of services and programs with all efforts oriented to meet the specific needs of the people and communities served. • Design services and programs to reduce health disparities and inequities. • Provide immunizations, health education, hearing, and vision screening	None known
Home and Community Care Support Services - Erie St Clair *Offices in Windsor, Chatham, Sarnia,*	• Health care services • Living and long-term care services • Formerly known as part of LHIN	None known
Family Services Windsor Essex	• Counselling • Wellness groups • Housing connections	None known

Community Service Agencies	Types of Assistance They Can Provide	Issues and Concerns
Erie St Clair Local Health Integration Network (LHIN)	• CCACs • Community Health Centres and Support Services • Client Intervention and Assistance Programs • Mental Health and Addiction Services	None known
Victim Services of Windsor and Essex County	• The service provides immediate support and referrals to victims of crime or traumatic experiences. • Shelter, clothing, and food following an incident. • Support victims of crime, trauma, personal crises, and sudden tragedies.	None known
Canadian Mental Health Association of Windsor – Essex County	• Ongoing mental health support	None known
Greater Essex District School Board Windsor Essex Catholic District School Board	• Access to the student population	None known
Royal Canadian Legion – Belle River	• Services in-kind • Financial support for public education programs • Facility for the delivery of fire safety programs	None known

Community Service Agencies	Types of Assistance They Can Provide	Issues and Concerns
Belle River Lions Club -Good Neighbour Club	• Services in kind • Facilities • Financial Support	None known

Appendix I - Worksheet #8 - Economic Profile

This section considers the industrial and 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 occurs in occupancies housing those sectors.

Industry is a significant economic contributor to Lakeshore's overall fiscal position, but with industry comes fire risks. For Example, A primary industry has a fire, the structure burns down, resulting in 500 employees being out of work, and the plant leaves Lakeshore to rebuild elsewhere. Therefore, the Municipality loses out on property tax, unemployed workers, and the spin-off industry in Lakeshore runs into financial difficulties. That is a high priority, high preventable event assuming the fire was fire code regulated, the building had a regular inspection cycle, the building was pre-planned, the fire department had adequate equipment for firefighting, and there was enough staff responding in the accepted period to mitigate the fire event. Whereas a Bank with a gas outage in the winter for a day or two may see it closed to the public, but other branches are available, in this case, there is no significant consequence. The key is LFD's aggressive inspection program to prevent fires and keep the industry in business, supporting the community and its residents.

Economic Profile Risks

The following is a list of 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 and assign a probability, consequence, and risk levels for each risk identified. The risk level assessments are from historical data.

Note: The following features are in the order of their level of risk.

Identified Occupancy	Key Risks	Probability	Consequence	Assigned Risk Level	Overall Economic Risk Level
Industrial/ Manufacturing	Closure – Permanent	Unlikely	Moderate	Moderate	High
	Closure – Temporary	Possible	Moderate	Moderate	
	Cyber Attack	Rare	Insignificant	Low	
	Fire	Unlikely	Major	Moderate	
	Natural Gas Disruption	Possible	Moderate	Moderate	
	Pandemic	Possible	Major	High	
	Power Disruption	Possible	Minor	Moderate	
	Weather Event	Possible	Moderate	Moderate	
Grocery Stores	Closure - Permanent	Unlikely	Moderate	Moderate	Moderate
	Closure - Temporary	Possible	Moderate	Moderate	
	Cyber Attack	Rare	Insignificant	Low	
	Fire	Unlikely	Moderate	Moderate	
	Natural Gas Disruption	Unlikely	Minor	Low	
	Pandemic	Possible	Moderate	Moderate	
	Power Outage	Likely	Major	High	
	Telecommunications Disruption	Possible	Moderate	Moderate	
Municipal Operations	Ammonia Leak (Arena)	Unlikely	Moderate	Moderate	Moderate
	Closure - Permanent	Rare	Insignificant	Low	
	Closure - Temporary	Possible	Minor	Moderate	
	Cyber Attack	Possible	Catastrophic	High	
	Fire	Unlikely	Major	Moderate	

Identified Occupancy	Key Risks	Probability	Consequence	Assigned Risk Level	Overall Economic Risk Level
	Flooding	Possible	Moderate	Moderate	
	Natural Gas Disruption	Possible	Minor	Moderate	
	Pandemic	Possible	Major	Moderate	
	Power Outage	Likely	Major	High	
	Road Closure of Long Duration	Possible	Moderate	Moderate	
	Weather Event	Possible	Moderate	Moderate	
	Wildland Fires	Unlikely	Moderate	Moderate	
Small Business	Closure - Permanent	Possible	Moderate	Moderate	Moderate
	Closure - Temporary	Possible	Moderate	Moderate	
	Cyber Attack	Possible	Catastrophic	High	
	Fire	Unlikely	Major	Moderate	
	Natural Gas Disruption	Possible	Minor	Moderate	
	Pandemic	Possible	Catastrophic	High	
	Power Outage	Likely	Moderate	Moderate	
	Telecommunications Disruption	Unlikely	Minor	Low	
	Weather Event	Possible	Minor	Moderate	

Identified Occupancy	Key Risks	Probability	Consequence	Assigned Risk Level	Overall Economic Risk Level
Campgrounds/ Seasonal Lodging	Closure - Permanent	Possible	Moderate	Moderate	Low
	Closure - Temporary	Possible	Minor	Moderate	
	Cyber Attack	Rare	Insignificant	Low	
	Fire	Possible	Moderate	Moderate	
	Pandemic	Possible	Moderate	Moderate	
	Weather Event	Possible	Moderate	Moderate	
Financial Institutions	Closure - Permanent	Possible	Moderate	Moderate	Low
	Closure - Temporary	Possible	Moderate	Moderate	
	Cyber Attack	Rare	Insignificant	Low	
	Fire	Unlikely	Moderate	Moderate	
	Natural Gas Disruption	Possible	Minor	Moderate	
	Pandemic	Possible	Catastrophic	High	
	Telecommunications Disruption	Possible	Moderate	Moderate	
	Weather Event	Possible	Moderate	Moderate	
Municipality	Cyber Attack	Rare	Insignificant	Low	Low
	Hazardous Materials Incident	Possible	Moderate	Moderate	
	Pandemic	Possible	Catastrophic	High	
	Weather Event	Possible	Moderate	Moderate	

Identified Occupancy	Key Risks	Probability	Consequence	Assigned Risk Level	Overall Economic Risk Level
Restaurants/ Fast Food Outlets	Closure - Permanent	Possible	Minor	Moderate	Low
	Closure - Temporary	Possible	Moderate	Moderate	
	Cyber Attack	Possible	Catastrophic	High	
	Fire	Possible	Major	Moderate	
	Natural Gas Disruption	Possible	Moderate	Moderate	
	Pandemic	Possible	Catastrophic	High	
	Power Outage	Likely	Moderate	Moderate	
	Telecommunications Disruption	Unlikely	Minor	Low	
	Weather Event	Possible	Minor	Moderate	
Schools	Closure - Permanent	Rare	Moderate	Moderate	Low
	Closure - Temporary	Possible	Moderate	Moderate	
	Cyber Attack	Possible	Catastrophic	High	
	Fire	Unlikely	Major	Moderate	
	Influenza Outbreak	Possible	Moderate	Moderate	
	Natural Gas Disruption	Possible	Moderate	Moderate	
	Pandemic	Possible	Catastrophic	High	
	Potable Water Emergency	Unlikely	Moderate	Moderate	
	Power Outage	Likely	Moderate	Moderate	
	Weather Event	Possible	Moderate	Moderate	

Appendix J - Worksheet #9(a) - Past Loss and Event History Profile (response data)

This section reviews previous response data to identify trends regarding the deaths, injuries, dollar loss, and causes of fire in various occupancy types. This profile assists in determining the leading causes of fires and high-risk locations and occupancies. Without fire loss data, local knowledge may be your community's most reliable predictor of fire risk. Provincial statistics can assist in determining the types of occupancies and locations where fire losses, injuries, and deaths most commonly occur.

Note: During 2020 to 2022, fire calls decreased due to the COVID-19 pandemic. This reduction was partly due to more residents working from home, therefore fewer fires. The number of medical calls was also lower due to COVID-19 protocols and the need to reduce the risk of exposure to the virus for first responders.

TABLE #17 – Fire by Property Category

		2018	2019	2020	2021	2022*
Total	Loss Fires	41	37	43	39	48
	Injuries	0	1	1	0	1
	Fatalities	0	0	2	0	0
	Est $ Loss	1,331,300	3,253,300	2,050,930	1,783,900	$3,296,550
	No Loss Fires	38	13	27	35	37
Structure with Loss	Loss Fires	17	23	26	13	24
	Injuries	0	1	1	0	1
	Fatalities	0	0	2	0	0
	Est $ Loss	1,061,000	2,937,750	1,737,400	1,136,100	3,008,900
	No Loss fires	4	1	1	0	0
Outdoor	Loss Fires	1	0	3	4	1
	Injuries	0	0	0	0	0
	Fatalities	0	0	0	0	0
	Est $ Loss	600	0	3,030	9,100	100
	No Loss Fires	19	2	14	6	3

		2018	2019	2020	2021	2022*
Vehicle	Loss Fires	23	14	14	22	23
	Injuries	0	0	0	0	0
	Fatalities	0	0	0	0	0
	Est $ Loss	269,700	315,550	310,500	638,700	287,550
	No Loss Fires	1	1	1	1	2
No Loss – Outdoor Fires Excluded	Loss Fires	0	0	0	0	0
	Injuries	0	0	0	0	0
	Fatalities	0	0	0	0	0
	Est $ Loss	0	0	0	0	0
	No Loss fires	14	9	11	18	32

TABLE #18 – Fire By Property Classification

		Year 2020					Year 2021					Year 2022				
		Number of Fires	Dollar Loss	Number of Injuries	Number of Deaths	Causes	Number of Fires	Dollar Loss	Number of Injuries	Number of Deaths	Causes	Number of Fires	Dollar Loss	Number of Injuries	Number of Deaths	Causes
GROUP A	Assembly	1	500,000	0	0	See Below	0	0	0	0	n/a	2	11,000	0	0	See Below
GROUP B	Detention & Treatment Centres	0	0	0	0	n/a	1	250	0	0	See Below	1	1,000	1	0	See Below
GROUP C	Residential	14	296,900	1	1	See Below	9	1,134,150	0	0	See Below	11	2,357,300	0	0	See Below
	Mobile Homes & Trailers	0	0	0	0	n/a	0	0	0	0	n/a	0	0	0	0	n/a
GROUP D	Business & Personal Services	0	0	0	0	n/a	0	0	0	0	n/a	1	3,000	0	0	See Below
GROUP E	Mercantile	0	0	0	0	n/a	0	0	0	0	n/a	0	0	0	0	n/a
GROUP F	Industrial	1	250	0	0	See Below	0	0	0	0	n/a	1	20,000	0	0	See Below
Other - Structures & Properties not Classified by OBC		7	370,250	0	1	See Below	2	1,600	0	0	See Below	6	113,600	0	0	See Below
Properties Classified Under National Farm Building Code		3	570,000	0	0	See Below	1	100	0	0	See Below	2	503,000	0	0	See Below
TOTALS		26	1,737,400	1	2	0	13	1,136,100	0	0	0	24	3,008,900	1	0	0

Fire causes include:

- Arson
- Vandalism
- Children playing
- Design/construction/maintenance deficiency
- Mechanical/electrical failure
- Misuse of ignition source/materials first ignited.
- Other unintentional
- Unintentional undetermined
- Other
- Undetermined

Ignition sources include:

- Appliances
- Cooking equipment
- Electrical distribution equipment
- Heating equipment, chimney, etc.
- Lighting equipment
- Open flame tools, smoker's articles
- Other electrical, mechanical
- Processing equipment
- Miscellaneous
- Undetermined

TABLE #19- Summary of Total Emergency Calls (fires and non-fire calls)

Municipality of Lakeshore

	Total	Loss Fire Structure	Loss Fire Other	Loss Fire Vehicle	No Loss Fire	No Loss Fire – Excluded	Non-Fire Call
2018	556	17	1	23	24	14	477
2019	553	23	0	14	4	9	503
2020*	481	26	3	14	16	11	411
2021*	526	13	4	22	7	18	462
2022	604	24	1	23	5	32	519

Province of Ontario

	Total	Loss Fire Structure	Loss Fire Other	Loss Fire Vehicle	No Loss Fire	No Loss Fire – Excluded	Non-Fire Call
2018	546,337	7,012	806	3,249	2,097	7,414	525,759
2019	536,818	6,715	694	3,263	1,881	5,763	518,502
2020	450,004	6,841	837	2,921	1,954	8,248	429,203
2021	491,661	7,076	857	2,770	1,866	9,271	470,793
2022	579,343	7,482	1,010	3,106	1,943	10.064	555,738

**Note:* *The call volume for the years 2020 and 2021 were significantly impacted by COVID-19, due to the shutdown and people working from home.*

TABLE #20 - Causes of Structure Fires

				2018	2019	2020	2021	2022*
Structure	Total		Loss Fires	17	23	26	13	24
			Injuries	0	1	1	0	1
			Fatalities	0	0	2	0	0
			Est $ Loss	1,061,000	2,937,750	1,737,400	1, 136,100	3,008,900
			No Loss Fires	4	1	1	0	0
	Intentional	Total	Loss Fires	0	1	0	0	3
			Injuries	0	0	0	0	0
			Fatalities	0	0	0	0	0
			Est $ Loss	0	100	0	0	2,100
			No Loss Fires	0	0	0	0	0
		Arson	Loss Fires	0	0	0	0	0
			Injuries	0	0	0	0	0
			Fatalities	0	0	0	0	0
			Est $ Loss	0	0	0	0	0
			No Loss Fires	0	0	0	0	0
		Vandalism	Loss Fires	0	1	0	0	3
			Injuries	0	0	0	0	0
			Fatalities	0	0	0	0	0
			Est $ Loss	0	100	0	0	2,100
			No Loss Fires	0	0	0	0	0

				2018	2019	2020	2021	2022*
	Unintentional	**Total**	Loss Fires	16	20	22	13	19
			Injuries	0	1	1	0	1
			Fatalities	0	0	2	0	0
			Est $ Loss	1,060,650	2,564,150	1,707,400	1,136,100	2,306,700
			No Loss Fires	3	0	1	0	0
		Children Playing	Loss Fires	0	0	1	0	0
			Injuries	0	0	0	0	0
			Fatalities	0	0	0	0	0
			Est $ Loss	0	0	60,000	0	0
			No Loss Fires	0	0	0	0	0
		Design/ Construction/ Maintenance Deficiency	Loss Fires	3	6	3	2	6
			Injuries	0	0	0	0	0
			Fatalities	0	0	0	0	0
			Est $ Loss	21,250	208,250	40,750	900	151,000
			No Loss Fires	0	0	0	0	0
		Mechanical/ Electrical Failure	Loss Fires	3	3	3	2	2
			Injuries	0	0	1	0	0
			Fatalities	0	0	0	0	0
			Est $ Loss	159,500	35,700	41,250	575.,250	15,000
			No Loss Fires	1	0	0	0	0

				2018	2019	2020	2021	2022*
		Misuse of Ignition Source/ Material First Ignited	Loss Fires	5	6	8	5	4
			Injuries	0	0	0	0	1
			Fatalities	0	0	2	0	0
			Est $ Loss	60,050	122,700	432,250	2,450	652,000
			No Loss Fires	1	0	1	0	0
		Other Unintentional	Loss Fires	1	1	1	0	1
			Injuries	0	0	0	0	0
			Fatalities	0	0	0	0	0
			Est $ Loss	600	3,500	150	0	200
			No Loss Fires	0	0	0	0	0
		Undetermined	Loss Fires	4	4	6	4	6
			Injuries	0	1	0	0	0
			Fatalities	0	0	0	0	0
			Est $ Loss	819,250	2,194,000	1,133,000	557,500	1,488,500
			No Loss Fires	1	0	0	0	0
	Other	**Total**	**Loss Fires**	**0**	**1**	**4**	**0**	**1**
			Injuries	**0**	**0**	**0**	**0**	**0**
			Fatalities	**0**	**0**	**0**	**0**	**0**
			Est $ Loss	**0**	**8,500**	**30,000**	**0**	**100**
			No Loss Fires	**1**	**0**	**0**	**0**	**0**

				2018	2019	2020	2021	2022*
		Other	Loss Fires	0	1	4	0	1
			Injuries	0	0	0	0	0
			Fatalities	0	0	0	0	0
			Est $ Loss	0	8,500	30,000	0	100
			No Loss Fires	1	0	0	0	0
Structure	Undetermined	**Total**	Loss Fires	1	1	0	0	1
			Injuries	0	0	0	0	0
			Fatalities	0	0	0	0	0
			Est $ Loss	350	365,000	0	0	700,000
			No Loss Fires	0	1	0	0	0

TABLE #21 - Structure Fire Causes – Municipality of lakeshore vs. the Province in 2022

	Municipality of Lakeshore		Ontario	
Fire Causes	**Number of Fires**	**Percentage of Total Fires**	**Number of Fires**	**Percentage of Total Fires**
Arson	0	0%	457	6%
Intentional Other	0	0%	2	0%
Vandalism	3	13%	98	1%
Children Playing	0	0%	24	0%
Design/ Construction/ Maintenance Deficiency	6	25%	435	6%
Mechanical/ Electrical Failure	2	8%	1,027	15%
Misuse of Ignition Source/ Material First Ignited	4	17%	1,962	28%
Other Unintentional	1	4%	545	8%
Unintentional Undetermined	6	25%	629	9%
Vehicle Collision	0	0%	3	0%
Other	1	4%	399	6%
Undetermined	1	4%	1,466	21%
Unknown, not reported	0	0	29	0%

Note: The percentage figures indicated in TABLE #19 were obtained from OFM and do not include no-loss or vehicle fires.

TABLE #22 - Fires by Ignition Source

			2018	2019	2020	2021	2022*
Structure	**Total**	Loss Fires	17	23	26	13	24
		Injuries	0	1	1	0	1
		Fatalities	0	0	2	0	0
		Est $ Loss	1,061,000	2,937,750	1,737,400	1,136,100	3,008,900
		No Loss Fires	4	1	1	0	0
	Appliances	Loss Fires	0	4	0	0	0
		Injuries	0	0	0	0	0
		Fatalities	0	0	0	0	0
		Est $ Loss	0	63,500	0	0	0
		No Loss Fires	0	0	0	0	0
	Cooking Equipment	Loss Fires	2	4	2	5	1
		Injuries	0	0	0	0	0
		Fatalities	0	0	1	0	0
		Est $ Loss	9,500	30,500	120,150	3,150	150,000
		No Loss Fires	1	0	1	0	0
	Electrical Distribution Equipment	Loss Fires	3	0	1	2	1
		Injuries	0	0	0	0	0
		Fatalities	0	0	0	0	0
		Est $ Loss	151,750	0	40,000	575,250	1,000
		No Loss Fires	1	0	0	0	0
	Lighting Equipment	Loss Fires	0	0	1	0	0
		Injuries	0	0	0	0	0
		Fatalities	0	0	0	0	0
		Est $ Loss	0	0	1,000	0	0
		No Loss Fires	0	0	0	0	0

			2018	2019	2020	2021	2022*
	Heating Equipment, Chimney, etc.	Loss Fires	1	2	2	0	5
		Injuries	0	0	0	0	0
		Fatalities	0	0	0	0	0
		Est $ Loss	20,000	150,250	50,500	0	123,200
		No Loss Fires	0	1	0	0	0
	Open Flame tools, smoker's articles	Loss Fires	2	3	3	1	4
		Injuries	0	0	0	0	1
		Fatalities	0	0	0	0	0
		Est $ Loss	1,050	5,300	360,500	100	502,500
		No Loss Fires	0	0	0	0	0
	Other Electrical and Mechanical	Loss Fires	0	1	2	2	2
		Injuries	0	0	0	0	0
		Fatalities	0	0	0	0	0
		Est $ Loss	0	200	40,250	40,250	18,000
		No Loss Fires	1	0	0	0	0
	Processing Equipment	Loss Fires	0	0	0	0	1
		Injuries	0	0	0	0	0
		Fatalities	0	0	0	0	0
		Est $ Loss	0	0	0	0	20,000
		No Loss Fires	0	0	0	0	0
	Miscellaneous	Loss Fires	3	3	4	1	2
		Injuries	0	0	0	0	0
		Fatalities	0	0	1	0	0
		Est $ Loss	51,500	120,500	27,200	100	5,100
		No Loss Fires	1	0	0	0	0

			2018	2019	2020	2021	2022*
	Exposure	Loss Fires	0	1	3	0	0
		Injuries	0	0	0	0	0
		Fatalities	0	0	0	0	0
		Est $ Loss	0	8,500	13,500	0	0
		No Loss Fires	0	0	0	0	0
	Undetermined	Loss Fires	6	5	8	4	8
		Injuries	0	1	1	0	0
		Fatalities	0	0	0	0	0
		Est $ Loss	827,600	2,559,000	1,084,300	557,500	2,189,100
		No Loss Fires	0	0	0	0	0

TABLE #23 - Structure Fire Ignition Source – Municipality of Lakeshore vs. The Province in 2022

	Municipality of Lakeshore		Ontario	
Ignition Source	**Number of Fires**	**Percentage of Total Fires**	**Number of Fires**	**Percentage of Total Fires**
Appliances	0	0%	306	4%
Cooking Equipment	1	4%	1,019	14%
Electrical Distribution Equipment	1	4%	604	8%
Heating Equipment, Chimney, etc.	5	21%	518	7%
Lighting Equipment	0	0%	179	2%
Open Flame tools, smoker's articles	4	17%	1,037	14%
Other electrical/mechanical	2	8%	393	5%
Processing Equipment	1	4%	78	1%
Miscellaneous	2	8%	701	9%
Exposure	0	0%	391	5%
Undetermined	8	33%	2,256	30%
Unknown, not reported	0	0%	0	0%

Note: *The provincial totals may have inaccuracies due to improperly coded fire reports sent to the OFM.*

TABLE #24 - Non-Fire Emergency Calls from 2019 to 2022

Non-Fire Emergency Calls*	2019		2020		2021		2022	
	Total # of Calls	% Of All Calls	Total # of Calls	% Of All Calls	Total # of Calls	% Of All Calls	Total # of Calls	% Of All Calls
Outdoor Burning – Controlled	37	7%	37	8%	25	5%	34	6%
CO False Alarms	54	10%	39	8%	40	7%	45	7%
False Fire Calls	106	19%	83	17%	126	24%	141	23%
Medical/Resuscitator Calls	49	9%	47	10%	52	10%	48	8%
Other Response	53	10%	49	10%	65	12%	84	14%
Overpressure Rupture/Explosion	0	0%	0	0%	0	0%	0	0%
Pre-Fire Conditions	30	5%	26	5%	80	15%	23	4%
Public Hazard	46	8%	37	8%	37	7%	45	7%
Rescue	128	23%	93	19%	81	15%	99	16%
Total of All Calls	553		481		526		604	

**Note:* *Not all call types are listed.*

TABLE #25 - Emergency Responses by Station

Station	Fire Calls in 2019	Fire Calls in 2020	Fire Calls in 2021	Fire Calls in 2022	Council Approved Staffing Compliment	Current Staffing Levels
Station 1	206	174	207	212	20	22
Station 2	61	49	50	61	20	15
Station 3	133	129	126	103	20	20
Station 4	50	37	48	46	20	16
Station 5	90	88	86	70	20	15
Total*	503	411	462	604	100	88

**Note:* *Statistical totals are from OFM data; multiple fire stations were dispatched to the same call location. The focus has been to go above the allotted number of firefighters at stations 1 & 3, as they are the busiest and most prosperous areas for recruiting new members. Stations 2 and 4, which are in a rural area, need help to recruit new members. The focus should be geared toward new members with higher availability during the daytime.*

TABLE #26 – Call Volume by Time of Day in 2019

Day of the Week 2019	Stations																		Total		
	Between 00:00 and 07:59			Between 08:00 to 15:59			Between 16:00 – 23:59														
	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10					
Sunday	6	12	12	2	2	6	4	7	8	4	2	5	1	2	4	0	0	0	17	25	35
Monday	2	12	11	1	6	4	2	4	9	2	3	4	4	2	6	0	1	1	11	28	35
Tuesday	4	10	12	2	4	6	4	10	7	3	2	3	2	5	7	0	0	0	15	31	35
Wednesday	7	7	13	0	4	0	11	4	11	1	4	3	5	6	7	0	0	0	18	25	34
Thursday	6	11	15	1	1	4	7	4	7	2	4	2	1	9	6	0	1	0	11	30	34
Friday	3	13	15	1	4	3	5	7	8	0	0	3	0	5	6	0	0	0	9	29	35
Saturday	3	22	12	2	3	6	3	11	8	0	4	4	2	7	5	0	0	0	10	47	35
Total	31	87	90	9	24	29	24	47	58	12	19	24	15	36	41	0	2	1	91	215	243

TABLE #27 – Call Volume by Time of Day In 2020

Day of the Week 2020	Stations																		Total		
	Between 00:00 and 07:59			Between 08:00 to 15:59			Between 16:00 – 23:59														
	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10					
Sunday	6	4	12	2	4	6	4	6	8	4	1	5	1	5	4	0	0	0	17	30	35
Monday	2	19	11	1	2	4	2	11	9	2	1	4	4	7	6	0	1	1	11	41	35
Tuesday	4	6	12	2	2	6	4	5	7	3	2	3	2	6	7	0	4	0	15	23	35
Wednesday	7	15	13	0	6	0	5	10	11	1	0	3	5	4	7	0	1	0	18	36	34
Thursday	6	20	15	1	3	4	1	7	7	2	0	2	1	5	6	0	2	0	11	37	34
Friday	3	9	15	1	1	3	5	6	8	0	4	3	0	5	6	0	0	0	9	5	35
Saturday	3	13	12	2	6	6	3	6	8	0	6	4	2	4	5	0	0	0	10	34	35
Total	31	86	90	9	23	29	24	51	58	12	14	24	15	34	41	0	8	1	91	216	243

TABLE #28 – Call Volume by Time of Day In 2021

Day of the Week 2021	Stations																		Total		
	Between 00:00 and 07:59			Between 08:00 to 15:59			Between 16:00 – 23:59														
	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10					
Sunday	6	7	6	0	3	3	0	4	7	0	0	2	0	10	6	0	0	0	6	24	24
Monday	4	11	6	1	2	3	0	10	13	1	5	3	1	5	3	0	0	0	8	33	27
Tuesday	6	15	10	1	4	4	5	5	4	0	3	1	5	3	4	1	0	0	18	30	23
Wednesday	1	7	6	1	4	1	0	13	5	0	1	2	0	3	5	0	1	0	2	29	19
Thursday	6	7	8	1	4	1	5	6	5	0	3	4	2	4	11	0	1	0	14	25	29
Friday	8	13	13	3	4	0	3	7	5	0	1	4	3	5	3	0	0	0	17	30	25
Saturday	2	11	21	3	5	1	3	15	14	1	5	1	3	7	5	0	0	0	12	43	42
Total	33	71	70	10	26	13	17	60	52	2	18	17	14	37	37	1	2	0	77	214	189

TABLE #29 – Call Volume by Time of Day in 2022

Day of the Week 2022	Stations																		Total		
	Between 00:00 and 07:59			Between 08:00 to 15:59			Between 16:00 – 23:59														
	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10					
Sunday	7	10	9	2	2	2	3	4	6	1	1	0	3	2	3	0	0	0	16	19	20
Monday	5	17	9	33	1	3	3	7	4	2	3	4	4	6	4	0	0	0	17	34	24
Tuesday	5	13	13	1	1	4	2	12	4	2	3	2	3	4	4	0	0	0	13	33	27
Wednesday	6	13	9	1	4	5	3	15	11	0	1	2	2	4	4	0	0	0	12	37	31
Thursday	7	12	13	3	0	5	7	11	8	1	4	2	0	0	5	0	0	0	18	27	33
Friday	10	8	15	4	3	2	4	11	9	2	4	3	1	5	6	0	0	0	21	31	35
Saturday	10	16	5	1	4	2	3	3	11	2	2	5	4	4	2	0	0	0	20	29	25
Total	50	89	73	15	15	23	25	63	53	10	18	18	17	25	28	0	0	0	117	210	195

TABLE #30 – Average Number of Firefighters Responding by Time of Day in 2019

Day of the Week 2022	Stations																		Average		
	Between 00:00 and 07:59 Between 08:00 to 15:59 Between 16:00 – 23:59																				
	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10					
Sunday	5	7	7	9	6	5	7	4	7	8	7	7	4	4	7	0	0	0	5	5	5
Monday	5	6	6	4	6	8	5	5	7	4	0	7	6	5	7	0	1	1	4	4	6
Tuesday	6	5	7	5	8	6	6	1	5	7	1	9	5	5	5	0	1	0	5	3	5
Wednesday	5	4	7	0	5	0	5	0	5	6	0	7	5	5	5	0	1	0	4	3	4
Thursday	6	5	5	0	5	8		3	6	6	0	5	10	4	6	0	1	0	4	3	5
Friday	7	5	7	7	4	9	6	4	7	0	6	7	0	4	6	0	0	0	3	4	6
Saturday	5	5	7	8	5	7	9	6	6	0	6	0	5	7	6	0	0	0	4	5	4
Average	5	5	7	5	6	6	6	3	6	4	3	6	5	5	5	0	4	0			

TABLE #31 – Average Number of Firefighters Responding by Time of Day in 2020

Day of the Week 2020	Stations																		Average		
	Between 00:00 and 07:59 Between 08:00 to 15:59 Between 16:00 – 23:59																				
	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10					
Sunday	5	7	4	9	8	6	7	7	6	8	0	8	4	7	9	0	0	0	5	5	6
Monday	5	7	7	4	7	8	5	5	8	4	5	7	6	6	11	0	0	0	4	5	7
Tuesday	6	5	8	5	7	7	6	6	4	7	7	8	5	5	9	0	0	0	5	5	6
Wednesday	5	7	7	0	6	10	5	4	7	6	4	7	5	8	5	0	1	0	4	5	6
Thursday	6	5	6	0	0	4	2	4	5	6	7	7	10	4	8	0	0	0	4	4	5
Friday	7	6	6	7	5	0	6	4	8	0	2	6	0	4	5	0	0	0	3	4	4
Saturday	5	5	6	8	6	6	9	6	9	0	6	10	5	6	6	0	0	0	4	5	6
Average	5	6	6	5	7	6	6	5	7	4	5	7	5	6	8	0	0	0			

TABLE #32 – Average Number of Firefighters Responding by Time of Day in 2021

Day of the Week 2021	Stations																		Average		
	Between 00:00 and 07:59 Between 08:00 to 15:59 Between 16:00 – 23:59																				
	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10					
Sunday	6	6	6	5	5	6	6	7	7	7	5	7	7	7	7	0	0	0	5	5	5
Monday	6	5	7	5	4	9	10	4	6	0	4	10	7	3	6	0	1	1	5	4	6
Tuesday	6	4	6	0	4	7	6	4	6	13	8	7	7	3	8	0	0	0	5	3	6
Wednesday	6	4	6	11	3	12	5	3	6	6	5	7	4	3	6	0	0	0	5	3	6
Thursday	7	4	5	0	8	7	4	3	5	0	4	8	4	3	10	0	1	0	3	4	6
Friday	4	5	6	0	5	6	4	4	5	8	0	9	0	5	6	0	0	0	3	3	5
Saturday	8	6	6	5	7	5	6	5	7	0	7	8	6	8	5	0	0	0	4	6	5
Average	6	5	6	4	5	7	6	4	6	5	5	8	5	4	7	0	0	0			

TABLE #33 – Average Number of Firefighters Responding by Time of Day in 2022

Day of the Week 2022	Stations																		Average		
	Between 00:00 and 07:59 Between 08:00 to 15:59 Between 16:00 – 23:59																				
	Station 1			Station 2			Station 3			Station 4			Station 5			Station 10					
Sunday	8	7	6	12	9	8	10	9	9	11	17	9	7	13	6	0	0	0	8	9	6
Monday	6	7	9	8	7	9	7	8	11	10	7	13	5	5	6	0	0	0	6	5	8
Tuesday	8	5	11	7	3	0	9	6	11	12	5	16	13	7	13	0	0	0	8	4	8
Wednesday	7	6	10	0	6	8	9	5	13	0	5	7	8	6	9	0	0	0	4	4	7
Thursday	10	7	10	6	0	7	8	9	11	9	6	11	6	10	11	0	0	0	6	5	8
Friday	5	7	7	8	6	9	6	10	11	10	6	12	6	7	7	0	0	0	5	6	7
Saturday	9	9	9	8	11	5	9	8	10	11	16	11	13	8	10	0	0	0	8	8	7
Average	7	6	8	7	6	6	8	7	11	9	8	11	8	8	8	0	0	0			

TABLE #34 – Overall Average Number of Firefighters Responding

Station	Year							
	2019		2020		2021		2022	
	Average Number FF Responding	Number of Calls*	Average Number FF Responding	Number of Calls*	Average Number FF Responding	Number of Calls*	Average Number FF Responding	Number of Calls*
Station 1	6	206	6	174	5	207	7	212
Station 2	5	61	6	49	5	50	6	52
Station 3	5	113	6	129	5	126	8	136
Station 4	4	50	5	37	6	48	9	39
Station 5	5	90	5	88	5	86	8	70
Average Number of FFs Each Year vs Total Calls	**5**	**553**	**6**	**481**	**5**	**526**	**8**	**604**

**Note:* *Totals for each year are verified data provided by the OFM, and station totals may not correspond with the total number of calls.*

TABLE #35 – 90th Percentile Response Time

Time	Stations					
	Station 1	Station 2	Station 3	Station 4	Station 5	Station 10
2019						
00:00 – 07:59	00:14:27	00:13:42	00:13:46	00:17:34	00:19:54	00:00:00
08:00 – 15:59	00:13:15	00:13:36	00:14:30	00:16:28	00:21:38	00:18:01
16:00 – 23:59	00:14:27	00:13:42	00:13:46	00:17:34	00:19:54	00:00:00
2020						
00:00 – 07:59	00:15:30	00:17:51	00:13:59	00:12:22	00:22:24	00:00:00
08:00 – 15:59	00:14:04	00:14:14	00:14:15	00:16:34	00:19:10	00:00:00
16:00 – 23:59	00:14:56	00:14:06	00:12:11	00:17:00	00:17:52	00:00:00
2021						
00:00 – 07:59	00:14:23	00:14:20	00:14:47	00:16:06	00:25:32	00:00:00
08:00 – 15:59	00:14:38	00:13:58	00:11:08	00:18:31	00:23:54	00:03:49
16:00 – 23:59	00:13:13	00:12:15	00:11:37	00:14:31	00:21:21	00:00:00
2022						
00:00 – 07:59	00:21:57	00:21:41	00:22:01	00:16:54	00:17:25	00:00:00
08:00 – 15:59	00:17:09	00:14:36	00:14:15	00:20:48	00:23:28	00:00:00
16:00 – 23:59	00:15:36	00:15:43	00:14:38	00:16:17	00:20:30	00:00:00

Appendix K - Worksheet #9(b) - Past Loss and Event History Profile (risks)

Past Loss and Event History Profile Risks

This section lists the causes for each occupancy type identified on the previous worksheet and assigns probability, consequence, and risk levels to each cause.

The following table identifies the level of risk for fires that occurred in each occupancy classification and frequent non-fire calls.

Based on 2022 OFM data, the following were the causes of fires that year:

Any of the following may cause a fire:

- Arson
  - Vandalism
  - Children Playing
  - Design/ Construction/ Maintenance Deficiency
  - Mechanical/ Electrical Failure
  - Misuse of ignition source/ materials first ignited.
  - Other Unintentional
  - Unintentional Undetermined
  - Other
  - Undetermined

TABLE #36 – Past Loss and Event History Profile

Occupancy Type/ Location	Causes	Probability	Consequences	Assigned Risk Level
Group C – Residential	See Above	Almost Certain	Moderate	High
Group A - Assembly	See Above	Possible	Moderate	Moderate
Structures /Properties not classified by the OBC.	See Above	Possible	Minor	Moderate
Classified under the National Farm Building Code	See Above	Possible	Moderate	Moderate
Group B – Care and Detention	See Above	Rare	Insignificant	Low
Group D – Business and Personal Services	See Above	Rare	Insignificant	Low
Group E – Mercantile	See Above	Rare	Minor	Low
Group F – Industrial	See Above	Unlikely	Minor	Low
Other Non-Fire Responses				
HAZMAT Incidents	Includes incidents at fixed locations or during transit	Possible	Moderate	Moderate

Occupancy Type/ Location	Causes	Probability	Consequences	Assigned Risk Level
Motor Vehicle Collisions	• The increased number in the summer during the heightened tourist season • Severe weather events in the winter are factors that cause more MVCs.	Likely	Moderate	Moderate
Medical Calls	Approximately 12% of LFD's call volume is medical-related.	Possible	Minor	Moderate
Utility Wires Down/Loss of Power	Downed utility pole Weather events or MVCs.	Possible	Moderate	Moderate

Occupancy Type/ Location	Causes	Probability	Consequences	Assigned Risk Level
Flooding	Flooding may occur due to extreme rain events and tidal surges from Lake St. Clair.	Possible	Minor	Moderate
Technical Rescues	Technical rescues include low and high angles, confined spaces, trenches, and elevators.	Rare	Minor	Low
Wildland-Urban Interface Fires	Causes range from lightning strikes to campfires inappropriately extinguished to careless smoking and unattended open-air burning.	Unlikely	Minor	Low

Appendix L- References

DBP Management, *5 Ways to Manage Risk*, *dbpmanagement.com*

Government of Ontario, *Fire Protection and Prevention Act, 1997, S.O. 1997, c. 4*

Government of Ontario, *Ontario Regulation 378/18: Community Risk Assessments*, May 2018

National Fire Protection Association, *NFPA 1300, Standard on Community Risk Assessment and Community Risk Reduction Plan Development*, Proposed Second Draft, January 14, 2019

National Fire Protection Association Urban Fire and Life Safety Task Force, *Community Risk Reduction: Doing More With More*, June 2016

Office of the Fire Marshal and Emergency Management, *Comprehensive Fire Safety Effectiveness Model: Fire Prevention Effectiveness Model – Position Paper*, September 1997

Office of the Fire Marshal and Emergency Management, *Comprehensive Fire Safety Effectiveness Model: Fire Risk Sub-Model*, June 2009

Office of the Fire Marshal and Emergency Management, *Public Fire Safety Guideline 04-40A-03: Simplified Risk Assessment*, January 2006

U.S. Fire Administration, *Risk Management Practices in the Fire Service*, January 2018

Vision 20/20, *Community Risk Assessment: A Guide for Conducting a Community Risk Assessment*, Version 1.5, February 2016

Appendix M - Dates of Review and Updates

2024

Profile	Issues/Concerns	Treatment of Risk	Preferred Treatment Option

2025

Profile	Issues/Concerns	Treatment of Risk	Preferred Treatment Option

2026

Profile	Issues/Concerns	Treatment of Risk	Preferred Treatment Option

2027

Profile	Issues/Concerns	Treatment of Risk	Preferred Treatment Option

2028

Profile	Issues/Concerns	Treatment of Risk	Preferred Treatment Option

Appendix N - Community Risk Assessment Treatment Options and Profile Location

The following summary worksheet identifies the risk and its level (high, moderate, or low) in association with the related profile worksheets. A "Treatment Options to Consider" section has been added to each worksheet. This information is presented to the Fire Chief for consideration.

Note(s): *No timing for implementation or costing has been presented due to the multitude of variations in achieving the suggested options noted within this document. Implementation will depend on the extent of performance and available resources (staffing and finances).*

The Fire Master Plan (companion) document contains more detailed information about recommendations, implementation timelines, estimated costs and rationale.

Profile Location in CRA	Community Risk Assessment Treatment Options for Consideration and Implementation
Geography Public Safety Response	Railway Incidents: HAZMAT response SOGs, policies, and training should be updated.
Building Stock	Develop an inventory of all building stock with LWC components, excluding houses, per the OFM Directive 2022-001.
Building Stock Public Safety Response	LFD to promote the value of residential sprinklers, i.e., their inclusion during the initial building of new residential occupancies
Geography Public Safety Response	The LFD should consider taking the NFPA online training course Alternative Fuel Vehicles Training Program for Emergency Responders.

Profile Location in CRA	Community Risk Assessment Treatment Options for Consideration and Implementation
Geography Public Safety Response	Download electrical vehicle information apps on the Department's tablets/phones/laptops.
Geography Public Safety Response	As with any HAZMAT incident, Lakeshore may need to implement its ERP or open its reception centres.
Building Stock Public Safety Response	FUS – Table of Effective Response – Re: Ladders and Aerials: When are they required or needed? Consider when the next engine is due for replacement to acquire a Quintuple combination pumper (Quint), a more versatile apparatus to operate as the front-line apparatus out of the station to which it is assigned.
Building Stock Public Safety Response	LFD, in cooperation with the Building and Planning Departments, investigates the value of requiring bidirectional antennas to be installed in high-rises or other structures that use high amounts of concrete and steel.
Public Safety Response	LFD needs to analyze current levels of response to incidents during the daytime vs the acquisition of full-time firefighters as a means of supporting the volunteers
Public Safety Response	LFD requires additional resources in Fire Prevention to make the inspection program more encompassing of all occupancies. Present staffing levels prevent inspection levels from being where they should be.
Public Safety Response	Enter into a response agreement with a neighbouring fire department for the immediate response of an aerial when Lakeshore receives a confirmed fire in residential structures over three storeys, industrial and commercial occupancies.

Profile Location in CRA	Community Risk Assessment Treatment Options for Consideration and Implementation
Public Safety Response	LFD lacks the resources to develop and maintain an active pre-incident plan program. Pre-planning before an incident occurs, such as fires in high-rises, is essential for efficient operations and the safety of the firefighters at the incident.
Public Safety Response	Ensure SOGs, policies, equipment, and high-rise training are in place to fight fires in higher structures.
Public Safety Response	Consider a radio system upgrade that includes purchasing mobile repeaters.
Geography	Body of Water, including Rivers, Streams, and Wetlands • LFD to maintain and update ice/water rescue training protocols, SOGs, policies, and activities on an ongoing basis. • Evaluate the need to update equipment specific to ice/water rescues. • Assess the need to move to the operations level of ice rescues with crews leaving shore utilizing an inflatable raft and tethered to a maximum of 305 m (1,000 ft) from the shoreline. • If the decision is not to enhance response levels to operations, in that case, it is recommended that a response agreement with a neighbouring fire service that does mitigate ice/water rescues at the operations level be implemented. LFD should conduct a needs analysis to upgrade their level of response to operations, including adherence to NFPA 1006: Standard for Technical Rescue Personnel Professional Qualifications regarding floodwater rescues.
Geography Public Safety Response	Oil/Gas Wells • Ensure maps of the well locations are available, whether active or not. This information is available at: https://geohub.lio.gov.on.ca/datasets/lio::petroleum-well/explore?location=42.284364%2C-82.667605%2C11.00

Profile Location in CRA	Community Risk Assessment Treatment Options for Consideration and Implementation
	• Ensure an area in the Emergency Response Plan (ERP) addresses oil/gas well emergencies. • The Planning Division needs to be aware of the locations of wells to ensure no structures are located over them. Monitor findings of the Wheatley explosion.
Geography Critical Infrastructure Public Safety Response	Weather Event/Reception Centres - Tornadoes, Ice and Snowstorms, Extreme Heat and Cold Events, Intense Rainstorms, and Flooding. • Arrange for the Red Cross to evaluate each location to assess its suitability as a reception centre, considering the number of residents it may need to accommodate. Also, consider whether the site is suitable for long-term operations, whether there is an emergency power supply, and what amenities are available. Ensure all sites are *AODA* compliant.
Geography Public Safety Response	Agriculture - Livestock Acquire rescue equipment and develop SOGs, procedures, and training for livestock rescue and handling.
Geography Public Safety Response	Marinas/ Boat Launches • If a fire involves fuel or a fibreglass vessel, LFD may require abundant foam concentrate. Following a fuel spill into the water, containment booms and porous materials may be necessary.
Building Stock	Develop a database of the inventory of all building stock based on the OBC.
Critical Infrastructure	Water, including Domestic Water Supply, Wet Hydrants, Dry Hydrants, and Cisterns and Rural Water Supply

Profile Location in CRA	Community Risk Assessment Treatment Options for Consideration and Implementation
Public Safety Response	Hydrants • Increase the minimum size of the water mains from the current 50 mm (2") to 150 mm (6") or greater to ensure adequate water supply for firefighting operations while continuing to provide domestic water. Doing so will enhance the flow rate, water pressure and volume of water available, which could lead to additional building construction as supply meets the demand. • Develop a hydrant maintenance program that complies with the OFC, Article 6.6.4 and NFPA 291, Recommended Practice for Water Flow Testing and Marking of Hydrants. Dry Hydrants and Cisterns: • Once dry hydrants are in place, develop maps identifying their locations, with circles determining the response distances, which become available to the residents to provide to their insurance provider. This service may permit the residents to take advantage of savings on their insurance premiums. • Promote installing dry hydrants to property owners with access to a water supply. Rural Water Supply: The LFD should explore the opportunity of achieving Tanker Shuttle accreditation for the remaining two fire stations.
Critical Infrastructure	Fire Stations - Standby Generators • Ensure standby generators installed at all the fire stations can energize the entire building. Complete an electrical audit to identify the generator size required for each location.
Demographic	General Population • An increase in population, as well as an increase in residential buildings, will bring an increase in the number of fire calls. • LFD will see growth in the mercantile building stock, which will need to be inspected and may require additional resources in fire prevention. Seniors

Profile Location in CRA	Community Risk Assessment Treatment Options for Consideration and Implementation
	• Future public education opportunities should discuss the following topics of interest: the sound of fire, the importance of working smoke and CO alarms; emergency preparedness in the event of an 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; the senior's safety book; open-air burning; etc. • The department could enhance public education for the senior demographic by incorporating the dangers of wearing loose-fitted clothing near stovetops, especially those with open flames, into their Safe Cooking Program. Visible Minorities • Work towards having a bi-lingual Fire Prevention and PFLSE staff that reflects the multicultural community. • Another option is the contractual employment of personnel to assist the LFD with interpreting and delivering fire prevention messages if English is not their second language. Youth • Some fire services have implemented junior firefighter programs for the youth to assist around the fire stations and learn about fire safety and firefighting. Opportunities may be available to have the youth of Lakeshore achieve their required community service hours by helping around the fire station or at public education events by dressing as Sparky, the fire service mascot. Under the current staffing levels, this may not be easy to achieve, but it should be considered in the future when staffing permits its implementation under the PFLSE. • Once in place, the dedicated PFLSE should complete The Arson Prevention Program for Children (TAPP-C) program and become certified in its delivery. Indigenous – First Nation Peoples • LFD should develop a smoke alarm Outreach Program for the Indigenous demographic and local stakeholders to support their efforts. Having a PFLSE in the department would be able to spearhead this promotion. Complete a needs analysis before implementing based on fires within the demographic and increased smoke alarm calls.
Demographic	Municipality of Lakeshore - Domestic Terrorism

Profile Location in CRA	Community Risk Assessment Treatment Options for Consideration and Implementation
Public Safety Response	• Emergency responders and community groups should work together to develop and deliver education programs to the responders and public on avoiding or mitigating a situation to preserve life and prevent further harm. • Focus groups should include camps and campgrounds, places of worship, financial institutions, and schools. • LFD should have SOGs and policies for responding to locations experiencing a terrorist/active shooter attack. Ensure procedures are in place for every municipally owned building for responding to active shooters and hostage situations, including identifying safe rooms.
Public Safety Response	LFD to continue providing public fire safety education during Fire Prevention Week on smoke alarms, beginning with school children
Public Safety Response	Vulnerable Citizens and Caregivers - Inspections and Enforcement: • Provide public education on escape planning. • Address the needs of those with mobility and cognitive behavioural issues in escaping a fire. LFD should reach out to caregivers to provide public education on fire safety and what to do in the event of a fire. The visit would be crucial when the one they care for has mobility issues.
Public Safety Response	Public Education • A part-time dedicated PFLSE would greatly assist LFD. Public education opportunities require completion as the first line of defence. Public education programs need to meet the needs of Lakeshore as, presently, there is no dedicated PFLSE. Many areas of public education could be either enhanced or implemented if additional resources were available in the form of a part-time dedicated PFLSE.
Public Safety Response	Public Education Schools

Profile Location in CRA	Community Risk Assessment Treatment Options for Consideration and Implementation
	• A PFLSE should promote fire safety by developing and rehearsing a Home Escape Plan, teaching children how to crawl on the floor through smoke, the dangers of playing with ignition sources, and conducting fire drills at the schools. Festive Season • Provide public education messaging on the dangers of unattended cooking, uncleaned or unmaintained chimneys, aged electrical and mechanical equipment, and lack of good housekeeping practices. • Promote artificial candles during the holiday season to reduce the risk of fires. • In some traditions, educate the public on the dangers of using real candles, sprays, or wreaths on Christmas trees. Provide year-round education on preventing injuries from and causing cooking-related fires.
Geography Public Safety Response	Climate Change • The fire department's fire prevention staff could include, during fire inspections, a discussion about: • Installing back-flow valves on septic lines and that sump pumps are operational. In cooperation with other departments of Lakeshore, the fire department has a role to play in building and maintaining a resilient community, especially as it relates to overland flooding.
Public Safety Response	Natural Gas - Liquified Petroleum Gas (LPG) - Propane Natural Gas • For the safety of its firefighters, LFD has a "do-not-touch" approach when responding to natural gas facilities. Propane • By providing public education on transporting, storing LPG tanks, and connecting hose lines. • Promote safe BBQ and portable stove usage to prevent leaks and fires involving propane tanks.

Profile Location in CRA	Community Risk Assessment Treatment Options for Consideration and Implementation
	Contact TSSA for all locations with permanently installed LPG tanks.
Public Safety Response	Properties with Solar Photovoltaic Systems • Ensure documented identification of these locations. • LFD should ensure SOGs, training, and pre-incident plans are in place and current. Ensure that warning signage is in place as required at each location.
Public Safety Response	Wind Farms - Response Protocols • The owner/operator of the wind turbine is responsible for mitigating high-angle rescues from these units. Ensure response protocols, SOGs, policies, and training are complete and available.
Public Safety Response	OPP – North Bay is Lakeshore's Central Emergency Reporting Bureau (CERB) - NG 9-1-1 Public Safety Answering Point (PSAP) • Early estimates are that the NG 9-1-1 system could cost communications centres between $500,000 to $1 million or more, which inevitably will be passed on to the clients. This transition will impact the Fire Department budget. Municipalities should begin budgeting for when this system goes into effect, starting in 2025.
Past Loss and Event History	Fire Cause Determination - NFPA 921, Guide for Fire and Explosion Investigations, and 1033, Standard for Professional Qualifications for Fire Investigators • Having additional trained members on-scene may assist in observing items or events that are overlooked and may prompt further investigation by more experienced personnel. • LFD must ensure members who have completed the NFPA 1033 Standard for Professional Qualifications for Fire Investigators course also achieve their certification to Pro Board/IFSAC standards certification. Failure to do so may come into question during litigation, where the qualifications of investigators may be questioned. • Following the agency's directives, notify outside agencies such as the OFM, TSSA, ESA, and OPP.

Profile Location in CRA	Community Risk Assessment Treatment Options for Consideration and Implementation
	During investigations, the investigator should note if ongoing fire-cause trends are developing and act accordingly.

Appendix O – Fire Master Plan and Community Risk Assessment Implementation Tracking Sheet

The following chart is a compilation of the recommendations and treatment options found in the fire Master Plan and the Community Risk Assessment. This chart has been designed as a tracking sheet for the fire department personnel to note when a recommendation has been implemented and when completed.

Note: the shading utilized for the "Topic" rows has been utilized to provide a delineation between the sections. The colours do not denote level of risk or importance.

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
Community and Fire Department Overview	The Fire Chief brings forth a revised version of the Establishing & Regulating By-Law for Council's approval and, with annual review and updates as necessary. All other by-laws noted in this document should be reviewed and updated as required. All by-laws should be reviewed annually to ensure currency of the document				
	Fire Administration to review by-laws that affect the daily operations of the fire department.				

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
	Establish an SOG Committee representing all divisions of the LFD that develops new SOGs and reviews current ones regularly.				
Fire Department Administration and Staffing	Increase administrative support for each of the divisions (training, suppression, and fire prevention) in line with departmental growth.				
Fire Prevention & Public Education	Refresh and revise all fire prevention SOGs to reflect current LFD practices.	LFD will see growth in the mercantile building stock, which will need to be inspected and may require additional resources in fire prevention.			
	LFD expand and formalize its Public Education activities by establishing and funding a Public Education Program and Plan with supporting SOGs.	Future public education opportunities should discuss the following topics of interest: the sound of fire, the importance of working smoke and CO alarms; emergency preparedness in			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		the event of an 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; the senior's safety book; open-air burning; etc.			
	LFD continue to invest in its fire cause and determination program through certification and continuing educational opportunities for designated members with supporting SOGs.	The department could enhance public education for the senior demographic by incorporating the dangers of wearing loose-fitted clothing near stovetops, especially those with open flames, into their Safe Cooking Program.			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
	LFD review its current inspection practices with a view to changing from a report-based practice to that of an order-based practice.	Work towards having a bi-lingual Fire Prevention and PFLSE staff that reflects the multicultural community.			
	LFD examine opportunities to digitise its fire inspection reporting and record keeping practices including the use of handheld computing devices for inspectors.	Another option is the contractual employment of personnel to assist the LFD with interpreting and delivering fire prevention messages if English is not their second language.			
		Some fire services have implemented junior firefighter programs for the youth to assist around the fire stations and learn about fire safety and firefighting. Opportunities may be available to have the youth of Lakeshore achieve their required community service			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		hours by helping around the fire station or at public education events by dressing as Sparky, the fire service mascot. Under the current staffing levels, this may not be easy to achieve, but it should be considered in the future when staffing permits its implementation under the PFLSE.			
		Some fire services have implemented junior firefighter programs for the youth to assist around the fire stations and learn about fire safety and firefighting. Opportunities may be available to have the youth of Lakeshore achieve their required community service hours by helping around the fire station or at public			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		education events by dressing as Sparky, the fire service mascot. Under the current staffing levels, this may not be easy to achieve, but it should be considered in the future when staffing permits its implementation under the PFLSE.			
		LFD should develop a smoke alarm Outreach Program for the Indigenous demographic and local stakeholders to support their efforts. Having a PFLSE in the department would be able to spearhead this promotion.			
		Complete a needs analysis before implementing based on fires within the demographic and increased smoke alarm calls.			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		Emergency responders and community groups should work together to develop and deliver education programs to the responders and public on avoiding or mitigating a situation to preserve life and prevent further harm. Focus groups should include camps and campgrounds, places of worship, financial institutions, and schools.			
		LFD to continue providing public fire safety education during Fire Prevention Week on smoke alarms, beginning with school children.			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		LFD requires additional resources in Fire Prevention to make the inspection program more encompassing of all occupancies. Present staffing levels prevent inspection levels from being where they should be.			
		Consider a radio system upgrade that includes purchasing mobile repeaters.			
		Address the needs of those with mobility and cognitive behavioural issues in escaping a fire.			
		Address the needs of those with mobility and cognitive behavioural issues in escaping a fire.			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		A part-time dedicated PFLSE would greatly assist LFD. Public education opportunities require completion as the first line of defence. Public education programs need to meet the needs of Lakeshore as, presently, there is no dedicated PFLSE.			
		Many areas of public education could be either enhanced or implemented if additional resources were available in the form of a part-time dedicated PFLSE.			
		Many areas of public education could be either enhanced or implemented if additional resources were			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		available in the form of a part-time dedicated PFLSE.			
		Provide public education messaging on the dangers of unattended cooking, uncleaned or unmaintained chimneys, aged electrical and mechanical equipment, and lack of good housekeeping practices.			
		Promote artificial candles during the holiday season to reduce the risk of fires.			
		In some traditions, educate the public on the dangers of using real candles, sprays, or wreaths on Christmas trees.			
		Provide year -round education on preventing			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		injuries from and causing cooking-related fires.			
		The fire department's fire prevention staff could include, during fire inspections, a discussion about installing back-flow valves on septic lines and ensuring that sump pumps are operational.			
		Provide public education on transporting, storing LPG tanks, and connecting hose lines.			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		Promote safe BBQ and portable stove usage to prevent leaks and fires involving propane tanks.			
		Contact TSSA for all locations with permanently installed LPG tanks.			
		Ensure that warning signage is in place as required at each solar photovoltaic system locations.			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
Fire Department Training	Consider expanding the designated training nights at all stations from two per month to three per month.	The LFD should consider taking the NFPA online training course Alternative Fuel Vehicles Training Program for Emergency Responders.			
	Add the position of Full-time/Career Training Officer to its compliment of FTEs.	Railway Incidents: HAZMAT response SOGs, policies, and training should be updated.			
	Train and certify all members to the appropriate NFPA standards (1001, 1002, 1006, 1021, 1031, 1041, etc.)	LFD to maintain and update ice/water rescue training protocols, SOGs, policies, and activities on an ongoing basis.			
	Train all firefighters who participate in vehicle, water, or ice rescue responses to the current NFPA 1006 Standard.	Assess the need to move to the operations level of ice rescues with crews leaving shore utilizing an inflatable raft and tethered to a maximum of 305 m (1,000 ft) from the shoreline.			
	Convene regular (bi-annual) meetings for all chief officers.	LFD should conduct a needs analysis to upgrade their level of response to operations, including adherence to NFPA 1006: Standard for Technical			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		Rescue Personnel Professional Qualifications regarding floodwater rescues.			
	Fire department staff, in consultation with Human Resources, staff develop and implement a policy or SOG specifically with the internal promotional process for all departmental line officers (training officers, captains, and district chiefs).	Acquire rescue equipment and develop SOGs, procedures, and training for livestock rescue and handling			
		.			
		LFD should have SOGs and policies for responding to locations experiencing a terrorist/active shooter attack.			
		Ensure procedures are in place for every municipally owned building for responding to active shooters and hostage situations, including identifying safe rooms.			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		Ensure SOGs, policies, equipment, and high-rise training are in place to fight fires in higher structures.			
		LFD should ensure SOGs, training, and pre-incident plans for solar photovoltaic systems are in place and current.			
		Having additional members on-scene trained in NFPA 921 and NFPA 1033 may assist in observing items or events that are overlooked and may prompt further investigation by more experienced personnel.			
		LFD must ensure members who have completed the NFPA 1033 Standard for Professional Qualifications for Fire Investigators course also achieve their certification to Pro Board/IFSAC standards certification			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		During investigations, the investigator should note if ongoing fire-cause trends are developing and act accordingly.			
Fire Suppression Recruitment and Retention	The fire chief to review the present recruitment and retention programs and make enhancements based on the information noted in the FMP body.				
	Recruit a full-time contingent of firefighters, for daytime coverage to cover times that volunteer responses are at their lowest (e.g., 8am to 5pm, Monday to Friday) and assign them to either station #1 or station #3.				
	Recruit a second full-time contingent of firefighters, for daytime coverage to cover times that volunteer responses are at				

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
	their lowest (e.g., 8am to 5pm, Monday to Friday) and assign them to either station #1 or station #3. Implementation a full-time, 24/7 at either station #1 or station #3, to ensure full-time, 24-hour coverage of the community.				
Health, Fitness and Wellness	LFD to review their Health, Fitness and Wellness programs to ensure that their firefighters are receiving proper coverage for PTSD, Cancer Prevention, and Mental Well-Being.				
Communications & Technology	When researching for an RMS implementation, LFD should consider the ability of the systems to provide dispatch information and call management directly into the RMS from the dispatch service provider.	Download electrical vehicle information apps on the Department's tablets/phones/laptops.			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
	While it is still not clear what changes will be required downstream in the 911 system at local fire departments that purchase dispatch services from Public Safety Answering Point or Secondary-Public Safety Answering Point, the municipality should contact the Canadian Radio and Telecommunications Commission (CRTC) for updates and potential financial impacts.	LFD, in cooperation with the Building and Planning Departments, investigates the value of requiring bidirectional antennas to be installed in high-rises or other structures that use high amounts of concrete and steel.			
	Develop a preventative maintenance program as well as a backup plan in the event of failure of the infrastructure.	Consider a radio system upgrade that includes purchasing mobile repeaters.			
	The Municipality to budget funds for upgrading the radio system to the 800 MHz, which includes new mobile and portable radios, pagers, transmission towers and transmitters, generators at each transmission tower, and possibly mobile repeaters if the audit warrants their purchase.				

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
	Create an IT support position to provide in-station and remote connectivity, hardware and software management, and life-cycle updates.				
Fire Stations	Address the list of station concerns noted in section 4.2 of the report.	The LFD should explore the opportunity of achieving Tanker Shuttle accreditation for the remaining two fire stations.			
Vehicles and Equipment	The fire chief needs to identify the present fire vehicle stock to ensure that there is a spare pumper truck and elevated device available in the case that one of the front-line units is put out of service for any mechanical reason.	Evaluate the need to update equipment specific to ice/water rescues.			
		If a fire involves fuel or a fibreglass vessel, LFD may require abundant foam concentrate.			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		Following a fuel spill into the water, containment booms and porous materials may be necessary.			
		Consider when the next engine is due for replacement to acquire a Quintuple combination pumper (Quint), a more versatile apparatus to operate as the front-line apparatus out of the station to which it is assigned.			
		Increase the minimum size of the water mains from the current 50 mm (2”) to 150 mm (6”) or greater to ensure adequate water supply for firefighting operations while continuing to provide domestic water			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		Ensure standby generators installed at all the fire stations can energize the entire building.			
		Complete an electrical audit to identify the generator size required for each location.			
Emergency Management	Update ERP and insert a page at the front of the document to include the following: The date changes were completed. A brief outline of the changes and the sections involved. Name of individual completing the updates. Whether the revised document requires Council approval.	As with any HAZMAT incident, Lakeshore may need to implement its ERP or open its reception centres.			
	Develop a plan to understand the full logistical ramifications of using the Alternate EOC at its current location.	Ensure an area in the Emergency Response Plan			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		addresses oil/gas well emergencies.			
	The Municipality of Lakeshore adopt IMS to aid in understanding the means of mitigating and recovering from an emergency with the inclusion of IMS within the ERP and other specific hazard plans. Due to the importance of staff understanding their roles and responsibilities in the EOC, implement a policy that identifies IMS 200 as the minimum standard for staff required to be in the EOC with IMS 300 being the goal for all department heads.	Ensure maps of the well locations are available, whether active or not			
	Recognition of services required in response to emergencies be noted within the HIRA. Agreements with NGOs to aid in the provision of services beyond the scope and/or resources of local staff will ensure adequate	The Planning Division needs to be aware of the locations of wells to ensure no structures are located over them.			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
	responses. Formalized agreements with the needed NGOs will provide some assurances of capability.				
	With the assistance of policing agencies, the Municipality of Lakeshore include, as a Response Plan, the Active Shooter/Hostile Event Response (ASHER) program. The section should include an integrated response program comparable to NFPA 3000, Standard for an ASHER Program.	Monitor findings of the Wheatley explosion.			
	Investigate and include in planning alternative communications between the EOC and emergency site(s) as well as from the Head of Council to the public.	Arrange for the Red Cross to evaluate each reception centre location to assess its suitability as a reception centre, considering the number of residents it may need to accommodate. Also, consider whether the site is suitable for long-term			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		operations, whether there is an emergency power supply, and what amenities are available.			
		Ensure all sites are AODA compliant.			
		Develop a database of the inventory of all building stock based on the OBC.			
		Develop an inventory of all building stock with LWC components, excluding houses, per the OFM Directive 2022-001.			
		LFD to promote the value of residential sprinklers, (i.e., their inclusion during the initial building of new residential occupancies)			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		Develop a hydrant maintenance program that complies with the OFC, Article 6.6.4 and NFPA 291, Recommended Practice for Water Flow Testing and Marking of Hydrants			
		Once dry hydrants are in place, develop maps identifying their locations, with circles determining the response distances, which become available to the residents to provide to their insurance provider. This service may permit the residents to take advantage of savings on their insurance premiums.			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		Promote installing dry hydrants to property owners with access to a water supply.			
		LFD lacks the resources to develop and maintain an active pre-incident plan program. Pre-planning before an incident occurs, such as fires in high-rises, is essential for efficient operations and the safety of the firefighters at the incident.			
Fire Service Agreements	Fire departments within the County of Essex and Windsor, inclusive of the LFD, should ensure the local mutual aid plan is reviewed and up to date. It is further recommended that with the updating of Mutual Aid Plans (i.e., 2022) the plan is presented to council with an updated By-Law for enactment.	If the decision is not to enhance response levels to operations (for ice rescues), in that case, it is recommended that a response agreement with a neighbouring fire service that does mitigate ice/water			

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
		rescues at the operations level be implemented.			
	When the current Automatic Aid Agreement with Chatham-Kent is revised and updated, include a defined commitment to regular training that designates the position accountable for completion of this task.	Enter into a response agreement with a neighbouring fire department for the immediate response of an aerial when Lakeshore receives a confirmed fire in residential structures over three storeys, industrial and commercial occupancies.			
	Formally introduce the Medical Tiered Response Agreement with EWEMS to Council and support it with the passage of a by-law once the agreement is reviewed and updated.				
	The Medical Tiered Response Agreement does not provide any guidance for training required to respond to any types of medical and/or trauma related injuries other than those that are cardiac related. An				

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
	increased level of training should be considered either within the agreement or through the Fire Department regular training initiatives.				
Finance	Revise the cost projections for the Recue Truck due for acquisition in 2024 to reflect the recent cost increases in the fire apparatus market.	Ensure that warning signage is in place as required at each solar photovoltaic system locations.			
	In 2030, update the cost projections contained in the Capital Forecast for the replacement of the breathing air compressor, fill station, and air storage to reflect anticipated acquisition costs.				
	Finance and fire department administrators work collaboratively to establish a strategy for Council's approval that properly funds the fire department Equipment and Vehicle Reserve in anticipation of the shortfall that is identified to occur in 2025.				

Topic	Fire Master Plan Recommendation	Community Risk Assessment Recommendation	PLAN START	PLAN COMPLETED	COMMENTS
	Add two additional line items to the Capital Forecast for the Fire Department (Hose Replacement and Small Equipment) and that these line items be funded with an annual allocation of funds going forward.				
	The next iteration of the Development Charges By-law considers a revision to the cost allocation for the fire services portion of the assigned fees.				
	Revise the Fees By-Law to include/ specify cost recovery elements for: Emergency response to hazardous materials/spill/leak incidents Fire Code Enforcement related costs where the department orders closure of a premises. Fire investigation purposes, rental of heavy equipment to facilitate safety or investigative needs.				