



CITY OF KAWARTHA LAKES

Fire Service Modernization Review

Submitted by:

Performance Concepts Consulting Inc.

Submitted to:

City of Kawartha Lakes

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1.0 Introduction & Approach

Performance Concepts Consulting Inc. was retained by the City of Kawartha Lakes in late September 2021 to execute a Fire Service Modernization Review under the auspices of the provincial Audit and Accountability Fund. This independent 3rd party Final Report positions the City to fully comply with the terms of its Audit and Accountability Fund funding contract with the Province. The 2021-2022 Fire Service Modernization Review has been delivered on time and on budget by the Performance Concepts team.

Performance Concepts was previously retained by the City of Kawartha Lakes to prepare the 2022-2031 Paramedic Service Master Plan that has been adopted by Council. This previous work provided our team important insights around emergency services delivery challenges across the City of Kawartha Lakes' expansive geography and dispersed built form.

The Fire Service Modernization Review has been designed and executed to answer a series of core questions around service delivery efficiency (cost) and effectiveness (quality). Taken together, these cost/quality questions have shaped a Fire Modernization Review focused on the overriding need for Council to secure value-for-money. The Review's value-for-money core questions are as follows:

- Does Kawartha Lakes deliver its portfolio of Fire services according to an affordable/sustainable resourcing and funding model?
- Are Kawartha Lakes Fire urban and non-urban service levels appropriate compared to "best available fit" peer comparators and Fire department "industry standards" in Ontario?
- Does the current Kawartha Lakes Fire service delivery/resourcing model properly address the financial and public safety risk management events documented in this Report?
- Have recent Fire Service planning processes in Kawartha Lakes (e.g., 2020 Master Plan) provided a coherent and comprehensive go-forward "change plan" to address the financial and public safety risk events documented in this Report?
- What actions should the City of Kawartha Lakes take going forward to mitigate outstanding financial and/or public safety risks, and secure a sustainable/efficient Fire service delivery model for its urban and non-urban communities?

These important value-for-money questions have been addressed by the Performance Concepts team using a proven evidence-based methodology that we have applied across numerous municipal modernization review assignments:

1. Conduct an Evidence Driven Evaluation of the “As Is” Current State

- Critically review the City’s recent Fire service planning initiatives and reports (e.g., Station location/consolidation, 2020 Master Plan, Truck Design review etc.)
- Conduct due diligence review of existing Kawartha Fire service delivery activity levels, performance metrics and financial/cost data sets
- Evaluate City of Kawartha Lakes growth projections from the perspective of Fire service level/resourcing impacts and public safety/firefighter safety risk management
- Identify and document core/secondary Fire service delivery risk events (Financial, Public Safety, Firefighter Safety etc.)

2. Execute Investigation/Analysis Regarding “As Should Be” Future State

- Identify potential Performance Improvement/Risk Mitigation opportunities that address issues or problems documented in the “As Is” evaluation
- Conduct evidence-based due diligence/analysis to build-out required performance improvement and/or risk mitigation solutions (categorized as Strategic or Tactical)
- Develop detailed action-oriented solution packages - categorized as Strategic or Tactical based on the scope/impact of the required change

3. Bring Forward Service Delivery Improvement/Risk Mitigation Findings & Recommendations

- Document and triage Strategic and Tactical Recommendations, including resourcing/financial impacts and expected benefits/ROI

4. Build a Stress Tested Do NOW/Do SOON/Do LATER Implementation Roadmap

- Design an Implementation Roadmap of Strategic/Tactical Recommendations deployed into three distinct timeframes:
 - Do NOW
 - Do SOON
 - Do LATER
- Sequencing of Recommendations in the Roadmap to have due regard for the ROI/benefits of each Recommendation, the need to smooth the \$ impacts of implementation, and the finite capacity of the City to execute change simultaneously across multiple channels.

2.0 Kawartha Lakes Fire: Scan of “As Is” Service Delivery Model

2.1 Kawartha Lakes Geography & Built Form Challenges

Ontario municipalities categorized as a “City” by the Province typically feature a geographic area of limited expanse and a somewhat dense built form. The City of Kawartha Lakes does not fit into the geography/built form slot typical of Ontario cities. Kawartha Lakes is the second most expansive single-tier municipality in Ontario with an area of 3,084 square kilometers. The Kawartha Lakes built form is highly dispersed. There are 24 distinct communities within Kawartha Lakes that are highlighted on the “Explore Kawartha Lakes” web page. Lindsay is the urban hub of Kawartha Lakes, representing a traditional “city” built form that merits a 24/7 Fire suppression model staffed with full-time firefighters. The “Explore Kawartha Lakes” web page features the insightful map/figure set out below - Kawartha Lakes is defined by water in addition to its geographic expanse and its dispersed built form. The City’s road network is overlaid across this expanse of rock/water and dispersed communities.



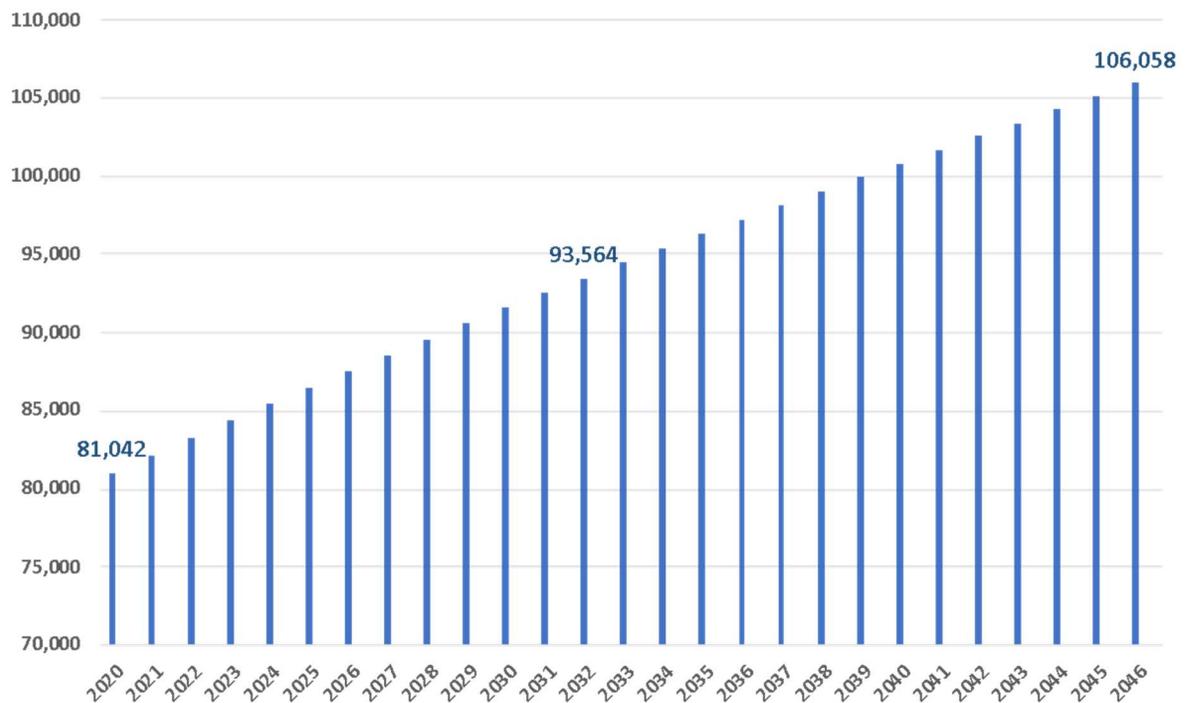
The implications for Fire Service delivery/deployment are daunting. Economies of scale enjoyed by most Ontario city fire departments are not available. In fact, diseconomies of scale are unavoidable. A sprawling network of Fire stations and apparatus is required to provide acceptable coverage across the 24 communities spread across Kawartha Lakes. Kawartha Lakes Fire currently features 19 stations and more than 40 pumpers and tankers and other fire apparatus in its fleet. The sustainable asset

management and lifecycle capital costing challenges generated by the Fire Service portfolio of facilities and apparatus are significant.

2.2 Kawartha Lakes Growth Challenges

Layered on top of the realities of Kawartha Lakes “rock and lakes” expansive geography and its dispersed built form, is the imminent challenge of population growth. The Ontario Ministry of Finance has released its preliminary 2020-2046 population projections based on Canada’s 2020 census. Kawartha Lakes is forecast to grow by 11,431 residents by 2032 - a 13.9% increase over ten years. This growth will be concentrated in Lindsay for the most part.

Ontario Ministry of Finance Population Projection:
Kawartha Lakes 2020-2046



The City’s 2019 DC Background study executed by municipal finance experts Watson & Associates will capture growth related Fire capital costs to service the projected residential growth. Growth related operating costs can be offset (in part) by the increase in the City’s Current Value Assessment property tax base. However, new taxable assessment is typically used by Ontario growth municipalities to fund existing operations that feature year-over-year cost increases exceeding CPI inflation in combination with property tax rate adjustments that (at best) mirror CPI.

2.2.1 Evolving Growth Realities for Lindsay

This section of the Report has been extracted/updated from the 2021 Paramedic Service Master Plan approved by Council. Post COVID work/live realities are relevant to Fire Service resourcing for Lindsay, and they inform the Findings/Recommendations found in Section 7 of this Report.

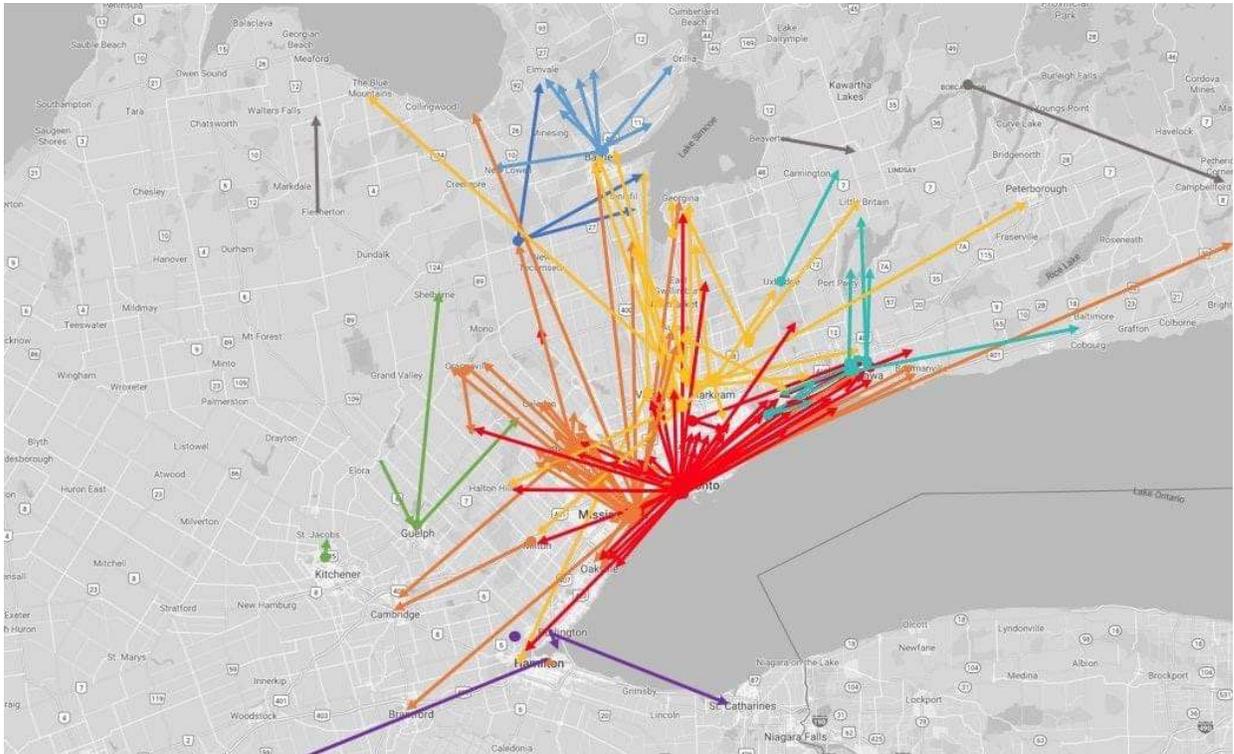
Post COVID Work/Live Realities

The COVID pandemic has altered long held household attitudes/calculations concerning work/live balance. Prior to the COVID pandemic, employees across urban Ontario selected their housing with the reality of the daily commute to their workplace firmly in mind. Tolerable daily commute times to the workplace largely defined the live/work balance housing choices made by hundreds of thousands of Ontario households. Housing prices have traditionally been impacted by the need for density and proximity to the workplace. Density has been a by-product of unavoidable daily commuting realities. COVID has overturned the established work/live balance calculation. The COVID pandemic has served as a 24-month rolling experiment on the decentralization of Ontario's corporate and public sector workforce. On-line virtual platforms have now passed the feasibility test for thousands of employers. The expensive commercial real estate model that centrally positioned entire workforces in the urban core of the GTA, Greater Ottawa and other large Ontario cities is transforming. It is highly unlikely that corporate Ontario or large public institutions will return to the traditional pre-COVID model. The flight from density is here to stay.

The post-COVID commuter-shed features knowledge workers in home offices that are fully equipped for online collaboration and can readily access employer databases. These employees will still make the commute to the employer's place of work - but will do so far less often across a typical month. Options/decisions about where an employee can live are fast becoming uncoupled from the employer's geographic work location. If an employee chooses to take flight from Toronto-style density (and its astronomical housing prices), telecommuting from a home office for 16 workdays per month (while enduring four workdays with a long/grinding commute to the office) becomes tolerable. In fact, this new commuter-shed may also be desirable for employers who can downsize their workplace footprint and costs.

The following figure documents 2020 household relocation data supplied by a Toronto real estate firm documenting the flight from density on one single day. Statistics Canada reports that the Toronto CMA experienced an unprecedented reduction of 50,375 residents between July 2019 and July 2020. The trend has not abated across 2021.

Flight from Density in Toronto/GTA



These post-COVID commuter-shed realities are redefining growth and development patterns across Ontario. Ministry of Finance population projections do not completely capture the ongoing COVID-inspired changes in work/live relationships and the flight from density. The Performance Concepts team previously consulted Kawartha Lakes planning staff in order to better understand upcoming growth in northwest Lindsay. Emerging from this dialogue with Planning staff was a consensus that new residents relocating on the staged development lands in northwest Lindsay would likely be in the 50-60 age range and would probably be relocating from Toronto or the 905-GTA. These late-stage GTA baby boomer new residents will be arriving in Lindsay with entrenched urban service level expectations when it comes to Fire suppression and other Kawartha Lakes public services.

2.3 Provincial Asset Management Regulations

Kawartha Lakes is required to comply with O Reg 588/17 in regard to asset management. The figure below references the need to establish asset inventories/condition ratings/lifecycles and a capital funding replacement plan. Fire capital is a significant life cycle funding challenge in this regard since it is 100% property tax funded and the asset inventory includes 19 stations and 40+ pumpers and tankers.

An Additional Pressure: Reg 588 ASSET MANAGEMENT

• By 2023 the Province has mandated ALL municipalities as follows:

1. Establish asset inventories + condition ratings
2. A life cycle/service level assessment needs to be completed for each facility/asset class
3. Municipalities will have to budget for replacement of assets according to their life cycles

Fire is a 100% property tax funded Service...no Provincial subsidy to soften the \$ transition to lifecycle sustainability

- 19 Fire Stations
- Fleet of 40+ Pumpers & Tankers
- Issues outlined in this Report prevent a “stretch the fleet” approach to regulatory compliance

2.4 Evolution of the Kawartha Lakes Full Time Fire Suppression Model

On January 1, 2001, the former town of Lindsay and the other constituent municipalities of Victoria County were amalgamated by provincial legislation into one entity to be known as the City of Kawartha Lakes. By restructuring order, eleven Victoria County fire departments and their twenty-one divisions were also amalgamated on January 1, 2001, to become one department – the City of Kawartha Lakes Fire Rescue Service. At the time of amalgamation, only the Lindsay-Ops Department staffed a full-time crew 24/7, while both Bobcaygeon and Omemee staffed full-time firefighters on a day shift, Monday-Friday. Since amalgamation, the Bobcaygeon and Omemee firefighters have been absorbed into the Lindsay station to provide a more consistent urban staffing level. Bobcaygeon, Omemee and the remainder of the Department are now staffed by volunteer firefighters in what is known as a composite department. Note: The term “volunteer firefighter” is used throughout this report to reflect individuals who are on-call and paid when they respond to emergencies. The terms “part-time” or “paid, on-call” are used elsewhere to identify the same class of firefighters.

2.5 Kawartha Lakes Fire Budgets/Spending Profiles

The City's Fire department budget model is reflective of the built form and fiscal capacity imbalances that define Kawartha Lakes.

The Kawartha Lakes Fire operating budget is area-rated. The costs of the urban full-time firefighter delivery model associated with the Lindsay station are funded by Kawartha Lakes taxpayers located within the Lindsay coverage area. The costs of the non-urban volunteer firefighter operating model in place across the rest of Kawartha Lakes are funded by taxpayers located outside Lindsay. This area rating approach to the Fire operating budget reflects a "beneficiary pay" principle for allocating costs based on service level received. There is a negligible cross-subsidization across urban and non-urban Kawartha Lakes Fire delivery models.

Interestingly the Fire capital budget is not area rated. Non-Lindsay Kawartha Lakes taxpayers fund the urban Lindsay station's limited apparatus purchases/subsequent replacement. Kawartha Lakes taxpayers located in Lindsay fund the initial apparatus purchase/subsequent replacement for the 18 volunteer firefighter stations that each require a Tanker and a Pumper (no less than 20 years old) for response via the accredited Tanker Shuttle delivery model. There is a significant cross-subsidization over time from urbanizing Lindsay to non-urban Kawartha Lakes.

2.6 Fire Insurance and Accredited Tanker Shuttle Service

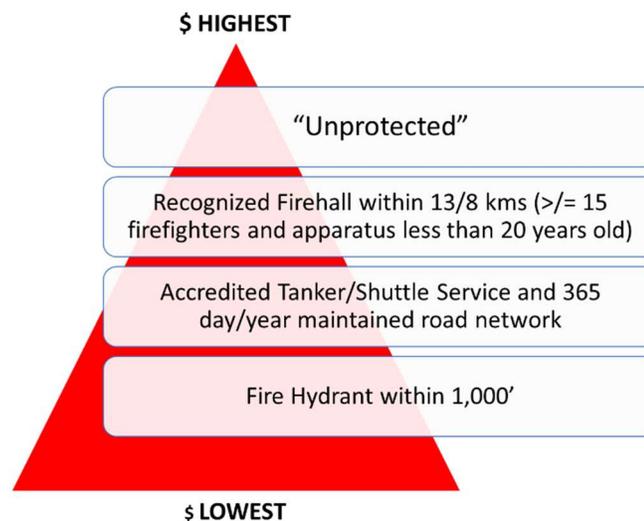
Fire property insurance ratings are impacted by a number of factors and as such they are unique to each municipality. To better understand property fire insurance in Kawartha Lakes, Performance Concepts consulted with underwriting staff from one of Ontario's larger insurance companies as well as Fire Protection Survey Services, one of two tanker shuttle accreditation services.

Insurance underwriters provide the lowest fire insurance rates for properties in an urban area with a fire hydrant within 1000'. In areas of a municipality without hydrant protection, a number of factors will affect the price of fire insurance. Most common is a base rate provided when service is provided by a recognized fire hall within a set distance of the property being insured. This distance varies by insurance company with most requiring the fire hall to be within 8 kms of the property, while some insurers allow as far as 13 kms distance. A recognized fire hall must have a minimum of 15 available firefighters and

apparatus that is 20 years old or less. Communities with fire services not meeting these requirements are rated as “Unprotected” and the cost of insurance is approximately 7% higher.

Insurance companies may also provide an additional discount from the base rate if the recognized fire hall is Tanker Shuttle accredited. Tanker Shuttle is a fire suppression process where fire departments dispatch sufficient resources (at least three pumpers, three tankers and 24 firefighters to deal with a single-family residential fire) to ensure adequate water supply and “mimic” hydrant protection. Each Tanker Shuttle accredited fire hall must have both a pumper and a tanker and at least three stations must be dispatched to each fire. The insured property must also be serviced by year-round roads to qualify. Most insurance companies provide an additional 5% discount to properties receiving an accredited Tanker Shuttle service level. To be accredited, a fire department must demonstrate it can provide sufficient water supply for either residential or commercial grade suppression. In the case of Kawartha Lakes, the entire Fire department is commercially graded (the highest standard) and the city should be commended for its continued investment to provide this level of service.

In summary, a rural property situated on year-round roads, with a recognized fire hall within 8kms or 13 kms (depending on insurance company) and Tanker Shuttle accreditation, will normally qualify for a 12-15% discount from the unprotected fire insurance rate. On a typical \$1,500-\$2,000 home insurance bill for houses located outside pressurized water/hydrant communities, accreditation generates an ongoing cost reduction “subsidy” of \$225 to \$300 per year.



Climbing Insurance Rates by Fire Risk Level

2.7 Volunteer Firefighters Staffing/Deployment Model

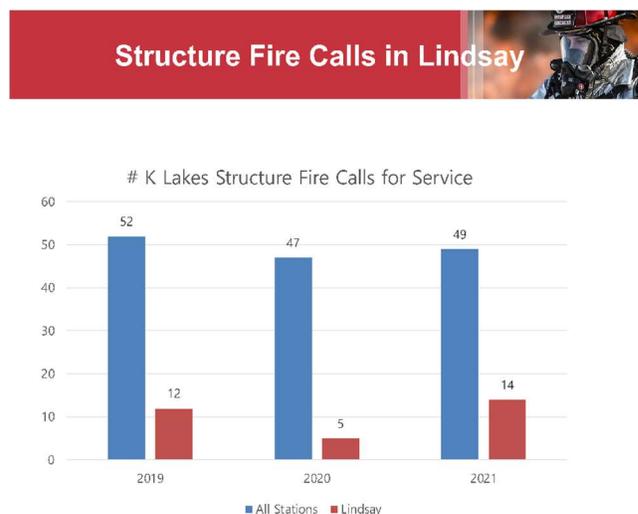
An estimated 309 volunteer firefighters are currently deployed across 19 Kawartha Lakes Fire stations. Eighteen of these stations are fully staffed by volunteer firefighters, one of which at Ops provides on-going support for Lindsay's full-time firefighters. The Kawartha Lakes staffing-strength target is 20 volunteer firefighters per station: for a targeted total of 380 firefighters. The 20-firefighter staffing-strength target ensures sufficient firefighters can be deployed to meet Tanker Shuttle accreditation standards of 15 firefighters per station. Currently only 2/19 Kawartha Lakes stations meet the 20-firefighter City target, and only 12/19 meet the 15-firefighter minimum.

The service delivery performance and risk management implications of these "available firefighter" deficits across numerous Kawartha Lakes stations (71 firefighters) will be addressed in Section 5 of this Report.

2.8 Lindsay Full-Time Firefighter Resourcing/Deployment

Currently 16 full-time firefighters (including 4 Captains) are deployed across four platoons operating out of the urban Lindsay station. When no firefighters are off sick or on vacation, 4 firefighters are available to respond from the Lindsay station to fire suppression calls.

The figure below documents the frequency of significant structure fire calls in Lindsay across 2019, 2020 and most of 2021. A total of 31 structure fire calls across 2019-2021 generated a response by the Lindsay station.

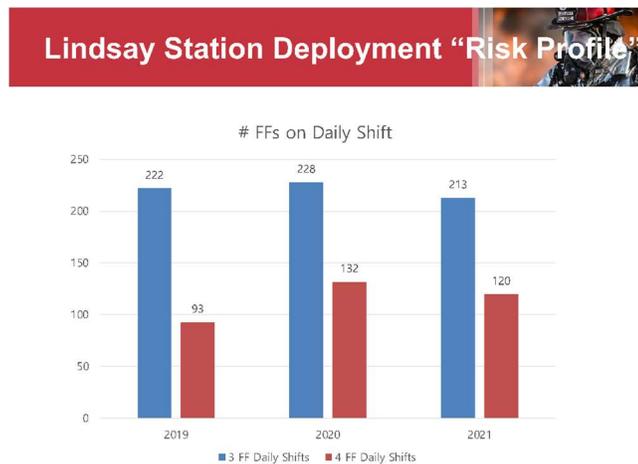


The figure below provides insights into the actual deployed firefighter capacity at the Lindsay station. Across the 2019-2021 period, a total of 663 daily shifts featured a down staffed deployment of only 3 firefighters. In contrast, 345 daily shifts featured 4 deployed firefighters.

Only 34% of total 2019-2021 daily shifts were staffed with a full deployment of 4 firefighters.

Problematically, 65% of total daily shifts featured 3 firefighters.

At the Lindsay station a secondary deployment by volunteer firefighters is used to supplement the full-time firefighters as necessary.



The service delivery performance impacts (response times) and risk management implications of these firefighter deployment trends at the urban Lindsay station will be addressed in Section 5 of this Report. It is noteworthy that the current “on the road” service level/staffing model at the fulltime Lindsay station is a “less-than-fully-configured” urban model despite the area rating of the Lindsay station’s operating budget and the increasingly robust pattern of growth in Lindsay’s taxable assessment. However, Kawartha Lakes taxpayers located in Lindsay are cross subsidizing the capital replacement costs of the 36 pumpers and tankers that deliver non-urban fire suppression services to outlying communities within the City.

3.0 Principles for High Performance Fire Service Delivery

3.1 Service Delivery Principles

This value-for-money review has been informed by a series of “best practice” service delivery principles set out below.

3.1.1 Accountability for Measurable Results to Residents/Taxpayers

Kawartha Lakes Fire should feature ongoing technical capacity to measure service delivery results in a timely manner across the Lindsay urban delivery model and the volunteer firefighter delivery model that serves the rest of Kawartha Lakes.

3.1.2 Transparency in Reporting Actual Results Against Measurement-Derived Targets

Kawartha Lakes Fire should establish measurement-derived performance targets for the Lindsay urban delivery model and the volunteer firefighter delivery model that serves the rest of Kawartha Lakes. Annual reporting to Council should provide the public with transparency in terms of actual results achieved versus targets.

3.1.3 Sustainable Resourcing Delivering Value-for Money

Kawartha Lakes Fire will adopt sustainable operating and capital resourcing frameworks that optimize value-for-money. Low-cost service delivery that fails to secure transparent service delivery performance targets does not qualify as sustainable. Unaffordable service delivery performance targets that fall outside peer municipal norms are not sustainable and are not consistent with value-for-money principles. Sustainability represents a balanced approach where resourcing, costs and targeted results meet peer supported norms and secure regulatory compliance when required.

3.2 ***Fire Establishing & Regulating By-law: A Performance Accountability Tool***

High performance teams are often composed of diverse teammates/members that trust each other and are focused on a common goal in order to achieve positive results. Within high performing municipal Fire services common goals need to be transparently defined within an *Establishing and Regulating By-law* (“ERB”). A well-crafted ERB will ensure the business of the Fire service is conducted in a clear and consistent manner at all times. The ERB documents service level governance direction received from Council, delivers clarity to Fire members, and transparency/accountability to taxpayers and residents around the scope of services and expected results.

Establishing and Regulating Bylaws are created under the authority of the Municipal Act, 2001, S.O.2001, c.25 as amended (“Municipal Act”). An ERB should also meet the needs of the Fire Protection and Prevention Act, 1997, S.O. 1997, c4, as amended (“FPPA”). The ERB is the cornerstone for the provision of fire/emergency response activities by a high-performance Fire service; it serves as the basis for all other necessary rules, standards, regulations, and internal standard operating policies/procedures/guidelines. All FPPA requirements should be included in the main body of a well-crafted ERB while a clearly defined appendix to the by-law should be used to document the core services to be delivered through the following Three Lines of Defense:

- I. *Public Fire Safety Education*
- II. *Fire Safety Standards and Enforcement*
- III. *Emergency Response (and training)*

When crafting the ERB, consideration should be given to formalizing reciprocal mutual aid and/or automatic aid agreements with respect to shared technical rescue equipment and/or staffing, property fire protection including any applicable regional or provincial responsibilities, and shared simple staffing/equipment needs with bordering municipalities. The ERB should also address roles/responsibilities that could arise during a Provincial or Federal emergency declaration.

The Kawartha Lakes current ERB was put in place more than 20 years ago. Not surprisingly, this outdated ERB does not reference the dual configuration of urban (Lindsay) and non-urban service delivery models. It makes no reference to target response times/deployment strength or measurable service delivery results. The critical role played by Tanker Shuttle certification is not acknowledged.

The following excerpt from the Town of Whitby Fire Department Establishing and Regulating By-Law is a good example of how a description of Core Services and Department limitations can be documented:

Appendix "A" to By-law No. 7263-17

Core Services

Fire Suppression and Emergency Response

1. Fire suppression services shall be delivered in both offensive and defensive modes as required and shall include search and rescue operations, forcible entry, ventilation, protection of exposures, and salvage and overhaul as appropriate.
2. Emergency pre-hospital care responses and services shall be provided as per protocol as instituted in accordance with the Tiered Response Services Agreement.
3. Special technical and/or rescue response services provided by Whitby Fire Department shall include performing automobile and/or equipment extrication using hand tools, air bags, and heavy hydraulic tools as required, slope rescue, static water/ice rescue, hazardous materials response (Operations Level), and elevator rescue (not to exceed Operations Level) in accordance with available resources.
4. Other technical and/or specialized rescues response services (including trench rescue, rope rescue (not including slope rescue), building collapse, confined space, swift water, etc.) shall not be provided by the Whitby Fire Department beyond the Awareness level. Notwithstanding, Council may approve a specialized rescue service agreement to allow these services to be provided by an agency or Department at a higher level as necessary.

Training

1. The National Fire Protection Association (NFPA) Standards and other related industry training standards and reference materials shall be used as reference guides for Whitby Fire Department Training Division as approved by the Fire Chief. All training will comply with the Occupational Health and Safety Act, R.S.O. 1190, c. O.1, as amended and applicable provincial legislation.

Fire Prevention

1. Inspections arising from complaint, request, retrofit, or self-initiated; fire investigations; and examination and review of fire protection elements of building permit plans shall be provided in accordance with the FPPA and Departmental policies.

Fire and Life Safety Education

1. Public education programs shall be administered in accordance with the FPPA and Departmental policies.

By-law Name: Fire Department Establishing and Regulating By-law
By-law # 7263-17

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Town of Whitby Fire Department Establishing and Regulating By-law

3.3

Fire “Industry” Codes & Standards: An NFPA Primer

The National Fire Protection Association (“NFPA”) is a 125-year-old American based organization that is best known for the 300+ consensus Codes developed by “industry” leaders/experts with a collective determination to minimize the incidence/impacts of fires and other risks. While NFPA documents are not laws, they are also not just simple recommendations or advice.

Many NFPA standards become enforceable once they are referenced/imbedded within an existing Provincial statute. For example, the Ontario Building Code (OBC) and the Ontario Fire Code (OFC) both reference the lengthy/technical NFPA 13 (Standard for the Installation of Sprinkler Systems) that speaks to the design and installation of sprinkler systems to prevent fire deaths and property losses. While the OBC outlines the installation of these systems where required, the OFC, which functions as a companion document to the OBC, outlines all required inspections, tests, and maintenance to ensure that the sprinkler system continues to function as designed. Many other NFPA standards are also enforceable by law.

In addition to NFPA standards that are legally enforceable by Provincial statute, there are others that are critically important to protect the health and safety of firefighters. NFPA Section 21 Guidance Notes are often considered alongside the Occupational Health and Safety Act (OHSA) as they are referenced as “best practices” for protecting the health and safety of Fire service workers in Ontario. For example, when the Ontario Ministry of Labour is conducting a workplace inspection at a fire, they will often look at the 71 (and growing) Section 21 Guidance Notes that were developed by the Ontario Fire Service Health and Safety Advisory Committee. These often clearly reference various NFPA standards as well as other appropriate workplace standards such as CSA and OHSA. These Guidance Notes cover many diverse areas such as vehicles, equipment, fireground command and training.

NFPA Codes/Standards provide important “industry” insights and reference points for Kawartha Lakes as they address performance improvement opportunities and sustainable resourcing challenges identified in this Final Report.

The accompanying table illustrates the NFPA standards that are referenced in the Fire Service Section 21 guidance notes and recognizes them as best practices for fire departments to follow. There are many other NFPA guidelines aimed at the fire service than are listed here. A prime example would be NFPA

1720 which is the Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments. Standards referenced under Section 21 deal with very specific fireground concerns (for example the inspection of technical rescue ropes) rather than all-encompassing documents such as NFPA 1720 that looks at defining service levels, deployment capabilities and staffing for volunteer and composite departments. However, when looking for information in these important areas, this document provides appropriate guidance that, in the absence of contrary verifiable data, should be considered a comprehensive source of best practices developed by a well-respected international group of fire service management professionals.

NFPA Code/ Standard #	Name	Section 21 Guidance Note
NFPA 1001	Standard for Fire Fighter Professional Qualifications	7-7
NFPA 1002	Standard for Fire Apparatus Driver/Operator Professional Qualifications	6-25, 6-26
NFPA 1003	Standard for Airport Fire Fighter Professional Qualifications	6-21
NFPA 1006	Standard for Technical Rescuer Professional Qualifications	6-3, 6-5
NFPA 1081	Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services	4-9
NFPA 1142	Standard on Water Supplies for Suburban and Rural Fire Fighting	6-26
NFPA 1401	Recommended Practice for Fire Service Training Reports and Records	7-3
NFPA 1402	Standard on Facilities for Fire Training and Associated Props	7-6
NFPA 1403	Standard on Live Fire Training Evolutions	7-5
NFPA 1404	Standard for Fire Service Respiratory Protection Training	6-43
NFPA 1451	Standard for a Fire and Emergency Service Vehicle Operations Training Program	6-25
NFPA 1500	Standard on Fire Department Occupational Safety, Health and Wellness Program	4-10, 7-3
NFPA 1521	Standard for Fire Department Safety Officer Professional Qualifications	2-4
NFPA 1561	Standard on Emergency Services Incident Management System and Command Safety	5-1
NFPA 1670	Standard on Operations and Training for Technical Search and Rescue Incidents	6-3, 6-4, 6-5
NFPA 1710	Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by	6-26
NFPA 1851	Standard on Selection, Care and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting	4-8, 6-1
NFPA 1858	Standard on Selection, Care, and Maintenance of Life Safety Rope and Equipment for Emergency Services	1-5
NFPA 1901	Standard for Automobile Fire Apparatus	1-8, 4-11, 6-10, 6-29
NFPA 1906	Standard for Wildland Fire Apparatus	1-8
NFPA 1911	Standard for Inspection, Maintenance, Testing and Retirement of In-Service Automotive Fire Apparatus	1-2
NFPA 1912	Standard for Fire Apparatus Refurbishing	6-26
NFPA 1936	Standard on Powered Rescue Tools	1-6
NFPA 1971	Standard on Protective Ensembles for Structural Firefighting and Proximity Firefighting	4-1, 6-1
NFPA 1977	Standard on Protective Clothing and Equipment for Wildland Fire Fighting	4-7
NFPA 1982	Standard on Personal Alert Safety Systems	4-4
NFPA 1983	Standard on Life Safety Rope and Equipment for Emergency Services	1-5, 6-5
NFPA 403	Standard for Aircraft Rescue and Fire-Fighting Services at Airports	6-21
NFPA 414	Standard for Aircraft Rescue and Fire-Fighting Vehicles	1-8, 6-21
NFPA 472	Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents	6-9

4.0 Stakeholder Consultations

4.1 Stakeholders We Spoke With

In addition to extensive discussions with the Kawartha Lakes Fire senior management team and internal team leads, the Performance Concepts team also held virtual consultation sessions with the Kawartha Lakes CAO and Treasurer; City asset management staff; executive members of both the Kawartha Lakes Professional Firefighters Association, Local 1701 (full-time firefighters); and the Canadian Union of Public Employees, Local 5453 (volunteer firefighters); representatives from Fire Protection Survey Services; a major property insurance underwriter; Kawartha Lakes Police Services (Fire dispatch service provider); and the Lindsay Central Ambulance Communications Centre.

4.2 What We Heard

Appears in the confidential addendum dealing with Human Resource and collective bargaining matters.

4.3 Implications of Stakeholder Feedback

The feedback provided by internal and external stakeholders have positively informed this Review by identifying performance issues in need of further investigation or supporting the issue identification/analysis already underway by the Performance Concepts team. Where appropriate, performance issues identified by stakeholders, and subsequently considered by the Performance Concepts team, are addressed in Section 5 of this Final Report.

5.0 “As Should Be” Analysis of Key Service Delivery Issues/Risk Events

5.1 Critical Risk Bundle – Issues Impacting Core Service Delivery Results & Firefighter Safety

There are a number of Fire Service resourcing issues that are creating problematic service delivery and risk management issues for the City of Kawartha Lakes. This Critical Risk bundle has the potential to disrupt core service delivery results, compromise public safety and create problematic financial impacts for large numbers of Kawartha Lakes homeowners and businesses.

5.1.1 Lindsay Staffing/Internal Attack Problem (4 Firefighters on the Truck)

The “As Is” scan of the Lindsay station’s full-time firefighter staffing model documented frequent/systemic understaffing of daily shifts. The failure to consistently deploy 4 firefighters per daily shift creates a problematic risk event around on-scene response times to fire suppression calls. The clear intent of the NFPA standards is that a minimum of 4 firefighters are required to execute an internal attack (i.e., rescue capability) on a single-family residential structure fire. If the first apparatus arriving on scene for a Lindsay single-family structure fire is the full-time Lindsay truck with 3 firefighters, that crew cannot safely execute an internal attack on the fire (i.e., rescue an occupant) in a fashion that complies with these NFPA guidelines. That shorthanded crew has two hypothetical choices; i) implement an unsafe internal attack contrary to these NFPA guidelines or ii) wait for a second Kawartha Lakes truck to deliver the 4th firefighter required for an NFPA compliant internal attack.

The following figures reflect an analytics investigation conducted by Performance Concepts focused on “4 firefighter” response times across Kawartha Lakes structure fires. The first figure below (next page) documents average on-scene average response times for all Kawartha Lakes stations except Lindsay. Between 47 and 52 annual structure fire calls across 2019-2021 generated average response times ranging from 14-16 minutes.

Staffing & 4 FF Response Time Performance

Year	All Stations Except #1			
	Count	High	Low	Average
2019	52	29:33	2:51	14:38
2020	47	41:25	3:53	15:54
2021*	49	28:14	1:33	15:24

* November 30th

The figure below documents the Lindsay station's average response times for 31 structure fire calls across 2019-2021. The average annual on-scene response time ranges from 10-12 minutes. These 31 structure fire calls include a blend of 3 firefighter Lindsay truck responses and 4 firefighter Lindsay truck responses.

Staffing & 4 FF Response Time Performance

Year	Station #1 All Structure Fires			
	Count	High	Low	Average
2019	12	19:56	3:05	11:09
2020	5	16:08	8:58	11:56
2021*	14	20:06	3:40	9:46

* November 30th

The figure below demonstrates that when staffed with 4 firefighters on the first truck (12 calls across 2019-2021), the Lindsay station secured average annual response times falling under 6 minutes for 2019 and 2021, and about nine minutes in 2020.

Staffing & 4 FF Response Time Performance

Year	Station #1 When Staffed With 4			
	Count	High	Low	Average
2019	4	6:04	3:05	4:17
2020	1	9:13	9:13	9:13
2021*	7	8:26	3:40	5:50

* November 30th

When staffed with only 3 firefighters on the first truck, the average response time for getting 4 firefighters on-scene ranged from 12-15 minutes (see figure below). These eroded average response times are closer to the typical response times secured by the volunteer firefighter model in the rest of Kawartha Lakes than they are to the “4 firefighters on the truck” Lindsay response times that represent appropriate urban system performance results.

Staffing & 4 FF Response Time Performance

Year	Station #1 When Staffed With 3			
	Count	High	Low	Average
2019	8	19:56	9:32	14:35
2020	4	16:08	8:58	12:37
2021*	7	20:06	9:50	14:55

* November 30th

The 2020 Master Fire Plan correctly noted the need to upgrade the Lindsay staffing model to secure stable deployment based on a “4 firefighters on the first truck” standard. Unfortunately, the 2020 Fire Master Plan did not include an analytics package demonstrating the eroded internal attack/rescue impacts associated with the majority of Lindsay structure fire responses featuring a 3 firefighter first truck unable to execute an NFPA compliant response.

The wait times associated with the arrival of the 4th firefighter on a second truck represent an unacceptable public safety risk in the professional opinion of the Performance Concepts team. The Kawartha Lakes practice of “scheduling 4” too often results in “deploying 3” at the Lindsay station. The analytics supported performance results are simply unacceptable. In the case of a structure fire call requiring an internal attack (rescue), Lindsay firefighters are statistically most likely to face a daunting choice; execute an unsafe 3 firefighter internal attack contrary to NFPA guidelines or wait for the 4th firefighter to arrive on scene and delay the internal attack.

The Kawartha Lakes Fire Service’s fleet of apparatus has been deliberately selected/purchased to ensure universal capability to deliver 4+ firefighters on each truck. The analytics on Lindsay response times confirm the wisdom of that fleet design decision. Urban response time erosion is significant and concerning if the 4th firefighter only arrives on a second piece of apparatus. Upcoming growth in northwest Lindsay will generate longer fire truck drive times from the Lindsay station and supporting

stations from outside Lindsay. As Lindsay grows, the public safety/firefighter safety business case to secure 100% “4 firefighters on the first truck” deployment performance becomes more and more compelling. The Lindsay Fire budget is area rated for a reason - Lindsay service levels are urban and should reflect urban response time performance typical of Ontario urban communities.

The International Association of Fire Fighters (IAFF) in conjunction with the National Institute of Standards and Technology (NIST) have collaborated on studies that demonstrate that the size of firefighting crews have a substantial positive effect on the protection of lives and property.

<https://www.nist.gov/news-events/news/2010/04/landmark-residential-fire-study-shows-how-crew-sizes-and-arrival-times>

Later the International Association of Fire Chiefs (IAFC) reported in a more comprehensive follow up NIST study that looked at effectiveness of crew sizes during high rise response was even more clear: sizes of 4 over 3, as well as 5 over 4. Not only are critical fireground functions accomplished more quickly and safely with larger crews, it should be noted that the earlier that these functions are completed the more tenable the fireground is due to the effect of the exponential growth of fire.

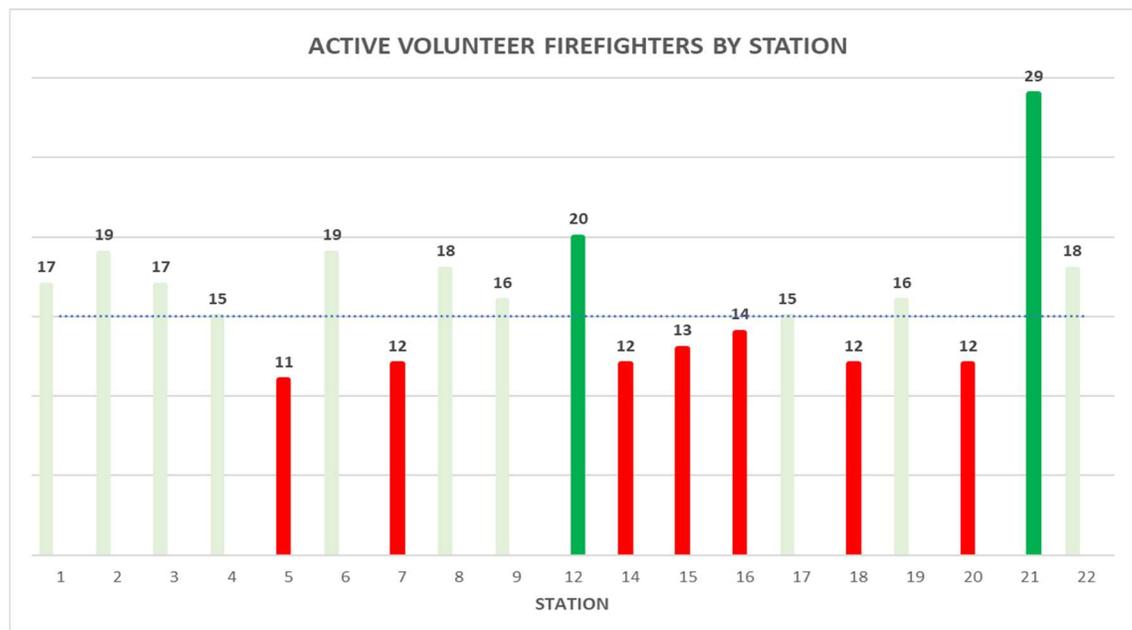
<https://www.iafc.org/press-releases/press-release/new-study-evaluates-effectiveness-of-crew-sizes-in-high-rise-fires>

When four firefighters arrive on scene the minimum “two in, two out” criteria have been met. This means a minimum-sized aggressive interior fire attack/search and rescue team can enter the burning structure, while two other firefighters in full gear can do their best to complete all the other necessary functions (from commanding the call to maintaining the water supply and monitoring the fire pump on the truck). However, these two firefighters are also designated as the Rapid intervention Team (RIT) meaning that if the interior firefighters need to be rescued, they must also enter the structure (while abandoning the fire pump). Should a fifth firefighter be on scene at that same call, they would be able to function as the incident commander and the pump operator to ensure the safety of the operations inside and that there is an uninterrupted water supply for the four interior firefighters.

Moving forward, the growing Lindsay tax base fueling the area rated Lindsay operating budget is more than capable of supporting a “staff 5 to deploy 4” delivery model. In the interim (budget year 2022), mandatory upstaffing contingency planning should proceed asap. **Any structure fire call in Lindsay receiving a “3 firefighter first-truck response” should be considered a public safety failure/emergency situation. Any such call is an unacceptable risk event for Kawartha Lakes Fire because it is impossible to predict whether an internal attack/rescue will be required on any given structure fire call prior to arriving on-scene.**

5.1.2 Volunteer Staffing Deficit Problem (Property Insurance Premium Subsidy at Risk)

As noted in the Service Delivery “As Is” scan earlier in this report, Kawartha Lakes has a deficit of more than 70 volunteer firefighters to meet the Kawartha Lakes target of 20 firefighters per station. Only two stations (#12 and #21) currently meet or exceed the target. The Insurance Bureau of Canada requires a minimum of 15 active volunteer firefighters per hall, with 21 preferred. As shown in the figure below, 7/19 Kawartha Lakes stations are currently below the 15-firefighter minimum (the dotted blue line in the figure), with 4 more stations hovering at/around the Insurance Bureau minimum. Continued station staffing levels below the active firefighter minimum place thousands of residential and business property taxpayers at risk of higher insurance premiums.



5.1.3

Training Deficits

In order for Kawartha Lakes Fire to be capable of efficiently responding/safely resolving emergency situations, it must have the right tools (both equipment and policies) as well as the necessary training/practice to use those tools correctly. Theoretical training is important, but it must be supported by a robust practical training regime. Once independent skills are reviewed and practiced at the task level, they must then be incorporated into larger scale multi-company drills that allow for the realism, coordination, and execution of fire ground tactics. Only in this way can the Incident Commander safely evaluate the capabilities of his/her personnel and be assured they have the requisite knowledge/skills/abilities to be assigned to the high risk tactical activities that take place on the fire ground or at the technical rescue site. Simply put, this type of fulsome evaluation is necessary for an emergency services supervisor to keep his frontline staff safe at work.

The current Kawartha Lakes Fire staffing commitment of a single training officer to coordinate and deliver fire training to up to 400 firefighters does not allow for the proper development, support, and evaluation of staff, especially new recruits. Having a designated support person at each fire station is a help, but it does not allow for consistency across stations. With a large number of stations dispersed over such a large geographical area, it is crucial that Kawartha Lakes firefighters train on the same topics, do so in a consistent fashion, and document their training in a standardized framework so that any concerns can be readily identified and addressed.

There is a demonstrable need for at least one additional full-time Training Officer. The opportunity to develop online training modules/programs is of great benefit and should be prioritized. On-line, easily accessible training support is standard practice now for many workplaces. High speed internet access/large screens should be installed at every station. An additional information technology purchase of webcams and audio equipment could allow the Training Officer to reach out to all staff on any given practice night to encourage and ensure the needed training consistency. Kawartha Lakes Fire's current review of the Vector Solutions platform (what was Target Solutions) should be accelerated. Funding is in place in the 2022 budget and while the trial is going well, it is unfortunately restricted to only full-time firefighters. This program has been used by numerous Ontario Fire departments and elsewhere for a decade or more. The potential benefits for the volunteer firefighters are as great if not greater than they are for the full-time firefighters since volunteers are restricted to about 6 hours of

training per month. Being able to send out standard NFPA courses to support the current Resource1 work assignments in addition to customized activities that can be supported with internal documents and videos could be an effective learning tool that can be used at any time with great flexibility. With very little work, station trainers can upload training classes for the training officer to review and then they could assign them to all staff at all stations. Naturally content can be used from the Vector Solutions library or even from other departments that are using the community resource feature on the site.

In addition to Vector Solutions being an excellent opportunity for use as a Learning Management System (LMS), it also has an excellent Record Management System (RMS) ability. Most records are compiled automatically when an assignment is completed, but additional records and certifications can be programmed in so that the coordinators can get alerts regarding whom is complete and who is falling behind, again providing additional training consistency.

Maintaining a robust training library within the LMS will certainly help with the required theoretical training, but the only way to assure that the firefighters and captains will be able to perform appropriately on the fire ground is by conducting regular, realistic, multi-company practical training. With the closing of the Ontario Fire College (OFC) in Gravenhurst in March 2021 there are even fewer options to choose from. Many fire departments have taken the route of becoming a Regional Training Centre (RTC) affiliated with the Office of the Fire Marshal (OFM). This quickly becomes a cost issue, leaving the municipality to attend another RTC or setting themselves up as a new RTC with very little support from the province.

Another provincial training option is the booking of the OFM Mobile Live Fire Training Unit that went on the road in November 2021. A request has already been made for this to be assigned to the Kawartha Lakes Fire Rescue Service in 2022, but the maximum allocation is only one week and even with good weather and scheduling, only a small percentage of staff will be able to use the trailer this year.

The optimum solution for real hands-on training for Kawartha Lakes is for the development of the existing training area. The cost for this upgrade would not be prohibitive and it could be put in place gradually over a few years. The main needs (land, parking area and building) are

already in place and are sufficient for now. It is also possible that training and fire prevention staff could use the building as the tenants start to move out, which would help provide additional much-needed space at the Headquarters station.

Developing this area into a proper training facility could be done with the simple addition of a couple of well thought out sea containers properly installed at the site to allow for live fire training and technical rescue props. This type of configuration can be done safely and inexpensively. The skills that would be developed in this practical training environment would be extremely worthwhile and very cost effective. Additionally, some smaller tech rescue props could continue to be built at outer stations that are further away to help cut down on travel time.

5.1.4 Health & Safety Issues

With firefighters about 70% more likely to be diagnosed with cancer than the general population it is imperative that cancer reduction strategies be identified and implemented. The importance of a respiratory protection program that is adhered to by all firefighters cannot be overstated. An air management program that includes the use and maintenance of SCBA should be well documented and become second nature.

While working at the fire scene or on the training ground it is important that all staff are constantly reinforcing the concept of keeping exposures “As Low As Reasonably Achievable” (ALARA) with each other.

At this time there is demonstrable need for Kawartha Lakes Fire to work towards developing and following important cancer reduction policies that include performing on-scene decontamination, regular gear inspection and maintenance, annual 3rd party cleaning, segregated storage, proper washer extraction devices in stations, etc. Kawartha Lakes Fire should be commended for their work towards installing *AirMation* air filtration systems in apparatus bays, and washer extraction devices in some stations. These should be universal across all stations.

There are many free resources available online supported by many different firefighter cancer support networks. The Province’s Firefighters Cancer Support Checklist is a good place to start. It can be found at: <https://www.ontario.ca/page/firefighters-cancer-prevention-checklist>

Improvement can be as simple of as proper personal hygiene at the stations, working on a clean cab mentality, and by treating carcinogens as you would any hazardous material by defining hot zones (such as dirty gear areas), warm zones (such as the apparatus floor area) and cool zones (such as the living quarters). Many occupational cancer reduction strategies just take clear policy and some common sense while others take infrastructure purchases. All of them can make a difference.

5.1.5 Interrupted Pumper/Tanker Lifecycle Replacement

The figure below references the City’s currently planned pumper/tanker replacement cycle (populated with \$ replacement cost data extracted from the City’s financial plan). As noted in the figure, the timing of this replacement capital spending is insufficient to meet Tanker Shuttle accreditation requirements. Without significant changes in this financial plan, the Tanker Shuttle elimination will trigger elimination/reduction of home insurance discounts (\$225-\$300) for potentially thousands of Kawartha Lakes households.



	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
FIRE SERVICE FLEET										
PUMPER TRUCK						\$700,000	\$700,000	\$700,000	\$700,000	\$700,000
TANKER TRUCK		\$725,000		\$725,000	\$725,000	\$725,000	\$725,000	\$725,000	\$725,000	\$725,000

- K. Lakes annual replacement reserve contribution of \$1.1M *significantly underfunds* required replacement \$ for fleet of Pumper/Tankers + other Fire apparatus/equipment
- This Pumper/Tanker asset replacement plan will result in the City's Pumper/Tanker Certification being cancelled

The annual \$ contribution of \$1.1M for Fire asset/apparatus replacement is inadequate even if it were 100% allocated only to pumper/tanker lifecycle replacement. Other Fire assets/apparatus beyond pumper/tankers will also need to be funded for replacement over time. A significantly larger annual lifecycle replacement \$ contribution will be required by Kawartha Lakes to comply with O Reg 588/17 and avoid triggering an avalanche of property insurance cost spikes generated by cancelled Tanker Shuttle accreditation.

5.1.6 Options to Address Pumper/Tanker Lifecycle Replacement

The following pages set out three options to address the shortcomings in lifecycle replacement of 40+ pumper tankers. All three options must confront the reality that 6 pumpers/tankers are already behind schedule for replacement based on the 20-year lifecycle required for Tanker Shuttle accreditation. All three options must also confront the reality that an upcoming wave of replacements come due in 2026. Therefore, there is a limited window of opportunity over the next three years to get lifecycle driven replacement back on track. Finally, the Tanker Shuttle accreditation agency will need to see an actionable/decisive plan (soon) that credibly brings Kawartha Lakes back into a zone of compliance. The financial data in all three options is expressed in “2022 dollars”. Inflation adjustments in annual reserve contributions and apparatus pricing will be required.

Option 1 delivers a “big bang” solution by bringing Kawartha Lakes into immediate compliance in 2022 and every year thereafter. Tanker Shuttle cancellation risk is definitively eliminated. However, Option 1 does so by requiring unaffordable \$750K to \$4.7M annual funding contributions for a number of years - including an immediate quintupling of the current \$1.1 M budgeted capital replacement contribution for 2022. Option 1 generates choppy capital funding streams over time and fails to deliver a window of capital spending “smoothing” over the next 3 years.

Option 2 addresses the existing lifecycle replacement compression problem by establishing a “zone of near compliance” that limits the replacement period for any pumper/tanker to 22 years or less. Problematically there are more “red shaded” non-compliance years than there are “black shaded” compliance years. It is unclear whether persistent 2-year replacement lateness would pass muster for maintaining Tanker Shuttle accreditation. On a positive note, the annual capital funding streams would be noticeably less choppy than Option 1.

Option 3 represents the classically “smooth” approach to lifecycle replacement. A reasonably consistent \$2.35M annual \$ contribution is applied every year. Three pumpers/tankers are replaced every year. By 2025 lifecycle replacement backlogs have been cleared and

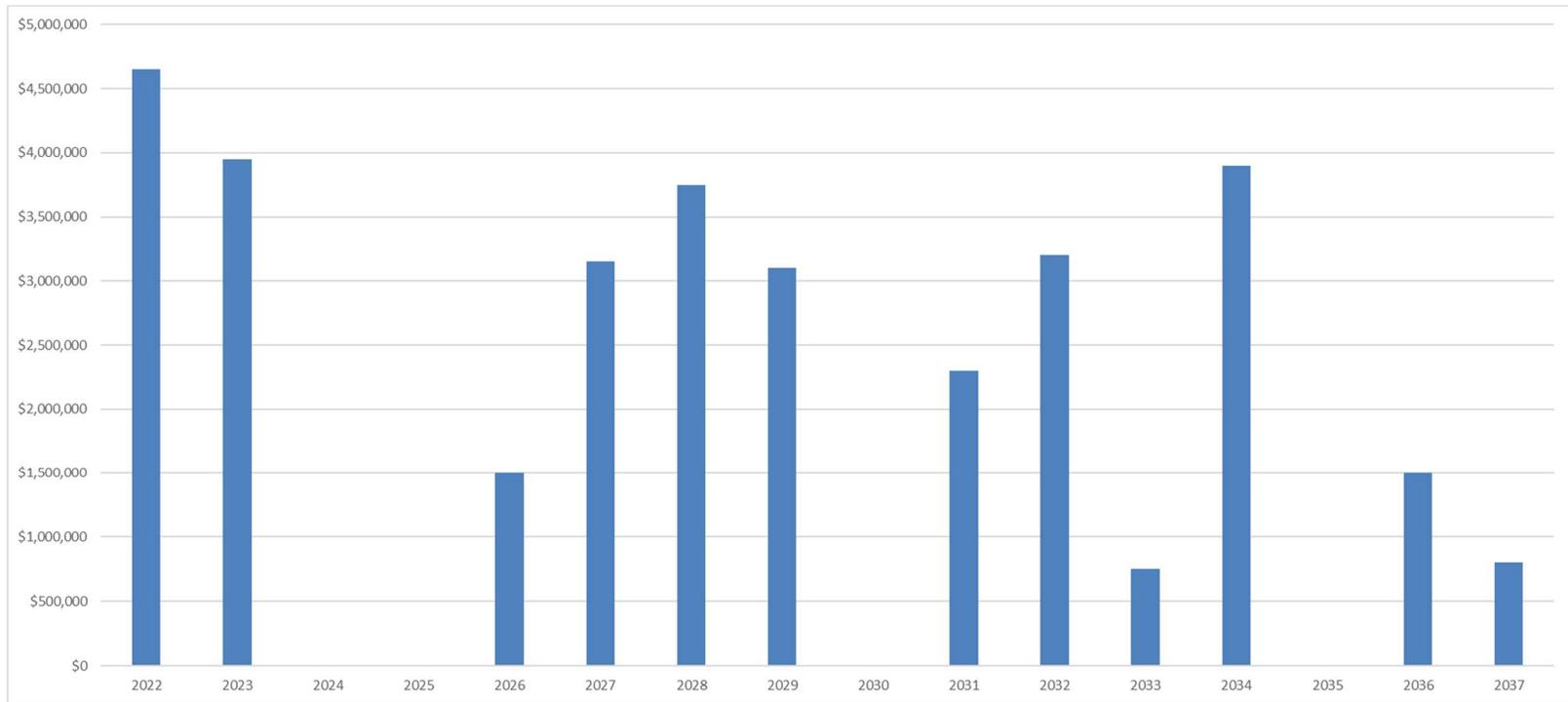
compliance with 20-year replacement of pumper/tankers has been secured. There is no capital funding stream choppiness once the required annual contribution of \$2.35M has been put into place. There is a high probability this option will ensure long-term Tanker Shuttle accreditation and safeguard existing insurance discounts for thousands of households/businesses. A crucial requirement is that Option 3 be implemented as scheduled beginning in 2022 with a commitment to acquire 3 pieces of apparatus.

An important caveat: required annual funding increases only pertain to Pumper/Tanker replacement in order to safeguard Tanker Shuttle Accreditation. These contributions do not address the remaining facility or apparatus life-cycle replacement investments required to comply with O. Reg. 577/18.

5.1.6.1

Option 1 - Immediate Lifecycle Compliance

Asset	Required Replacement Year	Recommended Replacement Year	Years Late	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
1999 IHC Pumper	2019	2022	3	750,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000 GMC Tanker	2020	2022	2	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000 Freightliner Pumper	2020	2022	2	750,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000 GMC Tanker	2020	2022	2	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000 GMC Tanker	2020	2022	2	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2001 HME Pumper	2021	2022	1	750,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2003 Spartan Tanker	2023	2023	0	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2003 GMC Tanker	2023	2023	0	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2003 Freightliner Pumper	2023	2023	0	-	750,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2003 Spartan Tanker	2023	2023	0	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2003 GMC Tanker	2023	2023	0	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006 International Pumper	2026	2026	0	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-	-	-
2006 International Pumper	2026	2026	0	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-	-	-
2007 Spartan Tanker	2027	2027	0	-	-	-	-	-	800,000	-	-	-	-	-	-	-	-	-	-
2007 Spartan Pumper	2027	2027	0	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-	-
2007 Spartan Tanker	2027	2027	0	-	-	-	-	-	800,000	-	-	-	-	-	-	-	-	-	-
2007 Spartan Tanker	2027	2027	0	-	-	-	-	-	800,000	-	-	-	-	-	-	-	-	-	-
2008 Spartan Pumper	2028	2028	0	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-
2008 Spartan Pumper	2028	2028	0	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-
2008 Spartan Pumper	2028	2028	0	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-
2008 Spartan Pumper	2028	2028	0	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-
2008 Spartan Pumper	2028	2028	0	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-
2009 Spartan Pumper	2029	2029	0	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-
2009 Spartan Tanker	2029	2029	0	-	-	-	-	-	-	-	800,000	-	-	-	-	-	-	-	-
2009 Spartan Tanker	2029	2029	0	-	-	-	-	-	-	-	800,000	-	-	-	-	-	-	-	-
2009 Spartan Pumper	2029	2029	0	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-
2011 Spartan Pumper	2031	2031	0	-	-	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-
2011 Spartan Pumper	2031	2031	0	-	-	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-
2011 Spartan Tanker	2031	2031	0	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-	-
2012 Spartan Tanker	2032	2032	0	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-
2012 Spartan Tanker	2032	2032	0	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-
2012 Spartan Tanker	2032	2032	0	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-
2012 Spartan Tanker	2032	2032	0	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-
2013 Spartan Pumper	2033	2033	0	-	-	-	-	-	-	-	-	-	-	-	750,000	-	-	-	-
2014 Spartan Tanker	2034	2034	0	-	-	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-
2014 Spartan Tanker	2034	2034	0	-	-	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-
2014 Spartan Pumper	2034	2034	0	-	-	-	-	-	-	-	-	-	-	-	-	750,000	-	-	-
2014 Spartan Pumper	2034	2034	0	-	-	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-
2015 Spartan Pumper	2036	2036	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	750,000	-
2015 Spartan Pumper	2036	2036	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	750,000	-
2017 Spartan Tanker	2037	2037	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	800,000
TOTAL ANNUAL COSTS				\$ 4,650,000	3,950,000	-	-	1,500,000	3,150,000	3,750,000	3,100,000	-	2,300,000	3,200,000	750,000	3,900,000	-	1,500,000	800,000

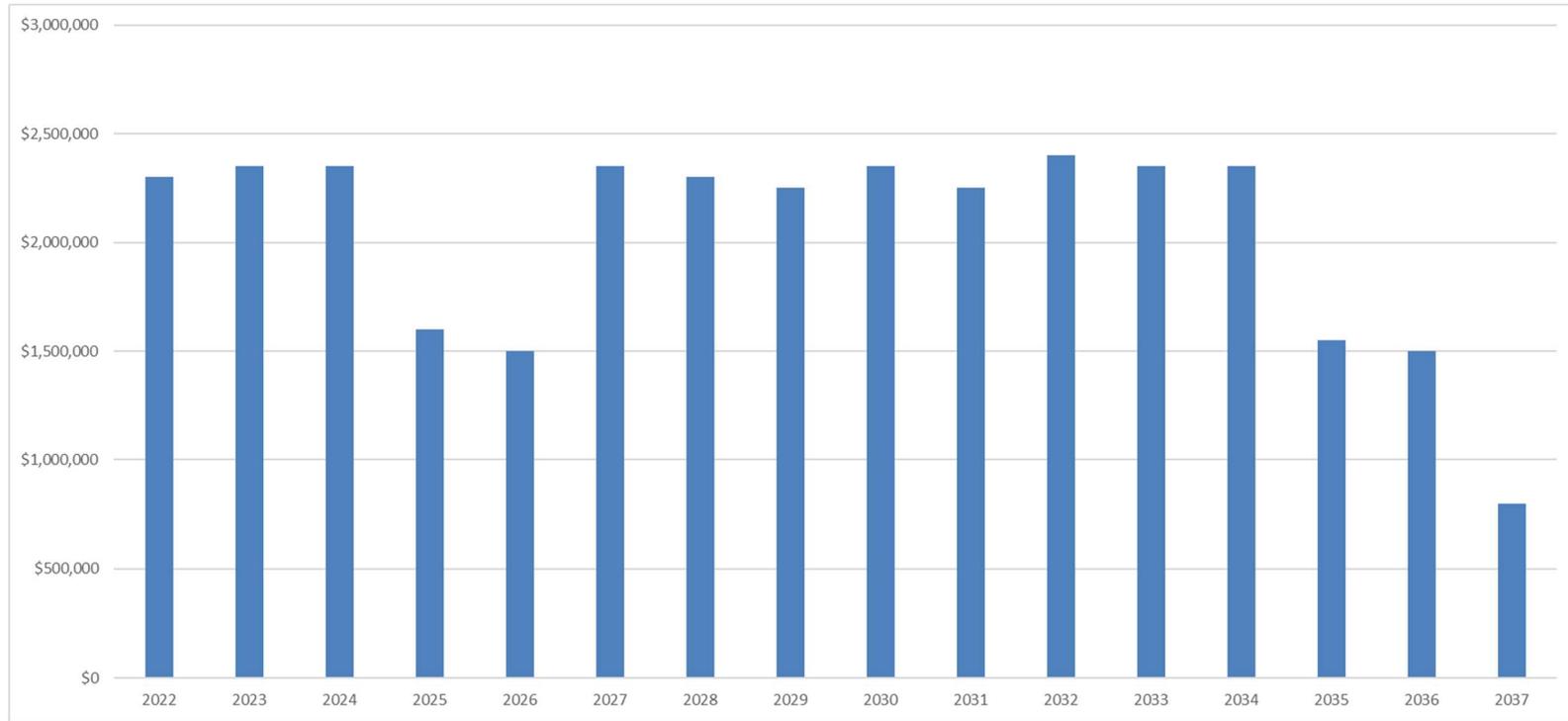


Option 1 – Multi-Year Capital \$ Flow

5.1.6.2

Option 2 - Phased Compression (2 years lateness permitted)

Asset	Required Replacement Year	Recommended Replacement Year	Years Late	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
1999 IHC Pumper	2019	2022	3	750,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000 GMC Tanker	2020	2022	2	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000 Freightliner Pumper	2020	2022	2	750,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000 GMC Tanker	2020	2023	3	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000 GMC Tanker	2020	2023	3	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2001 HME Pumper	2021	2023	2	-	750,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2003 Spartan Tanker	2023	2024	1	-	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-
2003 GMC Tanker	2023	2024	1	-	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-
2003 Freightliner Pumper	2023	2024	1	-	-	750,000	-	-	-	-	-	-	-	-	-	-	-	-	-
2003 Spartan Tanker	2023	2025	2	-	-	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-
2003 GMC Tanker	2023	2025	2	-	-	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-
2006 International Pumper	2026	2026	0	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-	-	-
2006 International Pumper	2026	2026	0	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-	-	-
2007 Spartan Tanker	2027	2027	0	-	-	-	-	-	800,000	-	-	-	-	-	-	-	-	-	-
2007 Spartan Pumper	2027	2027	0	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-	-
2007 Spartan Tanker	2027	2027	0	-	-	-	-	-	800,000	-	-	-	-	-	-	-	-	-	-
2007 Spartan Tanker	2027	2028	1	-	-	-	-	-	-	800,000	-	-	-	-	-	-	-	-	-
2008 Spartan Pumper	2028	2028	0	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-
2008 Spartan Pumper	2028	2028	0	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-
2008 Spartan Pumper	2028	2029	1	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-
2008 Spartan Pumper	2028	2029	1	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-
2008 Spartan Pumper	2028	2029	1	-	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-
2009 Spartan Pumper	2029	2030	1	-	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-
2009 Spartan Tanker	2029	2030	1	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-	-	-
2009 Spartan Tanker	2029	2030	1	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-	-	-
2009 Spartan Pumper	2029	2031	2	-	-	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-
2011 Spartan Pumper	2031	2031	0	-	-	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-
2011 Spartan Pumper	2031	2031	0	-	-	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-
2011 Spartan Tanker	2031	2032	1	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-
2012 Spartan Tanker	2032	2032	0	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-
2012 Spartan Tanker	2032	2032	0	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-
2012 Spartan Tanker	2032	2033	1	-	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-
2012 Spartan Tanker	2032	2033	1	-	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-
2013 Spartan Pumper	2033	2033	0	-	-	-	-	-	-	-	-	-	-	-	750,000	-	-	-	-
2014 Spartan Tanker	2034	2034	0	-	-	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-
2014 Spartan Tanker	2034	2034	0	-	-	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-
2014 Spartan Pumper	2034	2034	0	-	-	-	-	-	-	-	-	-	-	-	-	750,000	-	-	-
2014 Spartan Tanker	2034	2035	1	-	-	-	-	-	-	-	-	-	-	-	-	-	800,000	-	-
2014 Spartan Pumper	2034	2035	1	-	-	-	-	-	-	-	-	-	-	-	-	-	750,000	-	-
2015 Spartan Pumper	2036	2036	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	750,000	-
2015 Spartan Pumper	2036	2036	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	750,000	-
2017 Spartan Tanker	2037	2037	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	800,000
TOTAL ANNUAL COSTS				\$	2,300,000	2,350,000	2,350,000	1,600,000	1,500,000	2,350,000	2,300,000	2,250,000	2,350,000	2,400,000	2,350,000	2,350,000	1,550,000	1,500,000	800,000

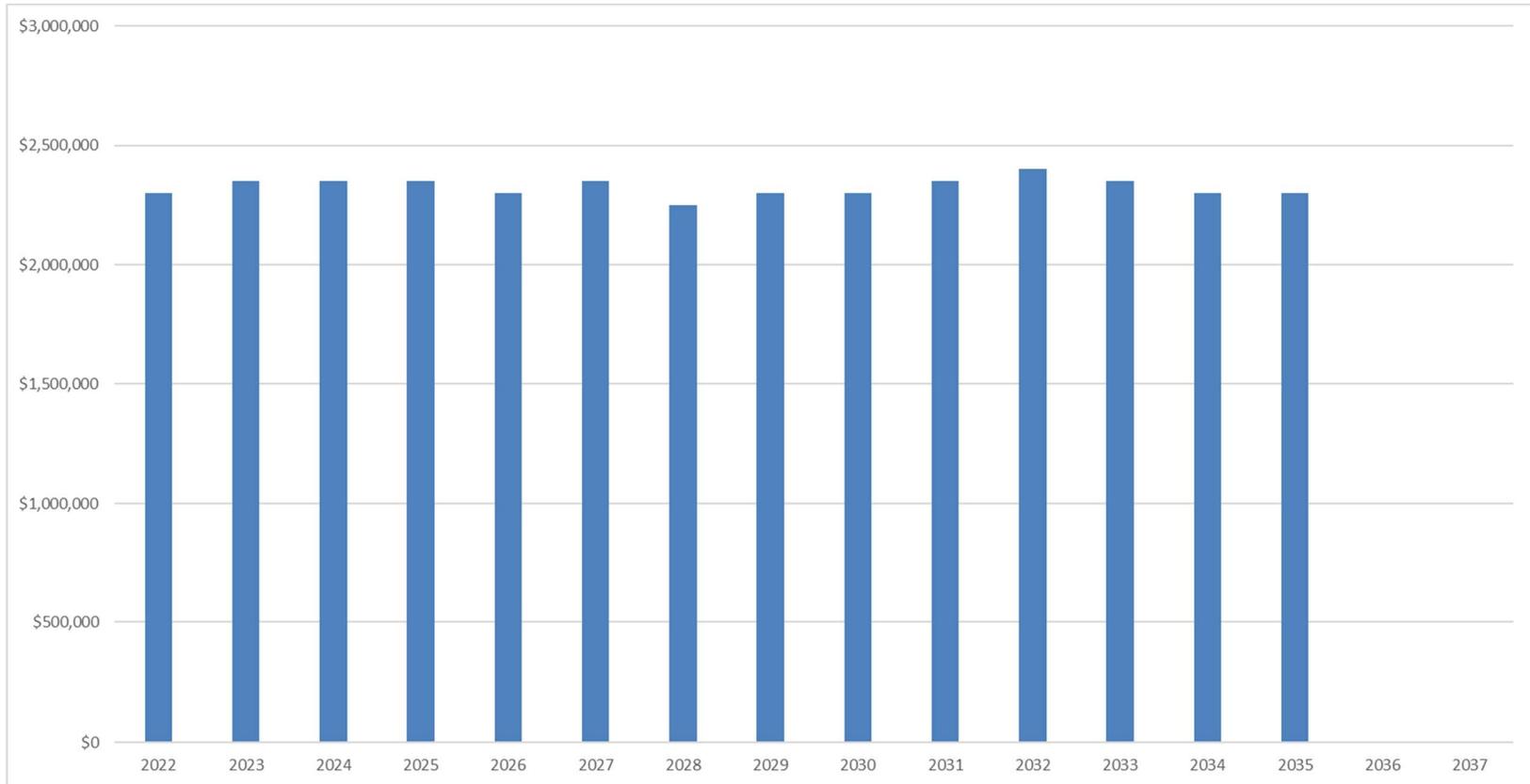


Option 2 – Multi-Year Capital \$ Flow

5.1.6.3

Option 3 - Phased Compression (Consistent \$ & 3 apparatus each year)

Asset	Required Replacement	Recommended Replacement	Years	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
	Year	Year	Late																
1999 IHC Pumper	2019	2022	3	750,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000 GMC Tanker	2020	2022	2	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000 Freightliner Pumper	2020	2022	2	750,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000 GMC Tanker	2020	2023	3	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000 GMC Tanker	2020	2023	3	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2001 HME Pumper	2021	2023	2	-	750,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2003 Spartan Tanker	2023	2024	1	-	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-
2003 GMC Tanker	2023	2024	1	-	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-	-
2003 Freightliner Pumper	2023	2024	1	-	-	750,000	-	-	-	-	-	-	-	-	-	-	-	-	-
2003 Spartan Tanker	2023	2025	2	-	-	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-
2003 GMC Tanker	2023	2025	2	-	-	-	800,000	-	-	-	-	-	-	-	-	-	-	-	-
2006 International Pumper	2026	2025	-1	-	-	-	750,000	-	-	-	-	-	-	-	-	-	-	-	-
2006 International Pumper	2026	2026	0	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-	-	-
2007 Spartan Tanker	2027	2026	-1	-	-	-	-	800,000	-	-	-	-	-	-	-	-	-	-	-
2007 Spartan Pumper	2027	2026	-1	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-	-	-
2007 Spartan Tanker	2027	2027	0	-	-	-	-	-	800,000	-	-	-	-	-	-	-	-	-	-
2007 Spartan Tanker	2027	2027	0	-	-	-	-	-	800,000	-	-	-	-	-	-	-	-	-	-
2008 Spartan Pumper	2028	2027	-1	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-	-
2008 Spartan Pumper	2028	2028	0	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-
2008 Spartan Pumper	2028	2028	0	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-
2008 Spartan Pumper	2028	2028	0	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-	-
2008 Spartan Pumper	2028	2029	1	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-
2009 Spartan Pumper	2029	2029	0	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-	-
2009 Spartan Tanker	2029	2029	0	-	-	-	-	-	-	-	800,000	-	-	-	-	-	-	-	-
2009 Spartan Tanker	2029	2030	1	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-	-	-
2009 Spartan Pumper	2029	2030	1	-	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-
2011 Spartan Pumper	2031	2030	-1	-	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-	-
2011 Spartan Pumper	2031	2031	0	-	-	-	-	-	-	-	-	-	750,000	-	-	-	-	-	-
2011 Spartan Tanker	2031	2031	0	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-	-
2012 Spartan Tanker	2032	2031	-1	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-	-
2012 Spartan Tanker	2032	2032	0	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-
2012 Spartan Tanker	2032	2032	0	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-
2012 Spartan Tanker	2032	2032	0	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-	-
2013 Spartan Pumper	2033	2033	0	-	-	-	-	-	-	-	-	-	-	-	750,000	-	-	-	-
2014 Spartan Tanker	2034	2033	-1	-	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-
2014 Spartan Tanker	2034	2033	-1	-	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-	-
2014 Spartan Pumper	2034	2034	0	-	-	-	-	-	-	-	-	-	-	-	-	750,000	-	-	-
2014 Spartan Tanker	2034	2034	0	-	-	-	-	-	-	-	-	-	-	-	-	800,000	-	-	-
2014 Spartan Pumper	2034	2034	0	-	-	-	-	-	-	-	-	-	-	-	-	750,000	-	-	-
2015 Spartan Pumper	2036	2035	-1	-	-	-	-	-	-	-	-	-	-	-	-	-	750,000	-	-
2015 Spartan Pumper	2036	2035	-1	-	-	-	-	-	-	-	-	-	-	-	-	-	750,000	-	-
2017 Spartan Tanker	2037	2035	-2	-	-	-	-	-	-	-	-	-	-	-	-	-	800,000	-	-
TOTAL ANNUAL COSTS				\$	2,300,000	2,350,000	2,350,000	2,350,000	2,300,000	2,350,000	2,250,000	2,300,000	2,350,000	2,400,000	2,350,000	2,300,000	2,300,000	-	-



Option 3 – Multi-Year Capital \$ Flow

5.2 Operational Risk Bundle - Ongoing Issues Impacting Operations/Performance

Beyond the Critical Risk Bundle already reviewed there are a number of second-tier tactical issues impacting Kawartha Lakes Fire operations/performance. All these issues have been the subject of recommendations in the 2020 Master Fire Plan. While not “mission critical” from a risk perspective, these issues nonetheless need to be addressed by Kawartha Lakes as part of the modernization/change agenda going forward.

5.3 Organization Structure Re-design

Appears in the confidential addendum dealing with Human Resource matters and organization design impacts on staffing.

5.4 Fire Dispatch

Kawartha Lakes receives its Fire dispatching services from the Kawartha Lakes Police Services through their two-communicator 24/7 staffing model. The Fire Service pays for ¼ of the communicator complement as per the Police Collective Agreement, but other actual costs have not been updated recently. The contract dates back to 1988 and there are no call auditing or performance standards (e.g., time to call pickup, etc.) incorporated in the contract.

The service contract should be negotiated to reflect the real costs of this shared service and incorporate the expectations of a dispatch centre as per NFPA 1221 Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems.

Outside of the agreement, the most significant issue noted by Kawartha Lakes Police Services is seriously out-of-date digital mapping that affects both Police and Fire. The Kawartha Lakes GIS Unit is responsible for providing mapping updates that are used by the Ontario Police Technology Information Cooperative (OPTIC) to generate digital mapping tools. Local updates have not been supplied in some time, leaving both Police and Fire using outdated maps. This lag represents a potential public safety risk in a growing community and requires timely risk mitigation.

5.5 First and Second Line of Defense

The three lines of Defense were introduced in Section 3.2. Though harder to quantify, the overall impact of the first and second lines of defense are of significant importance to the public they are designed to

protect. That is to say that enhancing public fire safety education as well as fire safety standards and enforcement should result in reduced overall reliance on the third line of defense, emergency response. Clearly defined in the Fire Protection and Prevention Act, 1997 (FPPA), they provide the residents access to fire safety education, direction, and consultation.

The minimum requirements covered under the FPPA are being addressed. The Public Information Officer has maintained a smoke alarm program, a carbon monoxide detector program, an arson prevention program for children as well as an after the fire program which are the mainstays of fire outreach programs. Also, obtaining support from corporate sponsors like Enbridge Inc. adds to the size and depth of the message that is being delivered. The PIO has also dealt with the impact of the current environment as it pertains to online learning and developed an online fire safety program for students, although consideration should be given to approaching the school board in an effort to make these important lessons a compulsory part of their curriculum.

The rest of the Fire Prevention group has been short staffed due to an extended absence which has impacted their total inspection hours. Required workload such as responding to complaints, approving Fire Safety Plans, and inspections of new occupancies, special occasion permits and even chip trucks are done, but annual inspections of publicly accessed building stock is being impacted.

The infusion of new technology may help the existing inspectors work more efficiently. Many municipal departments are creating virtual offices within assigned work vehicles for positions such as Fire Inspectors, Building Inspectors and By-law Officers. Installation of a connected tablet or data terminal along with a mobile printer can result in the savings of time, effort, fuel and vehicle wear and tear. Having the ability to provide inspection reports or violation notices to building owners while still on site maximizes efficiency, rather than returning to the office to do the same work and then issuing the paperwork through Canada Post. Also, moving to a mobile office configuration could reduce the time spent in the second-floor office area that is already too congested.

5.6 Emergency Management

All municipalities in Ontario must have an emergency planning program and an emergency response plan. The Kawartha Lakes Fire Chief serves as the Community Emergency Management Coordinator (CEMC), with Deputy Chiefs and the Executive Assistant as Assistant CEMCs. The Emergency

Management program currently exists primarily to ensure government mandated program committee meeting and exercise requirements are complied with.

Additional organization design commentary is found in the confidential addendum.

At the same time, as of July 1, 2024, all municipalities must complete a Community Risk Assessment as set out in O Reg. 378/18, a regulation under the Fire Protection and Prevention Act, 1977. This effort would benefit greatly from a dedicated FTE to coordinate efforts.

5.7 Second Aerial Device

Aerial devices have become a mainstay of the modern fire services. Prompt response of this resource, be it an aerial, platform or telesquirt, is a necessary and versatile tool to increase life safety and to reduce damages during fire calls. A common misconception is that the use of these devices is restricted to tactical considerations at high-rise buildings when the truth is that progressive Fire services frequently use them when responding to calls in low rise buildings, industrial complexes and even in residential subdivisions. The benefits of being able to quickly provide a master water stream for fire suppression, a safe and stable platform for ventilation/rescue operations or managing the reduction of fire extension is a definite asset.

In order to maximize the use of such an important response vehicle, fireground strategies are often developed around their availability. Fire management will include them in their response policies to help create a more efficient fireground and crews will practice their tactics based around the versatile uses of the device. The importance of having an aerial truck available at all times cannot be overstated. When incident commanders create strategic responses around their aerial capabilities and officers direct crews to perform tasks around their assigned tactical responsibilities, they are more likely to experience successful outcomes. Due to the significant impact that an aerial can have on a scene, it is especially important that it is available to respond at all times.

Complex apparatus such as these will be out of service at times for regular maintenance and repairs, sometimes requiring service above what an EVT can accomplish in-house and therefore be required to be sent to a manufacturer's repair facility for a period of time. In order to maintain a consistent level of service to the community, access to a second aerial device is necessary. Smaller municipalities will often

decide to provide an aerial device under a Mutual Aid agreement where both departments may benefit. Others could utilize an Automatic Aid agreement where an aerial could be provided at a predetermined cost. However, due to the constraints caused by the geography of Kawartha Lakes, neither of these are a viable solution due to the vast distances any appropriate vehicle would have to travel which would negate its value as part of an initial emergency response. After reviewing these important operational considerations, the Performance Concepts team has concluded maintaining a second aerial device in the Kawartha Lakes Fire Service's emergency vehicle fleet is appropriate

6.0 Peer Benchmarking

6.1 Selecting Peers

Selecting benchmarking peers for Kawartha Lakes Fire is a challenging technical exercise. Kawartha Lakes represents an uncommon mix of geographic expanse, dispersed small communities, and a single urban area. The list of “best available fit” comparators is short. As per the table below Chatham-Kent, Sudbury and Timmins have been selected for comparative analysis.

	Area (sq km)	Population	Population Density	Households
Chatham-Kent	2,471	102,042	41.3	48,175
Kawartha Lakes	3,084	75,423	24.5	40,149
Sudbury	3,924	161,531	41.2	75,792
Timmins	2,979	41,788	14.0	19,698

Area by 2016 Census
Population, Households and Expenses by 2020 FIR

6.2 Peers Spending Profiles (Operating Costs)

The table below demonstrates that Kawartha Lakes Fire operating costs are significantly lower than the peers on a per capita basis, a per household basis and a per square kilometre of coverage basis. The expenditure gap between Kawartha Lakes and the peers is significant. For instance, the lowest spending comparator (Timmins) spends 66% more per household than Kawartha Lakes despite a lack of comparable taxable assessment growth.

The significantly lower spending pattern in Kawartha Lakes versus the peers can potentially be explained by two factors: an efficiency dividend or a service level gap. Given the breadth of the spending gap, and the performance issues already identified in this Report, service level variation is the most likely explanation.

	Gross Spending	\$/Household	\$/1,000 Pop	\$/sq km
Chatham-Kent	18,671,647	\$388	\$182,980	7,558
Kawartha Lakes	9,329,311	\$232	\$123,693	3,025
Sudbury	30,905,631	\$408	\$191,329	7,875
Timmins	7,572,133	\$384	\$181,204	2,542

Area by 2016 Census
Population, Households and Expenses by 2020 FIR

6.3 Peer Service Levels: Firefighter Deployment

The Timmins, Sudbury, and Chatham-Kent “best fit” comparators all deploy a more robust firefighter staffing model at their full-time stations than Kawartha Lakes. By consistently deploying 4-5 firefighters per shift at their full-time stations the peer comparators are able to safely execute an internal attack (rescue) on a structure fire when the first truck arrives on scene. Of particular note is the more robust staffing investment in Timmins, a northern municipality that does not enjoy the taxable assessment growth being experienced by Lindsay or by the entirety of Kawartha Lakes.

	Timmins	Chatham-Kent	Sudbury	Kawartha Lakes
Does your Fire Department provide 4 firefighters per apparatus/response in your full-time stations?	Minimum 5 at station	4	4	3 to 4 per apparatus response
How many full-time personnel are assigned to training?	2	2	3	1
How many stations staffed with full-time firefighters?	1	3	5*	1*
How many stations staffed with volunteer/part-time firefighters?	6	16	21*	19*
How many full-time staff (including fire suppression)?	36	70	107	31
How many approved volunteer/part-time firefighter positions?	115	325	350	380
* One station in both Sudbury and Kawartha Lakes is operated as a composite hall with career firefighters operating at a career service level, supplemented by part-time/volunteer firefighters as necessary.				

In addition to supporting the full-time firefighter complement, the single Kawartha Lakes training FTE covers 380 volunteer firefighters and 16 full-time firefighters. Each training FTE in Timmins covers less than 75 firefighters. Each Sudbury FTE covers 114 firefighters. Each Chatham-Kent training FTE covers 99 firefighters. Based on peer service levels for firefighter training, Kawartha Lakes Fire is significantly under-resourced.

7.0 Evaluation of 2020 Fire Master Plan & Fire Truck Specification Review

The Performance Concepts team has reviewed the *Kawartha Lakes 2020 Fire Master Plan* and the recommendations included in the City's 2017 *Fire Truck Specification Review* (ref. KL FIRE2017-003). Having completed this modernization review, Performance Concepts can offer the following observations:

7.1 2020 Master Plan

The 2020 Master Plan identifies a series of operational and resourcing issues that need to be addressed by the City of Kawartha Lakes. Through the financial and analytics-based analyses undertaken as part of this modernization review, Performance Concepts can validate virtually all the 2020 Master Plan's recommendations. Where the 2020 Master Plan sometimes lacks evidence-based business cases to justify its recommendations, the work executed by Performance Concepts provides a series of quantified, evidence-based business cases. Taken together, the Master Plan received by Council and this modernization review provides a fulsome basis for refining the Master Plan and securing Council endorsement.

7.2 Fire Truck Specification Review

The Fire Truck Specification Review executed in 2017 endorsed NFPA 1901: *Standard for Automotive Fire Apparatus* and five optional features best suited for Kawartha Lakes. Moving forward, the life-cycle replacement of Pumpers and Tankers required to maintain Tanker Shuttle Accreditation will comply with the standards documented in the Fire Truck Specification Review. Any fluctuation in apparatus purchase price should not prompt a reconsideration in design specifications, nor should it delay scheduled replacement purchases. Recent increases in apparatus pricing across Ontario has more to do with supply chain challenges than design specifications. The five optional features included in apparatus deliver measurable improvement in functionality and reduced maintenance.

8.0 Findings/Recommendations

Findings and Recommendations will address the performance improvement opportunities and resourcing challenges documented in Section 5 of this Final Report (the Risk bundles).

Recommendations have been categorized as *Strategic* or *Tactical*. Strategic Recommendations are broadly scoped “game changers” that will stabilize/improve core aspects of the Kawartha Lakes service delivery model. Tactical Recommendations are oriented towards ongoing operations and are more incremental in terms of their performance improvement impacts. “As Should Be” Findings provide the context/rationale for each Recommendation. Expected Benefits have been documented to demonstrate ROI. Recommendation costing has been provided where appropriate/feasible.

Strategic and Tactical Recommendations have been positioned on a Do NOW, Do SOON, Do LATER Implementation Roadmap.

Strategic Recommendations

#	As Should Be Findings	Strategic Recommendations	Expected Benefits
S1	<p>Kawartha Lakes Fire's current staffing/resourcing model fails to deploy 4 Firefighters on most Daily Shifts at the urban/full-time Lindsay Station. This failed deployment/resourcing model results in a significant response time lag for delivering 4-firefighters on-scene to most Lindsay structure fires. The result is serious erosion in the capacity of Kawartha Lakes Fire to deliver a timely internal attack/rescue response that complies with NFPA guidelines.</p> <p>Public safety in Lindsay is being jeopardized by this ineffective low-cost resourcing model that does not meet peer comparator Fire departments' urban station staffing/service levels.</p>	<p><i>Kawartha Lakes should immediately adopt a performance target of 100% compliance when it comes to deploying "4 firefighters on the 1st Truck" for Lindsay station structure fire responses</i></p> <p><i>Implementation Action 2023 Budget Cycle:</i></p> <ul style="list-style-type: none"> <i>Add 4 full-time firefighter FTEs to the Lindsay station; creating a go-forward staffing/scheduling model of "staff 5 to get 4" across Lindsay's four platoons.</i> <p><i>Estimated annualized cost is \$540,000</i></p> <p><i>Implementation Action (Rest of 2022)</i></p> <ul style="list-style-type: none"> <i>Additional recommendation and commentary found in confidential addendum dealing with collective bargaining matters. (see S1C)</i> <p><i>Estimated annual cost of \$370,000 is pro-rated across 10 months in 2022 - equates to \$308,000</i></p>	<p>Recommendation + Implementation Actions will provide a significant safety benefit by providing timely/consistent internal attack/rescue capability across Lindsay's growing urban community (funded via the area rated Lindsay operating budget)</p> <p>Recommendation + Implementation Actions will provide a significant firefighter safety benefit by eliminating the unacceptable risk scenario of firefighter internal attack/rescue contrary to NFPA procedures/guidelines</p> <p>Recommendation + Implementation Actions will provide a net positive financial impact by mitigating future City of Kawartha Lakes liability \$ payouts for unsafe work conditions. Will also avoid reputational risk City in the event of a 3-firefighter internal attack/rescue or a delayed firefighter internal/attack rescue</p>

#	As Should Be Findings	Strategic Recommendations	Expected Benefits	DO NOW	DO SOON	DO LATER
S2	Thousands of Kawartha Lakes residents/businesses depend on the City's Shuttle Relay Accreditation for substantial relief in their annual Fire insurance premiums. Imminent loss of the City's Shuttle Relay Accreditation will trigger significant Fire insurance premium increases across Kawartha Lakes households (\$225-\$300 annually)	<p>Recommendation</p> <p>Prioritize recruitment & training of volunteer firefighters across Kawartha Lakes stations to significantly reduce/eliminate the current 71 volunteer firefighter deficit by end of 2022. Focus recruitment priority on current non-compliant stations</p> <p>Recommendation</p> <p>Implement Pumper/Tanker replacement compression solution – Option 3 as per this Final Report. Do so by revisiting the City's 2022 capital budget and executing the "3 apparatus per year" compliance plan to maintain the City's Shuttle Relay accreditation</p>	<p>Recommendations will maintain Tanker Shuttle Accreditation, thereby avoiding a \$225-\$300 unintended increase in Fire insurance premium increases for thousands of Kawartha Lakes households and businesses.</p> <p>Required \$1M additional annual capital funding to maintain Tanker Shuttle accreditation is significantly less per household than the resulting Fire insurance premium impact if Accreditation cancelled – an estimated \$2.5M to \$3M for 10,000 typical K. Lakes households.</p> <p>Recommendations support compliance with asset management requirements of O Reg 588/17 and secure compliance with Insurance Bureau of Canada premium discount standards</p> <p>Recommendation around enhanced volunteer firefighter recruitment will deliver a significant public safety benefit – safeguarding the City's 3-station simultaneous response capability for all fire suppression calls across Kawartha Lakes</p>	✓		

#	As Should Be Findings	Strategic Recommendations	Expected Benefits	DO NOW	DO SOON	DO LATER
S3	<p>Firefighter health and safety must be key to the organization. Firefighter training must include both theoretical training and robust practical training which can then be incorporated into larger scale drills to ensure that requisite safe firefighting skills and knowledge are developed.</p> <p>With no live fire training facility and a single training officer to coordinate and deliver training to up to 400 firefighters, Kawartha Lakes struggles to provide consistent training across all stations.</p> <p>Further, while Kawartha Lakes Fire is commended for its installation of apparatus bay air filtration systems, it lacks a formal firefighter cancer reduction strategy with such important elements as on-scene decontamination and gear cleaning.</p>	<p>Recommendation</p> <p><i>A second training officer be considered as an essential early component of the modernization organizational redesign</i></p> <p>Recommendation</p> <p><i>While funding has recently been acquired for both upgraded records management software (includes training records); and hardware/connectivity for on-line activities at fire stations, ensure the timely installation at all stations to allow for consistent on-line training activities across the service.</i></p> <p>Recommendation</p> <p><i>Ensure opportunities exist for all firefighters to receive practical training, including practicing multi-station responses. This may be a combination of attendance at a Regional Training Facility, use of the OFM Mobile Live Fire Training Unit, and ideally over time, further development of the existing local training area with appropriate props/training equipment.</i></p> <p>Recommendation</p> <p><i>The Joint Health and Safety Committee be tasked with developing a firefighter cancer reduction strategy that includes on-scene decontamination, regular gear inspection and maintenance, annual 3rd party thorough cleaning of PPE, segregated storage of PPE, and proper washer extraction devices in stations.</i></p>	<p>A service delivery model featuring a robust, well-crafted training program will ensure firefighter health and safety and promote public safety during emergency call responses across Kawartha Lakes.</p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p> <p>✓</p>

#	As Should Be Findings	Strategic Recommendations	Expected Benefits	DO NOW	DO SOON	DO LATER
S4	The Kawartha Lakes Fire Establishing & Regulating By-law (ERB) is 20+ years old (obsolete) and does not reflect the City's current dual urban/non-urban service delivery frameworks or associated/expected results (service levels)	<p><i>Recommendation</i></p> <p><i>As per the 2020 Fire Master Plan, the Establishing & Regulating By-law (ERB) should be updated to reflect the City's dual urban/non-urban service delivery frameworks and their measurable service level expectations. Consideration should be given to imbedding firefighter deployment strength/response time targets in the updated ERB. The critical role played by certified Tanker Shuttle should also be considered for inclusion in the ERB.</i></p>	An upgraded/modernized ERB will improve public accountability, provide clarity around service levels/mandated public safety results, and inform budget/resourcing decisions. Future Fire master planning can be aligned with the modernized ERB and its expression of Fire's "mission", scope of services and measurable objectives.	✓	✓	

#	As Should Be Findings	Strategic Recommendations	Expected Benefits	DO NOW	DO SOON	DO LATER
S5	Kawartha Lakes Fire does not engage in Transparent/ Accountable Target Setting or Public Results Reporting (supported by Key Performance Indicators)	<p>Recommendation</p> <p><i>Kawartha Lakes Fire should adopt a Plan-Do-Check annual management framework. Key Performance Indicators (KPIs) should inform new accountable performance targets for urban and non-urban delivery frameworks. Transparent results reporting of KPI actuals versus targets should be aligned with the annual operating and capital budget process.</i></p>	<p>Reduced risk that actual Kawartha Lakes Fire service delivery results are not aligned with an updated Establishing & Regulating By-law (ERB)</p> <p>KPI supported performance targets will inform operational decision-making, build a results-focused firefighter culture, and support sustainable resourcing/budget investment plans</p> <p>Council and the taxpaying public will have access to transparent accountability data demonstrating value-for-money and stable public safety outcomes during a period of ongoing growth across the City.</p>	✓	✓	✓

#	As Should Be Findings	Strategic Recommendations	Expected Benefits	DO NOW	DO SOON	DO LATER
S6	<p>The Performance Concepts team has reviewed the recommendations contained within the 2020 Kawartha Lakes Fire Master Plan and the Fire Truck Specification Review.</p> <p>Performance Concepts has validated virtually all the Master Plan's recommendations. This Report provides necessary evidence-based business cases in support of Master Plan recommendations.</p> <p>The Fire Truck Specification Review will provide appropriate guidance for the life-cycle replacement of the Pumper/Tanker fleet required to maintain Tanker Shuttle Accreditation.</p>	<p>Recommendation</p> <p><i>The 2020 Kawartha Lakes Fire Master Plan should be refined to reflect the evidence-based business cases set out in this Report.</i></p> <p><i>The refined Master Plan should then be presented to Council for endorsement.</i></p> <p>Recommendation</p> <p><i>The life-cycle replacement of Pumpers and Tankers required to maintain Tanker Shuttle Accreditation should comply with the standards documented in the Fire Truck Specification Review. Any fluctuation in apparatus purchase price should not prompt a reconsideration in design specifications, nor should it delay scheduled replacement purchases.</i></p>		<p>✓</p> <p>✓</p>	<p>✓</p>	

8.2

Tactical Recommendations

#	As Should Be Findings	Tactical Recommendations	Expected Benefits	DO NOW	DO SOON	DO LATER
T1	A number of Fire Service personnel gaps have been identified throughout this Review, as have opportunities to realign Kawartha Lakes Fire's management structure, and the need for formal Succession Planning.	<p><i>Recommendation</i></p> <p><i>The Kawartha Lakes Fire Chief should be tasked with bringing forward an organization modernization business case to address the identified personnel gaps, re-align management structures, and address succession planning. This business case should inform the City's 2023 Budget process.</i></p>	The business case will address identified shortcomings/gaps in staffing levels and realign responsibilities/accountability for maximum effectiveness and efficiency moving forward.		✓	

#	As Should Be Findings	Tactical Recommendations	Expected Benefits	DO NOW	DO SOON	DO LATER
T2	Kawartha Lakes Fire currently purchases an acceptable level of dispatch services from Kawartha Lakes Police. Dispatch Centre operations should comply with the NFPA 1221 Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems.	<p>Recommendation</p> <p><i>The dispatch services contract with Kawartha Lakes Police be updated to reflect the real cost of providing the service and should incorporate a performance agreement as per NFPA 1221.</i></p> <p>Recommendation</p> <p><i>Digital mapping information as provided by the City of Kawartha Lakes GIS Unit be immediately updated and maintained in a timely fashion going forward.</i></p>	<p>Fire dispatch capabilities will be delivered on a cost-recovery basis in compliance with NFPA 1221.</p> <p>Mapping products for both Police and Fire will reflect the most current roads and addresses to optimize emergency response times.</p>		✓	

#	<i>As Should Be Findings</i>	Tactical Recommendations	Expected Benefits	DO NOW	DO SOON	DO LATER
T3	<p>Enhanced Public Fire Safety Education as well as Fire Safety Standards and Enforcement should result in reduced demand for emergency response.</p> <p>While education requirements are being well addressed by the Public Information Officer, the rest of the Fire Prevention group (Fire Safety Standards and Enforcement) is struggling due to health-related short staffing.</p> <p>Re-assigning purely administrative duties (record searches, etc.) to clerical staff, and using mobile technology (in-car computers/printers to provide inspection reports or violation notices on-site) to limit travel delays, has the capability of freeing up inspector time.</p>	<p><i>Recommendation</i></p> <p><i>The Fire Chief's already recommended modernization Business Case submission should consider the need for an additional Fire Inspector position. This potential staffing addition should be linked to a cost/benefit review of mobile (in-car) technology and re-assigning administrative duties away from fire inspectors.</i></p>	<p>Cost/benefit analysis will maximize effectiveness and efficiency of existing fire inspection resources before adding additional FTEs.</p>		✓	

#	<i>As Should Be Findings</i>	Tactical Recommendations	Expected Benefits	DO NOW	DO SOON	DO LATER
T4		<p><i>Emergency Management:</i></p> <p><i>See confidential addendum T4C addressing matters of organizational design.</i></p>				

#	<i>As Should Be Findings</i>	Tactical Recommendations	Expected Benefits	DO NOW	DO SOON	DO LATER
T5	Ensuring the availability of an Aerial truck (an important tactical resource) is key to the operational effectiveness of the Kawartha Lakes Fire Service. Timely availability of an Aerial device in certain emergency situations is mission critical.	<p><i>Recommendation</i></p> <p><i>Ensure a mutual aid agreement is in place to secure availability of a secondary Aerial device for timely emergency response when Kawartha Lakes' primary Aerial may not be available. When the current Kawartha Lakes Aerial is due for replacement, its lifespan should be extended/maintained as a dedicated spare in the Kawartha Lakes Fire fleet.</i></p>	Ensured availability of a back-up Aerial device (an important tactical resource) for use in an emergency situation and to replace the City's front-line Aerial during maintenance downtime.	✓	✓	

9.0

Conclusion - A Call to Action & Sustainability

The City of Kawartha Lakes Fire Service is at cross-roads. Population growth/development is proceeding at a steady clip, but the Fire Service is not keeping up. Critical resourcing issues identified in the City's corporate planning processes such as the 2020 Fire Master Plan and the O Reg 588/17 Asset Management plan have not been addressed in a timely fashion. A course correction is needed - without delay. Sustainability is the "good government" value that will define this needed course correction at Kawartha Lakes Fire. Two overarching "game changer" risk events loom large and are reiterated below.

The integrity/effectiveness of the urban (Lindsay) full-time firefighter service delivery model is at risk.

Performance Concepts 3rd party independent analytics review has documented the ongoing firefighter resourcing/deployment failure when responding to Lindsay structure fire calls. Unacceptable response times to get 4 firefighters on-scene to execute an internal attack/rescue constitute a significant risk to public and firefighter safety. These serious "4-firefighters on-scene" response time delays are the result of resourcing/budget decisions by the City that have delivered a low-cost urban firefighting bill to Lindsay taxpayers without identifying the associated risks to public safety. An internal attack/rescue by 3 Lindsay firefighters arriving on the first truck (contrary to NFPA guidelines) is unacceptable from an employee safety perspective. A delayed internal attack/rescue due to the delayed arrival of a 4th firefighter on a second supporting truck is equally unacceptable from a public safety perspective. Recommendations in this Final Report to address public safety risk must receive immediate attention.

The integrity/effectiveness of the non-urban volunteer firefighter service delivery model deployed beyond Lindsay is also at risk.

Multi-station participation in a Tanker Shuttle response to a structure fire call is the glue that holds the non-urban service model together. The Tanker Shuttle model is at risk due to a serious deficit in volunteer firefighter availability across multiple stations. Tanker Shuttle certification delivers significant financial benefits to thousands of Kawartha Lakes households and businesses via Fire insurance premium discounts. If Tanker Shuttle certification is cancelled due to eroded pumper/tanker replacement schedules, immediate Fire insurance premium increases of \$250-\$300 per household would be the result. Recommendations in this Final Report to address fire apparatus replacement timing must receive immediate attention to avoid triggering a significant Fire insurance bill increase to 10,000 Kawartha Lakes households already grappling with the economic challenges of the pandemic. The annual \$1.2M capital budget "fix" is significantly less than the

projected \$3M+ annual increase in insurance premiums for 10,000 households and additional businesses.

Change is always hard. But immediate and longer-term change at Kawartha Lakes Fire is necessary. Performance Concepts is confident that City of Kawartha Lakes Council and the staff leadership team are up to the challenge. This Final Report provides a doable Implementation Roadmap for Kawartha Lakes to modernize its Fire Service in order to deliver effective/measurable results, safeguard the public and its dedicated firefighters, and institute appropriate service levels in the face of upcoming growth in Lindsay and beyond.

