Municipality of Central Elgin
Fire Master Plan

2025-12-03

POMAX
CONSULTING

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Summary

Part time firefighters are great value to Central Elgin, providing prevention and emergency response for a wide variety of incidents. Nevertheless, fire departments, especially volunteer services, are structured on an "all hands on deck" philosophy which was practical and reasonable when fire departments were almost exclusively designed to fight fires or significant events such as trench collapse, high angle rescues, and other incidents where a large number of firefighters are needed to fulfill demands. But Central Elgin's Fire and Rescue Service is what is commonly referred to as "all risk" which means that it responds to many types of events, the most common being medical and traffic, where an "all hands on deck" turnout – while effective – is not always efficient.

This report offers the opportunity to further improve the value of the fire service by presenting a strategy using precepts of engineering practices, project management, six sigma, and lean six sigma by improving public protection at a lower cost. However, at all times, this strategy must ensure public safety and protection, preferably through education and prevention but also vigorous response.

Central to the strategy is robust data gathering, including outcome data, to determine the best distribution of human and physical assets to protect the public. Even though the report being presented is called a fire master plan, a strategy is not a plan; but plans can be built to support the strategy. A strategy is a hypothesis, and the hypothesis of this report and presentation – which is supported by decades of success in engineering and major corporations, is that gathering the right data, interpreting it objectively and correctly – particularly outcome values which are currently not captured – and making plans based on those results will improve public protection and reduce costs.

There's a well-known – groundbreaking – article from 1974, originally published in the journal *Science*, called Judgement Under Uncertainty: Heuristics and Bias by Amos Tversky and Daniel Kahneman, both members of the Department of Psychology at Hebrew University in Jerusalem at the time. As its name suggests, the paper is about making decisions with limited information, which often results in dependency on experience, and can lead to unintended bias.

The strategy proposed in this report, which will achieve the fire master plan, is the development of broader and improved fire services data – and therefore greater breadth of information – to

- assist arrival at the optimal administrative and operational parameters,
- enhance public safety at the best cost, and
- avoid unintended decision-making bias.

In addition to addressing the traditional subjects found in most fire master plans; that is, staff levels, apparatus, and equipment, this report explains the three dimensions of data in the fire service and aims to encourage the collection of comprehensive facts, statistics, and activity for

each incident. These will support analytical efforts and assist the fire service and Central Elgin in objectively identifying the fire service's value contribution to the community and enabling a quantitative basis for future funding and decisions.

Conducting this study in concert with the Municipality of Central Elgin and the Fire Rescue Services was efficient and congenial. Everyone with whom we made contact, in administration and operations, was open and neutral with the information provided, and did not try to guide or influence the conclusions and recommendations herein.

We would like to thank Patsy Brooks, the Interim Fire Services Coordinator, who worked frequently with the fire service's record management vendor to extract the best level of available data for this project, and now retired Fire Chief Raymond Ormerod, an experienced, composed leader who was constantly available to answer questions and offer information in support of the plan. We also appreciate the support and approach of current Fire Chief Jeff Van Rybroeck who allowed the consultants a seamless fire service administration transition during the project.

The Tillsonburg dispatch centre was also of noteworthy assistance by providing operational information about the call taking and dispatch process and supplying the consultants with 20 emergency incident recordings from beginning to end of the calls for review.

Finally, (last but not least) we thank members of the Municipality's and County's administration including finance, planning, human resources, corporate communications, and Carey Herd, the Chief Administrative Officer, all of whom promptly answered our inquiries and delivered a generous amount of information.

This report is laid out in the following manner:

Section 1, the introduction presents the objectives of the assignment, introduces the concept of Integrated Risk Management Planning, offers a definition of master plans for the purpose of this document, describes a possible vision and strategy for the fire service including defining the often misunderstood concept of strategy, summarizes some of the data in gross numbers, and identifies an interesting anomaly that has since been resolved by the fire service.

Section 2 provides an understanding of fire response to emergencies including the stages of response and the real time implications of which few in the public are aware. Two graphics support the explanation. This section briefly introduces the important role of fire prevention and public education.

Section 3 uses data to show the pareto aspect of fire response; that is, which incident types are responsible for 80% of activity. The section includes data for the period 2019 to 2024 indicating

- number of incidents by station by year;
- the number of vehicles dispatched by station by year;
- number of structure fires by station;
- median response times for
  - call taking and dispatching;
  - preparation (turnout) time;
  - driving time;
  - call received to arrival at a scene.
- geographical distribution of incidents by type including
  - response contours by station;
  - 2019 – 2024 structure fires;
  - medical events;
  - traffic incidents.
- charts showing the distribution of
  - all incidents per station by month and day;
  - structure fire distribution by station by year and month.

The section explains what the data means for Central Elgin, discusses the data gap that was recognized, the three types (or dimensions) of data in fire services, and associated recommendations.

Section 4 addresses the fire stations and pays attention to the proximity of the Port Stanley and Union stations, and offers recommendations which includes amalgamating the two stations.

Section 5 concentrates on firefighter training, current benefits and challenges, and recommends additional part time training staff for the immediate future.

Section 6 is about the criticality of fire prevention and public education and recommends hiring a full time prevention – public education officer.

Section 7 is the controversial subject of reducing costs while improving public safety, and corresponding emergency deployment practices. Several charts and tables demonstrate the cost of current deployment operations and makes recommendations for operational changes to safely mitigate that expense. Subsections in section 8 address how fire services became the emergency services agency that now responds to a broad range of events, and how public safety in Central Elgin can be improved and costs reduced through the strategy proposed in this report.

Section 7 also discusses the operational impact of amalgamating Union and Port Stanley stations as well as

- data informed response practices;
- fire incidents and risk;
- the use of technology to decrease costs; and
- conveyances (how firefighters get to an incident and vehicles used);

Section 8 is about assets and the number of years fire trucks should be in operation (including an exhibit of the life expectancy of existing vehicles) and the future of the radio communications system.

Section 9 reviews expected municipal growth and development and what it means for future fire protection. It also discusses fire department responses to some incidents in light of planned growth, including possible changes to response patterns.

Section 10 is a brief statement about a plan for the future of Central Elgin Fire Rescue Services and the recommended strategy to assist the service while moving forward. This includes

- gathering and using data and outcome analysis to measure the value of services provided;
- reducing or ceasing those activities that have minimal or no value to the municipality;
- implementing technology to improve efficiency and record keeping; and
- working with allied agencies to flatten the growth curve of non-fire incidents;

Section 11 lists the recommendations resulting from this study. The recommendations are also repeated on the following pages.

Section 12 details, in a table, the financial impact of the recommendations – also repeated in this summary – and includes explanatory notes and links to the sections of the report that offer background to the recommendations.

Unless stated otherwise, charts, tables, and other information is based on data provided by the municipality for the period January 1st, 2019, to November 24th, 2024

The following recommendations are offered for Central Elgin's consideration:

1. The fire and rescue service should devise mission and vision statements that reflect the organization's objectives or adopt the statements suggested in Section 1.2, Mission, Vision and Strategy .
2. The fire service should work with its record management system vendor and seek information technology assistance to develop a tabular database outcome utility that is relational to data recorded in steps 1, 2, and 4 (Exhibit 26).
3. Amalgamate the Union fire station with Port Stanley, redistribute or sell Union station assets, redistribute rolling stock if there is a strong business case based on incident analysis for retaining some apparatus.
4. If Union fire station is amalgamated, reduce the number of volunteers at the Port Stanley and Union stations by half through attrition.
5. Hire or contract a 24-hour a week part time training position.
6. Hire a full-time prevention and public education position which is expected to contribute to reducing structure and other fires in the municipality. The township will still require the efforts of volunteer firefighters to assist the prevention officer and achieve the objective of reducing fire incidents.
7. Reassess under what circumstances the fire department should be dispatched to medical and other non-fire incidents which make up more than 80% of the call volume.
8. Work with the Tillsonburg fire dispatch to take more time to extract information from callers which will reduce the number of people and trucks sent to incidents. Fewer than 15% of incidents, considered by the public and emergency workers to be emergencies, are time sensitive, and fewer than 5% are life threatening and require rapid response.
9. Work with the Tillsonburg fire dispatch and emergency partners such as police and paramedic services to ask key questions of callers before determining whether the fire service should be deployed.
10. Work with emergency partners such as police and paramedic services to define which **non-fire** events should be attended and understand the history of why fire departments attend a high proportion of non-fire events.
11. Implement a data gathering and data mining strategy that can examine the services provided relative to assets and resources expended.
12. Implement an Integrated Risk Management Planning program to objectively assess risk and, subsequently, refine call out practices to match resources to need.
13. Examine, on a call-by-call basis, resources deployed to determine whether patterns exist by call type which would allow assets and resources committed to be adjusted.

14. Use technology to reduce the number of firefighters responding to medical and other calls by using selective paging rather than general callouts. Medical incidents make up more than 60% of call volume. There are two paramedics in an ambulance and one in a paramedic response vehicle but four, six, or eight firefighters respond to medical incidents because all calls are dispatched through a general callout. Medical incidents need no more than one or two firefighters to attend. *Onpage Incident Alert Management* is one company that can offer selective paging rather than general callouts; there may be others.

15. If Council decides to stay with the status quo with respect to call type response we recommend a Deputy Chief's complement starting in the 2028 budget year.

Reproduction of Table 8 Financial Impact of Recommendations from Section 12

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	10 Year Estimate
Service and Operations											
Work with record management system provider to implement outcome relational data gathering	$20,000										$20,000
Onpage selective paging	$37,500	$38,250	$39,015	$39,795	$40,591	$41,403	$42,231	$43,076	$43,937	$44,816	$410,615
Average cost of firefighter response (40% reduction) [difference between current forecast and scenario 4, Table 7]	-$309,949	-$331,305	-$354,132	-$378,531	-$404,612	-$432,490	-$462,288	-$494,140	-$528,186	-$564,578	-$4,260,212
Sub-totals Service and Operations	-$252,449	-$293,055	-$315,117	-$338,736	-$364,021	-$391,087	-$420,057	-$451,064	-$484,249	-$519,762	-$3,829,598
Staffing Recommendations											
Training Officer (part time)	$74,909	$76,257	$77,630	$79,027	$135,139	$137,572	$140,048	$142,569	$145,135	$147,748	$1,192,036
Prevention public education officer	$122,400	$124,603	$126,846	$129,129	$131,454	$133,820	$136,229	$138,681	$141,177	$143,718	$1,388,056
Deputy Fire Chief (May not be required, or may be delayed for several years, if call volume and number of responders initiatives described in this report are put into place)			$135,000	$137,430	$139,904	$142,422	$144,986	$147,595	$150,252	$152,957	$1,150,545
Sub-totals Staffing Recommendations	**$197,309**	**$200,861**	**$204,476**	**$208,157**	**$266,593**	**$271,392**	**$276,277**	**$281,250**	**$286,312**	**$291,466**	**$3,730,637**
Capital & Maintenance Recommendations											
Cell phones (amortized 6 years)	$75,000					$84,462					$159,462
Reduce overall purchase of bunker gear by 25 units every 10 years			-$100,000								-$100,000
Purchase three small SUVs every 7 years	$153,000							$172,303			$325,303
Retire Union fire station - sell or repurpose for another municipal department		-$810,000									-$810,000
Union Station maintenance		-$16,000	-$16,320	-$16,646	-$16,979	-$17,319	-$17,665	-$18,019	-$18,379	-$18,747	-$156,074
Union station vehicle maintenance		-$16,573	-$16,904	-$17,243	-$17,587	-$17,939	-$18,298	-$18,664	-$19,037	-$19,418	-$161,663
Union station - avoid replacement costs of non-rolling stock		-$28,350	-$28,350	-$28,350	-$28,350	-$28,350	-$28,350	-$28,350	-$28,350	-$28,350	-$255,150
Sub-totals Capital and maintenance Recommendations	$228,000	-$870,923	-$161,574	-$62,239	-$62,917	$20,854	-$64,313	$107,270	-$65,766	-$66,514	-$998,122
TOTAL	$172,860	-$963,117	-$272,215	-$192,818	-$160,345	-$98,841	-$208,094	-$62,544	-$263,703	-$294,811	-$1,097,083

Reproduction of Table 9 in section 12.1 Financial Impact Explanatory Notes

Recommendations Category	Notes	Links to Further Information
Service and Operations		
1. Deputy Fire Chief	This recommendation is based on an expectation that if no initiatives are put into place to safely constrain call volume and reconcile the number of responders with the severity of incidents, more administrative assistance will be required in the form of a Deputy Chief's complement. Alternatively, implementing some or all of the recommendations in this report is likely to forestall pressure to increase staffing by a Deputy Chief's position.	Section 10 The Future: Central Elgin Fire Rescue Services; Deputy Chief
2. Work with record management system provider to implement outcome relational data gathering	The $20,000 amount is based on the assumption that the record management system vendor will have to write a program that will enable a consistent method for fire officers to enter on scene activity. This amount may be less if assistance can be provided by the municipality's information technology department. Alternatively, an Excel spreadsheet can be utilized to capture on scene information and then concatenated with dispatch provided information.	Section 3.4.1 Data Gap Table 3: Data Types Section 7.3 Improving Public Safety and Reducing Cost Through Strategy
3. Selective Paging	Selective paging and geo fencing will target specific volunteers to respond depending on the number required, by incident type, thus avoiding the costs of general call out. Geo fenced paging has been used by volunteer fire services in Germany and other parts of Europe for several years. It's also used in the transportation, medical, petroleum and other fields to call out specialized teams by location.	Selective Paging
4. Average Cost of Firefighter Response	Implementing techniques of reducing call out by using selective paging and carefully evaluating the types of incidents to which to respond is expected to reduce call out cost by 60% or more.	Call Out
5. Training Officer (part time)	A part time training officer will support consistency in skills and training across 75 – 100 volunteers and three stations. Alternatively, if Council does not accept this recommendation, compensate the training committee for their time spent on creating training plans which is presently unpaid.	Section 5, Firefighter Training
6. Prevention – Public Education Officer	Peer reviewed academic publications have shown that prevention and public education efforts reduce fires if the efforts are consistent and targeted. Central Elgin does not have the resources for a consistent or targeted prevention and public education program.	Section 6 Fire Prevention and Public Education

7. Coverage and first responding vehicle agreement with St. Thomas for fire critical incidents in Lynhurst, Lyndale Norman, and the Centennial and Elm Lines area	St. Thomas can provide quicker response than Central Elgin to the Lynhurst and Lyndale Norman areas and possibly to the Centennial and Elm Lines area which may require additional service provision costs paid to St. Thomas for those areas. There will be some offset savings to Central Elgin for reduced call outs of local firefighters and vehicle wear. (offsets for this item are not included in the financial impact spreadsheet).	St. Thomas Response
8. Improve internet connectivity at all stations	Internet is used for training access and to monitor firefighters responding to incidents. It is currently unreliable, yet a solution is quick and inexpensive.	

Capital and Maintenance Recommendations

9. Cell Phone	Selective paging operates on smart phones and geo tracking. Assuming that some volunteers will be concerned about geo tracking through personal phones, this initiative would issue fire service phones to volunteers. If volunteers do not wish to be available for response, they would deactivate the fire service phone and dispatch would not see that person as available.	SelectivePaging
10. Retire Union fire station - sell or repurpose for another municipal department	The 2022 Central Elgin asset report valued the Union fire station at $810,000.	Section 4, The Fire Stations Section 7.4, Impact of Amalgamating the Union and Port Stanley Fire Station
11. Avoid replacement costs of Union station non-rolling stock assets	Union station has **non-rolling** stock assets of $567,000 (in 2022 dollars), scheduled for replacement by 2042, that would not have to be replaced or might be redistributed to other stations avoiding or delaying expenditures. The possible annual avoidance was calculated at $567,000 divided by 20 years (2022 – 2042), times the 10-year duration of the fire plan.	Section 4, The Fire Stations
12. Reduce overall purchase of bunker gear by 25 units every 10 years	Consolidating the Union station and reducing the firefighter complement between Union and Port Stanley stations by 50% will mean that approximately 25 volunteers will not have to be outfitted with turnout gear every 10 years. The cost avoidance will be 25 times an estimated $4,000 for each set of gear.	TurnoutGear
13. Purchase three small SUVs every 7 years	Most fire responses do not require a heavy truck and multiple firefighters. Selective paging and rationalization of the call types to which Central Elgin responds means that small SUVs rather than heavy trucks can be used as a conveyance reducing the cost of operating large trucks and extending useful life.	Section 7.7, Conveyances
14. Union Station maintenance	Combining Union and Port Stanley stations will negate maintenance and avoid those costs.	
15. Union station vehicle maintenance	Consolidating Port Stanley and Union stations will negate some vehicle maintenance and avoid those costs, although it is expected that at least one Union station truck will be relocated to Port Stanley.	UnionMaintenance
16. Extend large truck longevity by up two years (cost deferral)	Using small SUVs for as much as 80% of fire response rather than heavy trucks will reduce heavy truck wear and avoid maintenance and repair costs. (offsets for this item are not included in the financial impact spreadsheet).	Section 7.7, Conveyances

1 Introduction

This report is a culmination of a fire master plan project, the purpose of which was to address current and anticipated community fire risk and needs.

The objectives of the assignment were to

- examine, research and review all aspects of the fire department's
  - operations,
  - organization and structure
  - planning,
  - fire prevention,
  - public education,
  - training,
  - communications,
  - apparatus,
  - maintenance,
  - human resources,
  - station locations,
  - shared services,
  - cost efficiencies,
  - cost avoidance,
  - budget,
  - largescale emergency preparedness, and
  - cost recovery from automatic aid agreements.

The assignment included a community risk assessment to meet the needs of Ontario regulation 378/18 within the Fire Protection and Prevention Act which is attached as Appendix A (to be attached). In concert with the community risk assessment requirements of O. Reg 378/18 we employed techniques of Integrated Risk Management Planning[1] to arrive at conclusions and recommendations.

[1] Integrated Risk Management Planning Integrated Risk Management Planning can be expressed as "identify[ing] risks facing the community and describ[ing] how a fire and rescue authority will address those risks, and prevent and respond to fires and other emergencies. In short, it serves as an organizational plan for the future." Cheshire Fire Authority, Community Risk Management Plan 2024–2028 (Cheshire Fire Authority, 2024), https://www.cheshirefire.gov.uk/your-service/key-information/community-risk-management-plan/.

1.1 What are Master Plans?

A master plan is a document that shows the municipality's vision of the fire protection system – which includes preventing incidents from occurring as well as responding – in the next 10 years or more. Master plans should be based on data, analysis, quantification, risk options, cost, and decisions. Fire service master plans are straight-forward to accomplish but not easy. They are a result of deep diving into multi-years of fire service response data and records;

- correlating the data with changes in the protected area during the same years as the data gathered, which includes population, land area, demographics, development, and economy;
- establishing patterns within incidents, response, and outcome; and
- establishing a risk profile based on the correlation.

The resulting information, combined with population and demographic forecasts from StatCan, the Province of Ontario, and the municipality, plus official plans and site-specific planning, will assist to forecast expected human and physical resource needs and timing – and associated costs – for the master plan duration.

1.2 Mission, Vision and Strategy

One of Central Elgin's expectations of this assignment is that the consultant would incorporate, in the plan, decisions about vision, strategy, and other foundational elements. One of those foundational elements is a mission statement.

A mission statement is a down-to-earth declaration that answers the question of what an organization does. Intuitively, each of us conceptualizes Central Elgin Fire Rescue Services' purpose, but translating intuition to a concise statement isn't always easy. An example of a mission statement that brings all manner of tools to the fire department including prevention, education, response, mitigation, and others could be:

> Our mission is to protect the public from fire and accident and teach them how to protect themselves.

A vision statement can be defined as an organization's long-term aspiration, which should answer the question "Why does this organization exist?" An example:

> Our vision is to achieve a community free from the dangers of fire and accident through the use of prevention and public education initiatives, and ensure capable response methods until other prevention efforts are successful.

A vision statement must be straight-forward, simple, and succinct so that every member of the organization (Central Elgin and the fire service) can repeat it without hesitation and understand the end to which they must work.

Too often, mission and vision statements become just that – statements – that are posted on a website or other publications but aren't 'lived'. And that brings us to the strategy recommended in this document that will achieve the fire service's mission and vision, assuming Central Elgin wishes to adopt the mission and vision statements suggested in the paragraphs above.

We recommend that the fire and rescue service should devise mission and vision statements that reflect the organizations objectives or adopt the statements suggested above.

1.2.1 What is strategy?

Strategy, in the public service setting, is a set of choices that positions an organization (the fire department and municipality), to achieve a vision. If the Central Elgin Fire Rescue Services decides to adopt the mission and/or vision suggested above, then the strategy recommended in this report will help achieve it.

Strategy is a method to create value. It isn't a plan, and the often used terminology 'strategic planning' is a misnomer. Strategy is a theory of change which means that it is premised on a well thought out method of how proposed interventions will lead to a desired outcome. For example, what interventions are expected to lead to achieving the vision of the fire service and accomplish its mission?

A strategy is not a plan although there can be plans to accomplish components of a strategy. Also, importantly, a strategy cannot be proved in advance – because it is a theory or hypothesis. So, if a question is posed "How do you know the strategy will work?" the correct answer is "We don't – it's a strategy".

Strategy is hard work. It requires

- context (what environment do we [the fire service] exist in?);
- workshops to evaluate strategic process and which should include the participation of members from outside the fire service; and possibly,
- occasional adjustment because strategy is not constrained by time.

The theory and strategy put forward in this report is that the use of correctly interpreted, robust, accurate, objective data will inform risk determination and asset and resource needs, and that the fire service will become more efficient and cost effective by applying what is learned from the data while ensuring the same or better fire safety for the public. The 'plan' portion of this report will lay out the steps that need to be taken to support the strategy.

From a strategic perspective, the intent of this plan is to provide the municipality with a method that will let it determine the programs, assets, and resources required to achieve the mission and vision in the previous paragraphs, if the municipality wishes to adopt them.

1.3 Data

Central Elgin Fire and Rescue Services supplied data from its record management system for all incidents that occurred from January 1st, 2019, to November 24th, 2024. We started with 12,511 records which represents all vehicle responses in the six-year period but, after filtering, ended up with 5,957 records which could be used for assessing call types, response times, and station activity. The reasons for not being able to use some data are shown in Table 1.

Table 1: Data Filtering Reasons

		Balance
Original records	12,511	
Remove records of fire services outside Central Elgin or wrong data type entered	543	11,968
Remove Beach Patrol and vehicles not used for primary emergency response	5,213	6,755
Remove records missing key times	798	5,957

Therefore, there were 5,957 records from which we could assess response performance.

4,206 unique incidents were extracted from the 5,957 vehicle records from the six-year period as follows.

Table 2: Calls per Station 2019 - 2024

Station	Number of Incidents	Annual Average
Belmont	561	94
Port Stanley	1,321	220
Union	989	165
Yarmouth	1,335	223
TOTAL	4,206	

An important incident recording anomaly was discovered during the data analysis. In emergency services record keeping there is almost always a single reference number assigned to all vehicles responding to an incident. That number is usually the incident number which is automatically generated by the dispatch centre's computer aided dispatch system (CAD). Hypothetically, if this automatically generated number is 2025001346 then all vehicles from any station that were assigned would be recorded under that call number. This means that when data analysis is performed the analyst would be able to determine the number of vehicles assigned to the incident, the times of the first, second, third, arriving vehicles, time on scene, perhaps the number of firefighters on each vehicle and total number on scene, and other important information associated with the common reference number

It has been a long-standing practice, in Central Elgin, to delete that dispatch incident number when information was entered into the fire service's record management system, and replace it with a station run number. For example, if more than one station was assigned to incident number 2025001346, upon entering information into the record management system

2025001346 would be replaced with a run number for each station that responded, making it seem like there were two, three, or more calls – depending on the number of stations that responded – rather than one call. The result is that there may be an overcount in the six years of data, as to the number of incidents that have occurred in Central Elgin.

We attempted several methods to resolve this incident miscount, including trying to match incidents and vehicle response by call address or latitude and longitude but, because of other variances in data entry, it was not possible to accomplish within reasonable effort. We understand that, starting in January of 2025, the department has resolved this recording method which will make future data easier to work with and more accurate.

Although there is, potentially, an overcount in the number of incidents, that has not had a material influence on our conclusions and recommendations.

2 Understanding Fire Response to Emergencies and Risk

This is the complex, yet critical, part of a fire master plan; that is, understanding what emergency response is, the true elapsed time that occurs before on-site intervention occurs, the levels of what is commonly referred to as an emergency, and tasks performed at different emergencies. Not everything is life-threatening; in fact, few 'emergencies' are life-threatening. Understanding emergency response is part of a risk analysis which leads to identifying gaps between community risk and fire service capability, and determining the best way to protect the public.

2.1 Understanding Emergency Response

Exhibit 1: Response Graphic (page 7), demonstrates the stages of an incident response. An emergency process includes

1. detection or recognition of a fire or other emergency;
1. reporting the emergency by calling 9-1-1;
2. call handling and dispatching firefighters, (the duration required for the communications centre to obtain information from a caller and alert the firefighters);
3. preparation time (also known as turnout time), which is the time from when firefighters are alerted by the dispatcher centre to when they arrive at the fire station to retrieve a truck or other vehicle;
4. driving time (wheels start turning to wheels stop turning);
5. setup (the 'action' time); for example,
    a) the time it takes to access equipment from a fire truck, travel from a truck [upon 'wheels stop turning'] to an incident such as an apartment or other location requiring vertical travel; or ground travel if firefighters have to move from the fire truck to the incident; for example, down railway tracks or to the back of a building; or
    b) the time it takes to access a victim, recognize the issue, and start definitive activity in a scenario other than fire; or
    c) the time it takes to prepare to investigate other incident types such as a smoke or carbon monoxide alarm; or
    d) the time it takes to connect to a hydrant, or water source, or foam.
6. harm limiting
    a) apply water or foam;
    b) care for victims.

Exhibit 1: Response Graphic

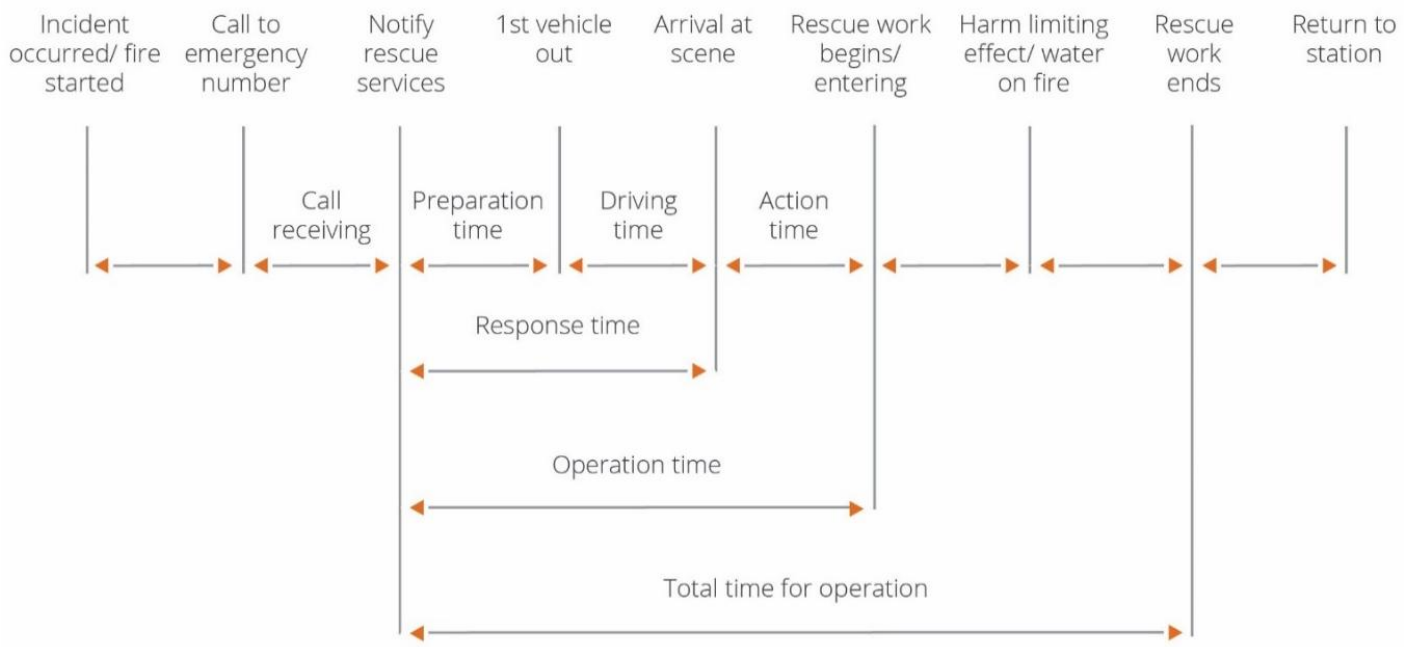
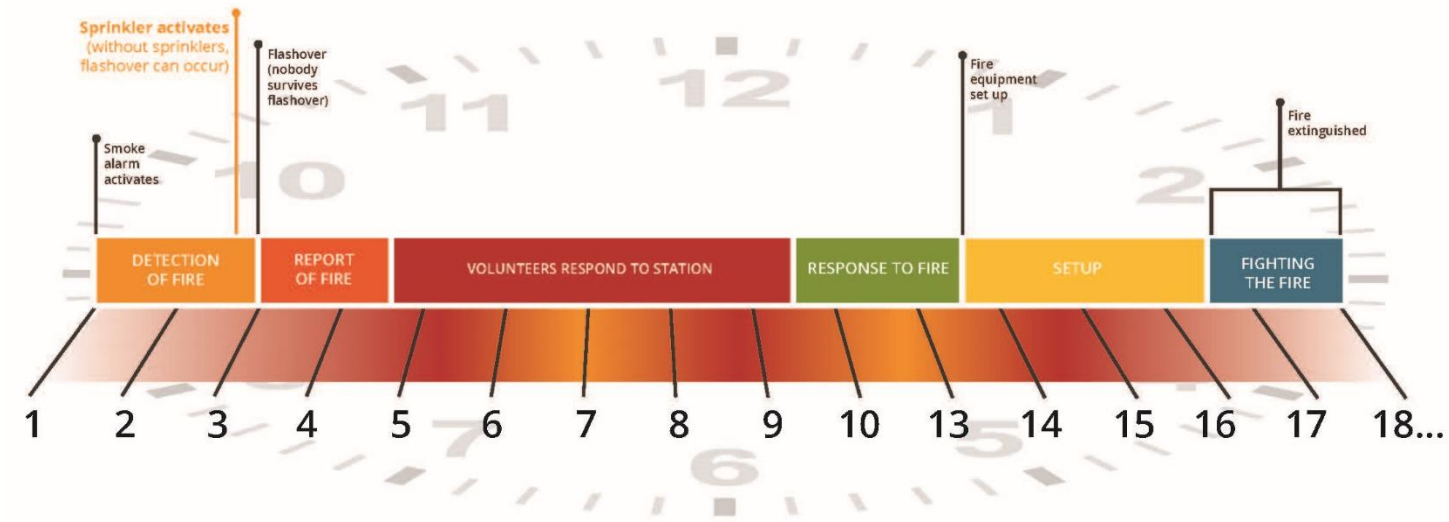


Exhibit 1 demonstrates response to all types of events (incidents), Exhibit 2: Fire Response Graphic is more specific in a fire response situation.

Exhibit 2: Fire Response Graphic



Sprinklers are activated by heat. Sprinkler initiation, at the approximately three-minute mark in Exhibit 2 above, assumes a fire has become sufficiently hot to actuate the sprinklers (if they exist). Some fires may not generate enough heat this early in the timeline.

In Exhibit 2 three minutes has been allocated for setup time. Information from the Office of the Fire Marshal and Emergency Management, Ontario, provided in a 2016 inquest, indicates that, in Ontario, it takes an average of five to seven minutes to get an agent (water or foam) on a fire after arriving at a scene. We have seen setup times as low as 2 minutes during demonstrations, but those were in a training site parking lot with a hydrant immediately available. Three minutes was chosen for this graphic even though it might be optimistic.

As Exhibit 2 shows, the elapsed time from the time of fire detection to applying water or foam can be over 13 minutes. This assumes that volunteers can respond to the station and depart to the incident within 4 to 5 minutes and a driving time of about four minutes. The proximity of a fire to a fire station or a change in driving time because of weather or terrain may affect the extent and duration of a fire before an agent is applied. Additionally, overall response can be negatively affected by impediments to gaining access to an incident; for example, fire in a multi-story building.

Adding all the time components means that from detection of a fire until the first truck arrives, and water or foam is applied, could be 16 minutes or more. In a non-fire event the setup time and arriving at a victim's side could be shorter assuming the victim is reasonably accessible.

It's not possible to put too fine a point on this observation: It's not the time it takes to drive a fire truck to a fire that is the most important factor, it's the time it takes to apply water or foam from the time the fire was discovered.

The way to decrease the negative impact of extended response is through targeted fire prevention and safety education which is expected to decrease the frequency of fires.

3 Central Elgin Fire Rescue Services Data

The charts in this section offer an overview of the incidents to which each station responded from January 1st, 2019, to November 24th, 2024.

We noted earlier that there is data missing in some of the vehicle assignments, and possibly an overcount in the number of incidents that occurred in the past six years which may affect the accuracy of some information that follows.

Exhibit 3: Incidents by Type

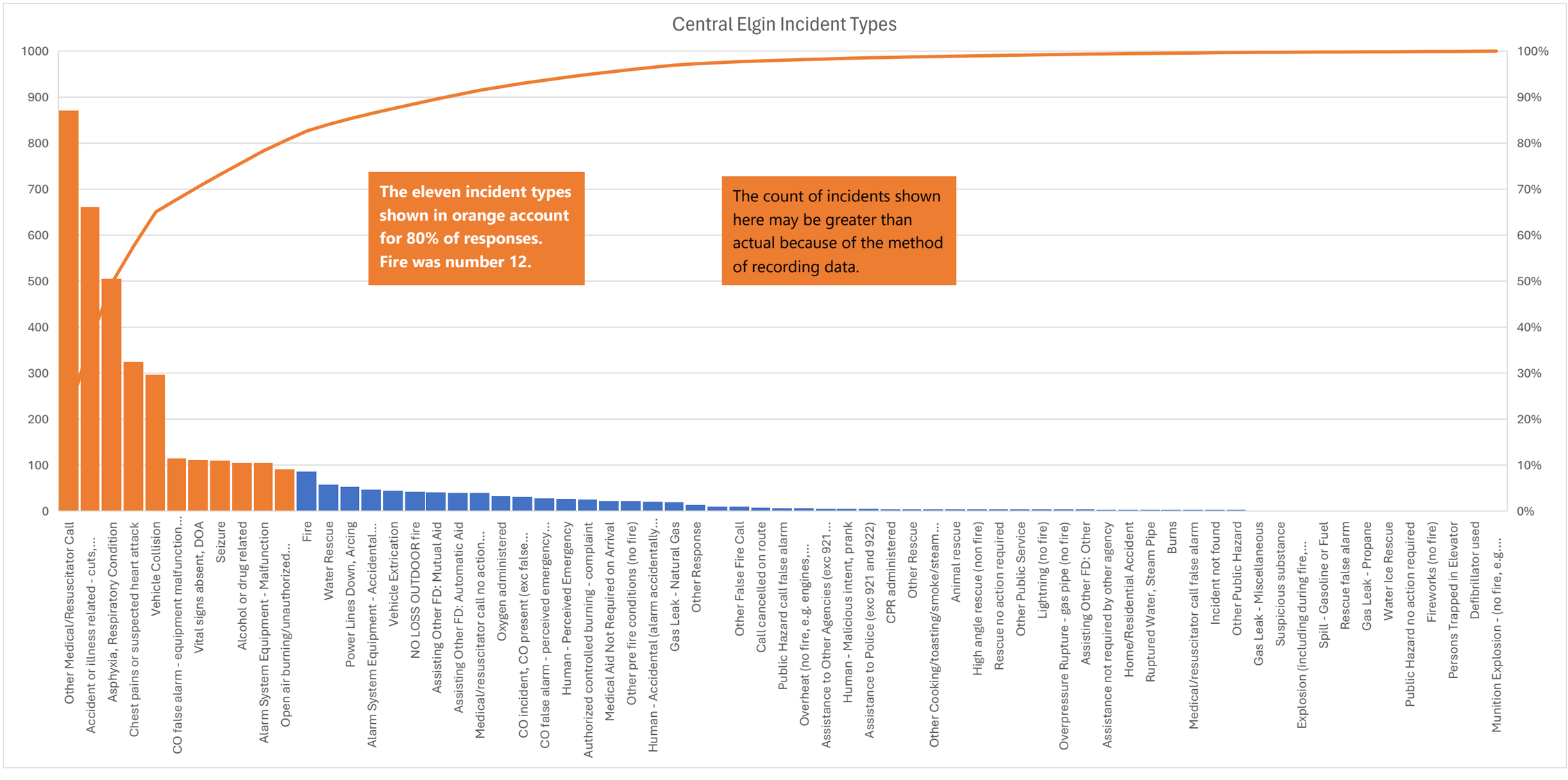


Exhibit 4: Incidents by Station, by Year

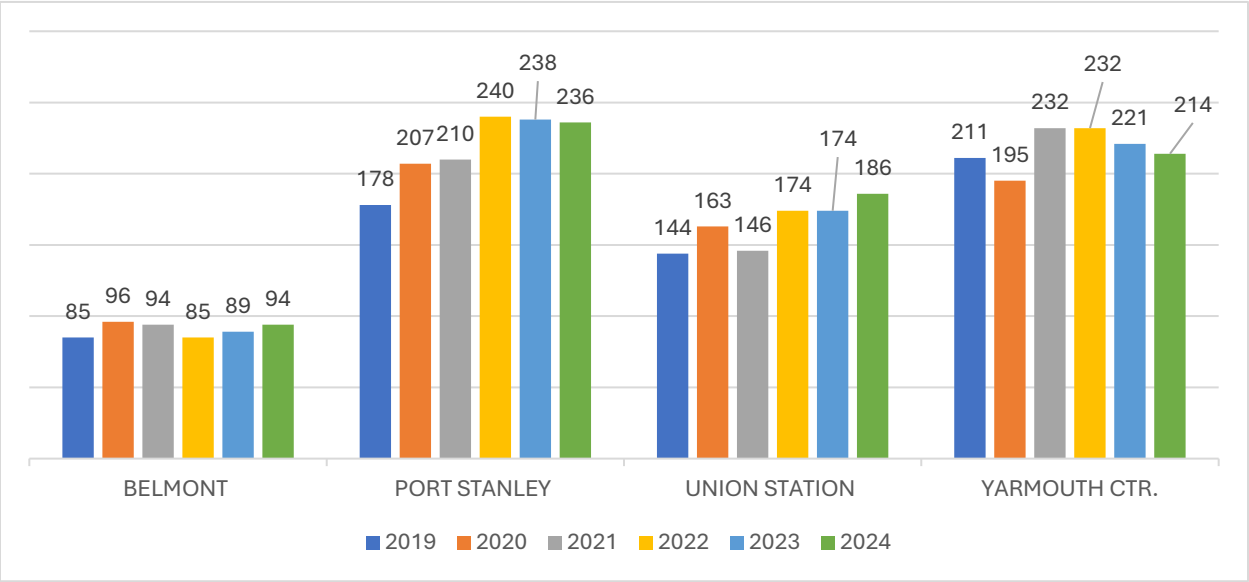
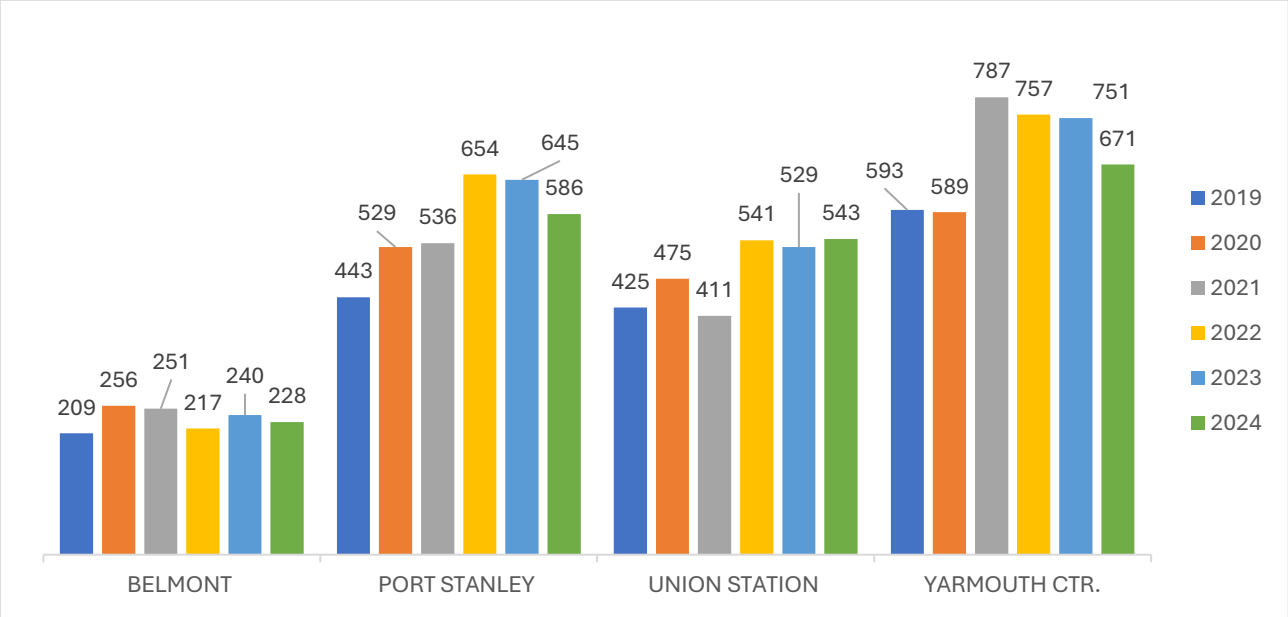


Exhibit 5 indicates the number of vehicles that were dispatched to the incidents shown in Exhibit 4. This means, using Belmont's 2024 data as an example, that 228 fire trucks were dispatched to the 94 incidents that occurred, an average of almost three trucks (2.43[2]) per call. Sometimes fire trucks are used as staff conveyances, not because the equipment on board is required. We address this response approach later in the report.

Exhibit 5: Vehicles Dispatched by Station, by Year



[2] Sometimes, when we present statistics like this, a comment will be received that a partial truck can't be sent to an incident. We agree. This is just a statistical indication rather than being meant literally.

Exhibit 6: Structure fires by station, by Year

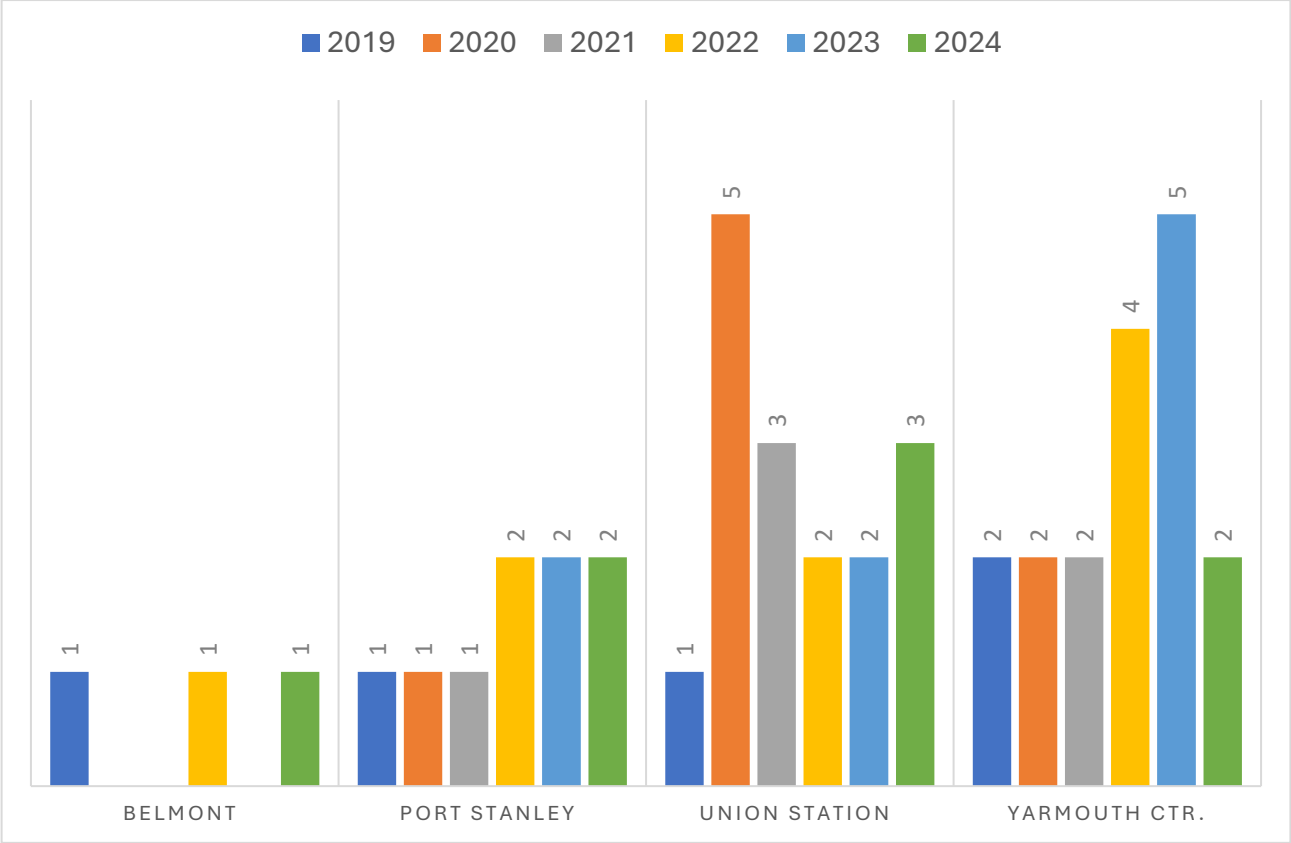


Exhibit 6 shows

- Belmont has had three structure fires in its response area; one each in 2019, 2022, and 2024.
- Port Stanley experienced one structure fire in each of 2019, 2020, and 2021, and two in 2022, 2023, and 2024.
- The most fires occur in the Union and Yarmouth stations areas;
  - five in 2020 for Union and
  - five in 2023 for Yarmouth.

Examined on an annual basis, the average, even in those busy years for Union and Yarmouth, was less than one every two months. This is good news for the municipality but could be reduced further with increased, targeted, prevention and public education efforts.

3.1 Response times

As part of the data review Pomax evaluated response times for each station, by year, and by type of call. We have not included all details in this report but will provide the work sheets and all elements to the municipality.

The three charts that follow indicate the historical median[3] time for each station at each stage of **structure fire** incidents. The stages are

1. Call receiving - the time it takes from the time the incident is first registered in the dispatch software (telephone rings) to the time firefighters are alerted to respond.
2. Preparation time – known as turnout time by firefighters, is the time it takes from being alerted (usually by paging) to respond to a fire truck departing a station.
3. Driving time – the time from when a fire truck departs a station until arrival at the scene (wheels start turning to wheels stop turning).
4. Overall – the time from the incident being first registered in the dispatch software (telephone rings) to arrival at the scene (wheels stop turning). This does not count the time required to apply (water or foam) to a fire.

Historically, fire departments have evaluated performance based on the 90th percentile time for the first three stages listed above and, for volunteer fire services, the fourth stage also[4]. The National Fire Protection Association performance standards are measured at the 90th percentile which means that 90% of all stages are achieved in *X* minutes while 10% takes longer. However, considering the small number of fires in each station's response area (five or fewer annually per station in the period studied) one or two incident stages that were elongated could make it appear that the fire service's performance is substandard. Pomax uses medians rather than the 90th percentile measurement.

[3] Half of all structure fire incidents took less time than that shown, half more. Keep in mind some stations have a very low structure fire call volume.

[4] NFPA defines the fourth stage as being from the time firefighters are alerted to the time of arrival at the scene. The standard for volunteer services also varies depending on whether the response is to urban, suburban, rural, or remote areas, which are determined based on population density. The percentile objective is 90% for areas defined by NFPA as urban or remote, and 80% for areas defined as suburban or rural. Port Stanley meets the NFPA definition for an urban area (>1,000 people per 2.6 sq. km.); other areas of the township would be considered suburban or rural, and some, possibly, remote.

Exhibit 7: Medians: Call receiving for structure fires, by Year

Call receiving - the time it takes from the time the incident is first registered in the dispatch software (telephone rings) to the time firefighters are alerted to respond.

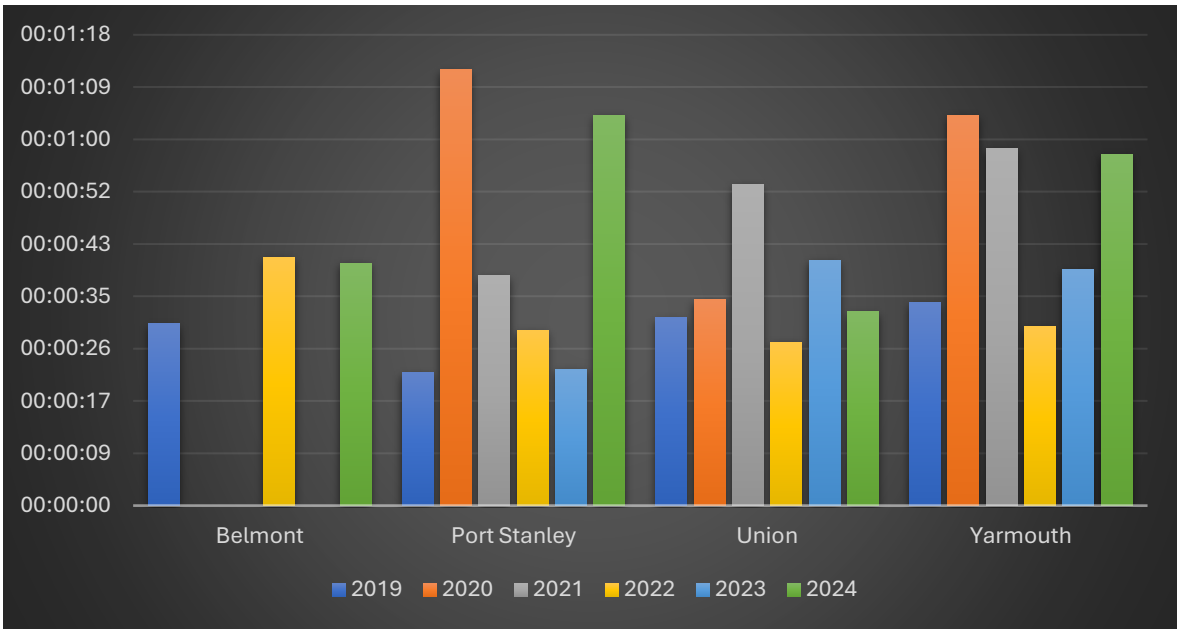


Exhibit 8: Medians: Preparation time, by Year

Preparation time – known as turnout time by firefighters, is the time it takes from being alerted to respond (usually by paging), to a fire truck departing a station.

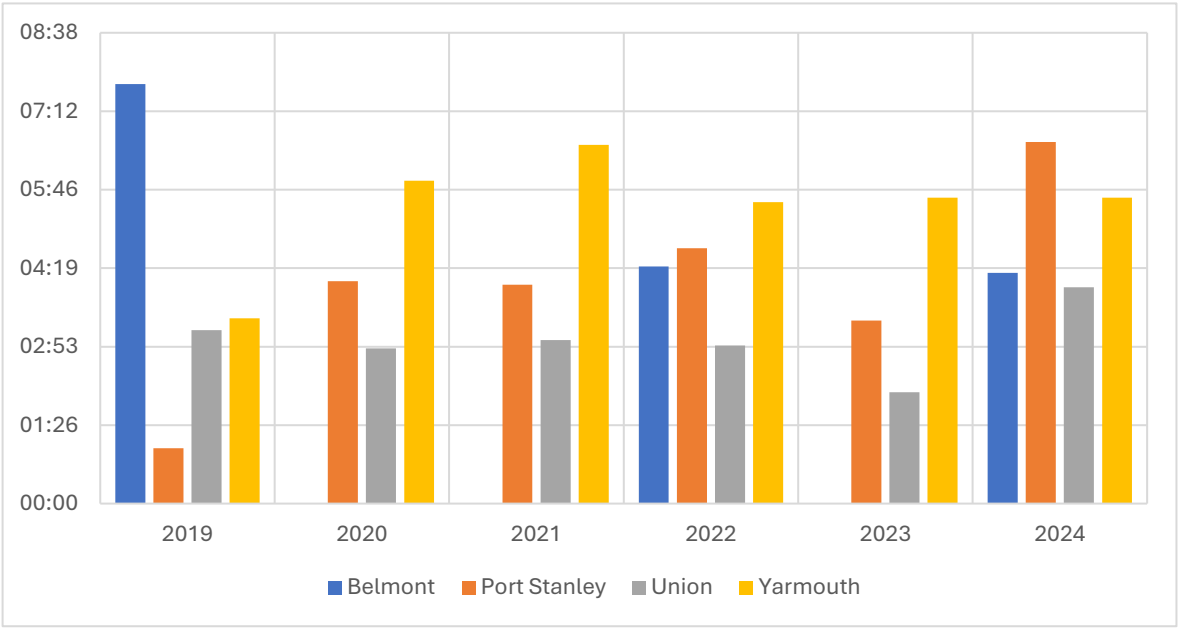


Exhibit 9: Medians: Driving time, by Year

Driving time – the time from when a fire truck departs a station until arrival at the scene (wheels start turning to wheels stop turning).

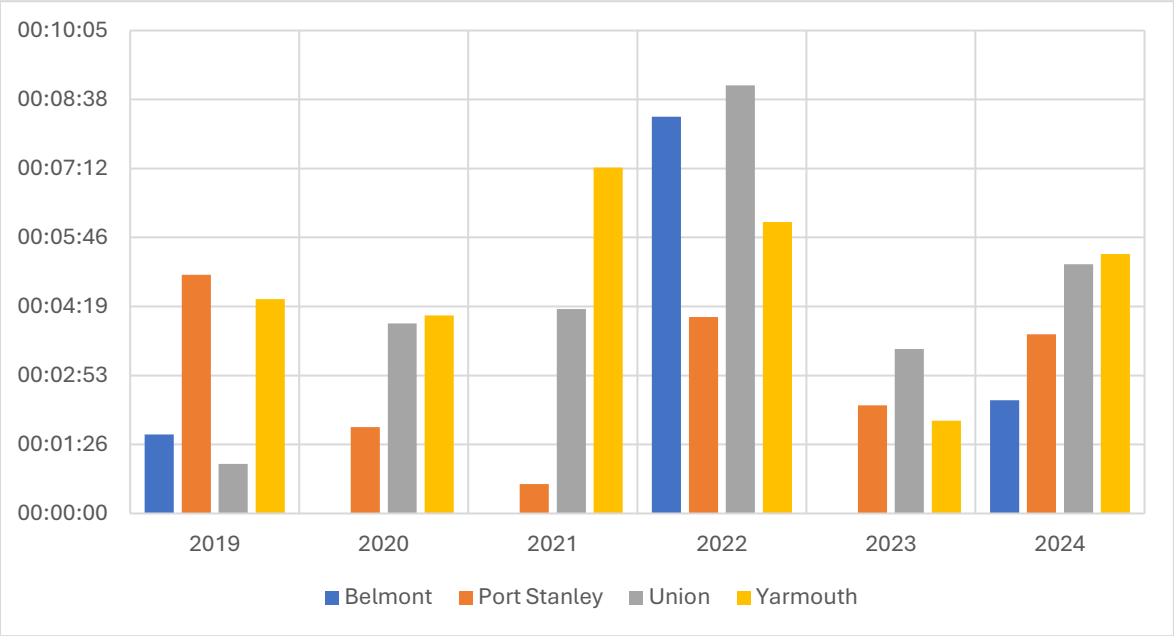
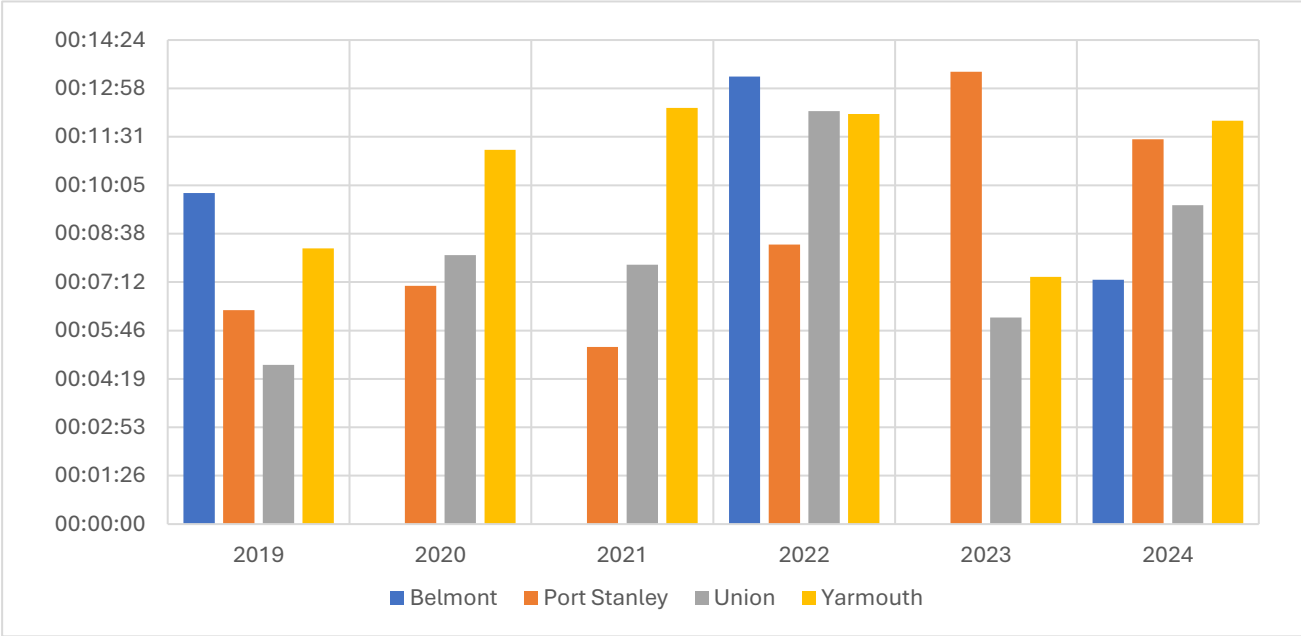


Exhibit 10: Medians: Call received to arrival at scene, by Year

Overall – the time from the incident being first registered in the dispatch software (telephone rings) to arrival at the scene (wheels stop turning). This does not count the time required to apply water or foam to a fire.



3.2 Geographical Distribution of Incidents by Type

This section answers the question "Where do incidents occur"?

Exhibits, 11 through 14, illustrate the area that can be covered from each fire station, by an emergency vehicle, within 5- and 8-minutes travel time. Since the contours indicate travel time only, the time allocated to call taking and dispatching, turnout, and scenes access has to be added to the travel component (please see Exhibit 2: Fire Response Graphic). The 5- and 8-minute travel time demarcation was chosen because our experience has shown that those are intuitive times that most can discern and estimate.

The exhibits also illustrate where emergency incidents (structure fires, medical, traffic) have occurred from 2019 to 2024. Exhibit 16 illustrates the location of firefighters' residences relative to the fire station that they have joined.

- Exhibit 11: 5- and 8-minute travel time contours from fire stations;
-
- Exhibit 12: 5- and 8-minute travel time contours from fire stations including structure fire locations 2019 - 2024;
- Exhibit 13: 5- and 8-minute travel time contours from fire stations including 2024 structure fires;
- Exhibit 14: 5- and 8-minute travel time contours from fire stations including medical events 2019 - 2024;
-
- Exhibit 15: 5- and 8-minute travel time contours from fire stations including traffic incidents 2019 - 2024;
- Exhibit 16: Firefighters residences relative to station locations.

Exhibit 11: 5- and 8-minute travel time contours from fire stations

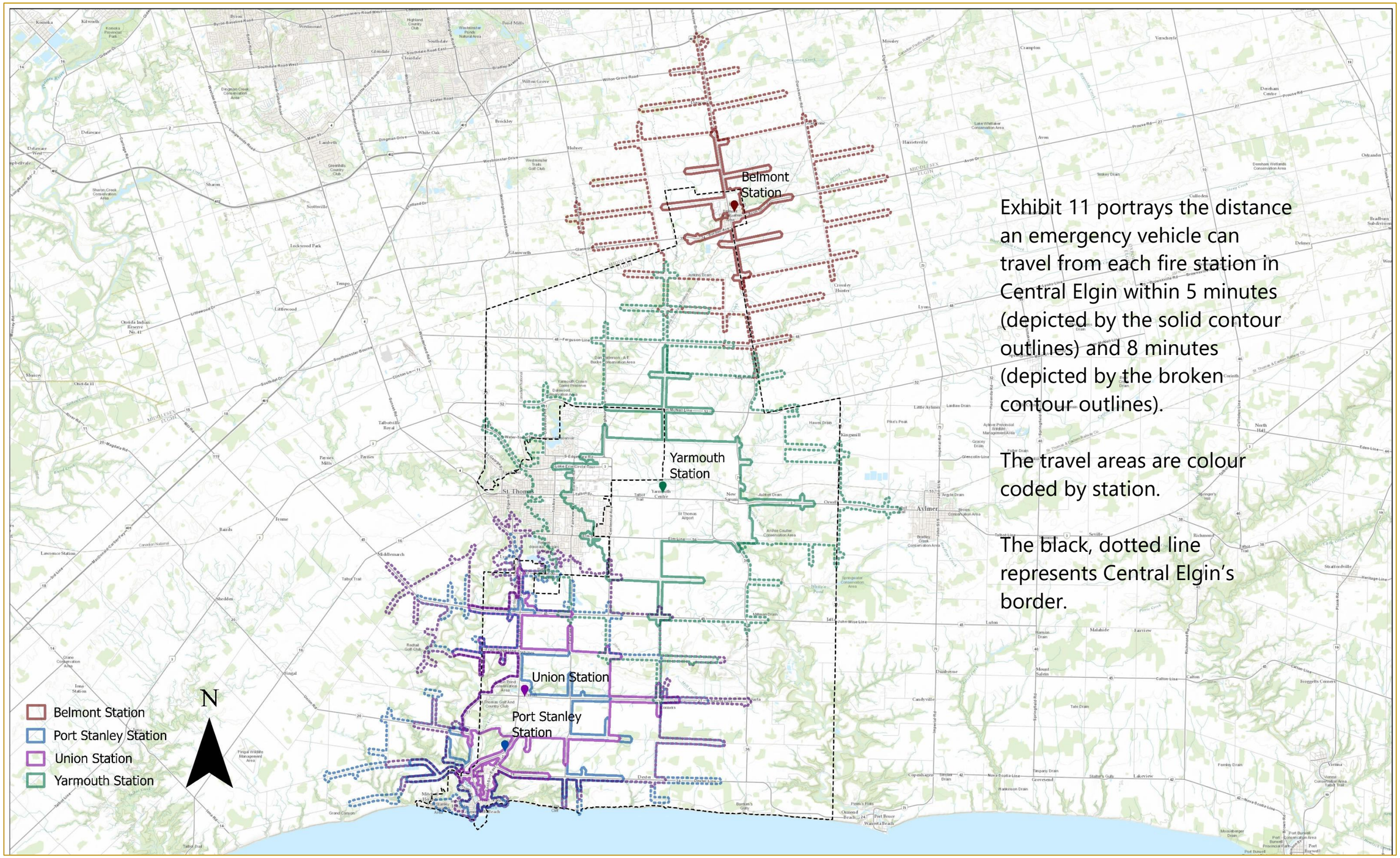


Exhibit 12: 5- and 8-minute travel time contours from fire stations including structure fire locations 2019 - 2024

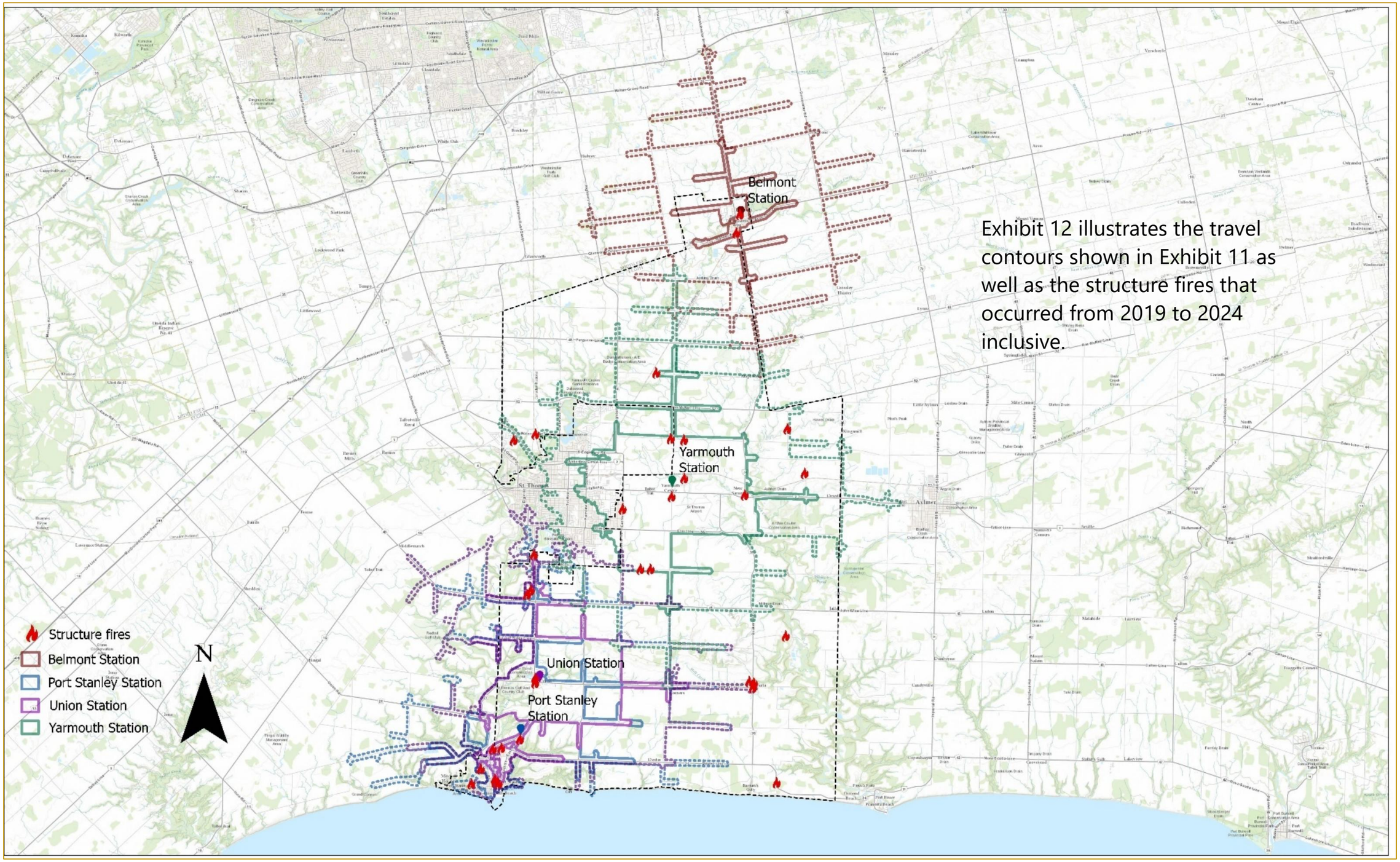


Exhibit 13: 5- and 8-minute travel time contours from fire stations including 2024 structure fires

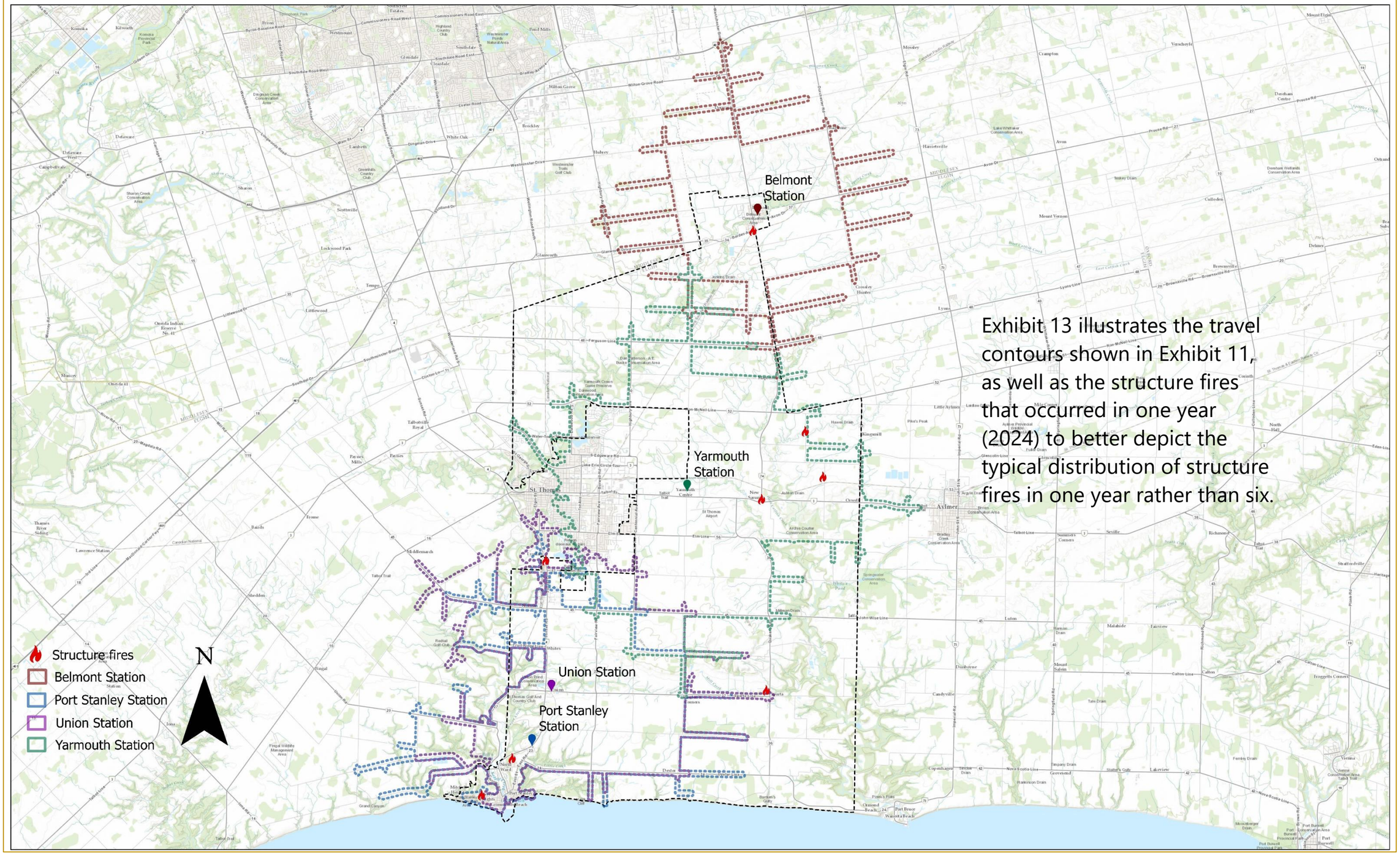


Exhibit 14: 5- and 8-minute travel time contours from fire stations including medical events 2019 - 2024

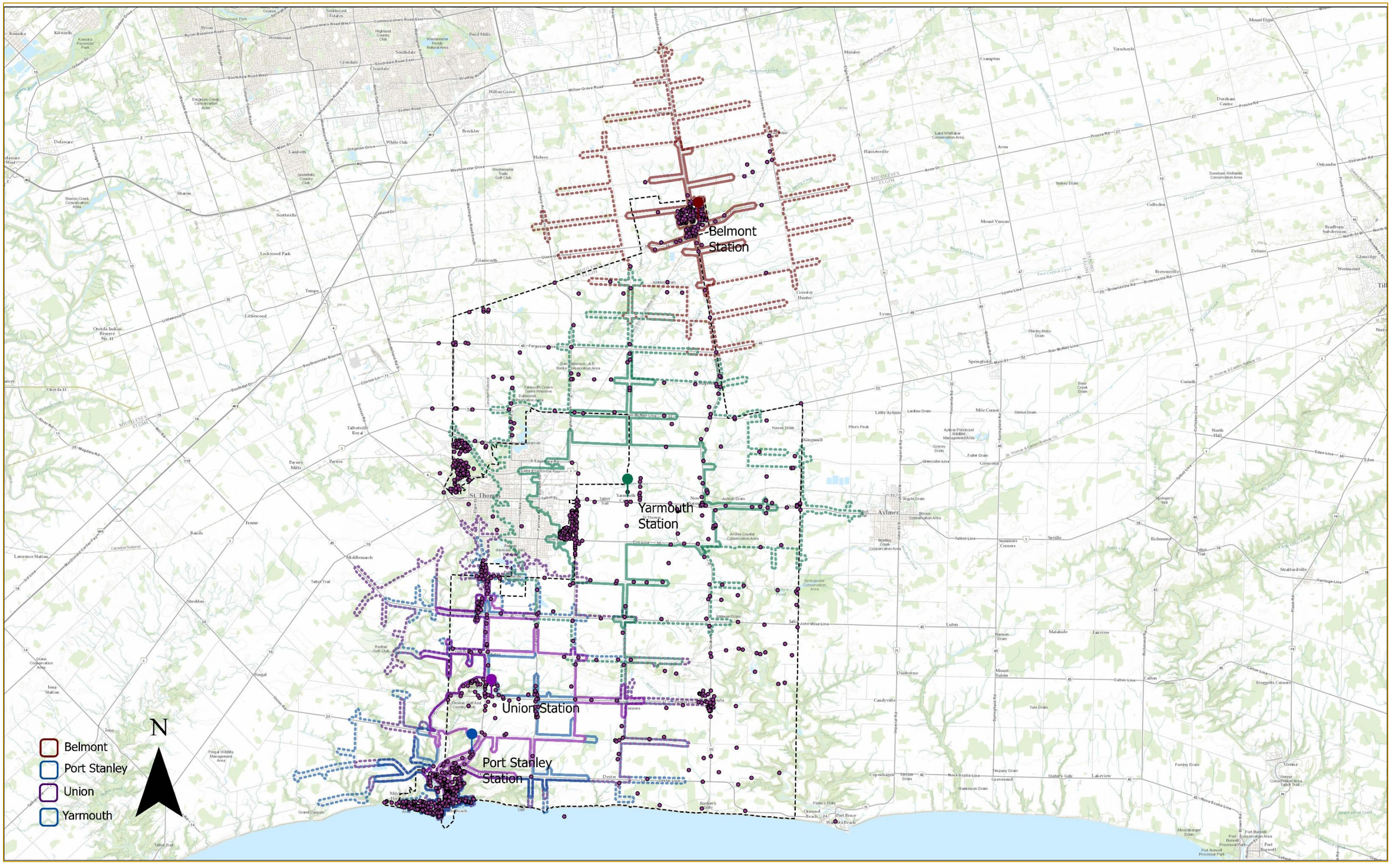


Exhibit 15: 5- and 8-minute travel time contours from fire stations including traffic incidents 2019 - 2024

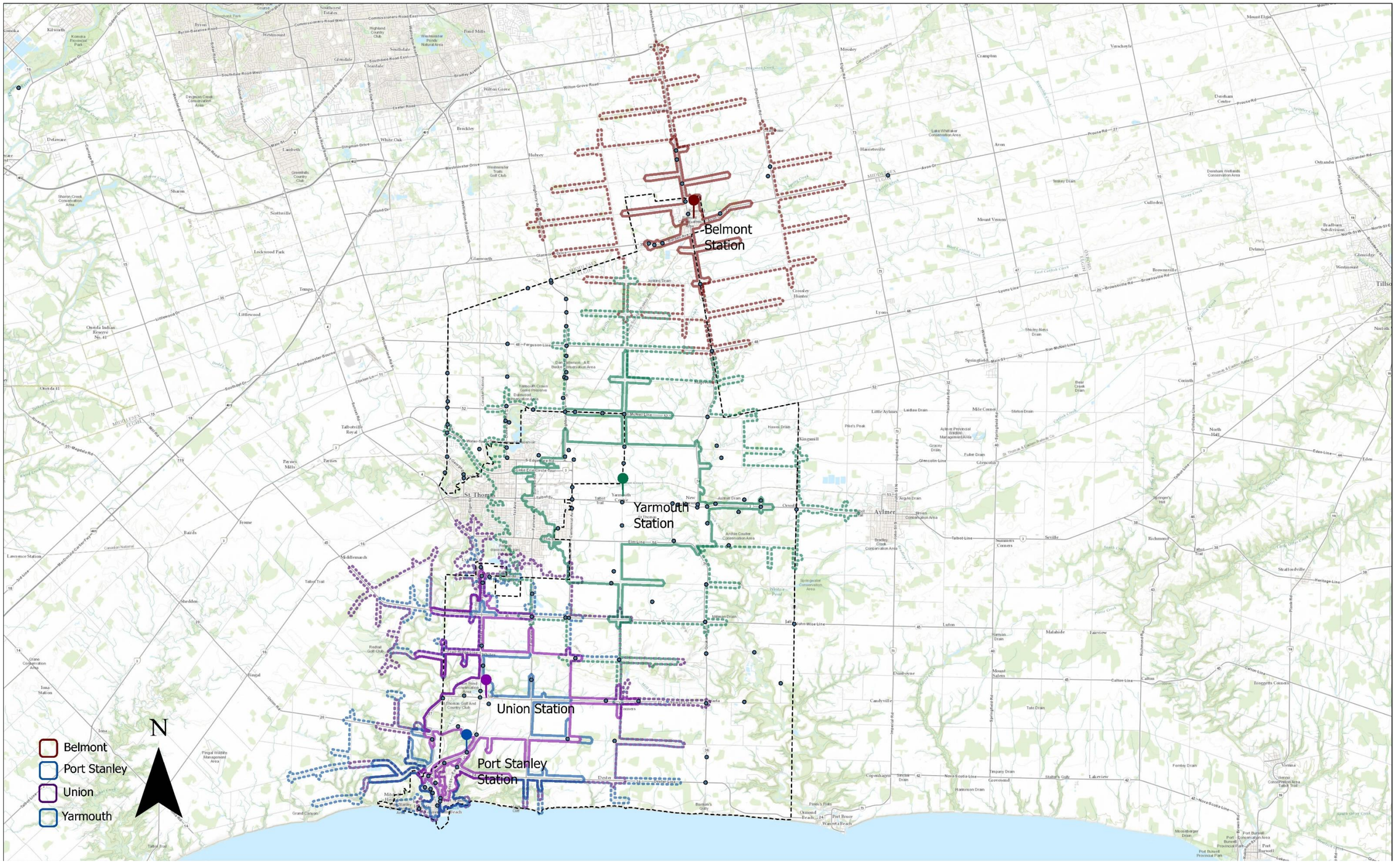
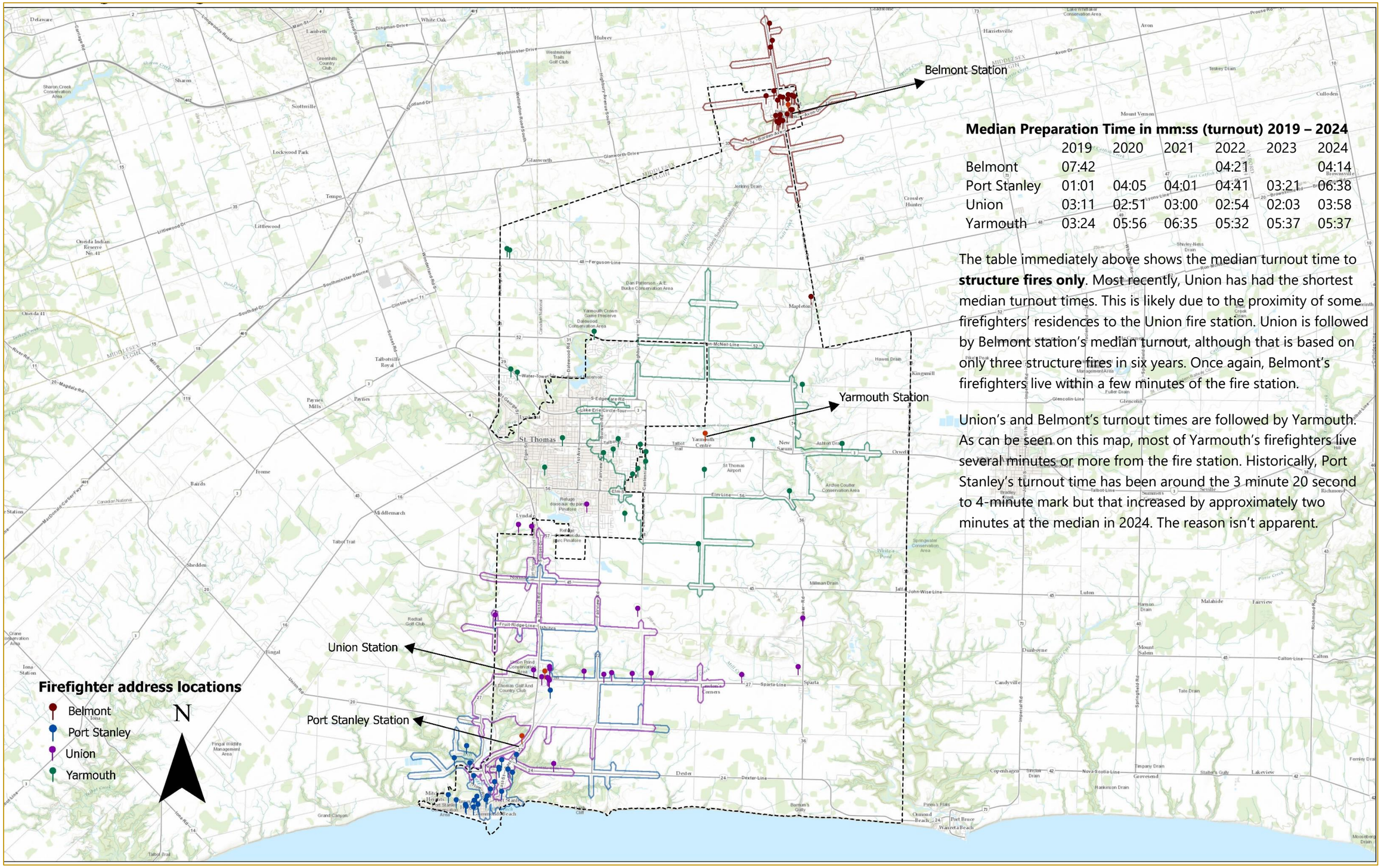


Exhibit 16: Firefighters residences relative to station locations



Median Preparation Time in mm:ss (turnout) 2019 – 2024

	2019	2020	2021	2022	2023	2024
Belmont	07:42			04:21		04:14
Port Stanley	01:01	04:05	04:01	04:41	03:21	06:38
Union	03:11	02:51	03:00	02:54	02:03	03:58
Yarmouth	03:24	05:56	06:35	05:32	05:37	05:37

The table immediately above shows the median turnout time to **structure fires only**. Most recently, Union has had the shortest median turnout times. This is likely due to the proximity of some firefighters' residences to the Union fire station. Union is followed by Belmont station's median turnout, although that is based on only three structure fires in six years. Once again, Belmont's firefighters live within a few minutes of the fire station.

Union's and Belmont's turnout times are followed by Yarmouth. As can be seen on this map, most of Yarmouth's firefighters live several minutes or more from the fire station. Historically, Port Stanley's turnout time has been around the 3 minute 20 second to 4-minute mark but that increased by approximately two minutes at the median in 2024. The reason isn't apparent.

3.3 When Do Incidents Take Place?

Generally, Incidents peak in June, July, and August which coincides with the highest traditional recreational activity. The incident types that drive summertime events and responses are medical calls and traffic incidents. Exhibit 17 to Exhibit 21 show the activity, by month, for each fire station. The line on each chart (vs. the bars) shows the average number of incidents for each month calculated over the six year period studied.

Call volume for December 2024 is not shown in the following charts since most of the statistical evaluation had been completed in early December 2024 meaning that the data for that month wasn't available.

Exhibit 17: Incidents by Year and Month Within the Belmont Station Response Area

The Belmont station and response area averages 10 or fewer incidents per month (based on the data available). Some months have seen only two incidents with a peak of 14 in October of 2022.

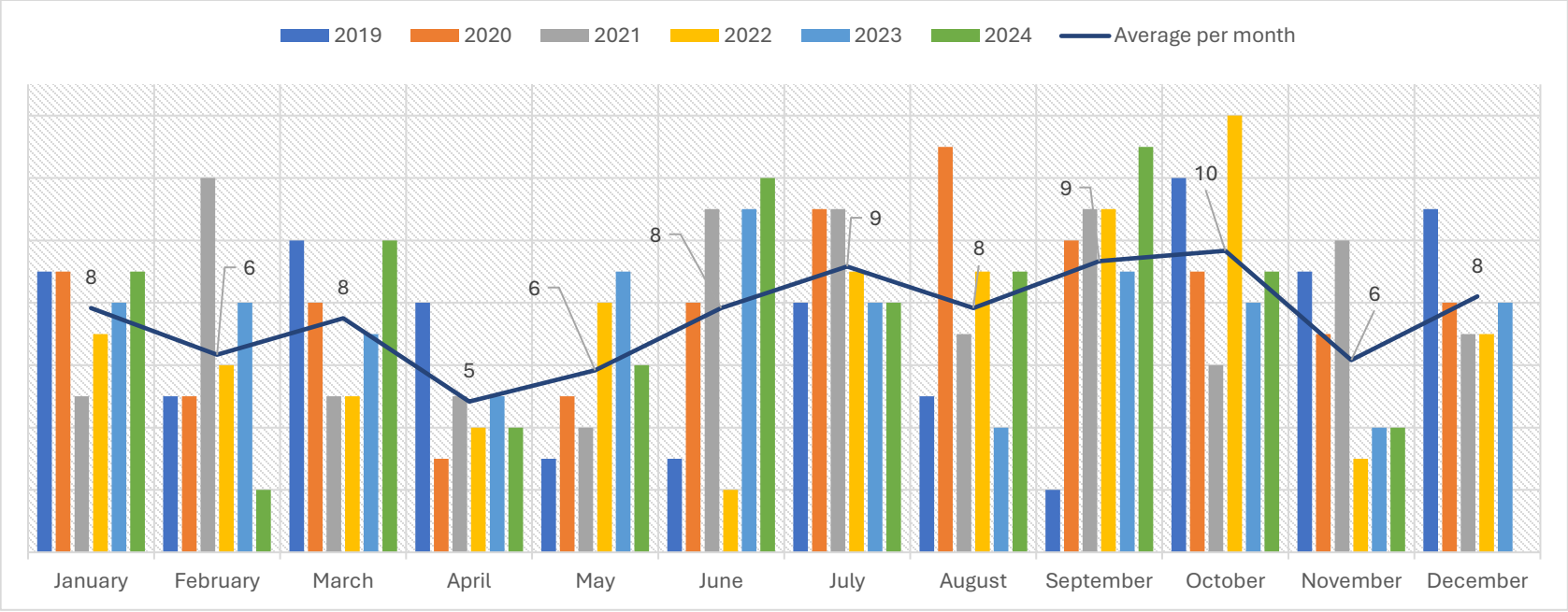


Exhibit 18: Incidents by Year and Month Within the Port Stanley Station Response Area

Port Stanley fire station shows a pattern of greater activity in the May to September period coinciding with tourist and outdoor activity. The least active time is in January and then an upward trend, in most years, to the peak months of June to August. The June to August activity is driven by medically related incidents.

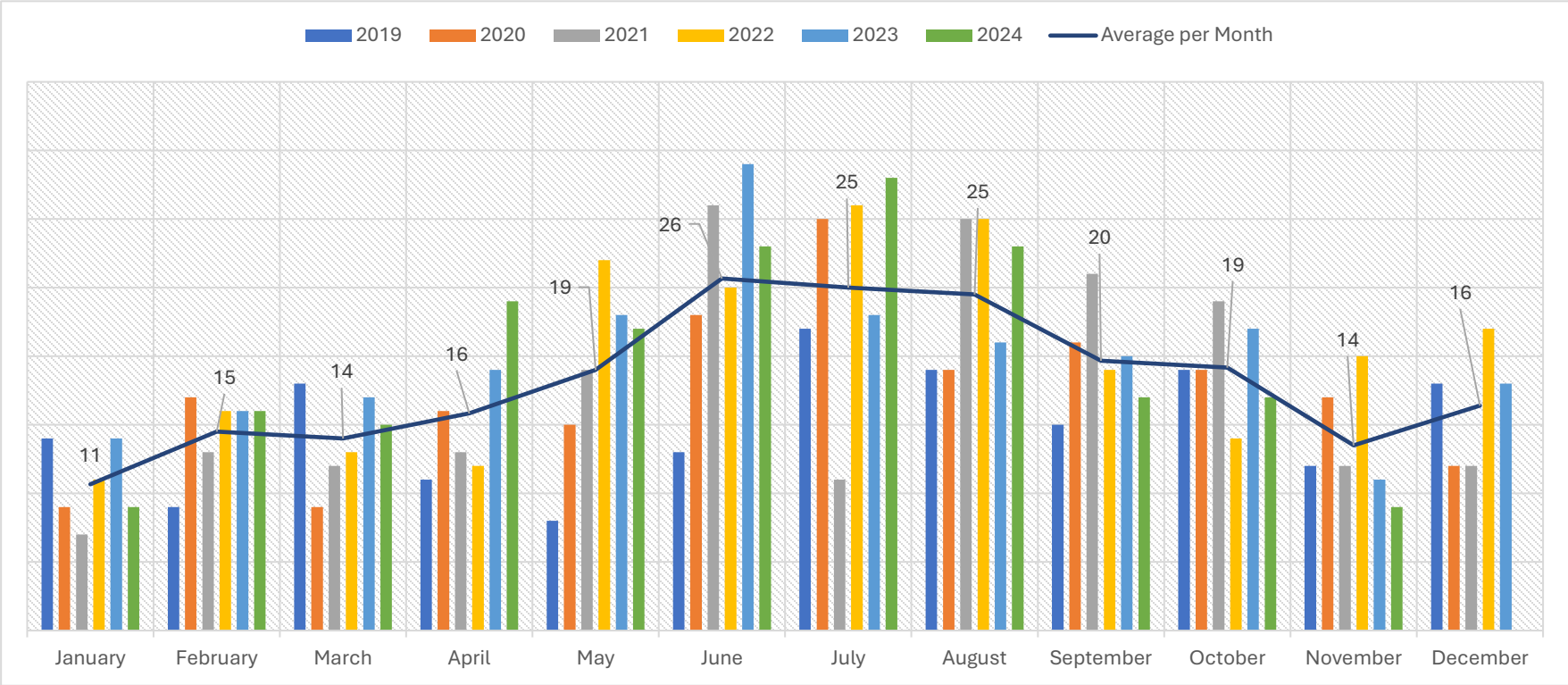


Exhibit 19: Incidents by Year and Month Within the Union Station Response Area

The problem with averages calculated over a short period of several years is that high or low anomalies can raise or lower the average and suggest a greater or lower number of monthly responses. Union is an example of this. Although June's average is 15 events based on six years of data, individual years range from a low of nine events in June of 2023 up to 23 in 2024. Although the Union station average call volume is consistent at from 12 to 14 calls a month, there is a slight increase in June and July.

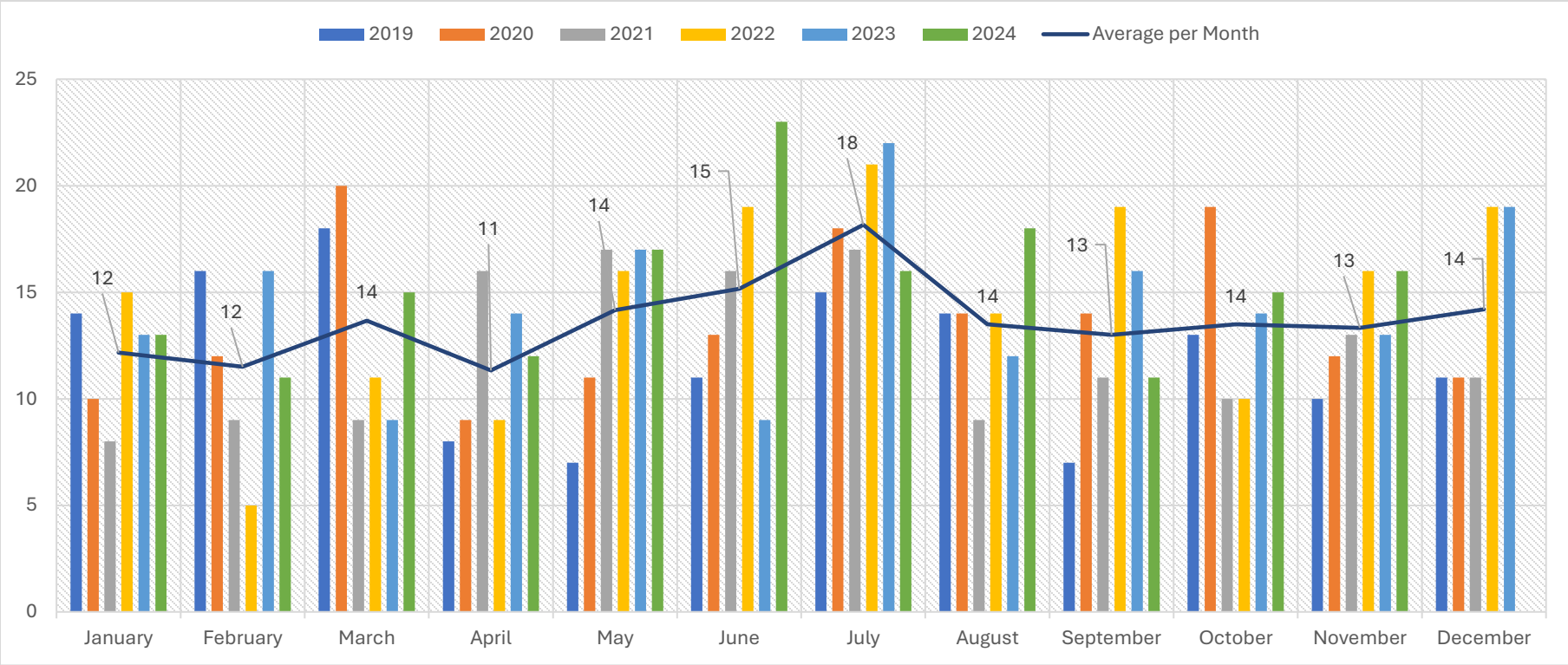


Exhibit 20: Incidents by Year and Month Within the Yarmouth Centre Station Response Area

Yarmouth Centre has a more consistent incident volume pattern than the other stations. This is likely attributable to medical calls occurring in populated areas around St. Thomas such as Lynhurst, Lyndale Norman, area near Centennial Line and north of Elm Line, (please see Exhibit 35: Medical Incidents, 2019 - 2024 Yarmouth Response Area). Depending on the considerations presented in *Section 9.4, What does this mean for future fire service protection?*, Yarmouth Centre's future call volume may moderate.

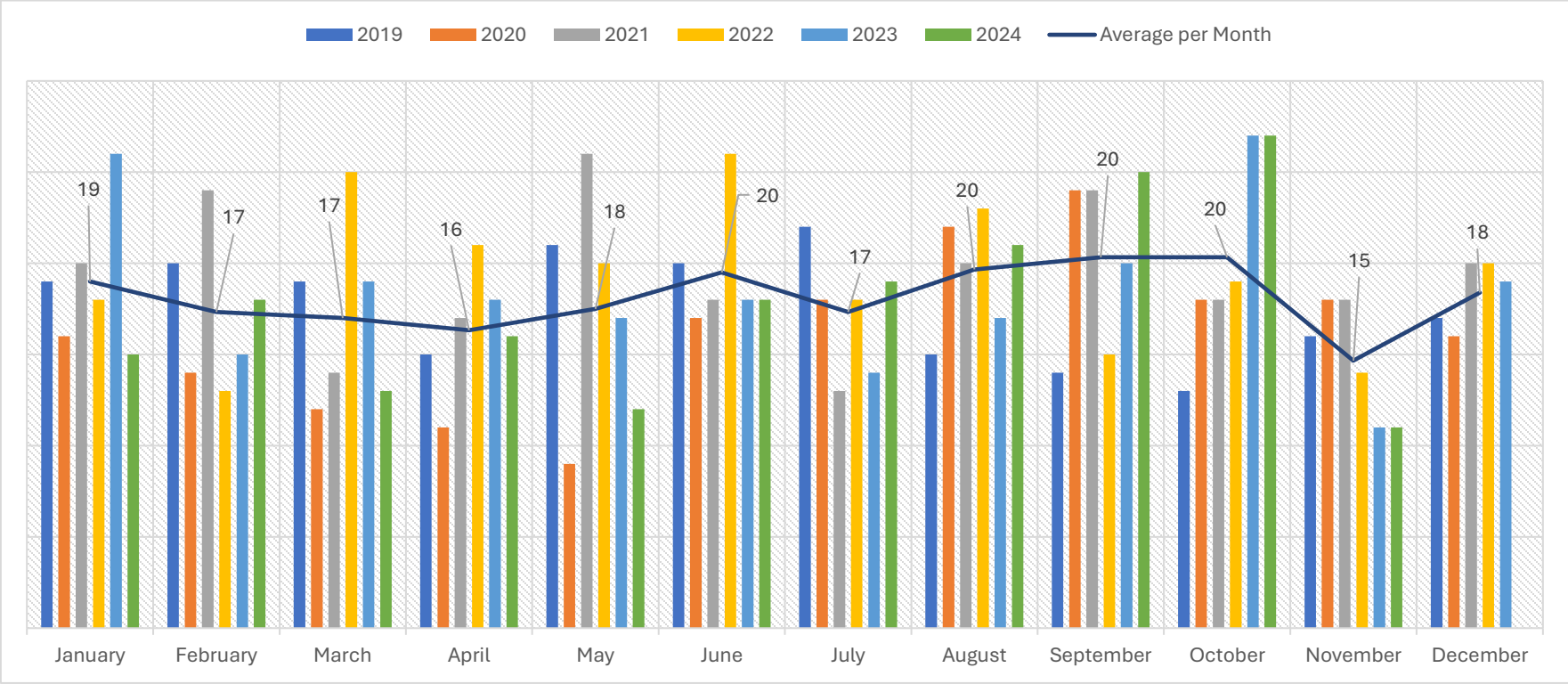


Exhibit 21: Distribution of Incidents by Day (starting on the following page), show variance in activity by day of the week for the six-year period studied. Although some stations indicate a distinctly higher number of incidents on some days – for example, Port Stanley on Saturdays in 2023 – this still represents an average of only one call a day since there are 52 Saturdays in a year. Nevertheless, volunteers at all stations other than Belmont, in addition to weekly training sessions, are being called out several times a week for emergency response. Even Belmont volunteers are called out a couple of times a week or more to respond to incidents within its primary response area or in support of other stations.

Exhibit 21: Distribution of Incidents by Day and Year Within the Belmont Station Response Area

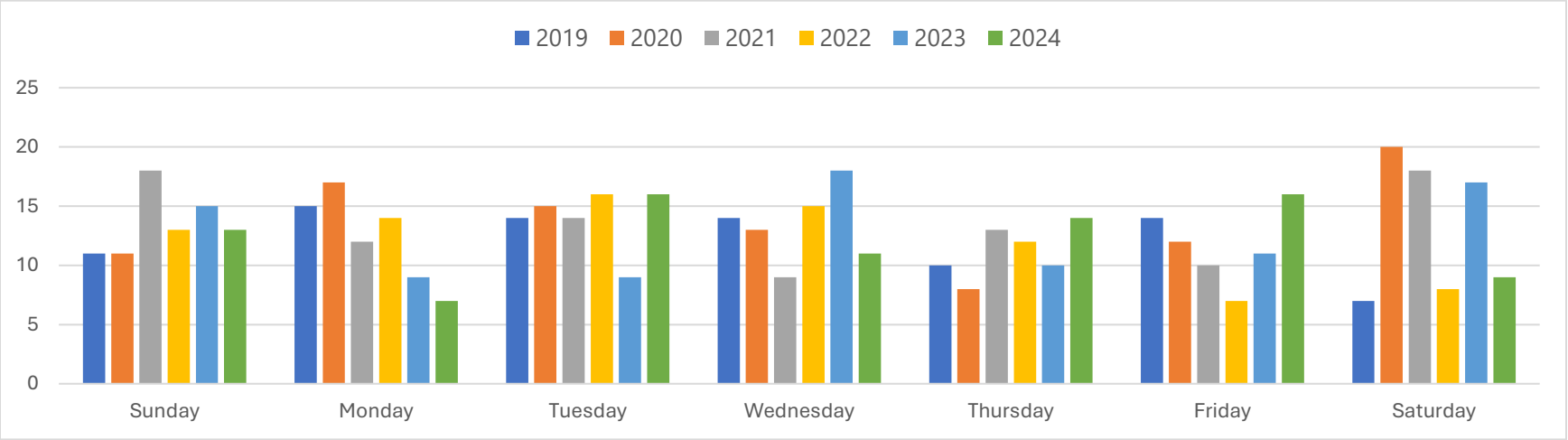


Exhibit 22: Distribution of Incidents by Day and Year Within the Union Station Response Area

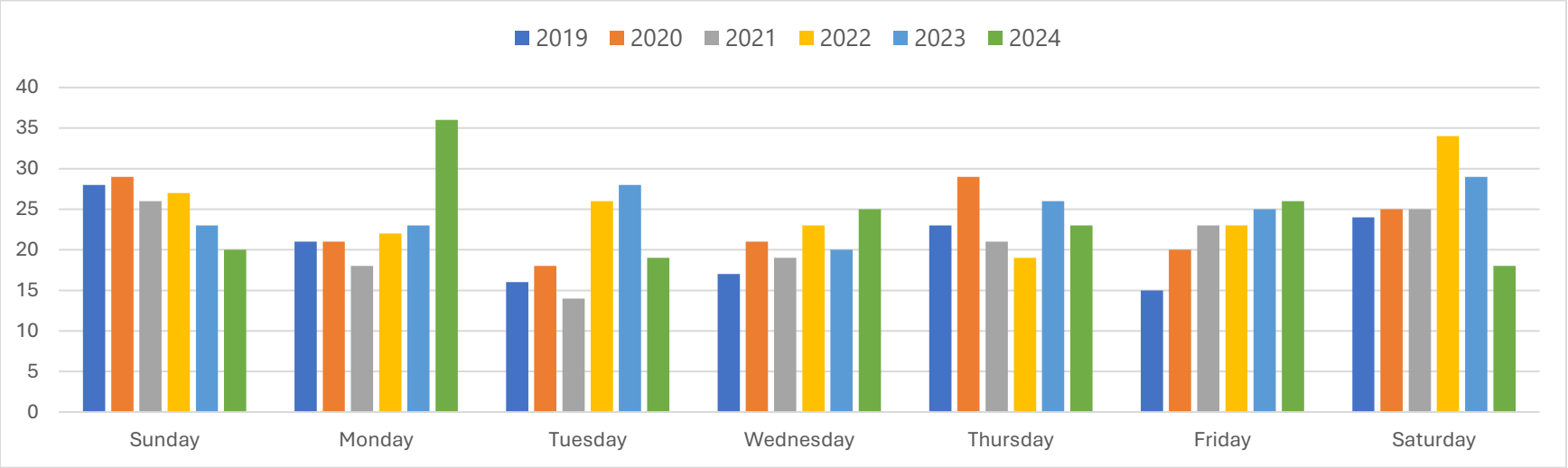


Exhibit 23: Distribution of Incidents by Day Within the Port Stanley Station Response Area

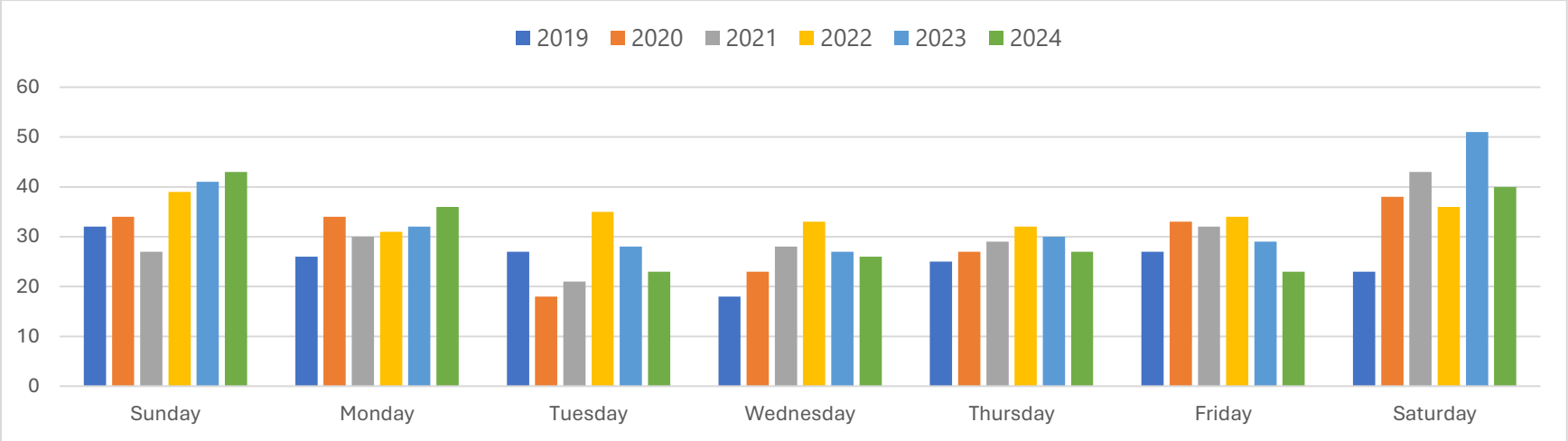


Exhibit 24: Distribution of Incidents by Day Within the Yarmouth Centre Station Response Area

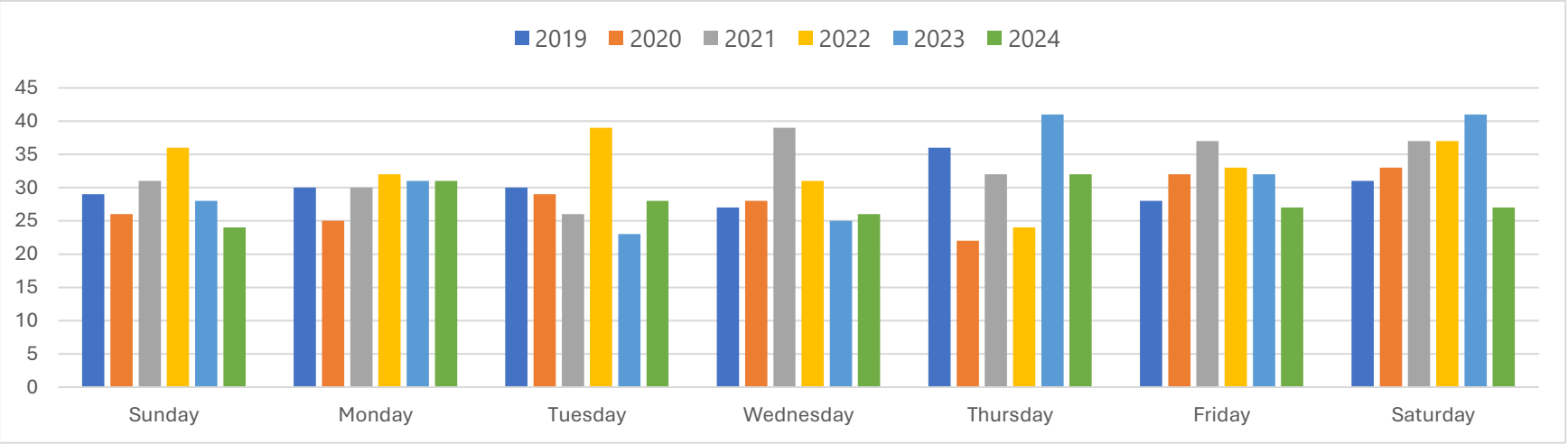
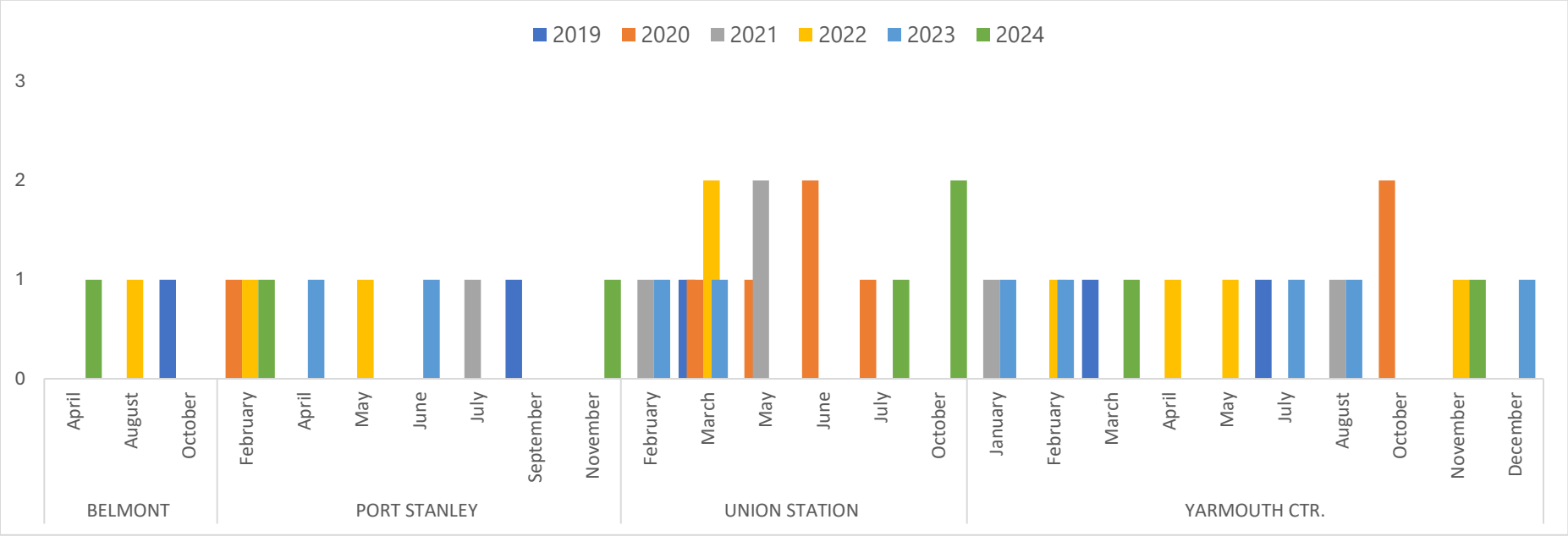


Exhibit 25, shows the number of structure fires that occurred in each year 2019 – 2024 by month. The frequency of structure fires is, fortunately, low with Yarmouth Centre experiencing the most at 16 over six years, an average of less than three per year. Yarmouth Centre is followed by Union with 12 (an average of 2 per year); Port Stanley at 7 (an average of slightly over one a year); and Belmont with three structure fires in six years, one about which we are uncertain.

It's possible that some of these structure fires may have been double counted in the record management system. However, we have noted occasions when the second station dispatched to a structure fire was recorded as "Assisting Other Fire Department" rather than responding to a structure fire. So, the count in Exhibit 25 may be correct but we can't be sure.

The distribution of structure fires indicates that prevention activities focused in Yarmouth Centre and Union areas may assist in reducing fires. Some months aren't accounted for in Exhibit 25 which means there is no record of fires occurring.

Exhibit 25: Central Elgin Structure Fire Distribution by Year and Month 1 January 2019 – 24 November 2024



3.4 What Do These Data Mean for Central Elgin?

The data tells us that most fire department activities are not related to building fires. Eighty percent of Central Elgin Fire and Rescue activity is concentrated in the following incident types (in order) (Exhibit 3: Incidents by Type

):

1. Open air burning/unauthorized controlled burning (no uncontrolled fire)
2. Alcohol or drug related
3. Alarm System Equipment - Malfunction
4. Seizure
5. Vital signs absent, DOA
6. CO false alarm - equipment malfunction (no CO present)
7. Vehicle Collision
8. Chest pains or suspected heart attack
9. Asphyxia, Respiratory Condition
10. Accident or illness related - cuts, fractures, person fainted, etc.
11. Other Medical/Resuscitator Call

Of those 11, two were fire related call types (Open air burning, Alarm System Equipment – Malfunction), and one was CO false alarm - equipment malfunction (no CO present). Seven of the remaining eight incident types were medical events, and the one remaining type, vehicle collision, is a 'gray' category since those are mostly medical due to injury, although fire often responds. The vehicle collisions were not entrapments since those are classified separately. Entrapments requiring extrication was the 16th most frequent incident type attended occurring an average of just over 7 times a year.

The list above describes events as they were dispatched, not as they were found. One of the difficulties with record management system and data analysis – for all fire departments not just Central Elgin – is that services performed at the scene of an incident are not recorded in a relational database; that is, a database that can be searched relative to other information captured. This results in a data gap, in that it is difficult to determine the value of services provided or to conduct a service level cost benefit analysis.

3.4.1 Data Gap

Fire services – industry wide – experience a data gap with respect to outcome data. There are three dimensions – or kinds – of fire department data described in Table 3: Data Types

- input data (assets),
- output data (numeracy), and

- outcome data (how the assets were used).

Table 3: Data Types

Input Data	Output Data	Outcome data
Assets & resources: stations, vehicles, staff, equipment	Turnout time, response time, number of firefighters responding or on scene	On scene activity, who did what, objective evaluation of benefit, subjective evaluation The Value Measurement
Almost always gathered	Often gathered	Rarely gathered; never in a database relative to input and output data

Outcome data, as its name suggests, is the information that would inform fire services and municipalities of the activities at incidents, individually and collectively, and enable communities to determine the benefit of response to certain call types, what equipment should be carried and on which trucks, vehicle types and size, staff levels, training, organizational structure, and answer many other questions that either cannot be satisfied currently without significant effort, or have not been asked because of a lack of awareness of the need.

Outcome information, combined with dispatch intake information and response data, will lead to being able to better match resources to fire prevention efforts and service delivery.

Exhibit 26: Fire Service Call Records

Exhibit 26: Fire Service Call Records shows the five major steps in a fire service event. Information about steps 1, 2, and 4 is gathered via the computer aided dispatch system but the most important aspect – that of what happened in step 3, the work performed at the scene – is only manually recorded in **officers' notes** after each incident is completed (step 5). These notes are in narrative form rather than tabular, which means they are not searchable and cannot be related to steps 1, 2, and 4 of the fire service call sequence. It is also reasonable to expect senior officers' narratives to vary in detail and completion levels because each is prepared by different officers.

We have not found any fire departments in North America that practice the measurement of outcome data although we are aware of very limited occasions where specific outcome data may be used for special projects or inquiries.

This lack of associative information between the response activity and service provided at each incident, compiled by incident type, means that the monetary and service value of the fire department cannot be quantitatively assessed.

Some fire departments measure output data and present those results in the form of key performance indicators relating to time and response of activities within incidents. We submit that key performance indicators and targets are of limited use unless the value of the performance – in the form of valid outcome – can be associated.

Most fire departments, including Central Elgin's, use a commercial record management system to gather information, but we haven't found any commercial record management systems that offer an outcome data utility.[5] However, some record management system providers have optional fields that can be added to incident record templates which would allow Central Elgin Fire Rescue Services to include some on scene activity found in officers' incident reports, and standardize the way it is recorded.

The result of not having a deep enough level of data, due to the absence of on scene activity capture, is that Central Elgin, or a consulting team, cannot conduct a sufficient economic and value assessment of activities – without extensive manual effort – to determine where costs can be saved or avoided, or expenditures can be redirected.

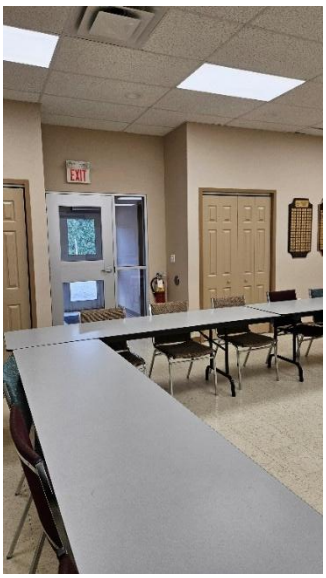
Our recommendation is that the fire service should work with its record management system vendor to develop a tabular database outcome utility that is relational to data recorded in steps 1, 2, and 4 (Exhibit 26). It's important not to underestimate the resources required to create and maintain a database that will support value assessments and integrated risk management planning.[1] Nevertheless, the effort and cost should be recovered within two to three years through cumulative efficiency and effectiveness while enabling the municipality to improve safety, reduce the frequency of fires, and optimize response requirements over 5 to 7 years.

[5] We have been told by vendors that there isn't a market for that utility in the fire service to warrant the effort and expenditure required to produce a function for which there is minimal demand. A record management system that records on-scene and outcome data is common in paramedic and police services though.

4 The Fire Stations

Central Elgin has four fire stations located as shown in Exhibit 11 to Exhibit 16 (page 16). The Belmont and Port Stanley fire stations are recently constructed and in good condition although there are some desirable health and safety items that should be scheduled for modification. Most notably, none of the stations have 'vehicle exhaust removal systems' such as those shown below (removal of diesel exhaust fumes and particulates)[6].

Exhibit 27: Belmont Station



Fire station assessment forms, completed by fire staff, can be found in Appendix B.

[6] Commercial automatic systems operate when the truck engine is started, and a sensor automatically switches on the exhaust fan. All toxic exhaust soot and gases are drawn through a high-temperature sealed ductwork hose and are dispersed outside the building. The system disconnects automatically as a truck departs the bay, and the fan shuts down after a delay. (From AQC Dust Collecting Systems. There are many other manufacturers.)

The Port Stanley station is the newest of the four and serves as fire service headquarters. While it is roomy there are a few opportunities for improvement as noted in the following bullets:

- The absence of a commercial exhaust extraction system.
- We have been told that the acoustics of the station make communicating difficult and impedes training and practice sessions.
- There is a men's locker room with a shower and a gender neutral washroom also with a shower. There is no female staff locker room.
- Currently, there is a single office in the facility which may require modification if staff, other than the Chief, work from that location.

Exhibit 28: Port Stanley Bunker Gear

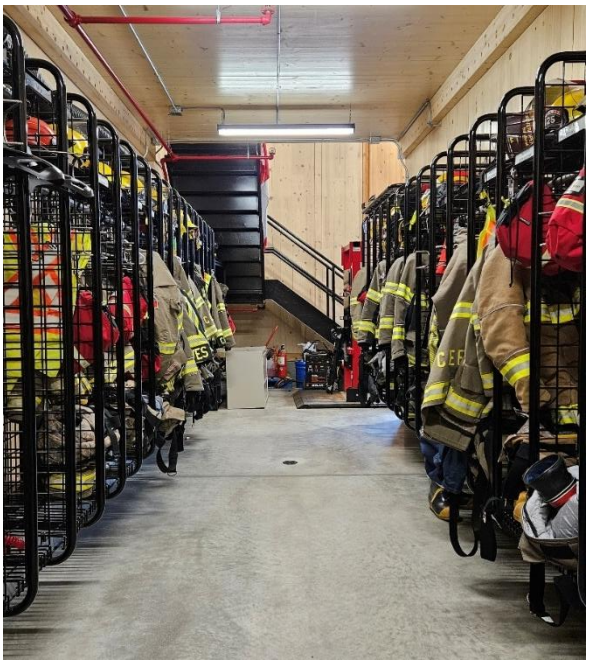
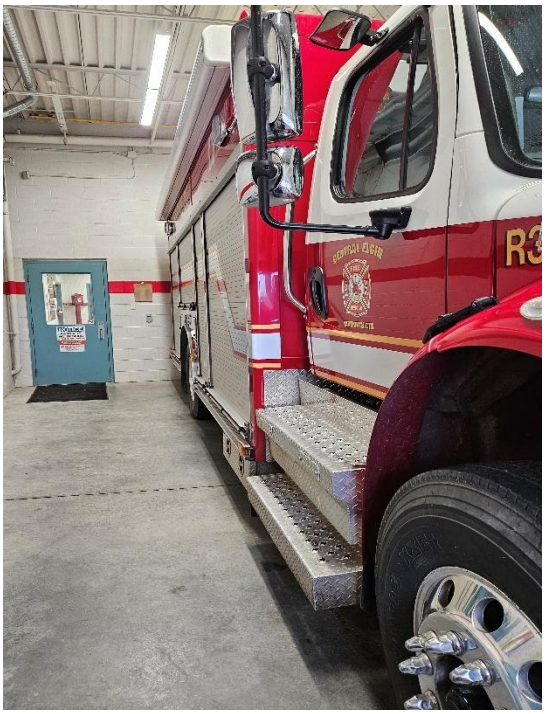
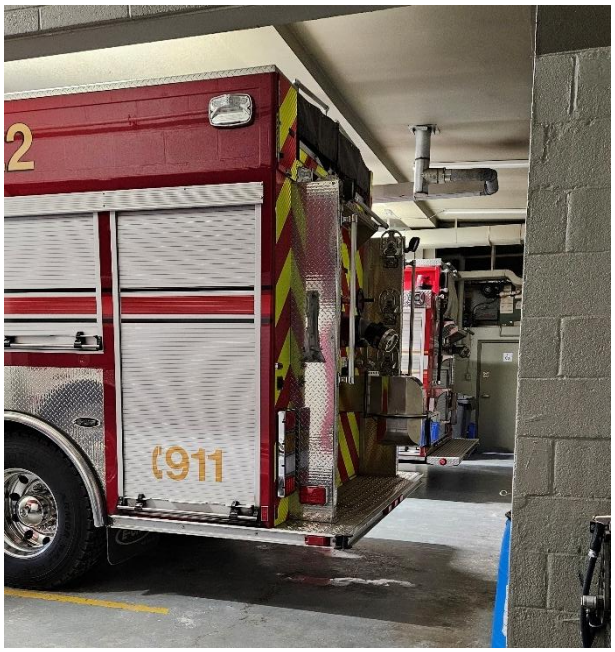


Exhibit 29: Yarmouth Station



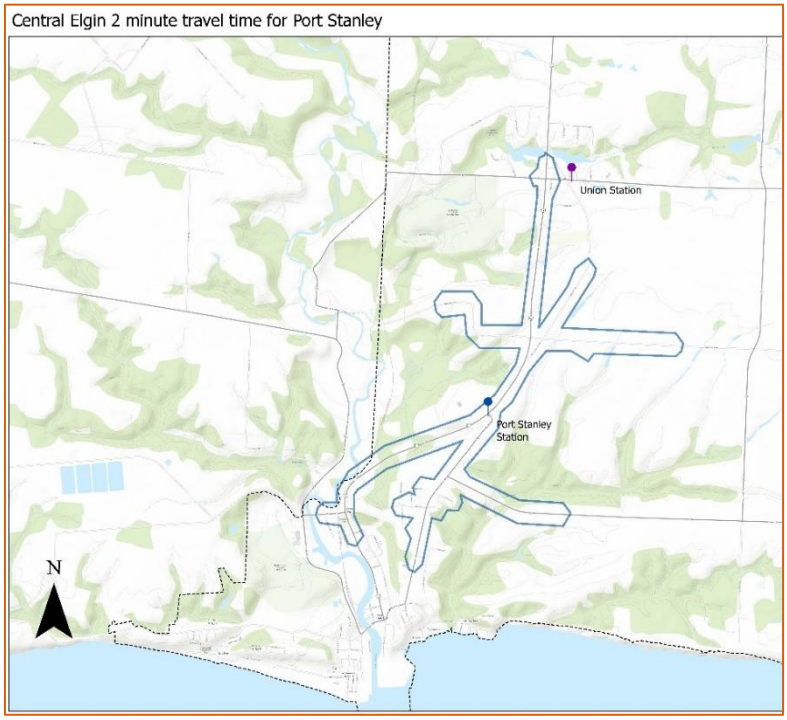
Although adequate, Yarmouth station has space challenges because of vehicle length. We did not receive a completed station assessment form for Yarmouth.

Exhibit 30: Union Fire Station



Both parking and ceiling space is a premium in Union although it remains adequate.

Exhibit 31: Two Minute Travel Time from Port Stanley Station



We noted the proximity of the Port Stanley and Union Stations. They are within two minutes travel time and slightly less than two kilometres apart.

As a comparison National Fire Protection Association 1710, standards for full time fire services, recommends a response time of no more than 240 seconds (four minutes) from departing the station to arrival at the scene for the first arriving vehicle. Calculations we have undertaken previously indicate that, in urban areas, fire stations would have a travel distance of no more than 7.6 kilometres to achieve first vehicle arrival within four minutes. That estimate varies depending on speed that can be attained. However, at two kilometres, the Port Stanley and Union Stations are half the travel time from each other than even that recommended by the National Fire Protection Association. An option would be to consolidate Union station and Port Stanley. Amalgamation offers the following opportunities:

- Future maintenance costs could be avoided. The 2024 maintenance budget for the Union Fire Station was $22,600 although actual costs may be less.
- Union station also has **non-rolling** stock assets of $567,000 (in 2022 dollars), scheduled for replacement by 2042, that would not have to be replaced or might be redistributed to other stations avoiding or delaying expenditures.
- Selected fire apparatus could be distributed to other stations which may delay the replacement or refurbishing of some vehicles.
    - One or more of the Union station vehicles could be retained as backup and housed at the Port Stanley station which has adequate room.
- There are currently approximately 50 volunteers between the Union and Port Stanley stations. If the stations are combined, Union volunteers may opt to respond from the Port Stanley location. The municipality could also decide to let staff numbers reduce through attrition in the Union – Port Stanley areas thereby avoiding some of the approximate $10,000 per volunteer of onboarding equipment including turnout gear.
    - Future costs of replacing personnel equipment could also be reduced by up to 25% (75 volunteers vs. 100)
    - The 2024 cost of turnout gear, which should be replaced on a 10-year cycle, is $3,500 to $4,000 per person or $87,500 to $100,000 over 10 years.

- The municipality may realize some income if the station location is sold, or it may serve a purpose for another municipal department.

Both the Yarmouth and Union stations may have to be considered for replacement in the next 15 years at an estimated three to six million dollars in 2025 dollars. That estimate will vary depending on whether land has to be purchased as well as the size and amenities of the stations. Continued good maintenance practices and periodic facility assessments might delay the need for replacement

Our recommendation is to combine the Union and Port Stanley fire stations and operate from the Port Stanley hall, redistribute or sell Union station assets, redistribute rolling stock if there is a strong business case based on incident analysis for retaining some apparatus and, through attrition, reduce the number of volunteers at the Port Stanley and Union stations by half. This action would also avoid the cost of a new facility in the next 15 years.

More information is provided in Section 77, Reducing Cost While Improving Public Safety Emergency Deployment Practices.

5 Firefighter Training

Training requirements for volunteers will become more stringent by 2026 as a result of Ontario Regulation 343/22: Firefighter Certification[7], and we are told by some clients that it is becoming more difficult to attract volunteer firefighters due to the time commitment. However, interviews with Central Elgin's fire service did not express concerns of that nature.

A total of eight interview sessions were held with 13 interviewees on a wide range of subjects related to the deliverables of this study, including training. Four interviews with District Chiefs and Deputy District Chiefs from each station, and four with Central Elgin Firefighters' Association station representatives.

We heard the following about training:

- Training topics and schedules are developed through a committee which prepares a quarterly training calendar.
  - The committee sends out only the topics, not a training plan.
  - Some concern was expressed about consistency since training plans are determined at each station.
- The training committee is trying to create a 5-year training schedule of mandatory and optional topics.
- Yarmouth has a training tower made up of stacked container units and a flashover module.
  - The other stations get limited use of the facility.
  - Challenges with other stations using the Yarmouth facility include emergency response coverage when some staff travel to Yarmouth, and having turnout gear cleaned after training sessions. Also, if Belmont firefighters are at the Yarmouth facility the coverage in Belmont area is jeopardized due to the distance from other stations[8].
  - All interviewees indicated that they would like to use the Yarmouth facility more often.
- Access to computer-based training is problematic due to weak internet connections.
- Firefighters are all certified to the Office of the Fire Marshal 2026 standard. Most officers are certified, but some are not. Other specialty certifications; for example, pump operators, are ongoing but more resources will be needed to complete and maintain training.

[7] Ontario Regulation 343/22 which stipulates that by July 1, 2026, certain training certifications must be met by firefighters performing fire protection services.

[8] This could be overcome by having only half of the firefighters train at the Yarmouth facility, and the other firefighters train at Yarmouth during a subsequent training date.

- Opinions varied as to whether a designated training officer for the whole department is needed.
- Each station effects training independently, completes the mandatory content for the quarterly schedule, and then conducts the "optional" training specific to individual station needs.
- Training status is entered on the local station computer. Station officers and the Chief review records of completion.
- We heard that training has advanced "leaps and bounds" in the last few years and many staff members that provide training are certified at the Fire Instructor 1 and 2 level.
- It was noted that the training committee has become more organized; previously each station was more independent. Committee members are getting positive feedback on their efforts.
- Several Central Elgin firefighters teach at the Elgin County Fire School, and Central Elgin is bringing its training schedule and plans in line with the Elgin County School curriculum. A Central Elgin Captain is the full-time coordinator at the Elgin County Fire School.
- Internet at all stations needs to be improved to help with training. Most officers are using their own "hot spots" to access online programs. (The consultants agree. There should be a straight-forward resolution for this item which will help with training and with using the Who's Responding? app for firefighter call in).
- Although the training process has improved appreciably, some interviewees expressed the view that someone is needed to assume overall coordination of the training program and to research content and techniques.
- The training committee members often spend 10 to 15 unpaid hours a month on the quarterly plan and lesson plans.
- Training is one night a week. In some cases, one training night a month is dedicated to vehicle/equipment checks which reduces training hours.

5.1 Training Conclusions

Central Elgin is in a fortunate position in that some of the volunteers could be considered professional trainers. We heard that several Central Elgin firefighters teach at the Elgin County Fire School, and the Central Elgin training committee is bringing its training schedule and plans in line with the Elgin County School. And a Central Elgin Captain is the full-time coordinator at the Elgin County Fire School.

However, we also heard that some members of the training committee often spend 10 to 15 unpaid hours a month working on quarterly plans and lesson plans. We are undecided as to the efficacy of this arrangement. On one hand, the municipality enjoys the advantage of professional trainers volunteering their time to maintain competence within the fire department,

and this is the traditional concept of volunteerism. On the other hand, if it was not for the training talent available within the fire department, the consultants might be compelled to recommend the enhancement of a part- or full-time training officer to ensure consistency in lesson plans and training. It is only the availability of trained and competent staff that prevents that recommendation.

Nevertheless, there is still some question whether the current arrangement offers acceptable training consistency since – it appears – that each station determines lesson plans and training methods. We lean towards a part time training coordinator's position (24 hours a week) which would let the role and tradition of the training committee continue – particularly considering the competence and dedication they have donated to the municipality – while having a staff position to monitor consistency in training and coordinate lesson plans. Our recommendation is a 24-hour a week part time training position. Alternatively, if Council does not accept this recommendation, compensate the training committee for their time spent on creating training plans, which is presently unpaid.

6 Fire Prevention and Public Education

Most fire professionals define fire prevention as *the effort required to decrease fires through inspection and evaluation processes*. Public education is regarded as *the process of making the public aware of practices to avoid fires via awareness education*.

Fire prevention and public education programs are vitally important in reducing fire risk. Unfortunately, there is no evidence that the standard approach and practice for public education and prevention[9] programs work, other than the installation and maintenance of smoke alarms. And smoke alarms are not a prevention tool, they are an early notification instrument for a fire situation, although there is evidence that smoke alarms reduce the risk of injury and death and property damage. On the other hand, there is no evidence that standard fire prevention activity does not reduce the number of structure fire events.

For example, there are studies showing that working smoke alarms, fire prevention, and public education have the greatest effect on reducing mortality, morbidity, and property loss[10]. A Canadian example is the City of Regina which reduced its fire incidence through public education. In 2003, 42 fires were caused by children playing with matches or lighters. Only two were reported in 2019. In 2001, firefighters attended 704 garbage fires — at least some of which led to far more substantial damage. By 2019, that number had dropped significantly to 124. (Regina Leader Post, Retiring Angela Prawzick reflects on fire education role, Oct 17, 2020).

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[9] We separate legislatively required fire inspections (compliance) from public prevention and public education efforts. Compliance inspections, required by legislation, may prevent fires in some cases – as in inspecting commercial kitchens, laundries etc. thereby possibly preventing a fire – whereas public prevention and education programs usually entail door knocking, handing out pamphlets, public displays during emergency services weeks, and social media postings. There is no evidence that such programs make a difference in reducing the frequency of fires. However, home safety checks (such as programs in the United Kingdom [UK]) where firefighters are invited into a residence and provide fire safety advice based on the contents and specific risk factors have been cited in the UK as contributing to the reduction of fires.
A home safety fire check usually includes a general safety check (e.g. identifying flammable electronics or liquids, location of candles, possession of fire extinguishers, and fire blankets), elementary fire and safety education, and smoke alarm control or installation.

[10] The Influence of Sociodemographic Factors on the Theoretical Effectiveness of Fire Prevention Interventions on Fatal Residential Fires; Marcus Runefors, Division of Fire Safety Engineering, Lund University, Lund, Sweden Finn Nilson, Department of Political, Historical, Religious and Cultural Studies, Karlstad University, Karlstad, Sweden and Centre for Societal Risk Research, Karlstad University, Karlstad, Sweden; Fire Technology, 57, 2433–2450, 2021.

Do home fire and safety checks by on-duty firefighters decrease the number of fires? Quasi-experimental evidence from Southern Sweden; Björn Sund, Carl Bonander, Niklas Jakobsson, Henrik Jaldell; Journal of Safety Research

Reduced frequency and severity of residential fires following delivery of fire prevention education by on-duty fire fighters: Cluster randomised controlled study; Joseph Clare, Len Garis, Darryl Plecas, Charles Jennings; Journal of Safety Research.

A study published in Fire Technology and authored by Marcus Runefors and Finn Nilson[11] discusses that the risk of fatal residential fires is known to be differentiated by sociodemographic factors, yet prevention methods are introduced generally in a population, thereby possibly negatively affecting the success of these interventions. The conclusion of the study was that

> … one solution does not work for all. Rather, fire prevention interventions need to be specifically chosen for each individual depending upon the potential benefit and impact of an intervention. Currently, a ''one size fits all'' approach is commonly seen in fire prevention. This study shows that this needs to change in order for fire prevention interventions to become as effective as possible.

Another study published in the Journal of Safety Research[12] concluded that home safety fire checks by suppression firefighters in the study area

> … demonstrate that fires and developed fires decrease by a maximum of approximately 6% and 8% per year (assuming 100% causality) and that the intervention has positive economic effects, with the benefits estimated to be maximum 8–11 times higher than the costs.

There are other studies from the United Kingdom and New Zealand that conclude that fire prevention efforts must be targeted to individuals or, at least, demographic groups, and those prevention techniques need to be personal to be effective.

We were intrigued to find that the data shows that during the period 2019 – 2024, the most structure fires occurred in the Yarmouth and Union station response areas, whereas we would have expected it to be in the Port Stanley area where the greatest population concentration occurs. It's possible that agricultural activity in the Yarmouth and Union areas precipitated some of the fires. This possibility should be examined by a fire prevention – education officer as part of the effort to drive down fire occurrence. But that responsibility falls primarily on the Chief assisted by a part time contracted prevention officer only. Volunteer firefighters assist with occasional school programs and public education, when available.

[11] Marcus Runefors, Division of Fire Safety Engineering, Lund University, Lund, Sweden; Finn Nilson, Department of Political, Historical, Religious and Cultural Studies, Karlstad University, Karlstad, Sweden and Centre for Societal Risk Research, Karlstad University, Karlstad, Sweden

[12] Björn Sund, Carl Bonander, Niklas Jakobsson, Henrik Jaldell; Economics, Karlstad Business School, Karlstad University, Karlstad, Sweden; Institute of Medicine, Health Metrics Unit, University of Gothenburg, Sweden; Centre for Public Safety, Karlstad University, Sweden; Swedish Civil Contingencies Agency, Sweden.

Pomax's fire prevention specialist undertook three prevention staffing analysis models based on

- Fire Underwriters Survey prevention recommendations;
- NFPA 1730[13] recommendations; and
- Pomax's staffing model

These models were applied to the number and type of occupancies found in Central Elgin. Each staffing analysis indicated the requirement for one full time equivalent position to satisfy the prevention activities that should be undertaken in Central Elgin. In addition, we note that there are a considerable number of short-term rental occupancies within the municipality that have not had the benefit of inspections or public education information.

Central Elgin's short-term rental bylaw will come into effect on January 1st, 2026, requiring applicants to undergo a fire inspection along with a written attestation that the accommodation complies with the Building Code Act. Fire inspections will then have to recur every two years. The bylaw is welcomed from a fire safety point of view but will add workload within the fire service.

During the project, we discussed with the Chief an idea that had been raised of sharing a prevention or education position with another municipality, thus reducing staff costs. In fact, this idea does not work. Sharing a position and costs means that staff time is also being shared which results in inadequate time to perform required duties in either municipality.

Our conclusion is that prevention and education activity is not functioning at optimum levels because of the Chief's workload and organizational design of the fire department.

Our recommendation is that Central Elgin should hire a full time prevention and public education position which is expected to contribute to reducing structure and other fires in the municipality. The township will still require the efforts of volunteer firefighters to assist the prevention officer and achieve the objective of reducing fire incidents.

[13] NFPA 1730: Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations

7 Reducing Cost While Improving Public Safety

7.1 Emergency Deployment Practices

Central Elgin can reduce personnel and operating costs, while providing the same level of protection to the public, by revising its deployment and analytics practices. First, let's look at the historic cost of deployment.

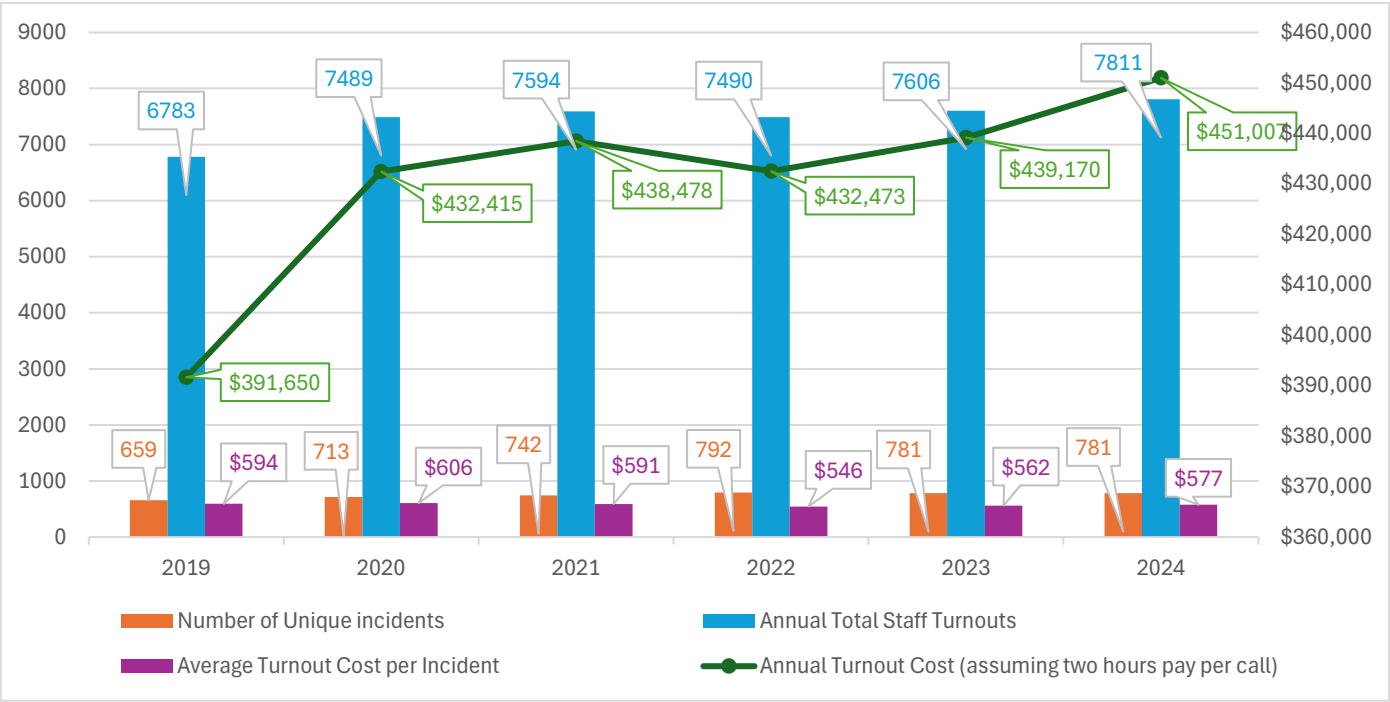
For this exercise we took all the data from the Central Elgin fire services record management system and filtered them to unique calls. That left us with 4,468 unique incidents in the six years of data, including those that we were not able to use to calculate incident metrics (response times) because of missing time stamps or other information.

Exhibit 32 shows the

- number of unique incidents by year (orange bar);
- the staff cost per call (purple or plum bar);
- the annual total staff turnouts (turquoise bar), and
- the total callout costs by year (green line) which doesn't include training or other time for which firefighters are paid.

Firefighters are paid a minimum of 2 hours for each incident to which they respond.

Exhibit 32: Turnout Cost per Incident and Total Annual Turnout Expenditure All Incidents



Number of unique incidents by year (orange bar); Staff cost per call (purple or plum bar); Annual total staff turnouts (turquoise bar), Total callout costs by year (green line)

Table 4, below, offers the same information in tabular format plus the total estimated cost of callouts since 2019.

Table 4: Turnout Cost per Incident and Total Annual Turnout Expenditure - All Incidents

	2019	2020	2021	2022	2023	2024
Number of Unique incidents	659	713	742	792	781	837
Average Number of Firefighters Paid per Incident	10	11	10	9	10	9
Annual Turnout Cost (assuming two hours pay per call)	$391,650	$432,415	$438,478	$432,473	$439,170	$451,007
Annual Total Staff Turnouts	6783	7489	7594	7490	7606	7811
Average Turnout Cost per Incident	$594	$606	$591	$546	$562	$577

Table 5 provides the cost per call for the years indicated based on the actual annual operational net expenditure for the fire rescue service. The net expenditure includes the turnout cost per call shown in Table 4. The full year number of incidents for 2024 used in Table 4 and Table 5 was provided by Central Elgin Fire Rescue since the last five weeks of 2024's data was not available to the consultants when the analysis was completed.

Table 5: Operational Cost per Call - All Incidents 2019 - 2024

2019 - 2024	Incidents	Actual Operational Net Expenditures	Operational Cost Per Call
2019	659	$1,837,182	$2,787.83
2020	713	$2,164,106	$3,035.21
2021	742	$2,212,550	$2,981.87
2022	792	$2,091,520	$2,640.81
2023	781	$3,231,827	$4,138.06
2024	837	$2,881,033	$3,442.09

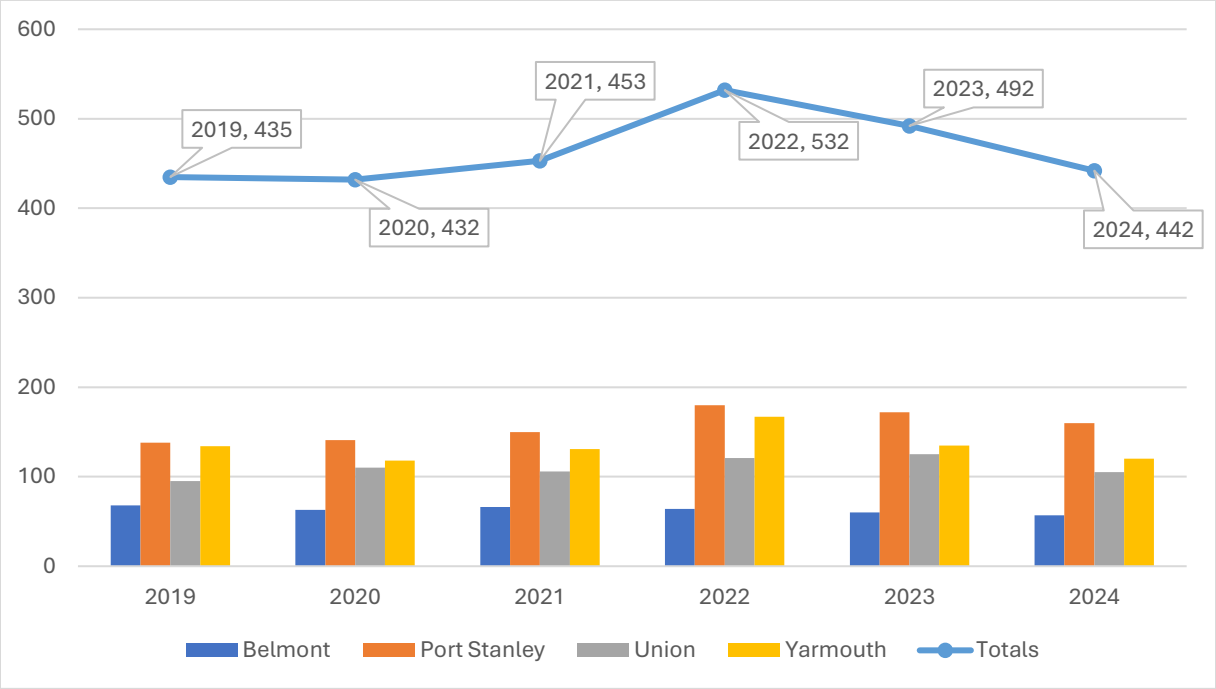
Table 6 indicates the resource commitment and turnout costs for medical incidents and traffic collisions over the six-year study period, and the annual average estimate.

Table 6: Turnout Cost, Medical and Vehicle Collisions, 2019 - 2024

	Total Incidents 2019 - 2024	Total Number of Firefighters That Responded	Average Number of Firefighters Responding per Incident	Estimated Response Cost - 6 Years	Average Annual Response Cost
Medical Incidents	2786	24664	8.9	$1,233,200	$205,533
Vehicle Collisions	297	3818	12.9	$110,226	$18,371

Exhibit 33: Medical Incidents by Year and Station, shows the number of medical incidents each station responded to annually. The plum-coloured line shows the annual medical event total for all stations.

Exhibit 33: Medical Incidents by Year and Station



Medical incidents and traffic events accounted for 69% of fire department activity between 2019 to 2024, and 64% of turnout costs.

In comparison, in an interview with the City of Ottawa Paramedic Services in early 2024, we learned that only 17% of Ottawa Fire Services responses were to medical incidents.[14]

A key opportunity we see is for Central Elgin to evaluate the outcome of the service it is providing, relative to resources used, and then determine how to match resources with service benefit.

We recommend that Central Elgin consider the following steps to reduce the cost of emergency response by an estimated 50% or more, while improving public safety. An explanation of each of step is provided later in this section.

Pomax is cautious about making the following recommendations because they seem antithetical to general beliefs. Nevertheless, as objective advisors we believe Central Elgin should be aware

[14] Also stated in KPMG Review of Edmonton Fire Rescue Services, February 2021.

and take them into account when making service level decisions. The following suggestions are not intended to diminish the dedication and contribution of the fire service and volunteers.

We recommend that the fire service and municipality should

1. work with the Tillsonburg fire dispatch to take more time to extract information from callers which will reduce the number of people and trucks sent to incidents. We'll explain below why fewer than 15% of incidents, considered by the public and emergency workers to be emergencies, are time sensitive, and why fewer than 5% are life threatening and require rapid response.
2. work with the Tillsonburg fire dispatch and emergency partners such as police and paramedic services to ask key questions of callers before determining whether the fire service should be deployed.
3. work with emergency partners such as police and paramedic services to define which non-fire events should be attended and understand the history of why fire departments attend a high proportion of non-fire events.
4. implement a data gathering and data mining strategy that can examine the services provided relative to assets and resources expended. This is the Outcome data component (Table 3: Data Types)
5. implement an Integrated Risk Management Planning program to objectively assess risk and, subsequently, refine call out practices to match resources to need.
6. examine, on a call by call basis, resources deployed to determine whether patterns exist by call type which would allow assets and resources committed, to be adjusted.
7. use technology to reduce the number of firefighters responding to medical and other calls by using selective paging rather than general callouts. Medical incidents make up more than 60% of call volume. There are two paramedics in an ambulance and one in a paramedic response vehicle but, in comparison, four, six, or eight firefighters respond to medical incidents because all calls are dispatched by a general callout. Medical incidents need no more than one or two firefighters to attend. *Onpage Incident Alert Management* is one company that can offer selective paging rather than general callouts; there may be others.

7.2 The History of How Fire Departments Became First Response to a Broad Scope of Non-Fire-Rescue Incidents

We are not going to provide a 40 or 50 year history of how fire departments arrived at the paradigm of being first responders to medical events, traffic incidents, and many other non-fire-rescue activities. We will suggest you read an article called *Pulling men into the care economy: The case of Canadian Firefighters*, pages 267–273, by Dr. Susan Braedley, a professor of Social Work at Carleton University in Ottawa. The article provides an excellent and accurate depiction of the political and social influences that have led to the current model of fire and rescue services in Canada and North America.

Part of the catalyst in Ontario, in the late 1980s and early 1990s was that the Emergency Health Services Branch of the Ministry of Health actively promoted, to municipalities, the idea of fire response to medical emergencies if ambulances were delayed by more than 15 minutes. The Ministry of Health initiative was prompted by a municipality in the Greater Toronto Area that was lobbying for increased EMS presence in its community. To avoid providing more ambulances to this municipality and perhaps precipitating similar requests and associated costs from other municipalities, the Ministry of Health promoted "response support" by fire departments. This was during a time when all EMS costs were funded by the province.

The concept was originally intended to call upon fire services only when ambulances were unusually delayed – for example; 15 minutes or more. But, over several years, fire services were being called out for any incident where the initial evaluation was "unconscious, chest pain, difficulty breathing, uncontrolled bleeding, or unknown". These five categories encompassed almost 80% of all EMS calls at the call taking and dispatch stage.

Around the same time, the Ontario Pre-Hospital Life Support Study determined that beginning cardio-pulmonary resuscitation within four minutes of cardiac arrest (depending on the cause of arrest) increased the possibility of survival and decreased the frequency of negative neurological consequence. The rapid response capability and availability of full-time fire departments, including being equipped with cardiac defibrillators, contributed to the possibility of better cardiac arrest outcomes. Other medical research found that fire response may be a benefit to patient outcome depending on paramedic arrival time[15].

To truncate this history of widening fire department response, we can say that scope creep and misconceptions about the 'need for speedy response', and the absence of outcome data at fire departments has led to the point that non-fire calls make up over 60% of responses in most fire departments, including Central Elgin's.

Fewer than 5% of patients are considered to be time sensitive emergencies, and less than 2% of EMS patients ever require interventions such as cardiopulmonary resuscitation (CPR), bag-mask ventilation, automated external cardiac defibrillation, and the application of tourniquets to control peripheral bleeding. Therefore, we recommend that the fire service and municipality evaluate under which circumstances the fire department should be dispatched to medical and other non-fire incidents which make up more than 80% of the call volume (Exhibit 3).

[15] Evidence-Based Optimization of Urban Firefighter First Response to Emergency Medical Services 9-1-1 Incidents; Alan M. Craig MScPl, P. Richard Verbeek MD & Brian Schwartz MD.

7.3 Improving Public Safety and Reducing Cost Through Strategy

The strategy being recommended to Central Elgin is that a primary focus on data collection and data management, including critical outcome measurement, plus the use of technology will establish a path to reduce fire service costs while improving public safety.

We noted earlier in Section 3.4.1, Data Gap, that fire services, including Central Elgin's, do not gather outcome data in a data base relative to other response data captured in the fire record management system. This means that the value of the response and on scene activity can't be calculated relative to the resource expenditure.

As an example, it's unlikely anyone will question the value of 15 firefighters and three or four trucks at a working structure fire. But it is more difficult to reconcile the need for eight firefighters[16] and two trucks to respond to a report of a person with shortness of breath, particularly if paramedics arrive before or within two minutes of the fire truck. In a circumstance such as that, it is difficult to determine the benefit of firefighters responding as well as paramedics. The two-minute differential between firefighters and paramedics is almost insufficient time for firefighters to take a set of patient vitals before paramedics arrive who will repeat the vitals.

- In Central Elgin, based on available records, paramedics arrive before firefighters 30% of the time.
- Paramedics arrive within two minutes or less of the fire service in 44% of medical incidents.
- In only 6% of cases were firefighters on scene more than 10 minutes ahead of paramedics.

Similar questions should be explored when it comes to traffic incidents. For example, considering there were only 44 incidents of entrapment in six years (an average of 7 a year) was there a benefit in responding an average of almost 13 firefighters to nearly 300 vehicle collisions (other than entrapment) at a cost of over $100,000 in six years? If firefighters are not needed for extrication, what duties do they perform at traffic incidents? One common duty that is pointed to as being beneficial is that of traffic blocking and traffic control. Is traffic control a police responsibility or that of fire? Interestingly, we have been unable to find any studies as to the effectiveness of traffic blocking by fire, yet it has become a practice that is considered to add value to a traffic incident.

We can offer examples of other call types and practices, such as fire and carbon monoxide alarm responses which have been found in other studies to be 95% to 99% false yet continue to be responded to as if they were fires.

[16] Table 6 shows that the average number of firefighters that turned out to medical incidents during the six-year study period was almost nine.

Some fire services, including a few of Pomax's clients in Canada, have adopted a scaled approach to automatic alarms such as one truck sent in emergency response mode while a second follows without lights and siren unless there is confirmation of a fire. One of Pomax's former clients sends an officer in a pickup truck or car to alarms unless there is confirmation of a fire. In some locations in the United Kingdom, responses to alarms do not occur without what is called a 'challenge' which means that, unless there is confirmation of a fire at the time of an automatic alarm, a call taker or dispatcher will telephone a registered contact person to confirm the nature of the alarm. Exceptions are made during some hours when a merchant or industry is not open for business, or no contact can be made.

The purpose of this study and report is not to question the current practices of Central Elgin Fire Rescue Services but to recommend a strategy that will provide the fire service and municipality with excellent data upon which to base level of service decisions and identify associated costs. Implementation of plans in support of the strategy will need the involvement of emergency partners such as the 911, police, and paramedic services and, crucially, the dispatch centre because that is the entry and control point for information gathering and dispatch.

7.4 Impact of Amalgamating the Union and Port Stanley Fire Stations

We noted in Section 4 and Exhibit 31 that the Port Stanley and Union fire stations are less than two kilometres and 2 minutes travel time apart. It's highly unlikely that, in a greenfield environment, a municipality would build fire stations only a couple of minutes from each other but, since they exist, what is the impact of removing one?

- Exhibit 6 demonstrates that the Union station area experiences two or three structure fires a year although there were five in 2020. Structure fires are a time sensitive event.
- Exhibit 8: Medians: Preparation time, indicates that the median preparation time for Union station was just under four minutes in 2024 whereas the median for Port Stanley, was six minutes 38 seconds in 2024.
- Closing Union fire station would mean that Port Stanley station would be primary response to most of Union fire station's area.
- In the six years of data, Union station responded to 34 Vital Signs Absent events (which are time sensitive) but performed cardiopulmonary resuscitation only once.
- There are other incidents that might be time sensitive, but we are unable to determine an accurate number with confidence because of the lack of outcome data as discussed previously. Nevertheless, there might be a further 10-to-20-time sensitive non-fire incidents each year in the Union primary response area.
- Most non-fire incidents occur in the communities of Union or Sparta.
- We indicated earlier that fewer than 5% of patients are considered to be time sensitive emergencies, and less than 2% of EMS patients ever require interventions such as cardiopulmonary resuscitation (CPR), bag-mask ventilation, automated external cardiac defibrillation, and the application of tourniquets to control peripheral bleeding.

Considering the information in the bullets above we conclude that there will be approximately two or three structure fires per year in the Union primary response area that will experience an estimated increased response time of four minutes to four minutes 30 seconds, at the median, plus additional travel time of two minutes from the Port Stanley station (total, 6 minutes 30 seconds). These events may be diminished with strong prevention and public education efforts.

There will be another 10 – 20 incidents that have the potential to encounter a similarly elevated median response time but, because of outcome data challenges, we cannot determine a more accurate conclusion. However, in all events, while some firefighters respond to a station and travel to the scene by fire vehicle, others respond directly and meet the fire truck at the incident. There is less of a negative time experience, possibly zero time effect, in a non-fire event since responders would not have to wait for specialized fire fighting equipment. In effect, because of the practice of some firefighters travelling directly to the scene of an incident, not operating the Union fire station may have a time related influence on fewer than two or three calls a year. Additionally, modifying response methods through the use of robust data, aided by technology, might eliminate potential response delays if the Union fire station is retired.

7.5 Data Informed Response Practices

Modifying response practices requires a systems and systematic emergency services approach starting with good record keeping practices, continued analysis, and Integrated Risk Management Planning. These three things are fundamental to avoiding costs while reducing public risk. Central Elgin has an opportunity to build them at a foundational level. In fact, Integrated Risk Management Planning incorporates good record keeping practices and ongoing analysis.

Early in this document we offered the definition of Integrated Risk Management Planning (IRMP) offered by Cheshire Fire in the United Kingdom[17]. That is, IRMP is an assessment of all risks to life and injury to the community, resulting in a long-term plan to make the fire and rescue service more responsive to locally identified needs. This means targeting resources to prevent incidents from happening, while also making sure resources are in the right location to best protect the community. We will add to that definition by saying that the ***right*** resources should be in the right location.

For those who are familiar with professional project management or engineering processes there is a common course exercise where a team has to design an object to meet a set of expectations, including efficiency and effectiveness. The intent of the exercise isn't to design something; it is for participants to learn methodologies that will accomplish effectiveness and

[17] Integrated Risk Management Planning is a legislated requirement of fire services in the United Kingdom.

efficiency: Effective in that the outcome will produce a desired or intended result; efficient in that the outcome will achieve best productivity with a minimum of undue effort.

Fire services, with a few exceptions noted in this document, take an approach – built on decades and centuries of practice, experience, and repetition – to dispatch all the resources that might be required at an incident then cancel or send back to the station those that aren't needed. In years past, when fire services were primarily deployed to fires rather than the broad types of events to which they are currently dispatched, it was not an unreasonable tactic. But times have changed and while general call outs for all incidents is effective in that it provides the greatest chance that the required resources will be available on scene, it is inefficient in several ways; for example,

- it's costly as we have identified in Exhibit 32 and Table 4 through Table 6;
- it's somewhat operationally impractical because of the number of responders' vehicles and fire trucks that back up in the area around the incident, and
- contrary to popular belief it increases rather than decreases elements of risk[18]

To achieve efficiency and effectiveness the following initial activity must be accomplished.

1. Strive to understand outcome analysis and institutionalize it in the fire service so that it becomes the culture.
2. Design a database of criteria that should be captured for each major call category (structure fires, other fires, medical, traffic, rescue, etc.). Seek information technology assistance as required.
3. Design a spreadsheet method of capturing on scene activity in a tabular format. Seek information technology assistance as required.
4. Dedicate training time to educate firefighters how to record vital information for each call category.
5. Review every incident to determine if the assets and resources dispatched were over assigned or accurately assigned.
6. Analyze data to find patterns which can inform response procedures and guidelines.

[18] 1) Necessity of Fire Department Response to the Scene of Motor Vehicle Crashes; Deborah L. Funk, MD, NREMT-P, Jonathan F. Politis, BA, NREMT-P, Mara Earlean, MD, And Edward T. Dickinson, Md, NREMT-P;
2) Can emergency medical dispatch systems safely reduce first-responder call volume? Prehosp Emergency Care, David C Cone, Nicholas Galante, Donald S MacMillan;
3) Predicting the Need for Extrication in Traffic Accidents Reported to 911: Is Anyone Pinned/Trapped? *Chris Davis, EMD-I; Paige Dodson, MD, MPH, FAAFP; Chad Pore, MS, Paramedic; Sirilakshmi Sangaraju, MS; Meghan Broadbent, MS; Greg Scott, MBA, EMD-Q-I; Isabel Gardett, PhD; Christopher Olola, PhD*

7. Design questioning procedures, as part of the call taking and dispatch contract, that Central Elgin's dispatch centre should ask based on call type. Fire Priority Dispatch software[19] can be used as a guideline.
8. Encourage the fire dispatch to adopt Fire Priority Dispatch or similar methods for call taking and dispatching.
9. Through a Request for Information, investigate the availability of paging applications such as *Onpage Incident Alert Management* that will allow calling in of only the required number of responders based on data gathered by call type, plus information collected for each call at the dispatch centre. Paging applications of the type noted here call in responders who are close to the incident or fire station and who have self-identified their availability.
10. Gather data outlined in the steps above and, over several months to a year, modify response methods, policies, and guidelines.

7.6 Fire Incidents and Risk

Recommendations, such as those offered in this report that diverge from time honoured practices and culture within fire services, are often met with statements of concern that the change is too risky. But the recommendations are part of a process that are based in data and analysis and then tempered by the normal tendency of risk aversion, known as the *social construct of risk* which is explained briefly below.

The most appropriate way to measure fire and rescue risk in a community is through structure fire and other time sensitive event history. There are several definitions of risk; a commonly accepted one is *probability x impact = risk*. And, while there are risks in the community other than fire; for example, water rescue, the probability or frequency is low. Some incidents which have a greater probability, like traffic collisions, usually have low impact.[20] There are other elements to be considered within the *impact* component of risk such as

- Who or what does the impact effect?
  - Is it property or personal; individual or to a group or community; short term or extended; is the risk to the public or firefighters or both?

[19] A product from Priority Dispatch Corporations that offers a standardized, structured system designed to help fire dispatchers more efficiently and effectively handle incidents. https://www.emergencydispatch.org/home

[20] 1) Necessity of Fire Department Response to the Scene of Motor Vehicle Crashes; Deborah L. Funk, MD, NREMT-P, Jonathan F. Politis, BA, NREMT-P, Mara Earlean, MD, And Edward T. Dickinson, Md, NREMT-P;
2) Can emergency medical dispatch systems safely reduce first-responder call volume? Prehosp Emergency Care, David C Cone, Nicholas Galante, Donald S MacMillan;
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- Do events with a high probability of false positives, such as alarms and traffic collisions, where multiple trucks are deployed as a precautionary measure ("just in case"), create a comparable or greater level of risk due to the operation of large vehicles at high speeds or volunteers hurrying to the fire station or incident site, compared to taking additional time at the dispatch center to gather information that might lead to a more balanced response? It is important to note that there are few types of incidents where minutes or seconds are critical.

Risk is dynamic and we could add a 20- or 30-page section to this report addressing the theory and application of risk. But, in the case of structure fires, the almost six-year history of incidents tells us that the probability of structure fires is low to moderate in Central Elgin (five to nine annually) and the impact is on property or individuals rather than to a larger community. This isn't to intimate that the personal impact of fire isn't calamitous for those affected. Data also tells us that other incident types, such as medical or traffic, might have a greater probability but low impact.

Understanding "risk' is important because Central Elgin's Council will have to decide on a level of risk acceptable to the municipality which will then determine the fire assets and resources that should be in place. Pomax has made recommendations strongly predicated on available data but Council will have to determine the 'social construct' aspect of risk, which is explained in the following paragraphs.

The following excerpt about risk is from: Disaster Theory, David Etkin, Professor, York University, Faculty of Liberal Arts and Professional Studies.

> The first thing to know about the term risk is that it means different things to different people; there is no universal agreement on its meaning. Any serious conversation about risk must therefore begin with a common understanding of its definition. It matters less which definition is used than that we agree to a particular usage and move forward.

(Also see publications by Paul Slovic, Richard H. Thaler, Carl S. Sunstein, Amos Tversky, Daniel Kahneman [two of whom are Nobel Prize winners] that address behavioral economics and risk and upon which David Etkin's statement is based).

Returning to David Etkin's book on Disaster Theory, the overview description for Chapter 3, Disaster Risk, states

> Although having the appearance of objectivity, risk is best viewed as being largely socially constructed. There is no optimum risk assessment or management strategy; context determines which approach is most suitable. Also, there are many issues or traps that can result in poor or biased risk estimations. These

include adherence to specific worldviews, heuristics,[21] bounded rationality,[22] emotions, and values.

Professor Etkins statement on the social construct of risk, which is heavily based on risk and behavioral economics work by Slovic, Thaler, Sunstein, Tversky, and Kahneman, is important to Councilors because Council will have to make a decision as to accepting Pomax's recommendations, based on how we have determined 'risk' (probability and impact), or whether council determines that an alternative to the recommendations is satisfactory.

There are few true life-threatening events where minutes make a difference and almost none where seconds count. There is an abundance of research literature from scientific, safety, medical, fire engineering, and other peer-reviewed journals (a few of which we have referenced in this document) that support the statement of the previous sentence. But there are some event types where response time could make a difference. These include fires, cardiac or respiratory arrest, carbon monoxide incidents where occupants remain in the building, and leaks such as chlorine or other noxious fumes. Fortunately, such events are rare and, based on the data we have available, the potential occurs no more than 50 times a year – but those might be considered high risk incidents.

Risk is *probability x impact*, and both can be positively affected. Although we often refer to buildings of certain types (schools, hospitals, care homes) as being high risk, they usually aren't, because the probability of an incident is usually low, although the impact of an occurrence can be high. There could be a component of the building – for example, a kitchen area that isn't adequately maintained, a heating plant that is not kept to up to a safe standard, the lack of a fire sprinkler system, or missed fire inspections – that could add to risk. But assuming adequate and timely inspections, and the availability of fire prevention resources to complete and follow up inspections, probability could be diminished. Prevention resources include firefighters, not just staff designated as fire prevention personnel.

7.7 Conveyances

Firefighters need conveyances to arrive at an incident. In Central Elgin conveyances could be a pumper, tanker, rescue unit, sports utility vehicle, watercraft, or combination. In many cases firefighters arrive at an incident in personal vehicles.

Somewhere between 60% and 80%, possibly more, of incidents in Central Elgin do not need the equipment carried on a fire truck, but that is the traditional conveyance used to carry people

[21] Mental shortcuts that can facilitate problem-solving and probability judgments; generalizations; or rules-of-thumb, which reduce cognitive load.

[22] A decision that will be good enough, rather than the best possible; based on a false sense of rationality because we do not have all the information available.

and equipment to scene. A future benefit of an analytical strategy to achieve an efficient and effective fire service, lowering costs, and improving public safety might be moving to smaller vehicles for the majority of responses. Combined with technology to ensure only the number of responders needed (usually one or two)[23] are called out, the longevity, operating, and maintenance costs of vehicles could be reduced substantially.

- In a study of the Tulsa fire department done by the Centre for Public Safety Management on behalf of the International City/County Management Association, the consultants referenced that the City of Shreveport, Louisiana had determined that the cost of maintenance of an SUV was 15% of the cost of maintenance of a heavy truck and the capital cost was between 7% and 10% of a fire truck.
- The former Fire Chief of the City of Shreveport is now the Chief in the City of Plano, Texas. He estimates that the implementation of SUVs for medical first response in Plano, an initiative that has been underway for several years, will double the useful life of fire trucks – currently only five years – to 10 years.
- Middlesex-London Paramedic Service has implemented single paramedic Rapid Response Units for reaction to the highest priority rural and urban calls. These units are mid-size SUVs like the Ford Edge which are considerably smaller than a pickup truck or Chevy Tahoe.

[23] We're not referring to fires in this statement. Structure fires need multiple responders and, sometimes, several trucks including tankers. This statement is applicable to the 60% to 80% of responses – possibly more – that are not fire related.

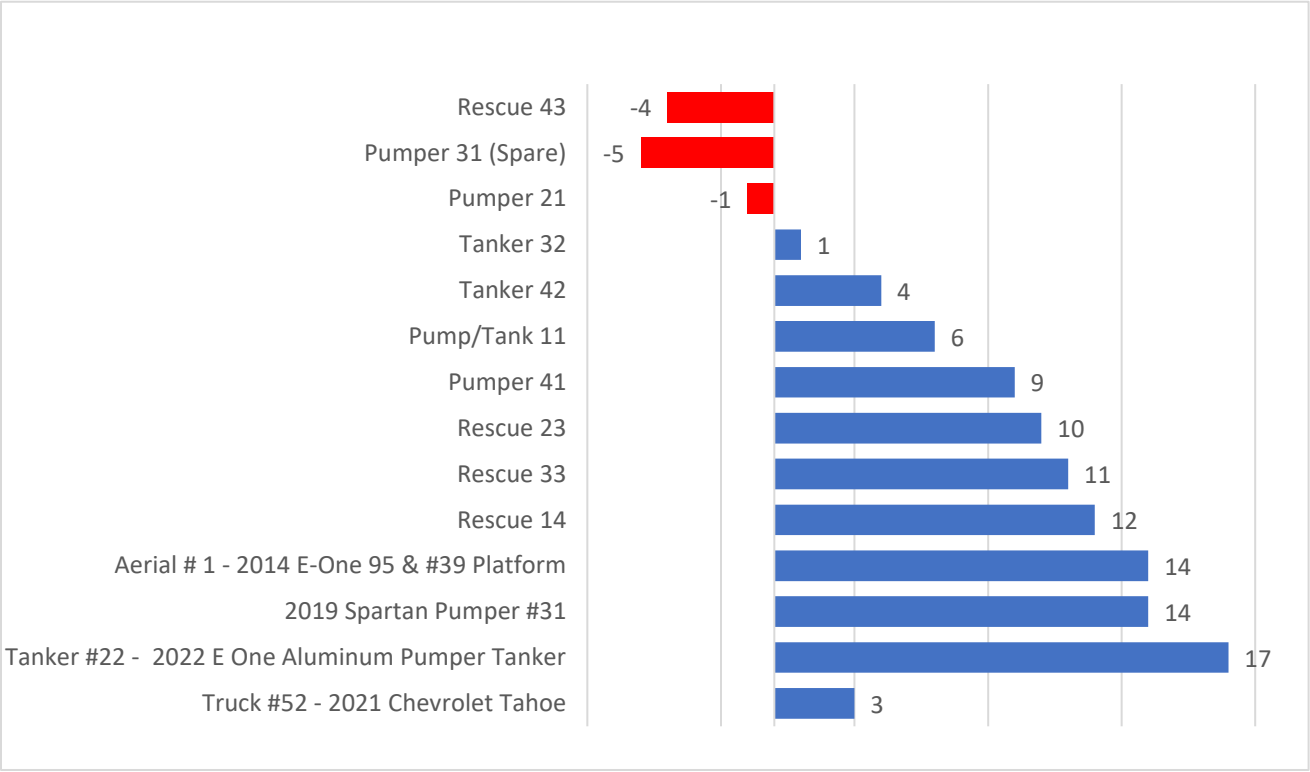
8 Asset Management

This section is directed towards the management of rolling stock and stations.

Exhibit 34 indicates the expected service life remaining for each vehicle, calculated as of 2025. Calculations are based on service life of 20 years for heavy trucks, 25 years for the aerial, and seven years for sedans and other consumer-type vehicles.

Although the often referred to National Fire Protection Association 1900 standard of 15 years for front line trucks and 20 years for second line trucks and aerials is often adjusted by fire departments and municipalities based on vehicle condition and budget considerations, several of Central Elgin's vehicles are four or five years over the target replacement time and should be assessed and funding set aside as available. It's likely that amalgamating the Union and port Stanley fire stations, and redistributing apparatus, will reduce pressure to replace some vehicles.

Exhibit 34: Central Elgin Fire Apparatus Estimated Service Time Remaining in Years



Assets and apparatus replacement are primary considerations for fire services. Fire trucks and other vehicles are part of the work environment for a firefighter, and they cost a lot of money. They also last 15 to 20 years. So, a $900,000 truck that lasts 15 years costs $60,000 annually plus maintenance and fuel. If it lasts 20 years, the cost is $45,000 average per year, although expected increases in maintenance will add to that annual amount in the last few years of use. A

1.25-to-2-million-dollar ladder truck is about $50,000 to $80,000 a year. We acknowledge that these are expensive work environments.

Some ask why these trucks can't be kept longer than 15 or 20 years since the mileage is often low and they are well maintained. Trucking firms keep heavy trucks for hundreds of thousands of kilometres, so why do fire trucks have to be replaced every 15 to 20 years?

National Fire Protection Association standards recommend these replacement timelines and recognize other factors that must be taken into account.

From Annex D of NFPA 1901-16 Annex D

> It is generally accepted that fire apparatus, like all types of mechanical devices, have a finite life. The length of that life depends on many factors including vehicle mileage and engine hours, quality of the preventative maintenance program, quality of the driver training program, whether the fire apparatus was used within the design parameters, whether the apparatus was manufactured on a custom or commercial chassis, quality of workmanship by the original manufacturer, quality of the components used, and availability of replacement parts, to name a few.
>
> In the fire service, there are fire apparatus with 8 to 10 years of service that are simply worn out. There are also fire apparatus that were manufactured with quality components, that have excellent maintenance, and that have responded to a minimum number of incidents that are still in serviceable condition after 20 years. Most would agree that the care of fire apparatus while being used and the quality and timeliness of maintenance are perhaps the most significant factors in determining how well a fire apparatus ages.

The decision to replace a truck is often a point of vigorous discussion at many municipal councils. Those who have a concern about the need to replace a fire truck point to low mileage, good maintenance, and the fact that trucking companies keep trucks for hundreds of thousands of kilometers. So let's admit that there are many arguments in favour and against keeping a truck as long as possible.

But sometimes it isn't the age of the truck that is as important as maintaining and repairing pumps and hydraulics, or safety improvements, or buying parts off eBay because new replacement parts aren't available (yes, that happens). Safety and ergonomic factors also come into play and, over a 15 – 20-year span, many technical and safety improvements occur. It also takes at minimum, six months to buy a fire truck 'off the lot' – one that a manufacturer has available – but most of the time 12 - 24 months or more is required to take possession of a fire vehicle.

Our research of journal papers has not revealed any comparisons between the purchase, maintenance, and operation of a fire truck and tractor trailers or delivery vans, likely because they are different animals. At the very least, commercial trucks are usually driven near the posted speed limits and are often built with gearing specific to the type of load and driving expected, such as long distance highway. Fire trucks are usually driven from a cold start and as quickly as safely possible.

We point to this excerpt from Annex D of NFPA 1901 which says

> Most would agree that the care of fire apparatus while being used and the quality and timeliness of maintenance are perhaps the most significant factors in determining how well a fire apparatus ages.

But we add, there comes a point that replacing a fire truck becomes a reasonable consideration, and the guidelines in NFPA 1901 provide rational information as to those considerations. We noted in Exhibit 34 that some vehicles have exceeded reasonable service times and, if retiring the Union station doesn't provide relief through apparatus distribution, or if the municipality decides against closing the station, contingencies should be put in place to replace the aged vehicles.

8.1 Radio Communication System

KVA Communications of Orillia, Ontario provided a report, *Fire Paging and Two-Way Radio Communications System Study*, In late August 2022 which laid out the Elgin County fire services communication status and future options.

The report found that the most common concern was shadowing[24] of radio signals along the beach shorelines, especially near Port Burwell, Port Bruce, Port Stanley, and Port Glasgow. The report detailed other issues and considerations and offered some short term solutions. But the radio consultants concluded that the system and equipment has been reliable and should continue to be so. The report's recommendation was

> If not already doing so, each Department should be putting aside funds in anticipation for the recommended future "replacement-in-kind" solution, which would cost in the neighbourhood of $1,000,000. Therefore, each Department should budget at least $30,000 per year, over and above their current expenditures, for their System Replacement Fund in order to reach that goal in five years and then plan the system replacement process.

In November of 2024, the Elgin County fire services presented a status report to County Council which included future considerations for the county system. These were:

[24] The received signal power fluctuates due to objects obstructing the propagation path between transmitter and receiver. In the cases noted, shadowing could be due to terrain drop off towards the beach areas.

- County Fire Chiefs would bring collaborative reports to respective councils;
- Request for Proposal options which may include:
  - complete replacement of current system
  - major upgrade of current system
  - minor upgrade of current system

Pomax is somewhat apprehensive about the timelines suggested in the KVA's report:

- The report was concluded in late August 2022
- The fire departments presented to council over two years later in 2024.
- Each municipal fire department has still to bring collaborative reports to their councils which, we assume, will include a request to budget at least $30,000 annually which, if each council approves this amount starting in 2025, will lead to 2030 – 2031 before funds might be available to proceed to RFP. That's eight to nine years after the original KVA report.
- It is reasonable to expect another two years after that before a replacement communication system is commissioned. By that time the current system will be approximately 17 years old.
- In the meantime, communications may continue to deteriorate.

We are aware that there are other approaches rather than waiting eight or nine years to replace the radio system, including going to proposal earlier to shorten the overall timeline, or arranging funding mechanisms. We are also aware that there are some radio systems that are functioning after 25 years although serviceability is the greatest challenge. Additionally, although KVA indicated that they didn't foresee new technology emerging to supplant the radio system that exists today it may be prudent to undertake another assessment prior to a system upgrade. For example, there may be a suitable province-wide system to which the fire departments and municipalities can become clients.

Our conclusion and recommendation is that now is the time to start a multi-year project plan to achieve an eventual communications solution for 10 years from now and to resolve some of the current challenges. While ten years seems a long duration, staff changes within the fire department(s), municipal and county administration, and Council terms will have an impact on implementing a major expenditure such as this.

9 Municipal Growth and Development

The following information was gleaned from Central Elgin's official plan for the purpose of determining how municipal change may affect fire service requirements in the upcoming 10 to 15 years.

9.1 Planning and Official Plan Review

Central Elgin surrounds the City of St. Thomas on three sides and extends south to the shores of Lake Erie. St. Thomas is a separated City and not part of Elgin County.

Central Elgin includes the amalgamated Township of Yarmouth, the Villages of Belmont and Port Stanley, a number of urban and rural settlement areas and hamlets including

- the Eastwood Subdivision;
- Dexter;
- Lawton's Corners;
- Lyndale;
- Lyndhurst;
- Mapleton;
- New Sarum;
- Orwell;
- Norman;
- Sparta;
- Union;
- Whites;
- Yarmouth Centre; and
- the surrounding agricultural areas.

Local planning and development is guided by the Provincial Policy Statement, the County of Elgin Official Plan, and the Central Elgin Official Plan. The Central Elgin Official Plan was adopted in 2021 and approved January 10, 2023 with a 25-year planning horizon to 2046. The Plan identifies a number of Urban Settlement Areas that will be the focus of urban development and growth over the planning horizon, and two large employment areas including the lands of, and surrounding the St. Thomas Airport. The Official Plan recognizes agriculture as the major economic driver in Central Elgin and includes policies to help protect that activity. There are also a number of rural settlement areas that have developed largely as service centres to the surrounding rural communities. No new growth is being forecast or allocated in these areas except for limited infilling.

In 2023 the Province of Ontario introduced Bill 63, known as the St. Thomas-Central Elgin Boundary Adjustment Act. Bill 63 removed approximately 1500 acres of land from Central Elgin – which was primarily within the Yarmouth fire station response area – to create a major employment area expansion within the increased boundaries of the City of St. Thomas. These 1500 acres, previously served by Yarmouth, is now part of the St. Thomas Fire Rescue response area.

St. Thomas is currently undertaking a major infrastructure project to grade these lands (completed in 2024), extend municipal roads, and install municipal water, sanitary sewer, and storm water management facilities to this area as part of the recently announced Electric Vehicle Battery Plant. That project, being built by PowerCo. for Volkswagen, will have the capacity to manufacture electric batteries for up to one million vehicles per year and is expected to create 3000 direct jobs and thousands of indirect jobs. This project and related developments will have a significant, positive impact on the local economy, employment, and housing demand. At the time of this report the boundary adjustment between St. Thomas and Central Elgin is not reflected in the current consolidation of the Central Elgin Official Plan. The attached schedule (Appendix C of the County of Elgin Official Plan) shows the affected land area which has been annexed from Central Elgin into the City of St. Thomas. This includes a major portion of the land previously identified by Central Elgin as Employment Areas.

9.2 Employment Lands

As noted above, the Central Elgin portion of designated Employment Area (Official Plan Schedule "K") has been reduced by Bill 63 annexing land into the City of St. Thomas. The remaining lands together with lands surrounding the airport (Official Plan Schedule "L") are designated for long term employment growth that could include major industrial activities as well as service commercial/industrial uses. An Addendum to the Development Charges Background Study for Central Elgin (Watson, 2021) forecasts an additional 234,100 square feet of non-residential floor area to be built in the Yarmouth Industrial and Commercial Lands area between 2020-2030. That study was completed prior to Bill 63. Therefore, for Central Elgin, the amount of non-residential growth will be significantly reduced given the amount of employment land that has since been annexed into St. Thomas.

9.3 Residential and Related Growth

The following commentary looks at areas where future residential and related development is anticipated within the planning horizon. Schedule 1 of the Official Plan (within Appendix C of the County of Elgin Official Plan) provides municipal wide designations and the overall Land Use Structure plan.

The Central Elgin Official Plan contains population projections that include an increase of 4,200 people over the 25-year period from 2021-2046, and the need for 2,225 new housing units over

that period to accommodate a projected population of 18,200. The plan promotes more diverse housing types, and higher residential densities to increase housing choice and affordability. It is anticipated that the distribution in dwelling unit types will shift from predominantly low-density housing forms, to 73% low-density, 9% medium-density, and 18% high-density by 2031, with a further shift toward more medium and high-density units from 2031-2046.

The Lynhurst, Eastwood and Norman Lyndale areas of Central Elgin abut the City of St. Thomas and have developed, as a result of that proximity, to function differently than other settlement areas.

The Lynhurst Area (Official Plan Schedule "C" [also within Appendix C]) is located north of St. Thomas and abuts that municipality on two sides. The Official Plan designates this area as an Urban Settlement Area. Urban development has occurred on full municipal services through an inter-municipal servicing agreement with the City of St. Thomas. An Addendum to the Development Charges Background Study for Central Elgin (Watson, 2021) forecasts an additional 75 housing units to be built in the Lynhurst area between 2020-2030.

The Eastwood Subdivision (Official Plan Schedule "D" [within Appendix C]) is located on the east edge of St. Thomas. The Official Plan designates this area an Urban Settlement Area. Urban development has occurred on full municipal services through an inter-municipal servicing agreement with the City of St. Thomas. The Development Charges Background Study Addendum for Central Elgin (Watson, 2021) does not forecast additional housing units in the Eastwood area between 2020-2030, however minor infilling and intensification may occur.

The Norman Lyndale Area (Official Plan Schedule "E" [within Appendix C]) abuts the south limit of St. Thomas and includes developments on full municipal services through an inter-municipal servicing agreement with the City of St. Thomas, as well as some lands on private services. The Official Plan designation as an Urban Settlement Area contemplates future development on full municipal services and policies restrict new development outside of the built boundary until municipal servicing is made available.

The lands and buildings associated with the former St. Thomas Psychiatric Hospital are located on the east side of Sunset Drive. This includes 445 acres of land adjacent to the south limit of the City of St. Thomas. Of that total, 174 acres of land are within the Norman Lyndale Area and have significant potential for future development. The Official Plan restricts development of these lands until future studies and an Official Plan Amendment are completed to determine specific land uses, municipal servicing options, and assess the potential adaptive re-use of the existing buildings. According to Central Elgin staff, sewage treatment capacity at the St. Thomas wastewater treatment plant has been allocated to these lands, and the provincial government is promoting the development for residential purposes. It is thought that this could occur in a 3-to-5-year period subject to the completion of all necessary studies and obtaining planning approvals.

An Addendum to the Development Charges Background Study for Central Elgin (Watson, 2021) forecasts an additional 40 housing units to be built in the Norman Lyndale area between 2020-2030. This number does not reflect the former hospital lands.

Belmont Village is located in the northeast corner of Central Elgin (Official Plan Schedule "B" [within Appendix C]). The Official Plan designates this area as an Urban Settlement Area and full municipal water and sanitary sewer services are provided. An Addendum to the Development Charges Background Study for Central Elgin (Watson, 2021) forecasts an additional 240 housing units to be built in the Belmont area between 2020-2030, as well as 71,000 square feet of non-residential floor area.

The East-Side Servicing Environmental Assessment Study was started in 2023 to consider alternatives for providing municipal water and sanitary sewer services to a larger area including lands west of the current Belmont Settlement Area boundary. That study was not completed following Bill 63. Therefore, the current settlement area boundary is considered the limit of development for the purpose of this report.

The Village of Port Stanley is located along the north shore of Lake Erie in the southwest corner of Central Elgin (Official Plan Schedule "G" [within Appendix C]). Port Stanley includes a commercial fishing and industrial port, a historic downtown area along Main Street and Bridge Street, permanent and seasonal residential, as well as seasonal recreation and tourism activities including a large public beach. The Urban Settlement Area designation contemplates all future development on full municipal services. Considerable lands on the waterfront were recently divested by the Federal Government as part of decommissioning the Harbour Lands by Transport Canada. The harbour lands and are now owned by the municipality of Central Elgin.

The municipality is completing some work with the goal of promoting the development of surplus harbour lands in the future. It was noted by staff that the East Harbour lands cannot be transferred from the municipality prior to 2029 based on an agreement with Transport Canada.

The Official Plan contains a number of detailed special policies for the Port Stanley community and the Port Stanley Harbour Area, including the East Harbour Lands, West Harbour Lands and Lands adjacent to the Harbour Lands. Policies include specific uses as well as height limitations, flood and erosion hazards, and climate change impacts associated with Kettle Creek and the Lake Erie shoreline. The Development Charges Background Study, Addendum Report for Central Elgin (Watson, 2021) forecasts an additional 470 housing units to be built in Port Stanley between 2020-2030. That study also forecasts an additional 24,200 square feet of new non-residential development between 2020 and 2030.

Union is located in the southwest quadrant of Central Elgin (Official Plan Schedule "F" [within Appendix C]). Union is designated an Urban Settlement Area and is identified in the Official Plan as a "target for planned future growth". The Official Plan establishes the intention to provide full

municipal services in Union over the planning horizon. Limited development and/or redevelopment may occur within the Built Area prior to full services being available. Outside of the Built Area development can only proceed when municipal sanitary sewers and water services are provided. Staff confirm that a number of land parcels in Union are owned by developers with pending applications for plans of subdivision in process. A Municipal Class Environmental Assessment Study for the extension of municipal servicing from Port Stanley to Union was completed in 2021 with an Addendum to that report expected to be finalized in March of 2025. Based on that study, the 2025 draft Municipal Budget includes expenditures for a new sanitary sewage pumping station and force main. If approved that project could be constructed in two years, bringing full municipal water and sanitary services to Union. The Development Charges Background Study, Addendum Report for Central Elgin (Watson, 2021) forecasts an additional 150 housing units to be built in Union between 2020-2030.

New Sarum is located in the central portion of the municipality to the east of the designated Employment Lands (Official Plan Schedule "H" [within Appendix C]). This Rural Settlement Area has developed mostly on private services. Municipal water has been provided for the Blossom Ridge subdivision. The Official Plan identifies some limited development potential in this area. The Development Charges Background Study for Central Elgin (Watson, 2020) does not forecast additional development in New Sarum, thereby confirming the limited potential for future growth.

Other rural hamlets have largely developed in support of the surrounding agricultural communities and remain on private services. There is no intention of extending full municipal services to these locations. The Official Plan recognizes these concentrations of largely rural residential developments and does not contemplate expansions to the current Settlement Area boundaries. The Plan seeks to limit any impacts of these rural settlements on the surrounding agricultural activities. Development in these areas will be limited to minor infill and redevelopment of existing properties.

Outside of these rural settlements the Development Charges Background Study for Central Elgin, Addendum Report (Watson, 2021) forecasts the addition of 27,200 sq. feet of new non-residential development in rural areas over the 2020-2030 time period.

For specific details on the type and location of forecasted growth, Schedule 2 of the Development Charges Background Study (Watson) provides a breakdown of expected residential and population growth by unit type as a whole and by community. Schedule 10c of that study provides a breakdown of forecasted non-residential growth including industrial, commercial, and institutional floor areas as a whole and by community.

9.4 What does this mean for future fire service protection?

In the short term – 5 years – changes in the municipality shouldn't have much impact. Structure fires in new development are infrequent because of building code improvements and improved construction techniques. However, we are likely all aware of some high-profile major fires in buildings under construction before fire retardant materials such as drywall are installed. Reviews in previous projects shows that fires are more frequent in buildings that are 30 – 50 years old and prior. This is, in part, because of increased maintenance requirements in older buildings and construction codes that weren't as stringent or didn't exist at the time of building.

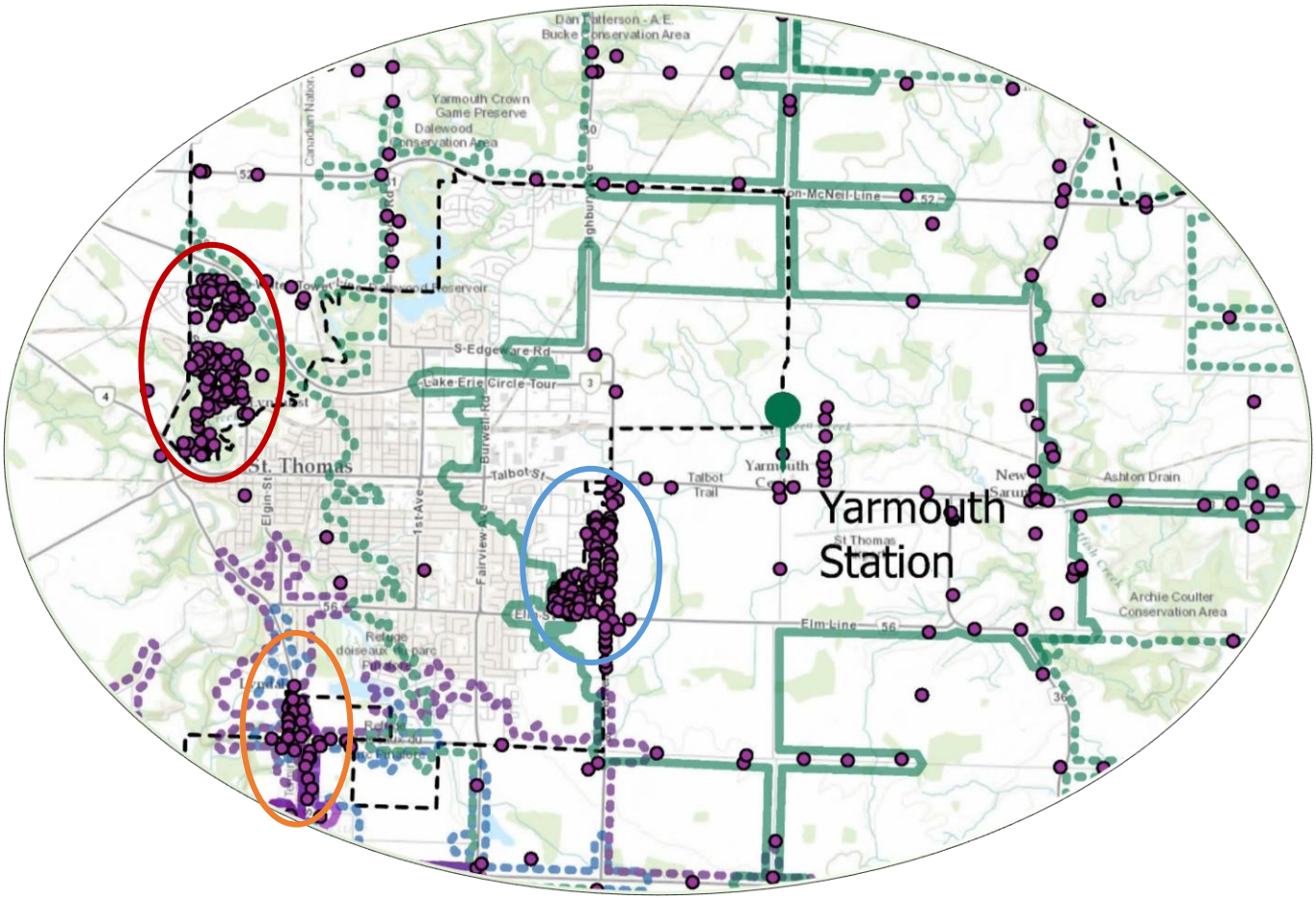
What does increase as municipalities develop is the frequency of non-fire incidents such as medical calls and traffic events. Central Elgin has an expectation of an additional 4,200 people over the 25-year period from 2021-2046 – a 20-year period from now – and the need for 2,225 new housing units to accommodate a projected population of 18,200. 470 of those units are expected in Port Stanley; 150 in Union, both of which would be served by the Port Stanley fire station if the recommendations of this report are adopted; 40 housing units in the Norman Lyndale area; 75 housing units to be built in the Lynhurst area; and others throughout the municipality mostly on self-serviced lots.

There isn't an expectation that fires will increase because of this development although, as some of the current building stock ages in the next 10 – 20 years fires might occur in existing structures. This possible increase might be lessened through robust prevention and public education, thus the earlier recommendation to employ a full time prevention – public education officer because establishing a culture of fire safety in a community takes several years of consistent messaging.

The existing stations – assuming that Union will be combined with Port Stanley – are suitably located and there is no evidence that the positioning will need to change for the duration of this fire master plan. However, there are three areas that should be considered for changes in response practices: Eastwood Subdivision, Lynhurst, and Norman Lyndale.

Exhibit 35, below, indicates the medical incidents that occurred in the Yarmouth response area from 2019 – 2024. There are three areas, Lynhurst, circled in red; Norman Lyndale , circled in orange; and an area near Centennial Line and north of Elm Line, outlined in plum. Each of these areas, although in Central Elgin, can be served more quickly by St. Thomas. We recognize that firefighters sometimes respond directly to an incident and, considering that some Yarmouth volunteers live near the St. Thomas – Central Elgin border, a Yarmouth firefighter may arrive at a medical event in the Centennial and Elm Lines area sooner than a St. Thomas truck.

Exhibit 35: Medical Incidents, 2019 - 2024 Yarmouth Response Area



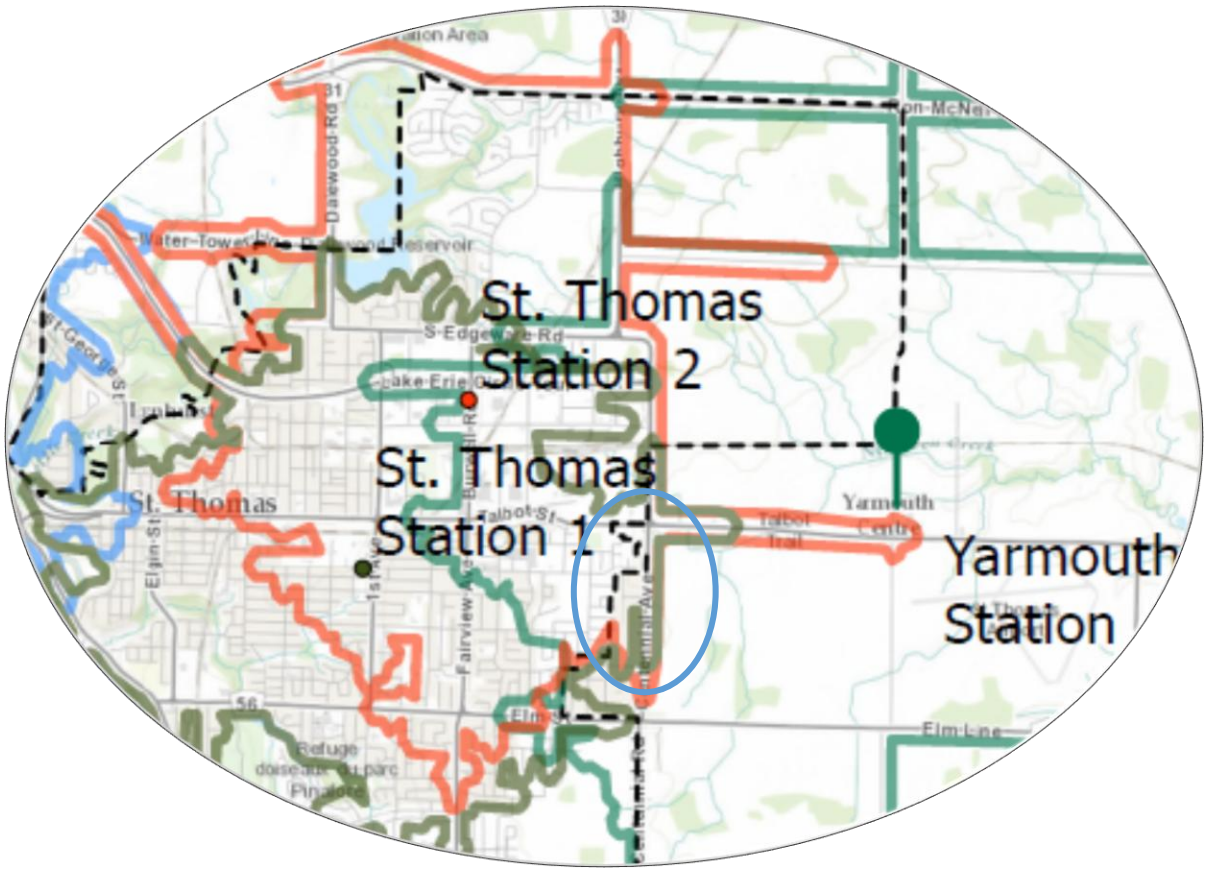
The travel time from Yarmouth and Port Stanley fire stations to the circled areas is not primarily attributable to drive time, although St. Thomas may often be one to three minutes travel time closer than the Central Elgin stations. It's due to turnout time which, in 2024, for Yarmouth was 5 minutes and 37 seconds at the median, and for Port Stanley 6 minutes and 38 seconds at the median. The travel time to the Lynhurst and Lyndale Norman areas are similar for the St. Thomas and Central Elgin stations – possibly slightly quicker for St. Thomas, and travel times to the Centennial and Elm Lines area are similar from St. Thomas and Central Elgin fire stations (please see Exhibit 36).

However, we estimate the median turnout time for the St. Thomas fire stations to be no more than 90 seconds which gives St. Thomas an arrival time advantage of four to five minutes assuming the travel times between all stations are similar.

Sections 7.2 and 7.3 discussed fire response to medical incidents and time sensitivity. If the medical incidents indicated in Exhibit 35 are truly considered time sensitive and life threatening, then the response vehicle that can arrive soonest should be dispatched. In the cases exhibited,

that is likely St. Thomas. We understand initial coverage and first responding vehicle agreements would have to be negotiated with St. Thomas. However, if by implementing the strategy recommended in this report, Central Elgin discovers that many events aren't time sensitive or life threatening, then the question should be asked "Why is a fire truck responding?" particularly when there are likely to be ambulances located in St. Thomas and these events are proximal to the city. If the calls are life threatening such as fires, cardiac arrest, cessation of respiration, we recommend that the assistance that can arrive soonest – likely St. Thomas – should be dispatched.

Exhibit 36: 5-Minute Travel time for Yarmouth and St. Thomas Fire Stations



10 The Future: Central Elgin Fire Rescue Services

The thrust of this report is to assist Central Elgin Fire Rescue to adopt a strategy of determining need, service provision, and value to the community based on full data gathering and objective decision making.

Most fire plans, at this stage of the process, would list steps that the fire service should take such as vehicle replacement, station building, and additional complement. This report also does that for the purpose of catching up to the current needs of the fire service. We have, for example, recommended a part-time training officer, a full time prevention and public education position which would be assisted by volunteer staff, and we have recommended amalgamating Union station with Port Stanley and reducing other expenses.

But the strategy being recommended is intended to put in place business analytics including call-by-call outcome assessments so that fire administration and the municipality can make operational decisions based on trend analysis rather than – as we noted earlier – time honoured response practices that, while effective, increase risk in several ways and are costly.

Central Elgin's fire service is on a growth path. That is, continuing the current approach to fire service dispatch and response, combined with anticipated municipal growth over the next 10 years, will lead to an increased number of responses to mostly non-fire events such as traffic collisions and medical incidents.

Table 7, next page, estimates several call volume growth and cost scenarios for the fire rescue service over the next 10 years based on decisions that council may make. The numbers in the scenarios, leading to cost estimates, are based on data for January 1st, 2019 to November 24th, 2024, and are for comparison only since they might change depending on decisions taken by the fire service and council.

Table 7 is based on information found in Table 4 and Table 5. Estimates use the average 5% annual increase in call volume experienced over the past six years, and an estimated 1.8% future increase in the 2024 hourly rate of $28.87, with a two hour call out minimum.

The scenarios presented are

1. Estimated annual turnout cost scenario under the current call volume growth expectations and a continued average of 9 firefighters responding per incident resulting in an estimated call out cost of $6.825 million over 10 years.
2. Estimated annual turnout cost by using technology to reduce the number of firefighters responding to an average of 5; call volume remains the same resulting in an estimated call out cost of $3.985 million over 10 years.

3. Estimated annual turnout cost by using data to reduce the number of incidents and responses by 40%; number of firefighters responding stays at an average of 9 resulting in an estimated call out cost of $4.269 million over 10 years.
4. Estimated annual turnout cost by using technology to reduce the number of firefighters responding to an average of 5 and using data to reduce the number of incidents and responses by 40% resulting in an estimated call out cost of $2.565 million over 10 years.

Table 7: Central Elgin Fire Rescue Growth and Cost Scenarios

Scenario 1

Estimated Annual Turnout Cost Current Scenario	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	10-Year Total
Number of Unique incidents	837	879	923	969	1017	1068	1122	1178	1237	1298	1363	
Average Number of Firefighters Paid per incident	9	9	9	9	9	9	9	9	9	9	9	
Estimated annual turnout cost forecast current scenario	$434,955	$464,924	$496,957	$531,197	$567,797	$606,918	$648,735	$693,433	$741,210	$792,280	$846,868	**$6,825,274**

Scenario 2

Estimated Annual Turnout Cost if Technology is Used to Reduce the Number of Firefighters Responding to an Average Of 5; Call Volume Remains the Same	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	10-Year Total
Number of unique incidents	837	879	923	969	1017	1068	1122	1178	1237	1298	1363	
Average number of firefighters paid per incident	9	5	5	5	5	5	5	5	5	5	5	
Estimated annual turnout cost	$434,955	$258,291	$276,087	$295,110	$315,443	$337,177	$360,408	$385,240	$411,783	$440,155	$470,482	**$3,985,132**

Scenario 3

Estimated Annual Turnout Cost if Data is Used to Reduce the Number of Incidents and Responses By 40%; Number of Firefighters Responding Stays at an Average Of 9	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	10-Year Total
Number of Unique incidents	837	527	554	581	610	641	673	707	742	779	818	
Average Number of Firefighters Paid per Incident	9	9	9	9	9	9	9	9	9	9	9	
Estimated Annual Turnout Cost	$434,955	$278,954	$298,174	$318,718	$340,678	$364,151	$389,241	$416,060	$444,726	$475,368	$508,121	**$4,269,146**

Scenario 4

Estimated Annual Turnout Cost if Technology is Used to Reduce the Number of Firefighters Responding to an Average Of 5 and Data is Used to Reduce the Number of Incidents and Responses by 40%	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	10-Year Total
Number of unique incidents	837	527	554	581	610	641	673	707	742	779	818	
Average number of firefighters paid per incident	9	5	5	5	5	5	5	5	5	5	5	
Estimated annual turnout cost	$434,955	$154,975	$165,652	$177,066	$189,266	$202,306	$216,245	$231,144	$247,070	$264,093	$282,289	**$2,565,062**

The adoption of recommendations in this report is expected to moderate growth and expenditures at the fire service without undue public risk or, at minimum, fire and municipal administration and Council will know specifically why fire and rescue services cost what they do, and the benefits the public receives.

It would not be unreasonable to expect that if growth in call volume continues as shown in scenarios 1 and 2 above, whether the average number of firefighters turning out per call continues or not, that within three years the Chief of the day would request assistance such as a Deputy Chief. If approved a Deputy Chief may add $130,000 to $150,000 to the annual budget.

If Council decides to stay with the status quo with respect to call type response we recommend a Deputy Chief's complement starting in the 2028 budget year.

11 Recommendations

We offer the following recommendations for Central Elgin's consideration:

1. The fire and rescue service should devise mission and vision statements that reflect the organizations objectives or adopt the statements suggested in Section 1.2, Mission, Vision and Strategy .
2. The fire service should work with its record management system vendor and seek information technology assistance to develop a tabular database outcome utility that is relational to data recorded in steps 1, 2, and 4 (Exhibit 26).
3. Amalgamate the Union fire station with Port Stanley, redistribute or sell Union station assets, redistribute rolling stock if there is a strong business case based on incident analysis for retaining some apparatus.
4. If Union fire station is amalgamated, reduce the number of volunteers at the Port Stanley and Union stations by half through attrition.
5. Hire or contract a 24-hour a week part time training position.
6. Hire a full-time prevention and public education position which is expected to contribute to reducing structure and other fires in the municipality. The township will still require the efforts of volunteer firefighters to assist the prevention officer and achieve the objective of reducing fire incidents.
7. Reassess under what circumstances the fire department should be dispatched to medical and other non-fire incidents which make up more than 80% of the call volume.
8. Work with the Tillsonburg fire dispatch to take more time to extract information from callers which will reduce the number of people and trucks sent to incidents. Fewer than 15% of incidents, considered by the public and emergency workers to be emergencies, are time sensitive, and fewer than 5% are life threatening and require rapid response.
9. Work with the Tillsonburg fire dispatch and emergency partners such as police and paramedic services to ask key questions of callers before determining whether the fire service should be deployed.
10. Work with emergency partners such as police and paramedic services to define which **non-fire** events should be attended and understand the history of why fire departments attend a high proportion of non-fire events.
11. Implement a data gathering and data mining strategy that can examine the services provided relative to assets and resources expended.
12. Implement an Integrated Risk Management Planning program to objectively assess risk and, subsequently, refine call out practices to match resources to need.
13. Examine, on a call-by-call basis, resources deployed to determine whether patterns exist by call type which would allow assets and resources committed to be adjusted.

14. Use technology to reduce the number of firefighters responding to medical and other calls by using selective paging rather than general callouts. Medical incidents make up more than 60% of call volume. There are two paramedics in an ambulance and one in a paramedic response vehicle but four, six, or eight firefighters respond to medical incidents because all calls are dispatched through a general callout. Medical incidents need no more than one or two firefighters to attend. *Onpage Incident Alert Management* is one company that can offer selective paging rather than general callouts; there may be others.

15. If Council decides to stay with the status quo with respect to call type response we recommend a Deputy Chief's complement starting in the 2028 budget year.

12 Financial Impact of Recommendations

Our recommendations have financial impacts over the 10-year plan period. These are estimated in Table 8.

Table 8: Estimated Financial Impact of Recommendations

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	10 Year Estimate
Service and Operations											
Work with record management system provider to implement outcome relational data gathering	$20,000										$20,000
Onpage selective paging	$37,500	$38,250	$39,015	$39,795	$40,591	$41,403	$42,231	$43,076	$43,937	$44,816	$410,615
Average cost of firefighter response (40% reduction) [difference between current forecast and scenario 4, Table 7]	-$309,949	-$331,305	-$354,132	-$378,531	-$404,612	-$432,490	-$462,288	-$494,140	-$528,186	-$564,578	-$4,260,212
Sub-totals Service and Operations	-$252,449	-$293,055	-$315,117	-$338,736	-$364,021	-$391,087	-$420,057	-$451,064	-$484,249	-$519,762	-$3,829,598
Staffing Recommendations											
Training Officer (part time)	$74,909	$76,257	$77,630	$79,027	$135,139	$137,572	$140,048	$142,569	$145,135	$147,748	$1,192,036
Prevention public education officer	$122,400	$124,603	$126,846	$129,129	$131,454	$133,820	$136,229	$138,681	$141,177	$143,718	$1,388,056
Deputy Fire Chief (May not be required, or may be delayed for several years, if call volume and number of responders initiatives described in this report are put into place)			$135,000	$137,430	$139,904	$142,422	$144,986	$147,595	$150,252	$152,957	$1,150,545
Sub-totals Staffing Recommendations	**$197,309**	**$200,861**	**$204,476**	**$208,157**	**$266,593**	**$271,392**	**$276,277**	**$281,250**	**$286,312**	**$291,466**	**$3,730,637**
Capital & Maintenance Recommendations											
Cell phones (amortized 6 years)	$75,000					$84,462					$159,462
Reduce overall purchase of bunker gear by 25 units every 10 years			-$100,000								-$100,000
Purchase three small SUVs every 7 years	$153,000							$172,303			$325,303
Retire Union fire station - sell or repurpose for another municipal department		-$810,000									-$810,000
Union Station maintenance		-$16,000	-$16,320	-$16,646	-$16,979	-$17,319	-$17,665	-$18,019	-$18,379	-$18,747	-$156,074
Union station vehicle maintenance		-$16,573	-$16,904	-$17,243	-$17,587	-$17,939	-$18,298	-$18,664	-$19,037	-$19,418	-$161,663
Union station - avoid replacement costs of non-rolling stock		-$28,350	-$28,350	-$28,350	-$28,350	-$28,350	-$28,350	-$28,350	-$28,350	-$28,350	-$255,150
Sub-totals Capital and maintenance Recommendations	$228,000	-$870,923	-$161,574	-$62,239	-$62,917	$20,854	-$64,313	$107,270	-$65,766	-$66,514	-$998,122
TOTAL	$172,860	-$963,117	-$272,215	-$192,818	-$160,345	-$98,841	-$208,094	-$62,544	-$263,703	-$294,811	-$1,097,083

12.1 Explanatory notes related to financial impact of recommendations

Table 9: Financial Impact Explanatory Notes

Links and cross references will take readers to sections of the report that deal with each topic.

Recommendations Category	Notes	Links to Further Information
Service and Operations		
1. Deputy Fire Chief	This recommendation is based on an expectation that if no initiatives are put into place to safely constrain call volume and reconcile the number of responders with the severity of incidents, more administrative assistance will be required in the form of a Deputy Chief's complement. Alternatively, implementing some or all of the recommendations in this report is likely to forestall pressure to increase staffing by a Deputy Chief's position.	Section 10 The Future: Central Elgin Fire Rescue Services; Deputy Chief
2. Work with record management system provider to implement outcome relational data gathering	The $20,000 amount is based on the assumption that the record management system vendor will have to write a program that will enable a consistent method for fire officers to enter on scene activity. This amount may be less if assistance can be provided by the municipality's information technology department. Alternatively, an Excel spreadsheet can be utilized to capture on scene information and then concatenated with dispatch provided information.	Section 3.4.1 Data Gap Table 3: Data Types Section 7.3 Improving Public Safety and Reducing Cost Through Strategy
3. Selective Paging	Selective paging and geo fencing will target specific volunteers to respond depending on the number required, by incident type, thus avoiding the costs of general call out. Geo fenced paging has been used by volunteer fire services in Germany and other parts of Europe for several years. It's also used in the transportation, medical, petroleum and other fields to call out specialized teams by location.	Selective Paging
4. Average Cost of Firefighter Response	Implementing techniques of reducing call out by using selective paging and carefully evaluating the types of incidents to which to respond is expected to reduce call out cost by 60% or more.	Call Out
5. Training Officer (part time)	A part time training officer will support consistency in skills and training across 75 – 100 volunteers and three stations. Alternatively, if Council does not accept this recommendation, compensate the training committee for their time spent on creating training plans which is presently unpaid.	Section 5, Firefighter Training
6. Prevention – Public Education Officer	Peer reviewed academic publications have shown that prevention and public education efforts reduce fires if the efforts are consistent and targeted. Central Elgin does not have the resources for a consistent or targeted prevention and public education program.	Section 6 Fire Prevention and Public Education

7. Coverage and first responding vehicle agreement with St. Thomas for fire critical incidents in Lynhurst, Lyndale Norman, and the Centennial and Elm Lines area	St. Thomas can provide quicker response than Central Elgin to the Lynhurst and Lyndale Norman areas and possibly to the Centennial and Elm Lines area which may require additional service provision costs paid to St. Thomas for those areas. There will be some offset savings to Central Elgin for reduced call outs of local firefighters and vehicle wear. (offsets for this item are not included in the financial impact spreadsheet).	St. Thomas Response
8. Improve internet connectivity at all stations	Internet is used for training access and to monitor firefighters responding to incidents. It is currently unreliable, yet a solution is quick and inexpensive.	

Capital and Maintenance Recommendations

9. Cell Phone	Selective paging operates on smart phones and geo tracking. Assuming that some volunteers will be concerned about geo tracking personal phones, this initiative would issue fire service phones to volunteers. If volunteers do not wish to be available for response, they would deactivate the fire service phone and dispatch would not see that person as available.	SelectivePaging
10. Retire Union fire station - sell or repurpose for another municipal department	The 2022 Central Elgin asset report valued the Union fire station at $810,000.	Section 4, The Fire Stations Section 7.4, Impact of Amalgamating the Union and Port Stanley Fire Station
11. Avoid replacement costs of Union station non-rolling stock assets	Union station has **non-rolling** stock assets of $567,000 (in 2022 dollars), scheduled for replacement by 2042, that would not have to be replaced or might be redistributed to other stations avoiding or delaying expenditures. The possible annual avoidance was calculated at $567,000 divided by 20 years (2022 – 2042), times the 10-year duration of the fire plan.	Section 4, The Fire Stations
12. Reduce overall purchase of bunker gear by 25 units every 10 years	Consolidating the Union station and reducing the firefighter complement between Union and Port Stanley stations by 50% will mean that approximately 25 volunteers will not have to be outfitted with turnout gear every 10 years. The cost avoidance will be 25 times an estimated $4,000 for each set of gear.	TurnoutGear
13. Purchase three small SUVs every 7 years	Most fire responses do not require a heavy truck and multiple firefighters. Selective paging and rationalization of the call types to which Central Elgin responds means that small SUVs rather than heavy trucks can be used as a conveyance reducing the cost of operating large trucks and extending useful life.	Section 7.7, Conveyances
14. Union Station maintenance	Combining Union and Port Stanley stations will negate maintenance and avoid those costs.	
15. Union station vehicle maintenance	Consolidating Port Stanley and Union stations will negate some vehicle maintenance and avoid those costs, although it is expected that at least one Union station truck will be relocated to Port Stanley.	UnionMaintenance
16. Extend large truck longevity by up two years (cost deferral)	Using small SUVs for as much as 80% of fire response rather than heavy trucks will reduce heavy truck wear and avoid maintenance and repair costs. (offsets for this item are not included in the financial impact spreadsheet).	Section 7.7, Conveyances

Appendix A: Community Risk Assessment Summary

The full risk assessment that meets the requirements of O. Reg. 378/18 has been provided to the Fire Chief

Central Elgin Top Risks/Issues/Concerns /Preferred Treatments				3 Lines of Defense consideration			No Action
Mandatory Profiles	Top Risks	Issues or Concerns	Risk Treatment Options	Public Fire Safety Education	Fire Code Inspections and Enforcement	Emergency Response	
1. Geographic Profile	Canadian National Railway	National rail system. CN freight. Rail line can impede response, access issues, special procedures required. Potential for Hazardous materials release into waterways and onto the land. Specialized training and equipment required.	Mitigate Risk			Yes	
	Highways	Specialized equipment and training is required. Safety of first responders is a major concern. A shut down of highways pushes traffic issues onto local roads causing impeded response. Major Provincial Hwy, busy regional roads running through Central Elgin. Busy highways/roads, many vehicle collisions, specialized equipment and training required, possibility of hazardous materials spills.	Accept Risk			Yes	
	Lake Erie	Large Great Lake, busy recreational area, commercial fishing area, open water, specialty rescue training and equipment required, accessibility issues. Four major beaches, Main Beach, Little Beach, Erie Rest Beach. Many incidents occur at the lake.	Accept Risk			Yes	

Central Elgin Top Risks/Issues/Concerns	/Preferred Treatments			3 Lines of Defense consideration		No Action
	Bridges	Bridges can cause delays, and access concerns when bridges are blocked or under construction. All bridges listed require maintenance and possible shut-downs to ensure bridge life expectancy of 100 years is realized. Potential release of hazardous products into the water course. Specialty equipment and training required. Possible high angle rescue scenarios exist due to bridge structures. Load restrictions could cause delays.	Accept Risk			Yes
	St. Thomas Airport	Airport and direct flight path for regional airports. Possibility of an aviation disaster of a commercial aircraft. Special training and equipment could be required. Wide debris field possible, major life safety risk to citizens in the crash zone. Substantial assistance could be required for Emergency Services.	Mitigate and Accept		Yes	Yes
2. Building Stock Profile	Institutional Occupancies such as Long term Care Homes, Care homes, vulnerable occupancies.	Most occupants require assistance to evacuate with some occupants being detained which substantially slows evacuation. These facilities usually have lower staff numbers on night shifts. Fires at these occupancies are difficult to manage due to slow evacuation of occupants. Very complex suppression requirements with high number of suppression staff required for working fires. All 3 lines of defense are essential to minimize this risk. Meeting 9.7 retrofit requirements will help reduce the risk.	Mitigate Risk	Yes	Yes	Yes

Central Elgin Top Risks/Issues/Concerns	/Preferred Treatments			3 Lines of Defense consideration		No Action
Assembly occupancies. Example – halls, restaurants, schools, arenas, library's etc.	Potential for lightweight construction (trusses), Potential for heavy timber construction, large occupant loads, occupants unfamiliar with surroundings, noise and impairment could slow exiting. Large number of firefighters are required if fire gets out of area of origin and spreads. Meeting 9.2 Fire Code Retrofit requirements will reduce risk.	Mitigate Risk		Yes	Yes	
Residential Occupancies	93% of buildings in Central Elgin are Residential. Residential occupancies have the highest number of fires, and injuries and potential fatalities of all occupancy types. Multi residential buildings include smaller apartment buildings, rooming and boarding houses, accessory apartments, older building stock, downtown core buildings. Providing sufficient resources to mitigate this risk will reduce total number of structure fires. A robust home inspection program can have a significant impact. Many new homes built with lightweight construction components increasing the risk of early collapse. All 3 lines of defense are required to minimize this high fire risk. Following retrofit requirements in the Ontario Fire code 9.5, 9.6, 9.8 will help reduce the risk.	Mitigate Risk	Yes	Yes	Yes	

Central Elgin Top Risks/Issues/Concerns /Preferred Treatments					3 Lines of Defense consideration		No Action
	Industrial Occupancies	Hazardous processes are common in industrial buildings. Many have large occupant loads. Many have large amounts of combustible storage and many of the older building stock are not sprinklered. Potential impact to commerce in the area. Possible evacuation of neighbourhoods could occur. Large number of suppression staff required for large working fires. Truss roof systems very common.	Mitigate Risk	Yes	Yes	Yes	
	Truss roofs/lightweight construction	Most building classification types have many buildings that use lightweight construction components such as truss roofs, and light weight floor systems. New construction now requires the buildings to have signs indicating the existence of light weight construction. This is a significant risk to suppression firefighters entering buildings that are involved with fire. A team approach is needed to identify lightweight construction components in existing buildings and to mitigate the risk.	Mitigate Risk		Yes	Yes	
3. Critical Infrastructure Profile	Natural Gas Industry, Enbridge Gas	Large evacuations could result from leaking distribution piping. Ignition sources in areas of leaks are often unknown, large leaks during winter months could cause additional responses due to lack of heating in dwelling units especially in the vulnerable population.	Accept Risk			Yes	

Central Elgin Top Risks/Issues/Concerns	/Preferred Treatments		3 Lines of Defense consideration			No Action
Vulnerable Occupancies	Most occupants require assistance to evacuate which substantially slows evacuation. These facilities usually have lower staff numbers on night shifts. A fire at a facility would be difficult to manage due to slow evacuation of occupants. Very complex suppression requirements with high number of suppression staff required for working fires. All 3 lines of defense are essential to minimize this risk. Evacuation Drills and yearly inspections are required by the Fire Service.	Mitigate Risk	Yes	Yes	Yes	
Propane supplier	Large propane storage facility McDougal Energy 100,000 gallon filling station, plus many propane tank rail cars. Potential risk if involved in a fire.	Mitigate Risk		Yes	Yes	
Water distribution	A dependable water supply is essential for firefighting purposes. There has been instances where the Erie supply is out of service and it has been difficult to quickly switch to the water supply line coming from Lake Huron.	Accept Risk				No Action
911 communication	Loss of radio, mobile or landline communications. Internet failure. Satellite based networks failure. May disrupt critical infrastructure and emergency services. No contact with 911 with potential loss of life or injuries. Possible security system failures. Portable radios are near end of life service.	Accept Risk				No Action

Central Elgin Top Risks/Issues/Concerns /Preferred Treatments					3 Lines of Defense consideration		No Action
	Schools	Schools are an important resource in the municipality not only for teaching students but for shelter if required in an emergency.	Accept Risk	Yes	Yes	Yes	
4. Demographics Profile	64+ years old	This age group of citizens is presently at the greatest risk of fire related fatalities in Ontario. All age groups require ongoing public education to ensure lifelong fire safe habits are established and maintained as they age.	Mitigate Risk	Yes			
	School age children/youths	School programs are essential in the overall fire safety public education strategy to ensure a good base is established for lifelong fire safe actions.	Mitigate Risk	Yes			
	Young adult group	This group requires reinforcement of past messaging as they begin to live on their own. Innovative programs are necessary to engage this demographic.	Mitigate Risk	Yes			
	Working- age adults	The working adults group has the largest number of citizens in it and it presents one of the most difficult groups to reach with messaging. Innovative programs should be developed and used to reach this large group.	Mitigate Risk	Yes			
5. Hazard Profile	Pandemic	This risk has a potential to increase medical responses and to increase fire fighter exposure. Significant staffing shortages are a real possibility.	Mitigate Risk			Yes	
	Winter Weather	Power interruptions, disruptions in communications, delayed access, frozen equipment all have an impact on response capabilities.	Accept Risk				No Action

Central Elgin Top Risks/Issues/Concerns /Preferred Treatments			3 Lines of Defense consideration			No Action
Cyber Attack	The major disruption of communications and the loss of data could have a substantial impact on fire operations and the safety of the responders.	Transfer Risk				No Action
Flood	Floods can increase responses for rescue assistance. Access can be substantially obstructed causing delayed responses. Special equipment and training is required to handle water emergencies.	Accept Risk			Yes	
Thunderstorms	Potential lightning strikes, high winds, slow responses, multiple fires at the same time.	Accept Risk			Yes	
Hazardous Materials Incident/Spills - Fixed Site Incident	Specialized equipment , training required, potential for large evacuation. Evacuations possible.	Mitigate Risk		Yes	Yes	
Electrical energy	Long power outages have the potential to increase the number of responses to medical calls where the citizens rely on electronic equipment to sustain life and to buildings requiring power to maintain various emergency and process equipment safely.	Transfer Risk			Yes	
Fire and explosion	Concerns for the risk of fires and explosions include Having enough resources/staffing to have a proactive Fire Prevention and Public Education program to reduce the number of fires and explosions that the department responds to. Having enough trained staff to determine the cause and circumstances of fires. Having sufficient, trained suppression staff to suppress fires in an efficient and safe manner.	Mitigate Risk	Yes	Yes	Yes	

Central Elgin Top Risks/Issues/Concerns	/Preferred Treatments		3 Lines of Defense consideration	No Action
Transportation Emergency - Road	Specialty equipment and training needed, hazardous materials possible, evacuations possible. Traffic re-routing possible slowing response.	Accept Risk	Yes	
Communication/network failure	Disruption in communications could cause significant response delays and danger for first responders at emergency scenes.	Accept Risk	Yes	
Transportation Emergency-Marine	Delayed response, special equipment and training required for difficult responses on the water.	Accept Risk	Yes	

Central Elgin Top Risks/Issues/Concerns /Preferred Treatments				3 Lines of Defense consideration			No Action
6. Public Safety Response Profile	Fire Service	Having sufficient staff, resources, and training to respond to the many risks in the Municipality including the potential increase in the number of multi-unit residential buildings and industrial occupancies is essential. Having appropriate well placed facilities to minimize response times, and to accommodate staff, vehicles, and equipment. Having appropriate facilities to repair and maintain emergency vehicles in a safe and timely manner. Having a robust training program with sufficient and well trained instructors with adequate facilities to keep the crews ready to respond to any emergency. Having a system in place that better screens incoming calls to ensure the fire department only responds to incidents that they are required to attend is important. Having sufficient staff, training, and programs to prevent fires by inspections and enforcement and through Public Education activities to minimize the fire risk is important.	Mitigate Risk	Yes	Yes	Yes	
7. Community Services Profile		No immediate major concerns. Central Elgin should continue to build coalitions with community partners to help reduce the number and severity of fires in the Municipality.		Yes			

Central Elgin Top Risks/Issues/Concerns /Preferred Treatments				3 Lines of Defense consideration		No Action
8. Economic Profile	Larger employers	The top businesses listed in the Economic Profile #8 in Central Elgin would cause an economic impact if they were not able to operate. All three lines of defense should be employed to mitigate this risk to keep these large employers operational.	Mitigate Risk	Yes	Yes	
9. Past Loss Profile	Residential/ Group C type Buildings	Smaller apartment buildings (3-6 units), larger apartment buildings, single family homes, accessory apartments, are the top residential risks. Reducing fires in this group will have the greatest impact on reducing fires in the Municipality. Retrofit inspections and Public Education activities are critical in this occupancy type to reduce the risk.	Mitigate Risk	Yes	Yes	Yes
	Long Term Care facilities and other vulnerable occupancies	Large potential for loss of life due to the inability of most residents to self-evacuate. All Three lines of defense needed to reduce the potential risk. Provincially mandated mitigation measures are already in place.	Mitigate Risk	Yes	Yes	Yes
	Assembly Occupancies (Schools, halls, restaurants, arenas etc.)	Medium probability of fires however, large property loss potential. Occupants are reliant on fire safety systems to ensure safety and occupants are typically unfamiliar with surroundings and procedures. Very large occupant load potential.	Mitigate Risk	Yes	Yes	Yes

Central Elgin Top Risks/Issues/Concerns	/Preferred Treatments			3 Lines of Defense consideration		No Action
Industrial buildings	Possible chemical storage, community evacuations around the facility, light weight structural components, difficulty fighting fires in larger buildings, large fire load and loss of jobs/economic impact are all contributing factors to this higher potential risk.	Mitigate Risk		Yes	Yes	
Fire causes	Past fire loss data reflects that the main causes of fires in the Municipality are similar to the main causes of fires in the Province being unsafe cooking practices, careless use of smoking materials, heating equipment, appliance, and electrical distribution equipment fires. Two fire causes in Central Elgin that are high on the fire cause list are: Undetermined and Miscellaneous. Education and training of fire investigators and suppression officers could bring these two fire causes down which would help pinpoint the actual fire causes which would help to focus Public Education and Fire Prevention efforts. All 3 lines of defense would have to be used to bring down undetermined causes of fires.	Mitigate Risk	Yes	Yes	Yes	

Appendix B: Fire Station Assessments

Assessments reported by firefighters

Port Stanley

Fire Station Assessment Form

The assessment of this fire station is undertaken to determine its overall functional effectiveness for its intended purposes which may include providing emergency response and other fire service applications such as administration, training, communications, equipment maintenance and public education/fire prevention. Key areas addressed include functionality with regards to its intended purpose, equipment assignment and impact on personnel health and safety.
We note this assessment is not to be considered as an engineering or technical assessment with regards to structure integrity or mechanical services. The results of this assessment are based on visual observations and information provided by client representatives.

Station Name/Number: _Port Stanley Station 1_____

Address: __5120 Sunset Road_____

Municipality: __Central Elgin_____

Date of site visit: _____

Pomax team member(s): _____

Uses:

- ☐ Emergency Response, Career
- X Emergency Response, Volunteer
- ☐ Emergency Response Composite/Combination
- X Administration
- X Training Classroom
- ☐ Training Live Burn Facility / Training Ground Drills
- X Public Education (Provision of public education at the facility)
- X Fire Prevention
- ☐ Communications/Dispatch
- ☐ Mechanical/equipment repairs

Site Location

Issue/situation	Description of current status/condition	Meets needs (Y/N)	Basis for compliance	Comment
Adequate vehicle maneuverability	New 2021	Y	H&S	

Access for drive through bays	Y	H&S	
Adequate parking (assigned personnel/ public parking if needed)	Y		
Ready/safe access to response routes	Y	H&S	
Visibility of responding apparatus to oncoming traffic	Y	H&S	

Exterior

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Trip/fall hazards (walkways/parking lot/ramps)		Y	H&S	
Lighting (parking lot/public access)		No	H&S	Working to obtain solar lighting under solar panels. Very dark, especially in winter months
Overall appearance/maintenance				Very good

Security

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Exterior lighting	Y	Y	H&S	
Secure access to fire station (keypad, public intercom)	Y	Y	H&S	
Use of station as safety place for citizens in danger	N			Not a manned station. But could be used if manned. OPP use it as a secondary location

Administration (senior officers/administrative support/fire prevention/public education)

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comments
Rank/role of administrative staff assigned to station	Fire Chief, Fire Prevention Officer, District Station Chief, and Deputy District Station Chief	No		Currently setup is only one office space. The board room could be converted to offices
Security (access to administrative area		No		Office door could be locked. Currently is not due to the needs of others to access.

Security (access to confidential files)				No confidential files stored onsite.
Privacy space				Boardroom or office currently used as private area.
Adequate space per individual		No		Admin is tight with only one office
Meeting /conference room				Training room or currently the board room
Lighting (natural/artificial)				Good
Heating/cooling (HVAC)				Issues with heating since constructed

Apparatus Floor

Issue/situation	Description of current status/condition	Meets need/.requirements (Y/N)	Basis for compliance	Comment
Number of bays	6	Y		
Drive through bays			H&S	Firefighters were told they would receive a drive through hall. They continually relocate equipment to between

			trucks so to achieve the drive through ability
Vehicle Exhaust removal system	No	NFPA 1500 10.1.5	
Compressed air lines	No		
Hot/cold water access	Yes		
Floor drains in centre of bays	Yes	H&S	
Oil/water separator in floor drains	Yes	Environment	
Slip protection on floors	Some	H&S	
Obstacles inhibiting travel lines	Yes	H&S	
Inadequate space around apparatus	Yes	H&S	
Storage (racking/shelving) (tip, drop hazard)	No	H&S and ergonomics	

Kitchen/Lounge

Issue/situation	Description of Current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Hot/cold water		Yes	H&S	
Dishwasher		Yes	H&S	
Ventilation		Yes	H&S	
Natural Light		Yes		
Access to apparatus bays		Yes	Emergency response time	

Dormitory

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Number of beds				N/A
Privacy (individual cubicles/individual rooms)			Diversity accommodation	N/A
Personal storage area				N/A
Lighting				N/A
Access to apparatus bays			Emergency response time	N/A
Smoke alarms all sleeping areas			H&S and code regulations NFPA 1500 10.1.3.1	N/A
CO alarms in sleeping quarters			H&S and code requirement NFPA 1500 10.1.3.4	N/A
Bunker gear in sleeping quarters (prohibited)			H&S NFPA 1500 10.1.6	N/A

Washroom/Shower/Decontamination Facilities

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comments
Washrooms (m/f/gender neutral/accessible)		Yes	Diversity accommodation Public access	One male and one gender neutral
Showers (m/f/gender neutral)		Yes	Diversity accommodation	One male and one gender neutral
Decontamination facilities (separate from living quarters, access from apparatus floor)		No		

Training Area

Issue /situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for Compliance	Comments
Classroom (firefighters only)				Training room used for both fire and public
Classroom (public meeting area)				
• AV equipment		Yes		
• Access to Internet		Yes		
• Heating/cooling system (HVAC)		Yes		
• Lighting (natural/adequate)		Yes		

• Adequate space for hands on instruction	Yes	
• Adequate seating/desks	Yes	
Training tower/grounds	No	
• Adequate exterior space for intended purposes		
• Classroom separate from Burn building	N/A	
Live burn facility		NFPA 1403
Access to water supply (pressurized/drafting pit)	Yes	
Training tower/ground access to post exercise decontamination facilities	N/A	
Training ground access to SCBA filling station	N/A	

Fitness Room

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Ventilation		N/A	H&S	
Adequate space (trip hazards, etc.)		N/A	H&S	
Adequate lighting		N/A		
Separate from apparatus floor		N/A	H&S	
Access to Apparatus floor		N/A	Emergency response time	

Communications/dispatch facility

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comments
Functions as a PSAP/Central Dispatching Communications facility		N/A	NFPA 1221 (requires additional assessment)	
Fire station communications room for receiving alarm dispatch		Yes		Located within the admin office

SCBA/Air supply Maintenance Area

Issue/situation	Description of current status/condition	Meets needs/requirement	Basis for compliance	Comment
SCBA cleaning/disinfection (clean/ organized)		Yes	H&S	
SCBA maintenance separate from Apparatus floor		Yes	H&S	
Air filling station separate from apparatus floor		N/A	H&S	
Operational and safety instructions posted near fill station		N/A	H&S NFPA 1404 9.2.3	
Adequate space for fill station activities		N/A	H&S	
Holding tank/filling reservoir for bottles		N/A	H&S	

Bunker Gear and Equipment Cleaning/Storage

Issue /Situation	Description of current status/condition	Meets Needs/requirements (Y/N)	Basis for compliance	Comment
Washer/extractor on site		Yes	H&S NFPA 1851	
Washer/extractor separate form apparatus floor		Yes	H&S	
Bunker gear storage away from UV light (sunlight/fluorescent lights		Yes	H&S NFPA 1851 9.1	
Bunker gear stored hanging		Yes	H&S NFPA 1851 9.1.8	
Bunker gear stored with adequate ventilation		Yes	H&S NFPA 1851 9.1.9	
Cleaning/disinfecting facilities for medical waste/equipment		Yes	H&S NFPA 1581 5.7	

Facility General

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Fire poles enclosed access	N/A		H&S	
Backup power supply		Yes	Facility use during power outages	
Storage general station supplies		Yes		

Storage medical supplies (secure/clean/organized)	Yes	
Storage combustibles (gasoline, etc.)	Yes	H&S Fire Code
Separate HVAC for apparatus and living quarters	Yes	H&S
Exit lighting visible	Yes	H&S and public safety
Residential/commercial Sprinkler system	Yes	Fire service advocates sprinklers in public and residential occupancies
Community rooms separate access from secure fire station	N/A	
Public use of community rooms interferes with fire department activities	N/A	
Building shared with other agency or commercial enterprise	Yes	

Green Initiatives

Issue/situation	Current status/condition	Meets needs/requirement	Basis for compliance	Comment
Charging for Electric Vehicles		Yes		

Leed Construction Initiatives	
Alternative Power Sources	Yes
Recycling Initiatives (water, etc.)	No

Additional observations/input form client representatives

Issue/situation	Current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment

Belmont Station

Fire Station Assessment Form

The assessment of this fire station is undertaken to determine its overall functional effectiveness for its intended purposes which may include providing emergency response and other fire service applications such as administration, training, communications, equipment maintenance and public education/fire prevention. Key areas addressed include functionality with regards to its intended purpose, equipment assignment and impact on personnel health and safety.

We note this assessment is not to be considered as an engineering or technical assessment with regards to structure integrity or mechanical services. The results of this assessment are based on visual observations and information provided by client representatives.

Station Name/Number: Belmont St. # 1

Address: 206 Caesar Rd.

Municipality: Central Elgin

Date of site visit: Jan 13/2025

Pomax team member(s): _____

Uses:

- ☐ Emergency Response, Career
- ☑ Emergency Response, Volunteer
- ☐ Emergency Response Composite/Combination
- ☐ Administration
- ☑ Training Classroom
- ☑ Training Live Burn Facility / Training Ground Drills
- ☑ Public Education (Provision of public education at the facility)
- ☑ Fire Prevention
- ☐ Communications/Dispatch
- ☐ Mechanical/equipment repairs

Site Location

Issue/situation	Description of current status/condition	Meets needs (Y/N)	Basis for compliance	Comment
Adequate vehicle maneuverability	Back into Bay.	Y	H&S	Have to reverse into Bays
Access for drive through bays		N	H&S	
Adequate parking (assigned personnel/ public parking if needed)		Y		

Union Station

Fire Station Assessment Form

The assessment of this fire station is undertaken to determine its overall functional effectiveness for its intended purposes which may include providing emergency response and other fire service applications such as administration, training, communications, equipment maintenance and public education/fire prevention. Key areas addressed include functionality with regards to its intended purpose, equipment assignment and impact on personnel health and safety.
We note this assessment is not to be considered as an engineering or technical assessment with regards to structure integrity or mechanical services. The results of this assessment are based on visual observations and information provided by client representatives.

Station Name/Number: ___Union Station #2_____

Address: ____42702 Sparta line_____Built in the 1950's or 1960's_____

Municipality: ____Central Elgin_____

Date of site visit: _____

Pomax team member(s): _____

Uses:

- ☐ Emergency Response, Career
- X Emergency Response, Volunteer
- ☐ Emergency Response Composite/Combination
- X Administration
- X Training Classroom
- ☐ Training Live Burn Facility / Training Ground Drills
- ☐ Public Education (Provision of public education at the facility)
- ☐ Fire Prevention
- ☐ Communications/Dispatch
- ☐ Mechanical/equipment repairs

Site Location

Issue/situation	Description of current status/condition	Meets needs (Y/N)	Basis for compliance	Comment
Adequate vehicle maneuverability		Y	H&S	

Access for drive through bays		N	H&S	
Adequate parking (assigned personnel/ public parking if needed)		Y		
Ready/safe access to response routes		Y	H&S	
Visibility of responding apparatus to oncoming traffic		Y	H&S	

Exterior

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Trip/fall hazards (walkways/parking lot/ramps)		Y	H&S	Pavement getting rutted in front of truck bays
Lighting (parking lot/public access)		y	H&S	
Overall appearance/maintenance	good	y		

Security

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Exterior lighting		y	H&S	

Secure access to fire station (keypad, public intercom)		y	H&S	
Monitoring of outside spaces		N		
Use of station as safety place for citizens in danger		N		Unmanned station, could be used if needed

Administration (senior officers/administrative support/fire prevention/public education)

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for complaince	Comments
Rank/role of administrative staff assigned to station	District Chief and District Deputy Chief	y		
Security (access to administrative area		N		Everyone needs access to office to do reports after incidents
Security (access to confidential files)		N		I don't think we have confidential files on site
Privacy space		N		
Adequate space per individual		Y		

Meeting /conference room		Y		Very dated, need a new screen for projector
Lighting (natural/artificial)		Y		
Heating/cooling (HVAC)		Y		Furnace for training room, radiant heat for bays

Apparatus Floor

Issue/situation	Description of current status/condition	Meets need/.requirements (Y/N)	Basis for compliance	Comment
Number of bays	3	Y		
Drive through bays	0	NA	H&S	
Vehicle Exhaust removal system		Y	NFPA 1500 10.1.5	Exhaust fan run when doors open and stay on for 5 min after close
Compressed air lines		NA		
Hot/cold water access		Y		
Floor drains in centre of bays		N	H&S	Drains at rear of bays
Oil/water separator in floor drains		N	Environment	

Slip protection on floors		N	H&S	
Obstacles inhibiting travel lines		Y	H&S	Some clutter along east wall due to lack of storage space
Inadequate space around apparatus		y	H&S	Clear space around apparatus
Storage (racking/shelving) (tip, drop hazard)		N	H&S and ergonomics	Need more storage space

Kitchen/Lounge

Issue/situation	Description of Current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Hot/cold water		y	H&S	
Dishwasher		N	H&S	
Ventilation		N	H&S	
Natural Light		Y		
Access to apparatus bays		Y	Emergency response time	

Dormitory

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Number of beds		NA		
Privacy (individual cubicles/individual rooms)		NA	Diversity accommodation	
Personal storage area		NA		
Lighting		NA		
Access to apparatus bays		NA	Emergency response time	
Smoke alarms all sleeping areas		NA	H&S and code regulations NFPA 1500 10.1.3.1	
CO alarms in sleeping quarters		NA	H&S and code requirement NFPA 1500 10.1.3.4	
Bunker gear in sleeping quarters (prohibited)		NA	H&S NFPA 1500 10.1.6	

Washroom/Shower/Decontamination Facilities

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comments
Washrooms (m/f/gender neutral/accessible)	1 MALE, 1 FEMALE, 1 ACCESSIBLE	Y	Diversity accommodation Public access	
Showers (m/f/gender neutral)	Shower in male and female bathroom	Y	Diversity accommodation	

Decontamination facilities (separate from living quarters, access from apparatus floor)		N		

Training Area

Issue /situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for Compliance	Comments
Classroom (firefighters only)	Very dated	Y		
Classroom (public meeting area)		N		
• AV equipment	Projector and screen, screen broken	Y		
• Access to Internet	Frequent connection issues	Y		
• Heating/cooling system (HVAC)	Furnace and portable AC unit	Y		
• Lighting (natural/adequate)		Y		
• Adequate space for hands on instruction		Y		
• Adequate seating/desks		Y		
Training tower/grounds • Adequate exterior space for intended purposes		NA		

• Classroom separate from Burn building		NA		
Live burn facility		NA	NFPA 1403	
Access to water supply (pressurized/drafting pit)	Hydrant in hall	Y		
Training tower/ground access to post exercise decontamination facilities		N		
Training ground access to SCBA filling station	Cascade system in our hall. New in 2001	Y		

Fitness Room

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Ventilation		NA	H&S	
Adequate space (trip hazards, etc.)		NA	H&S	
Adequate lighting		NA		
Separate from apparatus floor		NA	H&S	
Access to Apparatus floor		NA	Emergency response time	

Communications/dispatch facility

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comments
Functions as a PSAP/Central Dispatching Communications facility		NA	NFPA 1221 (requires additional assessment)	
Fire station communications room for receiving alarm dispatch	Base radio in office with paging capability	Y		

SCBA/Air supply Maintenance Area

Issue/situation	Description of current status/condition	Meets needs/requirement	Basis for compliance	Comment
SCBA cleaning/disinfection (clean/ organized)	Rinse gear in truck bay, take to Port Stanley to wash	N	H&S	
SCBA maintenance separate from Apparatus floor		N	H&S	
Air filling station separate from apparatus floor	Fill station is in storage room	Y	H&S	
Operational and safety instructions posted near fill station		Y	H&S NFPA 1404 9.2.3	
Adequate space for fill station activities		Y	H&S	

Holding tank/filling reservoir for bottles	4 bottle cascade system	Y	H&S	

Bunker Gear and Equipment Cleaning/Storage

Issue /Situation	Description of current status/condition	Meets Needs/requirements (Y/N)	Basis for compliance	Comment
Washer/extractor on site		**N**	H&S NFPA 1851	
Washer/extractor separate form apparatus floor		**NA**	H&S	
Bunker gear storage away from UV light (sunlight/fluorescent lights	Gear is stored on apparatus	Y	H&S NFPA 1851 9.1	
Bunker gear stored hanging		**N**	H&S NFPA 1851 9.1.8	
Bunker gear stored with adequate ventilation		**N**	H&S NFPA 1851 9.1.9	
Cleaning/disinfecting facilities for medical waste/equipment	**Garbage can in rescue truck**	**N**	H&S NFPA 1581 5.7	

Facility General

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Fire poles enclosed access		NA	H&S	
Backup power supply	Portable gas generator that we have to start inside to open bay doors, then take it outside	N	Facility use during power outages	
Storage general station supplies	Need more storage space for offices as well as apparatus area	N		
Storage medical supplies (secure/clean/organized)	On shelf in office	y		
Storage combustibles (gasoline, etc.)		N	H&S Fire Code	
Separate HVAC for apparatus and living quarters		NA	H&S	
Exit lighting visible		Y	H&S and public safety	
Residential/commercial Sprinkler system		N	Fire service advocates sprinklers in public and residential occupancies	
Community rooms separate access from secure fire station		NA		
Public use of community rooms interferes with fire department activities		NA		

Building shared with other agency or commercial enterprise		NA		

Green Initiatives

Issue/situation	Current status/condition	Meets needs/requirement	Basis for compliance	Comment
Charging for Electric Vehicles		N		
Leed Construction Initiatives		N		
Alternative Power Sources		N		
Recycling Initiatives (water, etc.)		N		

Additional observations/input form client representatives

Issue/situation	Current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment

Ready/safe access to response routes		Y	H&S	
Visibility of responding apparatus to oncoming traffic		Y	H&S	Emergency Signs on Belmont Rd.

Exterior

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Trip/fall hazards (walkways/parking lot/ramps)		Y	H&S	
Lighting (parking lot/public access)		Y	H&S	
Overall appearance/maintenance		Y/N		Front door entrance trip hazard.

Security

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Exterior lighting		Y	H&S	
Secure access to fire station (keypad, public intercom)		Y	H&S	Key Pad. Sticking
Monitoring of outside spaces		N		
Use of station as safety place for citizens in danger		N		

Administration (senior officers/administrative support/fire prevention/public education)

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for complaince	Comments
Rank/role of administrative staff assigned to station		Y		
Security (access to administrative area		Y		
Security (access to confidential files)		Y		
Privacy space		Y		
Adequate space per individual		N		
Meeting /conference room		Y		
Lighting (natural/artificial)		Y		
Heating/cooling (HVAC)		Y		

Issue/situation	Description of current status/condition	Meets need/.requirements (Y/N)	Basis for compliance	Comment
Number of bays				
Drive through bays		N	H&S	
Vehicle Exhaust removal system		N	NFPA 1500 10.1.5	
Compressed air lines		N		
Hot/cold water access		Y		
Floor drains in centre of bays		Y	H&S	
Oil/water separator in floor drains		N	Environment	
Slip protection on floors		N	H&S	
Obstacles inhibiting travel lines		N	H&S	
Inadequate space around apparatus		Y	H&S	
Storage (racking/shelving) (tip, drop hazard)		Y	H&S and ergonomics	

Kitchen/Lounge

Issue/situation	Description of Current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Hot/cold water		Y	H&S	
Dishwasher		N	H&S	

Ventilation		Y	H&S	
Natural Light		Y		
Access to apparatus bays		Y	Emergency response time	

Dormitory

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Number of beds		N/A		
Privacy (individual cubicles/individual rooms)		N/A	Diversity accommodation	
Personal storage area		N/A		
Lighting		N/A		
Access to apparatus bays		N/A	Emergency response time	
Smoke alarms all sleeping areas		N/A	H&S and code regulations NFPA 1500 10.1.3.1	
CO alarms in sleeping quarters		N/A	H&S and code requirement NFPA 1500 10.1.3.4	
Bunker gear in sleeping quarters (prohibited)		N/A	H&S NFPA 1500 10.1.6	

Washroom/Shower/Decontamination Facilities

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comments
Washrooms (m/f/gender neutral/accessible)		Y	Diversity accommodation Public access	
Showers (m/f/gender neutral)		Y	Diversity accommodation	
Decontamination facilities (separate from living quarters, access from apparatus floor)		Y ~~N/A~~		

Training Area

Issue /situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for Compliance	Comments
Classroom (firefighters only)		Y		
Classroom (public meeting area)		Y		
• AV equipment		Y		
• Access to Internet		Y		unable to use for training (poor)
• Heating/cooling system (HVAC)		Y		
• Lighting (natural/adequate)		Y		
• Adequate space for hands on instruction		Y		
• Adequate seating/desks		Y		
Training tower/grounds • Adequate exterior		Y		access to cement pad. no tower on sight.

space for intended purposes		Y		
• Classroom separate from Burn building		N/A		
Live burn facility		N/A	NFPA 1403	
Access to water supply (pressurized/drafting pit)		Y		
Training tower/ground access to post exercise decontamination facilities		N/A		
Training ground access to SCBA filling station		Y		

Fitness Room

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Ventilation		N/A	H&S	
Adequate space (trip hazards, etc.)		N/A	H&S	
Adequate lighting		N/A		
Separate from apparatus floor		N/A	H&S	
Access to Apparatus floor		N/A	Emergency response time	

	current status/condition	needs/requirements (Y/N)	compliance	
Functions as a PSAP/Central Dispatching Communications facility		N	NFPA 1221 (requires additional assessment)	
Fire station communications room for receiving alarm dispatch		Y		

SCBA/Air supply Maintenance Area

Issue/situation	Description of current status/condition	Meets needs/requirement	Basis for compliance	Comment
SCBA cleaning/disinfection (clean/ organized)		Y	H&S	
SCBA maintenance separate from Apparatus floor		Y	H&S	
Air filling station separate from apparatus floor		Y	H&S	
Operational and safety instructions posted near fill station		Y	H&S NFPA 1404 9.2.3	
Adequate space for fill station activities		Y	H&S	
Holding tank/filling reservoir for bottles		Y	H&S	

Bunker Gear and Equipment Cleaning/Storage

Issue /Situation	Description of current status/condition	Meets Needs/requirements (Y/N)	Basis for compliance	Comment
Washer/extractor on site		N	H&S NFPA 1851	
Washer/extractor separate form apparatus floor		N/A	H&S	
Bunker gear storage away from UV light (sunlight/fluorescent lights		Y	H&S NFPA 1851 9.1	
Bunker gear stored hanging		Y	H&S NFPA 1851 9.1.8	
Bunker gear stored with adequate ventilation		N	H&S NFPA 1851 9.1.9	
Cleaning/disinfecting facilities for medical waste/equipment		N	H&S NFPA 1581 5.7	

Facility General

Issue/situation	Description of current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment
Fire poles enclosed access		N/A	H&S	
Backup power supply		Y	Facility use during power outages	
Storage general station supplies		Y		

Storage medical supplies (secure/clean/organized)		Y		
Storage combustibles (gasoline, etc.)		Y	H&S Fire Code	
Separate HVAC for apparatus and living quarters		N	H&S	
Exit lighting visible		Y	H&S and public safety	
Residential/commercial Sprinkler system		N	Fire service advocates sprinklers in public and residential occupancies	
Community rooms separate access from secure fire station		N/A		
Public use of community rooms interferes with fire department activities		N/A		
Building shared with other agency or commercial enterprise		N		

Green Initiatives

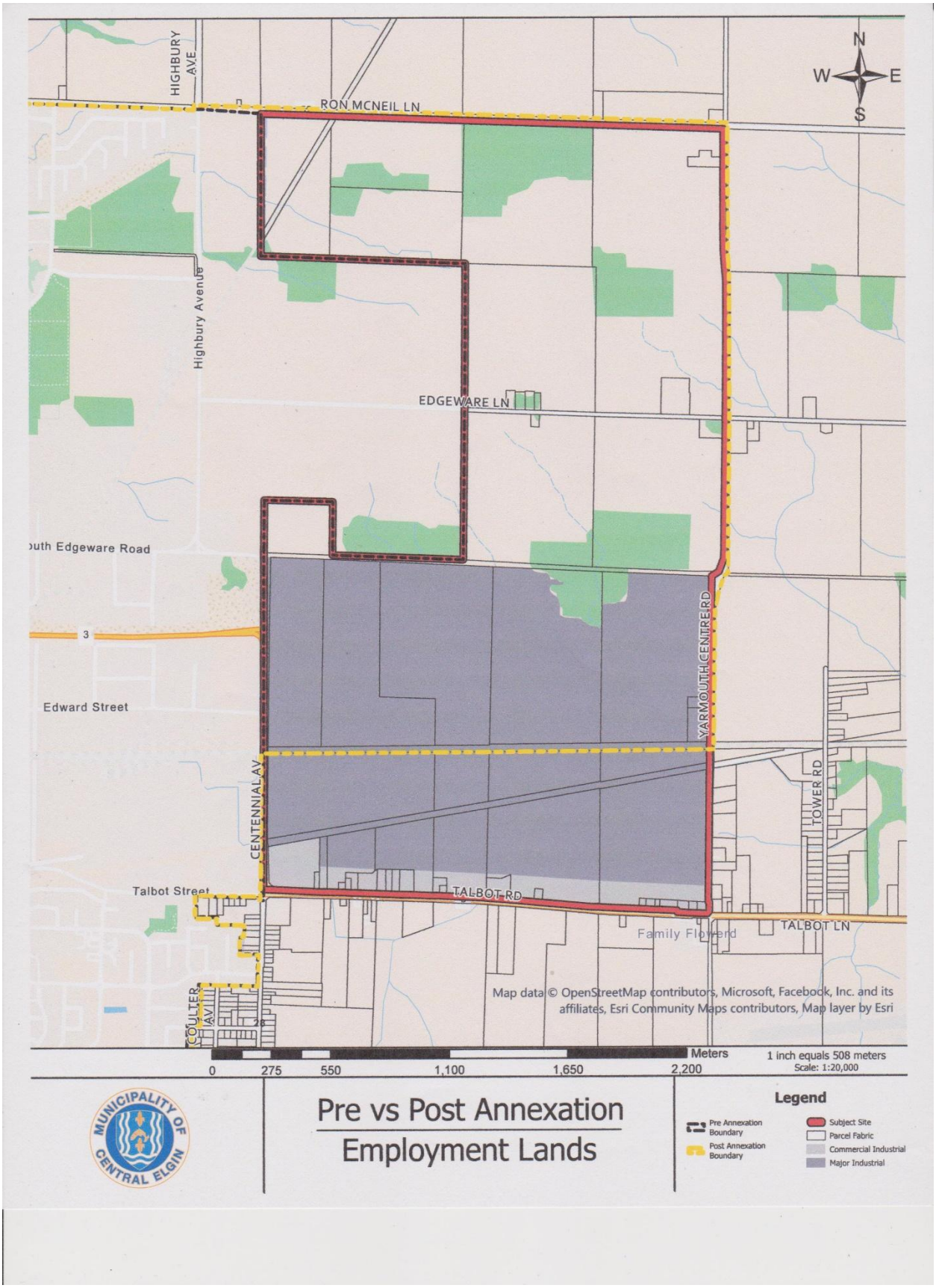
Issue/situation	Current status/condition	Meets needs/requirement	Basis for compliance	Comment
Charging for Electric Vehicles		N		
Leed Construction Initiatives		N		
Alternative Power Sources		N		

Recycling Initiatives (water, etc.)		N		

Additional observations/input form client representatives

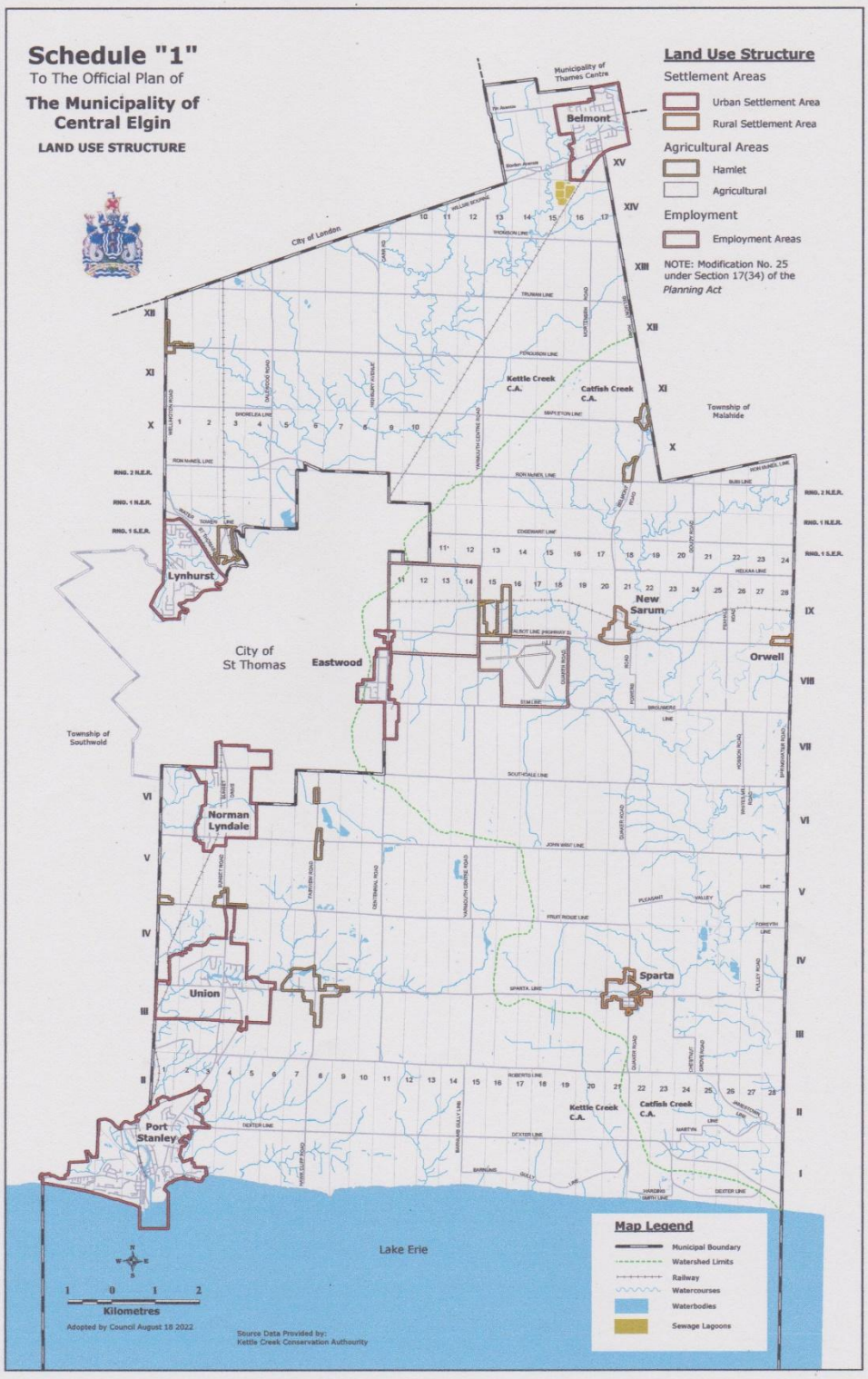
Issue/situation	Current status/condition	Meets needs/requirements (Y/N)	Basis for compliance	Comment

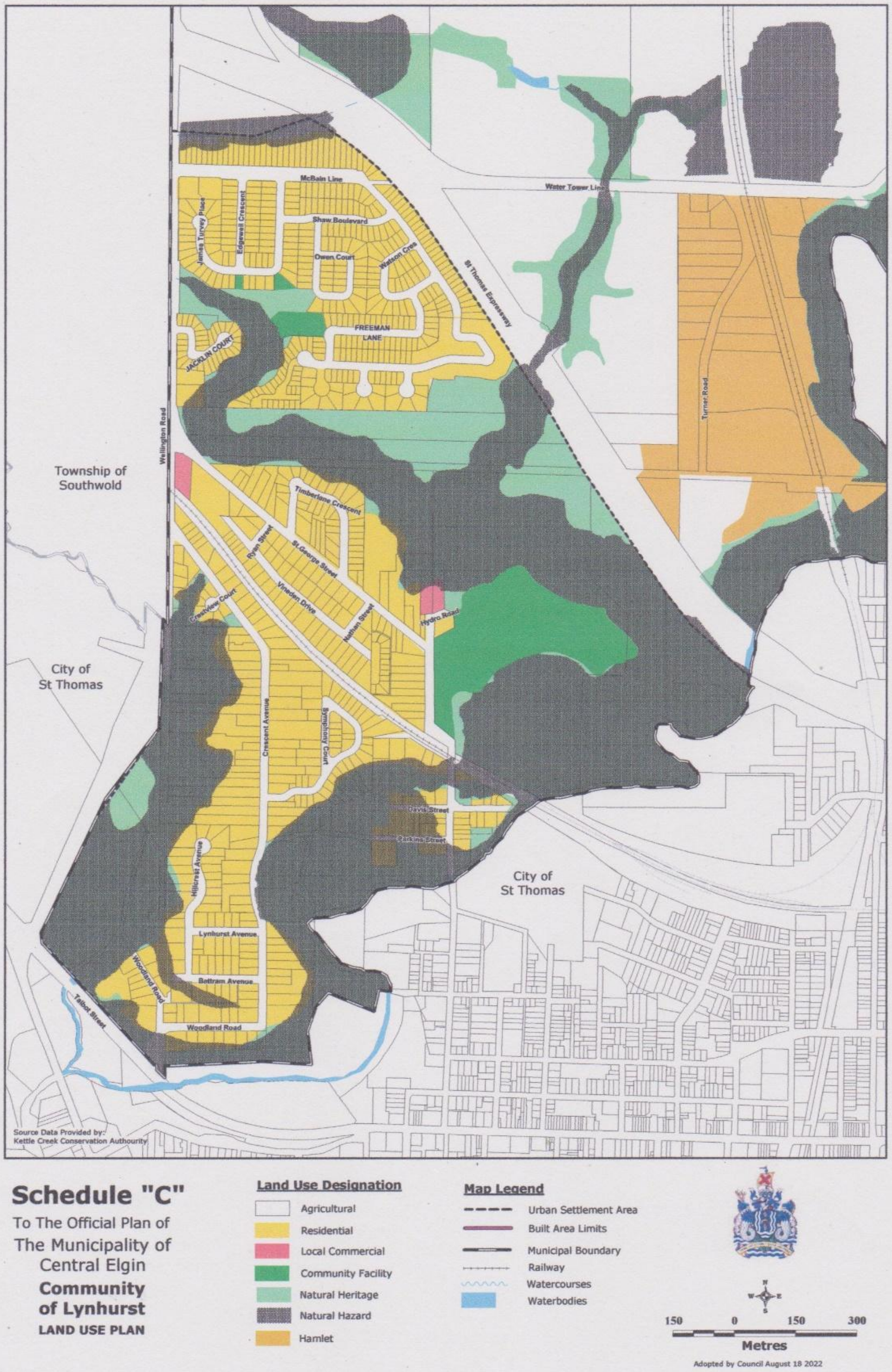
Appendix C: Planning Schedules


HIGHBURY AVE
RON MCNEIL LN
N
W
E
S
Highbury Avenue
EDGEWARE LN
outh Edgeware Road
3
Edward Street
YARMOUTH CENTRE RD
TOWER RD
CENTENNIAL AV
Talbot Street
TALBOT RD
TALBOT LN
Family Flowerd
COULTER AVE
Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri
Meters
0
275
550
1,100
1,650
2,200
1 inch equals 508 meters
Scale: 1:20,000
MUNICIPALITY OF CENTRAL ELGIN
Pre vs Post Annexation
Employment Lands
Legend
Pre Annexation Boundary
Post Annexation Boundary
Subject Site
Parcel Fabric
Commercial Industrial
Major Industrial

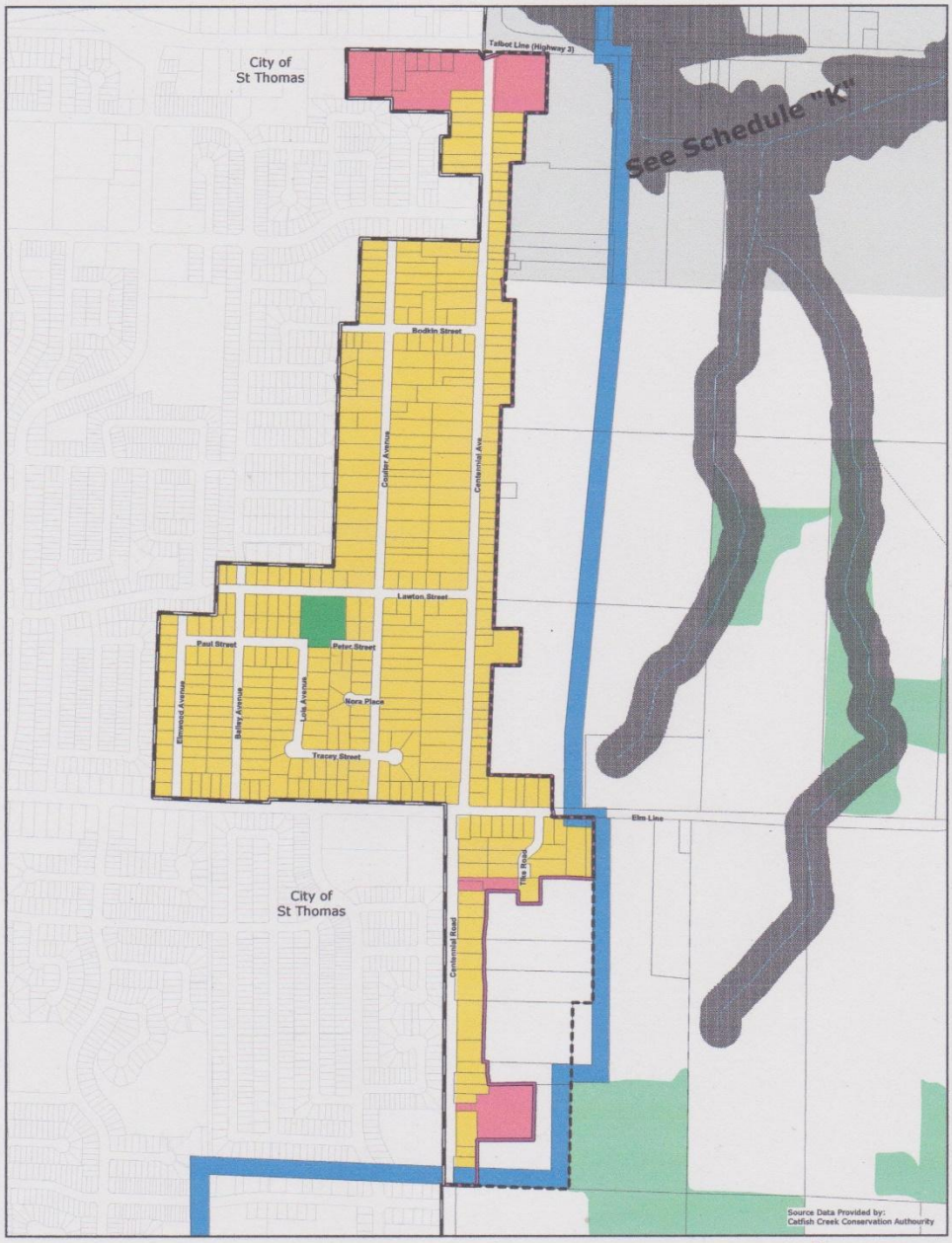
Schedule "K"
To The Official Plan of
The Municipality of
Central Elgin
Employment Areas
LAND USE PLAN
Land Use Designation
Agricultural
Major Industrial
Commercial - Industrial
Natural Heritage
Natural Hazard
Hamlet
NOTE: Modification No. 31 under Section 17(34) of the Planning Act
Map Legend
Municipal Boundary
Railway
Elgin Area Primary Water Supply Syem
Watercourses
Waterbodies
175 0 175 350
Metres
Adopted by Council August 18 2022
Source Data Provided by: Catfish Creek Conservation Authority
See Schedule "L"
See Schedule "D"
Tower Road
Yarmouth Centre Road
Talbot Line (Highway 3)
Centennial Ave
Centennial Ave (Highway 3)
Talbot Street
Edward Street
Formet Drive
City of St Thomas
St Thomas Expressway
Highbury Avenue
South Edgeware Road

Schedule "L"
To The Official Plan of
The Municipality of
Central Elgin
Employment Areas
Airport
LAND USE PLAN
Land Use Designation
Agricultural
Major Industrial
St Thomas Airport
Natural Heritage
Natural Hazard
Hamlet
Map Legend
Rural Settlement Area
Municipal Boundary
Railway
Watercourses
Waterbodies
150
0
150
300
Metres
Adopted by Council August 18 2022
Source Data Provided by:
Catfish Creek Conservation Authority
Quaker Road
Talbot Line (Highway 3)
Elm Line
Tower Road
Yarmouth Centre Road
See Schedule "K"
outh Centre Road


Schedule "1"
To The Official Plan of
The Municipality of Central Elgin
LAND USE STRUCTURE
Land Use Structure
Settlement Areas
Urban Settlement Area
Rural Settlement Area
Agricultural Areas
Hamlet
Agricultural
Employment
Employment Areas
NOTE: Modification No. 25 under Section 17(34) of the Planning Act
Municipality of Thames Centre
Belmont
City of London
Township of Malahide
Kettle Creek C.A.
Catfish Creek C.A.
Lynhurst
New Sarum
Orwell
City of St Thomas
Eastwood
Township of Southwold
Norman Lyndale
Union
Sparta
Port Stanley
Lake Erie
Kilometres
Adopted by Council August 18 2022
Source Data Provided by: Kettle Creek Conservation Authourity
Map Legend
Municipal Boundary
Watershed Limits
Railway
Watercourses
Waterbodies
Sewage Lagoons



McBain Line
James Turvey Place
Edgewell Crescent
Shaw Boulevard
Owen Court
Watson Cres
St Thomas Expressway
Water Tower Line
FREEMAN LANE
JACKLIN COURT
Wellington Road
Turner Road
Township of Southwold
Timberlane Crescent
Ryan Street
St.George Street
Vineden Drive
Nathan Street
Hydro Road
Crestview Court
City of St Thomas
Crescent Avenue
Symphony Court
Davis Street
Parkins Street
City of St Thomas
Hillcrest Avenue
Lynhurst Avenue
Battram Avenue
Woodland Road
Woodland Road
Talbot Street
Source Data Provided by:
Kettle Creek Conservation Authourity
Schedule "C"
To The Official Plan of
The Municipality of
Central Elgin
Community
of Lynhurst
LAND USE PLAN
Land Use Designation
Agricultural
Residential
Local Commercial
Community Facility
Natural Heritage
Natural Hazard
Hamlet
Map Legend
Urban Settlement Area
Built Area Limits
Municipal Boundary
Railway
Watercourses
Waterbodies
N
W
E
S
150 0 150 300
Metres
Adopted by Council August 18 2022

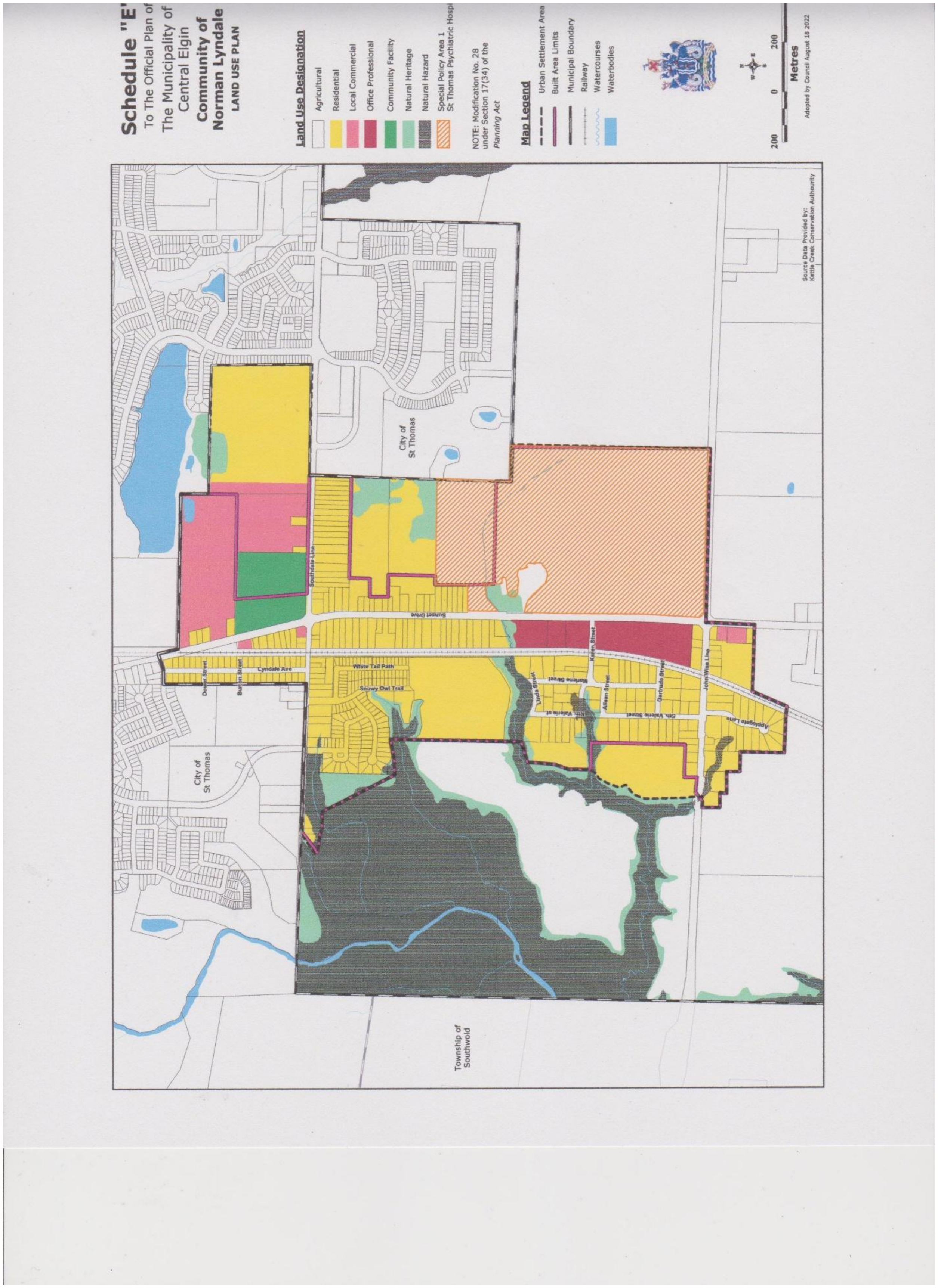


Schedule "D"
To The Official Plan of
The Municipality of
Central Elgin
Community of Eastwood
LAND USE PLAN

Land Use Designation
- Agricultural
- Residential
- Local Commercial
- Community Facility
- Natural Heritage
- Natural Hazard

Map Legend
- Urban Settlement Area
- Built Area Limits
- Municipal Boundary
- Railway
- Elgin Area Primary Water Supply System
- Waterbodies

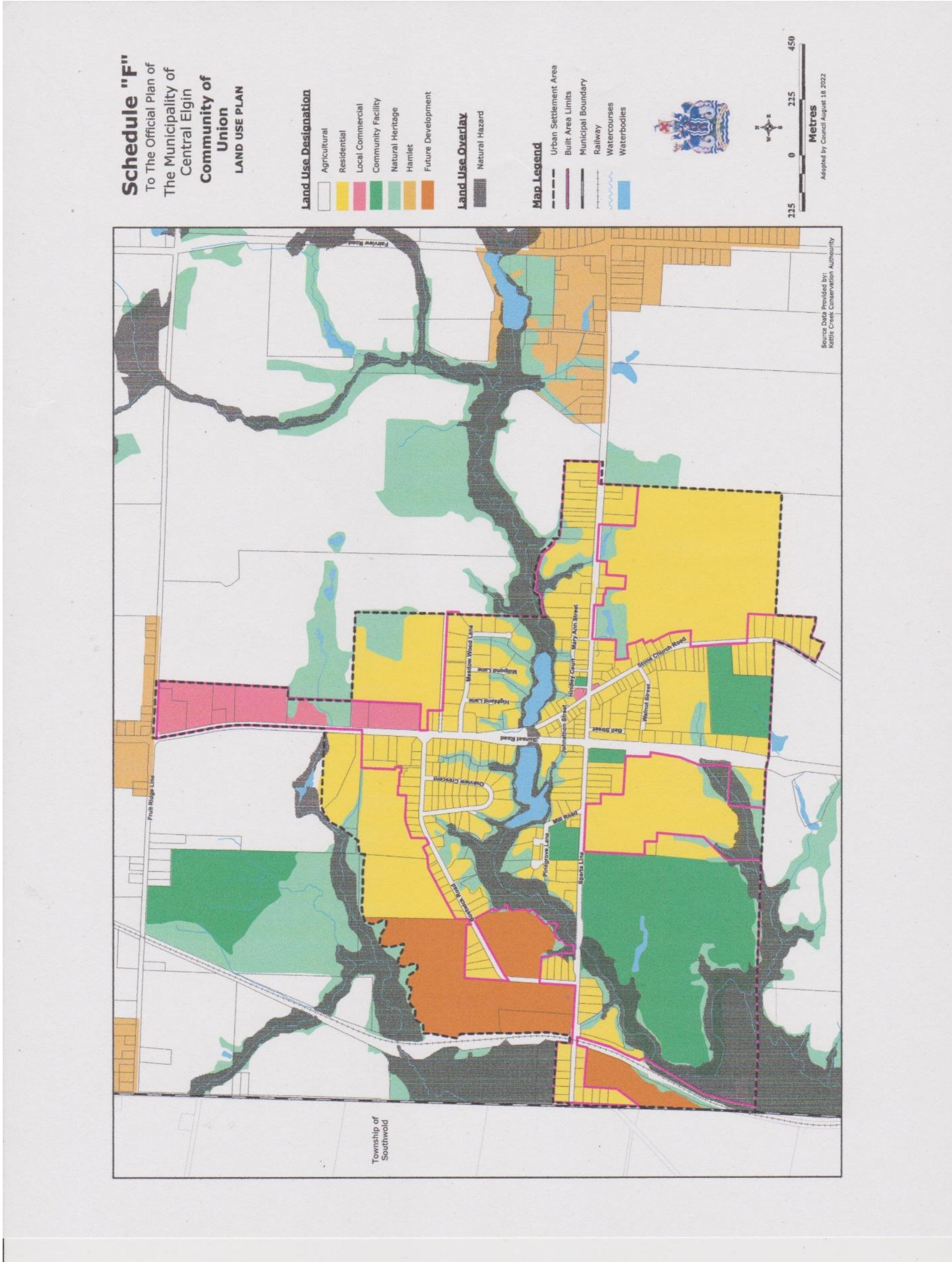
150 0 150 300
Metres
Adopted by Council August 18 2022



Schedule "E"
To The Official Plan of
The Municipality of
Central Elgin
Community of
Norman Lyndale
LAND USE PLAN
Land Use Designation
Agricultural
Residential
Local Commercial
Office Professional
Community Facility
Natural Heritage
Natural Hazard
Special Policy Area 1
St Thomas Psychiatric Hosp
NOTE: Modification No. 28
under Section 17(34) of the
Planning Act
Map Legend
Urban Settlement Area
Built Area Limits
Municipal Boundary
Railway
Watercourses
Waterbodies
Metres
Adopted by Council August 18 2022
Source Data Provided by:
Kettle Creek Conservation Authority
City of St Thomas
City of St Thomas
Township of Southwold
Sunset Drive
Southdale Line
Lyndale Ave
John Wise Line


Schedule "B"
To The Official Plan of
The Municipality of
Central Elgin
Community
of Belmont
LAND USE PLAN
Land Use Designation
Agricultural
Residential
Commercial
Community Facility
Commercial - Industrial
Natural Heritage
Future Development
Land Use Overlay
Natural Hazard
Former Waste Sites
Map Legend
Urban Settlement Area
Built Area Limits
Municipal Boundary
Railway
Watercourses
Waterbodies
Sewage Lagoons
175
0
175
350
Metres
Adopted by Council August 18 2022
Source Data Provided by:
Kettle Creek Conservation Authority
Ministry of the Environment
Township of
Malahide
Municipality of
Thames Centre
Belmont Road
Dufferin Street
Victoria Street
College Street
Church Street
Union Street
Washburn Street
Brenmar Crescent
Sherwood Avenue
Scarlett Place
Canterbury Place
Lorne Street
Louise Street
Dyer Street
Barons Court
Helen Court
Joanna Crescent
Kettle Creek Drive
Andrea Crescent
Jonathan Way
Landon Lane
Plymouth Court
Anita Court
Snyders Avenue
Taylor Line
7th Avenue
Black Lane
Glanworth Drive

Schedule "G"
To The Official Plan of
The Municipality of
Central Elgin
Community of
Port Stanley
LAND USE PLAN
Land Use Designation
Agricultural
Residential
Harbour Low Density Residential
Commercial
Local Commercial
Commercial - Industrial
Marina
Mixed Use 1
Mixed Use 2
Hotel / Conference Centre
Harbour Community Facilities
Community Facility
Natural Heritage
Dynamic Beach
Land Use Overlay
Natural Hazard
100 Year Lake Erie Erosion Setback
Former Waste Sites
NOTE: Modification No. 29 under Section 17(34) of the Planning Act
Map Legend
Urban Settlement Area
Built Area Limits
Municipal Boundary
Railway
Watercourses
Waterbodies
Sewage Lagoons
250 0 250 500
Metres
Adopted by Council August 18 2022
Township of Southwold
Kettle Creek
See Harbour Schedule 03
Lake Erie
Source Data Provided by:
Kettle Creek Conservation Authority
Ministry of the Environment


Schedule "F"
To The Official Plan of
The Municipality of
Central Elgin
Community of
Union
LAND USE PLAN
Land Use Designation
Agricultural
Residential
Local Commercial
Community Facility
Natural Heritage
Hamlet
Future Development
Land Use Overlay
Natural Hazard
Map Legend
Urban Settlement Area
Built Area Limits
Municipal Boundary
Railway
Watercourses
Waterbodies
225
0
225
450
Metres
Adopted by Council August 18 2022
Source Data Provided by:
Kettle Creek Conservation Authority
Fairview Road
Fruit Ridge Line
Sunset Road
Sparta Line
Stone Church Road
Township of
Southwold

Schedule "H"
To The Official Plan of
The Municipality of
Central Elgin
Community of
New Sarum
LAND USE PLAN
Land Use Designation
Agricultural
Residential
Local Commercial
Natural Heritage
Natural Hazard
Map Legend
Rural Settlement Area
Municipal Boundary
Railway
Watercourse
Waterbodies
75
0
75
150
Metres
Adopted by Council August 18 2022
Source Data Provided by
Catfish Creek Conservation Authority
Power Road
Talbot Line (Highway 3)
Belmont Road
New Sarum Line
Blossom Ridge

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