THE LOOMEX GROUP

An Independent Review

Northumberland Municipal Fire Services

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Executive Summary

The intention of the Northumberland Municipal Fire Services Review (Review) is to provide the Fire Service Review Steering Committee (Steering Committee) and the Fire Chiefs with recommendations and information to make informed decisions regarding fire and life safety services for the seven Municipalities (Municipalities):

- Township of Alnwick/Haldimand
- Municipality of Brighton
- Town of Cobourg
- Township of Cramahe
- Township of Hamilton
- Municipality of Port Hope
- Municipality of Trent Hills

Each Department provides high-quality service for residents, businesses, and visitors to their Municipalities. Its goal(s) should be to build upon existing strengths, improve efficiencies, and proactively respond to the current and anticipated community needs effectively.

Following a Request for Proposal (RFP) process, the Steering Committee commissioned The Loomex Group to analyze and summarize all fire services and programs provided by the Departments and to examine each Department's core functions. Additionally, The Loomex Group explored opportunities to enhance fire service delivery by working together through partnerships and shared services to help manage future legislative pressures and the increased community demands for service.

There are many factors to consider when planning and undertaking a review that involves multiple departments and communities. Every municipality and fire service across the province has unique differences in socio-economic conditions, population, demographics, building stock, fire service delivery and capabilities, as is the case with the Departments serving the Northumberland County communities.

Emergency services are considered an essential service for the Municipalities, and due to the nature of the service, workers' safety is at higher risk than other service-type occupations. Therefore, it is vital to protect the firefighters (full-time, part-time, and volunteer) by ensuring appropriate and safe equipment and adequate staffing is available 24/7, as required. It is essential to ensure that firefighters are respected, reasonably compensated, and provided with appropriate benefits for their service.

The Review process assessed all aspects of the Departments and examined the possible alignment of services and resources. Opportunities exist to adjust and revise the Departments' structure and share services to improve effectiveness and implement cost efficiencies and cost avoidance.

The Review includes recommendations that stem from a comprehensive analysis of the Departments based on several factors, including but not limited to current legislation, bylaws, agreements, organizational structures, procurement, station coverage areas, and fire prevention and training programs.

With the support and guidance of the Steering Committee, the County of Northumberland Fire Chiefs, Deputy Chiefs and District Chief (Chiefs), and the firefighters, every effort was made to ensure the information was accurate and comprehensive. The Review is a living document, and as the Municipalities needs and circumstances change, it should be reviewed and adjusted annually.

1.0 The Roadmap to Success

The roadmap to success involves incremental steps with clear, measurable objectives, rather than a complete overhaul. A review of the Departments showed that the current senior officers work well together and have implemented various shared programs, such as the County radio system, Countywide Standard Operating Guidelines (SOG's), air management programs, and Highway 401 responses. These collaborative efforts demonstrate that they can accomplish multiple programs together successfully. However, there remains a reluctance to pursue a higher level of administrative shared services and programs that could provide better fire service levels for taxpayers while finding cost savings and cost avoidance measures.

Successful consolidation of fire departments in the province has worked well when politically motivated and when it involves only one Council and one CAO.

It was apparent in discussions with both CAOs and Fire Chiefs, and during the engagement sessions, that most individuals were not interested in consolidating the Departments. Additionally, the current municipal climate does not support a move in this direction. Despite these positions and in consideration of Provincial pressures placed on the Fire Service, it will be difficult to avoid an eventual discussion.

If the Departments continue to work together and allow for a shared economy of scale, the results can achieve many of the same merging benefits, following the intermunicipal-cooperation trend. This strategic approach to cost savings provides a framework for success and places the Municipalities in an enviable position to consider future provincial pressures.

The summary of recommendations in Section 2.0 outlines the steps to the roadmap to success, illustrating service level increases, cost-saving and avoidance, suggested timelines, budget impact and/or requiring Council approval. Following this roadmap provides an outline for cost-effective delivery for the Municipalities, including any political decisions required.

2.0 Summary of Recommendations

| Service Improvement | Cost Saving/ Avoidance | Council Approval | Budget Impact |

On-Going	Service Improvement	Cost Saving/ Avoidance	Council Approval	Budget Impact
1. The Northumberland County Fire Chief's Association continues to support the Fire Prevention Committee and its programs financially.	✔			
2. The Training Committee focuses on ensuring that the recruit training program is successful and that the training needs and resources are provided to the Departments.	✔			
3. When Departments purchase new tankers, they will be required to have on-board pumps.	✔		✔	✔
4. The Northumberland County Fire Chief's Association finalize the radio communications project and develop standard SOG's on radio use to be adopted by all Departments.	✔			
5. Municipalities considering building a new fire station would solicit input from the Fire Service Steering Committee before choosing a location.	✔	✔	✔	✔

Immediate Term (0-2 years)	♻📈	🤲💲	📋✅	🧮💲
1. A County of Northumberland's Fire Service Steering Committee is established and comprised of CAO's, Fire Chiefs and Treasurers mandated to work together on expanding shared services.	✓			
2. The County of Northumberland Mutual Aid Association explore opportunities for utilizing technology to disseminate information for those firefighters who cannot attend the Mutual Aid meetings.	✓			
3. Each Department implements the process for developing a Fire Master Plan for their Municipality.	✓	✓	✓	✓
4. The Northumberland County Fire Chief's Association works with the Fire Service Steering Committee to develop a process to review and consider social dynamics that may affect stakeholders.	✓			
5. The Northumberland Fire Chief's Association work with the Fire Prevention Committee to develop an enhanced Countywide program for hoarding and mental health issues that would include providing the necessary logistics while working with external stakeholders.	✓		✓	✓
6. Before July 1, 2024, each Municipality conducts a Community Risk Assessment as per the new regulations.			✓	✓
7. The Northumberland County Fire Chief's Association work with the Training Committee to develop SOGs and training on the Accountability Program.	✓			

Immediate Term (0-2 years)	⟳📈	💲🤲	📋✓	🧮
8. The Northumberland County Fire Chief's Association develop and adopt standard SOG's for Water Supply in Non-Hydrant areas.	✓			
9. The Northumberland County Fire Chief's Association adopt the three-phased approach water supply system for non-hydrant areas and budget to purchase the necessary equipment to participate in the program.	✓		✓	✓
10. A Fire Service Steering Committee develop the Countywide Emergency Management Program for all the Municipalities that would include a full-time resource to update, implement and manage all the Emergency Management programs, including conducting HIRA's and CI reviews for each Municipality.	✓	✓	✓	✓
11. The Municipalities update their Emergency Response Plans to the provincially recognized Incident Management Systems model.	✓		✓	✓
12. The Northumberland County Fire Chief's Association develop SOG's on the required use of the "Who's Responding" App to be adopted by all Departments.	✓			
13. The Northumberland County Fire Chief's Association formalize agreements (service level or automatic aid) to access specialized services within the Departments.	✓		✓	
14. The Northumberland County Fire Chief's Association designate two members to lead the specialized services program and to develop working groups as required.	✓	✓		
15. The Northumberland County Fire Chief's Association conduct a working session(s) to review the responsibilities of each Chief Officer within the Departments to identity any	✓			

Immediate Term (0-2 years)				
duplication of services that could be shared and potential opportunities to manage current and future pressures.				
16. The Northumberland County Fire Chief's Association establishes a Compliance Committee that would develop a process to improve the standardization of collecting data and conduct regular quality assurance (QA) on data used to set responses and ERF.	✔			
17. The Northumberland County Fire Chief's Association works with the Fire Service Steering Committee to develop a policy that would allow firefighters to respond to an emergency call while working for the Municipality. This policy would then be presented to all Councils for consideration and adoptions.	✔		✔	
18. The Northumberland County Fire Chief's Association work with the Fire Coordinators to develop SOGs for the Dispatch Centre to automatically call for Mutual Aid for station coverage or response to the scene.	✔	✔		

Short Term (3-7 years)	♺↑	💲	☑	🧮
1. The Northumberland County Fire Chief's Association work with the Mutual Aid Association to develop a Countywide recognition program.	✔			✔
2. The Northumberland County Fire Chief's Association works with the Fire Service Steering Committee to develop long-term recruitment and retention strategies for volunteer or part-time firefighters across the Municipalities.	✔	✔		
3. The Northumberland Fire Chief's Association work with the Fire Prevention Committee to develop an inventory of County Fire Prevention material that can be shared among the Departments and to develop a policy of joint purchasing and the strategic locations for Public Educational storage materials.	✔	✔		
4. The Northumberland County Fire Chief's Association work with the Fire Prevention Committee and the Fire Service Steering Committee to develop a proposal to be adopted by the Municipalities to hire a County Fire Inspector.	✔	✔	✔	✔
5. The Northumberland County Fire Chief's Association, work with the Training Committee to: a. Establish a County Wide Recruit training program that all Departments participate in and support with instructors. b. Develop an annual training program that establishes goals and expectations for the firefighters. c. Develop specific SOG's for annual training requirements and signoffs. d. Develop and formalize an Officer development program to ensure those placed in a Supervisory role are qualified and	✔	✔		✔

Short Term (3-7 years)	♺	💲	✅	🧮
competent under the Ontario Health & Safety Act requirements for a "competent supervisor." e. Provide the opportunity for the Departments to conduct joint training together. f. Establish the development of instructors that could be utilized across the Departments.				
6. The Northumberland County Fire Chief's Association, working with the Training Committee and the Fire Service Steering Committee, develop a proposal to be adopted by the Municipalities to hire a County Training Coordinator.	✓	✓	✓	✓
7. The Northumberland County Fire Chief's Association identify life cycle assets (i.e., bunker gear, fire apparatus, and safety equipment) that can be standardized across the Departments to find cost savings.	✓	✓		✓
8. The Northumberland County Fire Chief's Association (based on the identified standard for life cycle assets) establish working groups with the mandate to develop a specification for all Departments to follow.	✓	✓		✓
9. The Northumberland County Fire Chief's Association, working with the Fire Service Steering Committee, develops joint Standing Offers, Requests for Proposals and Tenders to purchase identified life cycle assets.	✓	✓		✓
10. The Departments that currently have tankers without pumping capacity provide for the installation of on-board plumbed portable pumps.	✓		✓	✓

Short Term (3-7 years)	♻↑	💰	☑	🧮
11. The Northumberland County Fire Chief's Association develop standards and protocols, to better obtain the Effective Response Force, for the Dispatch Centre to automatically notify additional resources when the required number of firefighters are not responding based information received on the "Who's Responding" App.	✓			
12. The Northumberland County Fire Chief's Association establish a Technology Committee that would look at all aspects of technology including the use of tablets for response vehicles or cell phones for firefighters.	✓			✓
13. The Northumberland County Fire Chief's Association complete a review and use of Drone Technology that would increase the level of service to the Municipalities and the safety of firefighters.	✓			✓
14. The Northumberland County Fire Chief's Association determines the location of specialized services based on statistics and actual calls for service.	✓			✓
15. All firefighters at a minimum are trained to the awareness level for Hazardous Materials, Trench, High/Low Angle, Confined Space and Water/Ice Rescue.	✓			✓
16. The Northumberland County Fire Chief's Association, after determining what specialized services will be required to be delivered across the Municipalities develop a strategic plan that outlines the specific location of the response teams, the training required and any agreements that must be developed and approved by Council.	✓	✓	✓	✓

Short Term (3-7 years)	♻️⬆️	💲	✅	🧮
17. Councils and the Chief Administration Officers prior to hiring a Chief Officer, review with the Fire Service Steering Committee any potential of sharing a position between Municipalities, or reallocating the FTE, due to a vacancy in the Chief Officers ranks, to solve an identified pressure.	✓	✓	✓	✓
18. The Northumberland Fire Chief's Association develop an On-Call Chief's position that would have two Chief Officers on call for weeknights and weekends to support emergency incidents and the on-scene Incident Commander.	✓	✓		✓
19. The Northumberland County Fire Chief's Association work with the Fire Service Steering Committee to develop response standards for low, moderate, and high risk in different density areas using the effective response force model and submit to Council for approval.	✓		✓	✓
20. The Northumberland County Fire Chief's Association work with the County of Northumberland's GIS department to develop response areas to find the closest station response and automatic aid for structure fire calls, based on road networks and road speed.	✓		✓	✓
21. The Northumberland County Fire Chief's Association develop standard critical tasks set up times based on their local abilities.	✓			

Long Term (8-15 years)	♻️📈	💲🤲	✅📋	🧮
1. The Northumberland County Fire Chief's Association works with the Training Committee to complete a feasibility study on the creation of a Countywide training facility.		✔	✔	✔
2. The Northumberland County Fire Chief's Association develop policies that would allow for Cross-border firefighters.	✔		✔	

3.0 Approach and Methodology

The Loomex Group brought together a Project Team expressly suited to complete the Municipalities' Fire Service Review. The Project Team included experts with direct experience managing fire services, conducting organizational reviews, Fire Master Plans and developing Strategic Plans.

The Loomex Group's approach and methodology for the Review included a background review of documents and maps, direct observation of the environment, and Departments and municipal staff engagement sessions. This approach was essential for developing the Review, and The Loomex Group believes that stakeholder engagement is an instrumental component of the process. Figure 1 outlines the steps of the Review process.

Figure 1: Review Process

Establish Terms of Reference → Stakeholder Engagement → Firefighter Survey → Data Collection/ Analysis → Station Visits → Fire Service Review
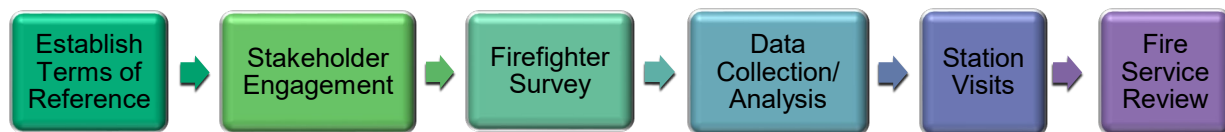
Establish Terms of Reference

The Loomex Group met with the Steering Committee to discuss the requirements and to establish the terms of reference for the project. It is critical to ensure that everyone understands the scope of work, timelines, and deliverables at the project start. Deliverables from this meeting included a framework to achieve the project objectives that were approved by the Steering Committee.

Stakeholder Engagement

Stakeholder engagement sessions are one of the essential aspects of the Review. Numerous sessions took place with the following individuals and groups:

- Township of Cramahe Council
- Chief Administrative Officer of each Municipality
- Fire Chiefs (individually) and with Deputy Chiefs and District Chief
- Individual fire stations
- President of Training Committee
- Past President of Fire Prevention Committee
- Municipalities Treasurers
- Cobourg Professional Firefighters Association Executive
- County of Northumberland Mutual Aid Fire Coordinators

The goal of the sessions was to introduce the Review's framework, discuss how the Departments currently provide services and to identify possible enhancements to improve efficiencies and effectiveness.

Firefighter Survey

As part of the Review, an anonymous online survey was issued to all career, volunteer, part-time officers, and firefighters to solicit their feedback on how well the Departments work together and to identify areas for improvement to provide a better service level for the communities.

Data Collection, Review and Analysis

The Loomex Group worked with the Fire Chiefs to collect data and relevant information specific to their Department, such as:

- Applicable Bylaws
- Asset Management Plans
- Response Protocols
- Operating and Capital Budgets
- Firefighter Compensation
- Applicable Agreements
- Organizational Structures
- Mapping of municipal boundaries, station locations and response data
- Population, development data and studies

The Project Team maintained an open-minded approach when reviewing data and details on how the Departments identified synergies and opportunities for shared services, cost-savings, or cost avoidance. The analysis reviewed and considered:

- How Departments currently provide services
- How the Departments currently work together
- Departments succession planning
- Station locations
- Current mutual and automatic aid
- Communications system and hardware
- Information Technology (IT) equipment and programs
- Recruitment, retention, and compensation structure
- Purchasing efficiencies
- Emergency management programs

Draft/Final Fire Services Review

After completing the stakeholder engagement sessions and data analysis, the Project Team commenced with the draft Review. Ongoing meetings with the stakeholder groups and the Steering Committee continued to ensure open lines of communications. The Steering Committee was issued a copy of the draft report for review and comment. The Loomex Group incorporated comments and revisions where applicable and finalized the Review.

3.1   RFP Scope

Scope of Services	Report Section
How are services currently provided, and are there more efficient options for delivery? • Administration • Public Education and Code Enforcement • Training • Suppression • Emergency Management	4.0, 15.0 5.0, 8.0 5.0, 9.0 11.0, 14.0,16.0 5.0, 12.0
How is succession planning being looked at by the municipalities? • Policies and Procedures • Formal Agreements • Officer Development	5.0, 9.0, 14.0 5.0, 14.0, 17.0 9.0
Station location from a non-border coverage perspective: • Social Dynamics • GIS Mapping • Cross Border Firefighting • Chief Officer On-Call • Pager/Cell Phones • Who's Responding • Performance Measurement	5.0, 6.0 16.0 5.0, 17.0 15.0 13.0 13.0, 17.0 16.0

Communications System, Hardware, IT Equipment and Programs Commonality • Paging/Cell Phones • Tablets • Radio System • Technology	 17.0 17.0 17.0 17.0
Recruitment, Retention, and Compensation Structure • Survey Results • Ongoing Engagement • Retirement Benefits • Dental and Health Benefits VFIS • Firefighter Wellness (physical and mental)	 5.0 5.0, 6.0 5.0, 7.0 7.0 7.0
Purchasing Life Cycle Assets • Asset Management & Procurement • Multi-year Capital Requirements	 5.0, 10.0 10.0, 11.0
Provision of Emergency Management • Emergency Management Program Strategies	 5.0, 12.0
Work Collaboratively with all Municipalities. • Automatic Aid • Mutual Aid • Social Dynamics • Specialized Services • Tanker Shuttle Accreditation • Countywide SOGs	 5.0, 14.0, 17.0 5.0, 17.0 5.0, 6.0 14.0 11.0 5.0, 7.0, 9.0, 11.0, 13.0, 17.0
Compliance • Legislative Requirements • Review Industry Standards and Guidelines • Service Delivery Standards • Closest Station Response	 4.0 Each Section 16.0 5.0, 17.0

Multi-Year Capital Requirements • Apparatus/Equipment/Facilities • Tactical Objectives for Departmental Organization, and human resource (Suppression, Public Education, Prevention, etc.)	8.0, 9.0, 11.0, 8.0, 9.0, 12.0, 13.0, 16.0, 17.0
Action Plan • Multi-year planning, Implementation and Budget Impact	1.0 Summary of Recommendations

4.0 Legislation and Bylaws

4.1 Legislation

Provincial legislation, industry standards (best practices), municipal bylaws, agreements, and policies guide the Departments' operations. The following is a list of the primary legislation and standards:

- Fire Prevention and Protection Act (FPPA, 1997)
- Ontario Fire Marshal's Public Fire Safety Guidelines (PFSG, 1998)
- Emergency Management and Civil Protection Act (R.S.O. 1990)
- Ontario Building & Fire Codes
- National Fire Protection Association (NFPA) Standards
- Occupational Health & Safety Act (OH&S) and Section 21 Committee Guidelines
- Municipal Bylaws
- Corporate Policies and Guidelines
- Department Policies and Standard Operating Guidelines
- Highway Traffic Act
- Municipal Act

One of the primary legislations the Municipalities must comply with is the Ontario Fire Prevention and Protection Act (FPPA, 1997), which outlines and mandates minimum standards that must be adhered to provide life safety systems to a municipality. The minimum standards include:

- A simplified risk assessment
- A smoke alarm program
- Distribution of fire safety education materials
- Inspections upon complaint or when requested to assist with fire code compliance
- Vulnerable Occupancy Program meeting Provincial Regulations

A review of the Departments' legislative requirements appears that they all meet the minimum standards under the FPPA currently. While compliant, the Departments find it challenging to meet the inspections upon complaint or request requirement, as it is very time-consuming. Larger departments in the County struggle due to the number of required inspections, and smaller departments are without a dedicated inspector.

While meeting the minimum standards for Public Education and Code Enforcement is acceptable under the FPPA, expectations have changed to include more proactive programs. Section 8.0 provides a further review of the programs currently offered and recommendations to provide a better service level for the Municipalities.

4.2 Bylaws

To meet the FPPA regulations and other legislation, each Council approves through an Establishing and Regulating (E&R) Bylaw, the established level of fire service provision for residents, businesses, and visitors, based on the Fire Chief's recommendations.

Although some variances exist, the Municipalities have updated their bylaws to reflect the services they provide. As per the bylaw, each Council approved the Departments to provide the following core services:

Figure 2: The Six Core Services Approved by Council

Maintenance — Emergency Response — Fire Prevention & Public Education — Fire Administration — Training & Education — Support Services

The Departments must also adhere to several bylaws for their respective Municipality that outlines their traditional roles and residents' expectations, as illustrated in Table 1.

Table 1: Fire Service Bylaws and Year of Approval

Municipality	Establishing & Regulating	Open Air	Fireworks
Alnwick/Haldimand	2018	2016	N/A
Brighton	2016	2016	2005
Cramahe	2018	2013	2002
Cobourg	2012	2010	2016
Hamilton	2016	2017	2019
Port Hope	2017	2012	2008
Trent Hills	2017	2018	2003

5.0 Stakeholder Engagement Sessions

Numerous stakeholder engagement sessions were conducted with the following stakeholder groups:

- Township of Cramahe Council
- CAOs of each Municipality
- Fire Chiefs (individually) and with Deputy Chiefs and District Chief
- Individual fire stations, including separate sessions with the Chairs of the Training and Prevention Committees
- Municipalities Treasurers
- Cobourg Professional Firefighters Association Executive
- County of Northumberland Mutual Aid Fire Coordinators
- Mutual Aid Coordinators

5.1 CAO Individual Sessions

Individual sessions with each Municipal CAOs in the County commenced at the project start and provided an opportunity for The Loomex Group to explain the work's scope and approach. It also created a means to solicit feedback from the CAOs perspective regarding the following:

Q1 • What they believed necessary as part of the review

Q2 • What they felt to be the main political concerns

Q3 • How they envisioned moving forward with The Loomex Group's recommendations

From these sessions, there was a consensus on exploring shared services and equipment as a strategic approach to cost savings. However, there was no support for one combined fire service for the County. Additionally, there was a general interest in finding cost-savings or cost avoidance opportunities relating to equipment and vehicles. Some CAOs expressed concern regarding their Council's view on providing services to other Municipalities, and the reciprocal benefits there would be for the individual Municipality.

The CAOs all agreed that there was a need to improve the Emergency Management Program (EMP). Except for the Township of Cramahe, all the other Municipalities have designated the Fire Chief as the Community Emergency Management Coordinator (CEMC).

The current CEMC program places an unnecessary burden on the Fire Chiefs as they are expected to perform the Municipality's Chief Fire Officer's role while simultaneously fulfilling the role of CEMC. Most CAOs believe this is an opportunity to create a shared resource to manage all Municipalities EMPs.

5.2 Fire Chiefs, Deputy Chiefs and District Chief Individual Sessions

Individual meetings took place with the Department management teams, and like the CAO sessions, the Chiefs are interested in expanding shared services currently set across the County. In discussion with the Chiefs, most of them were not interested in consolidating the Departments.

In addition, the Fire Chiefs believe it is better to manage the EMP collectively. Another consideration brought forth was to create a position shared by all Municipalities, or alternately, contract a third-party to manage the EMP service.

5.3 Mutual Aid Coordinators Sessions

Based on the Ontario Mutual Aid Plan, the seven departments participate in Mutual Aid, which works very well. Under the Mutual Aid Plan, the host department can request equipment and human resources from neighbouring departments. Notification is sent to the Mutual Aid Coordinator of the request, and they then begin to coordinate backfilling resources as required.

A session was held with the Mutual Aid Coordinators to discuss the Mutual Aid system and the Mutual Aid Association's function. Feedback from both the Coordinators and the firefighters demonstrated that this system is working very well; however, there needs to be a formalized standard procedure that outlines the backfilling process.

The Mutual Aid Association is a viable group that promotes education and camaraderie among the Departments. The Association meets seven-times a year, with each of the departments hosting and chairing a meeting; however, one department is required to fill the role of executive for the entire year. The meetings intend to be educational and provide a networking opportunity amongst the departments. The hosting department arranges for an education guest speaker, and fire department vendors often attend. Meetings are very well attended, with an average attendance of 70-80 firefighters.

5.4 Northumberland County Fire Chief's Association Sessions

The Chiefs participate in the Northumberland County Fire Chief's Association and meet monthly to discuss mutual interest issues. This group also supports and provides funding to the County Fire Prevention and Training Committees.

As a result of the hard work of the Association, many shared programs resulted, like the Air Management Program (including a mobile trailer), a Hazard Materials absorbal bank, and a standardized Accountability System. The group has also worked hard to improve the service level along the Highway 401 corridor by establishing the closest station response and developing a standardized radio system, which will be complete mid-2021.

Overall, the Association is working very well, but in review with the President and Vice-President, there are a couple of challenges and programs they would like to see moving forward. One of the challenges discussed concerned the follow-through of established and agreed-upon programs by the committee. Completing a program is sometimes hampered by not securing adequate funding through Council for program follow through.

From the sessions with the Association, they agreed to consider future projects like distributing specialized services teams and working together to reduce the cost of mandatory testing of pumps and ladders.

5.5   Cobourg Professional Firefighters Association Executive Sessions

The Loomex Group conducted two sessions with the Cobourg Professional Firefighters Association (CPFFA) Executive to discuss the Review's scope and to seek feedback from them on the fire service in the County.

The Loomex Group project team further reviewed with the CPFFA Executive the concepts of providing an effective response force and closest station response. The Executive explained that the Departments already share specialized services and respond under Mutual Aid.

During the session, some concerns expressed by the CPFFA Executive were the current staffing levels for the Town; specifically, there was a concern for if their department was called to assist other departments. They would also like to see a Community Risk Assessment and Fire Master Plan completed for the Town.

Additionally, there were discussions regarding the 'Contracting Out' clause language within the Collective Agreement. The Loomex Group acknowledged the importance of respecting the clause during the development of this report.

The CPFFA Executive was asked to review the firefighter survey for its content and send it out to their members; upon review, they expressed that they were very supportive of conducting the survey and distributed it to their members and the volunteer firefighters in Cobourg.

5.6 Initial Firefighter Engagement Sessions

Over several months, The Loomex Group facilitated firefighter engagement sessions that were well attended and received with each station in the County, which were well received. The Project Lead discussed the purpose, scope, and framework of the Review with the firefighters and explained how they could provide input.

The session's dialogue revolved around what the Firefighters thought worked well and the challenges of working with other departments. Overall, stations across the County believe that working together is the best way to provide the residents appropriate service levels. However, they face several challenges on the frontline that includes, but are not limited to, the ability to communicate through radio with each other, not following the established standard accountability system, and different ways of operating in non-hydrant areas for water supply.

5.7 Recruitment, Retention and Firefighter Wellness

Overall, the Chiefs feel that Firefighter Wellness Program form part of a good recruitment and retention program. The Departments have ensured that upgraded WSIB, Employee Family Assistance Programs (EFAP) and Post Traumatic Stress Disorder (PTSD) policies and programs are in place for their firefighters. However, they also agreed there was still much work to be done.

During their engagement sessions the Chiefs also discussed "After the Call," a Critical Incident Stress Management (CISM) program that all the Chiefs have accepted. However, the group has not yet formalized the activation protocol by developing a Countywide SOG.

The Chiefs also discussed future items that could help with recruitment and retention, firefighter wellness, insurance coverage, medical or dental coverage, and nutrition and wellness programs.

5.8 Treasurers Engagement Session

The Project Lead and the Chief Financial Officer of The Loomex Group met with the Municipalities Treasurers, including Glenn Dees, the County of Northumberland's Director of Finance/Treasurer. The session demonstrated that the Treasurers are a well-established group, chaired by the County, that meets regularly to discuss financial issues within the County and the Municipalities. The session explored purchasing for the Departments and possible efficiencies and cost-savings. The project team asked three questions for the group to consider.

Q1	• What is currently being done as a group of Municipal Treasurers?
Q2	• What can be done to find and achieve efficiencies?
Q3	• What prevents them from joint purchases?

Several key factors were discussed regarding budgeting for the Departments. The group identified the development of a standard procurement bylaw allowing for shared purchases for cost savings. This new procedure will align the County and the Municipalities and will allow for more joint purchases.

Additionally, through practical Municipal cooperation, the group identified the County radio system and the completion of several joint fire and paramedic bases as projects to ensure effectiveness and cost savings.

Another procedure the group attempts to follow is looking for commonalities for making any regular purchases across the County and the Municipalities branches. From the group's perspective, this approach works well. However, the Departments are not included in this process, as the belief exists that they are currently completing this within the Fire Chief's group.

The group discussed several financial challenges that prevent them from doing more together, and a few highlights were: political differences among the Municipalities and the County, lack of staff resources, and different budget timetables.

One of the initiatives discussed was the possibility of having all procurement managed at the County level. While this approach has some merit, presently, the staffing resources would not support this approach.

Overall, the Treasurers group appears to be working well as a group and are working on finding efficiencies and cost savings across the County. However, the Treasurer's group and the Fire Chief's Association are not working in unison, thereby mitigating both groups' effectiveness.

5.9   Firefighters Survey

To engage with officers and firefighters, an online Firefighter Engagement Survey was developed and consisted of seven questions. The Fire Chiefs and the CPFFA were provided with a link to the survey to distribute to their members.

A total of 101 responses (27%, which is considered typical) were received from a potential 375 officers and firefighters. The following is a breakdown of the questions and common themes of the survey questions.

Q1   **What Department are you from?**

- ■ Trent Hills (15)
- ■ Port Hope (16)
- ■ Hamilton Twp (37)
- ■ Cramahe (4)
- ■ Cobourg (11)
- ■ Brighton (11)
- ■ Alnwick/Haldimand (7)
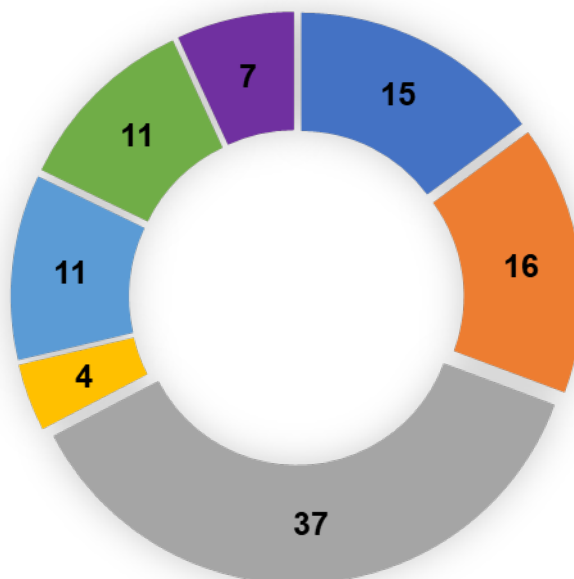
Q2   **What things do you do well while working together with neighbouring fire services, which provide a better service for the residents?**

Most of the answers discussed providing an appropriate service level across the Municipalities and working together under the Mutual Aid System. Another typical response that related to a geographic area perspective was the "Street Valve" system used at structure fires.

Q3   **When working with neighbouring fire services, what challenges do you encounter that inhibit you from providing the best possible service for residents?**

The responses to this question identified four common themes: Radio Communications, Training, Accountability and Entry Control, and Water Supply in Non-Hydrant areas.

Radio Communications was the most mentioned theme by the firefighters. The lack of interoperability across the County, digital versus analog, and the ease of using portables were all mentioned.

Training concerns were raised about the lack of knowledge (skills and abilities) when working with firefighters from other municipalities. The general feeling is that you need to understand everyone's skill level to feel confident working with neighbouring firefighters.

Accountability and Entry Control were mentioned at the initial firefighter sessions and became a prominent theme in the survey results. It inhibits the Departments from working safely with each other.

Water Supply for Non-Hydrant areas is a challenge when multiple Departments work together and use different water supply methods in non-hydrant areas.

Q4 **What are your thoughts on cross-border firefighting?**

The survey results showed that 57% of respondents believe this concept is beneficial and would improve residents' service levels. However, respondents also believe that any cross-border firefighter must meet all training requirements.

Of the remaining responses, 5% were undecided, and 38% did not think it was a good idea for various reasons.

Q5 **What are your thoughts on having the closest station respond to emergency calls?**

The overwhelming response to this question was that the firefighters favour this approach to providing a better service level to the residents. It already happens in some areas under Automatic Aid Agreements.

Q6 **It is important that departments collectively work together to provide seamless service for municipalities. However, each department has a unique culture/tradition that is just as important to maintain. What are the unique aspects or components that are important for your department to retain**?

Some of the cultures and traditions noted in the responses related to maintaining camaraderie within the stations and departments. Many firefighters indicated that they did not want the closeness they have with each other, including the bond between the career and volunteer firefighters within a department to be compromised.

Another theme identified is that each department must provide adequate staffing levels to look after their Municipality before assisting neighbouring municipalities.

Q7
List the top 5 concepts you believe could provide a better level of service for Northumberland County residents?

Several common themes surfaced from the response to this question that includes:

Training

Many responses discussed training. This included everything from having a standard approach to training Countywide, a joint training facility and a dedicated full-time training staff, to conducting cross-training with neighbouring departments. The survey results showed that both officers and firefighters consider training to be important in allowing them to provide the level of service to their residents, as well as to allow them to have a more consistent approach to training and a higher level of expertise and confidence when it comes to firefighting.

Fire Prevention

The comments regarding fire prevention showed that, for the most part, across the different Departments, it is recognized how important public education and code enforcement is to providing life safety for the residents. Many comments mentioned that having dedicated full-time staff to organize and deliver standardized Fire Prevention programs across the departments would be a means to provide a better level of service.

Accountability/Entry Systems

Comments were received on the importance of a standardized system to simplify procedures for the officers and firefighters and provide accountability at emergency scenes and firefighters' safety.

Radio Communications

Response comments included the need for more simplified radio communication operations in the foreground and standard frequencies so that officers and firefighters could hear and talk to neighbouring departments and standardize radio channels in all radios.

Staffing

Staffing was one of the concepts most mentioned for providing a better service level for the residents and firefighter safety. As previously mentioned, there were many comments around having dedicated full-time Fire Prevention and Training staff, but there were also several comments around daytime staffing and adding more full-time staff to career and volunteer stations.

5.10 Chiefs Sessions

Engagement sessions were bolstered by the extensive service tenure of the Chiefs. Numerous Chiefs with over thirty years of experience provided knowledge and insight into establishing a successful path. The Loomex Group facilitated two sessions over a two-day period that included representatives from each of the departments.

The engagement sessions were designed based on the agreed-upon framework and reviewed the following areas within the Departments:

- Air Management
- Firefighter Engagement
- Performance Measures
- Specialized Services
- Firefighter Wellness
- Shared Administrative Staff
- Technology
- Automatic Aid vs Mutual Aid
- Emergency Management
- Asset Management & Procurement Programs
- Recruitment and Retention
- Training Requirements
- Public Education, Inspections, and Investigations

The Loomex Group introduced a series of questions for review and reflection by Chiefs as follows:

Q1 • Where does the group want to head in the future together?

Q2 • How do the departments work together to provide a better service level to the residents, businesses, and visitors of the Municipalities?

Q3 • What more could the departments do together to enhance service level to the residents, businesses, and visitors of the Municipalities?

Q4 • What services or programs do you provide outside the normal Mutual Aid agreement?

The Loomex Group Project Facilitators also challenged the group to think about "why or why not" concerning their services, and to examine why they provide the service or why they do not provide the service.

The Chiefs felt they were proceeding on a common path with a consensus, and they worked in a spirit of cooperation until competing views skewed this process. The consensus was to re-establish collaboration and a spirit of unity.

Most of the group feels that the fire service struggles to find funding while competing with their Municipalities' other services. Furthermore, there is the perception that politicians place more importance on Police and Emergency Medical Services (EMS).

The group is united in the belief that they need to continue to provide the current level of service, including meeting future demands placed upon them by the public and Councils. Furthermore, they must trend toward municipal cooperation and an innovative strategic approach of shared services and cost savings.

A representative from each Department was given 14 votes to cast on the Review framework prioritizing them from the most important to least important. They could also vote multiple times in any of the sections. The results were as follows:

Section	Priority
Recruitment, Retention and Firefighter Wellness*	17
Training Requirements	11
Public Education, Inspections, and Investigations	9
Asset Management & Procurement	9
Automatic Aid vs Mutual Aid	9
Emergency Management	8
Technology	8
Social Dynamics	7
Shared Administrative Staff	6
Specialized Services	6
Performance Measures	6
Firefighter Engagement	2
Air Management	0

*During the discussions, Firefighter Wellness, Recruitment and Retention was combined as one section.

5.11 Training Requirements

Training continues to be a high priority for the Departments. The Chiefs recognize the ongoing training demands and the importance of attaining this priority. Their goal is to ensure that the NFPA standards are met and achieve a balance of practical and online training, include travel time to any recognized facilities and include more cross-training on fundamentals to address standardized procedures while working on the fire ground. Finally, exploring the opportunity to have all departments working from one training platform would provide cost savings and consistency for all.

A general discussion took place regarding having a Full-Time Equivalent (FTE) position to manage the Department's training program and looking into the development of a Countywide training facility.

5.12 Public Education, Inspections, and Investigations

The County Fire Prevention Committee is working well, includes representatives from across the Departments and meets regularly to plan public education for the Municipalities. The group recognizes the importance of the committee and the hard work they are doing together.

The Chiefs recognized that public education and code enforcement plays an essential role within the fire and life safety system, but for the most part, all the Departments are struggling to keep up with the demand for these services. There is a difference between the Departments on managing these programs. The responsibility varies from department to department ranging from the Fire Chief or Deputy Chief to part-time or full-time Fire Prevention Officers (FPO). No matter the system in place, the group feels more resources are needed to meet the legislative requirements. The group also discussed various concepts, such as sharing an FPO between two departments or creating an FTE amongst multiple departments.

5.13 Asset Management & Procurement Programs

Asset management and procurement are areas the Chiefs feel are limited, although some joint purchasing opportunities exist. They did not believe that joint purchasing of items like Personal Protective Clothing (PPE) or fire apparatus is possible because items are unique to each Municipality.

5.14 Automatic Aid vs Mutual Aid

This section generated lots of discussions that ranged from what is being done currently to what could be done in the future to improve both automatic aid and mutual aid. The Loomex Group Facilitators also introduced the idea of creating soft borders (closest station response) and cross-border firefighting.

There was a mixed acceptance of the cross-border firefighter concept across the group. Some of the Chiefs believe it is possible, while others raised several issues, including identifying which department is responsible if a firefighter is injured and the need for standardized training and adoption of an accountability system at this time.

The group agreed on the need to develop firefighting programs that include standard directives and SOGs. The group also acknowledged that the applicable clauses in the collective agreements must be honoured because of unionized workers.

For the closest station response concept, the group acknowledged that a common dispatch and more accurate GIS mapping would enhance automatic aid. However, specific programs would have to be standardized across the Departments, for example, the water supply for non-hydrant procedures.

5.15 Emergency Management

Except for the Township of Cramahe, all the other Municipalities rely on their Fire Chief to fulfill the role of CEMC and manage the Emergency Management Program, in addition to their ongoing responsibilities. The Town of Cobourg has a full-time Emergency Planner that assists the Fire Chief with managing the EM program. The Chiefs agreed that Emergency Management needs to be managed by somebody other than the Fire Chief. The groups recognize that the plans could be similar, and the program, including annual exercises, could be managed by a shared FTE. There was also discussion of having a third-party manage it on behalf of the Municipalities or the possibility of the County Emergency Management Group. However, the Chiefs consensus was that it was not in the municipalities' best interest to proceed in this direction.

5.16 Technology

The group recognizes the vital importance technology plays in providing service now and in the future. The group discussed working together to integrate the new radio system, which is approximately 85% of the way through, with completion expected in 2021. They are leveraging technology to their advantage, as noted in the use of one dispatch center, working on getting all Departments using "Who's Responding" and using a common paging frequency. The group recognizes the need to do even more with technology, such as Automatic Vehicle Locator (AVL) systems that identify and track vehicles in motion.

The group also discussed the importance of firefighter's pagers as mission-critical but recognized that many new firefighters rely on cell phone technology instead. This infrastructure is not robust enough, and the difficulties of managing cell phones do not support moving in this direction.

5.17 Social Dynamics

While discussing opportunities to share or change a service, the Chiefs remarked on social dynamics and their significant impact on many of their decisions. Most notably, understanding who the process affects and how groups or individuals interact and react to specific changes. It is necessary to review and understand culture and demographics when making decisions or changes to service delivery.

5.18 Shared Administrative Staff

Given the scope, complexity, and vital role staffing plays, the Chiefs reviewed positions where shared administrative staff may assist their Departments' overall success. The positive dialogue provided valuable insights into possible options.

Specifically, a more strategic approach would best aid the Chiefs in providing a solution, rather than all performing the same tasks. While they recognized the need to share more staff, their preference was to proceed slowly and identify the benefits rather than moving in a forced manner. Smaller departments would realize advantages through combining services; however, they believe that there is very little political support at Council to bring many departments into one.

Further discussion on shared services provided options to consider in support of cooperation for the success of all. The Training Officer position could provide an excellent opportunity in sharing of administrative staff and municipal cooperation. This strategic change would address the pressures of meeting NFPA standards, recruitment and retention initiatives, certifications, and policy standardization; it is a recognized benefit for all County departments.

The second position discussed was sharing a full-time Emergency Manager. Unanimously, the Chiefs believed that this position would benefit all departments and would allow the Municipalities to maintain and oversee the role for mutual benefit with a strategic approach to shared economies of scale.

5.19 Specialized Services

Discussion and debate took place on specialized services, with the Chiefs offering several options. Specifically, reviewing the benefits of shared services, coordination of specialized services, resources, and training, and lastly, the requirement for a risk-based analysis before moving forward.

Some of the departments are currently performing specialized services, and they would like to see more departments involved, thus providing Departmental cooperation in delivering critical services to their municipalities.

Should the options indicated above be realized, the Chiefs are confident that specialized services could be shared to benefit all departments.

5.20 Performance Measures

In reviewing this section, the group acknowledged that accurate statistics should be generated and reviewed to ensure fire services move ahead. Such measures will assist with performance improvement for the Departments and aid in meeting their operational objectives.

Generally, the Departments use a Records Management System (RMS) linked with their Computer Aided Dispatch to provide response information. Additionally, performance measurement for training, prevention, responses, and standards are similar.

For the most part, the Departmental performance measurements are the same for training and prevention records, responses, and standards. The Departments all use the same Records Management System tied into the Computer Aid Dispatch, so response information is the same.

Concern was expressed about the time commitment dealing with data and statistical information during regular workdays. Setting goals under such measure establishes performance targets and assists Fire Chiefs in providing Councils with operational statistics on performance for their Municipalities.

5.21 Firefighter Engagement

Overall, the group feels they are doing a good job at firefighter engagement. Several departments had completed firefighter surveys pertaining to Strengths, Weakness, Opportunities and Threats and conducted an analysis during regular meetings with the firefighters or on training nights in past years.

One of the most significant ways that the firefighters are engaged is through the Mutual Aid Association meetings. As was discussed in Section 5.3 Mutual Aid Coordinators Sessions, the Departments have an extraordinarily strong and active Mutual Aid Association. Regular meetings attract 70-80 firefighters indicating a strong interest in this area. The Chiefs use this opportunity to talk about the many issues or programs affecting the departments. The only challenge identified through this form of feedback was how to reach the firefighters who are uncomfortable with speaking in front of a large group.

Further discussion ensued concerning why the departments do not conduct community surveys. It was relayed to the group that other services do this regularly (including police) and find it valuable. The Chiefs felt that this process could be beneficial for the fire service.

5.22 Air Management

As shown, the air management section did not receive any votes, but it should not be misconstrued as not being a priority. Instead, it is one area that has been developed by the group and is a benchmark for success. This program's standardization across all Departments meets both the legislative standard and Section 21 Guidelines for Air Management. It also meets the Departments' operational requirements, including an air support trailer to respond to emergency scenes, as required. The trailer is housed at one of the Hamilton Township stations responsible for responding following air requests. There is a system in place for offsetting the costs of the maintenance of the trailer.

The group has also standardized the air compressors to fill air bottles and now have four compressor stations to service the Departments, strategically located in the County.

One item that could provide a small amount of cost savings is if the group set up the compressors' legislative testing and maintenance as one tender or RFP. All the compressors are currently meeting the legislative requirements, but not everyone is using the same vendor.

5.23 Recommendations

From the review and assessment of stakeholder engagement sessions, it is recommended that:

1. A County of Northumberland's Fire Service Steering Committee is established and comprised of CAO's, Fire Chiefs and Treasurers mandated to work together on expanding shared services.

2. The County of Northumberland Mutual Aid Association explore opportunities for utilizing technology to disseminate information for those firefighters who cannot attend the Mutual Aid meetings.

3. Each Department implements the process for developing a Fire Master Plan for their Municipality.

6.0 Social Dynamics

Wikipedia defines social dynamics (or sociodynamics) as the study of group behaviour that results from individual group members' interactions and the study of the relationship between individual interactions and group-level behaviours.[1]

Social dynamics is one component of the decision-making process frequently overlooked. For the Municipalities and/or the Departments to make changes together, they first must understand who those decisions will affect and how the individual or group(s) will react and interact. Specifically, there needs to be an awareness and understanding of local history, community culture, and municipal demographics, including future growth and development when making strategic decisions.

There are many group behaviours to consider. For the Municipalities, the groups include communities, Council, CAOs, and the Fire Chiefs. For the Departments, the group behaviours could be a station within one department, within an individual station in one department, and stations between the Departments.

Figure 3: Venn diagram illustrating the overlap between groups.

Social Dynamics was a topic of discussion at the Chiefs session, as the Chiefs recognized the importance of its impact, including the trend toward inter-municipal cooperation.

The Training Committee Recruit Training Program is a prime example of such dynamics. This cooperative arrangement merges various Municipalities and allows for a shared economy of scale. Furthermore, it provides diversity in training, reduces individual department's burdens, and introduces social dynamics to recruits from the onset.

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[1] Durlauf, Steven; Young, Peyton (2001). Social Dynamics. Cambridge, MA: MIT Press. ISBN 0-262-04186-3.

Engaging in cooperative and consolidated service arrangements is a strategic approach to cost savings through economies of scale. Shared services like recruit training, mutual aid, automatic aid, equipment purchases, and standardization of policies help with cost savings for individual operations and the fire service in general.

Cooperative relationships between stakeholders begin with creating a transparent process and builds trust among those affected. This can be accomplished in several ways, including regular engagement sessions through surveys, face-to-face meetings, Town Hall meetings, mutual aid meetings and joint meetings interacting with the Departments.

The design of engagement sessions is to create a healthy social dynamic across the Departments, for the Stations and Departments to work together, obtain feedback, and promote change. The engagement process used for the Review is an excellent example of creating a healthy social dynamic environment to attain feedback and should be considered as a model moving forward.

6.1   Recommendations

From the review and assessment of Social Dynamics, it is recommended that:

1. The Northumberland County Fire Chief's Association works with the Fire Service Steering Committee to increase firefighter engagement by developing programs that include, but are not limited to, face-to-face meetings, surveys, and Town Halls on a routine basis, thereby providing a mechanism for feedback from stakeholders.

2. The Northumberland County Fire Chief's Association works with the Fire Service Steering Committee to develop a process to review and consider social dynamics that may affect stakeholders.

7.0 Recruitment & Retention

Recruitment and retention are significant problems for many volunteer or part-time departments. It is not uncommon for a department to have an annual loss in members by 10% to 20%. As a result, within five to ten years, there may be a complete turnover of volunteer or part-time firefighters, which will cause fire departments to spend a significant amount of time and money on recruitment and training of new volunteers.

Many new volunteer or part-time firefighters have limited experience and skills. Due to high turnover, there are fewer experienced members to take on leadership roles. Specialized and advanced training also suffers as time and efforts shift to focus on basic recruit training.

Many articles document the challenge of firefighter recruitment and retention. "Where are They Going," a paper authored by Deputy Chief Ian Shetler for the Association of Municipal Managers, Clerks, and Treasurers of Ontario (AMCTO), clearly outlines the challenges associated with this type of department. An informative chart from the article highlights a few reasons why firefighters leave a department.

Table 2: Volunteer Retention and Recruitment Root Causes.

Source of Problem	Contributing Factors
Time Demands	• The two-income family and working multiple jobs. • Increased training time demands. • Higher emergency call volume. • Additional demands within the department (administrative, fund-raising, etc.).
Training Requirements	• Higher training standards and new government requirements. • More time demands. • Greater public expectation of capabilities (a broader range of services). • Additional training to meet a more comprehensive range of services. • Recertification demands.
Increasing Call Volume	• Fire department assuming broader response roles (EMS, hazmat, technical rescue). • An increasing number of emergency medical call volume.

Source of Problem	Contributing Factors
	• An increasing number of automatic alarms.
Change in the "Nature of the Business"	• Abuse of emergency services by the public • Less emphasis on social aspects of volunteering.
Changes in Sociological Conditions (In Urban and Suburban Areas)	• Transience. • Loss of community feeling. • Loss of community pride. • Less interest or time for volunteering. • Two-income families. • "Me" generation.
Changes in Sociological Conditions (In Rural Areas)	• Employers are less willing to allow response to calls. • Time demands. • "Me" generation.
Leadership Problems	• Poor leadership and lack of coordination. • Authoritative management style. • Failure to manage change.

During the Chiefs sessions, the Chiefs rated recruitment and retention issues as one of their greatest concerns. The Review showed a variation from department to department and station to station about the stability of the number of firefighters, but overall, the Departments are within the norm of other departments across the Province.

Recruitment of firefighters differs among the Departments on how easily this can be achieved. One of the factors contributing to the difference is the population of the Municipalities. The smaller the municipality, the harder it is to find community residents that can volunteer. Also, there is a lack of businesses in some of the same areas resulting in residents leaving their communities to work in other Municipalities.

The Chiefs identified retention as an issue many years ago and have discussed solutions to the problems; however, the attempt was made to manage the issue as individual departments, rather than collectively. The Chiefs have been working on retention programs within their own Municipalities and have already included dental and health benefits, retirement benefits, gym memberships and in some cases, equality with other part-time municipal employees. There has been some limited success in achieving these programs.

The issue of recruitment and retention is problematic today and will only worsen if the Municipalities do not make changes to promote and maintain a strong volunteer or part-time firefighting force. The Municipalities also need to look at this as cost avoidance, for if they cannot maintain volunteer or part-time firefighters where required, there is the possibility of adding career firefighters that will add substantial cost to the taxpayer.

To achieve recruitment and retention programs, the Chiefs should develop common strategies and plans for recruitment and retention that can be introduced Countywide with the Councils' approval. Some of the programs that can be designed include:

1. Develop a program for recognizing firefighters across the Departments in addition to the existing programs for each department.
2. Gym memberships or fitness equipment at stations that are accessible for all of the Departments members. Explore this as a possible shared service between departments, which could help pay for the equipment.
3. Retirement benefits through the OMERS program or RRSPs for volunteer and part-time firefighters.
4. Access to municipal dental and health benefits through cost-sharing with the firefighter.
5. Cancer prevention and wellness programs that include mental and physical wellbeing.

7.1 Recommendations

From the review and assessment of Recruitment & Retention, it is recommended that:

1. The Northumberland County Fire Chief's Association work with the Mutual Aid Association to develop a Countywide recognition program.
2. The Northumberland County Fire Chief's Association works with the Fire Service Steering Committee to develop long-term recruitment and retention strategies for volunteer or part-time firefighters across the Municipalities.

8.0 Public Education and Code Enforcement

8.1 Three Lines of Defence

The Ontario Fire Marshal and Emergency Management (OFMEM) has developed a Fire Safety Effectiveness Model that identifies a fire protection strategy known as the "Three Lines of Defence." The Three Lines of Defence are summarized in the table below.

Table 3: Three Lines of Defence

Line of Defence	Description
1. Public Education and Prevention	• Educating residents of the community on means for them to fulfill their responsibilities for their own fire safety. • Educating residents of the community on the importance of preventing fires.
2. Fire Safety Standards and Enforcement	• Ensuring that buildings have the required fire protection systems to minimize the impact of a fire.
3. Emergency Response	• Provide well trained and equipped firefighters to stop the spread of fires once they occur.

All three Lines of Defence are essential for the Departments to provide fire and life safety to the Municipalities residents; however, greater emphasis needs to be placed on the first two Lines of Defence. While this does not mean that Emergency Response is not important, it has been proven that good public education and enforcement programs provide a better approach to fire and life safety.

8.2 Fire Prevention Legislation

Public Education, Fire Safety Standards and Code Enforcement are the Municipalities responsibility and are mandated under the [Fire Protection and Prevention Act, 1997 (FPPA)](#). To comply with FPPA, the Municipalities must provide specific fire prevention, fire protection services, and additional services to meet the Municipality's needs and circumstances.

Section 2 of the FPPA includes the mandatory requirement for provisions of fire prevention and public education as follows:

"Every municipality shall, (a) establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention; and (b) provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances."

The Office of the Fire Marshal has determined that this requirement also includes the following components:

- A recognized smoke alarm and home evacuation program
- Fire inspections and evacuation for vulnerable occupancies
- Fire inspections on complaint or request
- Public education program
- Completion and maintenance of a Simplified Risk Assessment to determine the risks in the community and the level of fire prevention and emergency response required

In 2013, two new regulations were made under the FPPA that mandate specific fire prevention activities:

O.Reg.365/13: Mandatory Assessment of Complaints and Requests for Approval
O.Reg.364/13: Mandatory Inspection – Fire Drill in Vulnerable Occupancy

8.3   Simplified Risk Assessment

Municipalities have a legislated responsibility under the FPPA to provide public education concerning fire safety and specific fire prevention components. Conducting a Simplified Risk Assessment is the first step towards compliance with these requirements and is intended to identify the information required by a municipality to make informed decisions about the programs and activities necessary to effectively manage the Community's fire risk based on local needs and circumstances.

This risk assessment aims to identify potential fire risks in the Municipality and educational programs to address those concerns.

Risk is the measure of the probability and consequence of an adverse effect on health, property, organization, environment, or community because of an event, activity, or operation.

Identifying fire and life safety risks in the community and prioritizing based on the probability of occurrence and the impact if occurred, fire departments can determine which risks to address and how best to manage them. Risk assessments allow fire departments to ensure their service level, including their programs, inspections,

safety education, and emergency response, addresses the risks identified. It is also essential that their levels of service prevent and mitigates the identified risks.

The Simplified Risk Assessment includes the following components:

Demographic Profile	Building Stock Profile	Information Analysis & Evaluation	Local & Provincial Fire Loss Profiles
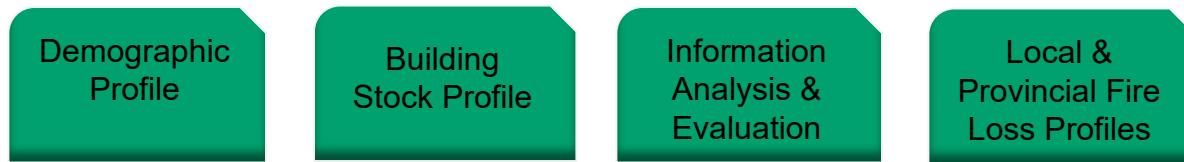
The Review showed that the Departments are all compliant with the requirements of the FPPA; however, the smaller departments like Alnwick/Haldimand and Cramahe, which do not have dedicated prevention staffing, are struggling to maintain meeting the requirements.

8.4   Enforcement (Inspections)

As previously stated, fire safety standards and code enforcement are part of the Three Lines of Defence. At the time of the Review, inspections are being handled in various methods depending on the department's staffing levels. Table 4 illustrates the staffing hours allotted to Fire Prevention Officers/Inspectors.

Table 4: Fire Prevention Officer/Inspectors

Municipality	Responsibility	Staffing Hours Allotted
Alnwick/Haldimand	Fire Chief	As required
Brighton	Deputy Fire Chief	As required
Cobourg	Fire Prevention Officer Fire Prevention Officer	Full-Time Full-Time (Temporary One Year)
Cramahe	Fire Chief	As required
Hamilton Twp.	Fire Prevention Officer	Part-Time (30 hours/week)
Port Hope	Fire Prevention Officer	Full-Time
Trent Hills	Deputy Chief	As required

The requirement for better inspection programs has increased significantly. In speaking with both Fire Prevention Officers and the Fire Chiefs it is recognized that all departments are struggling to meet the minimum requirements of complaint and request. Some Municipalities experiencing growth saw substantial inspection requests even before the pandemic, which has brought an increased level of inspections for businesses opening under ever-changing Provincial guidelines.

The Departments could increase the service level of inspections and move from minimum standards programs to more proactive approaches to inspections across the Municipalities.

The Ontario Fire Code and the Ontario Building Code are not based on the municipality's size but on the building type, occupancy, or hazards and can be enforced across the Municipalities from the same inspector. Hiring a Countywide Fire Inspector is a cost-effective approach for the Departments to share services. Thereby increasing fire safety in all communities and providing a more consistent approach for builders, businesses, and developers as they build across all Municipalities.

8.5   Fire Prevention

Although under the FPPA, fire prevention is the responsibility of each of the Municipalities individually, the Departments have a working Fire Prevention Committee that establishes standards for fire prevention uniformly across the Municipalities.

This committee is an example of how the Departments can work together to provide a better service level to the residents and be a model for other areas where services can be shared. The committee was formed over eighteen years ago by the Northumberland County Fire Chief's Association and Fire Prevention Officers with a mandate to develop and deliver fire prevention programs.

Due to the committee's makeup, meetings were very task-oriented in the early years, dealing with smaller issues. While still managing the programs that were developed, the committee has changed to a more strategic approach to fire prevention, spending much of their time talking about high-level strategies that can benefit residents across all Municipalities. Initially, the committee met twice a month; however, due to the importance of fire prevention and the committee members' dedication, they are now meeting once a month.

Some of the programs that the Committee has had success with are:

- Monthly Countywide fire prevention messaging on local radios stations
- Developing common fire prevention messaging
- Fire Prevention Week activities
- Fire safety video

Some programs that the Committee is working on are:

- Common Fireworks bylaw
- Common refreshment vendor bylaw
- More fire safety videos

One of the issues that the committee has been working on and would like to see enhanced is mental health issues, including hoarding. Over the years, many Departments have managed this issue and have been doing so with community partners such as the Northumberland County Hospital Mental Health Division.

In recent years, the logistics to support this program have diminished to a point where the program struggles to look after the residents in these situations. Working with external partners and the Northumberland County Fire Chief's Association, the committees hope to obtain the proper logistics to support a hoarding program across the Municipalities.

Other programs that the Committee would like to enhance are:

- More consistent fire prevention messaging for the schools across the Municipalities.
- Working closer together to obtain, coordinate, and share fire prevention materials like fire extinguisher tutors or fire safety trailers.

8.6 Community Risk Assessment

While the Simplified Risk Assessment is currently the requirement in FPPA to determine and manage potential risk in a community, Ontario passed legislation on July 1, 2019, that requires every fire department to complete a Community Risk Assessment no later than July 1, 2024, under the authority of the FPPA.

Under Section 1-4 of the new regulation, Mandatory Use states:

Every municipality, and every fire department in a territory without municipal organization, must (a) complete and review a community risk assessment as provided by this Regulation; and (b) use its community risk assessment to inform decisions about the provision of fire protection services.

Defined in the Regulation in Section 2:

(1) A community risk assessment is a process of identifying, analyzing, evaluating, and prioritizing risks to public safety to inform decisions about the provision of fire protection services.

(2) A community risk assessment must include consideration of the mandatory profiles listed in Schedule 1.

(3) A community risk assessment must be in the form, if any, that the Fire Marshal provides or approves

Section 3 outlines when the CRA must be complete (at least every 5 years)

(1) The municipality or fire department must complete a community risk assessment no later than five years after the day its previous community risk assessment was completed.

(2) If a municipality, or a fire department in a territory without municipal organization, comes into existence, the municipality or fire department must complete a community risk assessment no later than two years after the day it comes into existence.

(3) A municipality that exists on July 1, 2019, or a fire department in a territory without municipal organization that exists on July 1, 2019, must complete a community risk assessment no later than July 1, 2024.

(4) Subsection (3) and this subsection are revoked on July 1, 2025.

Section 4 outlines when to review (at least every year)

(1) The municipality or Fire Department must complete a review of its community risk assessment no later than 12 months after,

a) the day its community risk assessment was completed; and

b) the day its previous review was completed.

(2) The municipality or fire department must also review its community risk assessment whenever necessary.

(3) The municipality or fire department must revise its community risk assessment if it is necessary to reflect,

a) any significant changes in the mandatory profiles,

b) any other significant matters arising from the review.

(4) The municipality or fire department does not have to review its community risk assessment if it expects to complete a new community risk assessment on or before the day it would complete the review.

Community Risk Assessments provide fire departments with information to make informed decisions regarding the type and levels of protection services required based on identified risks. Completing a comprehensive assessment requires identifying, analyzing, evaluating, and prioritizing risk, based on nine mandatory profiles.

At the time of the Review, no department has completed a Community Risk Assessment. The Departments must meet the requirement no later than July 1, 2024.

8.7   Recommendations

From the review and assessment of Public Education and Code Enforcement, it is recommended that:

1. The Northumberland County Fire Chief's Association work with the Fire Prevention Committee to develop an inventory of County Fire Prevention material that can be shared among the Departments and develop a policy of joint purchasing of these materials and designating strategic locations for Public Educational materials storage.

2. The Northumberland County Fire Chief's Association work with the Fire Prevention Committee and the Fire Service Steering Committee to develop a proposal to be adopted by the Municipalities to hire a County Fire Inspector.

3. The Northumberland County Fire Chief's Association work with the Fire Prevention Committee to develop an enhanced Countywide program for hoarding and mental health issues that would include providing the necessary logistics while working with external stakeholders.

4. Before July 1, 2024, each Municipality conducts a Community Risk Assessment as per the new regulations.

5. The Northumberland County Fire Chief's Association continues to support the Fire Prevention Committee and its programs financially.

9.0 Training Requirements

Training is mandatory for safe and effective fire department operations, and there is an ongoing requirement to maintain skill levels. Under the [Occupational Health and Safety Act](#), employers are obligated to provide training to employees.

Section 25 of the Act states the duties of Employers shall ensure that (a) the equipment, materials, and protective devices as prescribed are provided; (b) the equipment, materials and protective devices provided by the employer are maintained in good condition; and (c). the measures and procedures prescribed are carried out in the workplace.

The Act further states in section 2 that without limiting the strict duty imposed by subsection (1), an employer shall provide information, instruction, and supervision to a worker to protect the worker's health or safety.

Furthermore, employers are obligated to provide mandatory training that ensures fire service operations' effectiveness and improves efficiencies while meeting their legislative obligations.

Additionally, the Province of Ontario requires departments to provide training in the following areas.

- Workplace Harassment
- Accessibility for Ontario with Disabilities Act (AODA)
- Ontario Health and Safety Act (OH&S)
- Workplace Hazardous Materials Information System (WHIMS)
- Incident Management System for Emergency Management

The Review showed the various Departments' programs are based on the [National Fire Protection Association (NFPA)](#) as training standards for all fire service members. The current training structure falls within the Fire Chief's responsibilities to oversee and manage and is achieved with the assistance of each department's various Training Officers.

Training Committee

A Countywide Training Committee was established over twenty years ago, consisting of Training Officers from each Department. The committee members assemble each month (excluding summer) to ensure all firefighters are being trained at the same level, explore options for mandatory training, suggest additional specialized courses, provide for recruits' training, and discuss an outline for both Joint Trainings and Officer development.

In terms of in-service training, the committee creates a County calendar for mandatory training to allow members the flexibility to attend training at other stations if they were unable to participate at their station.

The Training Committee also looks at specialty training and have successfully conducted the following courses:

- Wildland Fire Interface (MNR)
- Agricultural Rescue Course
- Elevator Rescue Course

9.1   Recruit Training

The recruiting program is conducted on a two-part basis. Each department provides the opportunity for individuals to apply. They are selected through their own intake process, which allows the department to screen and select candidates. Once chosen, the individuals attend a Countywide shared recruit program supported by the Training Officers. The program provides recruitment and training for recruits and runs for approximately four months. It combines both practical and online resources to attain their certification. Currently, five of the seven departments utilize this program.

The Countywide Recruit program ensures that the recruit firefighters are all trained to the same standard, which benefits everyone when the Departments are working together on a Mutual Aid response or can allow for the possibility of cross-border firefighting in the future. All firefighters who graduate from the program obtain their NFPA – FF1, FF2 and Hazmat 472. This approach also provides for diversity in training delivery and the ability to share instructors in course delivery. The course is sanctioned, and sign-off is provided through the OFMEM.

Another benefit to all departments participating in the Countywide recruit training program is that it allows Departments to hire the numbers they require to fill their rosters and ensures that firefighters are getting the appropriate training. For example, if a department only needs to hire two or three firefighters, it places a burden on the department to train the small number. However, if the department participates in the program with all the other Departments and has small numbers of recruits, they will have an appropriate size class.

9.2   Officer Development

Officer development under the Training Committee's guidance has been discussed over a long period and attempts to move toward the legislative requirements. However, given the considerable time commitment required to ensure that Officer development meets the standards of NFPA, the committee has not been able to meet such demands. This is seen as a shortfall to ensuring the requirements of the OH&S

act are respected. Emphasis should be placed on meeting the NFPA standard and a commitment to officer development.

9.3 Training Facility

In both discussions with the Fire Chiefs and the President of the Training Committee, an issue was raised with not having a recognized training facility for the Departments. Currently, the Departments use different training facilities depending on the geographical location of the department. Also, with the Province of Ontario closing the Ontario Fire College, it would be beneficial to start planning a Countywide Training Facility that could be used as a Regional Training Facility and could generate revenue.

9.4 Recommendations

From the review and assessment of Training, it is recommended that:

1. The Training Committee focuses on ensuring that the recruit training program is successful and that the training needs and resources are provided to the Departments.

2. The Northumberland County Fire Chief's Association work with the Training Committee to:

    a. Establish a Countywide recruit training program that all Departments participate in and support with instructors.

    b. Develop an annual training program that establishes goals and expectations for the firefighters.

    c. Develop specific SOG's for annual training requirements and signoffs.

    d. Develop and formalize an Officer development program to ensure those placed in a Supervisory role are qualified and competent under the Ontario Health & Safety Act requirements for a "competent supervisor."

    e. Provide the opportunity for the Departments to conduct joint training together.

    f. Establish the development of instructors that could be utilized across the Departments.

3. The Northumberland County Fire Chief's Association works with the Training Committee to develop SOGs and training on the Accountability Program.

4. The Northumberland County Fire Chief's Association works with the Training Committee to complete a feasibility study on the creation of a Countywide training facility.

5. The Northumberland County Fire Chief's Association works with the Training Committee and the Fire Service Steering Committee, to develop a proposal to be adopted by the Municipalities to hire a County Training Coordinator.

10.0 Asset Management & Procurement

10.1 Asset Management

Asset management is a systematic process of developing, operating, maintaining, upgrading, and disposing of assets cost-effectively. Except for some equipment, each department follows its procurement policy and purchases equipment and fire apparatuses individually. Also, each department sets its standards for the equipment they purchase.

As discussed in Section 5.8, Treasurers Engagement Session, the Municipalities and the County are working together to develop a procurement policy and joint buying standards. However, the joint purchasing process does not include the Departments.

Life cycle asset management for tangible assets is now consistent for things like PPE, Self Contained Breathing Apparatus (SCBA), fire apparatus, and fire hose. The Chiefs accept the recognized standards and that, in many cases, manufacturers meet the standard. Often, purchasing an asset is based on who they are comfortable with at the sales level. This method for buying equipment still generates savings because of relationships, but it is not often measurable. Regardless of the current procedures, joint purchasing of life cycle assets is one area that Municipalities can find cost-saving.

The first step to developing joint procurement programs is setting equipment standards across the Departments that are cost-effective, and that ensure that the firefighters have a comfort level using equipment on the fire ground no matter which department owns the equipment. As the Departments move to the ERF, including closest station response and cross border firefighters, standardizing equipment is necessary to provide the service to the residents and is essential for the health and safety of the firefighters.

Reviewing departments across the province with consolidated setting standards for equipment is one of the top priorities for moving individual stations and departments to one seamless service. However, even without consolidation, the Departments should work on initiating a better joint asset management strategy.

Standardized items across the Departments that will find cost savings and provide a better level of service should be:

- SCBA
- Extrication equipment
- Specialized rescue equipment
- Fire hose
- Rural water supply equipment

- Personal Protective Equipment including helmets, gloves, boots and bunker gear
- Fire apparatus
- Small fleet or support vehicles

The expectation is that the list is straightforward to establish a standard. One item that creates issues even in larger departments is the type of fire apparatus purchased.

When purchasing fire apparatus, there needs to be a consideration for local needs and circumstances, like buying a mini pumper for cottage service laneways or an aerial device for high-risk occupancies. Basic fire apparatus purchases can be standardized between Departments, and for example, a Countywide standard for purchasing a pumper and a tanker could be set. This standard could include designing and purchasing a custom cab and commercial cab pumper based on the local Municipalities needs. The Departments continue to move towards adopting the water supply for non-hydrant areas as a standard; having a uniform tanker would be beneficial.

The Fire Chiefs could create working groups with applicable stakeholders to develop the standards. However, it will not be an easy task with strong leadership and set guidelines; but it is very achievable, as demonstrated by the Departments' Air Management Program and Radio Communications project.

10.2 Procurement

Once equipment standards are identified for life cycle assets, the next step is to develop joint purchasing or procurement agreements. This will be challenging as most Departments are working on different life and budget cycles. The question is how to manage it, which can be achieved through various methods, including creating Standing Offers, Requests for Proposals and Tenders. Every one of the ways listed can work well for joint buying, but it depends on the type of purchase to determine the best method. For example, a standing offer works well for buying equipment like helmets, gloves, boots, and bunker gear, where a tender works well for a fire apparatus.

To determine the best method of increasing the joint buying power, the Fire Chiefs should work with the Steering Committee (or Treasurers Committee) to collectively review the life cycle assets purchases for the next five to ten years. This helps to determine the type and amount of assets that are needed. Then, working with the expertise at the committee level, the best purchasing method can be chosen. It might also be determined that there may be an opportunity to purchase equipment with another Municipal department or the County. For example, most Municipalities and the County purchase small fleets every year, so they may be able to buy vehicles and find more cost savings jointly.

10.3 Recommendations

From the review and assessment of Asset Management and Procurement, it is recommended that:

1. The Northumberland County Fire Chief's Association identify life cycle assets (i.e., bunker gear, fire apparatus, and safety equipment) that can be standardized across the Departments to find cost savings.

2. The Northumberland County Fire Chief's Association (based on the identified standard for life cycle assets) establish working groups with the mandate to develop a specification for all Departments to follow.

3. The Northumberland County Fire Chief's Association, working with the Fire Service Steering Committee, develop joint Standing Offers, Request for Proposals and Tenders to purchase identified life cycle assets.

11.0 Water Supply for Non-Hydrant Operations

Water supply is essential for effective fire suppression, and the Fire Underwriters Survey attributes thirty (30) percent of the insurance grading schedule to that component. Hydrant-protected properties usually have lower insurance premium costs than non-hydrant-protected properties.

Water supply for fire protection is classified into two categories:

1. Municipal water supply – hydrant protected.

2. Rural water supply – non-hydrant areas.

For this Review, the project team concentrated on the rural water supply for non-hydrant areas to see if any cost savings could be achieved or whether the level of service could be increased for the Municipalities to provide better safety for the firefighters.

Water supply for fire protection in non-hydrant protected areas presents significant challenges for fire departments. The department must have additional fire apparatuses (tankers) and personnel trained on tanker shuttle procedures, unlike urban areas where water supply depends on fire hydrants almost exclusively. Two programs are available to address water supply for fire protection in rural areas:

1. The Superior Tanker Shuttle Accreditation provides improved capacity to maintain adequate water supply for effective firefighting for distances of up to 8 km from a fire station with a minimum of 900 litres/min (200 gallons) for a two-hour duration.

2. The installation of water supply or dry hydrants that are non-pressurized in several locations, which are designed to allow fire apparatuses to draft water from rivers, lakes, ponds, or storage tanks.

Equipment must be purchased, procedures established, and training provided for firefighters to utilize the programs and maximize the water supply system. Providing a continuous, reliable water supply where pressurized hydrants are not available, inaccessible, or out of service is essential.

The Review indicated that all Departments utilized a system for delivering water supply in a non-hydrant area. However, the initial components of the delivery system differ. Some of the department's initial setup is completed by utilizing a distribution valve ("Street Valve") while others deploy port-a-tank(s). Also, some Departments do not have distribution valves or tankers with on-board pumping capabilities. This operation was identified as a challenge for front-line firefighters when working with various departments simultaneously.

Best practices demonstrate that delivering high volumes of water requires a three-phased approach for water supply in a non-hydrant area. The three-phased approach includes:

1. Starting with the available water on-board the primary pumper.

2. Utilization of a distribution valve that is connected to the first arriving tanker(s).

3. Deploying port-a-tank(s) when required.

Countywide SOGs should be written by the Chiefs on providing water supply for non-hydrant areas that include the three-phased approach.

While the cost of participating in this program goes directly to the Municipality, there are cost savings for the taxpayer in several ways. First, providing a better and more reliable water supply reduces property loss, injuries, and loss of life, which directly benefits the taxpayer. Second, working together under this system can ensure that all Departments maintain their Superior Tanker Shuttle Accreditation, reducing the taxpayer's insurance cost by approximately 10%. Finally, it allows for standardized procedures for consistency and application at incidents.

It is understood that while working with neighbouring County and Regional departments, operations, and tactics for the delivery of water supply for non-hydrant areas may differ. However, for these incidents, the Departments find themselves in a support mode and adapt to the operations of the primary department. This should not supersede the requirement of adopting a Countywide standard water supply program and procedure.

11.1 Recommendations

From the review and assessment of Water Supply for Non-Hydrant Operations, it is recommended that:

1. The Northumberland County Fire Chief's Association develop and adopt standard SOG's for Water Supply in Non-Hydrant areas.

2. The Northumberland County Fire Chief's Association adopt the three-phased approach water supply system for non-hydrant areas and budget to purchase the necessary equipment to participate in the program.

3. When Departments purchase new tankers, they will be required to have on-board pumps.

4. The Departments that currently have tankers without pumping capacity provide for the installation of on-board plumbed portable pumps.

12.0 Emergency Management

Note: The review of the Emergency Management Program was conducted during the Covid-19 Pandemic.

The [Emergency Management and Civil Protection Act R.S.O. 1990 (The Act)](#) stipulates several criteria for a municipality to receive their annual compliance, which includes that:

- A municipality has an Emergency Management Program (EMP) and an EMP Committee
- Annual emergency management training is to be provided to all members of the Municipal Control Group
- An annual exercise is conducted utilizing the plan and all members of the Municipal Control Group
- The Municipality designates a Community Emergency Management Coordinator (CEMC) and Alternate CEMC
- Annually the Municipalities Critical Infrastructure (CI) and Hazard Identification Risk Analysis (HIRA) are reviewed and updated as required.

The EMP consists of two separate functions. First, the program's administration which includes the management, review and updating of the plan and the required training and exercises. The second function is activating the plan during a municipal emergency.

12.1 Current Emergency Management Programs

A review was conducted of the current EMP, Emergency Response Plans (ERP), CI and HIRA for the Municipalities. The Municipalities are currently compliant with the act, but all appear to be struggling to use the plan during activation. Additionally, most of the plans do not follow the Provincially recognized Incident Management System (IMS).

For conducting the annual exercises, six of the seven Municipalities work together with the County Emergency Manager to complete the requirements under the Act for training and exercising. One Municipality utilizes an outside third-party to conduct both the required annual training and exercises.

All the Municipalities have the same focus on emergency management, including very similar hazards. The CEMC's duties are added to the Fire Chiefs' responsibilities in the Municipalities, except for the Township of Cramahe, where the responsibility lies within the Clerk's role.

12.2 Emergency Management Program Challenges

As the project team met with the various stakeholders, it became evident that managing the EMP within the Municipalities was a struggle, including where there was a full-time position allotted to the program.

At both the Fire Chiefs and Steering Committee sessions on Emergency Management, adding the EM responsibilities onto the Fire Chief's regular duties was not working for the most part. Most of the Fire Chiefs, especially those with little or no administrative support, do not have the time required to manage the program, update the ERP's, and conduct the required annual training and exercise.

When there is an actual emergency event, the Fire Chief is conflicted about where they are best suited to manage the emergency, in the Emergency Operations Centre or at the Emergency Site. In many instances, because of volunteer departments' nature, there is not enough depth in the organization to ensure that the individual running the municipal emergency has the expertise or knowledge. In some cases, that responsibility then rests solely with the Fire Chief.

Another challenge evident to the stakeholders and the project team was that while working with the County was meeting annual compliance, during a large-scale event like the Pandemic, both the ERP and the support from the County did not work as designed and left the Municipalities to manage the emergency on their own.

12.3 Future Emergency Management Programs

The Act requirements are the same for all Municipalities, which means, for the most part, the ERPs can all be the same except for some differences in the HIRA's and CIs. Further, if the ERPs are converted to a Provincially recognized IMS-based model, emergency management could be seamless across the Municipalities. However, it can only be done if managed by a single person supported by other municipal staff and/or a third-party company.

The project team considered the possibility of the Municipalities expanding work within the County to manage their EMP. This model is used in some areas in the province; one place that was reviewed was in the County of Wellington. Their unique and proactive partnership/management approach to EMPs ensures a consistent emergency management approach within their County. The structure has the County of Wellington's CEMC designated as the CEMC for all the other municipalities and the alternates are filled from within each of the municipalities. The County CEMC ensures that the administrative requirements under the ACT are completed each year and that each Municipality is compliant. The partnership has been working for many years; however, once a widespread event happens like the Covid-19 pandemic, the responsibility falls on the Alternate CEMC's to manage it within their own Municipality.

It is more beneficial for the Municipalities to address both the administrative side and activation side of the EMP to better manage an emergency event that is either local or widespread.

The sharing of resources or a third party managing the EMP for the Municipalities were ideas agreed upon by both the Fire Chiefs and the Steering Committee. The Municipalities have demonstrated that this is a possibility and could be managed similarly to the joint municipal animal services and physician recruitment programs they currently have.

Suppose the Municipalities chose to manage the programs collectively. In that case, the time expectation for moving the seven programs into one program and converting them over to the IMS could be accomplished in approximately one-year and could be done in-house or contracted to a third party. Once the plans are developed, the following year could be spent conducting training and exercising on the new plan for Council and staff.

12.4 Recommendations

From the review and assessment of emergency management, it is recommended that:

1. A Fire Service Steering Committee develop the Countywide Emergency Management Program for all the Municipalities that would include a full-time resource to update, and implement and manage all the Emergency Management programs, including conducting HIRA's and CI reviews for each Municipality.

2. The Municipalities update their Emergency Response Plans to the provincially recognized Incident Management Systems model.

13.0 Technology

Technology in the fire service covers far more than computers and software. From Personal Protective Equipment to fire pumps to radio communication systems, firefighting technology advancements improve firefighter safety and effectiveness. However, the fire service has not historically been early adopters of technology (new machines or features); yet the fire service has always been open to innovation (new methods or benefits). In some ways, this resistance is understandable. Fire technology can be expensive and complicated, and implementing new firefighter tools requires adjustments to training and operating procedures.

Significant progress has been made with the Countywide radio communications system. The project was divided into three components:

1. Countywide Dispatch – (All the Departments would be dispatched from the same communications centre). This component has been completed, with all Departments now being dispatched from Peterborough Fire Services.

2. Countywide Paging – (All Departments would be paged from a common paging frequency, which means that a firefighter from anywhere in the County would receive a page for a response). This technology will be beneficial in the future for cross-border firefighting. The anticipated completion date is the summer of 2021.

3. Countywide Radio System – (All Departments would each have their own operating frequency with all radios that would have programing for Automatic or Mutual Aid). The Departments are currently operating on multiple frequencies with multiple departments on each frequency, making it a challenge for firefighters during multiple departmental responses. The anticipated completion date is the summer of 2021.

Also, the Departments have set a standard for mobile and portable radio.

Based on feedback during the Firefighter engagement session, it was noted that the current radio system is challenging, and they hope that the new system will be easier to operate and, therefore, will improve communications. One of the recommendations that should be done before the final roll-out of the projects is for the Northumberland County Fire Chief's Association to develop common SOG's for the Departments on the use of the radio system and how to interact with the other departments when using Automatic or Mutual Aid.

Having a common Dispatch Centre, Computer Aid Dispatch (CAD) system, and radio system is the required first step to improving radio communication and firefighter notification and response; it would assist in providing an ERF for the Municipalities.

The Departments should leverage the technology and look at items like placing tablets in front-line apparatus that could provide valuable information from the CAD-like mapping, pre-plans, statistics, and documentation (photos). Also, tablets can be used for Fire Inspectors to directly document inspections or hazards into the Records Management System (RMS) and/or CAD. In most cases, the same technology could provide the same information to the firefighter's smartphones.

13.1 Who's Responding

In recent years, the introduction of smartphone applications (apps) such as Who's Responding has been one of the most significant advances in technology for many departments. The app was designed for multiple purposes but most specifically to allow First Responders to display and acknowledge their availability to their departments.

With the app, when a response is paged to the firefighters on their smartphone or computer, they have three options to notify the system: that they are responding to the fire station, to the fire scene, or not responding. This information is now provided to all firefighters from the station on either their smartphones or, in some cases, on a monitor in the fire station. This single step informs everyone from the station how firefighters are responding, who is responding and how far they must travel to get to the station or scene. Additionally, it allows firefighters in the stations to know how close a firefighter might be so that the responding firefighter can augment the total number of firefighters that respond on a Fire Apparatus.

Additionally, the app has a feature for the firefighters to notify the system that they are not available to respond. If this feature is used by all firefighters, it allows the Chief Officers or Dispatch to make decisions to either call additional stations sooner or up-staff a station when large numbers of firefighters are not available.

The app provides the added features, listed below, that could be used to enhance the level of service:

- Map – with all related features.
- Navigation with turn-by-turn directions.
- On Scene as an alert to all responders - with additional "Plot Location."
- Any preplans (if available).
- Radio Transmission.
- Active Burn Permit locations.

The Review found that the Departments currently have the "Who's Responding" program; however, they do not utilize the technology to its fullest potential. Many features are not used across all Departments, and there are no common SOG's in place on the use of the app. The Northumberland County Fire Chief's Association should develop guidelines on the use of the app, including when firefighters are to use it, which allows for automatic decisions to be made by the Dispatch Centre when there is a low number of firefighters responding or available. These guidelines would assist all stakeholders in providing an ERF.

13.2 Cell Phone

The fire service is at a critical time in technology for notifying volunteer or part-time firefighters. Pagers are a mission-critical component but have limited selection and life span. Furthermore, in many cases, pagers cost more than a portable radio.

Due to the lack of cell phone infrastructure, Departments must rely on a pager as a dedicated piece of equipment. Departments are dealing with new recruits and a generational change in hiring; this generation will depend on cell phone technology and will adapt to applications like "Who's Responding" rather than carrying a pager.

The Northumberland County Fire Chief's Association must embrace changes to cell phone technology and all the advantages contained therein. This technology will come with some challenges. Issues related to cell phone ownership, data plan utilization or associated costs require review and consideration.

13.3 Drone Technology

Drones are becoming increasingly popular in public safety to provide situational awareness and can be used for command-and-control purposes in many situations. Drones can help with rapid fireground assessment, providing a comprehensive picture of fire scenes. They can be used at wildland fires to map the direction and growth of a fire, quickly search large areas, and can deliver food, water, or first aid kits to places firefighters cannot reach.

Incident Commanders can also use drones to gain control of the situation by quickly gathering critical information on the scene of a fire or an incident involving hazardous materials. This reduces risks for firefighters and helps leaders determine how best to respond. Drones can also be used to send a probe in cases of HazMat spills to capture readings (for gaseous spills) without putting the life of respondents at risk.

With the right sensors, fire investigators can also use drone technology when conducting a fire investigation in buildings that have severe damage and are unsafe to enter. Drones have been adapted to operate indoors with great success.

The use of drones is becoming a standard staple with many emergency respondents throughout North America. The technology to support various operations, the development of new highly sensitive sensors and the increase in autonomy continue to evolve, positioning this technology squarely in the hands of emergency responders. This highly effective tool could be acquired and shared between several departments throughout the municipality. This becomes a very efficient way to incorporate this new technology into operations.

The Review indicated that the Departments are lagging in the traditional approach to technology but are making strides to improve. The development of a Technology Committee would be beneficial for the Departments to remain current with technology as well as forecasting what the future might entail. The committee would be made up of not only Chiefs but firefighters from the Departments who have an expertise in this field.

13.4 Recommendations

From the review and assessment of Technology, it is recommended that:

1. The Northumberland County Fire Chief's Association finalize the radio communications project and develop standard SOG's on radio use to be adopted by all Departments.

2. The Northumberland County Fire Chief's Association develop SOG's on the required use of the "Who's Responding" App to be adopted by all Departments.

3. The Northumberland County Fire Chief's Association develop standards and protocols to obtain the Effective Response Force better, for the Dispatch Centre to automatically notify additional resources when the required number of firefighters are not responding based on information received on the "Who's Responding" App.

4. The Northumberland County Fire Chief's Association establish a Technology Committee that would look at all aspects of technology, including tablets for response vehicles or cell phones for firefighters.

5. The Northumberland County Fire Chief's Association complete a review of the use of drone technology that would increase the level of service to the Municipalities and would enhance the safety of firefighters.

14.0 Specialized Services

Determining the level of fire services for municipalities is based on the community's risks, expectations, needs, and circumstances. Upon completing a risk analysis, the Fire Chief can make recommendations to Council regarding what services the department should provide. It is Council's responsibility to set that level of service, which is called the Core Services.

Delivering Core Services to the Municipality has many challenges but providing services that are not part of the Departments normal (daily) responses, such as Hazard Materials, High/Low Angle Rescue or Trench Rescue (known as specialized services), present greater challenges and are more costly. These types of calls for the Departments are infrequent and often place firefighters at higher risk. Additionally, most of the special services require additional certifications and training.

The Review has shown that currently, these specialized services are provided across the County by the following departments:

- Confine Space Rescue – Trent Hills, Cobourg & Port Hope
- Hazardous Materials – Cobourg (Peterborough and Toronto under a Provincial Agreement)
- High/Low Angle – Trent Hills, Cobourg & Port Hope
- Air Management Trailer – Hamilton Township
- Trench Rescue – Each Department
- Water/Ice Rescue – Each Department
- Wildland – Each Department

Currently, access to any of these services for any of the Departments is done under historical non-written agreements except for the Automatic Aid agreement for Confined Space Rescue.

The high-level review of the specialized services demonstrated:

1. There is a duplication of some of the specialized services among the Departments.

2. Based on response data, there is the possibility that not all specialized services need to be offered by multiple Departments.

3. There is a need for formal agreements (service level or automatic aid) to access specialized services within the Departments.

Shared services can provide cost savings for the Departments. Providing specialized services Countywide, rather than by individual departments, offers tangible savings. The process begins with determining what special services the Departments must provide based on actual statistics on the number of responses for each of the specialized services.

Once the determination of which services will be provided Countywide is made, the Chiefs will determine where best to locate the services based on staffing levels, expertise, geography, and the calls for service. Then, they will develop advance teams that are certified at minimum the Operational Level. These teams would be activated to respond and support the primary response station for specialized service responses. In addition to having the teams, all firefighters would be trained to the awareness level, at a minimum, for the primary response and will be trained to begin to mitigate the situation.

An advantage of providing the specialized services in more of a Countywide approach is that it spreads the cost of the service around to each department, rather than one department being burdened with all the costs to providing the service. This approach also reduces duplication of services.

Another advantage of having specialty teams is that it assists with volunteer or part-time firefighter retention. Assigning specialties to each of the volunteer departments gives them a purpose and promotes more participation, better training, and more responses, all of which are key elements of retention.

For the career station, assigning them a specialized service provides the other departments with a consistent and quick response because of their training level and no assembly time to respond.

From a health and safety perspective, setting up specialized service teams ensures that firefighters are trained to provide the level of service expected and do so in a safe manner. Also, for specialties like water/ice rescue, having the ability to have teams responds from multiple departments would provide a backup for the primary firefighters who respond with their vessel on waterways like Rice Lake.

The concept of sharing specialized services is not new for the Departments, as evidenced by the Air Management Program that provides a Countywide Air Management Trailer that responds to major incidents requiring the filling of SCBAs.

14.1 Recommendations

From the review and assessment of Specialized Services, it is recommended that:

1. The Northumberland County Fire Chief's Association formalize agreements (service level or automatic aid) to access specialized services within the Departments.

2. The Northumberland County Fire Chief's Association determines the location of specialized services based on statistics and actual calls for service.

3. All firefighters, at a minimum, are trained to the awareness level for Hazardous Materials, Trench, High/Low Angle, Confined Space and Water/Ice Rescue.

4. The Northumberland County Fire Chief's Association, after determining what specialized services will be required to be delivered across the Municipalities, develop a strategic plan that outlines the specific location of the response teams, the training needed, and any agreements that must be developed and approved by Council.

5. The Northumberland County Fire Chief's Association designate two members to lead the specialized services program and to develop working groups as required.

15.0 Senior Administrative Staff

The Review looked at each of the individual departments' full-time senior administrative staff (Chief Officers). Table 5 illustrates the number of full-time Chiefs in the Departments.

Table 5: Chiefs Staffing

Department	Full-Time Fire Chief	Full-Time Deputy Chief
Alnwick/Haldimand	✓	
Brighton	✓	✓
Cobourg	✓	✓
Cramahe	✓	
Hamilton Twp. *	✓	✓
Port Hope	✓	✓
Trent Hills	✓	✓
Total	**7**	**5**

*Hamilton Township's additional Senior Officer's title is District Chief instead of Deputy Chief.

During the conducting of the Review, there were seven changes for the Departments at the Chiefs level due to vacancies created for various reasons. When the vacancies were made, all positions were filled or have been posted to be filled at the time of the final document. In addition, one Municipality increased their Chiefs level by adding a new Deputy Chief position.

The number of changes at this level raises questions about why there is the number of movements at the Chiefs level within the County, and why opportunities were not explored to share Chiefs between the departments to fill vacant positions. One of the answers is the political environment. At the time of the Review, there appeared to be no political will to share Chiefs. This had been previously explored in the County by several Municipalities but never became a reality.

In reviewing several locations in the Province that share a Chief Officer, there was a political willingness to share the positions between two municipalities. Also, the Review looked at areas that fully integrated multiple departments and the Chief Officers, and they were the result of municipalities being Provincially mandated to amalgamate, as was the case in 1998.

In discussions with the affected Fire Chiefs regarding the immediate filling of the positions, it was explained that it is due to the workload required in each department, including managing prevention and training programs.

There have been several positions identified that the Departments should look at working together to share, including Emergency Manager, Fire Inspector and Training Officer. If those positions were created, some of the Chiefs' workload has the potential to reduce, allowing them to concentrate on other tasks. For example, suppose the coordination of training and conducting of Fire Inspections was done Countywide. In that case, there is the potential to allocate the three Deputy Chiefs that currently have this responsibility as part of the job description to reduce other pressures like developing and managing Special Services programs.

To identify duplication, find synergies and explore opportunities to share resources, the Northumberland County Fire Chief's Association should conduct a session(s) to review the current duties of all the Chiefs across the Departments and the time allotted to each of the responsibilities. Once this is done, they can develop strategies to share services or assign Countywide project leads, where allowable by legislation.

Another area to consider is sharing on-call weeknight and weekend Chief Officers' responses for medium or high-risk events. Currently, every Department manages their on-call system where a Chief Officer is responsible or responds to moderate or high-risk events to support the on-scene Incident Commander and crews. This means that at any given time, there are seven Chief Officers that must be available in the event they are needed to provide advice on an emergency or respond to the actual call. This responsibility for most Chief Officers across the province is a burden but is necessary because of legislation, safety, and liability.

The On-Call Chiefs system would be someone that would have the authority to make operational decisions and would support the Incident Commander. Due to the County's geographical size, it would not be reasonable to have one Chief Officer on-call, so it would be better to create a two Chief on-call system. The system would benefit the Chief Officers' work-life balance by reducing the amount of time they are responsible for On-Call and building bridges within the County among the Departments.

15.1 Recommendations

From the review and assessment of Senior Administrative Staff, it is recommended that:

1. The Northumberland County Fire Chief's Association conduct a working session(s) to review the responsibilities of each Chief Officer within the Departments to identify any duplication of services that could be shared and potential opportunities to manage current and future pressures.

1. Councils and the Chief Administration Officers, before hiring a Chief Officer, review with the Fire Service Steering Committee any potential to share a position between Municipalities or reallocate the FTE, due to a vacancy in the Chief Officers ranks, to solve an identified pressure.

2. The Northumberland Fire Chief's Association develop an On-Call Chief's position that would have two Chief Officers on call for weeknights and weekends to support emergency incidents and the on-scene Incident Commander.

16.0 Response Standards

16.1 Departments Statistics

The statistics used for the Review were obtained from the Ontario Fire Marshal and Emergency Management's (OFMEM) Standard Incident Reports (SIR). Each department by legislation must report all responses to the Province.

Figure 4: Total Number of Responses by Department illustrates the number of responses for each department from 2014 to 2018. The following observations resulted from a review of the total responses for each department.

- Alnwick/Haldimand has seen a steady increase of responses over the last five years, with a significant increase in 2018.
- Brighton's responses have remained consistent over the last five years.
- Cobourg has seen a steady increase in responses over the last five years, with a significant increase in 2018.
- Cramahe responses remained stable for the years 2014-2016 but started to see a slight increase in 2017 and 2018.
- Hamilton Twp. responses have remained consistent over the five-year period with only slight increases.
- Trent Hills responses decreased in 2016 and have been consistent since then.

Figure 4: Total Number of Responses by Department
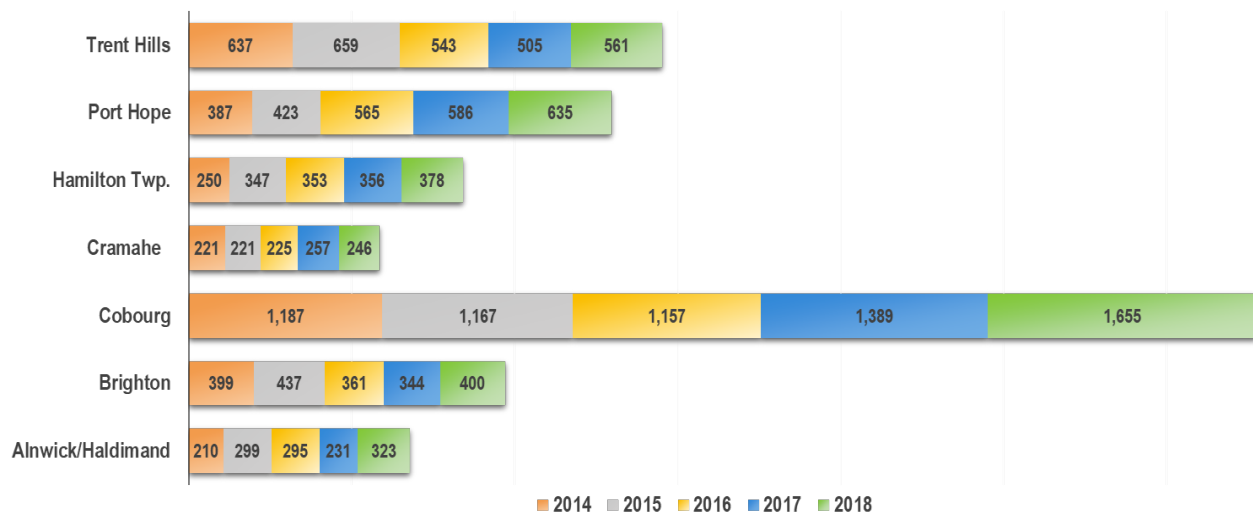
16.2 Responses by Times and Day

Figure 5: Department Response by Time of Day (5-year average) and Figure 6: Departments Responses by Day of Week (5-year average) illustrate the number of average responses by the time of day and day of the week. These statistics are essential to identifying any usual or unusual trends in responses. Many departments discussed the need for additional daytime coverage because of the call volume and either the lack of volunteer firefighters for some departments or upping staffing in composite or full-time departments during the day. As is evident in Figure 5: Department Response by Time of Day (5-year average), there is no significant difference between 6 am-6 pm and 6 pm-midnight on each of the Departments' number of responses. Also, as the statistics show in Figure 6: Departments Responses by Day of Week (5-year average), there is no significant difference in the day of the week for the Departments. While it is essential to ensure there is always the appropriate level of service 24/7, the Departments need to pay close attention to the time when there is an increase in calls for service and reduced availability of firefighters.

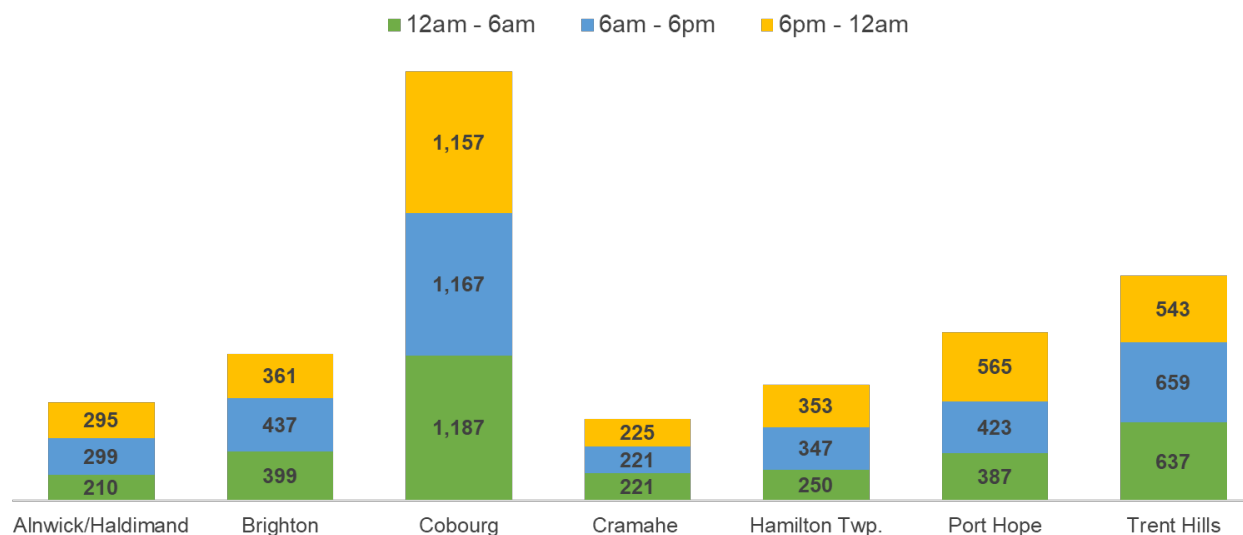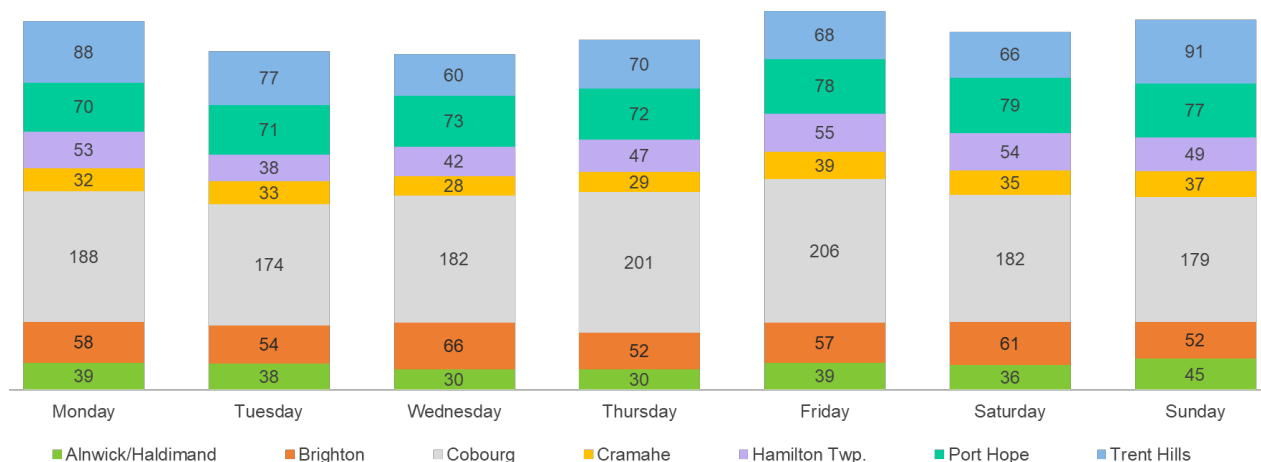Figure 5: Department Response by Time of Day (5-year average)

Figure 6: Departments Responses by Day of Week (5-year average)

16.3 Response Time and Staffing (5-year Average)

Figure 7: Average Response Time and Staffing Levels (All Calls) looks at the five-year average of dispatch (leaving the station) time to the time arriving on the scene, the number of personnel on the initial unit responding and the total number of personnel on scene. The numbers represent all calls; therefore, for major responses such as structure fires, the on-scene number would be higher.

Analyzing the numbers shows that the on-scene times all appear consistent for most stations with similar geography, but it is important to note that for the total on-scene time, both the average dispatch process time (90 secs) and assembly time (90 sec for career and 5-6mins for volunteer or part-time) must be added to obtain the total response time.

Figure 7: Average Response Time and Staffing Levels (All Calls)
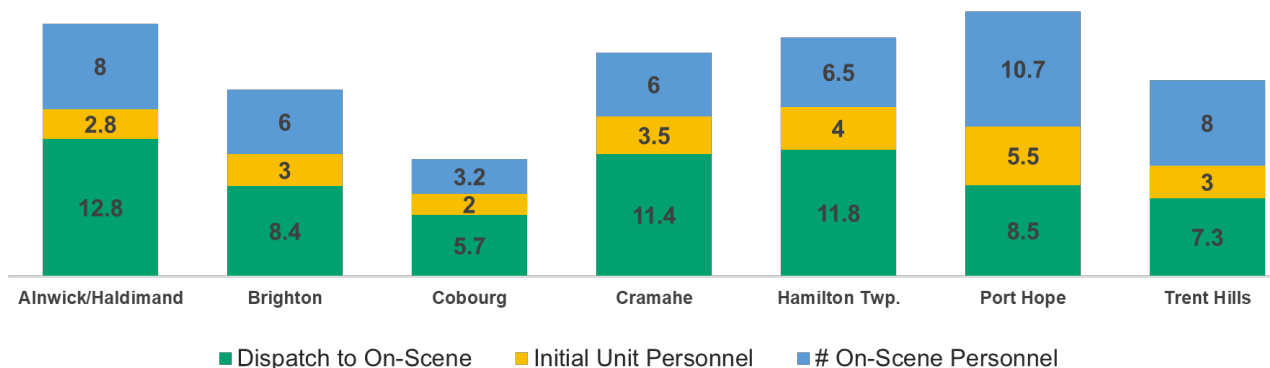
The initial unit and the total number of on-scene personnel numbers look consistent across the volunteer departments; however, for the composite department (Cobourg), the busiest department and serving the largest population, is the lowest in the County, raising questions on their staffing levels and should be reviewed.

Figure 8: 90% Average Response Time and Staffing Levels (Structure Fires)
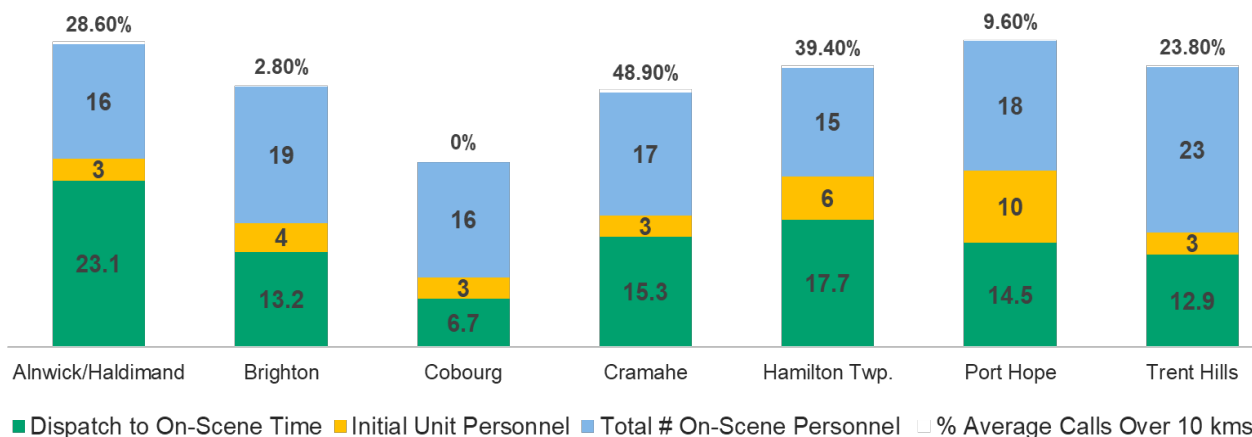
16.4 Emergency Calls by Response Type

Figure 9 illustrates the average emergency calls by response type for all departments over a 5-year average. The statistics show a consistent trend with most Departments in the province providing support to paramedic services. Early intervention by the fire service to residents in medical distress has proven valuable; however, there is a cost to the Municipality to provide this service.

Figure 9: Average Types of Calls per Response Type (5-year average)
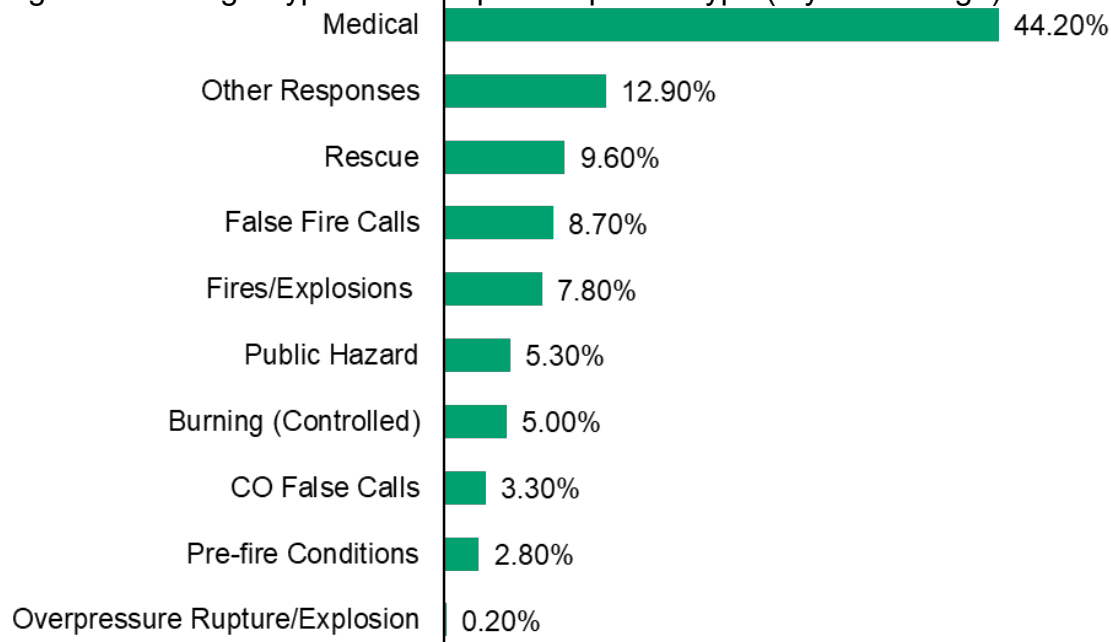
16.5 Effect Response Force

The review of responses identified that there is no Council-approved service level. Setting a Standard of Cover is important to ensure that there are sufficient resources assembled on an emergency scene to complete the critical tasks required to mitigate an incident. To accomplish this, the Departments must work together with Council to establish the level of service and work closely with each other by utilizing Mutual Aid, Automatic Aid, and closest station response.

In developing the appropriate level of service for the Departments, it is understood that in the Province of Ontario, municipalities have obligations that are set out in the FPPA to provide fire protection based on local needs and circumstances.

There is no scientifically based protocol that provides guidance for determining what resources are required for each fire situation. However, studies undertaken by the National Institute of Standards & Technology (NIST), NFPA (1710) (1720), and the OFMEM provide general guidelines for initial critical fire ground tasks required for each level of risk (Low, Moderate, High, and Maximum) for structure fires. The number of persons/resources required to complete the identified critical tasks is known as the "Effective Response Force" (ERF).

This term: Effective Response Force (ERF) represents the initial timed response that should form the performance measure used by the County. This ERF directly affects station location, staffing, apparatus deployment, development standards, etc.

The NFPA Fire Protection Handbook defines the initial attack response for interior operations and command as the Effective Response Force (ERF). ERF defines the necessary resources required for any given response that prevents an emergency from growing larger or injuries or loss of life become worst.

Upon confirmation of the severity of an incident, additional resources are dispatched. Dispatching the closest station will improve the ERF response times. However, the Municipalities determine what the EFR is. This section explains how the ERF is determined based on job-task analysis of a single-family home fire.

To make decisions on both responses and staffing levels, the Departments need to look at statistics to analyze their strengths and weaknesses and recommend to Council for adoption a Standards of Cover.

16.6 Data

The review of historical performance and measurement is an essential component in identifying the capabilities of the service provision and service delivery system. Components measured usually include distribution and concentration. These components are all factors in determining the most efficient manner to provide emergency response provision. Modelling and statistical analysis should be used to verify that the Department's resources are being utilized efficiently and effectively.

To understand the Departments' service performance, historical response data needs to be compiled and analyzed in the same manner among the Departments, using the same definitions for each component within a response. A three-year sample of response data should then be used to determine a baseline measure for incident response. A baseline is a metric that provides a foundation for understanding the agency's current system performance.

Once the baseline measure is established, a "benchmark" or "target" should be set for various response categories. 'Benchmarks' are goals that organization seeks to obtain to optimize service delivery.

Figure 10: Total Response Time Component Breakdown
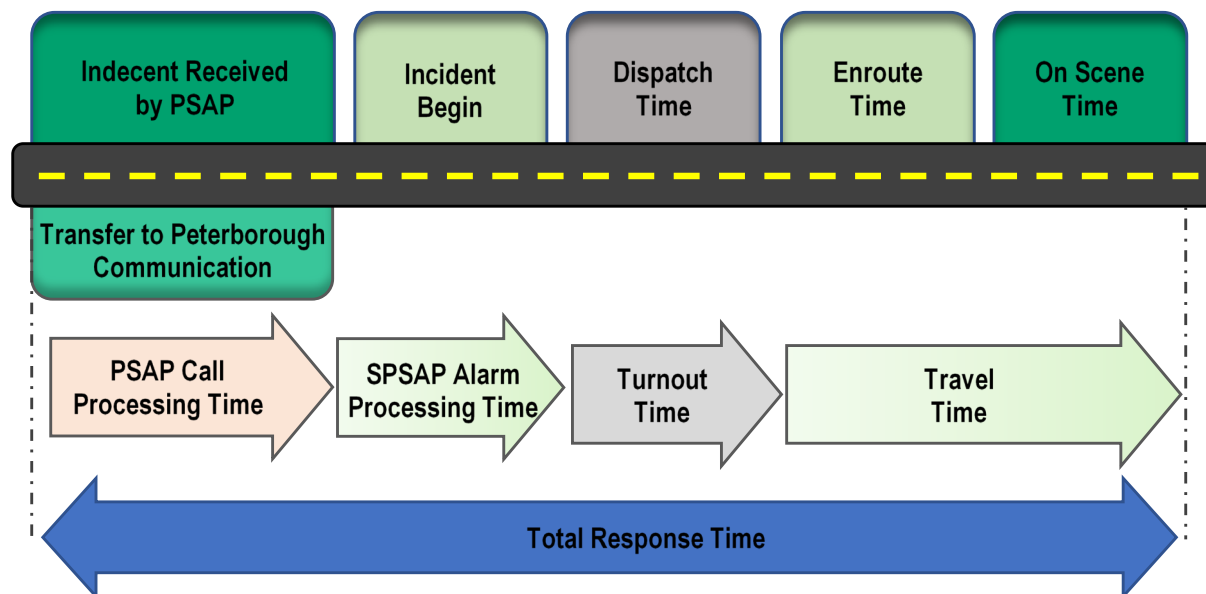
All departments must use the same stages and intervals of emergency incident response, as noted in Figure 10. Accurate and reliable data must be provided to ensure specific and strategic decisions and service delivery are based on sound data.

Public Safety Answer Point (PSAP) Call Processing Time1 – The time interval between receiving an alarm (phone call) at the PSAP (911) call center and the time when the Departments' dispatch center answers the transferred call by phone from the 911 center.

Secondary Public Safety Answer Point (SPSAP) (Peterborough Fire Services) Alarm Processing Time - The time interval between receiving an alarm by the Departments' dispatch center (Incident begin) and the time the Communication Technician (Dispatcher) activates the station(s) paging devices (Dispatch time).

Chute Time - The time interval between the activation of the station(s) pagers and when the responding apparatus begins its response as noted by or notification to dispatch by voice over the Department's radio system (Enroute Time).

Travel Time (1st unit) - The time interval between the responding apparatus's initial acknowledgement that they are responding and the time when the responding apparatus notifies the dispatcher of its arrival on the scene (On-Scene time) via radio confirmation.

Total Response Time (1st unit) – The time interval between receipt of the alarm by dispatch center (Incident begin) and the first emergency response apparatus arrival on the scene (On-scene time).

Effective Response Force Time (Defined within the report) - The time interval between the receipt of the alarm by dispatch center (Incident Begin) and the arrival on scene of the unit which makes up the ERF.

Performance is better measured and now widely accepted by agencies in terms of how a department can achieve its goals as supposed to being based 100 percent of the time on a simple average metric. If an agency states it can respond to an emergency within 12 minutes total response time at 90% efficiency (9 out of 10 responses), it assumes 10% of the incidents will not meet the 12-minute objective. It is the identification of issues within this 10% that may help the agency plan and target protection and prevention strategies.

16.7 Performance Objectives, Service Levels, Expectations and Benchmarks

Public expectation is that the Departments will be available when required. The Department must know what is expected from them by the community and Councils and inform the community of its continuous advancement of capabilities.

For all fire incidents, the Departments shall arrive promptly with sufficient resources to provide fire protection and suppression services to the community. These operations shall be done in accordance with the individual and Fire Chief's Association standard operating guidelines while providing for the safety of responders and the public.

Understanding and incorporating the expectations of residents and policymakers with recommended standards is critical and needs to include a review of service delivery, station locations, equipment, resources, and prevention and educational strategies.

Over the next five years, the Departments should also improve response times and components and effective response force (ERF) performance by adopting service level objectives and revising the current service delivery model.

Accurate incident response times for structure fires (with dollar loss) 2017-2020 should be analyzed to determine the Departments' baselines and provide a foundation for future decisions and service delivery models.

As an example, the Departments can adopt internal baselines from the response data and then adopt a five percent improvement of the baseline data gathered over the next 5-year period, or shorter, to establish local performance benchmarks ("Departments' targets") as part of a continuous quality improvement process.

The gap between the baselines and benchmarks is what both departmental strategies and action plans aim to improve. This can be done by adopting the service level objective "Targets" as identified within this report from which strategic planning and specific objectives can be created.

16.8 Deployment to Risk Industry Standard (Risk Assessment)

Fire Services can establish performance objectives based on a review of national standards, industry best practices, current capabilities, and available resources.

Industry-recognized standards such as NFPA 1221, 1710, and 1720 provide guidelines for the Fire Service emergency response benchmarking and the basis for many Standard Operating Procedures. Other legislation, OFMEM Public Fire Safety Guidelines, Ontario's Section 21 Guidance notes, and standards from the Occupational Health and Safety Act are inherently incorporated into operational and

training programs. The Departments must continually monitor and compare its performance to accepted industry standards.

There has been an evolution in the industry as to how fire services deploy their assets. More specifically, a new best practice is for fire services to have deployment models that consider the specific risks of a community based on local needs and circumstances. Several industry-leading organizations have endorsed this risk-based deployment model as the most effective way to protect lives and property. Such organizations include the OFMEM, the Metro Fire Chiefs Association and the Commission on Fire Accreditation International (CFAI).

The OFMEM developed the Comprehensive Fire Safety Effectiveness Model to assist Provincial Fire Services in developing a Fire Risk Sub Model. The Community Risk Analysis provides an assessment of the risks that may affect persons or property within the community, including exposure to natural and human-made emergency events. Identification of community risk offers a basis for determining effective resource allocation and service provision (the greater the risk, the greater the resources required). As was previously discussed, an analysis of community risk must be undertaken to assess the community risk level and match the appropriate initial and effective responses to the emergency incident.

16.9 Distribution

"Distribution" is defined as the geographic location of the first due fire service resources that are available to provide the initial all-risk response to emergencies. Distribution measures the "first due units' arrival" at the scene of an emergency within that apparatus designated response area; this is displayed as a measure of travel time between a fire station and arrival at the emergency event. The location of each station (within the Municipalities) is critical to ensure initial rapid deployment to minimize and terminate the consequences of the emergency.

Figure 11: Fire Safety Effectiveness Model
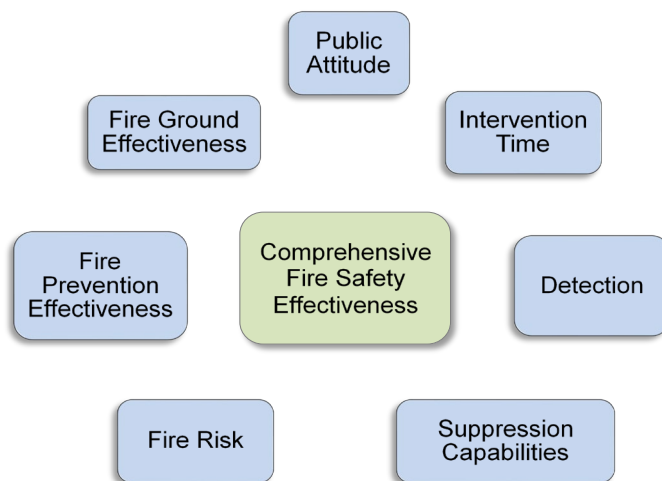
Many fire services now work with GIS tools and response modelling to identify areas requiring evaluation and to plan for the best closest station response. Using ESRI ArcGIS solutions, all station response zones should be analyzed using road network/speed modelling, historical data, and the GIS tool to display the travel

response capabilities and to identify areas that can and cannot be reached in the baseline and benchmark times lines. As well, the determination should be made based on this information as to whether the Departments Services can provide an effective response force within the baseline and benchmark times.

Determining the most efficient station response has progressed from estimating the closest station by circles on a map to a sophisticated process of comparing multiple data sources with the latest mapping technologies.

The Departments interact with each other to provide fire service within the Municipalities through a Provincial Mutual Aid agreement and many Automatic Aid agreements as discussed in Section 17.0. These Automatic Aid areas are enacted through written agreements for emergency incident coverage upon activation by the Departments Communication Centre.

16.10 GIS Modelling

Before GIS Modelling, response zones were established by Municipal borders and station areas were established by travel distances, as illustrated in Figure 12.

Traditional GIS modelling utilized 8km buffer zones from fire stations to show where their response areas were and whether there was any overlap or gaps. The Departments, working with the County GIS, developed mapping based on the 8km response zone as illustrated in Figure 13.

More accurate modelling should be developed for showing response zones that should include the County road network and their actual road speeds. The Northumberland County GIS department has the capability to produce this type of mapping through ESRI ArcGIS. For example, this mapping can be utilized to illustrate the closest station deployment model.

Other examples of mapping that should be developed:

- Northumberland County Fire Response Zones with Geographic Road Distance with No Hold Back.
- Northumberland County Fire Response Zones Showing Service Coverage Area using Road Speeds with No Hold Back.
- Northumberland County Fire Response Zones Showing Services Coverage Areas using Road Speed with Cobourg No Hold Back, and remaining Stations with a 3 min 30 sec Hold Back.

Current Response Zones

Figure 12: Northumberland County Fire Response Zones
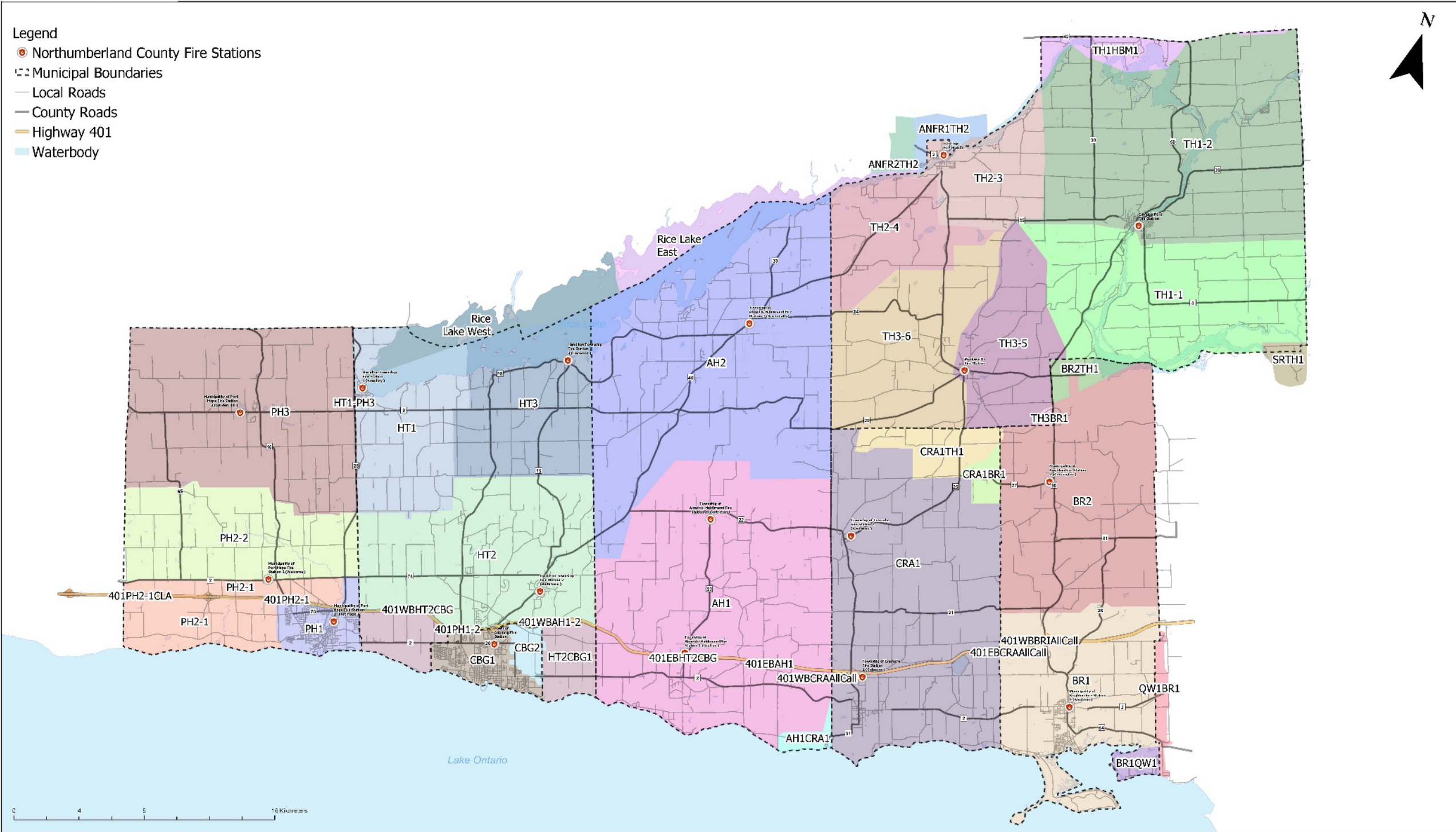
Source: Northumberland County, 2021
MNR, 2016
Includes Material (c) 2021 of The Queen's Printer for
Ontario. All Rights Reserved.

Existing 8 km Buffer from Fire Stations
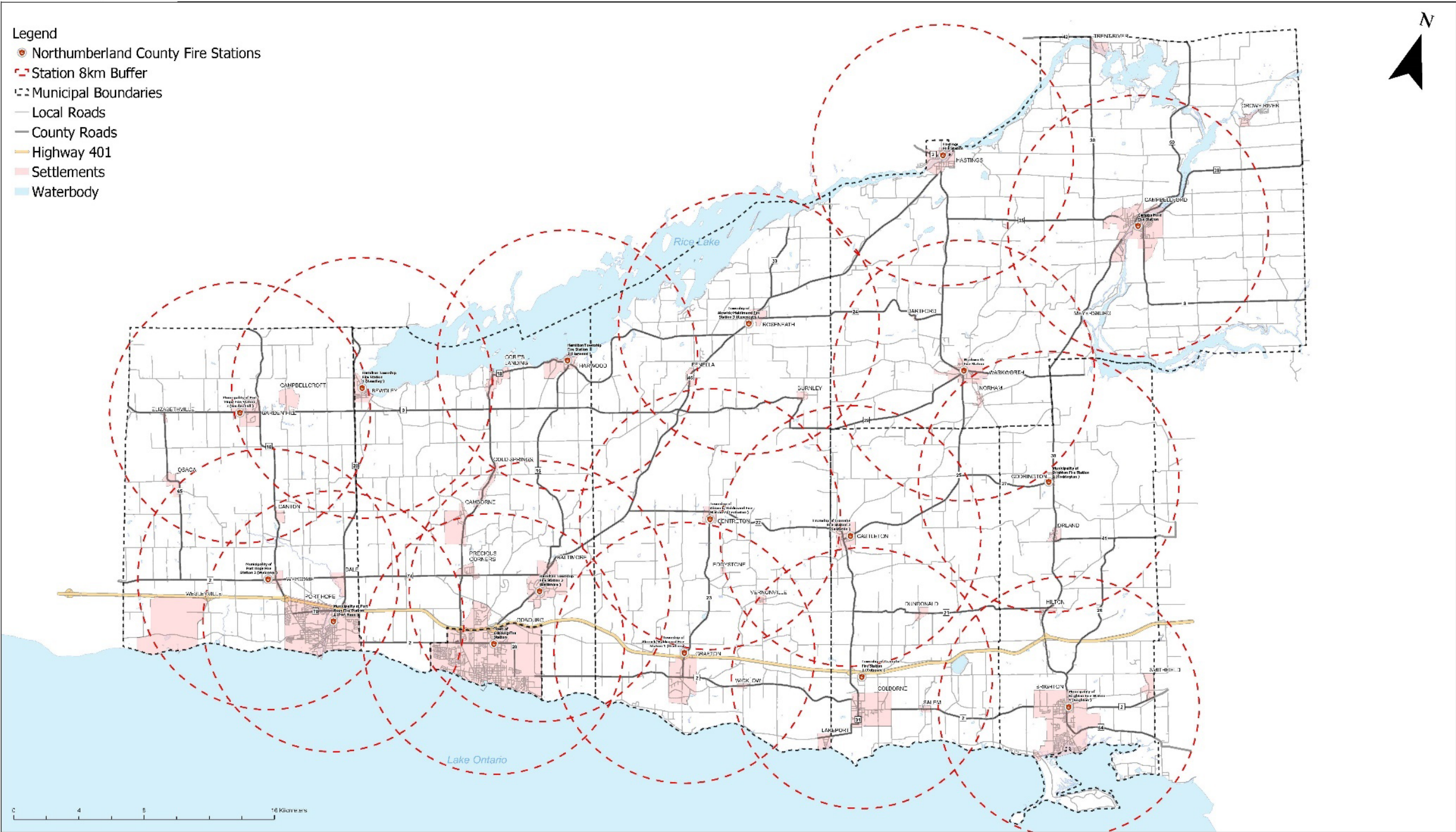
Source: Northumberland County, 2021
MNR, 2016
Includes Material (c) 2021 of The Queen's Printer for
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16.11 Concentration

The concentration of resources is different from distribution in that it reflects the spacing of multiple resources throughout the Municipalities. It is important that sufficient resources can be assembled on an emergency scene to complete the critical tasks required to mitigate an incident.

Although concentration is like distribution, concentration deals with the ERF. The report has identified an ERF that defines the necessary resources required for any given response; this force must be on scene to prevent the emergency from growing larger or victim's injuries or loss of life from becoming worse.

16.12 Critical Tasks

To effectively respond to any emergency, it is important to understand the number and type of resources required for each event. Critical task analysis helps provide a deeper understanding of resource requirements by identifying what specific or "critical" tasks must be done to perform initial rescue and incident mitigation for any emergency.

To standardize the response to various incident types and to ensure that a minimum ERF is dispatched, most fire services use a running assignments chart based on the information received by communications staff. Many fire services now recognize the need to transition to running assignments based on an initial EFR model.

Past studies focused primarily on when initial crews or first pumps would arrive on the scene within the accepted timeframe. "Critical tasks" and the subsequent effective response forces have now been identified matching risk to deployment.

Fire ground Critical Tasks can be "assigned" or carried out sequentially, and the total number of staff on the initial call may be affected depending on the involved station's vehicle deployment. Initial Rapid Intervention Teams, Accountably, Entry Control and Safety functions can be managed by the ERF until the point that the incident escalates or is expected to escalate beyond the ERF capabilities, at which time further appropriate resources will be requested.

16.13 ERF to Single Family Dwelling Structure Fires

The following sections provide examples of the critical tasks and the number of firefighters required to perform the critical tasks associated with providing an Effective Response Force (ERF) for a single-family home fire. Below is the detailed breakdown of the initial critical tasks that are required.

Incident Commander (IC) is responsible for the safety and overall direction and management of the emergency response at the incident. This function is the responsibility of the first officer arriving on scene until relieved of command and shall:

- Assume, confirm, and announce Command and take an effective exterior operating position.
- Evaluate the situation rapidly - size-up.
- Initiate, maintain, and control the communications process at the scene.
- Identify the overall strategy, develop an incident action plan, and assign personnel as required in accordance with risk assessment and management principles.
- Request additional resources to match the current and predicted needs of the incident.
- Develop an effective emergency scene organization.
- Provide tactical objectives to personnel.
- Review, evaluate, and revise, as needed, the incident action plan.
- Provide for the continuity, transfer, and termination of Command.
- Provide for the support of victims and the public as required.
- Provide spokesperson/communication services to the media when appropriate.

The next six functions must be addressed as soon as possible from the initial assumption of Command.

Pump Operator for the first arriving pump company, once assembled on scene, has the following duties:

- Position the pump.
- Supply the initial attack line.
- Ensure that a reliable water supply is secured.
- Supply any other hose that will be required by command and sectors.
- When the additional lines have been stretched, advise command that they are available for use.
- Supply building fire protection system when present.

Fire Attack **Sector** is generally under the control of the first arriving company officer and directs companies to control and extinguish the fire. The fire attack company may be comprised of 2 firefighters, including the officer and a support crewmember, to advance the hose line. This crew will be responsible for the initial hose stretch and advance hose line into the structure, door, and flow path control, perform an initial search; perform rescue as required; find and extinguish the fire and commence salvage and overhaul operations.

Search & Rescue sector personnel perform the following duties:

- Stretch and advance a secondary line.
- Provide search and rescue operations, as required.
- Conduct a primary search in conjunction with the fire attack crew.
- Begin overhaul of all void spaces above and adjacent to the fire compartment.
- Coordinate efforts with incoming firefighters.

Support & Backup aid pump operator to establish a water supply, provide support for attack hose lines, utility control, and assist with forcible entry.

Ladder Crew (if applicable, or could be 2nd pumper or additional personnel arriving on the scene in their personal vehicles) personnel for the first arriving ladder perform the following duties:

- Assist with rescue using ground ladders and other equipment, as required.
- Ventilate in accordance with the needs of the incident, which may include tactical ventilation, horizontal ventilation, or vertical ventilation.
- Perform positive pressure ventilation as required.
- Ladder the building, starting with providing a secondary means of egress for fire attack.
- Ventilate the roof as required.

Ladder driver-operator (if applicable or 2nd arriving pump operator) of the first arriving ladder performs the following duties:

- Place the ladder truck in a location deemed most appropriate to the situation or in accordance with the IC.
- Place the aerial ladder-elevating platform in operation, as required.
- Supply the ladder's pump mechanism for exposure or defensive operations, as required.
- Assist with raising ground ladders.

Rapid Intervention Team (RIT) - don equipment, assemble equipment cache, size up structure and hazards, gather information from IC and accountability, and prepare to advance into the structure to aid in the removal of downed or trapped firefighters.

In addition to critical tasks, the Departments should also establish critical set-up times. Critical set-up times begin when the apparatus comes to a stop, and the first officer or firefighters assumes command. Based on the established standard for critical set-up times, firefighters can then be trained to identify and complete the critical tasks within appropriate time elements, which, combined with effective incident management, reduces overall life loss and property damage due to fire.

For non-hydrant areas, the following are additional Critical Tasks:

Water Supply Pump Operations – locate in an appropriate place for porta tank deployment to supply water to the fire attack pumper via high volume supply hose.

Water Source Pump Operations – locate at the closest identified water source to supply water to refill tankers shuttling water to the fire scene.

Tanker Operations – Tanker fire apparatus used to initially supply the fire attach pumper or to shuttle water from the water source to the fire scene.

Table 6 illustrates the minimum number of firefighters required to perform the critical tasks at a single-family home fire.

Table 6: The number required firefighters to perform the critical tasks at a single-family home fire.

Critical Tasks	# of Firefighters Required
Incident Commander	1
1st Arriving Pump Operator	1
Fire Attack Sector	2
Search & Rescue	2
Support and Back-up	2
Ground Ladder/Ventilation	2
1st Arriving Ladder or 2nd Arriving Pump Operator	1
Rapid Intervention Team	2
Total	**13**

For non-hydrant areas, the following are additional firefighters required.

Table 7: Additional firefighters required for providing water in a non-hydrant area.

Critical Tasks	# of Firefighters Required
Water Supply	4
Water Fill	2
Total	**6**

16.14 Recommendations

From the review and assessment of Standards of Cover, it is recommended that:

1. The Northumberland County Fire Chief's Association work with the Fire Service Steering Committee to develop response standards for low, moderate, and high-risk responses in different density areas using the effective response force model and submit them to Council for approval.

2. The Northumberland County Fire Chief's Association work with the County of Northumberland's GIS department to develop response areas to find the closest station response and automatic aid for structure fire calls, based on road networks and road speed.

3. The Northumberland County Fire Chief's Association establishes a Compliance Committee that would develop a process to improve the standardization of collecting data and conduct regular quality assurance (QA) on data used to set responses and ERF.

4. The Northumberland County Fire Chief's Association develop standard critical tasks set up times based on their local abilities.

17.0 ERF Implementation Plan

Once a response standard is developed using the ERF model, the Chiefs need to work on how best to accomplish meeting the standard. The first step to meeting the standard is to ensure the response statistics are kept in a standard approach across the Departments. Once this has been done the Departments can then explore the different methods that can help meet the response standards, and no one way can be used by itself; instead, integrating other methods is essential to developing proper response standards. The following methods are used to meet the response standards:

- Mutual Aid
- Automatic Aid
- Closest Station Response
- Cross-border Firefighters
- Station Locations
- Firefighter Availability

17.1 Mutual Aid

Under the authority of the Fire Protection and Prevention Act, 1997 (FPPA), and the direction of the Fire Marshal, Fire Coordinators are required to establish and maintain a Mutual Aid Plan under which municipalities that serve the designated area agree to assist each other in the event of an emergency.

In addition, Ontario Fire Marshal's Public Fire Service Guidelines (PFSG) 04-05-12 state that Mutual Aid plans allow a participating fire department to request assistance from a neighbouring fire department authorized to participate in a plan approved by the Fire Marshal.

The Departments utilize Mutual Aid regularly, and the Fire Coordinators are active in assisting with moving stations or vehicles for both response and coverage. To enhance the program to help meet the response standards, the Chiefs should develop SOGs for station coverage and automatically calling for Mutual Aid for a response. By creating these SOGs, stations and vehicles can be contacted for coverage, or can respond directly to the scene sooner through the dispatch centre instead of waiting for the coordinator's request. The Chiefs should also designate certain stations because of their geographical location to always be backfilled and staffed.

17.2 Automatic Aid

Ontario Fire Marshals PSFG 04-04-12 Automatic Aid states that Automatic Aid Agreements are generally considered in areas of the Municipality to provide the first response to a place where another department is closer, irrespective of the municipal boundaries, regularly.

The concept of Automatic Aid is to ensure the closest available assistance is dispatched to an incident to provide the residents with the quickest response to their needs. Automatic Aid will reduce the critical element of time between the commencement of a fire and the application of an extinguishing agent to the fire and could significantly improve the loss of injury, death, and property loss.

The Review showed that there are several Automatic Aid agreements throughout the Departments. Most of these agreements are based on distance rather than road speeds and networks. Upon completing the GIS modelling and utilizing the closest station response concept, new agreements need to be developed and adopted by the various Councils to meet the developed response standards.

17.3 Closest Station Response

Closest Stations Response is a concept that many Counties or areas have talked about but struggle to put into place. The closest station response needs to happen to provide better service to the taxpayer and better health and safety for the firefighters. To accomplish this, the Chiefs need to look at the GIS modelling that shows the closest station by road speed and network and assembly time and develop response zones Countywide instead of municipal borders. Once the new response zones are formed, then new Automatic Aid Agreements would be developed.

While the Chiefs can anticipate push back from firefighters and will need to honour any collective agreements over time, the benefits will become apparent and acceptable for the firefighters once they are exposed to the new methods.

The recommendation would be that both the automatic aid station and the home station would respond simultaneously and, depending on the call, they would either work together or release the automatic aid station.

17.4 Station Location

Developing locations for the fire station is often complicated, whether in an urban or rural area. In urban areas, there is community pressure, response time, road networks and areas of risk. In rural areas, fire stations are often built where there is a nucleus of people that could become volunteers or part-time firefighters.

Regardless of how the decision is made in the future for the Departments, before designating a property to build a new station, it would be beneficial to discuss with the

Fire Service Steering Committee. This will help to see if there are any opportunities to either share a station, jointly own a station, or build a station that works better for the response standards.

17.5 Cross-Border Firefighters

Throughout the engagement sessions and the document, The Loomex Group explored the advantages of having firefighters respond to multiple stations based on their residents or workplace. Once the Countywide paging system is in place, notification of firefighters in different areas will become easier.

While the concept is new to most Chiefs, and Firefighters, it is one important step to assist with obtaining the ERF. This program will not be without challenges, but the rewards for both the residents and firefighter's safety outweigh the challenges.

This program will take some time to put into place; however, the Chiefs should begin to work towards this concept. Before cross-border firefighting can happen, several issues need to be addressed:

- Human Resources
- Common Training Standards
- Vehicle and Station familiarization
- Social Dynamics within the departments

17.6 Firefighter Availability

Having enough firefighters available to respond to any emergency incident is paramount, and many times for some responses, the Departments need all the firefighters they can get. One issue mentioned in many firefighter engagement sessions was regarding firefighters that work for the Municipality but could not respond during work hours due to the nature of their jobs. The Chiefs confirmed this is an issue for many of the Municipalities.

Fundamentally this concept goes against, in many cases, what the Municipality is asking local businesses to allow, and that is to let volunteer and part-time firefighter leave their workplace to assist a resident during an emergency.

To meet the ERF and response standards, firefighter availability is another key component. Councils, CAOs, and other Department Heads need to understand the importance of allowing the firefighters to leave their work to respond. To accomplish this, there needs to be some set guidelines and policies developed that are in the best interest of the residents.

17.7 Recommendations

From the review and assessment of EFR Implementation, it is recommended that:

1. The Northumberland County Fire Chief's Association develop policies that would allow for cross-border firefighters.

2. The Northumberland County Fire Chief's Association works with the Fire Service Steering Committee to develop a policy that would allow firefighters to respond to an emergency call while working for the Municipality. This policy would then be presented to all Councils for consideration and adoption.

3. Municipalities consider building a new fire station that solicits input from the Fire Service Steering Committee before choosing a location.

4. The Northumberland County Fire Chief's Association work with the Fire Coordinators to develop SOGs for the Dispatch Centre to automatically call for Mutual Aid for station coverage or response to the scene.