

## **Appendix A**

### ***Community Risk Assessment***



**DILLON**  
CONSULTING

**TOWN OF LASALLE**

# **Community Risk Assessment**

**Final Report**



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## 1.0 Introduction

The process of assessing community risk is receiving increased attention within the fire protection industry in North America. A Community Risk Assessment (C.R.A.) is fundamental to the development of a strategic Fire Service Master Plan (F.S.M.P.). Assessing community risk provides an understanding of local needs and circumstances, which can then be aligned with the service levels established by the municipality. The results of a C.R.A. directly inform the recommendations within the F.S.M.P. and are used to identify existing service gaps across divisions, with particular relevance to fire prevention, training and emergency response (e.g. suppression).

This appendix to the F.S.M.P. outlines the methodology and sources of information used to assess community risk in the Town of LaSalle. The analysis and results of the assessment are described based on three primary report sections: profile assessments; Geographic Information System (G.I.S.) risk model; and future growth considerations.

In May 2018, the Ministry of Community Safety and Correctional Services (M.C.S.C.S.) adopted *Ontario Regulation 378/18: Community Risk Assessments* under the Fire Protection and Prevention Act (F.P.P.A), which requires every fire department to complete a Community Risk Assessment (C.R.A.). The C.R.A. is intended to inform decisions about the provision of fire protection services within a community. The mandatory community risk assessment includes consideration of the following nine 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*

Within each of the nine profiles, there are a number of sub-topics examined. These sub-topics are illustrated in **Figure 1** below.

Figure 1: Community Risk Assessment Profiles and Sub-Topics



A C.R.A. must be conducted at least every five years, along with annual reviews. *Ontario Regulation 378/18: Community Risk Assessments* comes into force on July 1, 2019 and allows jurisdictions until July 1, 2024 to complete a C.R.A. The new regulation has expanded and enhanced the depth at which risk is considered by jurisdictions, providing a more thorough analysis of the risks within a community.

In order to complete this C.R.A., data was collected and analyzed to identify risks from the perspective of each of the nine profiles. Key data sources included: Statistics Canada, Municipal Property Assessment Corporation (M.P.A.C.) data, O.F.M.E.M. Standard Incident Reporting (S.I.R.) data, provided by the LaSalle Fire Service, and desktop research. The lens for this risk assessment is focused on fire risk or how a risk outcome relates to a fire department.

By completing a C.R.A. now, the Town of LaSalle is well positioned to be in compliance with *Ontario Regulation 378/18: Community Risk Assessments*.



## 2.0 Risk Assessment Methodology

A Community Risk Assessment paints a picture about local needs and circumstances which can be used to inform decision-making, including establishing service levels for a fire department. This C.R.A. is structured to directly inform the Fire Service Master Plan for the Town of LaSalle.

As outlined in **Figure 2**, the C.R.A. can be broken down into three broad stages. It begins with data collection (Stage 1), followed by Stage 2 which includes analyses within the context of the nine profiles and related sub-topics (Stage 2a). The analyses results and conclusions are identified as either a Key Risk or a Key Finding (Stage 2b). Within the context of this C.R.A., a **Key Risk** is an analysis outcome for which there is sufficient and appropriate information to inform an assessment of risk based on probability and consequence. The analyses and information available provides the opportunity to quantify the risk through a risk assignment process that concludes there is an existing fire-related risk to the community. This is referred to as a risk assignment process where a risk level of high, moderate, or low is assigned. In simple terms, risk is defined as:

$$\text{Risk} = \text{Probability} \times \text{Consequence}$$

Similar to a key risk, a **Key Finding** is a risk related conclusion of the analysis that will inform service levels and other strategies. However, it is not put through the risk assignment process, in part because there is not sufficient quantitative data to do so.

The third and final stage (Stage 3) of the C.R.A. takes the risk analyses outcomes and sets them up so that they can be directly applied within the Fire Service Master Plan. This follows three steps:

1. Key Risk prioritization through the assignment of risk level (low, moderate, high) based on probability and consequence;
2. Categorization of Key Risks and Key Findings, based on the three lines of defence; and
3. Development of a G.I.S.-based Risk Map.

Further information on the three lines of defence is presented in the following section.

### 2.1 Three Lines of Defence

The O.F.M.E.M. Comprehensive Fire Safety Effectiveness Model identifies a fire protection planning strategy known as the **“Three Lines of Defence”**. The application of this strategy highlights the importance of recognizing that there are options to developing an effective community fire safety plan. Although emergency response (fire suppression) may be needed, there are other strategies that can be applied as elements of a broader community risk reduction strategy that can have a positive impact on

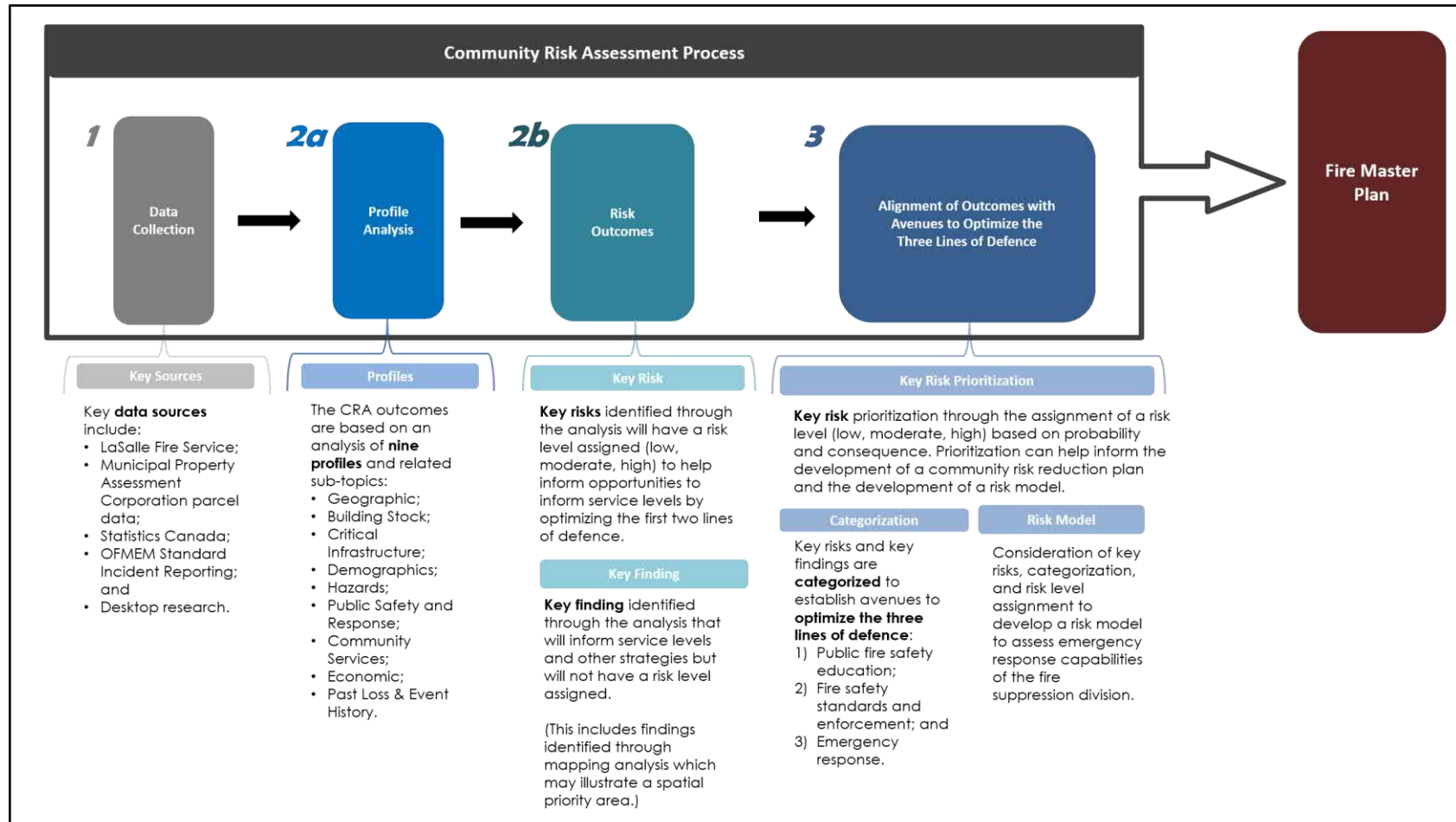
reducing the need for emergency response and optimizing public safety within the community. The “**Three Lines of Defence**” model is summarized in **Table 1**.

**Table 1: Overview of O.F.M.E.M. Three Lines of Defence Model**

<b>Line</b>	<b>Description</b>
<b>I. Public Education and Prevention</b>	<i>Educating residents of the community on means for them to fulfill their responsibilities for their own fire safety is a proven method of reducing the incidence of fire. Only by educating residents can fires be prevented and can those affected by fires respond properly to save lives, reduce injury and reduce the impact of fires.</i>
<b>II. Fire Safety Standards and Enforcement</b>	<i>Ensuring that buildings have the required fire protection systems, safety features, including fire safety plans, and that these systems are maintained, so that the severity of fires may be minimized;</i>
<b>III. Emergency Response</b>	<i>Providing well trained and equipped firefighters directed by capable officers to stop the spread of fires once they occur and to assist in protecting the lives and safety of residents. This is the failsafe for those times when fires occur despite prevention and education efforts.</i>

The model also recognizes that developing programs and providing resources to implement the first line of defence (a proactive public education and fire prevention program) can be the most effective strategy to reduce and potentially minimize the need for the other lines of defence. To directly inform the F.S.M.P., this C.R.A. process is designed to incorporate the three lines of defence model.

Figure 2: Community Risk Assessment Process



## 2.2 Risk Assignment Methodology

Once the risk outcomes have been identified, a risk assignment methodology is applied to inform the prioritization of risks for community risk reduction strategies as well as to develop a risk model to assess emergency response coverage. This section provides an overview of the risk assignment methodology.

The O.F.M.E.M. Fire Risk Sub-model defines risk *“as a measure of the probability and consequence of an adverse effect to health, property, organization, environment, or community as a result of an event, activity or operation. For the purposes of the Fire Risk Sub-model, such an event refers to a fire incident along with the effects of heat, smoke and toxicity threats generated from an incident”*.<sup>1</sup>

The O.F.M.E.M. model develops an overall risk assessment by *“assigning probability and consequence levels to potential adverse events or scenarios due to fire and combining the two to arrive at an overall risk level.”* The Sub-model also provides a matrix as one option in arriving at the level of risk for a range of scenarios.

At a high level, there are four steps included in the risk assignment exercise used for this study:

1. Determine a probability level to assign to each event;
2. Determine a consequence level to assign to each event;
3. Establish the risk level (e.g. numerical value / location on the matrix) and risk category (e.g. low, moderate or high) for each based on the identified probability and consequence for each event; and
4. Develop a G.I.S.-based risk model to present a visual of the geographical locations of Risk Levels/Categories.

Further detail is presented in the subsequent sections.

### 2.2.1 Probability Levels

The first step to identifying a risk level is to assign probability. The probability of a fire or emergency event occurring can be estimated in part based on historical experience of the community, similar communities, and that of the province as a whole. The application of broader risk management industry best practices is also a key element in assigning probability levels.

<sup>1</sup>Source: “Comprehensive Fire Safety Effectiveness Model.” O.F.M.E.M., Last Modified: February 8, 2016: [https://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/ComprehensiveFireSafetyEffectivenessModel/FireRiskSub-Model/Fire\\_risk\\_submodel.html](https://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/ComprehensiveFireSafetyEffectivenessModel/FireRiskSub-Model/Fire_risk_submodel.html)

The O.F.M.E.M. Fire Risk Sub-model categorizes the probability of an event occurring into five levels of likelihood, and provides descriptions for each probability level. These are shown in **Table 2**. The numerical weighted value assigned to the probability level has been adjusted from the O.F.M.E.M. values to reflect broader risk management industry best practices. Similarly, the descriptions for each probability level reflect the basis of O.F.M.E.M. descriptions; however, they have been adjusted based on risk management industry best practices and definition of the adjusted probability values presented.

**Table 2: Probability Levels**

Likelihood Category	Value (O.F.M.E.M.)	Value (Adjusted)	Description (Adjusted from O.F.M.E.M.)
Rare	1	1	<ul style="list-style-type: none"> <li>May occur in exceptional circumstances <ul style="list-style-type: none"> <li>No incidents in past 25 years</li> </ul> </li> </ul>
Unlikely	2	10	<ul style="list-style-type: none"> <li>Could occur at some time, especially if circumstances change <ul style="list-style-type: none"> <li>At least one incident in past 10 years</li> </ul> </li> </ul>
Possible	3	100	<ul style="list-style-type: none"> <li>Might occur under current circumstances</li> <li>Occurs annually on average (1 to 5 incidents in past year)</li> </ul>
Likely	4	1,000	<ul style="list-style-type: none"> <li>Will probably occur at some time under current circumstances</li> <li>Multiple or reoccurring incidents in the past year</li> <li>May occur monthly (10 to 50 incidents per year)</li> </ul>
Almost Certain	5	10,000	<ul style="list-style-type: none"> <li>Expected to occur in most circumstances unless circumstances change</li> <li>Multiple or reoccurring incidents in the past year</li> <li>May occur weekly or daily (more than 50 per year)</li> </ul>

### 2.2.2 Consequence Levels

The second step to identifying risk levels is to assign a consequence level. The consequences as a result of an emergency event relates to the potential losses or negative outcomes associated with the incident. The Fire Risk Sub-model identifies four components that should be evaluated in terms of assessing consequence. These include:

1. **Life Safety:** Injuries or loss of life due to occupant and firefighter exposure to life threatening fire or other situations.
2. **Property Loss:** Monetary losses relating to private and public buildings, property content, irreplaceable assets, significant historic/symbolic landmarks and critical infrastructure due to fire.
3. **Economic Impact:** Monetary losses associated with property income, business closures, downturn in tourism, tax assessment value and employment layoffs due to fire.
4. **Environmental Impact:** Harm to human and non-human (i.e. wildlife, fish and vegetation) species of life and general decline in quality of life within the community due to air/water/soil contamination as a result of fire or fire suppression activities.

The O.F.M.E.M. Fire Risk Sub-model evaluates the consequences of an event based on five levels of severity. The description and definition of each consequence level from the Fire Risk Sub-model are shown in **Table 3**. Similar to the probability levels, the numerical weighted value assigned to the identified consequence levels have been revised from the O.F.M.E.M. values to reflect broader risk management industry practices for assigning risk levels. The O.F.M.E.M. definitions are used for each consequence level.

**Table 3: Consequence Levels**

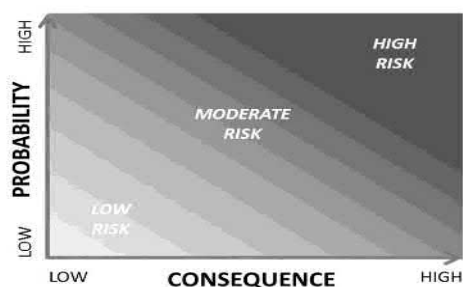
<b>Consequence Category</b>	<b>Value (O.F.M.E.M.)</b>	<b>Value (Adjusted)</b>	<b>Description (O.F.M.E.M.)</b>
<b>Insignificant</b>	1	1	<ul style="list-style-type: none"> <li>No life safety issue</li> <li>Limited valued or no property loss</li> <li>No impact to local economy and/or</li> <li>No effect on general living conditions</li> </ul>
<b>Minor</b>	2	10	<ul style="list-style-type: none"> <li>Potential risk to life safety of occupants</li> <li>Minor property loss</li> <li>Minimal disruption to business activity and/or</li> <li>Minimal impact on general living conditions</li> </ul>
<b>Moderate</b>	3	100	<ul style="list-style-type: none"> <li>Threat to life safety of occupants</li> <li>Moderate property loss</li> <li>Poses threat to small local businesses and/or</li> <li>Could pose threat to quality of the environment</li> </ul>
<b>Major</b>	4	1,000	<ul style="list-style-type: none"> <li>Potential for large loss of life</li> <li>Would result in significant property damage</li> <li>Significant threat to businesses, local economy, and tourism and/or</li> <li>Impact to environment would result in a short term, partial evacuation of local residents and businesses</li> </ul>
<b>Catastrophic</b>	5	10,000	<ul style="list-style-type: none"> <li>Significant loss of life</li> <li>Multiple property damage to significant portion of the municipality</li> <li>Long term disruption of businesses, local employment, and tourism and/or</li> <li>Environmental damage that would result in long-term evacuation of local residents and businesses</li> </ul>

### 2.2.3 Risk Matrix and Risk Levels

Once probability and consequence are determined for each major occupancy classification the level of risk is calculated by multiplying the numerical values for probability and consequence. The risk level is then attributed to a risk category.

The relationship between probability and consequence as it pertains to risk levels can be illustrated in a risk matrix. Risk matrices typically demarcate different levels of risk along a 45-degree angle, as **Figure 3** illustrates. Probability and consequence are each defined on separate scales with varying descriptors providing direction on how to assign the probability and consequence of an event. While these descriptors will vary, probability and consequence must use the same logarithmic numeric scale, to reflect the fact that they are equally important. It is human tendency to place a higher weight on consequence than on probability, but robust risk analysis methods value probability and consequence equally.

**Figure 3: Risk Matrix**



N.F.P.A. 1730 identifies three risk categories (low, moderate, and high), while the O.F.M.E.M. Fire Risk Sub-Model identifies four risk categories (low, moderate, high, and extreme). This study makes use of the risk categories identified in N.F.P.A. 1730 and the descriptions for each risk category provided in the O.F.M.E.M. Fire Risk Sub-Model. **Table 4** shows the risk matrix for this C.R.A. As mentioned, the numerical values have been adjusted from those proposed in the O.F.M.E.M. Fire Risk Sub-Model to reflect industry best practices.

**Table 4: Risk Matrix Table**

Consequence \ Probability		Insignificant	Minor	Moderate	Major	Catastrophic
		1	10	100	1,000	10,000
Almost Certain	10,000	10,000	100,000	1,000,000	10,000,000	100,000,000
Likely	1,000	1,000	10,000	100,000	1,000,000	10,000,000
Possible	100	100	1,000	10,000	100,000	1,000,000
Unlikely	10	10	100	1,000	10,000	100,000
Rare	1	1	10	100	1,000	10,000
Risk Category		Definition (O.F.M.E.M.)				
Low Risk		<ul style="list-style-type: none"> <li>Manage by routine programs and procedures</li> <li>Maintain risk monitoring</li> </ul>				
Moderate Risk		<ul style="list-style-type: none"> <li>Requires specific allocation of management responsibility including monitoring and response procedures</li> </ul>				
High Risk*		<ul style="list-style-type: none"> <li>Community threat, senior management attention needed</li> <li>Serious threat, detailed research and management planning required at senior levels</li> </ul>				

\* Note: The O.F.M.E.M. descriptions for High Risk and Extreme Risk have been combined. N.F.P.A. 1730 does not use the Extreme Risk category.

## 3.0 Geographic Profile

As referenced in *Ontario Regulation 378/18: Community Risk Assessments*, the geographic profile assessment includes analysis of the physical features of the community, including the nature and placement of features such as highways, waterways, railways, canyons, bridges, landforms and wildland-urban interfaces. These physical features may present inherent risks or potentially have an impact on fire service access or response time. The following sections consider these geographic characteristics within the Town of LaSalle.

### 3.1 Geographical Snapshot of LaSalle

The Town of LaSalle is one of seven municipalities that form Essex County, located south of Windsor. Other municipalities within Essex County include Amherstburg, Kingsville, Lakeshore, Leamington, Tecumseh and Essex. The Town is located in close proximity to a number of major transportation and utility corridors including Highway 401, Highway 18, Highway 3, the Essex Terminal Railway and four crossing points that form the Windsor-Detroit Gateway.

The Town of LaSalle contains a large rural component and is surrounded by neighbouring communities comprised of thousands of acres of farmland. Many of the farms in the region produce oilseed and grain crops and harvests a range of fruits due to the area's climate. Essex County, in which the Town is situated, is also known for housing the largest greenhouse industry in North America. The northern portion of the Town is comprised of the "urban area" as designated within the Town's Official Plan.

Natural features include a significant amount of Carolinian forest, provincially significant wetlands, grassland communities and two waterways that transverse the Town's landscape. The Town's location in relation to the Detroit River allows for numerous water-related recreational activities including boating, canoeing, kayaking, and fishing and there are local marinas which provide docking, launching and boat storage services throughout the year.

**Key Finding: The geographic size of the Town with its makeup of an urban area and a rural area results in extended emergency response time to some areas of the Town.**

### 3.2 Roads, Transit, Bridges, and Rail

#### Roads and Public Transit

Road networks and transportation systems provide fire services with access to the various corridors of a community during an emergency response situation.

The County of Essex owns and maintains most arterial roads. Meanwhile, local municipalities own and maintain their respective local road network including collector roads on residential, commercial and



industrial collector lands and the Province owns and maintains the 400 series highways and Highway 3.<sup>2</sup> The road network within any community is a contributor to emergency call volume within those communities due to motor vehicle collisions, automobile extrication, and vehicle fires.

The Town of LaSalle is served by a road network that is typical of the municipalities in Essex Region, consisting of major highways, regional, arterial and local roads. While there are many roads servicing the Town, morning and evening commutes along main arterial roads such as Front Road, Malden Road and Matchette Road often experience varying levels of congestion. For a composite department with many volunteer firefighters residing and working in locations throughout the municipality, traffic congestion will become an increasingly significant consideration from the perspective of providing emergency response. In addition, transportation corridors are a key part of the goods movement network meaning that the road and rails may be used for the transport of hazardous materials. However, in these instances the transportation of dangerous goods are regulated by *the Transportation of Dangerous Goods Act*, 1992. This includes regulations that require the carrier to provide emergency response capabilities

LaSalle has retained the services of W.S.P. Canada Group Limited to complete a Transportation and Active Transportation Master Plan with the goal of facilitating a comprehensive multi-modal transportation network within the Town. The plan applies to all modes of transportation including walking trails and cycling, transit and vehicular travel. A main focus of the plan involves the development of an age-friendly element to the transportation planning process.

LaSalle's transit service is provided by Transit Windsor which commenced service recently on September 5<sup>th</sup>, 2017. The transit service operates Monday to Saturday from 7:00 am to 7:00 pm.

***Key Finding: The road network contributes to emergency calls including for motor vehicle collision, vehicle fires, and automobile extrication.***

### Bridges

The Town is located on the eastern side of the Detroit River that feeds into an additional number of tributaries and streams. Consequently, there are bridges throughout the Town that are part of the current road network. It is important to consider bridges when assessing community risk because of a few key factors: the potential for crossing restrictions due to weight; and potential for impact on network connectivity if a bridge were to be out of service. These factors can impact the response capabilities of a community. There are a number of bridges located on the following roads:

- Front Road;

<sup>2</sup> Source: "Road Systems." County of Essex, <https://www.countyofessex.on.ca/en/residents/roads-system.asp>

- Matchette Road;
- Sprucewood Avenue;
- Todd Lane;
- North Townline Road; and
- Canard Drive.

The L.F.S. did not identify bridges with weight restrictions and based on a desktop review there does not appear to be any issue with network connectivity.

### Rail Lines

This C.R.A. considers rail lines for a few key reasons related to emergency services. At-grade rail crossings (an intersection at which a road crosses a rail line at the same level) can create delays in emergency response by inhibiting emergency response vehicles and apparatus from accessing a road. The potential for a rail-based transport incident is another consideration as a derailment or accident involving the goods being transported (including the potential for hazardous materials) could occur. Also, sometimes the physical barrier created by the rail infrastructure itself such as a rail yard and the placement of rail infrastructure within and throughout a municipality can impact emergency response.

There is one main rail line that travels southwest through the municipality and is owned and operated by the Essex Terminal Railway Company. The Essex Terminal Railway (E.T.R.) is a switching railway (or short line) that runs from the East Side of Windsor down through LaSalle and ends in Amherstburg with a mainline that travels roughly 35 kilometres.<sup>3</sup> The E.T.R. provides switching services for customers involved in the shipment of industrial, lumber, steel, agriculture, scrap metal, alcohol and liquid petroleum gas products.

Recent train derailment incidents in North America provide examples of the threats that are inherent to dangerous goods transportation. On a daily basis, the Essex Terminal Railway transports dangerous goods such as ethanol and petroleum products throughout various municipalities within Essex County, including LaSalle. Recently, the LaSalle Fire Service underwent specific railway accident training at the E.T.R. in sponsorship from the Railway Association of Canada. First responders were informed about the mechanics of railway tankers and dangerous goods transportation.

In addition to freight-related risks, the Town's rail line intersects with a number of roads. Desktop research has identified that there are no grade separated crossing within Town boundaries and multiple at-grade crossings (areas where traffic cannot flow freely regardless of train activity). At these types of crossing, emergency response may be delayed and the fire apparatus may have to wait until the train

<sup>3</sup> Source: Company Profile, Essex Terminal Railway Company website, <http://etr.ca/about/company-profile/>

proceeds for them to continue on their route or they may have to proceed on an alternate route.

Desktop research indicates that at-grade rail crossings within LaSalle are located at:

- Highway 3 east of Front Road;
- Martin Lane west of Matchette Road;
- Victory Street west of Matchette Road;
- Maple Avenue south of Laurier Drive;
- Laurier Drive west of Matchette Road;
- Bouffard Road west of Matchette Road;
- Reaume Road west of Matchette Road;
- Front Road south of Morton Drive; and
- Morton Drive west of Front road/Ojibway Parkway

***Key Finding: There are a number of at-grade crossings within Town boundaries that may impact the Fire Service's emergency response travel times.***

#### Airport

Airports can be a vital component of a municipality as they provide the movement of goods and services as well as provide a mode of transportation for people. They present unique hazards with special considerations to aircraft accidents and incidents, hazardous materials and fuel load concerns. The closest airport to the Town of LaSalle is the Windsor International Airport located East of Walker Road, south of the E.C. Row Expressway. The airport features a number of services including charter, freight, cargo, baggage handling and aircraft maintenance.

#### Border Crossings

The Town of LaSalle is situated in close proximity to four crossing points that form the Windsor-Detroit Gateway. These crossings include:

- Ambassador Bridge;
- Windsor-Detroit Tunnel;
- Detroit-Windsor Truck Ferry; and
- Michigan Central Railway Tunnel.

The Detroit-Windsor Truck Ferry is utilized for the transport of commercial and H.A.Z.M.A.T. materials only. Canadian and United States customs agencies are located at each ferry terminal to facilitate or restrict the transport of restricted and non-restricted items across the border. Through the lens of emergency response, the transport of dangerous goods whether by boat, rail, air or road can present unique challenges to public safety.

As an active participant in the *County of Essex Mutual Aid Plan* between the municipalities of the County and the City of Windsor, the L.F.S. could be called upon to provide support firefighting services to major events involving hazardous material incidents at this crossing. However, should the Town be required to

provide emergency response beyond the capabilities of the local fire service, provincial resources are available for large-scale hazardous material or chemical, biological, radiological, nuclear or explosive material (C.B.R.N.E.) incidents. Provincial resources can also be deployed for incidents requiring Heavy Urban Search and Rescue (H.U.S.A.R.). Under memorandums of understanding (M.O.U.) between provincial response teams, a H.U.S.A.R. team located in Windsor would have the capability to respond to such incidents on a technical level.

### 3.3 Waterways, Conservation Areas and Landforms

Waterways and Conservation Areas are important from a risk perspective in part due to recreational activities that take place and the natural hazards that they present (e.g., flooding). There are various natural features which are located throughout the Town, including rivers, creeks, wetlands, parks, conservation areas, and forests. The dominate waterway of the Town is the Detroit River which spans approximately 7.5 km of Town mainland shoreline. In addition, other waterways include Canard River located in the southern area of the as well as Turkey Creek. These waterways are home to provincially significant wetlands and the Town has recognized their role in improving water quality, flood control, ecological diversity and overall cultural and historical significance in the Town's *Official Plan*. LaSalle's designated wetland areas are illustrated in **Figure 4**.

LaSalle has one conservation area within its boundaries – the Petite Cote Conservation Area, located near Front Road, in close proximity to the Detroit River. Petite Cote consists of approximately 300 metres of boardwalk trails and a significant marsh habitat. In addition to this conservation area, there are numerous parks and golf course green spaces located throughout the Town. These features and the waterways present recreational opportunities such as ice fishing, snowmobiling, and passive leisure as identified in the Training and Sustainability Review of Non-Core Emergency Services (2013) completed by LFS.

#### Fighting Island

Situated in the Detroit River and within the jurisdiction of the Town of LaSalle is Fighting Island. The island is part of the Town of LaSalle and is within the response area of the L.F.S. The Island is owned by BASF Corporation, one of the largest producers of chemical products in North America and has historically used the site to store lime and by-products of soda ash production.<sup>4</sup> More recently, BASF has been recognized for their conservation efforts in reforesting the island and improving natural wildlife habitats which have been complemented by conservation and community outreach initiatives geared towards Essex County schools. The island includes naturalized areas, structures, and boardwalks.

<sup>4</sup> Source: "BASF's Fighting Island certified gold by Wildlife Habitat Council," BASF Corporation website, January 03, 2018, <https://www.basf.com/us/en/media/news-releases/2018/01/P-US-18-001.html>

***Key Finding: Fighting Island, which has naturalized areas and structures, is a unique destination within the jurisdiction of L.F.S.***

Overall emergency incidents experienced in the above described types of natural settings could require technical rescue services. During summer months, flooding and/or faster currents could occur and there is potential for swift water. During winter months, the frozen streams and rivers pose a risk and incidents could include ice rescue.

Areas that are susceptible to flooding are shown in **Figure 5**.

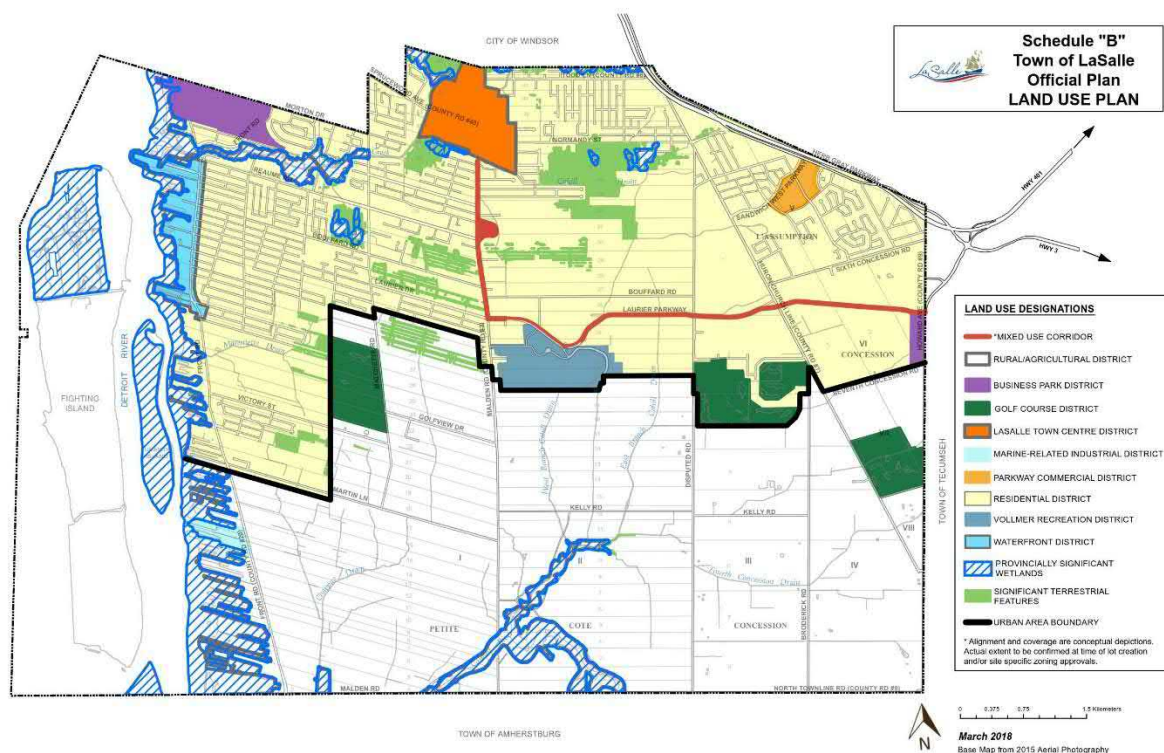
In the Town's Official Plan, lands designated as "Floodplain Development Control Area" are subject to flooding under regular conditions. Development is prohibited in floodways (or the area of the floodplain subject to the fastest flowing water) other than for structures that aid in flood or erosion control. However, development is permitted in areas within the Floodplain Development Control Area but outside of a floodway if flood proofing is provided or if all development is in accordance with the land use designations.

In recent years, storm water flooding has been a concern for the Town, specifically in the Heritage Estates and Oliver Farms area. A study completed in 2016 assessed the storm water infrastructure with the objective to improve the storm system level of service and provide for flooding relief.<sup>5</sup>

***Key Finding: Based on a spatial analysis of the Town's floodplain mapping, areas close to the Detroit River, Turkey Creek and the Canard River have the potential for flooding.***

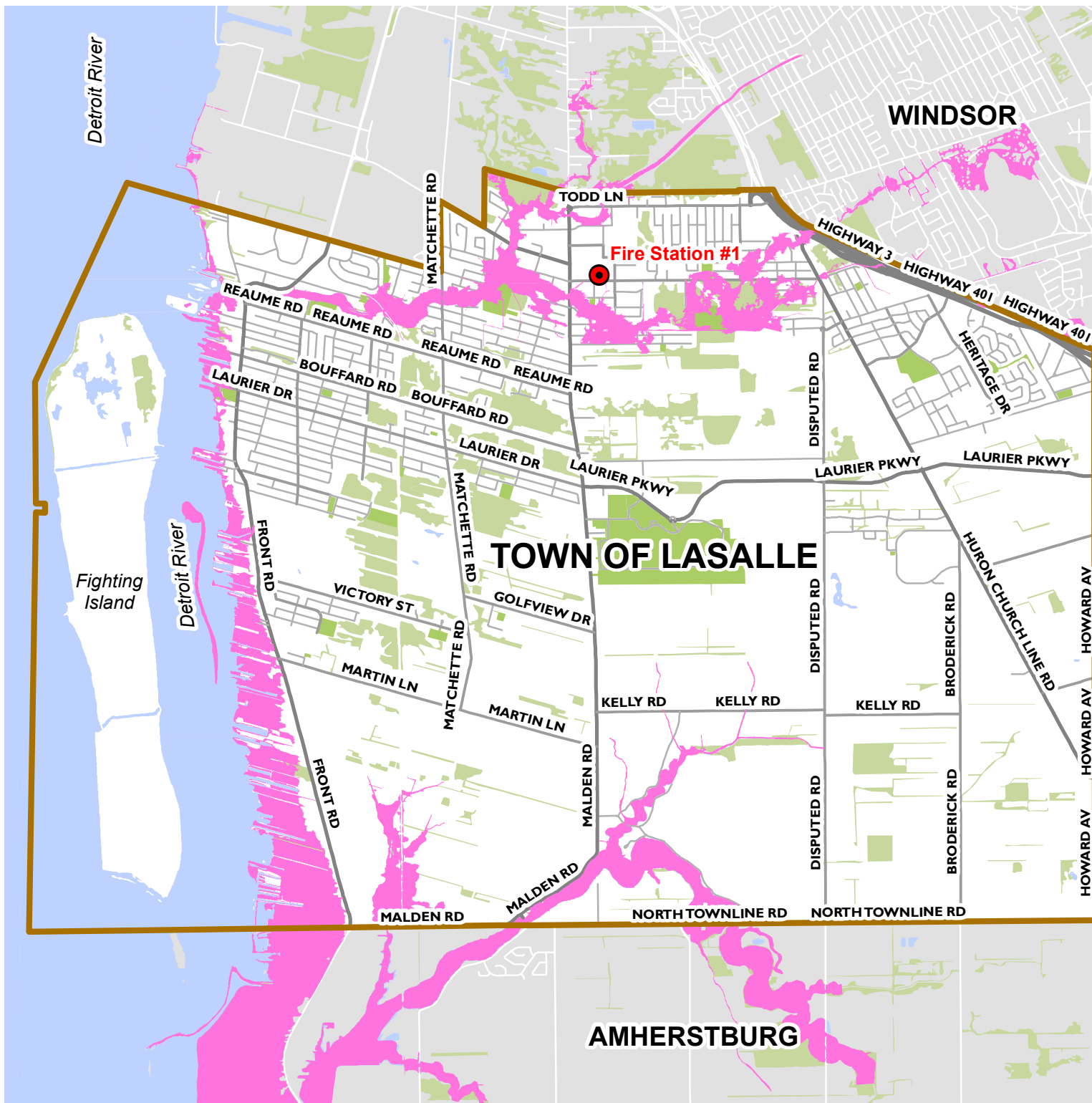
<sup>5</sup> Source: "Heritage Estates and Oliver Farms Flooding and Preliminary Design Study", Town of LaSalle website, <http://www.lasalle.ca/en/town-hall/Heritage-Estates-and-Oliver-Farms.asp>

Figure 4: Town of LaSalle Provincially Significant Wetlands



(Source: Final Draft of the Town's Proposed New Town of LaSalle Official Plan, 2018)





## TOWN OF LASALLE

Community Risk Assessment

### 100 YEAR FLOOD LINE

FIGURE #5

- Fire Station
- Town Boundary
- 100 Year Floodline
- Local
- Collector
- Arterial
- Highway
- Water
- Wooded Area



MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

MAP CREATED BY: PFM  
MAP CHECKED BY: PK  
MAP PROJECTION: NAD 1983 UTM Zone 17N



PROJECT: 18xxxx  
STATUS: DRAFT  
DATE: 2018-11-05

### 3.4 Wildland-Urban Interface

N.F.P.A. 1730 identifies wildland-urban interface as a geography-based risk for consideration. This interface refers to the area of transition between unoccupied land and human development. This transition area can be comprised of a mix of woodlots, bush or grass.

LaSalle is a community that has agricultural lands and natural features and does possess an element of risk related to wildfires. Many residential neighbourhoods are located in the vicinity of wildlands. Based on this risk, the LaSalle Fire Service should consider appropriate training of personnel and the potential challenges faced by emergency vehicles, equipment and personnel accessing this type of fire.

Historically, wildfires were thought to be primarily a fuel load (forested/grass area) problem, and efforts were taken to combat the wildfire after ignition including direct firefighting costs. However, reflecting a shift towards mitigation/prevention, the impact of wildfires can more effectively be reduced by focusing on the vegetation surrounding buildings as well as the ignition potential of buildings.<sup>6</sup> Local policy approaches - including official plans, zoning by-laws, site plan control tools, and Ontario Building Code enforcement through planning authorities as well as fire prevention and enforcement policies (e.g., open air burning permit systems) - emphasize the opportunity to mitigate wildland fire risk.

***Key Finding: Many of LaSalle's residential neighbourhoods are located adjacent to wildland areas.***

<sup>6</sup> Calkin, David E, Cohen, Jack D, Finney, Mark A, Thompson, Matthew P (2013) Proceedings of the National Academy of Sciences. How risk management can prevent future wildfire disasters in the wildland-urban interface.



## 4.0 Building Stock Profile

As referenced in *O. Reg. 378/18: Community Risk Assessments*, the building stock profile assessment includes analysis of the types and uses of building stock of a municipality. Important considerations include the number of buildings of each type, the number of buildings of each use and any building-related risks known to the fire department. There are potential fire risks associated with different types or uses of buildings given the presence or absence of fire safety systems and equipment at time of construction and maintenance thereafter. This section considers these building characteristics within the Town.

### 4.1 Ontario Building Code Occupancy Classifications

The Ontario Building Code (O.B.C.) categorizes buildings by their major occupancy classifications. Each classification has definitions that distinguish it from other occupancy classifications. Utilizing the O.B.C. as the source for defining the occupancy classifications provides a recognized definition and baseline for developing the community risk profile.

The O.B.C. defines six major building occupancy classifications (groups). Within each group the occupancies are further defined by division. The O.B.C. major classification groups and divisions are presented in **Table 5**.

**Table 5: O.B.C. Major Occupancy Classification**

Group	Division	Description of Major Occupancies
Group A	1	<i>Assembly occupancies intended for the production and viewing of the performing arts</i>
	2	<i>Assembly occupancies not elsewhere classified in Group A</i>
	3	<i>Assembly occupancies of the arena type</i>
	4	<i>Assembly occupancies in which occupants are gathered in the open air</i>
Group B	1	<i>Detention occupancies</i>
	2	<i>Care and treatment occupancies</i>
	3	<i>Care occupancies</i>
Group C	---	<i>Residential occupancies</i>
Group D	---	<i>Business and personal services occupancies</i>
Group E	---	<i>Mercantile occupancies</i>
Group F	1	<i>High-hazard industrial occupancies</i>
	2	<i>Medium-hazard industrial occupancies</i>
	3	<i>Low-hazard industrial occupancies</i>

The Fire Risk Sub-model developed by the Office of the Fire Marshal and Emergency Management utilizes the major group classifications (i.e. Group A, B, C, D, E, F), but does not use the detailed division classifications provided for the respective occupancy groups. This strategy provides the ability to assess property stock within a community comparatively by major occupancy groups, thus providing a consistent and recognized definition for each major occupancy type. Where necessary, this strategy provides the opportunity for further analysis of a specific occupancy group. Subject to any site specific hazards or concerns, occupancies within this group can be assessed individually and then included where required within the scope of the broader Community Risk Assessment.

**Table 6** and the discussion that follows describe the major occupancy groups used within this Community Risk Assessment. Definitions of the major occupancies from the Ontario Building Code are provided. The typical type of risk related to these occupancies and the potential proactive measures to reduce risk are also introduced.

All occupancies have unique risks based on their occupancy classification group. Within the groups, the buildings themselves can also be very different. For Group C - Residential occupancies, there are many types of buildings that can meet this description that would present their own unique risks - for example, mobile homes/travel trailers versus a single-detached dwelling. Consideration also needs to be given to high-rise residential occupancies which represent unique risk and operational challenges. Group D – Business and Personal Services occupancies can also be located in different types of buildings, such as remodeled single-family dwellings, low-rise and high-rise buildings. Each of these building types can present different risks, including egress for firefighting operations and evacuation by occupants. Group E – Mercantile occupancies also present varied risks depending on the type of building which houses them. They range in size and potential risk from smaller neighbourhood corner stores to the large “big box” industrial style buildings. Large volumes of combustibles may be present in all forms of mercantile and business and personal services occupancies. Within the fire service, these two occupancy types are often considered together as “commercial uses.”

While building variation applies within Group B – Care or Detention occupancies, the important consideration in this case is the nature of the occupancy. Such occupancies are for individuals that require special care or treatment due to cognitive or physical limitations. These occupancies could also be for individuals who are incapable of self-preservation because of security measures. Regardless of the type of building Group B – Care or Detention occupancies inhabit, this critical aspect of risk remains the same.

Table 6: O.B.C. Major Occupancy Classification

OBC Major Occupancy Classification	Division	Description of Major Occupancies	OBC Definition	Occupancy Risks	Proactive Measures for Reducing Risk
Group A - Assembly	1	Assembly occupancies intended for the production and viewing of the performing arts	The occupancy or the use of a building or part of a building by a gathering of persons for civic, political, travel, religious, social, educational, recreational or similar purposes or for the consumption of food or drink.	<ul style="list-style-type: none"> <li>• Overcrowding by patrons</li> <li>• Lack of patron familiarity with emergency exit locations and procedures</li> <li>• Insufficient staff training in emergency procedures</li> <li>• Large quantities of combustible furnishings and decorations</li> <li>• Where alcohol is served, possibility of impairment which could slow exit</li> <li>• Loud performances may lead to delayed notification in the event of fire alarm</li> </ul>	<ul style="list-style-type: none"> <li>• Regular fire prevention inspection cycles</li> <li>• Automatic fire detection and monitoring systems</li> <li>• Approved fire safety plan and staff training</li> <li>• Pre-planning by fire suppression staff</li> </ul>
	2	Assembly occupancies not elsewhere classified in Group A			
	3	Assembly occupancies of the arena type			
	4	Assembly occupancies in which occupants are gathered in the open air			
Group B - Care or Detention	1	Detention occupancies	The occupancy or use of a building or part thereof by persons	<ul style="list-style-type: none"> <li>• Inability to evacuate or relocate patients</li> </ul>	<ul style="list-style-type: none"> <li>• Regular fire prevention inspection cycles</li> </ul>

OBC Major Occupancy Classification	Division	Description of Major Occupancies	OBC Definition	Occupancy Risks	Proactive Measures for Reducing Risk
Group C - Residential	2	Care and treatment occupancies	who; are dependent on others to release security devices to permit exit; receive special care and treatment; or receive supervisory care.	<ul style="list-style-type: none"> <li>• Presence of flammable/combustible gases (ie. Oxygen)</li> <li>• Insufficient staff</li> <li>• Insufficient staff training</li> <li>• Vulnerable occupants using overnight accommodations (sleeping)</li> <li>• Vulnerable occupants may be unable to evacuate without assistance</li> <li>• Evacuation may be delayed due to cognitive, physical limitations or the use of sleep aids</li> <li>• Combustible furnishings</li> </ul>	<ul style="list-style-type: none"> <li>• Automatic fire detection and monitoring systems</li> <li>• Approved Fire Safety Plan and staff training</li> <li>• Pre-planning by fire suppression staff</li> </ul>
	3	Care occupancies			
	-	Residential occupancies	An occupancy that is used by persons for whom sleeping accommodation is provided but who are not harboured or detained there to receive medical care or treatment or who are not involuntarily detained there.	<ul style="list-style-type: none"> <li>• Overnight accommodation (sleeping)</li> <li>• Combustible furnishings</li> <li>• Secondary units (basement apartments)</li> <li>• High population density</li> <li>• Human behaviour (cooking, use of candles, smoking, alcohol, hoarding, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Home smoke alarm programs</li> <li>• Public education programming including home escape planning</li> <li>• Retro-fit and compliance inspection cycles for OFC compliance</li> <li>• Pre-planning by fire suppression staff</li> </ul>

OBC Major Occupancy Classification	Division	Description of Major Occupancies	OBC Definition	Occupancy Risks	Proactive Measures for Reducing Risk
				<ul style="list-style-type: none"> <li>• Delayed detection due to improper placement, lack of maintenance or missing smoke alarms</li> </ul>	
Group D - Business and Personal Services	-	Business and personal services occupancies	An occupancy that is used for the transaction of business or the provision of professional or personal services.	<ul style="list-style-type: none"> <li>• High volume of occupants</li> <li>• High combustible loading</li> <li>• Specialized equipment utilizing high risk substances such as radiation</li> <li>• Consumers unfamiliar with emergency exits and procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Regular fire prevention inspection cycles to maintain OFC compliance</li> <li>• Targeted fire prevention inspections for OFC retro-fit compliance</li> <li>• Staff training in fire prevention and evacuation procedures</li> <li>• Public education programs</li> <li>• Pre-planning by fire suppression staff</li> </ul>
Group E - Mercantile	-	Mercantile occupancies	An occupancy that is used for the displaying or selling of retail goods, wares, and merchandise.	<ul style="list-style-type: none"> <li>• High volume of occupants/staff</li> <li>• High volume of combustible loading/high rack storage</li> <li>• Exit facilities blocked with merchandise</li> <li>• Lack of occupant familiarity with emergency exit locations and procedures</li> <li>• Size of building</li> </ul>	<ul style="list-style-type: none"> <li>• Regular fire prevention inspection cycles</li> <li>• Automatic fire detection and monitoring systems</li> <li>• Approved Fire Safety Plan and staff training</li> <li>• Pre-planning by fire suppression staff</li> </ul>

OBC Major Occupancy Classification	Division	Description of Major Occupancies	OBC Definition	Occupancy Risks	Proactive Measures for Reducing Risk
Group F-Industrial	1	High-hazard industrial occupancies	An occupancy that is used for the assembly, fabrication, manufacturing, processing, repairing or storing of goods and materials	<ul style="list-style-type: none"> <li>• Large dollar loss as a result of a major fire</li> <li>• Economic loss in the event of plant shut downs and job loss</li> <li>• Environmental impacts</li> <li>• Presence of ignition sources related to processing activities</li> <li>• Poor housekeeping and maintenance of equipment</li> <li>• Insufficient staff training</li> <li>• Improper use of equipment</li> </ul>	Regular fire prevention inspection cycles Staff training in fire prevention and evacuation Public education Pre-planning by fire suppression staff Installation of early detection systems (smoke alarms, heat detectors) Installation of automatic sprinkler systems
	2	Medium-hazard industrial occupancies			
	3	Low-hazard industrial occupancies			

As shown in **Table 6**, the Group F – Industrial occupancy group is divided into low-hazard (Division 3), medium-hazard (Division 2) and high-hazard (Division 1) based on the combustible content and potential for rapid fire growth. The potential for major fires within this occupancy type is related to the high levels of combustibles utilized in the manufacturing process and present in storage. This can include highly flammable and corrosive products.

## 4.2 Town of LaSalle Property Stock by Major Occupancy Classification

The Town's property stock by major occupancy classification is summarized in **Table 7**. The majority of LaSalle's property stock is comprised of Group C- residential occupancies (72.3%) with 10,759 residential dwellings overall. The second largest major occupancy type (classified within the O.B.C.) is classified as Group F - Industrial at 76 occupancies in total accounting for 0.5% of the Town's property stock. Group D – Business accounts for 0.4% of the Town's total building stock and there are 1,028 vacant land parcels. Additionally, 19.4% of property parcels are considered "open space". When "open space" and "vacant" lands are removed from the analysis, Group C – Residential occupancies comprise 98% of the occupied property stock. The priority of addressing the residential fire risk is supported by the historical data provided by O.F.M.E.M. reports that from 2013-2017, the majority of all structure loss fires occurred in Group C – Residential occupancies.

**Table 7: Property Stock by Major Occupancy Classification – Town of LaSalle**

Ontario Building Code (OBC) Classification	Division	Number of Property Parcels	% of Property Parcels by Major Occupancy Classification
Group A - Assembly		33	0.2%
Group B - Care & Detention		12	0.1%
Group C - Residential		10,759	72.3%
Group D - Business and Personal Services		27	0.2%
Group E - Mercantile		57	0.4%
Group F - Industrial	1	0	0.0%
	2	47	0.3%
	3	29	0.2%
Vacant		1,028	6.9%
Open Space		2,880	19.4%
<b>Total</b>		<b>14,872</b>	<b>100.0%</b>

Source: M.P.A.C. Parcel Information – Received by the Town of LaSalle

**Key Risk: When excluding parcels classified as open space or vacant, 98% of the Town's existing property stock is comprised of Group C – Residential Occupancies.**

### 4.3 Building Age and Construction

The O.B.C. was adopted in 1975, and the Ontario Fire Code (O.F.C.) was adopted in 1981. Together these two codes have provided the foundation for eliminating many of the inconsistencies in building construction and maintenance that were present before their adoption.

The O.B.C. and the O.F.C. were developed to ensure that uniform building construction and maintenance standards are applied for all new building construction. The codes also provide for specific fire safety measures depending on the use of the building. Examples of the fire safety issues that are addressed include:

- Occupancy;
- Exits/means of egress including signs and lighting;
- Fire alarm and detection equipment;
- Fire department access; and
- Inspection, testing, and maintenance.

Linked to age of a building are the methods and materials used to construct it. During the late 19th century and early 20th century, balloon frame construction was a common framing technique used in both residential and small commercial construction. This technique permitted the spread of fire and smoke to move rapidly from the lower floors to upper floors and the roof level. Understanding the age of construction of occupancies (both residential and non-residential) can assist in determining if balloon framing may have been utilized.

Modern construction techniques have introduced the use of platform construction whereby each level is built as a component of the overall structure. This technique, in addition to the use of fire stops, has reduced the extension of fire and smoke by creating horizontal barriers. However, modern construction materials have also resulted in changes to fire growth rates that are defined by the Society of Fire Protection Engineers as slow, medium and fast. In addition to building construction, fire growth rate depends on the flammability of the materials and contents within the building which introduces variances into the growth rates presented above. The impact of increasing fire growth rates is directly related to the time lapse from ignition to flashover when the combustible items within a given space reach a temperature that is sufficiently high for them to auto-ignite. Listed in **Table 8**, are fire growth rates measured by the time it takes for a fire to reach a one megawatt (M.W.) fire. Fire growth rate depends on the flammability of the materials and contents within the building which introduces variances into the growth rates presented below.

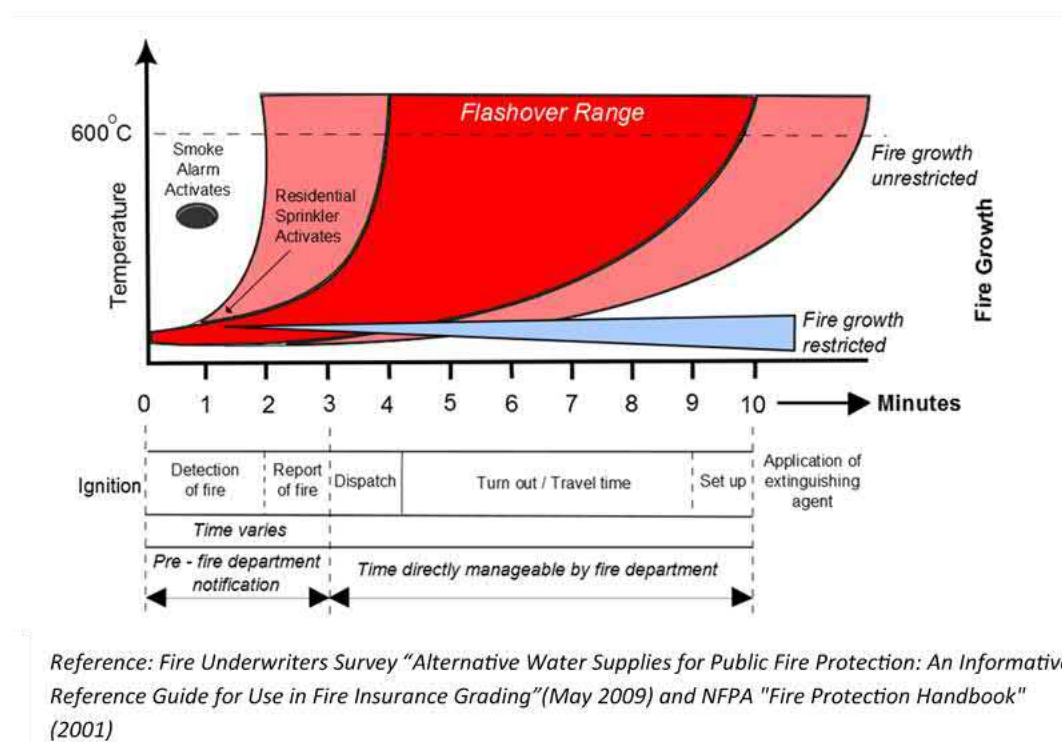


**Table 8: Time to Reach 1 MW and 2 M.W. Fire Growth Rates in the Absence of Fire Suppression<sup>7</sup>**

Fire Growth Rate	Time in Seconds to Reach 1MW	Time in Seconds to Reach 2 MW
Slow	600 seconds	848 seconds
Medium	300 seconds	424 seconds
Fast	150 seconds	212 seconds

**Source: O.F.M.E.M.**

In addition to building construction, fire growth rate depends on the flammability of the materials and contents within the building which introduces variances into the growth rates presented above. The impact of increasing fire growth rates is directly related to the time lapse from ignition to flashover when the combustible items within a given space reach a temperature that is sufficient high for them to auto-ignite. The graph in **Figure 6** (below) highlights the exponential increase in fire temperature and the potential for loss of property/loss of life with the progression of time.

**Figure 6: Example Fire Propagation Curve**

Understanding the age and construction of a community's residential building stock is an important component of developing a Community Risk Assessment. Historical O.F.M.E.M. data indicates that in

<sup>7</sup> Source: "Operational Planning: An Official Guide to Matching Resource Deployment and Risk", Office of the Fire Marshal and Emergency Management, January 24, 2011, p. 4).

recent years, residential fires account for the majority of all structure fire losses and fire fatalities.<sup>8</sup> Therefore, this section explores the age and construction of residential and non-residential buildings in the Town.

The ages of residential buildings for the Town of LaSalle are shown in **Table 9**. Analysis indicates that while the Town's building stock is relatively young compared to the Province, 33% of the Town's residential building stock was built prior to 1981 and the adoption of the Ontario Fire Code (53% in the Province). This represents a key fire risk within the community.

**Table 9: Residential Building Age – Town of LaSalle and Province of Ontario**

Period of Construction	Town of LaSalle	% of Units	Ontario	% of Units
Prior to 1960	1,235	12%	1,293,135	25%
1961 to 1980	2,295	21%	1,449,585	28%
1981 to 1990	1,300	12%	709,135	14%
1991 to 2000	2,900	27%	622,565	12%
2001 to 2005	1,270	12%	396,130	8%
2006 to 2010	790	7%	368,235	7%
2011 to 2016	905	8%	330,390	6%
<b>Total</b>	<b>10,695</b>	<b>100%</b>	<b>5,169,175</b>	<b>100%</b>

Source: Census 2016, Statistics Canada

**Key Risk: 33% of the Town's residential building stock was built prior to 1981 and the introduction of the Ontario Fire Code.**

#### 4.4 Building Density and Exposure

N.F.P.A. 1730 lists building density as a key factor for understanding potential fire risk with particular consideration given to core areas (downtowns). Closely spaced buildings, typical of historic downtown core areas and newer infill construction, have a higher risk of a fire spreading to an adjacent exposed building. A fire originating in one building could easily be transferred to neighbouring structures due to the close proximity. The close proximity of buildings can also impede firefighting operations due to the limited access for firefighters and equipment.

<sup>8</sup> Source: "Ontario Fatal Fires: Summary." Ministry of Community Safety and Correctional Services. 8 Dec. 2014

As outlined in **Section 11.0**, historical data provided by O.F.M.E.M. indicates that residential fires represent the majority of structure fire losses and fire fatalities. Understanding the breakdown by residential type can provide some indication of exposure risk. Residential structure dwelling types for the Town of LaSalle and the Province are listed in **Table 10**.

**Table 10: Residential Structural Dwelling Types**

Structural Dwelling Type	Town of LaSalle		Ontario	
	Total Dwellings	Total % Dwellings	Total Dwellings	Total % Dwellings
Single-detached house	9,140	86%	2,807,380	55%
Apartment in a building that has five or more storeys	135	1%	886,705	17%
Movable dwelling	0	0%	14,890	0%
Other attached dwellings	1,425	13%	1,460,200	28%
Semi-detached house	735	7%	289,975	6%
Row house	180	2%	460,425	9%
Apartment or flat in a duplex	55	1%	176,080	3%
Apartment in a building that has fewer than five storeys	445	4%	522,810	10%
Other single-attached house	10	0%	10,910	0%
<b>Total</b>	<b>10,700</b>	<b>100%</b>	<b>5,169,175</b>	<b>100%</b>

Source: Census 2016, Statistics Canada

Residential structural dwelling type data from the 2016 Census reveals that LaSalle's structural dwellings consist mainly of single-detached houses (86%), higher than the provincial total number of single-detached dwellings (55%). The proportion of apartments that have five or more storeys within LaSalle is much lower than that of the Province (1% versus 17%). These figures reflect a lower residential building density for the Town in comparison to the Province and therefore reflect a moderate risk. Generally, higher density increases the risk level for residential occupancies. Thirteen (13) percent of the Town's property stock consists of other types of attached dwellings including semi-detached houses, row housing, apartments or flats in a duplex and apartments in a building with fewer than five storeys.

The L.F.S. has indicated that many of the newly developed subdivisions have reduced side yards and were constructed in close proximity to one another. Although much of the Town's building stock is detached, there are still areas where the space in between those dwellings is limited, increasing those units' exposure to fire from an adjacent home.

In addition to exposure risk due to from built form, community growth including infrastructure renewal and upgrades results in construction projects which can result in incidents that may result in the need for trench rescue or confined space rescue. However, it is important to note that the **Occupational**

**Health and Safety Act** requires applicable employers to have a plan for conducting rescues that is independent of municipal service providers.

**Key Finding: 13% of the Town's property stock consists of other types of attached dwellings including semi-detached houses, row housing, apartments or flats in a duplex and apartments in a building with fewer than five storeys.**

**Key Finding: Newly constructed subdivision units have reduced side yards, indicating a higher exposure risk.**

## 4.5 Building Height and Area

Buildings that are taller in height, or contain a large amount of square footage (footprint), can have a greater fire loss risk and life safety concern. One of the unique characteristics and risks of tall / multi-storey buildings is known as the “stack effect”. This is characterized as vertical air movement occurring throughout the building caused by air flowing into and out of the building, typically through open doors and windows. The resulting buoyancy, caused by the differences between the indoor and outdoor temperature and elevation differences, causes smoke and heat to rise within the building. This can have a dramatic effect on smoke permeation throughout the common areas and individual units within the building. This can be directly related to the high percentage of deaths that occur in taller buildings (high-rise) as a result of smoke inhalation.

Industry best practices and standards have also identified that fires in high-rise buildings can place significantly higher demands on fire suppression activities, resulting in a need for greater firefighter depth of response deployments. This is commonly referred to as “vertical response” which can include the initial deployment of firefighters to establish water supplies to upper levels, maintain elevator controls, and manage ventilation systems, for example.

Building area can cause comparable challenges as those present in taller buildings. Horizontal travel distances rather than vertical can mean extended response times by firefighters attempting rescue or fire suppression activities. Large buildings, such as industrial plants and warehouses, department stores, and big box stores, can contain large volumes of combustible materials. In many of these occupancies the use of high rack storage is also present. Fires within this type of storage system can be difficult to access and may cause additional risk to firefighter safety, due to collapse-related risks. Building height and area are analyzed in the sections that follow.

When it comes to defining “high-rise”, different sources use different terms. Some key definitions of high-rise are summarized in **Table 11**. This includes the Ontario Building Code, which has detailed considerations to define a high-rise building, based on the occupancy classification, floor area, occupant load, and what exactly is being measured. Within all occupancy classifications, when a building is 18

metres in height or greater, additional O.B.C. requirements are in effect. The analysis within this C.R.A. is based on a number of sources and therefore height references may differ accordingly.

**Table 11: Key Definitions of High-Rise**

Source	Simplified Definition
Ontario Building Code	18 metres in height and over
Ontario Fire Code	Greater than 6 storeys
N.F.P.A. 1710 (2016 Edition)	23 metres in height or over
Statistics Canada*	5 storeys or above

**Note:** Statistic Canada's references to building height are not focused on a strict definition of building height consideration but to provide insight as to the overall built form of housing within a community.

Each of the metrics described above have been developed from a different perspective. For example, N.F.P.A. 1710 considers building height from the perspective of operationally deploying a sufficient number of firefighters for firefighting purposes as a result of the vertical response requirements. This is the metric that will be applied when modelling and analysing fire suppression emergency response capabilities in the F.S.M.P.

The O.B.C has detailed considerations to define a high-rise building based on the occupancy classification, floor area and occupant load. Within all occupancy classifications, additional O.B.C. requirements apply when a building is or exceeds 18 meters in height. The L.F.S. identified that while there are no high-rise buildings there are several 6-storey high-rise condos and a few 4-storey buildings located in Town. These are located in the following areas:

- 40 Adams Lane;
- 1855 Normandy Street;
- 1885 Normandy Street;
- 1905 Normandy Street;
- 1995 Normandy Street;
- 1885 Westview Park;
- 2650 Sandwich West Parkway;
- 5995 Ellis Street; and
- 6055 Ellis Street.

In addition to these buildings, there is a senior care facility that is 3-storeys high with a memory care unit on the 2<sup>nd</sup> floor for patients with Alzheimer's located at 2400 Sandwich West Parkway. Future construction of a 6-storey condo is anticipated to start construction near the corner of Stock Street and Westview Park with additional 3-storeys currently being constructed on Newman Boulevard.

**Key Finding:** *There are several buildings within the Town that are four to six storeys.*

The L.F.S. has identified a number of buildings that present an increase fire risk due to their large floor areas, some of which have the potential for fuel load concerns. Buildings that occupy large areas are included in **Table 12**.

**Table 12: Buildings with Large Area Considerations**

Building Name	Location	Facility Description
Morton Industrial Park Area	6100 & 6110 Morton Industrial Drive 6140 & 6144 Morton Industrial Drive 6115 Morton Industrial Drive 6155 Morton Industrial Drive	Various industrial/tool & die shops
Centerline Windsor	415, 595 & 655 Morton Drive.	Specializes in automation processes and joining technologies
Reaume Chevrolet	500 Front Road	Car dealership
Villanova Secondary School	2800 North Townline Road (County Road 8)	School
Sandwich Secondary School	7050 Malden Road	School
Vollmer Recreational Centre	2121 Laurier Parkway	Recreational Centre
Essex Golf and Country Club	7555 Matchette Road	Golf and Country Club
Zehrs	5890 Malden Road	Grocery Store
LaSalle Civic Centre	5950 Malden Road	Civic Centre
Windsor Crossings Outlet Mall	1555 Talbot Road (Highway 3)	Shopping Centre
Seasons Royal Oak Village Senior Care Facility	2400 Sandwich West Parkway	Care Facility
Chartwell Oak Park LaSalle Senior Care Facility	3955 Thirteenth Street	Care Facility
Heritage Park Alliance Church	2501 Concession Road 6	Church

Source: L.F.S.

**Key Finding – There a number of buildings that present an increased fire risk due to their large floor areas.**

## 4.6 Potential High-Fire Risk Occupancies

As per N.F.P.A. 1730, potential high-fire risk occupancy is an important factor to consider within the building stock profile. This section of the Community Risk Assessment will focus primarily on fuel load for industrial occupancies. Fuel load typically refers to the amount and nature of combustible content and materials within a building. This can include combustible contents, interior finishes as well as structural materials. Combustible content tends to create the greatest potential fire loss risk which can

include industrial materials, commercial materials or typical office furnishings. Higher fuel loads results in increased fire loss risk due to increased opportunity for ignition, propagation, and increased fire severity.

In many communities, large amounts of fuel load can be contained within a single occupancy such as a building supply business, within a large multi-unit residential building, or within a historic downtown core. As presented previously within this report, age and construction of a building can also have an impact on fuel load given that older buildings likely have a larger volume of combustible construction such as wood framing rather than newer construction utilizing concrete and steel products.

### ***Local Industrial Facility***

The L.F.S. has identified two areas with site specific fuel load concerns; an industrial facility and the various marinas located along the Detroit River. As mentioned in **Section 4.3**, fire growth rate is dependent upon the flammability of materials and contents within a building. A processing facility located within the Town boundary stores various materials inside a 10,000 square foot facility and wooden skids are stacked and stored in the near vicinity of the building. In addition to ensuring compliance to the requirements of the O.B.C. and the O.F.C., there are operational strategies that a fire service can implement to address fuel load concerns. These include regular fire inspection cycles and pre-planning of buildings of this nature to provide an operational advantage in the event of fire.

### ***Marinas***

There are numerous marinas situated along the Detroit River and the shores of LaSalle which accommodate a significant amount of boat traffic and storage throughout the year. These marinas present unique and complex fire safety risks and challenges to any fire service. The L.F.S. has also identified the Town's marinas as sites with potential fuel load concerns. During summer months boats are often aligned in close proximity to one another which presents a fire risk as a fire aboard one boat can rapidly spread to an adjacent boat if inadequate fire safety measures are in place.

Fires can result from the malfunction of electrical devices on the boat itself or from incidents relating to the dispensing of fuel given that many marinas offer on-site fueling. Some marinas may allow boat owners and passengers the opportunity to reside on their boat and spend the evening presenting an additional life safety risk to occupants.

N.F.P.A 303 *Standard for Marinas and Boatyards* includes a number of important topics related to a safer marine environment and is intended to provide a minimum level of safety from fire as well as electrical safety at marinas and boatyards. Educating boat owners and marina operators about potential fire and electrical risks will help them identify the hazards in this setting. Regular inspection cycles of LaSalle's marinas by the L.F.S. could contribute to the prevention of marina fires.

**Key Finding:** *There are properties within the Town that have fuel-load related concerns, primarily linked to industries or marinas.*

#### 4.7 Vulnerable Occupancies (Occupancies with Potential High Fire Life-Safety Risk)

The O.F.M.E.M. defines vulnerable occupancy as any care occupancy, care and treatment occupancy, or retirement home regulated under the *Retirement Homes Act*. These buildings are classified under either Group B or Group C occupancies within the Ontario Building Code. These occupancies contain vulnerable individuals who may require assistance to evacuate in the event of an emergency due to cognitive or physical limitations, representing a potential high-life safety risk.

Once a building has been classified to be a Vulnerable Occupancy by the Chief Building Official or Chief Fire Official, the fire service is responsible for ensuring an annual fire safety inspection (using the checklist which forms part of Fire Marshal's Directive 2014-001 as a minimum level of inspection) is performed, an approved fire drill scenario using the lowest staffing complement is witnessed, and certain information is filed with the Office of the Fire Marshal and Emergency Management, through its Vulnerable Occupancy Registry.

**Table 13** provides a list of registered vulnerable occupancies for the Town of LaSalle.

**Table 13: Registered Vulnerable Occupancies – Town of LaSalle**

Property Name	Occupancy Type	Address
Christian Horizon	Care Occupancy – Group home for adults	6980 Matchette Road 6330 Disputed Road
Community Living	Care Occupancy – Group home for adults	1950 Suzanne Street 1240 Maple Avenue
Oak Park LaSalle/Chartwell	Retirement Home	3955 Thirteenth Street
Seasons Royal Oak Village	Retirement Home	2400 Sandwich West Parkway

Source: LaSalle Fire Service

**Key Risk:** *The Town has six (6) registered vulnerable occupancies.*

#### 4.8 High Fire Life-Safety Risk Occupancies

From the perspective of risk and for the purposes of the services provided by the fire service, including enhanced and targeted fire inspections and public education programming, it can be valuable for a department to identify additional potential high life-safety risk considerations. For example, this may include day care centres or schools, where due to their age, children would have cognitive or physical limitations to preventing or delaying self - evacuation in the event of an emergency. For the purposes of this C.R.A., potential high life-safety risk occupancy considerations include schools and licenced day care facilities. The L.F.S. has identified eight schools and four daycares which are listed in **Table 14**.



**Table 14: Schools and Daycares Located within the Town of LaSalle**

Facility Name	Address	Facility Type
Holy Cross	2555 Sandwich West Parkway	School
LaSalle Public	1600 Mayfair Avenue	School
Monseigneur Augustin Caron	8200 Matchette Road	School
Prince Andrew	2354 Kelly Road	School
Sacred Heart	200 Kenwood Road	School
Sandwich West	2055 Wyoming Avenue	School
Sandwich	7050 Malden Road	School
Villanova	2800 County Road 8	School
Olivia DiMaio	1700 Sprucewood Avenue	Daycare
Montessori Early Years	805 Front Road	Daycare
The Children's House Montessori	6555 Malden Road	Daycare
Serendipity Child Care	5844 Malden Road	Daycare

Source: LaSalle Fire Service

There is great value in the development and delivery of fire safety programming for children and youth. Firefighter-facilitated education can teach youth about basic fire behaviour, how to respond in situations where smoke or a fire is present, and can make them aware of smoke alarm issues which may occur in the home. By equipping children and youth with fire safety knowledge they will be more likely to respond to adverse situations and get to safety or be able to prevent a fire from occurring. Since most fires typically occur in residential occupancies, learning the basics of fire safety within the home would benefit the safety of this demographic.

**Key Finding: Additional potential high fire life-safety risk considerations in the Town include eight schools and four licenced day care centres.**

## 4.9 Historic or Culturally Significant Buildings

An understanding of the location of historic or culturally important buildings or facilities is an important consideration within the building stock profile of a Community Risk Assessment. Such buildings or facilities may be keystone features to the community that provide a sense of heritage, place, and pride and act as tourism destinations which could result in an economic impact in the case of their loss.

Historic areas can also present a high fire risk due to their age, the materials used to construct the buildings, the exposure to other buildings, and their importance to the community. Regular fire inspection cycles and strategies to enforce continued compliance with the O.F.C. are considered as best practices to achieving the legislative responsibilities of the municipality and providing an effective fire protection program to address fuel load risks.

Currently, there are no properties in the Ontario Heritage Act Register that have been designated as buildings of historical significance within the Town.

## 5.0 Critical Infrastructure Profile

As referenced in *O. Reg. 378/18: Community Risk Assessments*, the critical infrastructure profile assessment includes analysis of the capabilities and limitations of critical infrastructure, including electrical distribution, water distribution, telecommunications, hospitals and airports. The presence and/or availability and capacity of infrastructure elements that could have a significant impact on such things as dispatch, communications, suppression operations, overall health care or transportation or the community if compromised, or that may present unique fire risks by virtue of their size or design. The following sections consider these critical infrastructure characteristics within the Town of LaSalle.

### 5.1 Critical Infrastructure in Ontario

The Office of the Fire Marshal and Emergency Management (O.F.M.E.M.) defines critical infrastructure as *“interdependent, interactive, interconnected networks of institutions, services, systems and processes that meet vital human needs, sustain the economy, protect public health, safety and security, and maintain continuity of and confidence in government.”* The O.F.M.E.M. also sets out nine critical infrastructure sectors: continuity of government, electricity, financial institutions, food and water, health, oil and natural gas, public safety and security, telecommunications and transportation networks. These nine sectors have further been recognized by the Ministry of Energy and Emergency Management Ontario, all of which are captured in **Table 15** below.

**Table 15: Critical Infrastructure Sectors**

Critical Infrastructure Sector	Sector components
Continuity of Government	municipal, provincial and federal governments
Electricity	nuclear, hydroelectric and fossil power generation; electricity transmission and distribution
Financial Institutions	Bank of Canada, banks and trust companies, credit unions, caisses populaires, Province of Ontario Savings Office, inter-institution computer systems, insurance companies, mutual fund companies, stock exchanges
Food and Water	water treatment, water storage, water monitoring, water distribution, waste water and sewage treatment, food production and harvesting, food processing and distribution, food inspection and monitoring
Health	hospitals, ambulance services, pharmaceuticals, blood services, and long-term care facilities
Oil and Natural Gas	oil refineries, distribution and retail operations; natural gas distribution
Public Safety and Security	firefighting, police and emergency medical services, emergency operations and evacuation centres, Centre of Forensic Sciences, Office of the Chief Coroner, military facilities, correctional facilities, search and rescue, flood and erosion control, pollution monitoring and public alerting, weather forecasting and public alerting
Telecommunications	9-1-1 communications, telephones, wireless telephones, pagers, television stations, radio stations, internet

Critical Infrastructure Sector	Sector components
Transportation	highways and roads, snow removal services, rail-ways, public transit, airports, aviation communication and navigation, port facilities, canals and shipping locks, movable bridge systems, ferries, marine communication and navigation, border controls <sup>9</sup>

### 5.1.1 Food and Water

There are many components and stages involved in the food sector ranging from the production and harvesting of food within the realm of agriculture to the processing, distributing, inspecting and monitoring those food items and products. Food contamination, disease and pests, or severe weather events that damage crops and agricultural productivity have the potential to impact a community's food security.

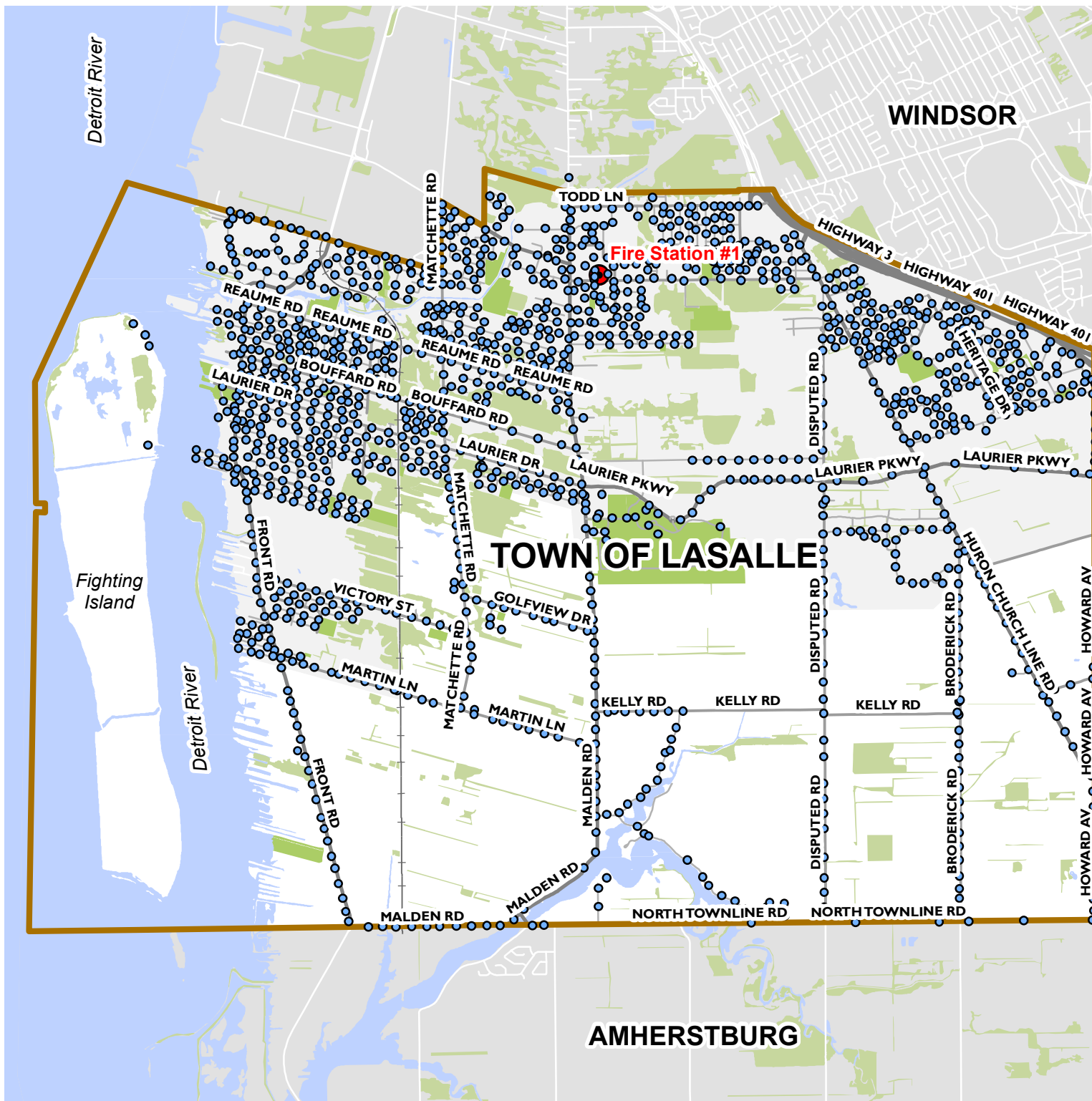
Food security is a greater concern in areas without access to public transportation and areas farther away from grocery stores (i.e. remote or rural areas). Within the LaSalle's urban setting there are a number of grocery stores present that are an essential resource for Town residents. One aspect of risk to grocery store sites themselves involves the large amounts of ammonia that are often present and used as a component of refrigeration systems. First responders should be aware of dangers relating to an ammonia release and of response protocols.

Water infrastructure is an essential component to community well-being as well as fire protection services. In LaSalle there are a number of water and waste-water infrastructure as well as 1,356 hydrants. These hydrants are shown in **Figure 7** below. LaSalle's Wastewater division is responsible for maintaining the Town's sanitary sewer collection system in addition to operating and maintaining 17 sanitary pump stations that convey water to the Lou Romano Water Reclamation Plant. This plant which is owned and operated and located within the City of Windsor is responsible for the treatment of the Town's wastewater and sewage. Properly treated drinking water and wastewater is essential to maintaining the health of a community.

As identified as part of the 2013 Training and Sustainability Review of Non-Core Emergency Services, some infrastructure found throughout the Town (e.g., sewer systems) can present a risk to any members of the public who trespass and may require confined space/trench rescue services.

<sup>9</sup> Source: "Ontario Government Emergency Fuel Distribution Protocol." Ontario Ministry of Community Safety and Correctional Services. Last modified 25 May 2016:

[https://www.emergencymanagementontario.ca/english/emcommunity/ProvincialPrograms/ci/emergency\\_fuel\\_distribution\\_protocol.html](https://www.emergencymanagementontario.ca/english/emcommunity/ProvincialPrograms/ci/emergency_fuel_distribution_protocol.html)



## TOWN OF LASALLE

Community Risk Assessment

### Hydrants

FIGURE # 7

- Hydrants
- Fire Station
- Town Boundary
- Local
- Collector
- Arterial
- Highway
- Rail
- Wooded Area
- Water



MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR  
AND THE TOWN OF LASALLE

MAP CREATED BY: PFM  
MAP CHECKED BY: PK  
MAP PROJECTION: NAD 1983 UTM Zone 17N



PROJECT: 18-8324  
STATUS: DRAFT  
DATE: 2018-11-05

### 5.1.2 Electricity

Essex Powerline Corporation provides electricity to over 28,000 commercial and residential customers in Amherstburg, LaSalle, Leamington and Tecumseh. Electricity is transmitted from a generating station (e.g. power plant, renewable sources etc.) and is conveyed through transmission lines to substations/transformers in LaSalle. All pieces of infrastructure are important in conveying electricity, from a local context; transformers are an essential piece of infrastructure which transfers electrical energy between two or more circuits through electromagnetic induction. If compromised, a large portion of businesses and residents would be without power. Electrical malfunctions sometimes include high-voltage electrical arcs, fires and even oil ignition and dispersion which pose a special risk to nearby buildings and residents.

There are multiple transformer stations (owned and operated by Essex Powerlines Corporation) located throughout the Town as are a number of regulating stations (operated by Hydro One Networks Inc.)

### 5.1.3 Financial Institutions

Each financial institution whether it is a global company base or individual community bank or credit union has their own set of security needs, business continuity plans and resources available to them in the event of a major disaster or emergency situation. Financial institutions provide access to credit, investment and insurance products and most importantly money which thereby enables residents to purchase goods and services. There are a number of banks within LaSalle at which these services may be provided. They include:

- National Bank of Canada;
- Canadian Imperial Bank of Commerce;
- Scotia Bank;
- Toronto Dominion Canada Trust (x2);
- Royal Bank of Canada;
- Windsor Family Credit Union; and
- Your Neighbourhood Credit Union.

### 5.1.4 Telecommunications

Telecommunications are essential infrastructure which information is transmitted through a variety of mediums or channels including optical fibers, coaxial cables, and free space communications (e.g. radio waves). Telecommunication requires three basic elements to transmit information; these include the transmitter, a transmission medium and a receiver.

Within the Town, telephone service providers include Bell Canada and Cogeco while internet is provided by Bell Canada, Cogeco and M.N.S.I.

Switches, another important piece of infrastructure for cable internet and landline telephone is the interface which routes communications to and from transmitter to receiver and vice versa. There are

currently four switch stations in LaSalle that are owned and operated by Bell Canada. Towers and switches are essential for residents, the LaSalle Fire Service and other emergency personnel for a number of reasons. If a tower, station or switch is compromised in the event of a fire, the ability to respond to emergency personnel could be obstructed or delayed. Similarly, the time of arrival on-scene may be compromised if emergency person received delayed or insufficient information.

A central communication centre operating out of the Town of LaSalle Police Headquarters provides dispatching services to police, fire and public works with a backup dispatching centre in a nearby Township. The Town of LaSalle Police will be discussed in greater detail in **Section 8.1** of this C.R.A., in the Public Safety Response Profile.

#### 5.1.5 Gas, Chemical and Oil Industries

Union Gas Limited distributes natural gas to commercial and residential customers within the Town of LaSalle. Incidents involving a natural gas leak or gasoline leak require specialized knowledge by first responders to mitigate the emergency. Training of fire service personnel should include response protocols as well as environmental mitigation strategies and decontamination procedures.

#### 5.1.6 Transportation

Transportation systems are integral in ensuring emergency responders are able to quickly respond to an emergency. Road networks also enable persons to evacuate areas affected by an emergency. When roads become impassable or congested due to unsafe conditions, damage to infrastructure or increased traffic flow, both emergency response and evacuation may be compromised, further compounding the impact of the emergency. Delayed response may result in poorer outcomes for victims of the emergency, and also create worsened conditions for first responders, which could impact their personal safety. Further discussion regarding the town's transportation infrastructure can be found in **Section 3.2** within the Geographic profile.

#### 5.1.7 Continuity of Government Services

Government services include any assets or services that are owned or operated by any level of government. In the municipal context, this might include municipal office buildings, courthouses, public utilities, local public safety services, corporate services, infrastructure and planning and much more. Some of these services are highly interconnected; failure of one could lead to the failure of many. As such, continuity of operations planning or business continuity planning is essential in enabling a municipality with the ability to continuously provide services even during a major disruption.

#### 5.1.8 Public Safety and Security

Public safety and security is an essential critical infrastructure of any municipality and includes multiple agencies, systems and resources that contribute to the well-being of a community. Disruption to any of the services listed in **Section 8.0** could potentially have devastating impacts on the integrity of a



functioning society with resultant consequences involving loss of life, economic loss and/or a rise in a multitude of public health issues.

The LaSalle Fire Service has identified the Essex-Windsor Emergency Medical Services (E.M.S.) and LaSalle Police Service as public safety response agencies that may be tasked with or able to assist in some capacity in the collective response to an emergency situation.

Further discussion regarding the capabilities of these response agencies is provided in **Section 8.0**.

The L.F.S. is an active participant in the County of Essex Mutual Aid Plan. Other participants include the Town of Amherstburg, the Town of Essex, the Town of Kingsville, the Town of Lakeshore, the Town of Leamington, the Town of Tecumseh, and the City of Windsor. The plan cites the minimum conditions for participation in the program, activation procedures, appointment processes for coordinators and alternates, roles and responsibilities of those participating in the plan among other provisions.

#### 5.1.9 Health

The Windsor-Essex County Health Unit (W.E.C.H.U.) has been recognized by the Town of LaSalle as a critical infrastructure. The W.E.C.H.U., in partnership with other health care agencies, provides professional health care to residents of the City of Windsor and Essex County. The Unit operates out of three main locations in Windsor, Essex (Town) and Leamington.

The Windsor Regional Hospital is the regional provider of advanced medical care, providing a range of specialized services to more than 400,000 people in Windsor and Essex County. Service capabilities include:

- Complex trauma;
- Renal dialysis;
- Cardiac care;
- Stroke and neurosurgery;
- Intensive care;
- Acute mental health;
- Family birthing centre;
- Neonatal intensive care;
- Paediatric services;
- Regional cancer services; and
- Other medical and surgical services.



The hospital employs 3,873 staff in total, which includes 1,855 nurses, 1,041 support staff, 620 allied health professionals, 542 physicians and 152 medical students. There are 500 acute beds, 6 acute adolescent psychiatry beds, 68 acute adult psychiatry beds and 152 private rooms.<sup>10</sup>

<sup>10</sup> Source: "Statistics", Windsor Regional Hospital, April 1, 2017 to March 31, 2018, [https://www.wrh.on.ca/Site\\_Published/wrh\\_internet/RichText.aspx?Body.QueryId.Id=91035&LeftNav.QueryId.Categories=169](https://www.wrh.on.ca/Site_Published/wrh_internet/RichText.aspx?Body.QueryId.Id=91035&LeftNav.QueryId.Categories=169)

## 6.0 Demographics Profile

As referenced in *O. Reg. 378/18: Community Risk Assessments*, the demographic profile assessment includes analysis of the composition of the community's population, respecting matters relevant to the community such as population size and dispersion, age, gender, cultural background, level of education, socioeconomic make-up and transient population. The following sections consider these demographic characteristics within the Town of LaSalle.

### 6.1 Population and Age

Population and age are important risk topics to understand given that people are the source of emergency calls and certain demographics are at greater risk to injury or death from fire than others. Over a fifteen year timeframe (2001-2016), the Town has experienced varying levels of population growth. As shown in **Table 16**, LaSalle's population increased steadily since 2001 with a 9.4% increase over a five year period (2001-2006). The highest increase in total private dwellings occurred between 2001 and 2006 by 12.2%.

**Table 16: Historic Growth in Population and Households**

Year	Population	Change (%)	Total Private Dwellings*	Change (%)
2001	25,285	-	8,504	-
2006	27,652	9.4%	9,537	12.2%
2011	28,643	3.6%	10,103	5.9%
2016	30,190	5.4%	10,793	6.8%

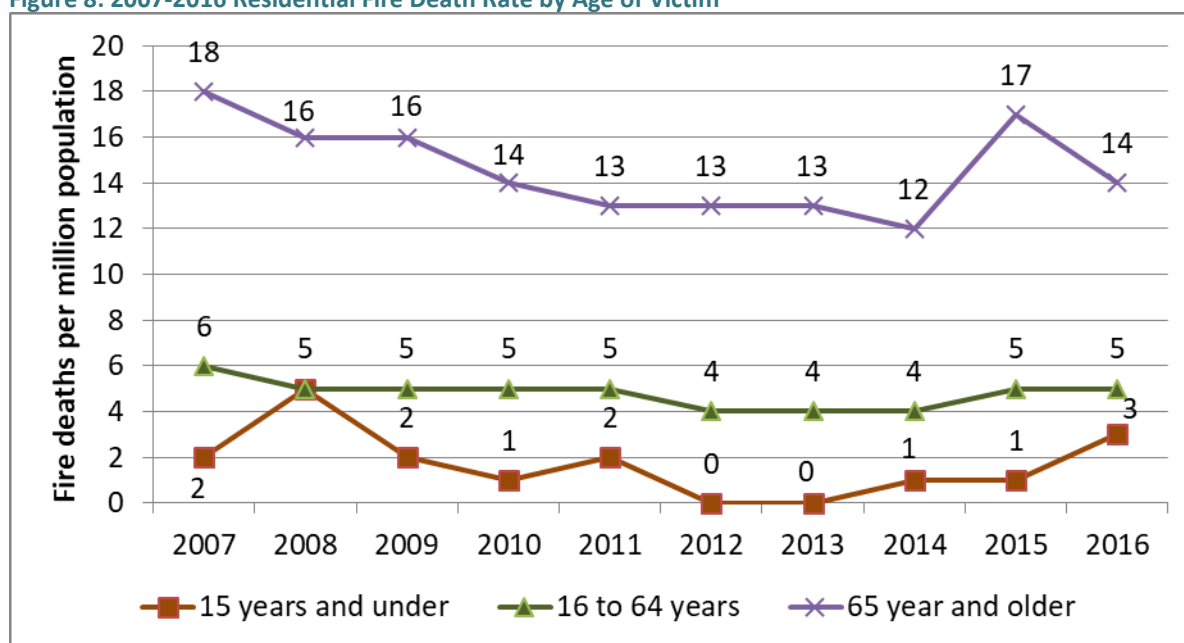
*\*Includes dwellings that may not have a permanently residing person or group of persons.  
Source: Statistics Canada, 2001, 2006, 2011 and 2016 Census.*

Canada's aging population has been recognized as one of the most significant demographic trends in the nation. According to Statistics Canada, from 2011 to 2016 Canada experienced "*the largest increase in the proportion of seniors since Confederation*" due to the baby boomer generation reaching the age of 65. There are now more Canadians over the age of 65 (16.9% of the population) than there were children aged 14 years and younger (16.6%).<sup>11</sup>

<sup>11</sup> Source: Statistics Canada, *The Daily: Age and sex, and type of dwelling data: key results from the 2016 Census*  
<http://www.statcan.gc.ca/daily-quotidien/170503/dq170503a-eng.htm?HPA=1>

Seniors (those 65 years and over) are considered to represent one of the highest fire risk groups across the province based on residential fire death rate (fire deaths per million of population). **Figure 8** illustrates the results of an analysis revised by the O.F.M.E.M.'s Fire Statistics in December 2017. The figure illustrates the fire death rate which is the number of fire fatalities per million of population. Through this analysis, it is identified that seniors at an increased risk than other age groups. However, the fire death rate for seniors has been decreasing from 33 per million population in 1997.<sup>12</sup>

**Figure 8: 2007-2016 Residential Fire Death Rate by Age of Victim**



(Source: O.F.M.E.M.)

Identifying a community's population by age is a core component of developing the Community Risk Assessment and identifying specific measures to mitigate risks associated with a specific age group, such as seniors. **Table 17** provides a comparison of the Town's population by age group based on the 2016 census completed by Statistics Canada to that of the Province.

**Table 17: Population by Age Group - Town of LaSalle and Province of Ontario**

Age Group	Town of LaSalle		Province of Ontario	
	Population	% Total	Population	% Total
0 to 4 years	1,480	5%	697,360	5%

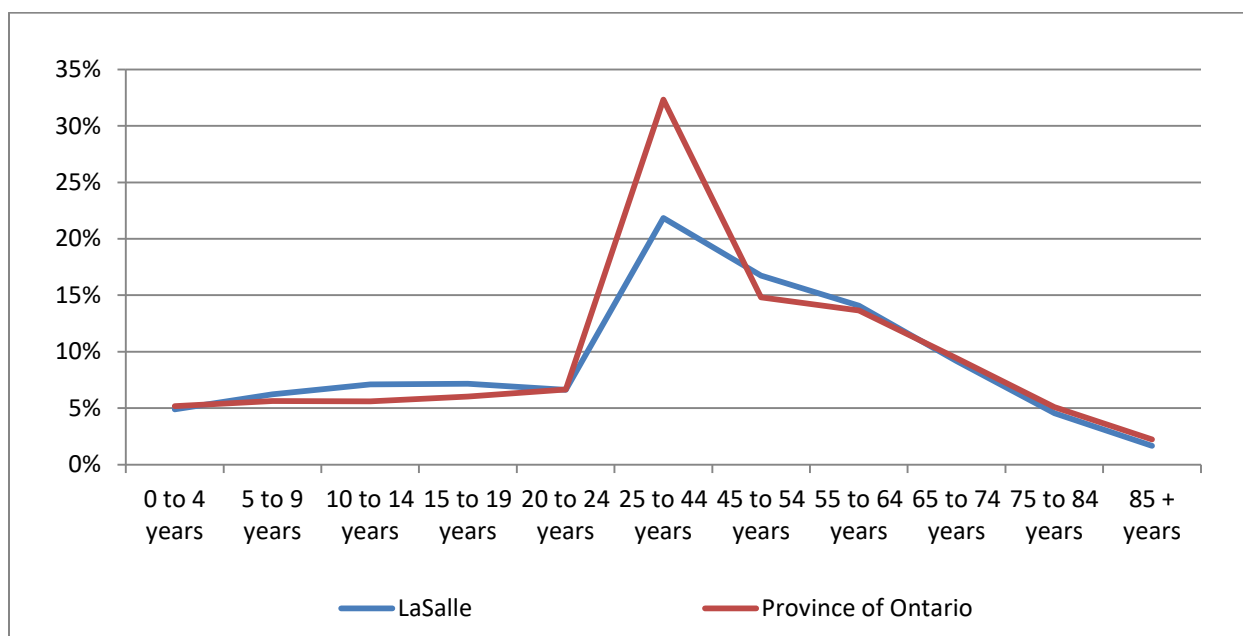
<sup>12</sup> Source: Ministry of Community Safety and Correctional Services. *Ontario Residential Fatal Fires*. 2016 December. [https://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFatalities/HomeFireFatalitiesChildrenAdultsSeniors/stats\\_fatal\\_res.html](https://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFatalities/HomeFireFatalitiesChildrenAdultsSeniors/stats_fatal_res.html)

	Town of LaSalle		Province of Ontario	
5 to 9 years	1,880	6%	756,085	6%
10 to 14 years	2,140	7%	754,530	6%
15 to 19 years	2,165	7%	811,670	6%
20 to 24 years	1,995	7%	894,390	7%
25 to 44 years	6,595	21%	3,453,475	26%
45 to 54 years	5,050	17%	1,993,730	15%
55 to 64 years	4,245	14%	1,835,605	14%
65 to 74 years	2,765	9%	1,266,390	9%
75 to 84 years	1,375	5%	684,195	5%
85 + years	500	2%	301,075	2%
<b>Total</b>	<b>30,190</b>	<b>100%</b>	<b>13,448,495</b>	<b>100%</b>
Median Age of the Population	42	-	41	-
Population aged 14 and under	5,500	18%	2,207,975	17%
Population aged 65 and over	4,640	16%	2,251,660	16%

(Source: 2016 Census, Statistics Canada)

The age distribution of the Town of LaSalle should be considered when developing targeted public education programs and risk reduction strategies. The above table demonstrates that the age distribution of the Town and the Province follow similar patterns overall with slight variations. However, there are a few notable observations in the percentages presented. One key observation is that the percentage of youth aged 14 and under in the Town is 1% higher than the Province. The proportion of the population aged 65 and older represents 15% of the Town's overall population of 30,190 and is slightly lower compared to the Province (16%). Although this may be a smaller proportion of the population, seniors still account for a key demographic comprised of 4,640 individuals. Further, this does not negate the trend of the aging population where the proportion of seniors will continue to increase over the coming years. An additional 31% of the Town's population falls between the age bracket of 45 and 64 who are aging towards the senior's demographic of 65 years of age and older. The age distribution of individuals living in LaSalle is further illustrated in **Figure 9**.

Figure 9: Population Distribution – LaSalle and Ontario (2016 Census)



**Key Risk: Seniors (those 65 years and over) are considered to represent one of the highest fire risk groups across the Province based on residential fire death rate (fire deaths per million of population). According to the 2016 Census, seniors represent 16% of the Town's total population.**

**Key Risk: Of the Town's total population, 31% fall into the age range of 45 to 64 representing a cohort aging towards the seniors demographic of 65 years or older.**

## 6.2 Gender

N.F.P.A. 1730 considers gender as part of a Community Risk Assessments due to the findings that, based on historic data, males are more likely to be injured or lose their life in a fire.<sup>13,14</sup> **Table 18** displays the gender distribution by age for the Town of LaSalle. The proportion of male versus female is fairly evenly split at 49% male and 51% female, as would be expected. When specific age groups are reviewed, there are minor variations. One of the greater differences is the proportion of males (34%) compared to females (66%) for the 85 years and over age group. Based on these statistics, it is not anticipated that public education programming would be refined based on gender. The impact of gender distribution on

<sup>13</sup> National Fire Protection Association. (2014, October). Characteristics of Home Fire Victims:

<http://www.N.F.P.A.org/~media/Files/Research/N.F.P.A%20reports/Victim%20Patterns/oshomevictims.pdf>

<sup>14</sup> U.S. Department of Homeland Security. (2015, January). Fire Risk in 2011. U.S. Fire Administration:

<http://nfa.usfa.dhs.gov/downloads/pdf/statistics/v15i8.pdf>

public education programming would be more notable in a community with unique demographics such as those that have transient populations due to employment, for example.

**Table 18: Gender Distribution by Age – Town of LaSalle**

Age Group	Total Population	Male	%	Female	%
0 to 4 years	1,480	755	51%	725	49%
5 to 9 years	1,885	955	51%	930	49%
10 to 14 years	2,140	1,090	51%	1,050	49%
15 to 19 years	2,160	1,130	52%	1,030	48%
20 to 24 years	1,995	990	50%	1,005	50%
25 to 44 years	6,590	3,140	48%	3,450	52%
45 to 54 years	5,045	2,430	48%	2,615	52%
55 to 64 years	4,245	2,110	50%	2,135	50%
65 to 74 years	2,765	1,325	48%	1,440	52%
75 to 84 years	1,375	660	48%	715	52%
85 + years	495	170	34%	325	66%
<b>Total</b>	<b>30,175</b>	<b>14,755</b>	<b>49%</b>	<b>15,420</b>	<b>51%</b>

(Source: 2016 Census, Statistics Canada)

### 6.3 Socioeconomic Circumstances

Socioeconomic circumstances of a community are known to have a significant impact on fire risk. Socioeconomic status is reflected in an individual's economic and social standing and is measured in a variety of ways. These factors can be reflected in the analysis of socioeconomic indicators such as labour force status, family structure, educational attainment and income as well as household tenure, occupancy, suitability, and cost.

Socioeconomic factors intersect in a number of ways and have direct and indirect impacts on fire risk. One such example is outlined in the Office of the Fire Marshal and Emergency Management's Fire Risk Sub-Model.<sup>15</sup> The Sub-Model makes reference to the relationship between income and fire risk. As one consideration, households with less disposable income may be less likely to purchase fire safety

<sup>15</sup>[https://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/ComprehensiveFireSafetyEffectivenessModel/FireRiskSub-Model/Fire\\_risk\\_submodel.html](https://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/ComprehensiveFireSafetyEffectivenessModel/FireRiskSub-Model/Fire_risk_submodel.html)

products (e.g., smoke alarms, fire extinguishers, etc.), which puts them at higher risk of experiencing consequences from a fire. Another consideration is that households living below the poverty line may have a higher number of persons per bedroom in a household and/or children who are more likely to be at home alone. These circumstances would impact both the probability and consequence of a fire. While these complex relationships between socioeconomic circumstances and the probability / consequence of a fire are not well understood, this Community Risk Assessment seeks to explore these factors.

### 6.3.1 Labour Force Status

Those who are economically disadvantaged, including low-income families, the homeless and perhaps those living alone, may experience a higher fire risk. The O.F.M.E.M.'s Fire Risk Sub-Model (described in **Section 2.2** of this document) references a number of reports that suggest there is a correlation between income levels and fire risk. The reports identify the following factors:

- The higher number of vacant buildings found in low-income neighborhoods attract the homeless. This introduces risks such as careless smoking, drinking and unsafe heating practices.
- Building owners are less likely to repair building systems (electrical, mechanical, suppression) due to affordability, increasing fire risk from improper maintenance.
- Households with lower disposable income are less likely to purchase fire safety products (i.e. smoke alarms, extinguishers, cigarette ignition resistant furniture, etc.) due to affordability.
- Households with lower disposable income are more likely to have their utilities shut off due to non-payment, leading to increased risks related to unsafe heating, lighting and cooking practices.
- The 1981 report, "Fire-Cause Patterns for Different Socioeconomic Neighborhoods in Toledo, Ohio" determined that the incendiary fire rate in low-income neighbourhoods is 14.4 times higher compared to areas with the highest median income. Further, fires caused by smoking and children playing occurred at rates 8.5 and 14.2 times higher, respectively.
- Studies have shown that cigarette smoking is inversely related to income. In Canada, findings by the Centre for Chronic Disease Prevention and Control through the National Population Health Survey established that there were nearly twice as many smokers in the lowest income group when compared against the highest (38% vs. 21% respectively).

- Those with low education and literacy levels are inhibited in their ability to read instruction manuals and warning labels and less likely to grasp fire safety messages.<sup>16</sup>

Labour force status is a possible indicator of income levels which directly influence fire risk (e.g. lower income, increased fire risk). The participation rate (i.e. the proportion of residents in the labour force) can also be an indicator of income and can be considered alongside unemployment rates (e.g. lower participation rate and higher unemployment could mean lower income, higher fire risk).

**Table 19** captures the Town's labour force status. In terms of labour force, the Town has a slightly higher participation rate than the Province (66% versus 65%).

**Table 19: Labour Force Status – Town of LaSalle and Province of Ontario**

	Town of LaSalle	%	Province of Ontario	%
<b>In the labour force</b>	16,165	66%	7,141,675	65%
<i>Employed</i>	15,345	63%	6,612,150	60%
<i>Unemployed</i>	825	3%	529,525	5%
<b>Not in the labour force</b>	8,260	34%	3,896,765	35%
<b>Total</b>	24,425	100%	11,038,440	100%

For the population aged 15 years and older in private households in LaSalle, 76% received employment income in 2015 whereas 71% received employment income for the Province (see **Table 20**). This suggests that the Town faces a lower fire risk in comparison to the Province from the perspective of labour force and employment income status.

**Table 20: Employment Income in LaSalle**

	Town of LaSalle	%	Province of Ontario	%
<b>Without Employment Income (2015)</b>	5,960	24%	3,247,760	29%
<b>With Employment Income (2015)</b>	18,430	76%	7,790,680	71%
<b>Total</b>	24,390	100%	11,038,440	100%

Source: Census 2016, Statistics Canada

<sup>16</sup>Source: "Comprehensive Fire Safety Effectiveness Model", Last modified February 8, 2016, [https://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/ComprehensiveFireSafetyEffectivenessModel/FireRiskSub-Model/Fire\\_risk\\_submodel.html#P190\\_7337%20\(See%20section%203.5.5\)](https://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/ComprehensiveFireSafetyEffectivenessModel/FireRiskSub-Model/Fire_risk_submodel.html#P190_7337%20(See%20section%203.5.5))



### 6.3.2 Family Structure

Family structure is another indicator of socioeconomic status and level of income. For example, single parent families are often more economically challenged due to the fact that there is only one income. These households also have fewer resources to arrange childcare, increasing the likelihood of fires caused by unsupervised children.<sup>17</sup> For example, a higher proportion of lone-parent families could reflect lower household income and therefore a higher fire risk. A higher proportion of lone-parent families also have the possible increased likelihood of a child being home alone or unsupervised leading to an increased fire risk.

Couple families without children in LaSalle represent 35% of the population in private households and 13% are lone-parent families, lower than the percentage of lone-parent families in Ontario at 17%. According to the Statistics Canada 2016 Census, 52% of couple census families in private households have children, 7% higher than the Province (45%). This suggests that the Town has a lower fire risk than the Province with respect to family structure and lone-parent families in particular.

**Table 21: Family Structure – LaSalle and Ontario**

	Town of LaSalle	%	Province of Ontario	%
Couple-Only	3,145	35%	1,428,575	38%
Couple Families (with children)	4,585	52%	1,708,995	45%
Lone-Parent Families	1,145	13%	644,975	17%
<b>Total</b>	<b>8,875</b>	<b>100%</b>	<b>3,782,540</b>	<b>100%</b>
<i>(Source: Statistics Canada, 2016 Census)</i>				

### 6.3.3 Educational Attainment and Income

The relationship between educational attainment and income is complex. An analysis conducted by Statistics Canada has found that high-income Canadians are generally more likely to be highly educated. Over two thirds (67.1%) of the top 1% had attained a university degree compared to 20.9% of all Canadians aged 15 and over.<sup>18</sup> Based on this national trend and for the purposes of this Community Risk Assessment it is assumed that a higher education leads to more disposable income and a lower fire risk.

<sup>17</sup>[https://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/ComprehensiveFireSafetyEffectivenessModel/FireRiskSub-Model/Fire\\_risk\\_submodel.html#P190\\_7337](https://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/ComprehensiveFireSafetyEffectivenessModel/FireRiskSub-Model/Fire_risk_submodel.html#P190_7337) (See section 3.5.5)

<sup>18</sup> [https://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-014-x/99-014-x2011003\\_2-eng.cfm](https://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-014-x/99-014-x2011003_2-eng.cfm) Accessed June 20th

It is also assumed that households with more disposable income are more likely to invest in fire life safety products such as fire extinguishers and smoke alarms reducing the fire risk.

As shown in **Table 22**, 59% of residents in LaSalle have a postsecondary Certificate, Diploma or Degree, which is 4% higher than the Province. The median total income of households in 2015 for the Town of LaSalle was \$102,259, well above the Provincial median total income per household of \$74,287. This suggests that the Town as a whole has a lower fire risk from the perspective of income using educational attainment as an indicator.

**Table 22: Educational Attainment of Individuals 15 years of age and older – Town of LaSalle**

<b>Educational Attainment</b>	<b>Town of LaSalle</b>	<b>%</b>	<b>Province of Ontario</b>	<b>%</b>
<b>No Certificate; Diploma or Degree</b>	3,365	13%	1,935,355	18%
<b>High School Diploma or Equivalent</b>	6,735	28%	3,026,100	27%
<b>Postsecondary Certificate; Diploma Or Degree</b>	14,325	59%	6,076,985	55%
<b>Total</b>	24,425	100%	11,038,440	100%

(Source: Statistics Canada, 2011 National Household Survey)

Income can also be viewed through the lens of income decile groups. As stated by Statistics Canada, a “decile group provides a rough ranking of the economic situation of a person based on his or her relative position in the Canadian distribution of the adjusted after-tax income of economic families”. Economic family income decile group for the population in private households is presented in **Table 23** illustrating that a higher portion of the population in LaSalle falls within the top distribution of income decile groups when compared to the overall population of the Province. These statistics are suggestive of lower fire risk within the Town from the perspective of income.

**Table 23: Economic Family Income Decile Group for the Population in Private Households - Town of LaSalle and Ontario**

<b>Income Decile Group</b>	<b>Town of LaSalle</b>		<b>Province of Ontario</b>		<b>Difference</b>
	<b>Population</b>	<b>%</b>	<b>Population</b>	<b>%</b>	
Bottom Decile	1,000	3%	1,346,645	10%	-7%
Second Decile	1,345	4%	1,280,675	10%	-5%
Third Decile	1,655	5%	1,237,415	9%	-4%
Fourth Decile	2,085	7%	1,223,510	9%	-2%
Fifth Decile	2,590	9%	1,246,925	9%	-1%
Sixth Decile	3,085	10%	1,279,095	10%	1%
Seventh Decile	3,435	11%	1,321,220	10%	2%

Income Decile Group	Town of LaSalle		Province of Ontario		Difference
	Population	%	Population	%	
Eighth Decile	4,125	14%	1,382,795	10%	3%
Ninth Decile	4,765	16%	1,464,415	11%	5%
Top Decile	5,805	19%	1,459,465	11%	8%
<b>Total</b>	29,890	100%	13,242,160	100%	-

(Source: Statistics Canada, 2016 Census)

### 6.3.4 Household Tenure, Occupancy, Suitability and Costs

#### **Housing Tenure**

Housing tenure reflects socioeconomic status whereby a low home ownership rate may reflect lower incomes in the community and a higher overall fire risk. **Table 24** summarizes household statistics for the Town of LaSalle and the Province of Ontario including tenure, occupancy, suitability and costs. The Town has a higher proportion of dwellings that are owned versus rented when compared to the Province (93% owned in LaSalle versus 70% in the Province).

#### **Occupancy**

A higher proportion of multiple persons per household can result in increased fire loss (consequence) resulting in a higher risk. In the Town, only 40 households (0.4% of total households) have more than one person per room. This reflects a lower percentage compared to the Province where 2% of households have more than one person per room.

#### **Suitability**

The National Household Survey reports on housing suitability which refers to whether a private household is living in suitable accommodations according to the National Occupancy Standard. Suitable accommodations are defined by whether the dwelling has enough bedrooms based on the age and relationships among household members. Based on this measure, 2% (or 195) of the Town's households are classified as not suitable compared to 6% for the Province as a whole (resulting in nearly 311,005 "not suitable" households across Ontario). From the perspective of housing suitability, the Town has a lower fire risk than the Province.

#### **Housing Costs**

The cost of shelter may also be indicative of the amount of disposable income within a household. Households with less disposable income have fewer funds to purchase household fire life safety items resulting in a higher risk. In LaSalle, 11% of households spend 30% or more of the household total income on shelter costs. This is 17% lower than the Province, where 28% of households spend 30% or more of income on shelter costs. Looking closer at shelter costs, the median value of dwellings in LaSalle is \$276,261 (\$124,235 less than the Province). The Town also has a lower median monthly shelter costs

for owned and rented dwellings than the Province. This analysis suggests that from the perspective of shelter suitability, cost and the impact on income, the Town has a lower fire risk.

**Table 24: Household Tenure, Occupancy, Suitability, and Costs – Town of LaSalle and Ontario**

	Town of LaSalle	%	Province of Ontario	%
Household Tenure				
Owner	9,985	93%	3,601,825	70%
Renter	705	7%	1,559,720	30%
Total Households	10,690	100%	5,169,175	100%
Household Occupancy				
One person or fewer per room	10,650	100%	5,046,810	98%
More than one person per room	40	0.4%	122,360	2%
Total Households	10,690	100%	5,169,175	100%
Housing Suitability				
Suitable	10,495	98%	4,858,170	94%
Not suitable	195	2%	311,005	6%
Total Households	10,690	100%	5,169,175	100%
Shelter Costs				
Spending less than 30% of household total income on shelter costs	9,480	89%	3,694,385	72%
Spending 30% or more of household total income on shelter costs	1,185	11%	1,411,900	28%
Total Households	10,665	100%	5,106,290	100%
Median value of dwellings	\$276,261		\$400,496	
Median monthly shelter costs for owned dwellings	\$1,099		\$1,299	
Median monthly shelter costs for rented dwellings	\$964		\$1,045	
(Source: Statistics Canada, 2016 Census)				

## 6.4 Ethnic and Cultural Considerations

Cultural diversity and ethnic background can be factors for fire service providers to consider in developing and delivering programs related to fire prevention and public education. Communication barriers, in terms of language and the ability to read written material, may have an impact on the success of these programs. There may also be familiarity challenges related to fire safety standards

within recent immigrant populations. A high proportion of immigrants could demonstrate a higher fire risk due to a large population that has a potential for: lower income; lack of familiarity with local fire life safety practices; and/or may experience possible language barriers.

**Table 25** summarizes the overall immigrant status of the population in LaSalle. The Town has a lower proportion of immigrants (18%) compared to Ontario as a whole (29%). This population should be monitored as new Census data becomes available for consideration when planning public education programs and materials.

**Table 25: Immigration Status – Town of LaSalle and Province of Ontario**

	Town of LaSalle	%	Province of Ontario	%
Non-immigrants	24,750	82%	9,188,815	69%
Immigrants	5,100	18%	3,852,145	29%
Before 1981	2,145	6%	1,077,745	8%
1981 to 1990	725	2%	513,995	4%
1991 to 2000	950	3%	834,510	6%
2001 to 2010	920	3%	953,730	7%
2001 to 2005	515	2%	490,560	4%
2006 to 2010	410	1%	463,170	3%
2011 to 2016	360	1%	472,170	4%
Non-permanent residents	85	0%	201,200	2%
<b>Total</b>	<b>29,935</b>	<b>100%</b>	<b>13,242,160</b>	<b>100%</b>

(Source: 2016 Census, Statistics Canada)

Knowledge of official languages based on the 2016 Statistics Canada census information is included in **Table 26** for the Town of LaSalle and Ontario. As shown, 87% or 26,455 people in the Town speak English only. In addition, 12% of the population possess knowledge of both English and French, 1% or 200 people have no knowledge of English or French, and 15 people speak French only. The potential for communication barriers should be considered and monitored, especially as the Town continues to grow in the future.

**Table 26: Knowledge of Official Language – Town of LaSalle and Ontario**

Language	Town of LaSalle		Ontario	
	Total	% Total	Total	% Total
<b>Total population (non-institutional)</b>	30,170	-	13,312,865	-
English Only	26,455	87%	11,455,500	86%

Language	Town of LaSalle		Ontario	
	Total	% Total	Total	% Total
French Only	15	0%	40,040	0%
English and French	3,500	12%	1,490,390	11%
Neither English nor French	200	1%	326,935	2%

## 6.5 Population Shift

The population within a community can shift at various times during the day or week and throughout the year. Population shift can be a result of a number of factors including employment, tourism, and education. In some municipalities, residents regularly leave the community for employment. Other communities may be major tourist and vacation destinations resulting in large population shifts related to seasonal availability of tourism activities. This can result in an increased risk due to overnight tourism accommodation (sleeping) which can impact the demand for fire protection services. Another impact of population shift is an increase in traffic resulting in an increase in the number of motor vehicle calls and emergency response times.

### 6.5.1 Tourism

There are several events each year and attractions that draw residents and non-residents alike to the Town of LaSalle. There are also unique geographical features including 25 kilometres of trails, waterways and conservation areas that offer a wide range of recreational activities. While these features and seasonal properties may contribute to some population shift that is seasonal, overall, they do not contribute to a significant shift in population in terms of tourism accommodation.

### 6.5.2 Education and Employment

Educational institutions are a key source for population shift in larger communities as they attract people from outside of the typical community. They are important to consider since they may have school-based residences, or contribute to a population that is not captured through the census. The closest major educational institution to LaSalle is the University of Windsor. Although the proportion of students that commute to the University from the Town is not included in this study, it is assumed that some residents of LaSalle travel to Windsor for education purposes given there are no major institutions in the immediate vicinity and many people travel outside of the Town for employment.

LaSalle's proximity to numerous large job markets and convenient access to major population centres by way of Highway 401, in addition to its higher percentage of residential occupancies, suggests that there is potential for a day time population shift outside of the Town to nearby municipalities for employment purposes. **Table 27** shows commuting destination trends of the residents of LaSalle based on 2016 Census data. It appears that a large portion of LaSalle's labour force (10,500) commutes to a different

census subdivision. A shift in commuter population may impact the demand for fire protection services. It also has an impact on the availability and response times of volunteer firefighters that work outside of the Town. These figures are important from a fire suppression standpoint as large numbers of person commuting to and from work could increase the number of vehicle collision calls to which the fire service responds.

**Table 27: Commuting Destination – Town of LaSalle**

<b>Commuting Destination</b>	<b>Total</b>
Commute within census subdivision of residence	1,705
Commute to a different census subdivision within census division of residence	10,500
Commute to a different census subdivision and census division within province or territory of residence	235
Commute to a different province or territory	35
<b>Total</b>	<b>12,475*</b>

*\*Commuting destination for the employed labour force aged 15 years and over in private households with a usual place of work - 25% sample data*

*Source: 2016 Census, Statistics Canada*

**Key Finding:** *There are shifts in commuter populations throughout the day; this population shift may impact the demand for fire protection services.*

## 7.0 Hazards Profile

As referenced in the *O. Reg. 378/18: Community Risk Assessments*, the hazard profile assessment includes analysis of the hazards within the community, including natural hazards, hazards caused by humans, and technological hazards to which the fire service may be expected to respond, that may have a significant impact on the community. **Section 7** considers these hazards within the Town of LaSalle.

### 7.1 Hazard Identification and Risk Assessment in Ontario

A hazard is defined as a phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.<sup>19</sup> Hazards can be natural, human-caused or technological. It is important to identify and consider these hazards from a fire risk, emergency response and overall public safety perspective in order to assist local emergency response personnel prepare the risks within their communities, allowing for the creation of exercise, training programs and plans based on these scenarios.

Under the *Emergency Management and Civil Protection Act* (E.M.C.P.A.), municipalities are required to *'identify and assess the various hazards and risks to public safety that could give rise to emergencies and identify the facilities and other elements of the infrastructure that are at risk of being affected by emergencies'*. 2002, c. 14, s. 4.<sup>20</sup> To assist municipalities in identifying their own risks and hazards that have occurred, and therefore have the potential to impact their community, the Province of Ontario has provided guidance through the Ontario Provincial Hazard Identification and Risk Assessment (H.I.R.A.) to assist municipalities in preparing for, mitigating, responding to and recovering from emergency incidents.

The first step of a municipal H.I.R.A. process is to identify which events could occur in the local municipality, based on historical review of the municipality's hazards or in using the provincial list of natural, human-caused and technological hazards as a guide. Next, a risk assessment is undertaken, which considers the frequency of the identified hazards occurring within certain timeframes and the overall consequence level of an event occurring. The hazard risk assessment results are used to categorize the hazards into risk levels with the ultimate goal of aiding the municipality in its emergency

<sup>19</sup> Glossary of Terms, emergency Management Ontario, Last Modified: May 25, 2016 [https://www.emergencymanagementontario.ca/english/emcommunity/response\\_resources/GlossaryOfTerms/glossary\\_of\\_terms.html](https://www.emergencymanagementontario.ca/english/emcommunity/response_resources/GlossaryOfTerms/glossary_of_terms.html)

<sup>20</sup> Source: "Hazard Identification and Risk Assessment for the Province of Ontario", Last modified August 27, 2018: [https://www.emergencymanagementontario.ca/english/emcommunity/ProvincialPrograms/hira/hira\\_2012.html#P3751\\_343357](https://www.emergencymanagementontario.ca/english/emcommunity/ProvincialPrograms/hira/hira_2012.html#P3751_343357)



management efforts and programming. The HIRA is to be reviewed annually based on current legislative requirements.

## 7.2 Town of LaSalle H.I.R.A., 2017

The Town of LaSalle completed its latest H.I.R.A. in 2017 in compliance with legislative requirements. Through the risk assessment and risk analysis process, the top risks in LaSalle (assigned a risk level of high, very high or extreme) were identified. The H.I.R.A. assigns consequence levels and probability factors to hazards based on the potential for fatalities, injuries and evacuations, property damage, economic or environmental loss and impact on critical infrastructure.

The hazards that ranked the highest in the Town's hazard identification and risk assessment for 2017 include the following hazards listed in **Table 28**.

**Table 28: Top Hazards in the Town of LaSalle**

Hazard	Town H.I.R.A. Risk Level
Tornado	20
Terrorism	18
Epidemic	16
Transportation Incident	16
Snowstorm/blizzard	15
Explosion/Fire	15
Natural gas/oil emergency	15
Earthquake	15
Flood	12
Severe thunderstorm/rain event	12
Transport via roads	12
Pandemic	12
Fixed Site Incident	12
C.B.R.N.E.	12

*Source: LaSalle Fire Service*

Of the hazards listed above, the hazards that are **almost certain to occur** include:

- Fog;
- Lightening;
- Severe thunderstorm/rain event; and
- Transport via roads.

Although classified in the hazard assessment as a rare event, a nuclear incident would have catastrophic consequences. The closest nuclear facility to the Town of LaSalle is the Fermi 2 Power Plant owned by D.T.E. Energy and located in Monroe County Michigan, U.S.A. Notification about emergency situations relating to nuclear incidents are disseminated via the Monroe County Alert Notification System (M.C.A.N.S.) which allows public safety agencies and power plant officials to provide residents and businesses with the most current information. The Emergency Alert System (E.A.S.) or siren system, controlled by Monroe County and Wayne officials covers a 10-mile radius to alert the public of emergency events. Marine radio and patrol boats are to notify those on Lake Erie.

The Town of LaSalle is a participant in the County of Essex Emergency Response Plan (E.R.P.) which details the protocols and procedures to be followed and implemented by emergency response officials in the event of a nuclear emergency. The E.R.P. indicates that the Town of Amherstburg will coordinate the emergency response efforts resulting from an accident at the Fermi 2 Plant due to its location within the primary zone of Fermi 2. As a precaution, the Windsor-Essex County Health Unit has distributed potassium iodine pills to be used in the event of a nuclear emergency which would ideally reduce the amount of radioactive iodine absorbed by the body's thyroid gland.<sup>21</sup> All other municipalities within the county, including LaSalle, are situated within the secondary zone and have been provided with potassium iodine pills at no cost to residents.

As required by the E.M.C.P.A., the H.I.R.A. is to be reviewed annually as the identified hazards are subject to change over time. The Fire Service Master Plan of which this Community Risk Assessment informs, includes a discussion on the emergency management programs and operational approaches to such hazards.

***Key Finding: The hazards that are most likely to occur within the Town include fog, lightning, severe thunderstorms and road transportation incidents.***

***Key Finding: The top four hazards in the Town as identified by the 2017 H.I.R.A. includes Tornado, Terrorism, Epidemic, and Transportation Incident.***

<sup>21</sup> Source: "Amherstburg residents will be given iodide pills to protect against potential nuclear emergency." CBC News, Posted: Jun 02, 2017: <https://www.cbc.ca/news/canada/windsor/amherstburg-residents-will-be-given-iodide-pills-to-protect-against-potential-nuclear-emergency-1.4142478>

## 8.0 Public Safety Response Profile

As referenced in *O. Reg. 378/18: Community Risk Assessments*, the public safety response profile assessment includes analysis of the types of incidents responded to by other entities in the community, and those entities' responsibilities. These entities could include police, ambulance or fire for example that may be tasked with or able to assist in some capacity the collective response to an emergency situation. The following sections consider these public safety response characteristics within the Town of LaSalle.

### 8.1 LaSalle Police Service

#### MISSION STATEMENT

*Our sole mission is to protect lives and property of the citizens we serve, provide a safe community, improve quality of life, and prevent crime while working in partnership with the community.*

Policing services are provided to the Town of LaSalle by the LaSalle Police Service (L.P.S.). Community protection is delivered by 37 officers with the support of 16 civilian members. The Service's *Annual Report* presents a total of 11,749 occurrences investigated by LaSalle police officers for 2017 after which no public complaints were received regarding the conduct of any Police officer in the Service that year.

The L.P.S. provides dispatching duties for LaSalle Police, the LaSalle Fire Service, Kingsville Fire Service and Leamington Fire Service. The dispatch centre consists of nine full-time and five part-time communications personnel supported by three additional staff members and one dispatch Supervisor.

The *Annual Report*, 2017 compares all L.P.S. reports in the areas of violence, property, lawless public behaviour and traffic made between 2015 and 2017. The resulting figures are highlighted in **Table 29** below. Analysis indicates there is a steady increase in incidents requiring police presence in the areas of violence, property, lawless public behaviour and traffic over a three year period (2015-2017).

**Table 29: LPS Reports for violence, property, lawless public behaviour and traffic (2015 – 2017)**

Item	2015	2016	2017	# Change	% Change
Violence	324	348	378	+30	+8.62%
Property	408	427	507	+80	+18.74%
Lawless Public Behaviour	316	391	489	+98	+25.06%
Traffic	1,593	1,620	2,526	+906	+55.93%

Source: LaSalle Police Service 2017 Annual Report

## 8.2 Essex-Windsor Emergency Medical Services (E.M.S.)

### MISSION STATEMENT

*The County of Essex, Essex –Windsor Medical Services is committed to providing the highest quality emergency pre-hospital care to the citizens of the County of Essex, the City of Windsor and the Township of Pelee.*

The Essex-Windsor Emergency Medical Services (E.W.E.M.S.) provides the Town of LaSalle with ambulance services operating out of Station 17 (LaSalle Station), one of 12 stations located throughout the County of Essex, City of Windsor and Pelee Island. Essex-Windsor is organized into three divisions; operations, professional standards and planning and physical resources.

Within operations, there are approximately 260 paramedics, eleven District Chiefs, three Deputy Chiefs, a Chief and a support team. The department consists of a robust fleet and equipment inventory with a total of 53 vehicles, mostly ambulances, however, there are additional specialized units available to the E.M.S. personnel including emergency response units, a specialized hazmat unit and various vehicles for administrative, special event and logistical usage.<sup>22</sup> Technology used by the department consists of highly specialized equipment including:

- a Lucas cardiopulmonary resuscitation (C.P.R.) machine that performs hands-free C.P.R.;
- hydraulic stretchers;
- up-to-date cardiac monitor/defibrillators;
- stair chairs; and
- Hover-mat and Hover-Jack system.

The LaSalle Fire Service responds to all tiered response medical emergencies within the Town limits. The L.F.S. has initiated an Advances Cardiac Life Support service and provides and operates semi-automatic defibrillators which can be found on three lead fire trucks. The Medical Tiered Response Agreement of which the L.F.S. is a part of encompasses call types pertaining to multi-casualty incidents, industrial accidents, entrapment, extrication and other rescues as well as motor vehicle collisions requiring E.W.E.M.S. The response criteria for E.W.E.M.S. to initiate a medical tiered response request from the L.F.S. includes incidents involving cardiac respiratory arrest, when resources are limited and when requested by paramedics.

In a 2016 *Essex Windsor E.M.S. Experience and Considerations* report, historic, current and projected experiences of Essex Windsor E.M.S. were considered through the lens of call volume and call response time trends. Analysis of geographical call volume or the amount of responses occurring in a given

<sup>22</sup> Source: "Essex Windsor EMS Experience and Considerations", 2016: <https://coe-pub.escribemeetings.com/filestream.ashx?DocumentId=432>

municipal area indicates a steady increase in call volume over a four year study timeframe (2013-2016). Geographic call volume trends for the Town of LaSalle as found in the report are included in **Table 30** below.

**Table 30: Geographic Call Volume Responded to by Essex Windsor EMS (2013-2016)**

Municipality	2013	2014	2015	2016 <sup>23</sup>	Calls per 1,000 population (2011 Census)
LaSalle	1,655	1,947	2,012	2,128	74.3

Source: Essex Windsor EMS Experience and Consideration, 2016<sup>24</sup>

This type of steady growth is to be expected considering the trend of a growing and aging population throughout the Province and various municipalities across Ontario. Growth and demographic changes within the County of Essex may influence the way in which E.M.S. resources are deployed and utilized. Projected growth and increases in certain demographics (e.g. those aged 65 or more) would be a significant consideration for all public safety response agencies in planning for the future of the community's needs and unique circumstances.

**Key Finding: Analysis of the existing Public Safety Response Profile indicates the availability of an integrated emergency response, including police, fire, and ambulance resources.**

<sup>23</sup> At the time of this report, 2016 call volume values were a projected count.

<sup>24</sup> Source: "Essex Windsor EMS Experience and Considerations", 2016: <https://coe-pub.escribemeetings.com/filestream.ashx?DocumentId=432>

## 9.0 Community Services Profile

As referenced in *O. Reg. 378/18: Community Risk Assessments*, the community service profile assessment includes analysis of the types of services provided by other entities in the community, and those entities' service capabilities. This includes the presence or absence and potential abilities of other agencies, organizations or associations to provide services that may assist in mitigating the impacts of emergencies to which the fire service responds. The following sections consider these community service characteristics within the Town of LaSalle.

### 9.1 Community Services within LaSalle

In addition to the Municipal Control Group (M.C.G.) officials identified in the Town's Emergency Response Plan (E.R.P.), a number of representatives from various community agencies are identified as having responsibilities within the parameters of the E.R.P. to assist in minimizing the effects of an emergency in the Town of LaSalle.

#### 9.1.1 Canadian Red Cross

In the Windsor-Essex area, the Canadian Red Cross Disaster Management program has strategically positioned materials for expedient response to disasters in local and surrounding areas. These materials include a command and administration module (providing mobile workspaces for up to four persons plus communications support), one 50 person shelter module (containing 50 cots, blankets, signage, and administrative resources), one 200 person shelter module (containing 200 cots and blankets), hygiene kits, Emergency Response Team kits, and two support vehicles.

This is complemented by additional resources positioned throughout the Province including, but not limited to, Information Technology kits, fifty-five 50 person shelter modules, two 100 person shelter modules, twenty-five 200 person intermodal containers, four additional command and administration modules, clean-up kits, and fleet.

There are 43 volunteers in Windsor who are currently trained and ready to respond. Additional volunteers from Chatham and Sarnia are available for support as well.

#### 9.1.2 Essex Region Conservation Authority (E.R.C.A.)

Under the E.R.P., the Town will seek advice from the Essex Region Conservation Authority in the event of a flood emergency. The E.R.C.A. is responsible for monitoring stream flow, lake and river water levels, ice conditions, soil saturation levels and the provision of flood warnings to local municipalities and agencies.

### 9.1.3 Essex Powerlines Corporation

Essex Powerline Corporation provides electricity to over 28,000 commercial and residential customers in Amherstburg, LaSalle, Leamington and Tecumseh. The Town's E.R.P. also includes the Essex Powerlines Corporation as a community partner. As outlined in the E.R.P., Essex Powerlines Corporation is responsible for:

- Providing the M.C.G. with electrical safety advice and recommendations to ensure public safety;
- Providing the M.C.G. with initial assessment reports and regular updates of the status of the electrical power grid serving the municipality;
- Coordinating with the E.O.C. Operations Manager and Emergency Site;
- Manager as required, to facilitate safe & expedient restoration of power to critical infrastructure and core services;
- If requested by Emergency Site Manager, providing a field supervisor in the site command structure to facilitate a safe environment for emergency/rescue workers; and
- In the event of extensive damage to the distribution system, and in consultation with the M.C.G., arrange for additional resources as required to assist in the restoration of the electrical power grid.

### 9.1.4 School Board Representatives

The Town of LaSalle has made arrangements with the local School Board to provide schools for use as evacuation and/or reception centres. In addition to providing facilities for evacuation centers, the school boards have also agreed to coordinate activities with respect to maintenance, use and operation of the facilities being used as evacuation/reception centres.

## 10.0 Economic Profile

As referenced in *O. Reg. 378/18: Community Risk Assessments*, the economic profile assessment includes analysis of the economic sectors affecting the community that are critical to its financial sustainability. This involves economic drivers in the community that have significant influence on the ability of the community to provide or maintain service levels. The following sections consider these economic characteristics within the Town of LaSalle

### 10.1 Town of LaSalle Top Employers

Certain industries, employers and events contribute to the economic vitality and well-being of a community. If these facilities, employers or events are impacted through a fire or other emergency, it could have a negative effect on the overall financial stability and/or vitality of a municipality. Situated in close proximity and accessibility to major transportation highways (401), LaSalle's residents and businesses are connected to major economic markets including access to employment centres in the United States (Southeastern Michigan and Northern Ohio) by way of the Detroit-Windsor crossings.<sup>25</sup>

As shown in **Section 6.5.2**, a large portion of LaSalle's labour force commutes to census subdivisions outside of their place of residence. Due to this fact, top employers by number of employees have been included in **Table 31** for the Windsor-Essex area. Top employers in the area with over 1,000 employees include Fiat Chrysler Automobiles, Caesars Windsor, Ford Motor Company and Sutherland Group Canada all of which are located in the City of Windsor.

**Table 31: Top Employers by Number of Employees for the Windsor-Essex Area**

Company	Location	Industry	# of Employees
Fiat Chrysler Automobiles	Windsor	Automotive Assembly	6000
Caesars Windsor	Windsor	Casino	3000
Ford Motor Company	Windsor	Auto Engine Manufacturing	1850
Sutherland Group Canada	Windsor	Call Centre	1350
A.P. Plasman Corp.	Windsor, Tecumseh	Plastics Product Manufacturing	950
Integram – Windsor Seating	Tecumseh	Auto Parts Manufacturing	900
Valiant Machine & Tool (5 divisions)	Windsor	Machinery Manufacturing	900

<sup>25</sup> L.S. Economic Development Website



Company	Location	Industry	# of Employees
T.R.Q.S.S. Inc.	Windsor	Auto Parts Manufacturers	800
Anchor Danly	Windsor	Metal Manufacturing	800
VistaPrint	Tecumseh	Printing Services	760
Green Shield Canada	Windsor	Benefits Insurance	600
N.A.R.M.C.O. Group	Windsor	Auto Parts Manufacturing	600
C.S. Wind Canada	Windsor	Wind Tower Manufacturing	530
Highline Mushrooms	Leamington	Food Crops	510
Accucaps Industries Ltd.	Windsor	Pharma Manufacturing	500

Source: Windsor Essex Economic Development

Specifically in the Town of LaSalle, the top employers include Centerline, Zehrs and the Windsor Crossing Outlet Mall. Centerline is a private corporation that builds custom automated welding and assembly lines for a wide range of customers. The L.F.S. identified that approximately 1,000 skilled trades workers are employed at this site.

**Key Finding: The Town has key facilities/employers that contribute to the economic well-being of the municipality including Centreline, Zehrs, and Windsor Crossing Outlet Mall.**

## 11.0 Past Loss and Event History

As referenced in *O. Reg. 378/18: Community Risk Assessments*, the past loss and event history profile assessment includes analysis of the community's past emergency response experience, including an analysis of the number and types of emergency responses, injuries, deaths and dollar losses, and a comparison of the community's fire loss statistics with provincial fire loss statistics. Evaluation of previous response data will inform decisions on fire protection services delivery including public fire safety education and inspection programs. The following sections consider these past loss and event characteristics within the Town of LaSalle.

### 11.1 Past Loss

Analysis of historical data provides valuable insight into understanding the specific trends within a community. Assessing the key factors of life safety risk and fire risk in relation to provincial statistics provides a foundation for evaluating where specific programs or services may be necessary.

#### 11.1.1 Overall Fire Loss

In terms of overall property loss as a result of fires, **Table 32** shows the total number of fires, and property loss for the Town of LaSalle for the period 2013 to 2017 during which LaSalle experienced a total of 70 fires (involving structures, outdoor fires and vehicles) leading to \$4,868,000 in total property loss. Over this five year period, there were 51 structure fires, 3 outdoor fires and 16 vehicle fires.

**Table 32: Town of LaSalle Total Fire Loss (2013-2017)**

Year	Structures		Outdoor		Vehicle		TOTAL	
	# of Fires	Loss (\$)	# of Fires	Loss (\$)	# of Fires	Loss (\$)	# of Fires	Loss (\$)
2013	11	\$571,900	0	\$ -	2	\$19,000	13	\$590,900
2014	9	\$1,882,500	0	\$ -	6	\$290,500	15	\$2,173,000
2015	7	\$535,500	2	\$7,300	3	\$26,000	12	\$568,800
2016	13	\$1,006,400	1	\$2,500	1	\$20,100	15	\$1,029,000
2017	11	\$468,300	0	\$ -	4	\$38,000	15	\$506,300
<b>Total</b>	<b>51</b>	<b>\$4,464,600</b>	<b>3</b>	<b>\$9,800</b>	<b>16</b>	<b>\$393,600</b>	<b>70</b>	<b>\$4,868,000</b>

(Source: O.F.M.E.M. Standard Incident Reporting)

When looking at structure fires specifically **Table 33** shows the proportion of structure fires and property loss for the period of 2013-2017 based on total number of fires and total property loss for all fires (structures, outdoor and vehicle). Structure fires accounted for 73% of all fires and 92% of total dollar (\$)

loss. For the period of 2013-2017 there were 35,342 structure fires in Ontario representing 66% of all fires. Structure fires accounted for 90% of total property loss or total dollar (\$) loss in the Province.

The proportion of structure fires occurring in the Town for this timeframe is higher when compared to the Province (73% versus 66%). This table also indicates that structure fires account for the majority of all property loss within the Town and within the Province (92% versus 90%). Even though the percentage of structure fires occurring in the Town between 2013 and 2017 is higher than the provincial percentage, it should be noted that the total number of structure fires that took place during that time frame included 51 fires. Although this number is relatively low, in considering the proportion of property stock comprised of Group C - residential occupancies it is likely that structure fires will occur under current circumstances.

**Table 33: Town of LaSalle and Province of Ontario Structure Fires and Property Loss (2013-2017)**

	Town of LaSalle				Province of Ontario			
Year	Structure Fires	Property Loss (\$)	% ALL Fires	% ALL Property Loss	Structure Fires	Property Loss (\$)	% ALL Fires	% ALL Property Loss
2013	11	\$571,900	16%	12%	7,191	\$576,249,175	13%	16%
2014	9	\$1,882,500	13%	39%	7,063	\$784,681,080	13%	21%
2015	7	\$535,500	10%	11%	7,240	\$658,957,595	14%	18%
2016	13	\$1,006,400	18%	21%	7,169	\$654,514,771	13%	18%
2017	11	\$468,300	16%	10%	6,679	\$657,580,390	12%	18%
<b>Total for Structure Fires</b>	<b>51</b>	<b>\$4,464,600</b>	<b>73%</b>	<b>92%</b>	<b>35,342</b>	<b>\$3,331,983,011</b>	<b>66%</b>	<b>90%</b>
<b>Total for ALL Loss Fires</b>	<b>70</b>	<b>\$4,868,000</b>	<b>-</b>	<b>-</b>	<b>53,459</b>	<b>\$3,704,697,486</b>	<b>-</b>	<b>-</b>

(Source: O.F.M.E.M. Standard Incident Reporting)

**Key Risk: Structural fires are the most frequent fire type and they occurred at a higher rate than the Province between 2013 and 2017 (73% vs. 66%), for a total of 51 fires over the five year period.**

### 11.1.2 Fires by Occupancy Type

The analysis of historical fires by occupancy type highlights the occupancies which may be more vulnerable to fires than others. To assess the fire loss by occupancy classification, data retrieved from the Office of the Fire Marshall and Emergency Management's Standard Incident Reporting was analyzed. This data is illustrated in **Table 34** for a five year period from 2013 to 2017. Analysis indicates that of the total structure fires which occurred in LaSalle between this time period, 39 fires (76%) occurred within

Group C – Residential occupancies. From the perspective of fire loss, Group C – Residential occupancies account for 97% of property loss 35% higher than the provincial percentage of structure fire property loss (62%).

**Table 34: Town of LaSalle and Province of Ontario Fire Loss by Occupancy Classification (2013-2017)**

Group	Occupancy Classification	Fires	% Fires	Property Loss	% Loss	Ontario % of Structure Fires	Ontario % of Structure Fire Property Loss
Group A	Assembly occupancies	2	4%	\$30,000	1%	4%	4%
Group B	Care or Detention occupancies	0	0%	\$0	0%	1%	1%
Group C	Residential occupancies	39	76%	\$4,317,200	97%	73%	62%
Group D	Business and Personal Services Occupancies	0	0%	\$0	0%	3%	2%
Group E	Mercantile occupancies	2	4%	\$50,500	1%	3%	5%
Group F	Industrial occupancies	3	6%	\$13,000	0%	8%	19%
Other	Not classified within the Ontario Building Code	3	6%	\$51,500	1%	5%	1%
	Classified under National Farm Building Code	2	4%	\$2,400	0%	3%	6%
<b>Total</b>		<b>51</b>	<b>100%</b>	<b>\$4,464,600</b>	<b>100%</b>	<b>35,342</b>	<b>\$3,331,983,011</b>

(Source: O.F.M.E.M. Standard Incident Reporting)

**Key Risk: For the period 2013 to 2017, structure fires occurring in Group C – Residential occupancies account for 76% of total structure fires within the Town.**

**Key Risk: For the period 2013 to 2017, structure fires occurring in Group F – Industrial occupancies account for 6% of total structure fires within the Town.**

**Key Risk: For the period 2013 to 2017, structure fires occurring in Group A – Assembly occupancies and Group E - Mercantile occupancies each account for 4% of total structure fires within the Town.**

### 11.1.3 Civilian Fire Fatalities and Injuries

Reviewing historic fire deaths or injuries by age and gender of victims can provide insight for the purposes of targeted community risk reduction programs. These trends can be used to inform programming. As explored in the Demographic Profile, seniors represent the highest proportion of fire fatalities in the Province of Ontario and males are more likely to be injured from a fire or lose their life in a fire. The Office of the Fire Marshal and Emergency Management does not provide information regarding fire injuries or fatalities based on gender or age. However, it does provide a breakdown of this

information by occupancy classification. **Table 35** indicates that during the period of 2013 to 2017 there were a total of 2 civilian fire related injuries and 1 fatality. All fire injuries and fatalities occurred within Group C – Residential occupancies, highlighting the importance of ongoing public education efforts including smoke alarm and carbon monoxide detectors and home escape planning.

**Table 35: Civilian Fire Fatalities and Injuries by O.B.C. Classification (2013-2017)**

Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (O.F.M.E.M.)	Injuries	Fatalities
Group A – Assembly	Assembly occupancies	0	0
Group B – Care or Detention	Care or Detention occupancies	0	0
Group C - Residential	Residential occupancies	2	1
Group D - Business	Business and Personal Services Occupancies	0	0
Group E - Mercantile	Mercantile occupancies	0	0
Group F - Industrial	Industrial occupancies	0	0
Other occupancies	Not classified within the Ontario Building Code (i.e. farm buildings)	0	0
Total		2	1

(Source: O.F.M.E.M. Standard Incident Reporting)

**Key Risk: For the period 2013 to 2017, all reported fire related civilian injuries (2) and fatalities (1) occurred in Group C – residential occupancies.**

#### 11.1.4 Reported Fire Cause

Assessing the possible cause of the fires reported is an important factor in identifying potential trends, or areas that may be considered for introducing additional public education or fire prevention initiatives. Within O.F.M.E.M. fire loss reporting, there are four categories of cause utilized to classify the cause of a fire. These include intentional, unintentional, other, and undetermined.

The “intentional” category recognizes the cause of a fire to be started for a specific reason. These are typically classified as arson fires, and for example can be related to acts of vandalism, or to achieve personal gain through insurance payment. As indicated in **Table 36**, 12% of the fires reported over a five year period (2013-2017) were intentional, higher than the Provincial total of intentional fires (8%) by 4%.

The “unintentional” category recognizes a number of the common causes of a fire that represent both human behavioural causes (e.g., playing with matches) and equipment failures (e.g., mechanical failure). Unintentional fire causes represented 54% of the cause for the 27 fires during this period. The most prevalent known cause of fires within the Town are mechanical/electrical failures (22%) and misuse of

ignition sources (22%). This suggests a need for targeted education programs about fire causes and prevention.

The percentage of undetermined fires represents a total of 31% of all fire causes which higher than the provincial percentage of undetermined fire cause at 19%.

**Table 36: Town of LaSalle Reported Fire Cause (2013-2017)**

Nature	Fire Cause	Town of LaSalle		Province of Ontario	
		Number of Fires	% of Cause	Number of Fires	% of Cause
Intentional	Arson	5	10%	2,106	6%
	Vandalism	1	2%	696	2%
	Other intentional	0	0%	12	0%
Unintentional	Children Playing	0	0%	155	0%
	Design/Construction/Maintenance deficiency	2	4%	2,745	8%
	Mechanical /Electrical failure	11	22%	5,409	15%
	Misuse of ignition source	11	22%	10,566	30%
	Other unintentional	1	2%	2,499	7%
	Undetermined	2	4%	2,718	8%
	Vehicle Collision	0	0%	24	0%
Other	Other	2	4%	1,793	5%
Undetermined	Undetermined	16	31%	6,585	19%
Unknown, not reported	Unknown, not reported	0	0%	34	0%
Total		51	100%	35,342	100%

Source: O.F.M.E.M. Standard Incident Reporting

**Key Risk: Of the fires occurring in the Town from 2013 to 2017, the leading cause of unintentionally set fires was due to mechanical/electrical failure at 22% (11 fires), compared to 15% in the Province.**

**Key Risk: Of the fires occurring in the Town from 2013 to 2017, 12% of the fires were intentional, compared to 8% in the Province.**

**Key Finding: Of the fires occurring in the Town from 2013 to 2017, the cause of 31% was undetermined compared to 19% in the Province.**

### 11.1.5 Ignition Source

**Table 37** illustrates the fire loss by source of ignition based on an analysis of the data provided from 2013 to 2017 from the O.F.M.E.M. for the Town of LaSalle and the Province. The most common source of ignition in the Town is “undetermined” at 37%, higher than the Province (24%) by 13%.

The most common known ignition source within the Town are “open flame tools/smokers articles” followed by “cooking equipment” ignition sources. The most prevalent known ignition source in LaSalle (open flame tools/smokers articles) accounts for 16% of fire loss which is 2% higher than that of the Province. This is followed by cooking equipment as the second most common source of ignition for fires responded to by the L.F.S.

**Table 37: Town of LaSalle and Province of Ontario Fire Loss reported Source of Ignition (2013-2017)**

Reported Ignition Source	Town of LaSalle		Province of Ontario	
	Number of Fires	% of Fires	Number of Fires	% of Fires
Appliances	1	2%	1,644	5%
Cooking equipment	7	14%	6,367	18%
Electrical distribution	2	4%	3,136	9%
Heating equipment, chimney etc.	5	10%	2,833	8%
Lighting equipment	1	2%	1,128	3%
Open flame tools/smokers articles	8	16%	4,772	14%
Other electrical/mechanical	4	8%	1,626	5%
Processing equipment	1	2%	440	1%
Miscellaneous	1	2%	3,525	10%
Exposure	2	4%	1,504	4%
Undetermined	19	37%	8,334	24%
Unknown, not reported	-	-	33	0%
<b>Total</b>	<b>51</b>	<b>100%</b>	<b>35,342</b>	<b>100%</b>

Source: O.F.M.E.M. Standard Incident Reporting

**Key Risk: The most common source of ignition for fires within the Town is due to open flame tools/smokers articles at 16%.**

**Key Risk: The second most common source of ignition for fires within the Town is due to cooking equipment at 14%.**

**Key Finding: Analysis of fire loss data for the period of 2013-2017 indicates that the source of ignition for 37% of fires was undetermined.**

### 11.1.6 Smoke Alarm Status

Smoke alarms are required on every storey of a dwelling in the Province of Ontario. Smoke alarm programs are also one of the required services to be provided by a fire department per the F.P.P.A. As a result, smoke alarm programs and compliance are a key component of public education and fire prevention activities provided by the municipal fire departments across the Province.

Data is publically available at the provincial level for the smoke alarm status in the event of a fire but not at the municipal level for ease of comparison. For the period of 2013-2017, the O.F.M.E.M. reported on smoke alarm presence and operation on the floor (or suite) of origin in residential fires. Currently the L.F.S. provides reporting on smoke alarm status presence and activation with the fire call data to the O.F.M.E.M. In regards to smoke alarms in a typical residential dwelling, **Table 38** highlights whether a smoke alarm was present or activated on the floor or in the suite of fire origin for the period of 2013-2017 for both LaSalle and the Province.

**Table 38: Town of LaSalle and the Province of Ontario Smoke Alarm Operations**

Smoke Alarm Status on Floor (or Suite) of Origin	Town of LaSalle Residential Occupancies							Province of Ontario (Group C - Residential)
	2013	2014	2015	2016	2017	Total	%	2013-2017
No smoke alarm	1	1	3	2	0	7	18%	17%
Smoke alarm present and operated	4	2	2	3	3	14	36%	45%
Smoke alarm present, did not operate	1	4	0	3	2	10	26%	14%
Smoke alarm present, operation undetermined	0	1	1	0	1	3	8%	8%
Smoke alarm presence undetermined	0	0	1	4	0	5	13%	16%
Grand Total							100%	100%

Source: O.F.M.E.M. Standard Incident Reporting, and O.F.M.E.M. website, [https://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFires/SmokeAlarmStatusinHomeFires/stats\\_sa\\_status.html](https://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFires/SmokeAlarmStatusinHomeFires/stats_sa_status.html)



During this five year period, there was no smoke alarm present on the floor or suite of origin for 18% of occurrences. In 36% of occurrences, a smoke alarm was present on the floor or suite of origin and operated. A smoke alarm was present on the floor or suite of origin and did not operate in 26% of fire incidents which in comparison to the Province is 12% higher. Although some of these percentages are higher or lower than the provincial statistics, they are not entirely reflective of risk. For example, a smoke alarm was present on the floor or suite of origin and did not operate for 26% of occurrences higher than the province by 12%. However, this percentage represents a total number of 10 occurrences over a five year timeframe.

**Key Risk:** *During the period from 2013-2017, there were no smoke alarms present or activated in the floor or suite of origin in 18% of fire incidents the L.F.S. responded to in Group C – Residential occupancies and in 26% of fire incidents smoke alarms were present but did not operate.*

**Key Finding:** *During the period from 2013-2017, there were smoke alarms present and operating in 36% of fire incidents the L.F.S. responded to in comparison to 45% of fire incidents in Group C residential occupancies within the province.*

## 11.2 Event History

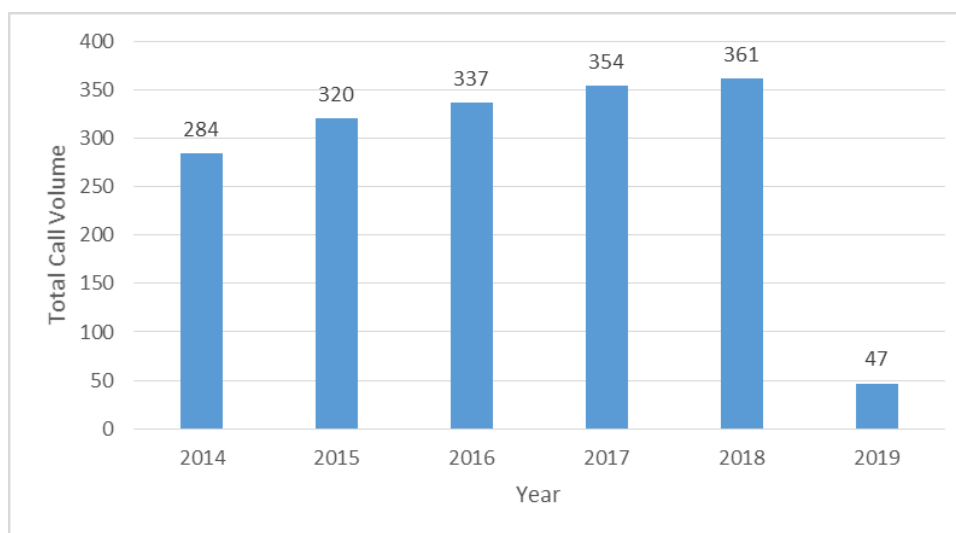
Event history seeks to apply the historic call data to develop an understanding of community risks. The analysis provided within this profile is based on all historical calls responded to by the L.F.S. for January 31<sup>st</sup> 2014 to January 31<sup>st</sup> 2019. This section provides a statistical assessment of historic call volumes for the Town as a whole by different time segments (e.g. annual calls, weekly calls, daily calls, etc.). It also provides detailed breakdowns of calls by type and corresponding volumes. The call volume by type is compared to the Province of Ontario's call volume by type to determine LaSalle specific risks. The volume and frequency of historic calls informs the understanding of response probability. The types of calls inform the potential consequences of the L.F.S. responses and calls for service. The combined consideration of these elements provides an understanding of community risk, based on past calls for service.

### 11.2.1 Call Volume – All Incidents

This section captures average call volume by year, month, day of week and time of day for all incidents responded to by the L.F.S.

#### 11.2.1.1 Annual Call Volume – All Incidents

The annual call volume provides a high level understanding of the probability of incidents occurring within the Town. A summary of the total number of calls within the Town from January 31<sup>st</sup> 2014 to January 31<sup>st</sup> 2019 is shown in **Figure 10**. Overall, the number of calls responded to by the L.F.S. has increased by 21% from 2014 to 2018, with the lowest number of calls received in 2014.

**Figure 10: Annual Call volume (January 31st 2014 to January 31st 2019)**

(Source: L.F.S.)

**Key Finding:** Overall, call volumes have increased by 21% from 2014 to 2018 with variability in volume over the five year period.

## 11.2.1.2

**Average Call Volume by Month – All Incidents**

As shown in **Figure 11**, average call volume by month increases slightly towards the summer months. On average, the highest call volumes occur in the months of January and August while the lowest call volume occurs in March.

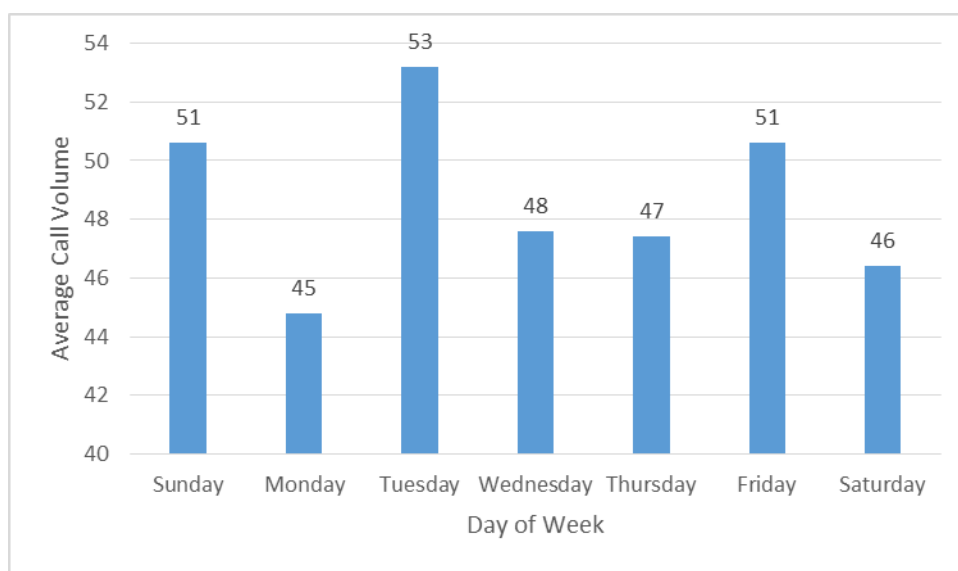
**Figure 11: Average Call Volume by Month – All Incidents (January 31st 2014 to January 31st 2019)**

(Source: L.F.S.)

### 11.2.1.3 Average Call Volume by Day of Week – All Incidents

Average call volume by day of week is shown in **Figure 12** for the period of January 31st 2014 to January 31st 2019. Over this period, the L.F.S. experienced varying call levels throughout the week with the highest average call volume occurring on Tuesdays, and the lowest call volume occurring on Mondays. The difference between the highest and lowest average call volumes is 8 calls.

**Figure 12: Average Call Volume by Day of Week (January 31st 2014 to January 31st 2019)**

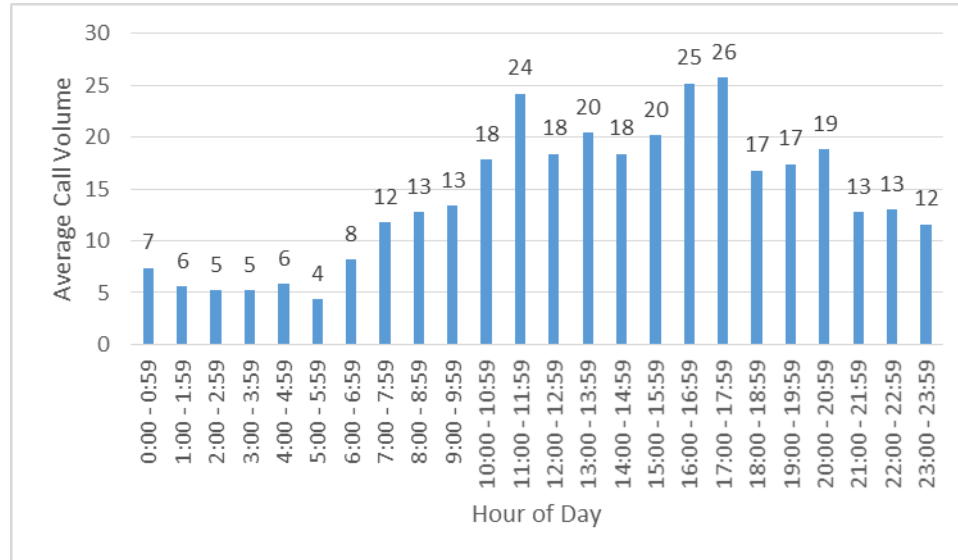


(Source: L.F.S.)

**Key Finding:** Analysis of call volume by day of week for the period of January 31st 2014 to January 31st 2019 indicates that the highest number of calls occur on Tuesdays.

### 11.2.1.4 Average Call Volume by Time of Day – All Incidents

**Figure 13** indicates that on average the L.F.S. experiences a higher occurrence of calls between 4:00pm and 6:00pm. The lowest average call volume takes place between the hours of 5:00am and 6:00am. This trend of high call volume between 4:00pm and 6:00pm coincides with daily times of higher commuter traffic and the lowest average call volume between 1:00am and 6:00am occurs when the majority of the population is typically asleep.

**Figure 13: Average Call Volume by Time of Day – All Incidents (January 31st 2014 to January 31st 2019)**

(Source: L.F.S.)

**Key Finding:** Analysis of call volume by time of day for the period of January 31st 2014 to January 31st 2019 indicates that the highest call volume occurs between the hours of 4pm and 6pm.

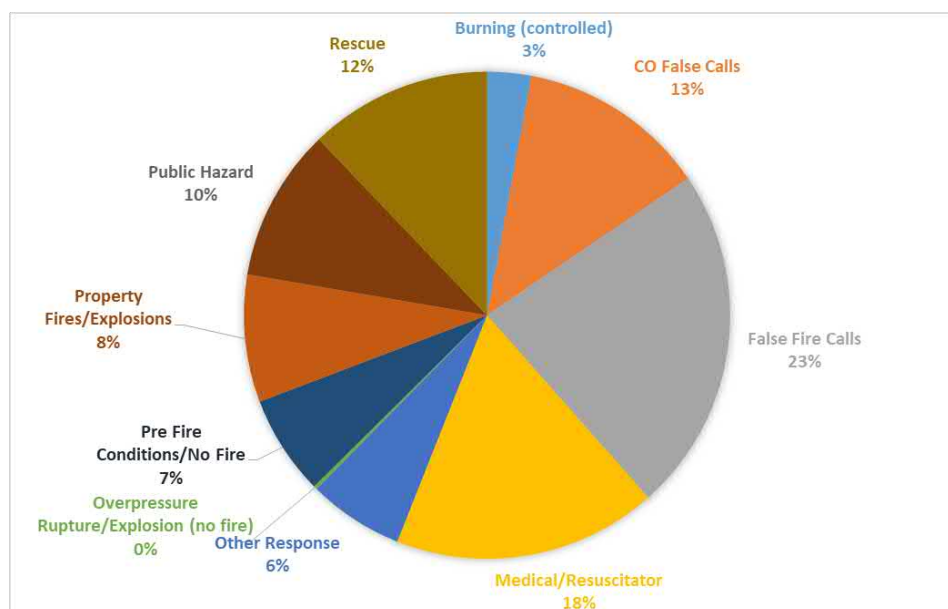
**Key Finding:** Analysis of call volume by time of day for the period of January 31st 2014 to January 31st 2019 indicates that calls decline at 9pm and remain at the lowest levels until approximately 6am.

## 11.2.1.5

**Calls by O.F.M.E.M. Emergency Response Type**

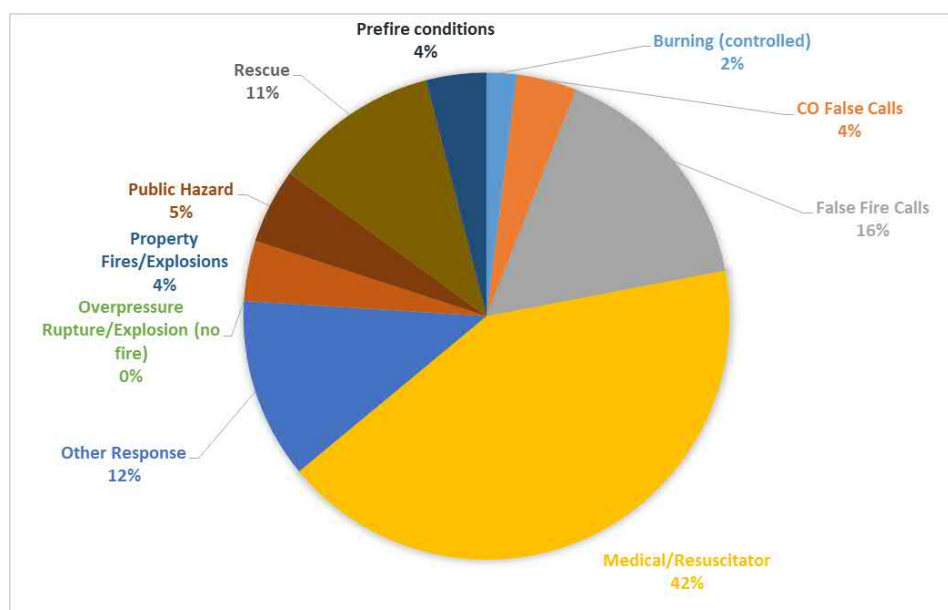
Calls responded to by the L.F.S. are shown in **Figure 14** based on the O.F.M.E.M. Emergency Response Type for the period of January 31st, 2014 to January 31st, 2019. For comparative purposes a similar analyses of historical emergency call types across the province is illustrated in **Figure 15** based on current available data for the period from January 1st 2013 to December 31st 2017.

Figure 14: Percentage of L.F.S. Calls by O.F.M.E.M. Response Type (January 31st, 2014 to January 31st, 2019)



(Source: LaSalle Fire Service)

Figure 15: Percentage of Provincial Calls by O.F.M.E.M. Response Type (O.F.M.E.M. 2013-2017)



(Source: O.F.M.E.M.)

Medical calls are the most common response type on the provincial level (42%), followed by false fire calls (16%) and other calls (12%). Only 4% of provincial calls are fire calls. The call volume by O.F.M.E.M.

Response Type observed in the Town varies compared to the Province. Some key differences are that the L.F.S. responds to 24% less medical/resuscitator calls than the Province, which is offset by 7% more false fire calls, 9% more C.O. false calls, and 4% more property fires/explosions calls.

**Key Finding:** Based on O.F.M.E.M. Response Types, the L.F.S. responds to 24% less medical/resuscitator calls than the Province, which is offset by 7% more false fire calls, 9% more CO false calls, and 4% more property fires/explosions calls.

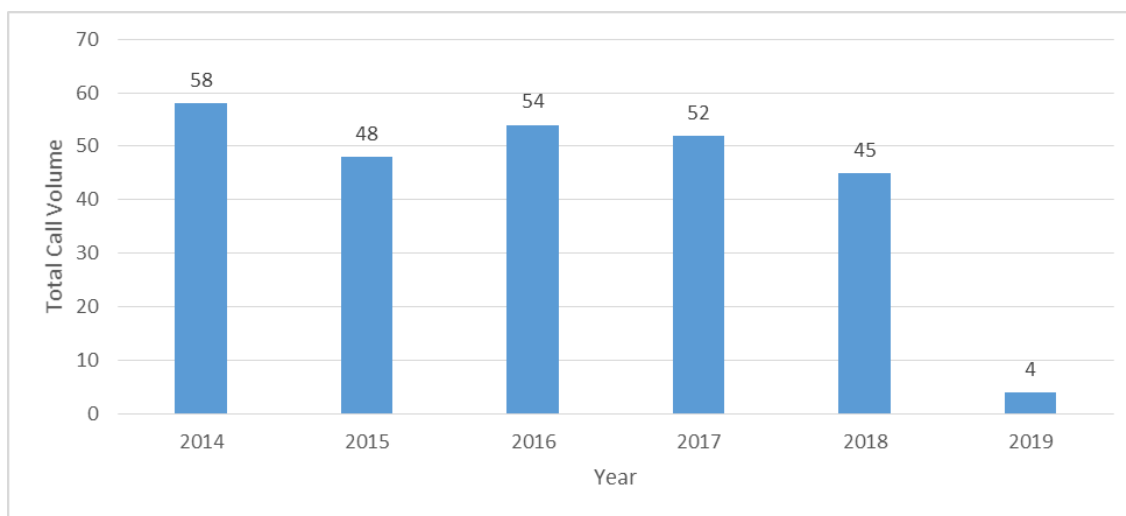
### 11.2.2 Call Volume - Property Fires/Explosions

This section captures call volume by year, month, day of week and time of day for property fires/explosions responded to by the L.F.S.

#### 11.2.2.1 Annual Call Volume – Property Fires/Explosions

**Figure 16** summarizes annual call volume for incidents categorized as property fires/explosions. Over a five year timeframe, the highest call volume for this type of incident occurred in 2014 and the lowest in 2018 (excluding January 2019).

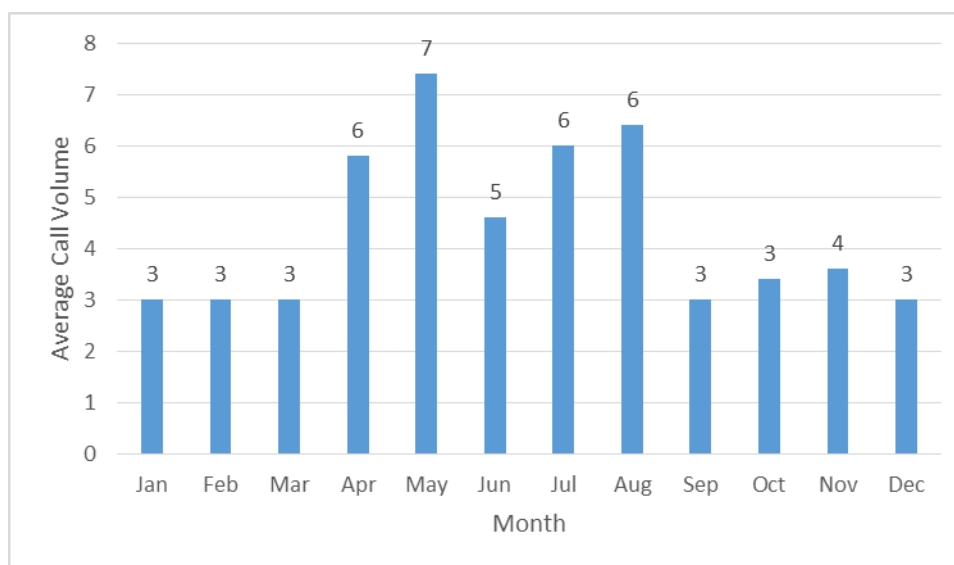
**Figure 16: Annual Call Volume – Property Fires/Explosions (January 31st 2014 to January 31st 2019)**



(Source: L.F.S.)

#### 11.2.2.2 Average Call Volume by Month - Property Fires/Explosions

**Figure 17** captures call volume by month for property fires/explosions. On average the highest call volume for this type of incident occurs in May. Generally, May to August experience higher volumes of property fire calls and on average call volume decreases in the winter months.

**Figure 17: Average Call Volume by Month – Property Fires/Explosions (January 31st 2014 to January 31st 2019)**

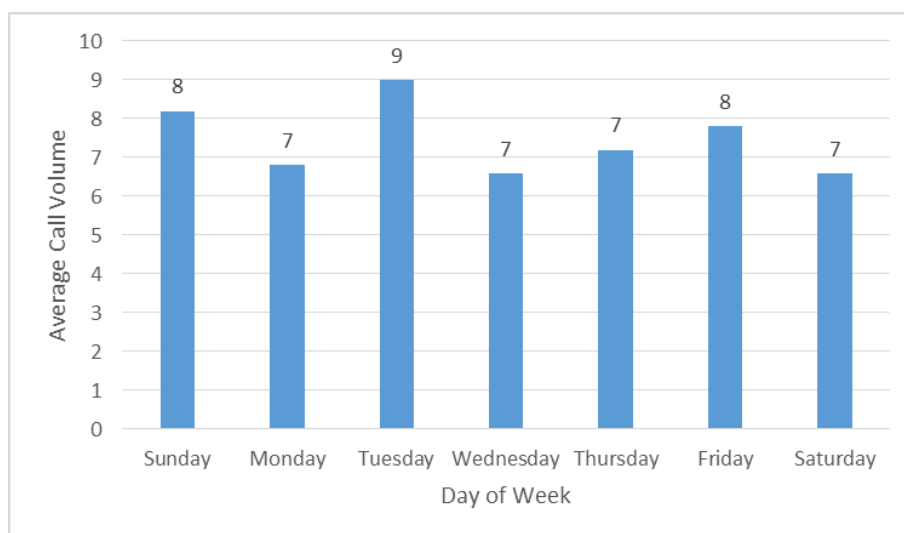
(Source: L.F.S.)

**Key Finding:** There were more property fires/explosions in May during January 31st 2014 to January 31st 2019 when compared to other months of the year.

## 11.2.2.3

**Average Call Volume by Day of Week - Property Fires/Explosions**

Call volume by day of week is depicted in **Figure 18**. As shown, average call volume for property fires/explosions slightly increases throughout the week. Call volume is highest on Saturdays for this response type.

**Figure 18: Average Call Volume by Day of Week – Property Fires/Explosions (January 31st 2014 to January 31st 2019)**

(Source: L.F.S.)

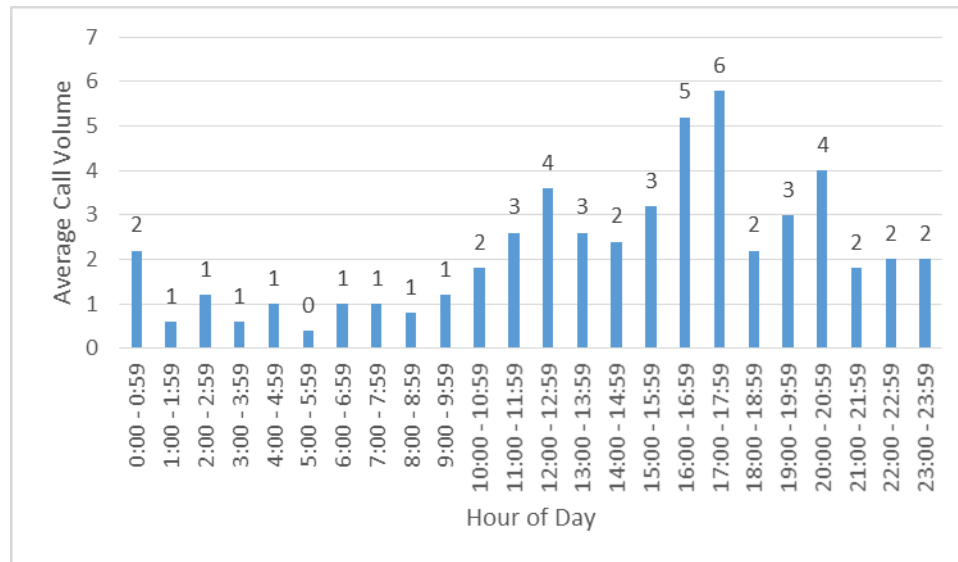
**Key Finding:** Analysis of average call volume by day of week for the period of January 31st 2014 to January 31st 2019 indicates that the highest proportion of calls occurs on Saturdays.

#### 11.2.2.4

#### Average Call Volume by Time of Day - Property Fires/Explosions

**Figure 19** shows that the average volume by time of day is the highest during 4pm and 6pm, likely attributable to cooking and meal preparations.

**Figure 19: Average Call Volume by Time of Day – Property Fires/Explosions (January 31st 2014 to January 31st 2019)**



(Source: L.F.S.)

**Key Finding:** Analysis of the property fire/explosion occurrences for the years January 31st 2014 to January 31st 2019 indicate the highest volume of calls for this response type is 4:00pm and 6:00pm.

#### 11.3

#### Call Volume – Rescue Calls

The rescue calls response types includes several sub-types as shown in **Table 39**. Over the five year period of January 30, 2014 to January 30 2019 the majority of rescue calls were vehicle collision (83%). Of the technical rescue type calls (which require a specific skillset), vehicle extrication was the most common type of rescue at 5% or 3 calls annually on average. This is followed by water-related rescue (water rescue and water ice rescue) with a total of thirteen calls over the five year period, or about 3 calls annually on average.



**Table 39: Rescue Response Calls (January 31st 2014 to January 31st 2019)**

<b>Rescue Response Sub-types</b>	<b>Total Calls (January 2014 to January 2019)</b>	<b>Average Annual Call Volume</b>	<b>Percentage of Rescue Calls</b>
Vehicle Collision	252	50	83%
Vehicle Extrication	16	3	5%
Water Rescue	8	2	3%
Animal rescue	7	1	2%
Persons Trapped in Elevator	5	1	2%
Water Ice Rescue	5	1	2%
Other Rescue	4	1	1%
Commercial/Industrial Accident	2	0	1%
Home/Residential Accident	2	0	1%
Rescue no action required	2	0	1%
Building Collapse	1	0	0%
Rescue false alarm	1	0	0%
<b>Total:</b>	<b>5</b>	<b>61</b>	<b>100%</b>

**Key Risk:** Vehicle collisions account for 83% of the rescue calls over a five year period or an average of 50 calls annually.

**Key Risk:** Of the technical rescue types, vehicle extrication is the most common type of rescue with sixteen calls over a five year period or an average of 3 calls annually.

**Key Risk:** Of the technical rescue types, water-related rescues (water rescue and water-ice rescue) are the second most common type with a total of thirteen rescue calls over a five year period or an average of 3 calls annually.

## 12.0 Risk Assessment Outcomes

This Community Risk Assessment and Fire Service Master Plan are complementary documents. The findings of this report help to define local needs and circumstances and inform the recommendations identified within the Fire Service Master Plan – and ultimately the service levels provided by a fire department. This section of the C.R.A. brings together all the risk assessment outcomes and frames how they can be used to inform the F.S.M.P. This is accomplished by applying the risk outcomes in three layers:

1. Determine a probability level to assign to each event;
2. Determine a consequence level to assign to each event; and
3. Establish the risk level (e.g., numerical value / location on the matrix) and risk category (e.g., low, moderate or high) for each based on the identified probability and consequence for each event.
4. Develop a G.I.S. risk model based on the Risk Level/Risk Category.

### 12.1 Risk Prioritization – Key Risks

Risk is defined as the product of probability and consequence. Of the risk analysis outcomes presented throughout this C.R.A., some have been labelled as a **Key Risk**. This means that the analysis and information available provides the opportunity to quantify the risk through a risk assignment process. This process will inform the F.S.M.P. in two ways: first, it will help guide the prioritization of the risk analysis outcomes when it comes to the development of and implementation of the Fire Service Master Plan; and second, it will inform the risk model developed for assessing emergency response capabilities (see **Section 2.0** of this C.R.A.).

The methodology is described in further detail in **Section 2.0** with the risk assignment matrix shown for reference purposes in **Table 40**.

**Table 40: Risk Matrix Table**

Consequence Probability		Insignificant	Minor	Moderate	Major	Catastrophic
		1	10	100	1,000	10,000
Almost Certain	10,000	10,000	100,000	1,000,000	10,000,000	100,000,000
Likely	1,000	1,000	10,000	100,000	1,000,000	10,000,000
Possible	100	100	1,000	10,000	100,000	1,000,000
Unlikely	10	10	100	1,000	10,000	100,000
Rare	1	1	10	100	1,000	10,000
Risk Category		Definition (O.F.M.E.M.)				

Consequence Probability	Insignificant	Minor	Moderate	Major	Catastrophic
	1	10	100	1,000	10,000
Low Risk	<ul style="list-style-type: none"> <li>Manage by routine programs and procedures</li> <li>Maintain risk monitoring</li> </ul>				
Moderate Risk	<ul style="list-style-type: none"> <li>Requires specific allocation of management responsibility including monitoring and response procedures</li> </ul>				
High Risk*	<ul style="list-style-type: none"> <li>Community threat, senior management attention needed</li> <li>Serious threat, detailed research and management planning required at senior levels</li> </ul>				

The assignment of risk for the key risks within each profile, including a rationale for the probability and consequence is presented in **Table 41**.

Table 41: Risk Prioritization – Key Risks

Key Risk	Probability	Rationale	Consequence	Rationale	Assigned Risk Level
<b>Building Stock Profile</b>					
When excluding parcels classified as open space or vacant, 98% of the Town’s existing property stock is comprised of Group C – Residential Occupancies.	Likely	Will probably occur at some time under current circumstances (In considering the proportion of property stock comprised of Group C - residential occupancies as well as historic fire loss, the probability is likely).	Moderate	Threat to life safety of occupants, moderate property loss, poses threat to small local businesses and/or could pose threat to quality of the environment	Moderate
33% of the Town’s residential building stock was built prior to 1981 and the introduction of the Ontario Fire Code.	Almost Certain	Expected to occur in most circumstances unless circumstances change (A large portion of the Town's building stock was constructed prior to any provincial codes being in effect).	Moderate	Threat to life safety of occupants, moderate property loss, poses threat to small local businesses and/or could pose threat to quality of the environment	High
The Town has six (6) registered vulnerable occupancies.	Possible	An incident at any of these facilities might occur under the current circumstances	Catastrophic	Significant loss of life, multiple property damage to significant portion of the municipality, long term disruption of businesses, local employment, and tourism and/or environmental damage that would result in long-term evacuation of local residents and businesses	High
<b>Demographic Profile</b>					
Seniors (those 65 years and over) are considered to represent one of the highest fire risk groups across the Province based on residential fire death rate (fire deaths per mission of population). According to the 2016 Census, seniors represent 16% of the Town’s total population.	Almost Certain	Expected to occur in most circumstances unless circumstances change. Almost certain based on the proportion of the population and known through O.F.M.E.M. data that seniors are at greater risk of experiencing a fatality in a residential fire.	Moderate	Threat to life safety of occupants, moderate property loss, poses threat to small local businesses and/or could pose threat to quality of the environment	High
Of the Town’s total population, 31% fall into the age range of 45 to 64 representing a cohort aging towards the seniors demographic of 65 years or older.	Likely	Will probably occur at some time under current circumstances	Moderate	Potential for threat to life safety of occupants, moderate property loss, threat to small local businesses and/or to quality of the environment.	Moderate
<b>Past Loss and Event History Profile</b>					
Structural fires are the most frequent fire type and they occurred at a higher rate than the Province between 2013 and 2017 (73% vs. 66%), for a total of 51 fires over the five year period.	Likely	Will probably occur at some time under current circumstances.	Moderate	Potential for threat to life safety of occupants, moderate property loss, threat to small local businesses and/or to quality of the environment.	Moderate
For the period 2013 to 2017, structure fires occurring in Group C – Residential occupancies account for 76% of total structure fires within the Town.	Likely	Will probably occur at some time under current circumstances.	Moderate	Potential for threat to life safety of occupants, moderate property loss, threat to small local businesses and/or to quality of the environment.	Moderate

Key Risk	Probability	Rationale	Consequence	Rationale	Assigned Risk Level
For the period 2013 to 2017, structure fires occurring in Group F – Industrial occupancies account for 6% of total structure fires within the Town.	Possible	Might occur under current circumstances.	Moderate	Potential for threat to life safety of occupants, moderate property loss, threat to small local businesses and/or to quality of the environment.	<b>Moderate</b>
For the period 2013 to 2017, structure fires occurring in Group A – Assembly occupancies and Group E - Mercantile occupancies each account for 4% of total structure fires within the Town.	Possible	Might occur under current circumstances.	Moderate	Potential for threat to life safety of occupants, moderate property loss, threat to small local businesses and/or to quality of the environment.	<b>Moderate</b>
For the period 2013 to 2017, all reported fire related civilian injuries (2) and fatalities (1) occurred in Group C – residential occupancies.	Possible	Might occur under current circumstances.	Moderate	Potential for threat to life safety of occupants, moderate property loss, threat to small local businesses and/or to quality of the environment.	<b>Moderate</b>
Of the fires occurring in the Town from 2013 to 2017, the leading cause of unintentionally set fires was due to mechanical/electrical failure at 22% (11 fires), compared to 15% in the Province.	Likely	Will probably occur at some time under current circumstances	Moderate	Potential for threat to life safety of occupants, moderate property loss, threat to small local businesses and/or to quality of the environment.	<b>Moderate</b>
Of the fires occurring in the Town from 2013 to 2017, 12% of the fires were intentional, compared to 8% in the Province.	Possible	Might occur under current circumstances.	Moderate	Potential for threat to life safety of occupants, moderate property loss, threat to small local businesses and/or to quality of the environment.	<b>Moderate</b>
The most common source of ignition for fires within the Town is due to open flame tools/smokers articles at 16%.	Likely	Will probably occur at some time under current circumstances	Moderate	Potential for threat to life safety of occupants, moderate property loss, threat to small local businesses and/or to quality of the environment.	<b>Moderate</b>
The second most common source of ignition for fires within the Town is due to cooking equipment at 14%.	Likely	Will probably occur at some time under current circumstances	Moderate	Potential for threat to life safety of occupants, moderate property loss, threat to small local businesses and/or to quality of the environment.	<b>Moderate</b>
During the period from 2013-2017, there were no smoke alarms present or activated in the floor or suite of origin in 18% of fire incidents the L.F.S. responded to in Group C – Residential occupancies and in 26% of fire incidents smoke alarms were present but did not operate.	Likely	Will probably occur at some time under current circumstances	Moderate	Potential for threat to life safety of occupants, moderate property loss, threat to small local businesses and/or to quality of the environment.	<b>Moderate</b>
Vehicle collisions account for 83% of the rescue calls over a five year period or an average of 50 calls annually.	Almost Certain	Expected to occur in most circumstances unless circumstances change. Rescue call type occurs more than 50 times per year.	Minor	Potential risk to life safety of occupants, minor property loss, minimal disruption to business activity and/or minimal impact on general living conditions	<b>Moderate</b>
Of the technical rescue types, vehicle extrication is the most common type of rescue with sixteen calls over a five year period or an average of 3 calls annually.	Likely	Will probably occur at some time under current circumstances	Minor	Potential risk to life safety of occupants, minor property loss, minimal disruption to business activity and/or minimal impact on general living conditions	<b>Moderate</b>
Of the technical rescue types, water-related rescues (water rescue and water-ice rescue) are the second most common type with a total of thirteen rescue calls over a five year period or an average of 3 calls annually.	Possible	Might occur under current circumstances.	Minor	Potential risk to life safety of occupants, minor property loss, minimal disruption to business activity and/or minimal impact on general living conditions	<b>Moderate</b>

## 12.2 Risk Categorization

When it comes to aligning service levels with risks that define local needs and circumstances, it is important to recognize that not all risk analysis outcomes align with the services provided by a fire department in the same way. For this reason, the risk outcomes - Key Findings and Key Risks - are categorized based on how they can be used to inform the activities, strategies, and services provided by the L.F.S. This categorization is then directly used within the Fire Service Master Plan.

The categories used for this process are based on the three lines of defence: Public Fire Safety Education; Fire Safety Standards and Enforcement, and Emergency Response as shown in **Table 42**.

**Table 42: Risk Analysis Outcome Categorization**

Category	Overview	Purpose
<b>Line 1</b> Public Fire Safety Education	Education is the first line of defence.  As a proactive approach to mitigating fire risk, the identified risk outcome can and should be considered as part of informing a Community Risk Reduction Plan including public education programming.	For consideration within the proposed Public Education Program
<b>Line 2</b> Fire Safety Standards and Enforcement	Inspection/Enforcement is the second line of defence.  As a proactive approach to mitigating fire risk, the identified risk outcome can and should be considered as part of informing a Community Risk Reduction Plan including inspection cycles, and enforcement strategies.	For consideration within the proposed Inspection/Enforcement Program
<b>Line 3</b> Emergency Response	Emergency response is the third line of defence.  The identified risk outcomes can and should be considered as part of assessing emergency response coverage aligned with local needs and circumstances, as well as the level of service provided by the municipality.	For consideration within the proposed Emergency Response Deployment Options

The risk outcomes from each profile that inform local needs and circumstances are aligned with the three lines of defence. **Table 43** presents the Key Findings and **Table 44** presents the Key Risks in a matrix format indicate the ways in which the risks can be addressed by the fire department and ultimately considered within the Fire Service Master Plan analysis and recommendations.

Table 43: Categorization of Key Findings

Profile	C.R.A. Key Findings Analysis Outcomes	FIRST LINE OF DEFENCE	SECOND LINE OF DEFENCE	THIRD LINE OF DEFENCE
		For consideration within the proposed Public Education Program	For consideration within the proposed Enforcement Program	For consideration within the proposed Emergency Response Program
Geographic	The geographic size of the Town with its makeup of an urban area and a rural area results in extended emergency response time to some areas of the Town.	✓		✓
	The road network contributes to emergency calls including for motor vehicle collision, vehicle fires, and automobile extrication.			✓
	There are a number of at-grade crossings within Town boundaries that may impact the Fire Service’s emergency response travel times.			✓
	Fighting Island, which has naturalized areas and structures, is a unique destination within the jurisdiction of L.F.S.	✓	✓	✓
	Based on a spatial analysis of the Town’s floodplain mapping, areas close to the Detroit River, Turkey Creek and the Canard River have the potential for flooding.			✓
	Many of LaSalle’s residential neighbourhoods are located adjacent to wildland areas.	✓	✓	✓
Building Stock	13% of the Town’s property stock consists of other types of attached dwellings including semi-detached houses, row housing, apartments or flats in a duplex and apartments in a building with fewer than five storeys.	✓	✓	✓
	Newly constructed subdivision units have reduced side yards, indicating a higher exposure risk.		✓	✓
	There are several buildings within the Town that are four to six storeys.		✓	✓
	There a number of buildings that present an increased fire risk due to their large floor areas.		✓	✓
	There are properties within the Town that have fuel-load related concerns, primarily linked to industries or marinas.	✓	✓	
Demographics	Additional potential high fire life-safety risk considerations in the Town include eight schools and four licenced day care centres.	✓	✓	✓
	There are shifts in commuter populations throughout the day; this population shift may impact the demand for fire protection services.			✓
Hazard	The hazards that are most likely to occur within the Town include fog, lightning, severe thunderstorms and road transportation incidents.			✓
	The top four hazards in the Town as identified by the 2017 H.I.R.A. includes Tornado, Terrorism. Epidemic, and Transportation Incident.			✓
Public Safety and Response	Analysis of the existing Public Safety Response Profile indicates the availability of an integrated emergency response, including police, fire, and ambulance resources.			✓
Economic	The Town has key facilities/employers that contribute to the economic well-being of the municipality including Centreline, Zehrs, and Windsor Crossing Outlet Mall.			✓
Past Loss and Event History	Of the fires occurring in the Town from 2013 to 2017, the cause of 31% was undetermined compared to 19% in the Province.	✓	✓	
	Analysis of fire loss data for the period of 2013-2017 indicates that the source of ignition for 37% of fires was undetermined	✓	✓	
	During the period from 2013-2017, there were smoke alarms present and operating in 36% of fire incidents the L.F.S. responded to in comparison to 45% of fire incidents in Group C residential occupancies within the province.	✓	✓	✓
	Overall, call volumes have increased by 21% from 2014 to 2018 with variability in volume over the five year period.	✓	✓	✓





Profile	C.R.A. Key Findings Analysis Outcomes	FIRST LINE OF DEFENCE	SECOND LINE OF DEFENCE	THIRD LINE OF DEFENCE
		For consideration within the proposed Public Education Program	For consideration within the proposed Enforcement Program	For consideration within the proposed Emergency Response Program
	Analysis of call volume by day of week for the period of January 31st 2014 to January 31st 2019 indicates that the highest number of calls occur on Tuesdays.			✓
	Analysis of call volume by time of day for the period of January 31st 2014 to January 31st 2019 indicates that the highest call volume occurs between the hours of 4pm and 6pm.			✓
	Analysis of call volume by time of day for the period of 2013-2017 indicates that calls decline at 9pm and remain at the lowest levels until approximately 6am.			✓
	Based on O.F.M.E.M. Response Types, the L.F.S. responds to 24% less medical/resuscitator calls than the Province, which is offset by 7% more false fire calls, 9% more CO false calls, and 4% more property fires/explosions calls.	✓	✓	✓
	There were more property fires/explosions in May during January 31st 2014 to January 31st 2019 when compared to other months of the year.			✓
	Analysis of average call volume by day of week for the period of January 31st 2014 to January 31st 2019 indicates that the highest proportion of calls occurs on Saturdays.			✓
	Analysis of the property fire/explosion occurrences for the years January 31st 2014 to January 31st 2019 indicate the highest volume of calls for this response type is 4:00pm and 6:00pm.			✓

Table 44: Categorization of Key Risks

Profile	C.R.A. Key Risks Analysis Outcomes	Risk Level	FIRST LINE OF DEFENCE	SECOND LINE OF DEFENCE	THIRD LINE OF DEFENCE
			For consideration within the proposed Education Program	For consideration within the proposed Enforcement Program	For consideration within the proposed Emergency Response Program
Building Stock	When excluding parcels classified as open space or vacant, 98% of the Town’s existing property stock is comprised of Group C – Residential Occupancies.	Moderate	✓		✓
	33% of the Town’s residential building stock was built prior to 1981 and the introduction of the Ontario Fire Code.	High			✓
	The Town has six registered vulnerable occupancies.	High	✓	✓	✓
Demographic	Seniors (those 65 years and over) are considered to represent one of the highest fire risk groups across the Province based on residential fire death rate (fire deaths per mission of population). According to the 2016 Census, seniors represent 16% of the Town’s total population.	High	✓		
	Of the Town’s total population, 31% fall into the age range of 45 to 64 representing a cohort aging towards the seniors demographic of 65 years or older.	Moderate	✓		
Past Loss and Event History	Structural fires are the most frequent fire type and they occurred at a higher rate than the Province between 2013 and 2017 (73% vs. 66%), for a total of 51 fires over the five year period.	Moderate		✓	✓
	For the period 2013 to 2017, structure fires occurring in Group C – Residential occupancies account for 76% of total structure fires within the Town.	Moderate	✓	✓	✓
	For the period 2013 to 2017, structure fires occurring in Group F – Industrial occupancies account for 6% of total structure fires within the Town.	Moderate	✓	✓	✓
	For the period 2013 to 2017, structure fires occurring in Group A – Assembly occupancies and Group E - Mercantile occupancies each account for 4% of total structure fires within the Town.	Moderate	✓	✓	✓
	For the period 2013 to 2017, all reported fire related civilian injuries (2) and fatalities (1) occurred in Group C – residential occupancies.	Moderate	✓	✓	✓
	Of the fires occurring in the Town from 2013 to 2017, the leading cause of unintentionally set fires was due to mechanical/electrical failure at 22% (11 fires), compared to 15% in the Province.	Moderate	✓	✓	
	Of the fires occurring in the Town from 2013 to 2017, 12% of the fires were intentional, compared to 8% in the Province.	Moderate		✓	✓
	The most common source of ignition for fires within the Town is due to open flame tools/smokers articles at 16%.	Moderate	✓		
	The second most common source of ignition for fires within the Town is due to cooking equipment at 14%.	Moderate	✓		
	During the period from 2013-2017, there were no smoke alarms present or activated in the floor or suite of origin in 18% of fire incidents the L.F.S. responded to in Group C – Residential occupancies and in 26% of fire incidents smoke alarms were present but did not operate.	Moderate	✓	✓	✓
	Vehicle collisions account for 83% of the rescue calls over a five year period or an average of 50 calls annually.	Moderate			✓
	Of the technical rescue types, vehicle extrication is the most common type of rescue with sixteen calls over a five year period or an average of 3 calls annually.	Moderate			✓
	Of the technical rescue types, water-related rescues (water rescue and water-ice rescue) are the second most common type with a total of thirteen rescue calls over a five year period or an average of 3 calls annually.	Moderate			✓

### 12.3 Town of LaSalle G.I.S. Risk Model

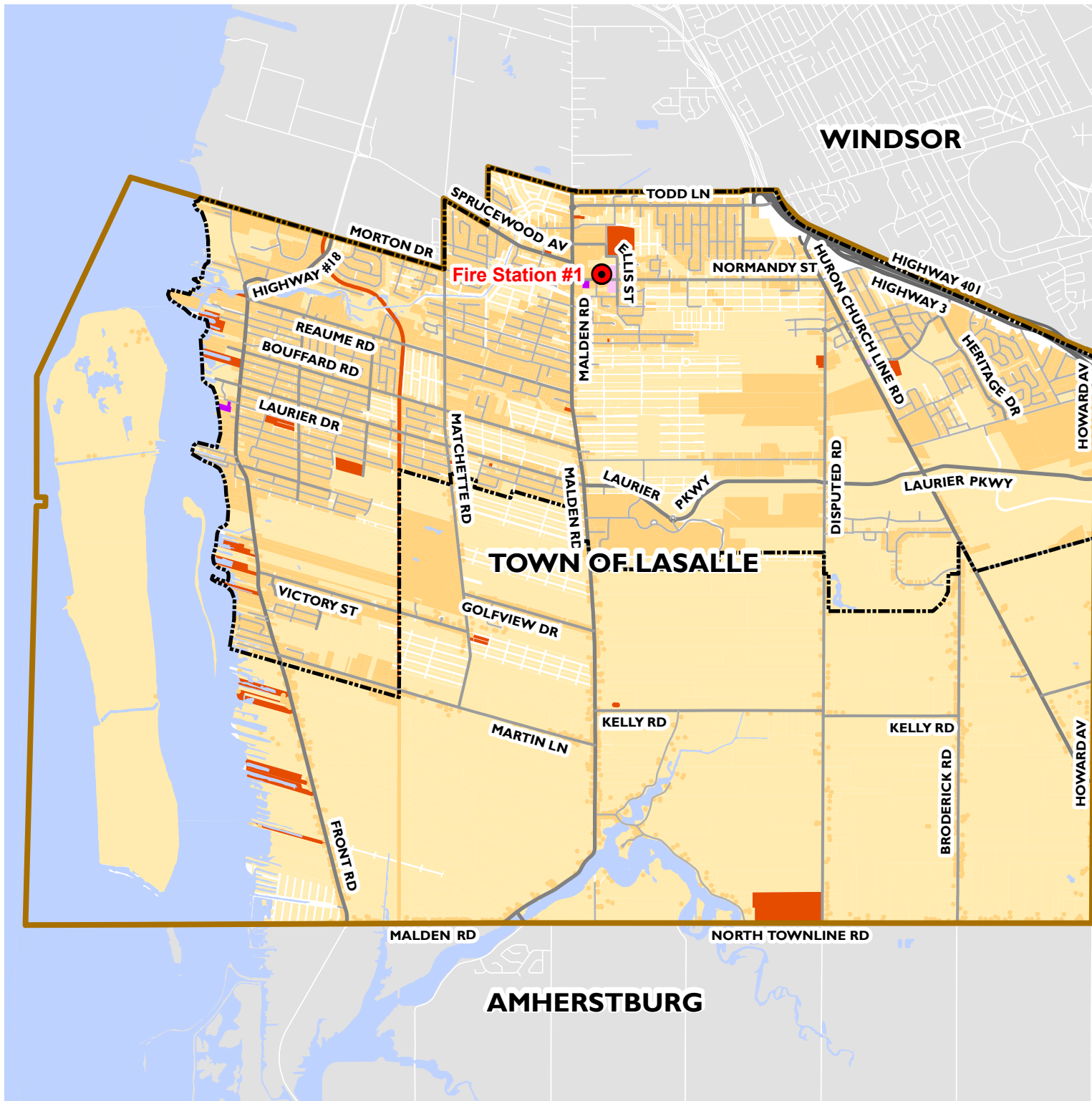
This section provides a brief outline of the scope and methodology used in order to provide insight into the modelling procedures adopted to assess risk that will be used to develop appropriate risk reduction strategies for each line of defence as defined by the O.F.M.E.M. Strategies that affect the third line of defence, including emergency response is dependent on the building occupancy type that, for this C.R.A., is based on Municipal Property Assessment Corporation (M.P.A.C.) data and existing zoning information provided by the Town of LaSalle.

This C.R.A. assigns a relative risk level (high, moderate, low) to land uses in LaSalle that are defined by the Ontario Building Code (O.B.C.) occupancy classification for existing risk. Existing risk was mapped for each parcel based on the dataset of building and parcels provided by the Ministry of Natural Resources and Forestry (M.N.R.F.) and associated risk code assigned by the O.B.C. The assignment of O.B.C. risk based on occupancy class can be found in **Table 45**.

The G.I.S. risk model was constructed by linking these occupancy categories with respective risk levels, with parcel data or larger zone data to produce a map of current risk in the Town. High rise and high risk buildings are identified on the fire risk map that were defined as residential buildings of greater than six storeys, as well as hospitals, schools, nursing homes, and high hazard industrial occupancies. The current risk is shown in **Figure 20**.

**Table 45: O.B.C. Risk Assignment based on Occupancy Classification**

Occupancy Classification (O.B.C.)	Occupancy Definition Fire Risk Sub-model (O.F.M.)	Base Risk Zone Category Assigned
Group A – Assembly	Assembly occupancies	Moderate
Group B - Institutional	Care or Detention occupancies	High
Group C - Residential	Residential occupancies	Moderate
Group D - Business	Business and Personal Services Occupancies	Moderate
Group E - Mercantile	Mercantile Occupancies	Moderate
Group F1 - Industrial	Industrial occupancies	Low
Group F2 - Industrial		Moderate
Group F3 - Industrial		High
Other occupancies	Not classified within the Ontario Building Code (i.e. farm buildings)	Low



## TOWN OF LASALLE FIRE MASTER PLAN

Figure 21: RISK MODEL

### Risk Assignment

- High-Rise High Risk\*
- High-Rise High Risk
- High
- Moderate
- Low
- Fire Station
- Urban Boundary
- Town Boundary
- Local
- Collector
- Arterial
- Highway
- Water

\*while these parcels do not conform to the NFPA 1710 definition of High-Rise High Risk, these buildings represent areas of special fire risk to the Town due to scale, height and dwelling characteristics.

1:55,000  
0 500 1,000 2,000 m

MAP DRAWING INFORMATION:  
DATA PROVIDED BY THE TOWN OF LASALLE AND MNR

MAP CREATED BY: SW  
MAP CHECKED BY: SCD  
MAP PROJECTION: NAD 1983 UTM Zone 17N



PROJECT: 18-8324  
STATUS: DRAFT  
DATE: 2019-04-22

## Appendix B

### *Council Educational Workshop*



# Town of LaSalle

## Community Risk Assessment – Fire Master Plan

**Council Educational Workshop**

Steve Thurlow

**Dillon Consulting Limited**

February 2019



# Presentation Outline

- Industry Trends
- Municipal/Community Responsibilities
- New Legislation
- Community Risk Assessments
- Fire Master Plans
- Fire Suppression Performance Measures
- Fire Master Plan Scope
- Methodology
- Consultation with Council
- Questions/Next Steps



# Industry Trends

- The use of **risk assessments** as the basis for determining local “**needs and circumstances**” to select required fire protection services levels;
- Transition to the **NFPA training standards** for firefighters;
- **Increasing cost of wages** and benefits for full-time firefighters;
- **Strategies to optimize** the Ontario Fire Protection Model “**Three Lines of Defence**”; and
- **Increasing demands on all firefighters, including higher training standards.**





# Municipal Responsibilities

***Fire Protection and Prevention Act 1997*** (FPPA) states that every municipality shall:

(a) Establish a program for public education with respect to fire safety and certain components of fire prevention; and

(b) Provide other fire protection services as it determines may be necessary in accordance with its needs and circumstances.

FIRE PROTECTION AND PREVENTION ACT, 1997

## **FIRE PROTECTION AND PREVENTION ACT, 1997**

**S.O. 1997, CHAPTER 4**

This document includes the following amendments:

1997, c. 21, Sched. A, s. 3;  
1998, c. 15, Sched. E, s. 12;  
2001, c. 25, s. 475;  
2002, c. 17, Sched. F, Table;  
2002, c. 18, Sched. N, ss. 1-14;  
2004, c. 8, s. 46;  
2005, c. 33, ss. 8-10;  
2006, c. 19, Sched. M, s. 2;  
2006, c. 32, Sched. C, s. 20;  
2006, c. 33, Sched. Z.3, s. 12;  
2006, c. 35, Sched. C, s. 44;  
2009, c. 33, Sched. 6, s. 59.

This document is prepared for convenience only. For accurate reference and current information on amendments to the *Fire Protection and Prevention Act, 1997*, refer to the Government of Ontario's e-Laws web site at [www.e-laws.gov.on.ca](http://www.e-laws.gov.on.ca).

Rev.1

1

# Community Responsibilities

- Responsibilities also apply to individual homeowners, buildings owners, and tenants.
- Responsibilities are legislated (Ontario Fire Code) and promoted through public education (OFMEM PFSGs)
- Under the Ontario Fire Code, a homeowner or building owner is required to:
  1. maintain a working **Smoke Alarm** on every level of a residential occupancy;
  2. maintain a working **Carbon Monoxide Alarm** in most residential occupancies;
- Depending on the occupancy type, there may be additional Ontario Fire Code requirements for which the owner is responsible (e.g. Ontario Regulation 150/13 – Enhancing Fire Safety in Occupancies Housing Vulnerable Occupants)
- Homeowners are strongly suggested to develop and practice a **Home Escape Plan** that includes two exits from every room (OFMEM PFSGs).



# Ontario Fire Protection Model: Three Lines of Defence

# 1

## Public Education and Prevention

- Smoke alarm program, learn not to burn education, home escape planning;
- Identified vulnerable groups such as seniors and children



# 2

## Fire Safety Standards and Enforcement

- Fire inspection program and regular inspection cycles based on type of occupancy;
- Licensing, and violation enforcement including prosecution



# 3

## Emergency Response

- Ontario Fire Marshal's Office guidance notes; National Fire Protection Association Standards (NFPA); Ministry of Labour (Section 21 Guidance Notes); Industry best practices





# Fire Behaviour

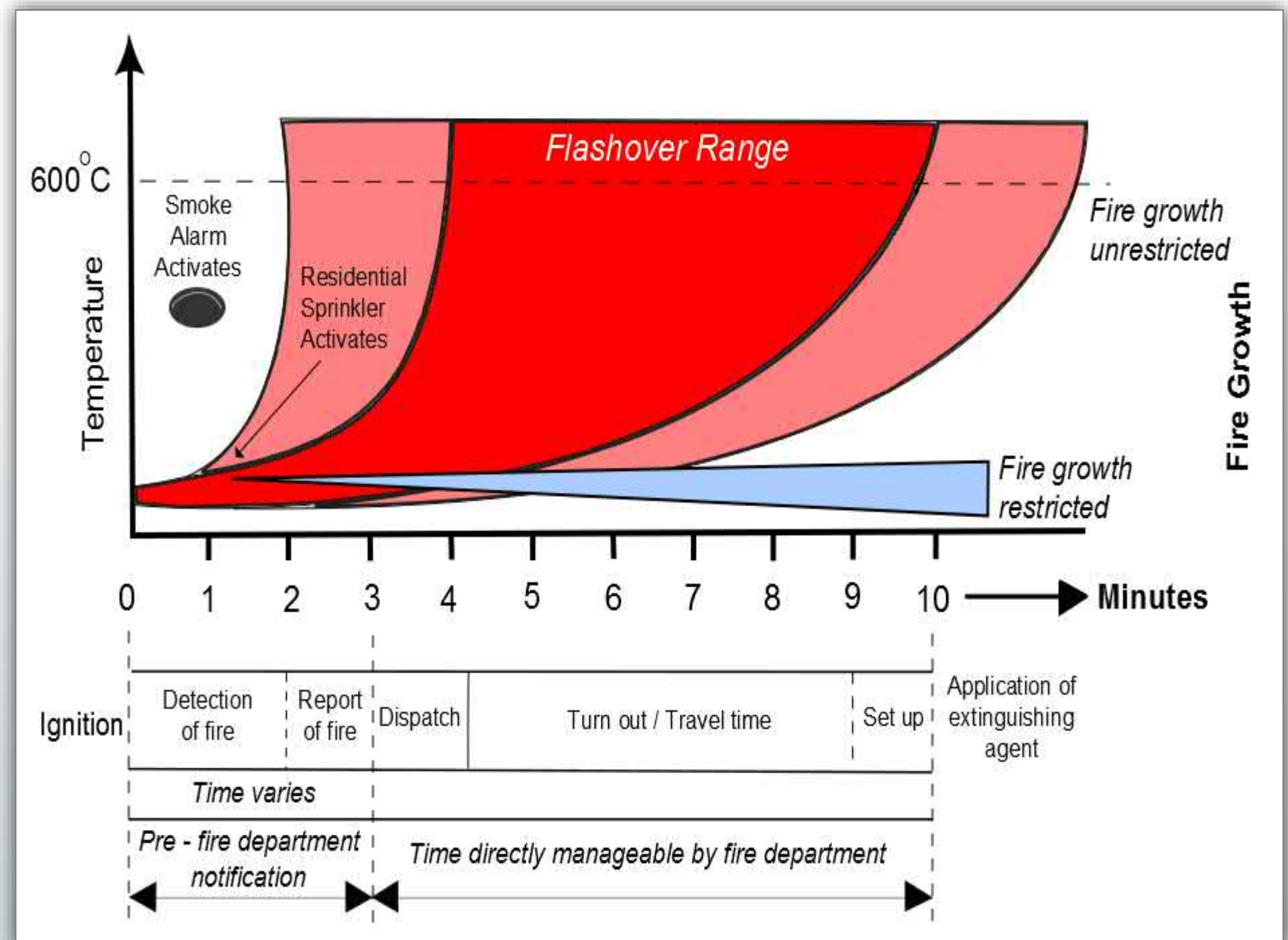
Industry recognition that **fires** are **burning faster and hotter**.

Emphasis on the ***First Two Lines of Defence***.

(e.g., early detection; early notification; home escape planning, etc.)

**Fire Suppression as the Fail Safe.**

## FIRE PROPAGATION CURVE



*Source: Fire Underwriters Survey "Alternative Water Supplies for Public Fire Protection: An Informative Reference Guide for Use in Fire Insurance Grading" May 2009 and NFPA "Fire Protection Handbook" 2001*

# New Legislation

## (a) Mandatory Community Risk Assessment

- **Required** to be completed every **5 years** beginning **July 1, 2019**; to inform decisions about the provision of fire protection services within the community. Includes **nine mandatory profiles**;

## (b) Public Reporting for Fire Department Response Times

- **Requires** every fire department to **prepare a public report** based on information (if available) requested by the Fire Marshal;





# New Legislation

## (c) Mandatory Certification

- The regulation requires that a firefighter **only perform** the fire protection **service he/she is certified for**.
- This regulation has recently been **repealed**, however, it is likely to be re-implemented and revised, requiring some form of minimum competency to a recognized professional standard.



# What is a Community Risk Assessment (CRA)

- Within the **fire service** a CRA is **recognized as the first step** towards the **management of risk** based on **local “needs and circumstances”**;
- The **methodology** to develop the CRA for the Town of LaSalle will be **guided by industry best practices** including:
  - *Office of the Fire Marshal & Emergency Management (OFMEM) – Comprehensive Fire Safety Effectiveness Model*; and
  - *National Fire Protection Association (NFPA) – Related Standards*

# Community Risk Assessment (CRA)

## Analyses of 9 Key Risk Factors

- Geographic
- Building Stock
- Critical Infrastructure
- Demographic
- Hazard
- Public Safety Response
- Community Services
- Economic
- Past Loss Event History

9 Risk Profiles

Consolidated into a  
Community Risk  
Assessment  
(CRA)

Identify

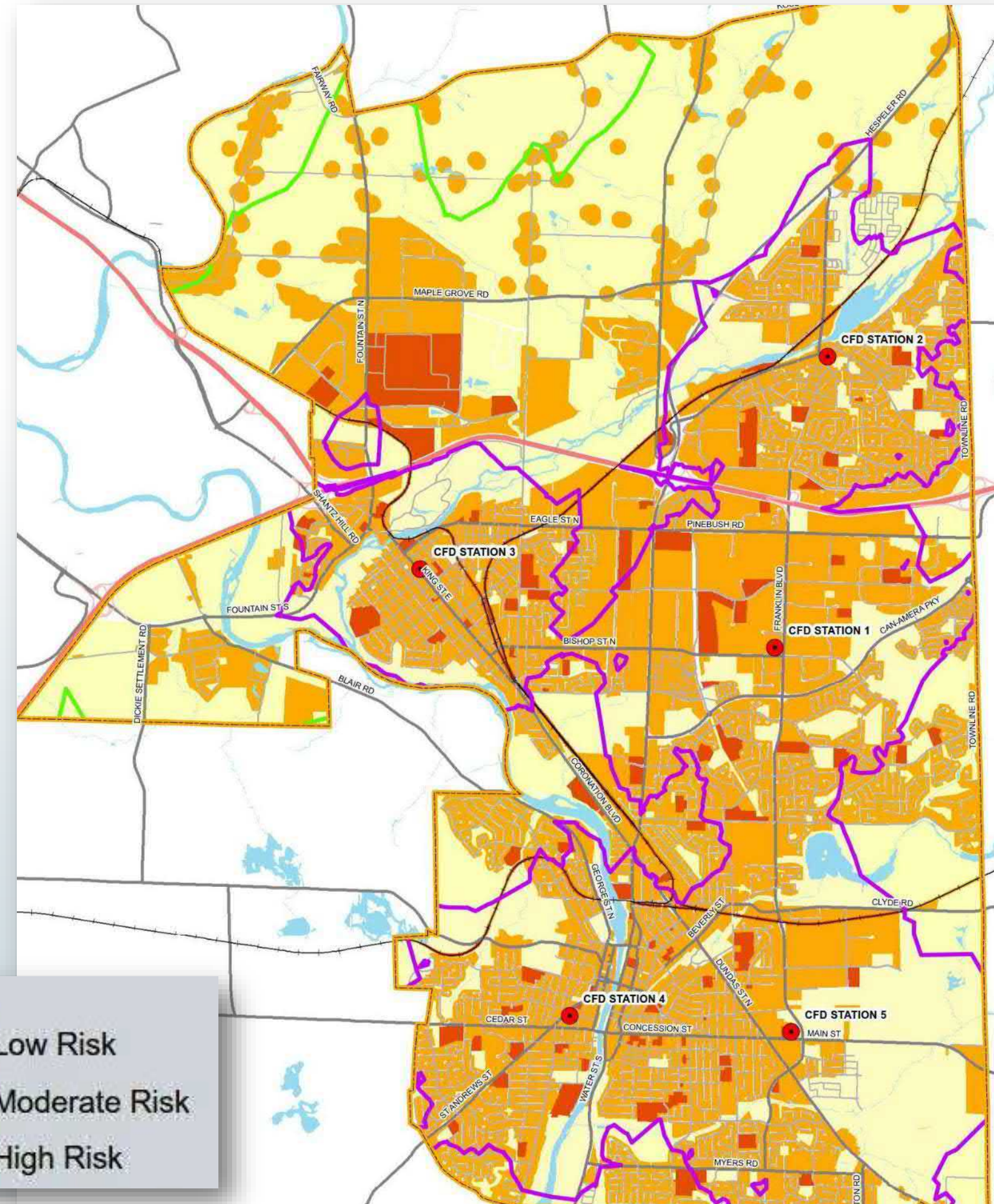
## 3 Categories of Fire Related Risk :

- Low Risk
- Moderate Risk
- High Risk



# Community Risk Assessment (CRA)

- Identified **fire risk** presented through **GIS-based modelling**;
- To inform **fire prevention and public education programs** and services;
- To compare analyses of **fire suppression capabilities** in relation to **fire risks** present.





# What is a Fire Master Plan (FMP)

Comprehensive evaluation of a fire department's current operations, staffing and service delivery.

Assessment of current services in relation to legislated standards and municipal best practices.

Creation of a strategic, multi-year plan to deliver services based on the “**needs and circumstances**” of the community.



# Benefits of a Fire Master Plan

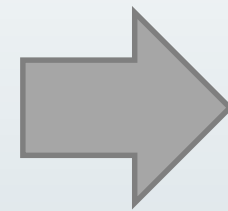
- ✓ **Assess** a community's **compliance** with current **legislative** requirements.
- ✓ Inform **Council and the community** with respect to the programs and services provided.
- ✓ **Provide** Council and staff with an **evidence-based strategic framework** for delivering fire protection services in response to identified community fire risks.
- ✓ Opportunity for **stakeholder input** in developing performance goals and objectives.



# Summary of Master Fire Planning Process

## COMMUNITY RISK ASSESSMENT

- Analyses of 9 key risk factors
- Identification of low, moderate and high risk occupancies/risk
- GIS Risk Model



## FIRE MASTER PLAN

- 10-Year Strategic Planning Document for the delivery of all fire protection services
- Identify proposed service levels for:
  - Fire Prevention/Public Education
  - Fire Suppression
- Provide options for Council's consideration/approval



# Fire Suppression Performance Measures

“A fire department shall provide fire suppression services and may provide other fire protection services in a municipality, group of municipalities or in territory without municipal organization.” FPPA 1997, c. 4, s. 5 (1).

## Informed by:

- National Fire Protection Association (NFPA)
- Public Fire Safety Guidelines (OFMEM)
- Industry Best Practices
  - Ontario Association of Fire Chiefs (OAFC)
  - Canadian Association of Fire Chiefs (CAFC)



# Fire Suppression Performance Measures

**TOTAL RESPONSE TIME =**

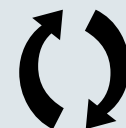
**Dispatch Time**

Time to receive and dispatch the call.



**Turnout Time**

Time required for firefighters to react and prepare to respond.



**Travel Time**

Actual travel time from the fire station to the incident.



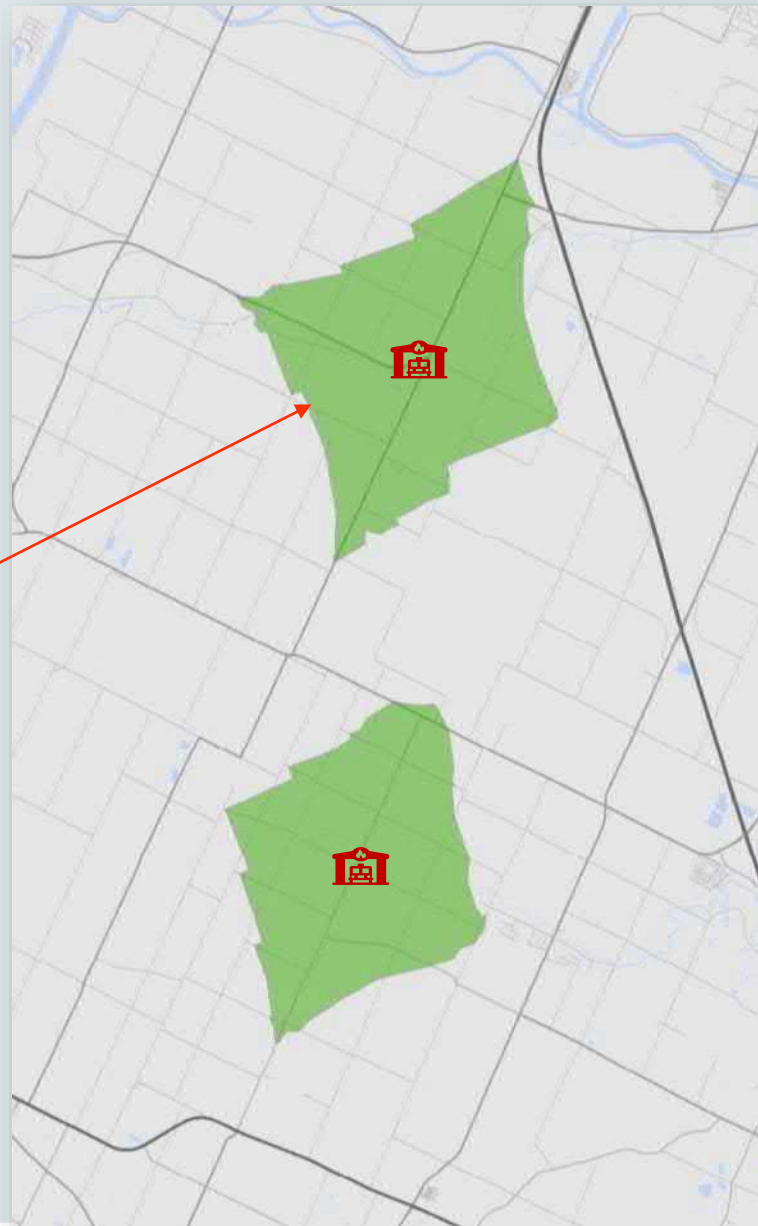
**Initial Response:** The number of firefighters initially deployed on the 1<sup>st</sup> apparatus.

**Depth of Response:** The total number of firefighters initially deployed to an incident.

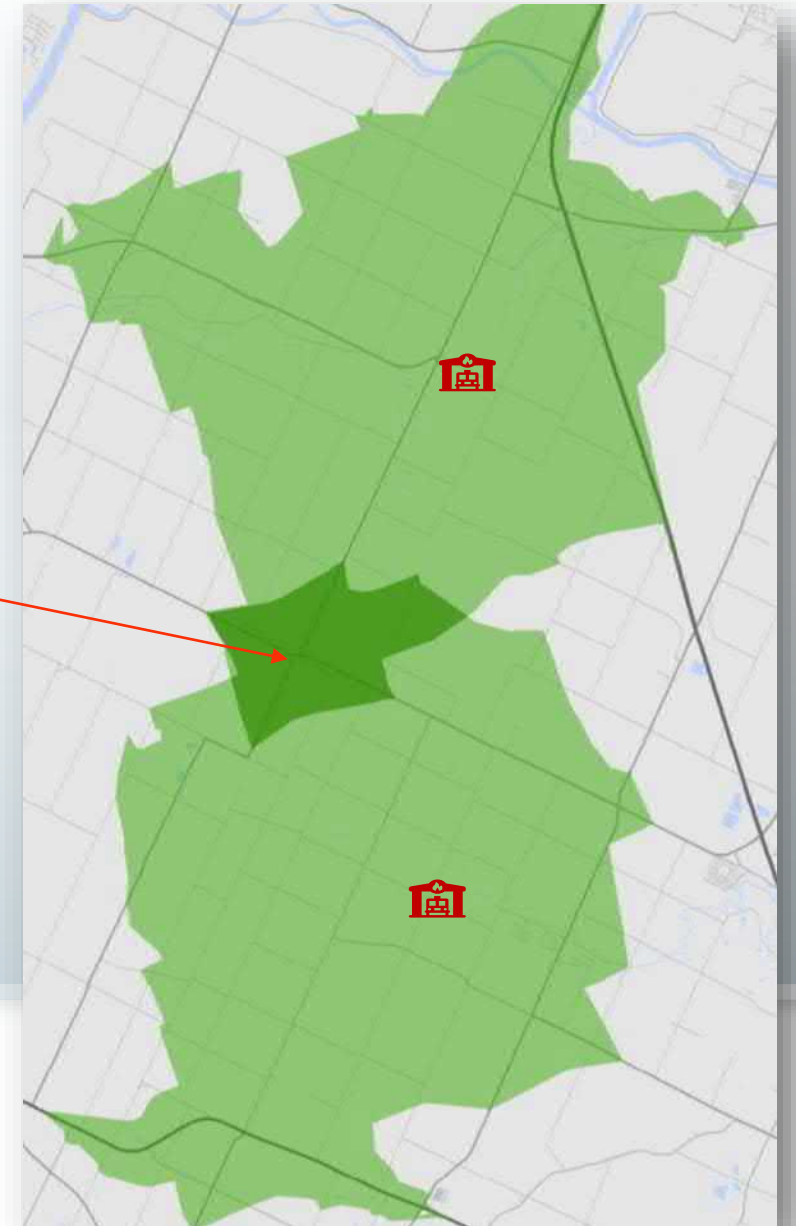
# Fire Suppression Career Fire Department

## NFPA Standard 1710 – Career (full-time) Fire Departments

**Initial  
Response:**  
4 firefighters  
arriving on  
scene within 4  
minutes of  
travel time to  
90% of incidents



**Depth of  
Response:**  
14 firefighters  
arriving on  
scene with 8  
minutes of  
travel time to  
90% of  
incidents



# Fire Master Plan Scope

## Review and Assessment of:

- Governance, administration, legislation, by-laws, SOGs, policies & directives;
- Service delivery including level and range of service and future growth and expectations, community risk;
- Department staffing, training, education and succession planning;
- Service agreements including mutual and automatic aid;
- Emergency response and fire station locations;
- Fire prevention and public education;
- Apparatus / equipment replacement and maintenance; and
- Communications and technology requirements.





# Methodology

## Project Initiation, Data Collection, Site Visits, and Background Review

- Project Initiation Meeting, station tours, data collection, review of background information, etc.

## Stakeholder Engagement

- Interviews with Town and Department Staff, Council Workshops, Targeted Stakeholder Telephone Consultation, Public Information Session

## Risk Assessment & Divisional Review

- Complete Community Risk Assessment including population growth and development; and operational and divisions review compared to best practices, peers, PFSGs, and NFPA.

## Fire Suppression Review

- Use call data and GIS modelling to analyze emergency response coverage, station location, and deployment of resources.

## Goals, Recommendations, & Implementation Plan

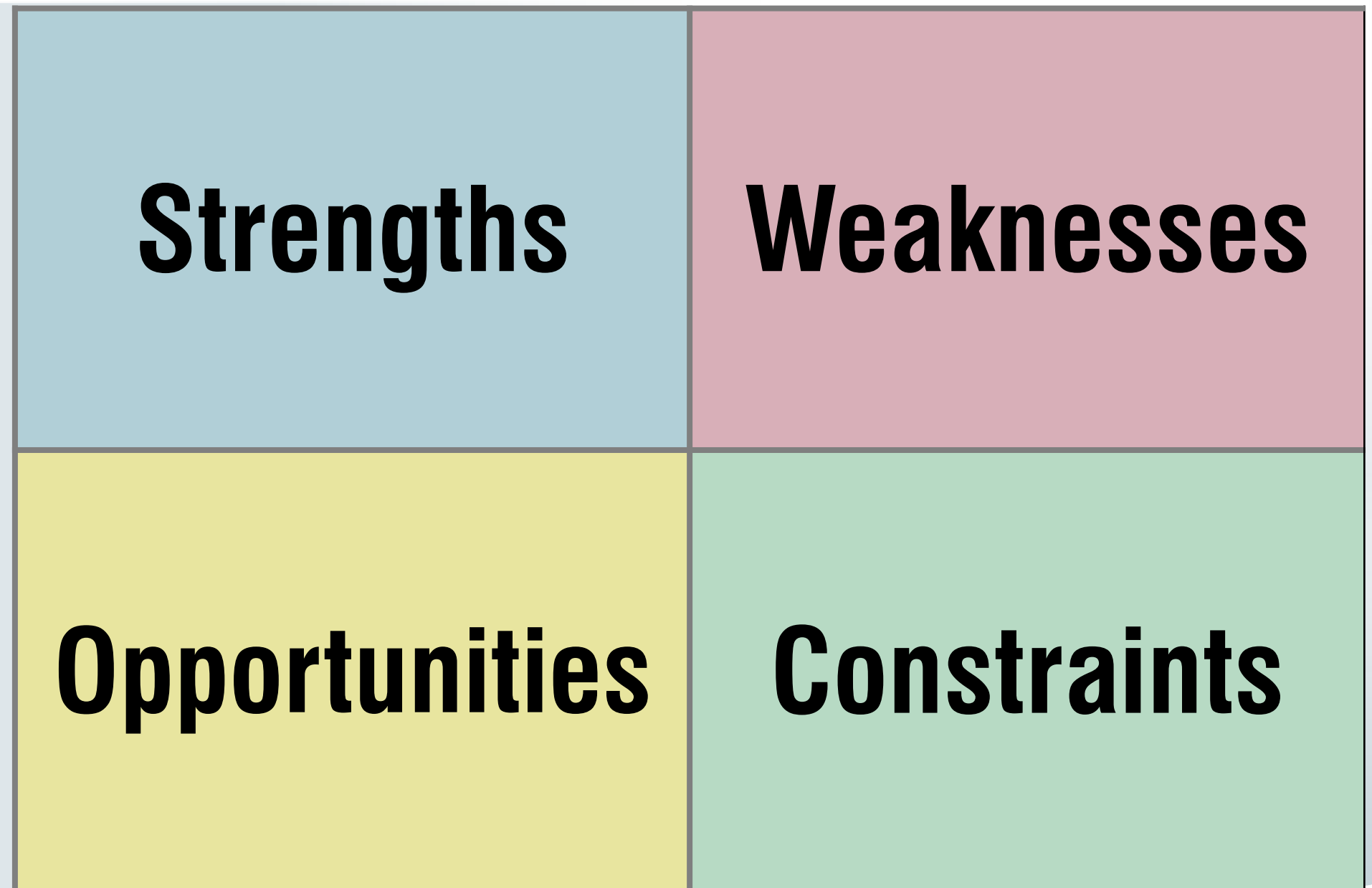
- Gap analysis, cost-benefit analysis, short, medium & long-term recommendations, and implementation plan.

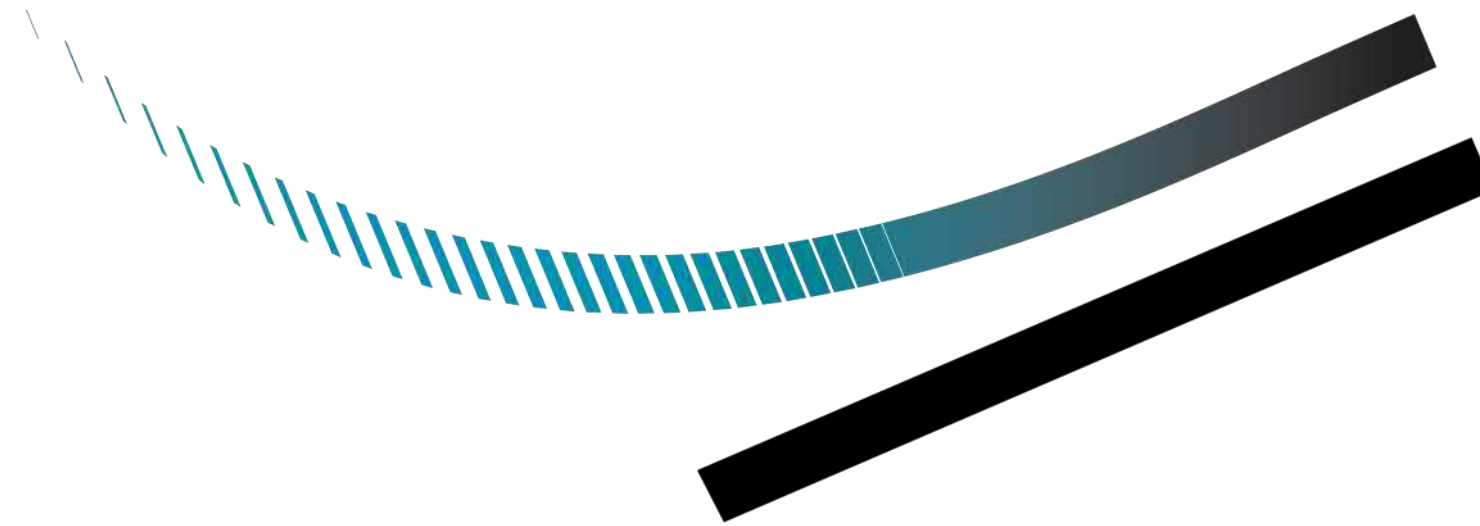
## Project Management & Communication

- Site meetings, on-going communication, managing the work plan, meeting documentation and Progress Status Reports.

# Consultation with Council

- What are the **strengths** of the fire service as it exists today?
- Its **weaknesses**?
- Where are there **opportunities** for the department to improve in the short term and the long term?
- What are possible **constraints** to this improvement?





**DILLON**  
CONSULTING

**Questions / Next Steps**

## Appendix C

### *Verdict of the Coroner's Jury*

You are here > **Home** > ... > OCC Inquest - Harrison, Towie, Twiddy and Dunsmuir



## Verdict of Coroner's Jury

### Office of the Chief Coroner

#### The Coroners Act - Province of Ontario

**Name(s) of the deceased:** Holly Harrison, Mari-Lee Towie, Benjamin Twiddy, Kevin Dunsmuir, Jennifer Dunsmuir, Robert Dunsmuir, Cameron Dunsmuir

**Held at:** Toronto, ON

**From the:** 29th of March, 2015

**To the:** 29th of April, 2016

**By:** Dr. David Evans, Coroner for Ontario

having been duly sworn/affirmed, have inquired into and determined the following:

**Surname:** Harrison

**Given name(s):** Holly

**Age:** 18

**Date and time of death:** April 29<sup>th</sup> 2012 at 2:08 a.m.

**Place of death:** Lakeridge Health Centre, 1 Hospital Court, Oshawa Ontario

**Cause of death:** Smoke inhalation

**By what means:** Accident

**Surname:** Towie

**Given name(s):** Marie-Lee

**Age:** 17

**Date and time of death:** April 29<sup>th</sup> 2012 at 1:07 a.m.

**Place of death:** 917 Dundas Street West, Whitby Ontario

**Cause of death:** Smoke inhalation

**By what means:** Accident

**Surname:** Twiddy

**Given name(s):** Benjamin

**Age:** 19

**Date and time of death:** April 29<sup>th</sup> 2012 at 1:31 a.m.

**Place of death:** Rouge Valley Hospital, 580 Harwood Ave South, Ajax, Ontario

**Cause of death:** Smoke inhalation

**By what means:** Accident

**Surname:** Dunsmuir

**Given name(s):** Kevin

**Age:** 55

**Date and time of death:** March 29<sup>th</sup> 2013 at 12:30 p.m.

**Place of death:** 72 Howard Ave. Sharon (East Gwilimbury) Ontario

**Cause of death:** Smoke inhalation

**By what means:** Accident

**Surname:** Dunsmuir

**Given name(s):** Jennifer

**Age:** 51

**Date and time of death:** March 29th 2013 at 12:30 p.m.

**Place of death:** 72 Howard Ave. Sharon (East Gwilimbury) Ontario

**Cause of death:** Smoke inhalation

**By what means:** Accident

**Surname:** Dunsmuir

**Given name(s):** Robert

**Age:** 19

**Date and time of death:** March 29th 2013 at 12:30 p.m.

**Place of death:** 72 Howard Ave. Sharon (East Gwilimbury) Ontario

**Cause of death:** Smoke inhalation

**By what means:** Accident

**Surname:** Dunsmuir

**Given name(s):** Cameron

**Age:** 16

**Date and time of death:** March 29th 2013 at 12:30 p.m.

**Place of death:** 72 Howard Ave. Sharon (East Gwilimbury) Ontario

**Cause of death:** Smoke inhalation

**By what means:** Accident

(original signed by Foreman and Jurors)

This verdict was received on the 29<sup>th</sup> of April, 2016

**Coroner's Name:** Dr. David H. Evans

(original signed by Coroner)

We, the jury, wish to make the following recommendations:

### **Inquest into the deaths of:**

Holly Harrison, Mari-Lee Towie, Benjamin Twiddy, Kevin Dunsmuir, Jennifer Dunsmuir, Robert Dunsmuir, Cameron Dunsmuir

### **Jury Recommendations**

#### **To the Office of the Fire Marshal and Emergency Management**

1. To consult with stakeholders to define the meaning of "public education" in section 2(1)(a) of the Fire Protection and Prevention Act through a Directive.
2. To develop a public education program related to public fire safety in accessory apartments.
3. To educate the public on its responsibility to maintain and not dismantle/vandalize smoke alarms.
4. To work with the Insurance Bureau of Canada and other stakeholders to increase insurance policy requirements for residential smoke alarms/smoke detectors and carbon monoxide detectors and to

develop public service announcements to promote awareness of the importance of working smoke alarms/detectors and carbon monoxide detectors.

5. To continue and expand the accessibility of all training resources to municipalities by providing standard curriculum e-learning, Train the Trainer packages, local training opportunities and teaching materials to municipalities to provide for consistent province wide training and standards.

#### **To the Office of the Fire Marshal and Emergency Management and Municipal Fire Departments**

6. To consider incorporating lessons learned from East Gwillimbury and Whitby incidents into future course materials (with personal information and identifiers removed and without using the audio of the 911 calls), such as fire college symposia and training materials, including but not limited to suggestions for self-evacuation and/or self-preservation.
7. Fire Inspectors to notify tenants of Landlord's non-compliance via letter.
8. Inspectors (fire or building) must have visual proof of compliance, e.g. confirming drywall installation for fire separation. (Verbal confirmation by property owner is not sufficient).
9. Develop a provincial "red-flag" system which would trigger a re-inspection of properties with a history of non-compliance/conviction under the Fire Code.
10. Canvass neighbourhood/community post fire to promote awareness of fire safety and prevention.

#### **To the Office of the Fire Marshal and Emergency Management and Municipalities**

11. To continue and expand public education on the fact that upon discovery of smoke or fire every person must immediately get out and stay out of the building.
12. As part of public education, promote awareness of different types and appropriate use of fire extinguishers. Included in this education, could be demonstrations and hands-on practice.

#### **To Municipalities**

13. Consult with stakeholders to explore the installation of clearly visible house numbers.
14. Work towards a provincially integrated computer software program to assist dispatching of 911 calls.

#### **To the Ontario Association of Fire Chiefs**

15. Fire Departments to explore re-allocating their current resources, and/or utilizing resources from the suppression area, for fire prevention, public education and fire safety inspections in their municipalities. This could include a Home Visit Public Education program and literature that will provide occupants home fire safety information, such as the presence of smoke detectors, CO detectors, escape plans, vulnerable occupants (physical and cognitive disabilities), appliance (e.g. dryer) safety, delivered by fire fighters as provided by the municipality. Such programs may include a home inspection as determined by the municipality.

#### **To the Ontario Association of Fire Chiefs and the Ontario Association of Chiefs of Police**

16. To encourage collaboration between fire departments and police services in the area of training with a view to ensuring a safe and efficient response to structure fires and the preservation and collection of fire investigation related evidence.

#### **To the Ministry of Education**

17. To consult with the Office of the Fire Marshal and Emergency Management and develop fire safety curriculum for high school students and young adults leaving home for the first time and their parents focusing on fire safety and fire prevention skills, including safe cooking, smoke alarms, the need for a means of egress and having and practicing an emergency exit plan in case of fire.
18. To make available to the School Boards the OFMEM burn room videos and "No Time To Spare" video to raise awareness of how fast and deadly the by-products of fire can be (e.g. smoke).

19. Explore opportunities to work with fire prevention and detection officers, as part of the mandatory volunteer hours curriculum for high school students. For example, students could work together to find ways to promote fire safety amongst their peers, e.g. "Cop Lights Bling". A video produced by the RCMP to raise awareness of moving over when cruisers lights are on.

#### **To the Ministry of Community Safety and Correctional Services**

20. To make a Regulation, pursuant to clause 78(1)(k) of the Fire Protection and Prevention Act, requiring mandatory certification and training, to recognized industry standards, for all personnel (as defined in the Fire Protection and Prevention Act) whose primary job function is to perform: 1) fire inspections, 2) public education, and/or 3) communications (call-taking / dispatch).
21. To work with the Technical Standards and Safety Association (TSSA) to promote the installation of Carbon Monoxide detectors through HVAC technicians who install gas fired appliances.
22. To amend section 9.8 of the Fire Code to address interior finishes of the means of egress in accessory apartments with only one means of escape and, in particular, require that such finishes have a maximum flame spread rating of 150.  
For example:  
9.8.3.2 (2). Where a dwelling unit is served by one means of escape conforming to Sentence (1), the flame spread rating of interior wall and ceiling finishes adjacent to stairs within the dwelling unit leading to the means of escape shall not exceed 150.  
9.8.3.3. (3). Where a dwelling unit is served by one means of escape conforming to Sentence (1), or (2) the flame spread rating of interior wall and ceiling finishes adjacent to stairs within the dwelling unit leading to the means of escape shall not exceed 150.
23. Legislation and or code be created pursuant to the FPPA that mandates that a municipality clearly and understandably educate the residents of the community on the fire protection services provided by the municipality. This shall be done on fire department/municipal web pages, and printed literature produced by the municipality. This information should indicate whether fire protection is being provided by full time fire fighters, volunteer fire fighters or a combination of the two and their respective hours of operation.

#### **To the Ontario Safety League**

24. To liaise with existing fire safety agencies and councils, such as the Office of the Fire Marshal and Emergency Management's Public Fire Safety Council, to address the issues of fire safety campaigns, programs and education curriculums. Refer to recommendation # 11.

#### **To the Ontario Safety League and the Office of the Ontario Fire Marshal and Emergency Management**

25. Explore the idea of using transit services advertising as a method of raising fire safety awareness, e.g. "seconds count" and "get out, stay out".

#### **To the Media:**

26. Ask the media to assist in raising awareness around fire safety including the importance of early detection through smoke alarms and the "get out, stay out" message. The public needs to be aware that the fire department may not be able to effect a rescue and therefore needs to be more vigilant with regard to fire prevention and fire detection to ensure their own safety.

#### **To The Ministry of Municipal Affairs and Housing, the Office of the Fire Marshal and Emergency Management and the Ontario Association of Fire Chiefs**

27. To consult with stakeholders, research and promote the installation of sprinklers as a component of fire and life safety in all newly constructed residential homes with the appropriate amendment under the Ontario Building Code.



28. To consult with stakeholders to research and promote two forms of egress for accessory apartments with the appropriate amendment under the Ontario Building Code.
29. Consult with the Real Estate Board and other stakeholders to explore the ability to list locations of fire halls and level of service they provide to prospective homeowners, e.g. location of schools.
30. When a building permit has been granted for renovations or retro-fit, a fire inspection must be completed, as well as a building inspection.
31. Regulation be passed pursuant to the Fire Protection and Prevention Act mandating that municipalities provide information on tax assessments indicating the level of fire protection provided to individual property owners. This information should indicate whether fire protection is being provided by full time fire fighters, volunteer fire fighters or a combination of the two and their respective hours of operation.
32. Consider communicating any changes to the fire code regarding dwelling units to property owners through the property tax assessment form.

#### **To The Office of the Chief Coroner**

33. The Office of the Chief Coroner shall request that all organizations and institutions receiving these recommendations provide reports updating their responses within a year of receipt. To inform the public of the contents of these reports, the Office of the Chief Coroner shall convene a press conference a year from the date that the recommendations were sent out to the recipient parties. Copies of the reports shall be forwarded to the jurors who will be invited to attend the press conference. All recommendations to be reviewed annually for the next two years with public reports filed providing an update on the status of the jury's final recommendations.
-