



# COMMUNITY RISK ASSESSMENT:

**Niagara**  
-on-the-**Lake**  
EST.1781

**2022**

## Community Risk Assessment

### Introduction

On July 1, 2019, Ontario Regulation 378/18: *Community Risk Assessments* came into effect. This Ontario Regulation requires that every municipality and every fire department in a territory without municipal organization complete and review a community risk assessment. The regulation also states that the community risk assessment must be used to make informed decisions regarding the provision of fire protection services.

The community risk assessment is a process of identifying, analyzing, evaluating, and prioritizing risks to public safety. The information gathered within the assessment is to be used as a directional tool to assist in planning future fire prevention, fire education and fire suppression activities within the community.

Through Ontario Regulation 378/18, nine mandatory profiles must be considered as part of the assessment. These mandatory profiles include:

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

Niagara-on-the-Lake Fire & Emergency Services has gathered and analyzed the required information pertaining to the mandated profiles. This information has been prepared into reports, charts, and schematics to effectively demonstrate the risks present within our community.

As required by Ontario Regulation 378/18, the risk assessment, once complete, is to continually be reviewed on an annual basis, ensuring that all information is up to date and relevant.

Mapping has been created to identify all Low, Medium, and High risks across the community based on the findings of this Community Risk Assessment. This mapping can be found within Appendix A, attached at the end of this document.

## Assessing Risk

The Community Risk Assessment identifies the risks that may exist within Niagara-on-the-Lake. Once complete, the findings of this risk assessment are then applied and used to assist in making decisions surrounding suppression service levels, fire prevention efforts and public fire education messaging for the Fire Department. Council has the authority to establish the level of fire protection within the municipality. The Fire Chief is responsible for informing Council of all risks existing within the municipality. Based on this information, Council can then make an informed decision on the level of service to be achieved.

There are two basic risk categories associated with the fire service – **operational risk** and **organizational risk**. Managing operational risk is the responsibility of Niagara-on-the-Lake Fire & Emergency Services by identifying the risks within the community and planning strategic, tactical, and task-oriented strategies to mitigate risk. Organizational risk is a function and responsibility of Council, determining the disciplines, level of service, staffing, stations, and approval of the department business plan based on the overall risk assessment of the municipality. The primary focus of this Community Risk Assessment is to determine the operational risks so that the organizational risks can be reviewed.

## Prioritizing Risk

When assessing the various risk levels within the community, the Niagara-on-the-Lake Fire & Emergency Services use a 2-axis approach. The first axis is to identify the probability of an incident occurring. The probability of a fire or emergency event occurring in town is based upon previous Niagara-on-the-Lake Fire & Emergency Services incidents as well as incidents from similar-sized communities and statistics obtained through provincial databases.

The second axis in the assessment determines the associated consequence level from a fire or emergency event occurring. This determination is based on the potential loss or adverse effects of an incident on the community.

Lastly, the assigned risk level is determined by cross-referencing the probability and consequence levels within the associated risk matrix. Once the assigned risk level has been determined for a specific building, property, or geographical area, it can be prioritized from high to low.

The following probability and consequence matrixes are based upon the Ontario Fire Marshal and Emergency Management (OFMEM) Fire Risk Models. The resulting assigned risk level matrix (Figure 1) is also based upon the OFMEM Fire Risk Models.

## Probability Risk Levels

### **Rare – Level 1**

- It may occur in exceptional circumstances
- No incidents in the past 15 years

### **Unlikely – Level 2**

- It could occur at some time, especially if circumstances change
- 5 to 15 years since the last incident

### **Possible – Level 3**

- It might occur under current circumstances
- One incident in the past five years

### **Likely – Level 4**

- It will probably occur at some time under current circumstances
- Multiple or recurring incidents in the past five years

### **Almost Certain – Level 5**

- It is expected to occur in most circumstances unless circumstances change
- Multiple or recurring incidents in the past year

## Consequence Risk Levels

To establish a consequence risk level, four components should be considered:

1. **Life Safety** – any injuries or loss of life to anyone involved, public and firefighters (includes actual or potential situations)
2. **Property Loss** – the dollar loss relating to public and private buildings, contents, irreplaceable assets, significant/symbolic landmarks, and critical infrastructure
3. **Economic Impact** – monetary losses associated with income, business closures, a downturn in tourism, tax assessment value, loss of employment
4. **Environmental Impact** – harm to humans, vegetation, and animals; the decline in quality of life due to air/water/soil contamination as a result of either the fire or fire suppression operations

The consequence risk level is then categorized according to five severity levels:

### **Insignificant – Level 1**

- No or insignificant consequences to life safety, the value of property loss, impact on the local economy or the general living conditions

### **Minor – Level 2**

- Potential life safety risk to occupants is low, minor property loss or disruption to business or general living conditions

### **Moderate – Level 3**

- A threat to the life safety of occupants, a moderate loss of property, the threat to loss of business, or could pose a threat to the environment

**Major – Level 4**

- Large dollar loss with significant property loss, a large threat to local commerce and tourism, impacts the environment that would result in short term evacuations

**Catastrophic – Level 5**

- Significant loss of life, multiple properties with significant damage, long term disruption of business, employment, and tourism, along with environmental damage resulting in long term evacuations of residents and businesses

**FIGURE 1 - ASSIGNED RISK LEVEL TABLE**

<b>Probability</b>	Level 5 <b>Almost Certain</b>	<b>Moderate</b>	<b>Moderate</b>	<b>High</b>	<b>High</b>	<b>High</b>
	Level 4 <b>Likely</b>	<b>Moderate</b>	<b>Moderate</b>	<b>Moderate</b>	<b>High</b>	<b>High</b>
	Level 3 <b>Possible</b>	<b>Low</b>	<b>Moderate</b>	<b>Moderate</b>	<b>Moderate</b>	<b>High</b>
	Level 2 <b>Unlikely</b>	<b>Low</b>	<b>Low</b>	<b>Moderate</b>	<b>Moderate</b>	<b>Moderate</b>
	Level 1 <b>Minor</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>	<b>Moderate</b>	<b>Moderate</b>
		Level 1 <b>Insignificant</b>	Level 2 <b>Minor</b>	Level 3 <b>Moderate</b>	Level 4 <b>Major</b>	Level 5 <b>Catastrophic</b>
	<b>Consequence</b>					

## **Risk Treatment Levels**

Once a risk level has been assigned to the items identified within the profile, an option for treating the risk can be considered. Within Niagara-on-the-Lake, the process of reviewing risk treatment is ongoing. While development and town growth continue, options for treating the risk are also ever-evolving. Through continuous improvement, risk treatment options can change or transfer from one treatment option to another. By continually reviewing all risks and updating all community risk assessments annually, all treatment options can be reviewed and confirmed to be the most effective to deliver customer service excellence to the residents within Niagara-on-the-Lake.

Risk Treatment levels that are considered:

1. Avoid the Risk
  - Avoiding the risk means implementing programs and initiatives to prevent a fire or emergency from happening.
2. Mitigate the Risk
  - Mitigating the risk means implementing programs and initiatives to reduce the probability and consequence of a fire or emergency.
3. Accept the Risk
  - Accepting the risk means that after identifying and prioritizing a risk, the fire department determines that no specific programs or initiatives will be implemented to address this risk. In this treatment option, the fire department accepts that the potential risk might happen and will respond if it occurs.
4. Transfer the Risk
  - Transferring the risk means the fire department transfers the impact or management of the risk to another organization or body. Contracting public fire safety education, Fire Code inspection and enforcement, or emergency response services to a neighbouring municipality or another organization are examples of transferring the management of risks to another body.

## Geographic Profile

As outlined in Ontario Regulation 378/18, the geographic profile intends to review and analyze the risks present within the geography of Niagara-on-the-Lake. The geography within the Town's boundaries directly impacts the response and risk level involved while responding to emergencies. The geographic features also affect public education and prevention efforts. All physical features should be reviewed and considered, including large bodies of water, highways/road networks, waterways, railways, bridges and wild-land-urban interfaces.

Primarily known as a farming community, Niagara-on-the-Lake has many relevant geographic features when considering public safety risks. Physical features, such as the Niagara Escarpment, Niagara River, and Lake Ontario contribute to some of the more considerable public safety risks.

### **Water**

Niagara-on-the-Lake is bordered by water on two sides of the Municipal boundaries. Lake Ontario is to the north, and the Niagara River is to the east. These large, distinct bodies of water present hazards to the public and responders during an emergency. Additionally, Niagara-on-the-Lake contains numerous creeks and streams throughout the municipality. Although these smaller waterways may not present the same hazards as Lake Ontario and the Niagara River, they still present risks to the public and emergency services personnel. Large irrigation ponds can be found on many farming/greenhouse operation properties. While most irrigation ponds exist on private property, the same challenges, hazards and risks are present as those found in creeks and streams. All of the aforementioned water features affect public education messaging from the fire department.

Probability Level: Likely

Consequence Level: Minor

**Assigned Risk Level: Moderate**

## **Transit – Road Network/400 Series Highways**

Within Niagara-on-the-Lake, there are hundreds of kilometres of roadways forming the Town's roadway network. Within the urban boundaries, these roadways typically average a 50 km to 60 km speed zone. Outside of the urban boundaries, the average speed zone is between 70 km and 80 km. Running along the southern edge of the municipality are two 400 series highways. Highway 405 spans from the Queenston Lewiston Border, crossing to the Glendale urban area, then intersecting with the Queen Elizabeth Way (Q.E.W). The Q.E.W. spans from the southern municipal boundary at Niagara Falls, continuing to the western municipal boundary at St. Catharines. At this boundary line, the Garden City Skyway is located, allowing the Q.E.W. to cross the Welland Canal. Between the municipal road network and 400 series highways, the Town contains over 400 km of roadway. The Niagara-on-the-Lake Fire & Emergency Services responded to 153 motor vehicle collisions in 2019.

Probability Level: Almost Certain

Consequence Level: Moderate

**Assigned Risk Level: High**

## **Transit – Bridges**

Niagara-on-the-Lake contains eight bridges that can require special technical rescue skills depending on the emergency incident that occurs on/under them. These bridges range in size from the Queenston Lewiston Bridge and Garden City Skyway to the small bridges crossing over creeks and streams.

Consequence Level: Moderate

Probability Level: Likely

**Assigned Risk Level: Moderate**

## **Transit – Airport**

Niagara-on-the-Lake contains an airport which currently offers helicopter and plane tours to the public as a tourism initiative. The airport also offers daily round trips to Toronto, a flight school, and is beginning to accept larger commercial aircraft. The airport currently does not provide any in-house or onsite fire protection services. The airport is entirely reliant on the Niagara-on-the-Lake Fire & Emergency Services to assist in dealing with aircraft emergencies or suppressing a fire.

Probability Level: Likely

Consequence Level: Major

**Assigned Risk Level: High**



## **Transit – Rail**

Niagara-on-the-Lake does not contain any rail lines; however, a very small section of rail passes within 50m (164ft) of the municipal boundary. This section is directly along the Niagara Escarpment, which slopes towards Niagara-on-the-Lake. This section of rail also travels over an overpass with a 400 series highway underneath. While the probability of a rail incident happening in this area would be very low, the consequences could be very high. The contents of the rail cars that pass through this area contain low to high hazard materials.

Probability Level: Minor

Consequence Level: Major

**Assigned Risk Level: Moderate**

## **Niagara Escarpment & Queenston Quarry**

The Niagara Escarpment starts at the easternmost border of Niagara-on-the-Lake and extends nearly the entire length of the southern municipal boundary line. The escarpment contains many hiking trails, cliffs and dense forest. Numerous dwellings perch near the top of the escarpment, and many that lie directly at its base. Access to most areas of the escarpment is challenging to achieve.

The Queenston Quarry is a unique feature located within the municipal boundary. The quarry is vast in area covering approximately 250 acres. It sits on the Niagara Escarpment and contains many hills, valleys, canyons and forests. Like the rest of the escarpment, access to most of this area is difficult to access.

Probability Level: Possible

Consequence Level: Minor

**Assigned Risk Level: Moderate**

## **Farmlands & Forests**

Most of Niagara-on-the-Lake's land is consumed by farmland and forests. These lands can have accessibility concerns along with terrain concerns. Getting into any forested areas would require either a small vehicle or having emergency personnel entering by foot. Farmlands are very similar as most of these areas are either vineyards or orchards. There are minimal hazards that exist within these areas.

Probability Level: Unlikely

Consequence Level: Minor

**Assigned Risk Level: Low**

## Building Stock Profile

As detailed within Ontario Regulation 378/18, the building stock profile intends to review and analyze the risk within the different occupancy types present in Niagara-on-the-Lake. The existing structures and contents within Niagara-on-the-Lake present one of the most significant challenges to Niagara-on-the-Lake Fire & Emergency Services. The Town has a very diverse mix of buildings ranging in age from less than five years old to nearly 200 years old. Through this unique mixture of building stock, hazards are created and, in turn, should be identified. Through various studies conducted by the National Fire Protection Association, the Ontario Fire Marshal's Office, and numerous insurance/protection companies, newer buildings can spread fire up to eight times faster than older buildings. The occupancies within these buildings also add a hazard level that must be considered. A single-family dwelling presents a very different hazard compared to a retail store or distillery. By reviewing and identifying occupancy type and building age, Staff can determine what prevention or education efforts should be focused on and any special or technical suppression tactics that should be considered during an emergency response.

Through the Ontario Building Code, every building occupancy can be broken down into six major building classifications. Some classifications are then broken down further into divisions. These classifications include:

### **Group A**

- A1 – Assembly intended for the Production and Viewing of the Performing Arts
- A2 – Assembly not elsewhere classified in Group A
- A3 – Assembly of the Arena type
- A4 – Assembly in which occupants are gathering in the Open Air

### **Group B**

- B1 – Detention
- B2 – Care and Treatment
- B3 – Care

### **Group C**

- Residential

### **Group D**

- Business and Personal Service

### **Group E**

- Mercantile

### **Group F**

- F1 – High Hazard Industrial
- F2 – Medium Hazard Industrial
- F3 – Low Hazard Industrial

The age of buildings can play a significant role in identifying hazards within the municipality. When considering fire suppression activities, a brand-new house will burn approximately eight times faster than a home built 50 years ago. Tests completed by Underwriter Laboratories, a not-for-profit product safety testing and certification organization, found that an average-sized room furnished with modern residential products can become fully engulfed in flames in approximately three minutes. The same room, furnished with items from 50 years ago, took approximately 30 minutes to become fully engulfed. Many new buildings contain large open spaces that flow freely with fewer walls to separate areas. By comparison, buildings constructed 50 years ago were much more compartmentalized, with each purposeful room containing four walls and, in most cases, a door.

Over time life safety systems in buildings have improved significantly. Through the introduction of the Ontario Building Code and the Ontario Fire Code, life safety systems became mandatory in certain occupancies. These systems, ranging from fire alarms to sprinkler systems, have repeatedly proven to reduce the threat to life within a building.

Another hazard that exists, unique to Niagara-on-the-Lake, is the Old Town District comprised of dozens of heritage buildings. Queen Street, the main attraction in this area, has many heritage buildings alongside various newly constructed buildings. Most of these buildings are built only feet from each other, or in some cases, are touching. If a fire were to occur on Queen Street, firefighters would need to act and respond quickly and ensure the damage is contained.

A map outlining the Fire Department's response district and an approximate number of buildings per district has been provided within Appendix B.

The hazards associated with each occupancy, including the age of the building, have been identified, along with their assigned risk level.

### **A1 – Assembly intended for the Production and Viewing of the Performing Arts**

These spaces are typically large and complex. They contain many different back-of-house areas ranging from dressing rooms to prop set up spaces. These occupancies also can include other minor occupancies ranging from offices (Group D) to restaurants or bars (Group A2). These buildings also bring in hundreds of visitors not familiar with these spaces. Within Niagara-on-the-Lake, there are several A1 occupancies, primarily located in Old Town.

Probability Level: Possible

Consequence Level: Major

**Assigned Risk Level: Moderate**

## **A2 – Assembly not elsewhere classified in Group A**

Although the division's title may appear vague, this division is all-encompassing to include anything that other "A" divisions don't include. This group includes everything from restaurants with over 30 people to schools, and from places of worship to libraries. While the specifics can differ in how the building is used, they contain many similar features. These spaces accept large numbers of people who typically are not familiar with the setting. They usually contain many combustible items like tables, seats, shelving units, fabrics, etc. Some spaces contain food prep areas with kitchen accessories or appliances, and most include rooms for small individual uses like offices or storage closets. The Ontario Building Code and Ontario Fire Code require life safety features to be installed in most of these spaces, typically due to their size. Niagara-on-the-Lake contains over 100 different A2 buildings located within all five urban areas and many outside the urban areas.

Probability Level: Likely

Consequence Level: Moderate

**Assigned Risk Level: Moderate**

## **A3 – Assembly Occupancies of the Arena Type**

Niagara-on-the-Lake contains two arenas located within the same facility. One section of the facility is much older than the other. Arenas are buildings intended to bring in large groups with limited familiarity with the building's layout. Generally, the spaces are not overly complex but can contain several low-hazard utility rooms, change rooms, and locker rooms underneath grandstands. In Niagara-on-the-Lake, the arena is located in Virgil.

Probability Level: Unlikely

Consequence Level: Moderate

**Assigned Risk Level: Moderate**

## **A4 – Assembly Occupancies in which occupants gather in the Open Air**

Niagara-on-the-Lake does not have any permanent A4 occupancies. The Town has experienced previous large-scale special events in which large stages were set up to create a temporary A4 occupancy—these isolated scenarios present risk by inviting tens of thousands of people into town. Alcohol is typically served at these events and, in most cases, includes fenced areas containing large groups. Other challenges faced with these events include parking and emergency access. With no permanent locations in Town, a risk level will not be assigned for this property type. Any future large-scale events held in Town shall be evaluated on a case-by-case basis.

## **B1 – Detention**

Niagara-on-the-Lake does not contain a Group B, Division 1 detention occupancy. Consequently, no risk level has been assigned.

## **B2 – Care and Treatment Occupancy**

The Town of Niagara-on-the-Lake contains several Care and Treatment Occupancies. These buildings are large and house some of the most vulnerable residents that the Town has. In addition, most of these occupancies are located within older buildings which present additional risks. Through Ontario Regulation 364/13, all fire departments within Ontario are mandated to conduct yearly inspections and fire drills within these facilities. Furthermore, Ontario Regulation 150/13 requires that all care & treatment occupancies install sprinkler systems by January 1, 2025.

Consequently, Community Risk Reduction Staff continually monitor these buildings, ensuring occupant safety is prioritized. While these buildings may be some of the safest when considering fire protection systems, the occupants themselves remain extremely vulnerable. As most occupants require assistance to leave their spaces in an emergency, Staff must be trained and ready to assist in evacuation when needed. Under Ontario Regulation 150/13, all Staff within the facility assigned to assist occupants with evacuation during an emergency are mandated to take province-directed training in relation to emergency response procedures. **See B3 – Care Occupancy for assigned risk level**

## **B3 – Care Occupancy**

The requirements and risks involved in a Care Occupancy are consistent with those identified within the B2 occupancy type. Ontario Regulation 150/13 requires that all care occupancies install sprinkler systems by January 1, 2019. This regulation also mandated that all Staff within the facility assigned to assist occupants with evacuation during an emergency are to take province-directed training in relation to emergency response procedures. Collectively, between B2 & B3 occupancies, the Town currently has five of these properties that require annual inspections and fire drills.

Probability Level: Likely

Consequence Level: Major

**Assigned Risk Level: High**

## **C - Residential Occupancy**

Group C, Residential Occupancy, covers a wide variety of residential-style buildings. Although single-family dwellings may first come to mind, this group covers any building where people sleep, including hotels. The hazards that exist from a single-family dwelling are much different than those in a hotel. Consequently, the Ontario Building Code and Ontario Fire Code will ensure all required life safety measures are appropriately placed when these buildings are constructed. According to census Canada, 2021, Niagara-on-the-Lake contains just over 7,800 private dwellings. Information obtained from the Town's Clerk's Department shows that several hundred of

these are used as short-term rentals (cottage rentals, bed and breakfasts, etc.). The Town also contains approximately 21 hotels ranging from smaller 12-room buildings to very large complexes with over 100 rooms. These hotels invite hundreds of occupants daily to sleep in facilities that are typically not familiar to them. Newer hotels can have some of the best life safety features; however, many older buildings, specifically in the Old Town District, are not as well equipped. Furthermore, many of these older buildings contain significant heritage attributes. Due to their age, many buildings have narrow corridors and smaller rooms that provide additional hazards to firefighters during an emergency.

The assigned risk level for this group is to be understood as a starting point. While the Fire Department may respond to more fires in single-family dwellings than hotels, the sheer volume of homes versus hotels must be considered. Only a small percentage of houses statistically experience fires versus hotels. Furthermore, while a house fire will have some adverse negative effects, a fire in a hotel can result in more severe consequences. When reviewing a Group C occupancy, these factors must be considered, including which prevention efforts, education messaging, or suppression tactics will apply to each property.

Another consideration for Residential Occupancies surrounds the rate of growth within the Town. A review of Statistics Canada data shows that in 2021, there were 8,578 private dwellings occupied in Niagara-on-the-Lake, representing an increase of 29.32% since 2011. This data illustrates a significant increase over the ten-year period.

Probability Level: Likely  
Consequence Level: Moderate  
**Assigned Risk Level: Moderate**

It is important to note that several residential areas within Niagara-on-the-Lake present a greater risk than the average residential neighbourhood. These areas include private fire lanes with limited or narrow access routes, very remote rural areas, and parts of the municipality that require emergency services to leave the municipal boundaries and re-enter to reach the location. These areas are reflected as high risk within the risk level mapping provided with this document.

## **D – Business and Personal Services Occupancy**

A Business and Personal Service Occupancy is primarily used for the transaction of professional or personal services. Examples include law offices, real estate offices, barbers, banks, medical offices, etc. Although these spaces are often small in size, many units can be combined into one structure, creating an office building. While each use of the space may be different, they typically contain many of the same occupancy types. Typically, each use does not contain many Staff members and does not permit large quantities of occupants. However, they may contain many combustibles in the form of paper files and office furniture. Depending on the exact use and size, some occupancies may not require second exits or advanced life safety features. Multi-unit

buildings range in size from one storey in height, with all units exiting directly to the exterior, to a multi-storey building with central corridors and shared exits.

The Town of Niagara-on-the-Lake has dozens of small single units or small multi-unit Group D occupancies. Many of these occupancies are located on Queen Street, adding additional hazard levels as previously referenced. Available data indicates that this occupancy type does not contribute to a significant amount emergency incidents. Although the Town contains very few multi-storey office buildings, most of these buildings are located in the Glendale area.

Probability Level: Unlikely  
Consequence Level: Minor  
**Assigned Risk Level: Low**

## **E – Mercantile Occupancy**

A Mercantile Occupancy consists of a place of business for retailing goods, including an outlet mall, retail stores, country stores, general stores, etc. Niagara-on-the-Lake contains hundreds of these types of occupancies, from retail shops on Queen Street to the Outlet Collection at Niagara. A Mercantile Occupancy can also consist of small food-related services such as a restaurant that permits 30 persons or less, a coffee shop, or specialty food-related businesses such as pastry or chocolate shops.

The hazards that exist within these spaces can vary from very low hazards found in a clothing retailer to extremely high hazards found in a farming chemical reseller. The occupant load in a Mercantile Occupancy can also vary significantly from one use to another. A small store may only permit 10 to 12 persons, while a large retailer may permit 100 or more persons at a time. If mercantile units are placed together like at the Outlet Collection at Niagara, thousands of people could be in one general location at any given time.

The life safety features and construction types found in this occupancy group can also differ significantly. A store on Queen Street may only be protected by a few stand-alone smoke alarms, whereas a larger center may be protected by a full fire alarm and sprinkler system.

Similar to all other occupancies, the location and exact use will determine the precise hazard level. Units on Queen Street present a more significant hazard due to their building construction over units found at the Outlet Collection at Niagara, where the highest level of fire protection exists.

Probability Level: Possible  
Consequence Level: Minor  
**Assigned Risk Level: Moderate**

## **F1 – High Hazard Industrial Occupancy**

A High Hazard Industrial Occupancy contains items or processes that are highly hazardous to the occupants and neighbouring properties in an emergency. These occupancies include distilleries and spray-painting operations. While statistically, the Niagara-on-the-lake Fire & Emergency Services do not respond to many emergencies within an F1 occupancy, the potential consequence is exceptionally high. The number of high hazard occupancies continues to grow in Niagara-on-the-Lake, with four distilleries opening in the past five years.

Probability Level: Possible  
Consequence Level: Major  
**Assigned Risk Level: High**

## **F2 – Medium Hazard Industrial Occupancy**

A Medium Hazard Industrial Occupancy also contains items or processes hazardous to the occupants and neighbouring properties in an emergency. These occupancies include aircraft hangars and service garages. Although less hazardous than an F1 occupancy, these properties can create a significant emergency incident. Within Niagara-on-the-Lake, there are over 30 wineries and six breweries/cideries, all of which are classified as a medium hazard.

Probability Level: Possible  
Consequence Level: Moderate  
**Assigned Risk Level: Moderate**

## **F3 – Low Hazard Industrial Occupancy**

A Low Hazard Industrial Occupancy is an occupancy that contains the least amount of risk compared to the other industrial occupancies. Warehouses or laboratories are examples of this type of occupancy. Typically, these spaces can be located closer to other occupancies than a medium or high hazard occupancy. These uses also may be found together within an industrial park setting.

Probability Level: Unlikely  
Consequence Level: Minor  
**Assigned Risk Level: Low**



## Additional Building Stock Considerations

### Age and Location of Buildings

The age and location of a building must be considered to assist in determining the hazard that exists. As previously stated, an older structure will burn at a much slower rate than newer construction. Buildings located closer to one another also present a greater risk than a standalone building. A fire on a street with buildings closer together has a greater chance of spreading than a fire on a street where the buildings are spread out further apart.

### High-Rise Structures

A high-rise structure is identified within the Ontario Building Code as a building exceeding 36 meters in height from grade to the floor level of the top storey. Although there are other ways to calculate a high building as identified by the Ontario Building Code, they do not apply to any structures in Niagara-on-the-Lake. Within Niagara-on-the-Lake, there is currently one structure that is considered a high building. This structure is a hotel in the Glendale District. Firefighting tactics used in high buildings differ significantly from those employed in other structures.

### Life Safety Features

The life safety features within a building can drastically affect how a building responds or reacts during an emergency. For example, built-in fire alarms can alert emergency services sooner, and sprinkler systems can assist in containing a fire during the early stages. Many buildings within Niagara-on-the-Lake have these life safety features, and they must be considered when reviewing the risks for any structure.

### Land Use

Figure 2 represents the land use types within the Town of Niagara-on-the-Lake. This graphic does not reflect the number of buildings or actual use/occupancy of buildings on any property.

**FIGURE 2 - LAND USE**

Land Use with the Town of Niagara-on-the-Lake <sup>1</sup>	
Residential	76%
Farm Use	13%
Vacant Land	7%
Commercial Use	2%
Industrial Use	<1%
Institutional Use	<1%
Government Use	<1%
Special Use	<1%

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<sup>1</sup> [Property Types | MPAC](#)

## **Vacant Buildings**

As will be further identified within the Demographic Profile, nearly 60% of the Town's population is over the age of 50. As such, many of these residents are retired and travel to warmer regions during the winter months. While the exact number of residents travelling south is unknown, the Canadian Snowbird Association<sup>2</sup> believes approximately 1 million Canadian residents travel during the winter months<sup>3</sup>. Based on this estimate, it can be anticipated that roughly 3.5% of all Canadians leave Canada every winter. When applying this percentage to the Town of Niagara-on-the-Lake, it could be considered that nearly 600 dwellings within the community are vacant for several months during the year. Additionally, the Town of Niagara-on-the-Lake contains over 190 dwellings used to house seasonal migrant workers from overseas. Due to the nature of the work, these workers are only employed on a seasonal basis, thus leaving these dwellings vacant for the remaining portions of the year.

A vacant building can present a hazard, specifically when it is unknown if the property is vacant at the time of an emergency. Firefighters may enter a structure not knowing if the house is occupied or may conduct search and rescue operations when no information regarding the occupant status is received upon arrival. This can put firefighters at risk of injury when a search of the property may not have been required. A vacant building can also become a place that squatters may inhabit. Consequently, squatters may look to heat the space in ways the building may not have been intended to be heated. These methods often are hazardous and can lead to fires requiring the fire department and other emergency services to respond.

## **Lightweight Building Construction**

Lightweight building construction techniques are commonly used in various new construction projects within the town. As the municipality continues to grow and the urban pockets expand with the increased population, more and more buildings are being constructed using this type of construction. Most new residential dwellings utilize lightweight trusses and floor joists as is permitted by the Ontario Building Code. This modern building technique provides for cheaper construction costs as well as the ability for the home to be built with large open spaces. While lightweight construction has many benefits for the builders and owners of the homes, it also presents a serious risk to responding firefighters. During a fire these systems may be susceptible to pre-mature failure and rapid collapse under certain fire conditions, posing a significant risk to responding firefighters.

As of 2022, there is currently no active list identifying which properties contain lightweight construction throughout the community. It can only be assumed that lightweight construction is present in most new commercial construction projects. It must also be assumed that most homes and subdivisions built after 2007 in the community are likely to have been built using these construction techniques. Firefighters

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<sup>2</sup> [Home | Canadian Snowbird Association \(snowbirds.org\)](https://www.snowbirds.org/)

<sup>3</sup> [Nearly one million Canadian snowbirds anxious to travel south this winter | CTV News](https://www.ctvnews.ca/nearby-one-million-canadian-snowbirds-anxious-to-travel-south-this-winter-1.5444444)

are trained in basic building construction techniques and can identify the presence of lightweight construction materials. Due to the nature of the volunteer composition of the department where our members live within the community, they are typically aware of new construction projects taking place within their districts where it can be assumed that most new buildings have at least some elements of lightweight construction.

Moving forward, staff will work with the Town's Building Department to ensure new lightweight construction buildings are identified. The Department's pre-planning practices have also been updated to identify lightweight construction. All future pre-plan documents are readily available to firefighters on each apparatuses MDT as well as through the *I Am Responding* mobile application where completed pre-plans are stored and accessed.

## Critical Infrastructure Profile

Within Niagara-on-the-Lake, infrastructure exists that could significantly negatively impact the Town if damaged or taken offline due to a fire or emergency. Below, the main infrastructure components have been listed, identifying concerns and issues related to the potential outcomes of damaged infrastructure

### **Niagara-on-the-Lake Hydro Inc. - Electrical Distribution**

Niagara-on-the-Lake Hydro is the only electricity distributor within the municipality. If this service is compromised, all of Niagara-on-the-Lake would be without power.

### **Enbridge Gas Distribution**

Enbridge provides natural gas service to all urban areas of Niagara-on-the-Lake and most of the rural areas within the town. If any of the main feeder gas lines within the town were part of a large-scale emergency, this could affect thousands of customers who rely on gas for heat, hot water, and cooking.

### **Telecommunication Towers - Cell Phone / Radio Frequency**

Niagara-on-the-Lake has several telecommunication towers located throughout the municipality. If any of the towers were to fail or be damaged by fire, a drop-in service might occur.

### **Town Administration & Elected Officials**

The Town Administration Building provides all primary municipal services to the citizens of the Town. If the administration building were destroyed or unable to be used, all primary municipal services would be halted or delayed for a considerable amount of time.

### **Waste Water Treatment Plant**

Without a functional wastewater treatment plant or pumping station, neighbourhoods cannot remove waste. Any failure in the system may produce very unsanitary conditions for the Town.

### **Niagara-on-the-Lake Fire Apparatus & Facilities**

Niagara-on-the-Lake Fire & Emergency Services provides the town's fire protection and emergency services. If apparatus or facilities were destroyed or unusable, this would negatively affect the Town by not being able to maintain the current level of service provided. Citizens would be required to wait longer for apparatus from other stations to respond or from neighbouring jurisdictions.

Niagara-on-the-Lake Fire & Emergency services operate two radio antenna sites within the municipality. The primary site is centrally located to assist in reaching all areas of

the Town. A secondary backup site is located at the south end of town. If either of these sites were damaged, Niagara-on-the-Lake Fire & Emergency Services would be dependent on one site without backup.

### **Farm Lands**

Farming is a significant industry within Niagara-on-the-Lake. In the event of a large flood in an agricultural area or fire at an agricultural facility, there could be a negative effect on the community. The availability of these crops impacts various other sectors, potentially having cascading impacts on many local businesses.

### **Banks**

There are a limited number of banks in Town, making them more valuable. If a bank or building that contained a bank was involved in a fire, it could create an issue for the local citizens. Residents may be forced to travel out of town to complete any banking needs that could not be completed online.

### **Queenston-Lewiston Border Crossing**

While it is difficult to show that the closure of this border crossing would directly affect Niagara-on-the-Lake, it is likely to impact out-of-country tourists utilizing this crossing. If another border crossing had to be used in Niagara Falls or Fort Erie, it could be anticipated that there would be an effect on the tourism in Niagara-on-the-Lake.

## Demographic Profile

Currently, the population of the Town of Niagara-on-the-Lake is approximately 19,088 people.<sup>4</sup> When considering the transient population that visits the area every year, this number swells exponentially. According to the Niagara-on-the-Lake Chamber of Commerce, Niagara-on-the-Lake sees over 3 million tourists each year.

### Population

The Town of Niagara-on-the-Lake has experienced significant growth over the past fifteen years. By reviewing data collected by Statics Canada, the municipality has grown by 30.87% during this period.

**FIGURE 3 - POPULATION BY YEAR**

Year	Population
2006	14,585
2011	15,395
2016	17,515
2021	19,088

As referenced in the Building Stock Demographic under a Group C occupancy, there were 8,578 private dwellings occupied in Niagara-on-the-Lake (2021 census), representing an increase of 29.32% since 2011. The community has experienced significant development over the past ten years. This increase can be directly translated to the increase in population as newcomers move to Niagara-on-the-Lake.

A breakdown of what style of private dwelling the citizens live in has been provided below.

**FIGURE 4 – DWELLING TYPES**

Dwelling Type	Number of Units	% of Private Dwellings
Single Detached	6,225	79.2%
Semi-Detached	445	5.6%
Row House	715	9.0%
Duplex	30	0.3%
Apartments	415	5.2%
Other Single Attached	10	0.1%
Moveable Dwelling	15	0.2%

<sup>4</sup> [Census Profile, 2021 Census - Niagara-on-the-Lake, Town \[Census subdivision\], Ontario and Canada \[Country\] \(statcan.gc.ca\)](https://www150.statcan.gc.ca/n1/pub/92-627-x/2021001/article/00001-eng.htm)

## Age

The age of the Town's citizens is an important consideration as it significantly affects the type of incidents managed by Niagara-on-the-Lake Fire & Emergency Services. The general population's age also affects the fire safety information that the Community Risk Reduction Division produces and shares. Figure 5 below shows the Town's current demographics broken into 10-year groups. (Statistics Canada, 2021 Census of Population.)

**FIGURE 5 – AGE OF TOWN BY PERCENTAGE**

<b>Age Group</b>	<b>Population</b>	<b>% of Population</b>
0 – 9 years	1,305	6.8%
10 – 19 years	1,625	8.5%
20 – 29 years	1,610	8.4%
30 – 39 years	1,500	7.8%
40 – 49 years	1,705	8.9%
50 – 59 years	2,615	13.6%
60 – 69 years	3,815	19.9%
70 – 79 years	3,200	16.7%
80 – 89 years	1,355	7.1%
90 – 99 years	335	1.7%
100 years and over	10	0.5%
<b>Total Population</b>	<b>19,088</b>	<b>100%</b>

Figure 5 shows that nearly 60% of the Town's population is over the age of 50. Within that group, more than a third, 33%, of the Town's population is between the ages of 50 and 69.

**FIGURE 6 – AGE GROUPS IN TOWN BY PERCENTAGE**

Age Group	Years	% of Population
0 to 14 years	2006	13.8%
	2011	13.4%
	2016	11.9%
	2021	11.0%
15 to 64 years	2006	62%
	2011	60.6%
	2016	57.2%
	2021	52.8%
65 years and over	2006	24.1%
	2011	25.9%
	2016	30.9%
	2021	36.1%

Another trend illustrated in Figure 6 is the Town’s aging population. There has been a slow decline in the Town’s population under 64 years old, while an increase in those over 65 years old. Although a portion of this can be attributed to residents staying within the community and aging in their homes, the statistics demonstrate significant growth in this group. When considering the amount of growth in Niagara-on-the-Lake alongside the growing population over 65 years old, it can be concluded that many people moving to Niagara-on-the-Lake are in this over 65 age range. Consequently, there are potential hazards that should be considered as a result of these findings.

### **Languages Spoken**

Within Niagara-on-the-Lake, census information reveals that of the approximately 17,500 citizens in town, 175 do not speak English. This represents approximately 1% of our community whereby fire prevention information that the department currently produces may be ineffective.

### **Density**

As previously noted, Niagara-on-the-Lake encompasses just over 132 square kilometres (51.27 square miles). With a population of approximately 17,500, this translates to the population density across the entire community of roughly 132 people per square kilometre (347 people per square mile). This information is important as it can help determine how staffing and response times relate to the NFPA recommended staffing and response recommendations based on demand zones.



## Community Growth

The population of Niagara-on-the-Lake is forecasted to grow to roughly 22,400 people by 2031, according to the 2015 Official Plan Review – Growth Analysis<sup>5</sup>. This represents an estimated population increase of over 4,900 citizens or approximately 27% from 2016 - 2031. It is important to note that this increase in population growth may not translate directly into a call volume increase of the same percentage for the Fire Department. Over the past five years, the call volume growth has been approximately 12%.

Using both anticipated population growth and call volume growth, it can be estimated that fire department call volume in 2030 may be approximately 756-783 incidents annually.

In 2018, the Niagara Region began to develop the Glendale Niagara District Plan<sup>6</sup>. This plan aims to study and provide an urban vision for the area of Niagara-on-the-Lake, known as Glendale. With significant growth identified within the plan, the Glendale area could expect upwards of 15,000 people in the coming years. The plan, however, is still in development at this time and has not officially been adopted. While this growth may need to be considered by Niagara-on-the-Lake Fire & Emergency Services at some point, it cannot be considered until such time that regional and local branches of government have adopted the plan.

There are many other significant developments slated for several areas around the Town; however, most have not received formal approvals yet. These include residential, hotel, and commercial structures.

## Tourism

As previously referenced, according to the Niagara-on-the-Lake Chamber of Commerce, Niagara-on-the-Lake sees over 3 million tourists each year. During the summer months, an increase of over 100,000 people can be expected at any given time. This increases the Town's population by roughly 570% per day. This added transient population adds significant demand on the Niagara-on-the-Lake Fire & Emergency Services through increased emergency responses. In addition, this large transient population brings with it additional considerations, such as:

- Ensuring this group of people remains safe within the buildings they occupy while in Town;
- Reaching this group of people with public education messages, specifically those who do not speak English as a first language; and
- More vehicles are present with this group during certain times of the year in certain areas of Town, impacting response times.

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<sup>5</sup> <https://notl.civicweb.net/document/6185>

<sup>6</sup> [Glendale Niagara District Plan - Niagara Region, Ontario](#)

## **Student Population**

Niagara-on-the-Lake contains a campus for Niagara College, a popular post-secondary institution located in the southwest corner of the municipality. Over the past several years, student enrolment at Niagara College has been approximately 4,500 students each year. After a review with Niagara College's enrolment services, they have indicated that it can be expected that the college has upwards of 2,000 students on-site during a regular school day. The college also employs hundreds of staff. When added to the student population, it can be assumed that there are 2,400 additional people within the community on a typical school day.

## **Migrant Worker Population**

Every spring, Niagara-on-the-Lake welcomes approximately 1000 migrant workers primarily from Mexico, the Caribbean, Guatemala, Thailand and the Philippines. These workers are hired on temporary contracts by local farmers to assist in farming the thousands of acres of agricultural lands within the community. Most of the farming that the migrant population performs supports the wine and tender fruit industry. Challenges faced with this influx include ensuring their accommodations are fire safe by meeting all Ontario Fire Code requirements, while also ensuring proper fire safety education has been made available to them in their native language.

## Hazard Profile

The Hazard Profile referenced within Ontario Regulation 378/18 assesses hazards that present a risk to the community and the general public. These hazards may include natural, human-caused and technology hazards to which emergency services personnel would be expected to respond to.

### **Hazard Identification & Risk Assessment**

In the summer of 2018, Niagara-on-the-Lake Fire & Emergency Services developed a Hazard Identification and Risk Assessment (HIRA). Within this document, all possible hazards that could exist within the Town were identified. All hazards were reviewed and assigned a risk level based on frequency and consequence. For detailed information on how these risk levels were assigned and what factors were included, the 2018 HIRA may be referenced.

**This information is confidential and can be made available upon request.**

## Public Safety Response Profile

Within the Public Safety Response Profile, an assessment of other local emergency response agencies is reviewed. The agencies, incidents to which they would be dispatched to, and any possible concerns are identified.

The Niagara Region, as a whole, is in an excellent position with the number of public safety organizations that exist. The below information identifies the local and regional emergency response agencies that provide services within Niagara-on-the-Lake. Any issues or concerns that need to be considered at a potential incident have also been noted.

### Niagara Regional Police Service

Incidents Responding to:	Roles at Incident:
<ul style="list-style-type: none"> <li>• Motor Vehicle Collisions (MVCs)</li> <li>• Fires</li> <li>• Incidents of major significance</li> </ul>	<ul style="list-style-type: none"> <li>• Scene control</li> <li>• Traffic control</li> <li>• Crowd control</li> </ul>
Possible Concerns	
<ul style="list-style-type: none"> <li>• Limited NRPS resources within Niagara-on-the-Lake can result in the misuse/overuse of fire department resources</li> </ul>	

### Ontario Provincial Police

Incidents Responding to:	Roles at Incident:
<ul style="list-style-type: none"> <li>• MVCs, highway-related</li> <li>• Incidents of major significance</li> </ul>	<ul style="list-style-type: none"> <li>• Scene control</li> <li>• Traffic control</li> </ul>
Possible Concerns	
<ul style="list-style-type: none"> <li>• None at this time</li> </ul>	

### Niagara Emergency Medical Services

Incidents Responding to:	Roles at Incident:
<ul style="list-style-type: none"> <li>• Medical Emergencies</li> <li>• MVCs</li> <li>• Fires</li> <li>• Incidents of major significance</li> </ul>	<ul style="list-style-type: none"> <li>• Primary service provider for medical care during an emergency</li> </ul>
Possible Concerns	
<ul style="list-style-type: none"> <li>• Limited NEMS resources within Niagara-on-the-Lake can result in the overuse of fire department resources</li> </ul>	

### St.Catharines Fire and Emergency Services

Incidents Responding to:	Roles at Incident:
<ul style="list-style-type: none"> <li>• MVCs, highway-related</li> <li>• Incidents of major significance</li> <li>• Ice and Water Rescue related incidents</li> </ul>	<ul style="list-style-type: none"> <li>• Provides Automatic Aid</li> </ul>
Possible Concerns	
<ul style="list-style-type: none"> <li>• None at this time</li> </ul>	

### Niagara Falls Fire Department

Incidents Responding to:	Roles at Incident:
<ul style="list-style-type: none"> <li>• MVCs, highway-related</li> <li>• Incidents of major significance</li> <li>• Technical Rescue related incidents</li> </ul>	<ul style="list-style-type: none"> <li>• Provides Automatic Aid</li> </ul>
Possible Concerns	
<ul style="list-style-type: none"> <li>• None at this time</li> </ul>	

### Canadian Coast Guard

Incidents Responding to:	Roles at Incident:
<ul style="list-style-type: none"> <li>• Ice and Water-related incidents</li> <li>• Any incident in Lake Ontario or within the Niagara River</li> </ul>	<ul style="list-style-type: none"> <li>• Provides Assistance as requested</li> </ul>
Possible Concerns	
<ul style="list-style-type: none"> <li>• None at this time</li> </ul>	

### Niagara Parks Police

\*Only attends incidents located on Niagara Parks Commission Land

Incidents Responding to:	Roles at Incident:
<ul style="list-style-type: none"> <li>• Ice and Water-related incidents</li> <li>• Any incident in Lake Ontario or within the Niagara River</li> </ul>	<ul style="list-style-type: none"> <li>• Provides Assistance as requested</li> </ul>
Possible Concerns	
<ul style="list-style-type: none"> <li>• None at this time</li> </ul>	

Other agencies that could be considered, however, provide no concerns, would only assist as requested, and would be only called for particular types of incidents would include:

- Canadian Border Security Agency (CBSA)
- United States Coast Guard
- Transport Canada
- Niagara Peninsula Conservation Authority (NPCA)
- Royal Canadian Mounted Police (RCMP)
- Ontario Fire Marshal (OFM)

## Community Services Profile

The Community Service Profile analyzes the existing services currently provided within the community. The following service providers include businesses, clubs and volunteer agencies. All of these organizations have the ability to not only support their community on a day-to-day basis but can also assist or support during and after an emergency.

### Newark Neighbours

- Providing food and clothing after an emergency

### NOTL Hydro

- Shutting down hydro during an emergency
- Restoring hydro after an emergency

### Enbridge Gas

- Turning off gas during an emergency
- Restoring gas after an emergency

### Meals on Wheels

- Providing food after an emergency

### NOTL Building Department

- Providing building plans or services
- Providing expertise knowledge

### NOTL Roads Department

- Providing heavy machinery and equipment during an emergency

### Canadian Red Cross

- Providing temporary shelter, food and clothing after an emergency

### Lions Club

- Providing services in-kind after an emergency (funding/labour/facilities)

### NOTL Community Centre

- Providing refuge during an emergency
- Providing public education venue

The agencies listed are those that may serve Niagara-on-the-Lake specifically. There are still several others within the Niagara Region that may provide support and assistance as required. Additional services can include family reunification, additional emergency lodging, as well as reception and information.

## Economic Profile

The Economic Profile review intends to identify any key businesses, operations, or sectors within the municipality that, if lost, could create significant economic effects. By identifying these operations, fire prevention activities can be reviewed to assist in preventing a large-scale emergency from happening while suppression tactics can be identified.

Within Niagara-on-the-Lake, the most prominent businesses, operations or sectors have been identified below.

### **Penner Home Hardware**

Penner Home Hardware is a major employer in town as well as a primary retail outlet. Furthermore, Penner Home Hardware is a major distributor of building construction materials in the Niagara Region. Losing this retail outlet would require residents to leave town for many simple everyday purchases.

Assigned Risk Level: Unlikely

Probability Level: Major

**Consequence Level: Moderate**

### **Outlet Collection at Niagara**

The Outlet Collection at Niagara is a busy retail attraction with approximately 6.5 million visitors each year. The facility contains a modern fire protection system and a layout designed to prevent fire spread throughout the complex. If more than one unit was involved in an incident, it could negatively affect the tourism industry by not drawing as many visitors. This mall also employs hundreds of people who could, in turn, lose their jobs due to a significant incident at this facility.

Assigned Risk Level: Possible

Probability Level: Major

**Consequence Level: Moderate**

### **Shaw Festival**

The Shaw Festival is a significant theatre and performing arts operation. This organization employs hundreds of people to assist in all aspects involved in the theatre productions. The Shaw Festival also owns multiple buildings located throughout the town. If a fire were to occur in any of the Shaw Festival facilities, this could have lasting effects on all parts of the Shaw Festival operations.

Assigned Risk Level: Possible

Probability Level: Major

**Consequence Level: Moderate**

## **Niagara College**

Niagara College employs hundreds of people and educates thousands. While many may not reside directly in Niagara-on-the-Lake, the time spent in Niagara-on-the-Lake benefits our economy. Any significant interruption in the Niagara College operations would have a considerable impact on the Glendale area.

Assigned Risk Level: Possible

Probability Level: Major

**Consequence Level: Moderate**

## **Any Commercial Building on Queen Street or any Hotel in Town**

There is no one property on Queen Street that, if lost, would have a damaging effect on tourism; however, the risk level spikes when more than one building could become involved during an incident. The layout and design of the downtown core present a significant fire risk. The risk of one building being involved in a fire and spreading to others is very high. If a large section of Queen Street was damaged, this could adversely affect the Town's tourism.

Assigned Risk Level: Likely

Probability Level: Major

**Consequence Level: High**

## **Municipal Operations**

The municipality provides many essential services to the residents, business owners, and visitors of Niagara-on-the-Lake. Services include water distribution, irrigation, and maintenance of all municipal roads, including snow plowing during the winter months. Other essential services provided by municipal operations include maintaining outdoor spaces, enforcing municipal bylaws and setting the overall direction through municipal council directions. If these services were not available, the Town could see significant economic impacts that would affect many residents and businesses in the community. Luckily many safeguards have been put into place to assist in elevating any potential issues that could arrive within any municipal operations

Assigned Risk Level: Possible

Probability Level: Major

**Consequence Level: Moderate**



## **Tender Fruit Operations**

A large number of residents rely on the ability to grow and sell tender fruit. This includes fruit grown on trees such as apples, peaches, pears, etc. and also fruit grown on vines, mainly grapes for wine production. If this industry suffered a major incident such as a cold snap or another weather-related issue that destroyed the fruit crops, this could have devastating effects on the lively hood of a significant portion of the community. These events, in turn, could create an economic issue for the municipality across all sectors. Local retailers may suffer, local grocery stores may suffer, and nearly 40 local wineries who help drive the tourism industry could all suffer.

Assigned Risk Level: Possible

Probability Level: Major

**Consequence Level: Moderate**

## Past Loss & Event History

Within the Past Loss & Event History Profile, fire calls within the last five years are reviewed. Through this information, past trends can begin to be identified and evaluated. Fire prevention efforts can be modified to suit the trends occurring within the community. Public education messaging can also be geared directly toward these trends. Identifying these fires is also important from a suppression standpoint to ensure the Fire & Emergency Services is well-positioned to handle the types of fires occurring.

FIGURE 7 – PAST LOSS & EVENT HISTORY

2016	Occupancy	# of Fires	Dollar Loss	Cause
	Residential	3	\$1,465.00	Electrical & Fuel Storage
Other*	8	\$75,000	Unknown	

2017	Occupancy	# of Fires	Dollar Loss	Cause
	Residential	4	\$505,000	Unknown
Other*	4	\$5,000	Smoking & Unknown	

2018	Occupancy	# of Fires	Dollar Loss	Cause
	Residential	3	\$1,300,000	Cooking & Unknown
	Mercantile	2	\$150,000	Unknown
Other*	9	\$1,853,000	Unknown	

2019	Occupancy	# of Fires	Dollar Loss	Cause
	Care	1	\$500	Cooking & Unknown
	Residential	4	\$20,000	Unknown
	Mercantile	1	\$75,000	Unknown
	Industrial	2	\$465,000	Unknown
Other*	11	\$90,000	Unknown	

2020	Occupancy	# of Fires	Dollar Loss	Cause
	Residential	8	\$47,100	Unknown
	Industrial	4	\$15,000	Unknown
Other*	4	\$62,000	Unknown	

2021	Occupancy	# of Fires	Dollar Loss	Cause
	Residential	5	\$1,901,000	Unknown, Electrical, Candle
	Industrial	2	\$2,500,000.00	Electrical
Other*	13	\$136,700	Unknown	

\* OTHER INCLUDES VEHICLE FIRES, GRASS FIRES, TRASH FIRES, ETC.

The following information was retrieved through the Office of the Ontario Fire Marshal as data previously collected by the department from 2016-2018.

## **Reported Fire by Occupancy**

Within Niagara-on-the-Lake, most fires occurred within a residential occupancy (Group C). The remaining properties which suffered fire loss in order of occurrence are:

- Group E - Mercantile occupancies
- Group F - Industrial occupancies
- Other occupancies not classified within the Ontario Building Code (i.e. farm buildings)
- Group A – Assembly occupancies
- Group D - Business and Personal Services Occupancies
- Group B – Institutional Care or Detention occupancies

## **Reported Fire Cause**

Assessing the possible cause of the fires reported is an important factor in identifying any potential trends or considerations for introducing additional public education of fire prevention initiatives as part of the community fire protection plan.

The leading causes of fire within Niagara-on-the-lake were:

- Misuse of ignition source/material first ignited
- Mechanical/Electrical in nature
- Maintenance deficiencies
- Other unintentional
- Undetermined

## **Reported Fire Ignition Source Class**

The leading reported causes for ignition sources within Niagara-on-the-Lake were:

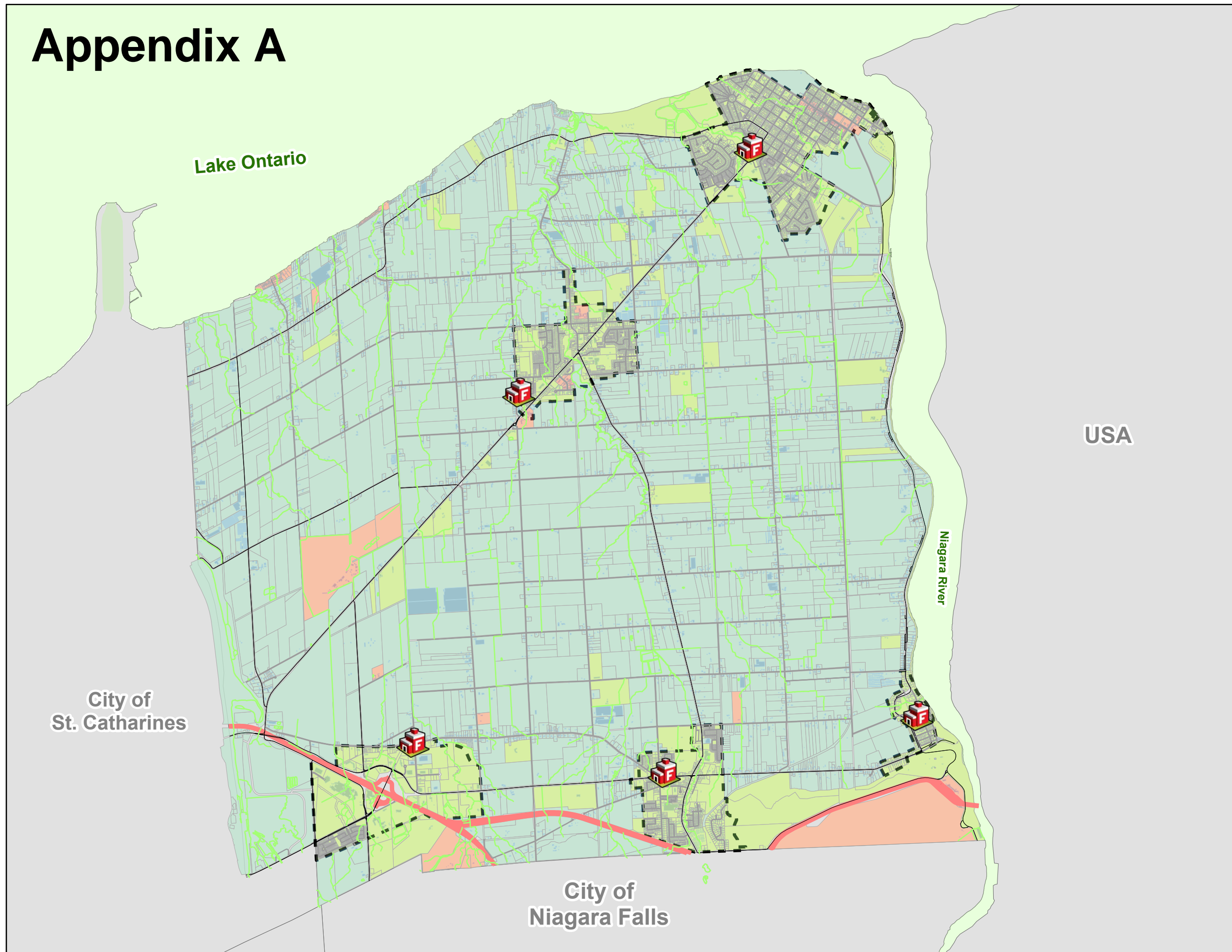
- Undetermined
- Cooking equipment
- Heating equipment, chimney, etc.
- Appliances
- Lighting equipment
- Electrical equipment
- Other electrical/mechanical
- Exposure

## Appendices

Appendix A – Community Risk Mapping

Appendix B – Response Districts and Approximate Number of Buildings per District












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


## Town of Niagara-on-the-Lake

### Community Risk Assessment

#### Legend

-  Fire Stations
-  MTO
-  Natural Watercourse
-  Niagara Parks
-  Niagara-on-the-Lake
-  RMN
-  Urban Boundary
-  USA
-  Lake Ontario
-  Municipal Boundaries
-  NOTL Buildings

#### Community Risk Assessment

-  Low Risk
-  Moderate Risk
-  High Risk

Author: Operations Department  
 Date: March 6, 2020  
 Coordinate System: NAD 1983 UTM Zone 17N  
 Projection: Transverse Mercator  
 Datum: North America 1983  
 Source: Town of Niagara-on-the-Lake

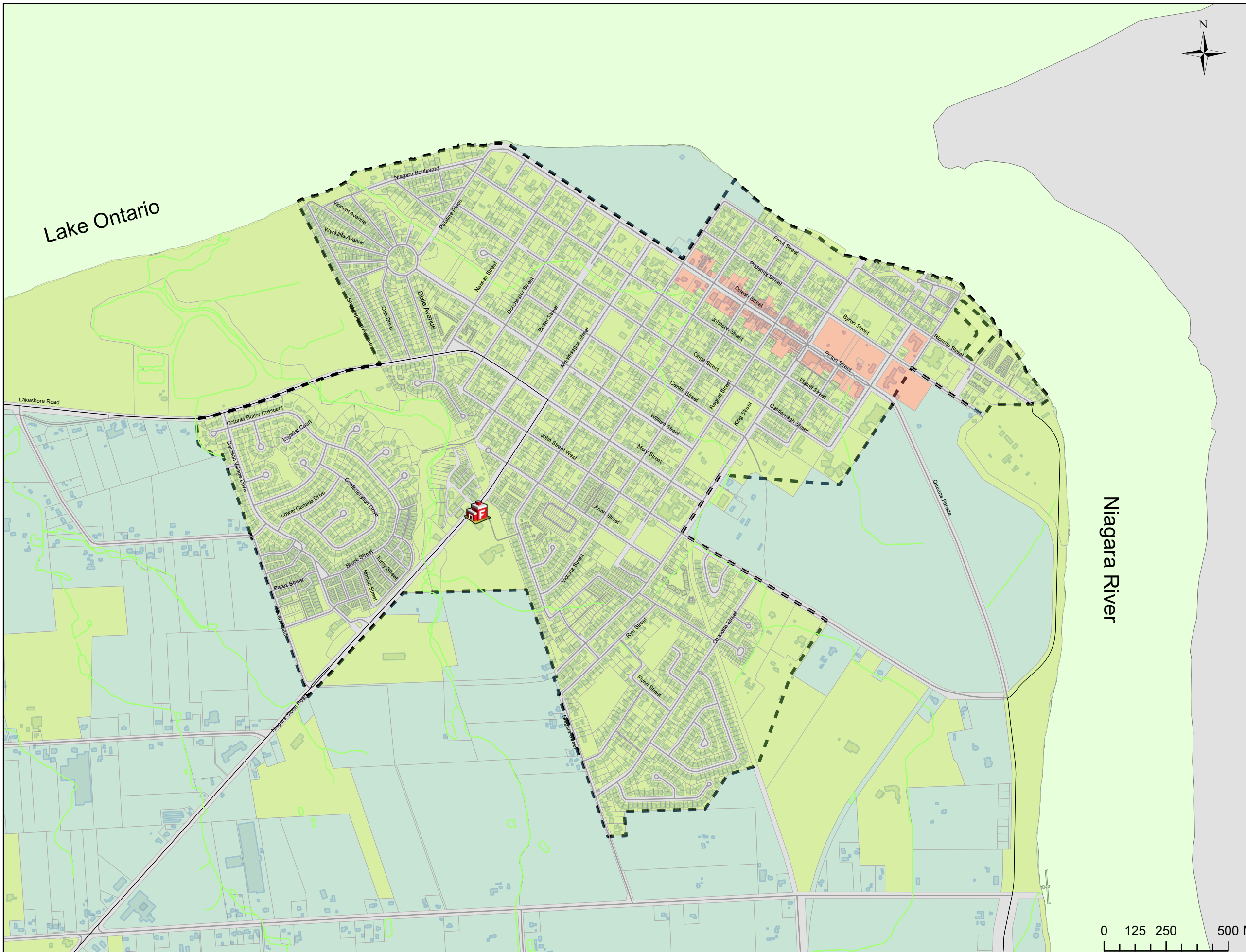
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





# Town of Niagara-on-the-Lake



## Community Risk Assessment Old Town



### Legend

-  Fire Stations
-  MTO
-  Natural Watercourse
-  Niagara Parks
-  Niagara-on-the-Lake
-  RMN
-  Urban Boundary
-  USA
-  Lake Ontario
-  Municipal Boundaries
-  NOTL Buildings

### Community Risk Assessment

-  Low Risk
-  Moderate Risk
-  High Risk

Author: Operations Department  
 Date: March 6, 2020  
 Coordinate System: NAD 1983 UTM Zone 17N  
 Projection: Transverse Mercator  
 Datum: North America 1983  
 Source: Town of Niagara-on-the-Lake

Notes:

# SP2


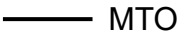


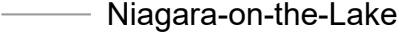
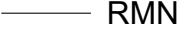
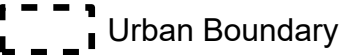






0 125 250 500 M

# Town of Niagara-on-the-Lake

## Community Risk Assessment Virgil

### Legend

-  Fire Stations
-  MTO
-  Natural Watercourse
-  Niagara Parks
-  Niagara-on-the-Lake
-  RMN
-  Urban Boundary
-  USA
-  Lake Ontario
-  Municipal Boundaries
-  NOTL Buildings

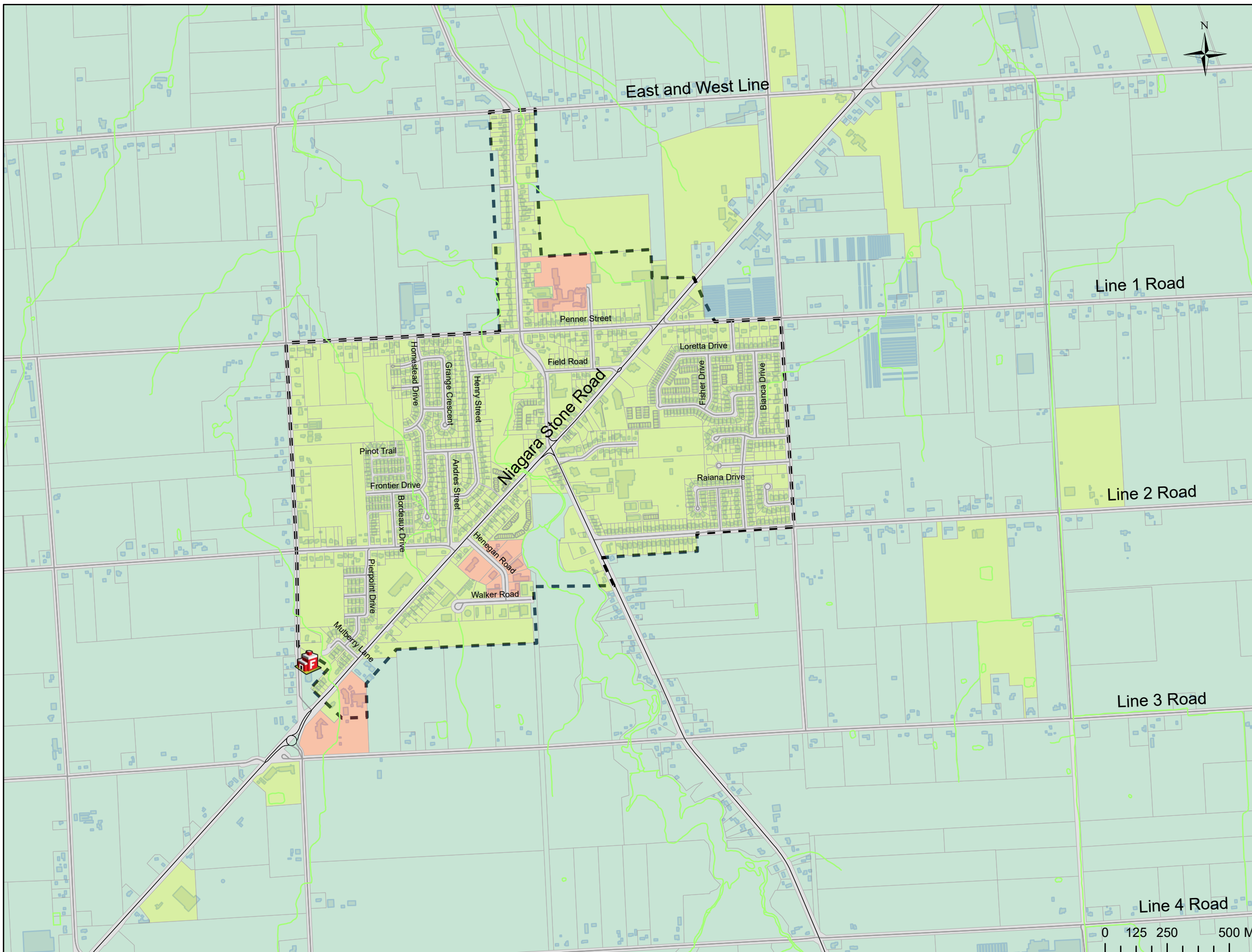
### Community Risk Assessment

-  Low Risk
-  Moderate Risk
-  High Risk

Author: Operations Department  
Date: March 6, 2020  
Coordinate System: NAD 1983 UTM Zone 17N  
Projection: Transverse Mercator  
Datum: North America 1983  
Source: Town of Niagara-on-the-Lake

Notes:

# SP3
















# Town of Niagara-on-the-Lake

## Community Risk Assessment Queenston

### Legend

-  Fire Stations
-  MTO
-  Natural Watercourse
-  Niagara Parks
-  Niagara-on-the-Lake
-  RMN
-  Urban Boundary
-  USA
-  Lake Ontario
-  Municipal Boundaries
-  NOTL Buildings

### Community Risk Assessment

-  Low Risk
-  Moderate Risk
-  High Risk

Author: Operations Department  
 Date: March 6, 2020  
 Coordinate System: NAD 1983 UTM Zone 17N  
 Projection: Transverse Mercator  
 Datum: North America 1983  
 Source: Town of Niagara-on-the-Lake

Notes:

# SP3














0 80 160 320 M



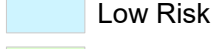
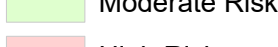
# Town of Niagara-on-the-Lake

## Community Risk Assessment St. David's

### Legend

-  Fire Stations
-  MTO
-  Natural Watercourse
-  Niagara Parks
-  Niagara-on-the-Lake
-  RMN
-  Urban Boundary
-  USA
-  Lake Ontario
-  Municipal Boundaries
-  NOTL Buildings

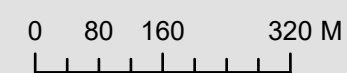
### Community Risk Assessment

-  Low Risk
-  Moderate Risk
-  High Risk

Author: Operations Department  
 Date: March 6, 2020  
 Coordinate System: NAD 1983 UTM Zone 17N  
 Projection: Transverse Mercator  
 Datum: North America 1983  
 Source: Town of Niagara-on-the-Lake

Notes:












# SP5






Town of  
Niagara-on-the-Lake

**Community Risk  
Assessment  
Glendale**

**Legend**

-  Fire Stations
-  MTO
-  Natural Watercourse
-  Niagara Parks
-  Niagara-on-the-Lake
-  RMN
-  Urban Boundary
-  USA
-  Lake Ontario
-  Municipal Boundaries
-  NOTL Buildings

**Community Risk Assessment**

-  Low Risk
-  Moderate Risk
-  High Risk

Author: Operations Department  
Date: March 6, 2020  
Coordinate System: NAD 1983 UTM Zone 17N  
Projection: Transverse Mercator  
Datum: North America 1983  
Source: Town of Niagara-on-the-Lake

Notes:

**SP6**



City  
of St. Catharines

City  
of Niagara Falls

0 125 250 500 M

## Appendix B Response Districts and Approximate Number of Building per District

