



CITY OF KAWARTHA LAKES

# Paramedic Service Master Plan (2022-2031)

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*Submitted to:*

Kawartha Lakes  
Paramedic Service

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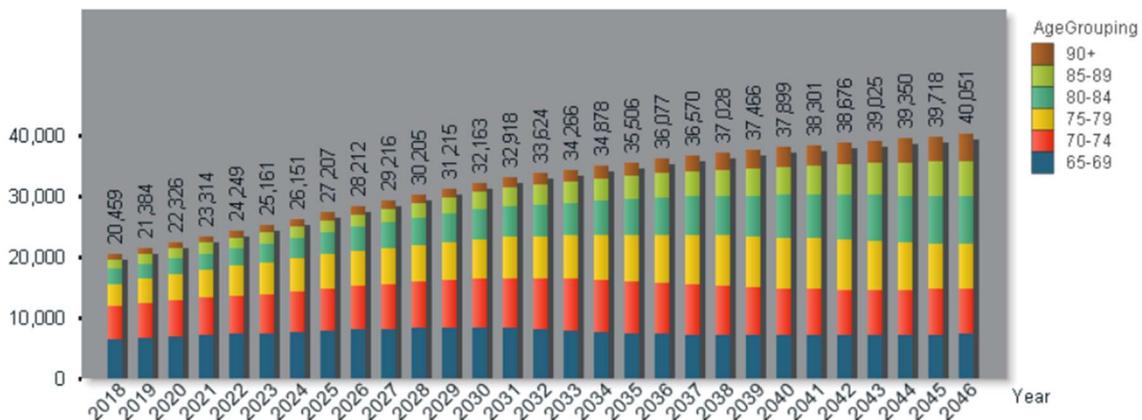
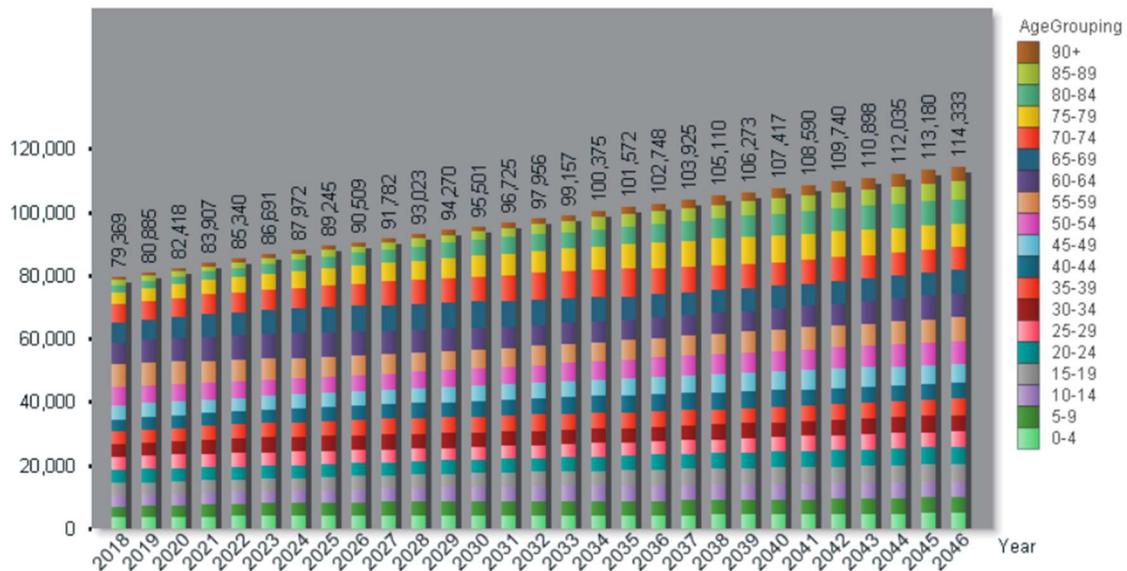
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## 1.0 Executive Summary

Master planning is a nimble process that addresses strategic priorities in a changing and evolving service delivery landscape. The Kawartha Lakes Paramedic Service 2022-2031 Master Plan will be an important tool for navigating change moving forward. Financial and service delivery challenges will be generated within the community (e.g., demographics driven service demand) and beyond the community (e.g., potential Provincial restructuring). The 2022-2031 Master Plan will need to be adaptable in order to address change. In this respect, an adaptable master planning *process* is just as important as the initial master plan document.

### 1.1 Demographics/Aging Tsunami Drives the Master Plan “Storyline”

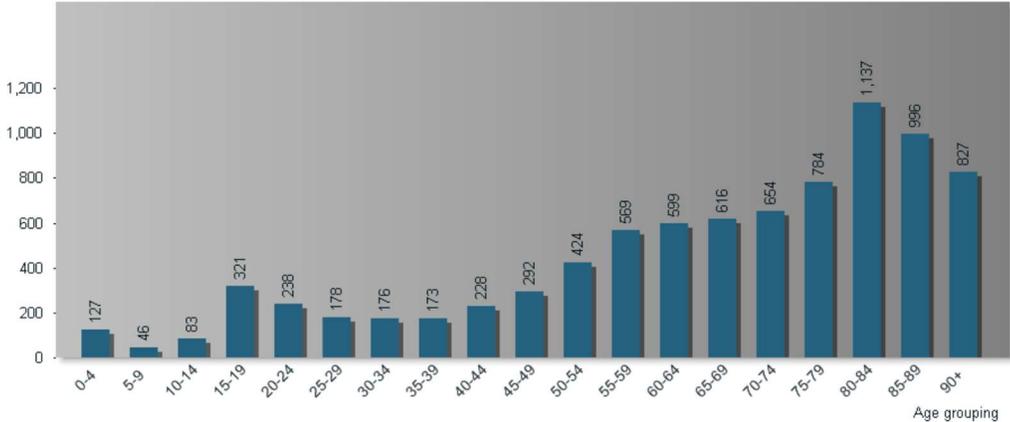
Population growth + the demographics of the Aging Tsunami will drive demand for paramedic services across the 2022-2031 Master Plan horizon.



Kawartha Lakes is already experiencing the realities of Aging Tsunami driven increases in call volumes and in-service workload for patients > 65 years old.

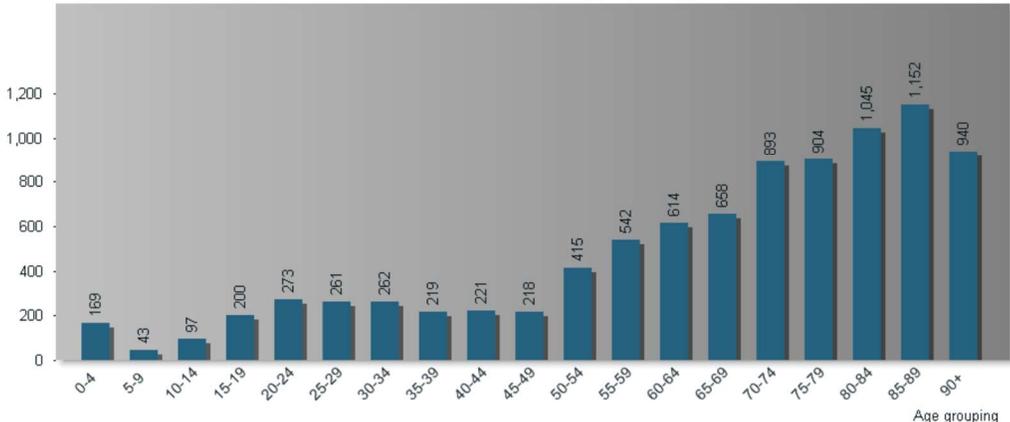
### Aging Tsunami Already Happening

Calls by age group



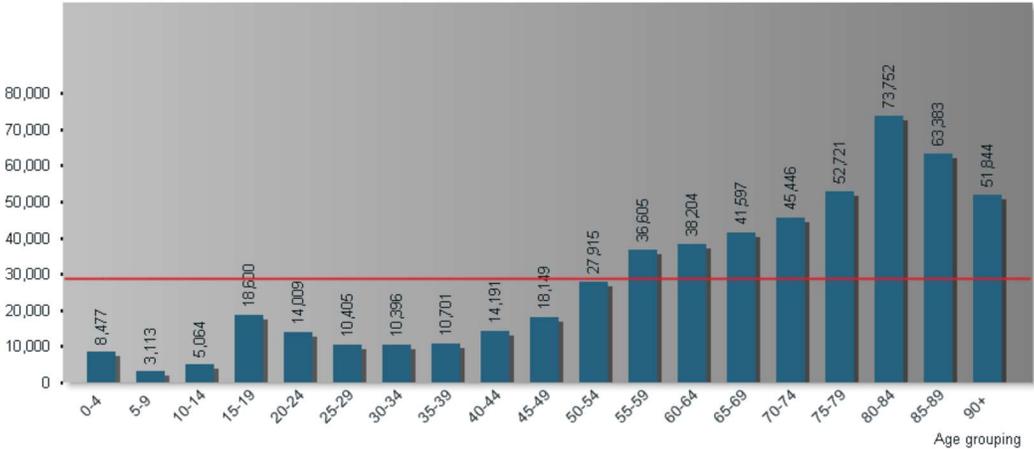
2015

Calls by age group



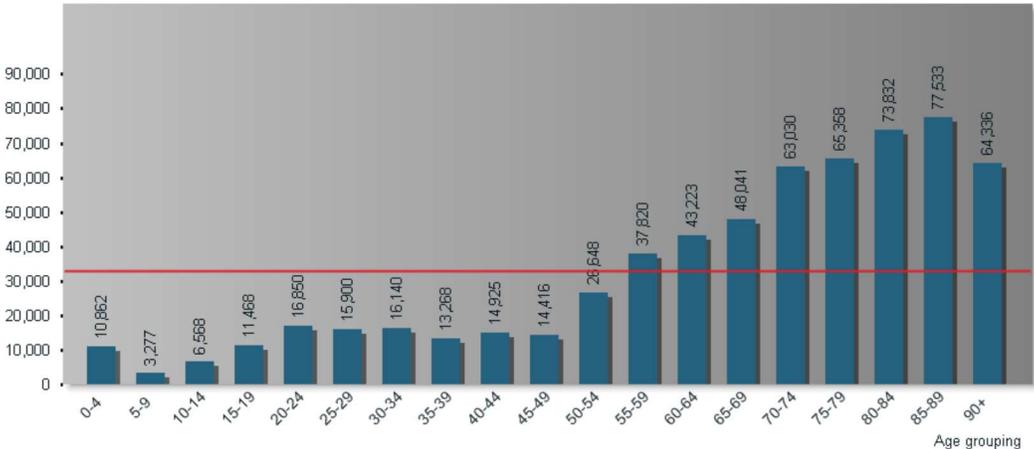
2019

In Service Time (Minutes)



2015

In Service Time (Minutes)



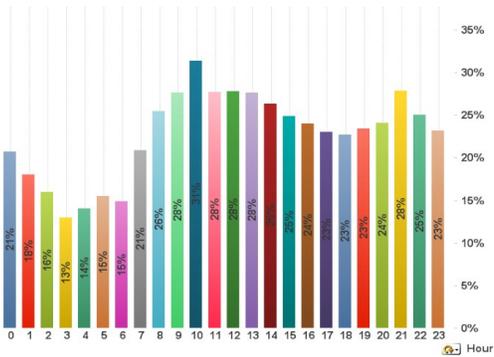
2019

**1.2 Performance Analytics: Ongoing Pressures Will Drive Future Resourcing Add-ons**

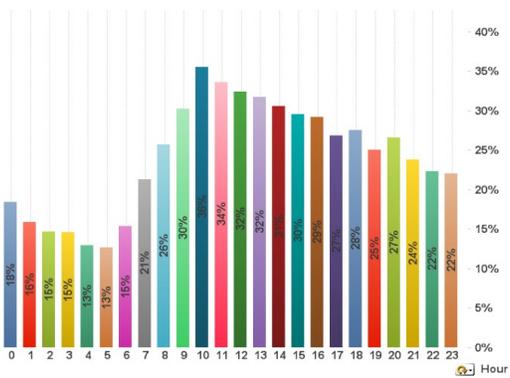
Across 2015 to 2019, middle-of-day (peak period) system performance is coming under stress. System busyness is increasing, average response times have eroded, and time at Code Black status has spiked. These daily peak period stresses are masked by stable high-level annual analytics - they require diligent monitoring and timely risk mitigation by Kawartha Lakes moving forward. A refresh of Kawartha Lakes system performance analytics at the end of 2021 will inform the specific timing of various recommendations set out in the Master Plan.

# Performance Analytics - Busyness

UHA by Hour of Day (2015)

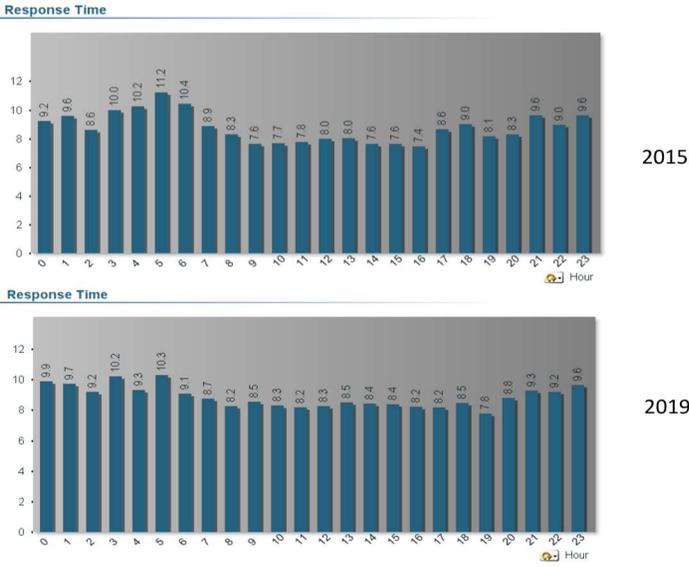


UHA by Hour of Day (2019)



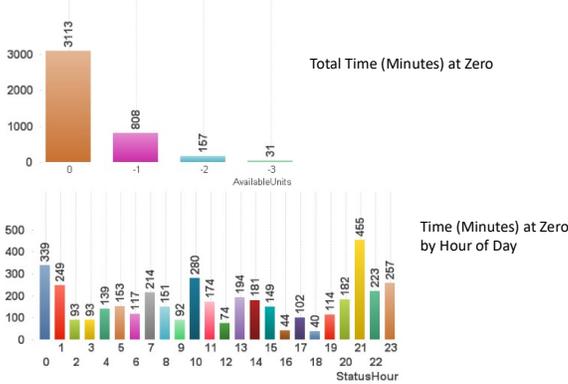
## Performance Analytics - Timeliness

Dispatched Code 4 Average Response Time by Hour of Day

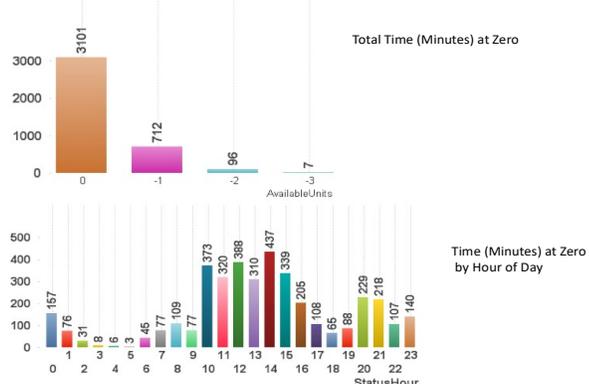


# Performance Analytics – Availability of Units

Code Black – Zero Availability (2015)  
Time Spent at Zero Units



Code Black – Zero Availability (2019)  
Time Spent at Zero Units



## Analytics Performance Observations



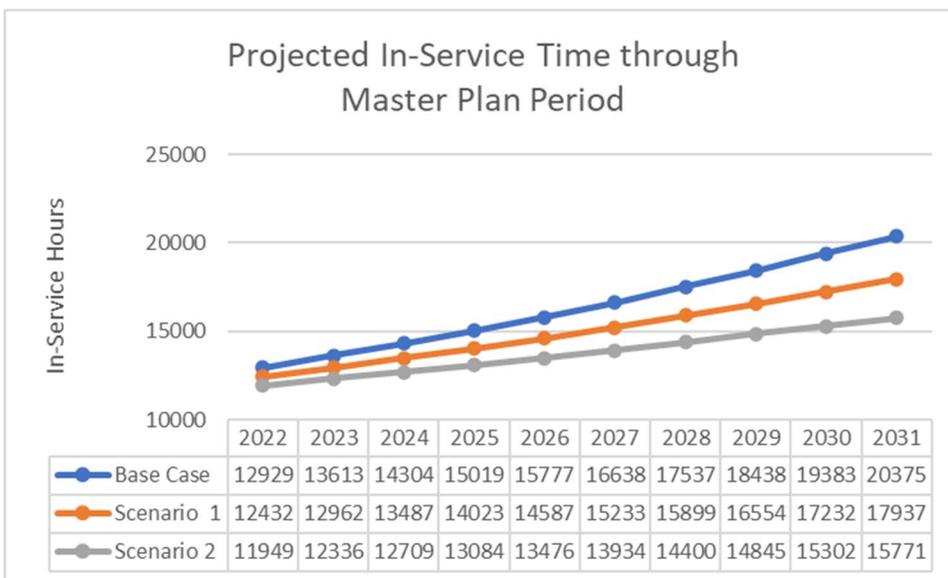
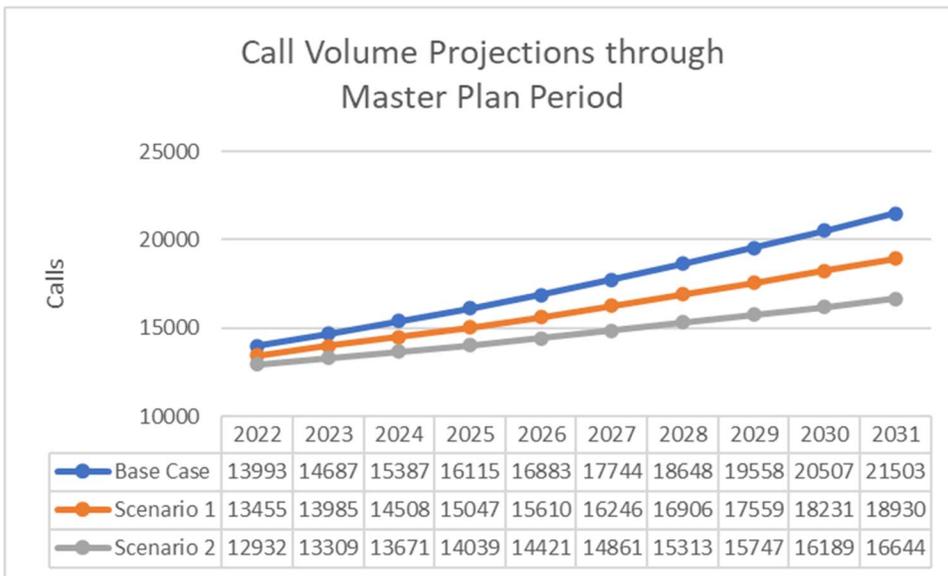
- UHA (system busyness) has remained stable between 2015-2019
  - Peak hours of day UHA have increased from 2015 to 2019
- Average Dispatched Code 4 response times are acceptable/stable across 2015-2019
  - Peak hours of day Response Times have eroded by 30 seconds from 2015 to 2019
- Code Zero system performance risk impacts peaked as follows:
  - In 2017 when the Average Response Time for a grouping of 11 Code 4 calls **eroded to 21 minutes**
  - In 2018 when the Average Response Time for a grouping of 23 Code 4 calls **eroded to 14 minutes**
  - In 2018 when the Average Response Time for a grouping of 6 Code 4 calls **eroded to 18 minutes**
- Both Offload Delay and Code Black impacts are manageable/below levels encountered across busy Ontario ambulance services

System-wide Code 4 Average Response Times for 2017 and 2018 were 8.7 minutes



### 1.3 Demand Forecasting Scenarios: Call Volumes + In-Service Workload

A base case demand scenario has been prepared for call volumes and in-service workload hours across the 2022-2031 planning horizon. Two “flattening the curve” alternative scenarios have also been prepared - based on the expected positive impacts of recommended demand mitigation actions/initiatives. These scenarios are presented in detail in the Master Plan - extending the demand forecast time horizon to 2046. Demand mitigation across the master planning period is critical for Kawartha Lakes to avoid the negative financial and operational impacts generated by the base case scenario.



## 1.4 Lindsay Consolidation: Location Options Based on Travel Time Performance

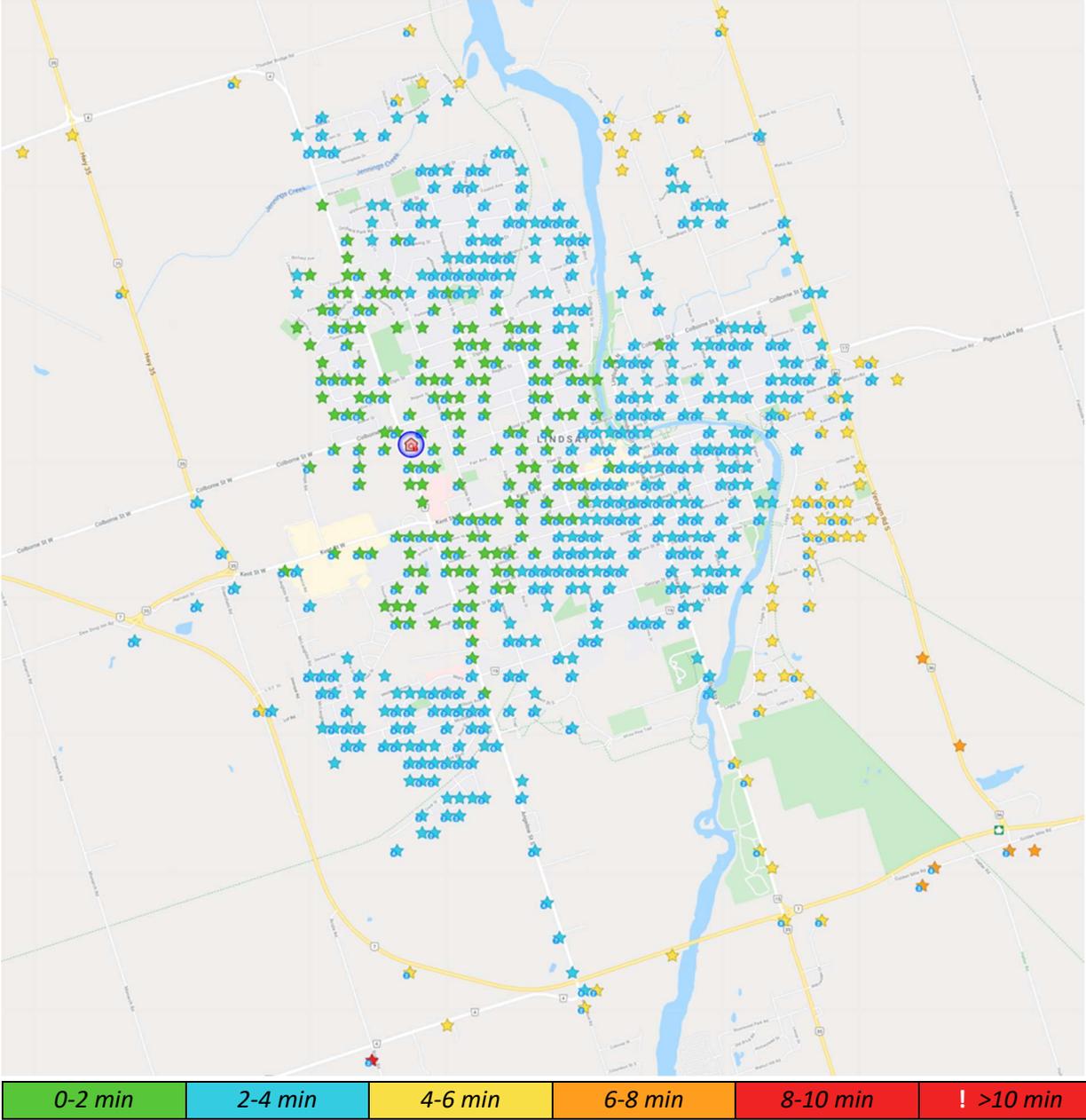
A consolidated Lindsay Station/HQ/logistics site will materially improve operational efficiency and create capacity to meet forecast long term demand for ambulance resources. The chart and map below highlight potential sites for a consolidated facility - differentiated by their respective travel time performance.

Scenario	% of Travel Times under 4 minutes	% of Travel Times under 6 minutes	Total 2019 Travel Time (hours)	Average Travel Time per call (mm:ss)	Total 2019 Driving Distance One-way (km)	Average Driving Distance (km)
<b>Angeline St. N.</b>	<b>91%</b>	<b>99%</b>	<b>149</b>	<b>02:27</b>	<b>7,247</b>	<b>2.0</b>
<b>Angeline St. S.</b>	<b>79%</b>	<b>96%</b>	<b>177</b>	<b>02:54</b>	<b>8,962</b>	<b>2.5</b>
<b>Greenfield Ave.</b>	<b>30%</b>	<b>90%</b>	<b>274</b>	<b>04:30</b>	<b>11,850</b>	<b>3.2</b>
<b>Airport</b>	<b>14%</b>	<b>77%</b>	<b>329</b>	<b>05:25</b>	<b>17,237</b>	<b>4.7</b>
<b>Ops Arena</b>	<b>3%</b>	<b>59%</b>	<b>363</b>	<b>05:58</b>	<b>22,325</b>	<b>6.1</b>

### Status quo

<b>St. David St.</b>	<b>61%</b>	<b>94%</b>	<b>233</b>	<b>03:50</b>	<b>11,403</b>	<b>3.1</b>
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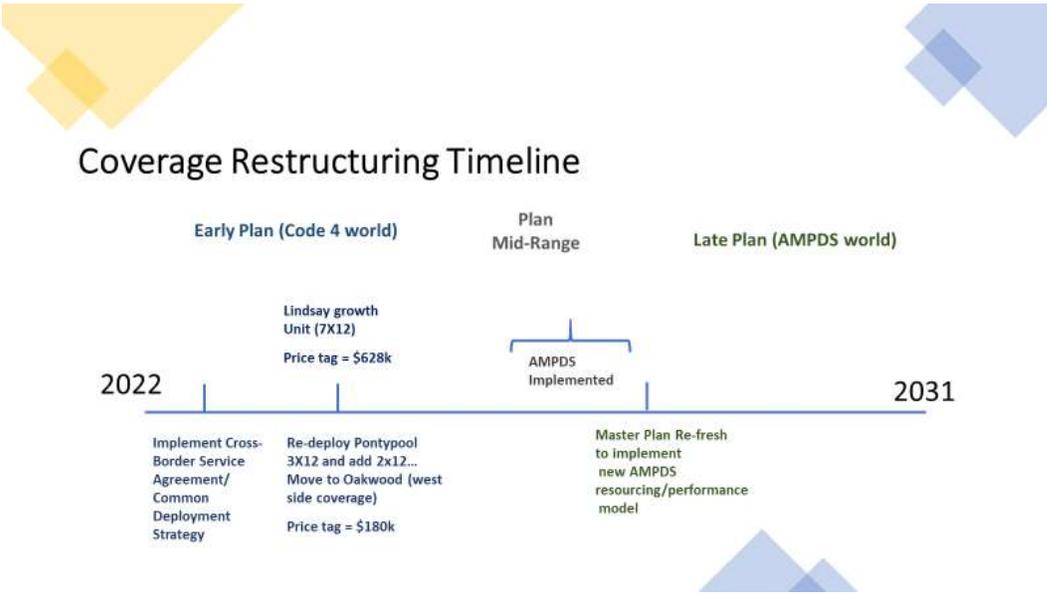
Detailed performance mapping within the Master Plan clearly establishes the viability of a single consolidated location option for Lindsay - accommodating existing development and planned/anticipated growth. The consolidated option has been costed in detail and scaled to accommodate future growth in the size of the paramedic fleet and operation.



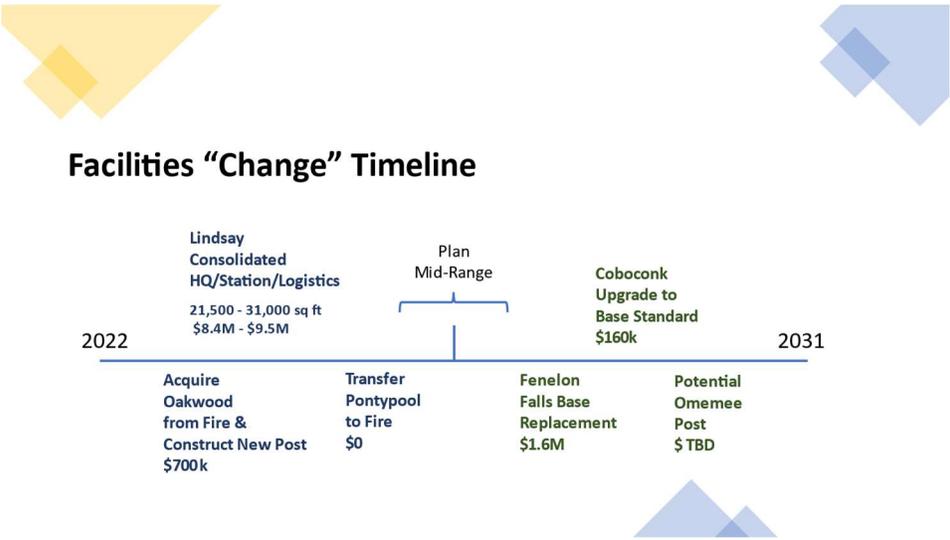
An example of the Lindsay Travel Time Modeled Scenario for Angeline St N

**Interconnected Performance Improvement Timelines: Coverage Restructuring + Facilities**

A series of interconnected coverage restructuring, and facility upgrades have been recommended. The coverage restructuring actions in the first half of the plan are “must do” recommendations. A mid-plan analytics driven refresh will add specifics to the coverage restructuring timeline after the new AMPDS dispatch algorithm has been implemented by the Province.



The facilities re-investment timeline has been coordinated to support specific coverage improvement opportunities, comply with Provincial asset management regulatory requirements, and address facility functional deficiencies documented within the Master Plan.



## 1.5 Implementation Road Map: Early Plan + Late Plan Phases

The implementation roadmap “front-ends” recommended improvements in coverage, demand mitigation and performance measurement. Facility investments are balanced across the Early Plan/Late Plan phases.

Recommendation	EARLY PLAN 2022-26	LATE PLAN 2027-31
<b>Restructuring Coverage and Improving System Performance</b>		
• Negotiate Cross-Border Service Agreement/Common Deployment Strategy with Peterborough County	✓	
• Sequence transition of Pontypool coverage to Oakwood	✓	
• Conduct analytics reassessment re. timing of Lindsay 12-hour resource	✓	
• Master Plan refresh/progress assessment upon AMDPS initiation	✓	✓

Recommendation	EARLY PLAN 2022-26	LATE PLAN 2027-31
<b>Facility Modernization</b>		
• Lindsay Facility Consolidation	✓	
• Acquire Oakwood, Build New Post & Transfer Pontypool	✓	
• Rebuild Fenelon Falls Base		✓
• Upgrade Coboconk from Post to Base		✓

Recommendation	EARLY PLAN 2022-26	LATE PLAN 2027-31
<b>Flattening the Call Volume Demand Curve</b>		
• Design and execute 9-1-1 Public Awareness Campaign	✓	
• Develop and execute business case re Provincial CPP funding allocations	✓	
• Engage with Province to rollout AMPDS dispatch model/alternative pathways	✓	

Recommendation	EARLY PLAN 2022-26	LATE PLAN 2027-31
<b>Annual Report Card &amp; Business Plan Performance Targets</b>		
• Expand KLPS system performance targets	✓	
• Expand performance targets to monitor/address down-staffing	✓	
• Integrate KLPS performance targets with City’s annual budget process	✓	

## 2.0 Introduction & Methodology

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The Kawartha Lakes Paramedic Service is committed to patient-centric, evidence-supported delivery of paramedic services within the City of Kawartha Lakes.

A series of progressive Kawartha Lakes Councils have supported forward-leading initiatives, investing heavily in training and deploying Advanced Care paramedics across the community. Kawartha Lakes was also one of the first municipalities in Ontario to fund a successful Community Paramedicine pilot while many others hesitated, and continues to lead in subsidizing alternate non-emergency transportation service in the community. State-of-the-art technology investments around PowerLoad stretchers, LUCAS automated CPR devices, and full-featured defibrillator/monitors have improved the health and safety of the City's paramedics. Despite these innovations, there are still significant service delivery challenges facing the Kawartha Lakes Paramedic Service moving forward. The 2022-2031 Master Plan is an important step forward in addressing those challenges.

### 2.1 Towards an Adaptable Paramedic Service Master Plan

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Master planning is a nimble process that addresses strategic priorities in a changing and evolving service delivery landscape. The Kawartha Lakes Paramedic Service 2022-2031 Master Plan will be an important tool for navigating change moving forward. Financial and service delivery challenges will be generated within the community (e.g., demographics driven service demand) and beyond the community (e.g., potential Provincial restructuring).

The 2022-2031 Master Plan will need to be adaptable in order to address change. In this respect the master planning *process* is just as important as the initial plan document. The conclusion of this Plan will set out a go-forward adaptable process to address change as it unfolds.

#### 2.1.1 Impact of the COVID Pandemic

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The preparation of the 2022-2031 Kawartha Lakes Paramedic Service Master Plan has been impacted/shaped by the COVID pandemic. While in-person interactions around master plan production have been curtailed, online interactive platforms and tools have been successfully deployed to develop consensus around issues and approaches. The result has been an evidence-driven master planning process with balanced participation from paramedics, City leadership and external stakeholders. Performance Concepts is confident the 2022-2031 Master Plan's Findings/Recommendations have been properly stress tested to meet the next decade's demographic, deployment and system restructuring challenges.

### 2.1.2 Patient-Centric Master Planning

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The challenges facing the Kawartha Lakes Paramedic Service are myriad and complex. Establishing strategic priorities and driving transformational change across an organization is never easy. Competing priorities for finite resources must be recognized and triaged using evidence-based, rational analyses.

The 2022-2031 Kawartha Lakes Master Plan has been prepared according to the following overriding patient-centric principles:

*Kawartha Lakes must deploy its finite resources in a rational and responsible manner that safeguards the greatest possible number of current and future pre-hospital patients.*

*The Paramedic Service Master Plan must be financially and operationally sustainable in order to meet current and future patient demand for service.*

*Evidence-driven Transformation will be key in meeting upcoming patient care challenges with finite local \$ resources.*

### 2.1.3 Team-Based Approach to Building the Paramedic Master Plan

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The City of Kawartha Lakes established a master planning *Oversight Team* consisting of the following City staff leaders:

- Randy Mellow, Chief, Paramedic Service
- Patricia Bromfield, Deputy Chief, Paramedic Service
- Sara Johnston, Deputy Chief, Paramedic Service
- Jennifer Stover, Director of Corporate Services
- Adam Found, Corporate Asset Manager

The Paramedic Service Chief created a *Paramedics Working Group* to provide advice/feedback on the operational aspects of the master plan. Paramedic Service Managers, Supervisors and frontline medics sit on the *Paramedics Working Group*.

## 2.2 Paramedic Master Plan Context

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The 2022-2031 Paramedic Service Master Plan has not been prepared in a vacuum. The following realities have shaped the environment/context within which the master plan has been developed. These realities have also informed the specific set of transformational recommendations/action items set out in the master plan.

### 2.2.1 Post-COVID Financial Realities

Before the COVID pandemic, Ontario was already the world's largest sub-sovereign debtor jurisdiction. The COVID-19 pandemic has already derailed the Province's \$21 Billion deficit forecast update from March 2020. The Province has now confirmed a deficit of \$38.5 Billion for the current year.

#### The COVID-19 New Abnormal: Crushing Senior Government DEBT Loads

- The Province forecast a 2020-21 deficit of \$21 BILLION in March
- The Fraser Institute predicted the deficit will be \$29 BILLION (April 2020)
- The Province's independent Financial Accountability Officer has predicted a \$41 BILLION deficit (May 2020)
- Province has confirmed \$38.5B for 2020-2021 (August 2020)
- Provincial-Municipal financial arrangements are likely to be negatively impacted in the short/medium term
- Key Question: Is Kawartha Lakes ready to embrace significant change to buffer upcoming fiscal turbulence?

Traditional Provincial-Municipal financial arrangements are likely to be negatively impacted in the short/medium term by the added impacts of COVID debt load. While a pre-COVID Kawartha Lakes Paramedic Master Plan might have envisioned incremental progress, a post-COVID Kawartha Lakes Paramedic Master Plan will need to consider transformational change. Provincial funding solutions going forward will be increasingly difficult to secure, and a demonstrated willingness to consider transformational change may well be a pre-requisite for securing strategic infusions of Provincial funds.

### 2.2.2 Asset Management Pressures and Ontario Reg 588/17

The Province has mandated a sustainable asset management model for phased adoption across the Ontario municipal sector. By 2023, Ontario municipalities must implement the following asset management model/components:

1. Comprehensive asset inventory.
2. Asset condition ratings.
3. Measurable asset preservation service levels (i.e., asset quality to be maintained over time).
4. Sustainable life-cycle asset management maintenance/capital program.
5. Sustainable rehab/replacement financial plan to maintain service levels & implement life-cycle program.

## An Additional Pressure: O. Reg. 588/17 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 timely replacement of assets according to their life cycles

- **Decisions over municipal sector asset/facility replacement can no longer be deferred (Including EMS bases)**
- **Decisions are imminent (by 2023)**

O Reg 588/17 mandates “good government” sustainable asset management practices and accountable stewardship of taxpayer-funded public assets. Municipalities will no longer be able to “kick the can down the road” by eroding asset quality over time in order to avoid politically or financially difficult life-cycle capital funding commitments.

Much work remains to be done across Ontario municipalities (including Kawartha Lakes) to meet the mandated requirements of Regulation 588/17 by the fast-approaching 2023 deadline.

The 2022-2031 Kawartha Lakes Paramedic Service Master Plan will need to secure compliance with O. Reg. 588/17 mandates and deadlines.

### 2.3 Methodology Overview: An Evidence-Based Approach

Kawartha Lakes staff and the Performance Concepts team have successfully collaborated in the midst of the COVID pandemic to execute the following master planning methodology across 2020-21.

#### 2.3.1 Kawartha Lake Paramedic Performance Analytics

Performance Concepts has prepared a detailed system analytics profile in order to provide a historical snapshot of Kawartha Lakes Paramedic Service workload and performance trends.

The analytics profile covers call volumes, response times, system busyness and code zero trends across 2015-2019. COVID has skewed 2020 performance data, and therefore it is not considered in this Master Plan.

### 2.3.2 Peer Benchmarking

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Performance Concepts has completed a simplified peer benchmarking exercise for Kawartha Lakes and its immediate four neighbouring municipalities, utilizing available 2018 data from the Eastern Wardens Review of Eastern Ontario Paramedic Services and the Municipal Benchmarking Network Canada.

### 2.3.3 Service Demand Forecast (Base Case)

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The Performance Concepts team has prepared a service demand forecast that extends well beyond the ten-year time horizon of this 2022-2031 Master Plan. The 25-year demand forecast is calculated using a mix of Ministry of Finance population projections and Kawartha Lakes Paramedic Service patient count data sorted by age cohorts. The demand forecast calculation engine also addresses aging tsunami demographic realities and the expanding propensity of the public to call 9-1-1 for assistance. The demand forecast model includes the following “base case” outputs:

- Annual paramedic calls up to 2046
- Annual required vehicle hours of work (i.e., time-on-task) up to 2046

A revised forecast scenario for projected calls and vehicle hours of work has also been developed to reflect demand reductions that could be generated by new dispatch tools/criteria, upscaled community paramedicine, and alternate patient referral pathways.

### 2.3.4 Internal and External Stakeholder Consultations

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Performance Concepts has executed wide ranging interviews with City staff and Paramedic Service management, supervisors and an assortment of frontline medics/staff with specialized roles/support functions. Interviews were also held with external stakeholders important to the Paramedic Service, including the local hospital, dispatch centre, base hospital and LHIN.

Performance Concepts has also executed a Service-wide online survey of paramedics (using Mentimeter.com) to explore workplace and system performance improvement opportunities.

The Paramedics Working Group has provided periodic feedback to the Chief and the Performance Concepts team at critical points in the master planning process.

### 2.3.5 Evaluation of Paramedic Bases (Asset Management Compliance)

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Performance Concepts has conducted an on-site functional evaluation of Kawartha Lakes stations. This evaluation was conducted under Paramedic Service staff oversight and met all COVID infection control protocols. The results of this functional evaluation have informed the sustainable asset management recommendations and future station location modeling contained in this Master Plan.

### 2.3.6 Future Station Location Modelling

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Station location travel time modeling has been undertaken to provide evidence-based recommendations for a consolidated Lindsay location. This modeling and associated heat mapping also informs future resourcing and deployment decisions by identifying response time/coverage risks across the entire municipality.

### 2.3.7 “As Should Be” Deployment and Resourcing

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Evidence supported recommendations have been developed to ensure the Kawartha Lakes Paramedic Service optimally deploys adequate resources across the 10-year master planning horizon to secure targeted response times, maintain appropriate levels of system busyness, and effectively manage Code Zero-unit availability impacts.

### 2.3.8 Community Paramedicine and Alternate Pathways

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The rationale and expected impacts associated with Community Paramedicine and other demand reduction tools/tactics are addressed. The key will be scaling up the impact of system restructuring/demand reduction pilots to have a meaningful impact at an affordable price point for local taxpayers.

### 2.3.9 Revised Service Demand Forecast

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A revised call demand forecast will attempt to quantify the “flatten the curve” potential impacts of new tools/approaches to ambulance service delivery. This flattened demand curve will have limited impact on the first half of the 2022-2031 Master Plan. The key will be scaling up demand curve “flattening” initiatives in the 2<sup>nd</sup> half of the Master Plan (and beyond).

### 2.3.10 Province-wide Transformation of Paramedic Services

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The 2022-2031 Master Plan needs to consider the impacts of self-directed transformation with neighbour services, as well as the game changing impacts of Provincially imposed restructuring. The risk management aspects of mergers and other aggressive restructuring options are addressed and principles to guide Kawartha Lakes (moving forward) are set forth for Council to consider.

### 2.3.11 Exploring Regional Partnerships

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One of the deliverables for the Kawartha Lakes Paramedic Service Master Plan was an *Interim Report* investigating potential operational efficiencies and cost savings/avoidance from regional partnerships with neighbouring paramedic services. This *Interim Report* on service sharing opportunities and recommendations was submitted in December 2020 and is attached to this report. The contents of the *Interim Report* should inform the ongoing *Opportunities Review Project* being executed by Peterborough County and the City of Kawartha Lakes.

### 2.3.12 Organization Design Review

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The organization re-design options set out in the 2022-2031 Master Plan are contained in a confidential addendum to this public master plan document.

Since the recommended organization re-design options have human resource implications/job description impacts on existing Kawartha Lakes staff, they will be considered *in camera* by City Council. This is standard municipal practice across Ontario.

### 2.3.13 Recommendations and Implementation Roadmap

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An implementation Road Map has been developed based on the following phasing timeframes:

- A *Do Now/Do Soon* phase that extends across the first 5 years of the Master Plan
- A *Do Later* phase that extends across the second 5 years of the Master Plan

A 3<sup>rd</sup> party progress assessment and master plan refresh are also recommended for Q1 2023 in order to maintain positive “change” momentum.

## 3.0 Internal & External Stakeholder Consultations

### 3.1 External Stakeholder Perceptions

During the course of preparing the 2022-2031 Master Plan, the Performance Concepts team interviewed external stakeholders important to the Kawartha Lakes Paramedic Service. Outreach included representatives from Kawartha Lakes Police and Fire, the Lindsay Central Ambulance Communications Centre, Ross Memorial Hospital Emergency Department, the Central East Prehospital Care base hospital program, and the Central East Local Health Integration Network (LHIN).

To a person, all commented positively on the interaction between their organizations and the Kawartha Lakes Paramedic Service, noting the fairness and responsiveness of these interactions and “very easy communications pathways”. Relationships with the Paramedic Service’s management team were noted as “amazing” and “excellent”, and there is great interest in the current shared Paramedic Chief pilot. The Paramedic Service’s leadership was described by one participant as a “promising command team” that seems to hire the right people. From a service delivery point of view, stakeholders were “very happy to sing their accolades” as they felt they received good service in all regards. The Paramedic Service was complimented for their longstanding participation in many community events and described as “not just a 9-1-1 machine”.

In order to better understand the internal aspects of the service, Performance Concepts also offered opportunities for one-on-one interviews with the entire Paramedic Service leadership, supervisory, administrative and support teams as well as the union president. Corporate input was obtained from the CAO, Director of Corporate Services, Planning, and Finance/Asset Management. In total, over 20 internal stakeholder interviews were conducted, with valuable input incorporated into appropriate sections of the Master Plan.

### 3.2 Dialogue with Paramedic Leadership, Superintendents & Support Staff

As noted above, Performance Concepts executed interviews/dialogue sessions with a wide range of the Paramedic Service leadership, superintendents and providers of specialized support/logistics functions. Themes from these diverse and wide-ranging conversations are highlighted below:

#### Internal Communication Highlights

- Communications within the Paramedic Service team was consistently identified as needing improvement. Staff mentioned sometimes feeling they were all pulling together, but at other times feeling out of the loop and somewhat siloed. Improvements have been noted recently with weekly team calls, but a centralized approach to communications with an App or some other tool to ensure everyone received the same information, was suggested.

### **Management Team Structure and Stability**

- Staff report concerns with the historic performance of previous management teams. There is now added concern and unsettledness about disruptive mergers going forward. Staff prefer the service the way it is and do not want a merger. There is a consensus that historic management team instability/behaviour created problems “that have to be put behind us”. There is a staff consensus that an enhanced sense of team/trust/cooperation are necessary moving forward.

### **Who Does What?**

- Staff noted feeling lost as a management team and being pulled in a thousand directions. The consensus is that clear direction for moving forward as a group is needed. There is a need for focused accountability about who is responsible for what functions. Reporting hierarchies are not always clear and better internal processes are needed and should be well documented. The ability to improve education in leadership would aid in succession planning and propel the management team forward. The team is seen as constantly playing catch up and some staff feel things are beginning to unravel at the edges.

### **Workload**

- The team described a heavy workload that is both unbalanced among staff members, and unsustainable. There is fear of the potential impact on their mental health. Most staff report there is not enough time in the day to accomplish what is required of them and can describe what work doesn’t get done. Superintendents report they would have enough time for their operational duties if they didn’t have the extra portfolios to deal with. These portfolios end up being done outside of scheduled hours, but little of the time can be accounted for due to corporate lieu time policies. The hope is that the new Administrative Superintendent will help with this, but everyone cautions that position cannot become a dumping ground of things others don’t want to do. Everyone agrees that Logistics needs help and must grow beyond what is essentially a one-person show.

### **Facilities**

- There is no room for additional management/support staff at headquarters. Staff feel the temporary solutions in place are at capacity and the decentralized nature of the facilities greatly impacts efficiency. Frontline staff do not see the City as being proactive with facility needs. While extremely progressive with patient care technology, this has been overshadowed by poor facilities. Upgrading bases would improve morale, and COVID precautions have to be worked into the design of any new facilities.

### **Paramedic Staffing**

- Superintendents say that paramedic coverage is stretched, but they make do. They feel the most comfortable about coverage when the partially deployed Pontypool vehicle is on-duty, although they wonder if the vehicle shouldn’t be positioned more appropriately along the busy Hwy 35 corridor. Staff report that during the summertime, even at full complement, there are not enough part-time staff available to cover vacations.

### 3.3 Frontline Paramedic Survey

An on-line Mentimeter.com interactive survey was conducted to secure feedback from frontline paramedics. A total of 41 paramedics opened the survey (31 full-time and 10 part-time) with 39 completing a majority of the survey. These 39 paramedics provided open-ended comments on the Paramedic Team Lead program with 29 providing other open-ended comments.

A summary of the survey responses follows:

- Paramedics report they are well trained, regardless of the differences work volume/busyness experienced across bases/posts.
- Paramedics feel safe on duty.
- Paramedics have supports available and know who to call with mental wellness concerns.
- For the most part, paramedics feel they can get time off when needed, but cannot always count on getting off on time when their shift ends. They also feel there are not enough staff available to cover vacancies.
- Paramedics enjoy a reasonable balance of calls and breaks.
- Paramedics feel their stations are sub-par and not in the correct locations.
- While 56% of paramedics are supportive of the Paramedic Team Lead program, 44% are either unsure or not supportive.
- Paramedics agree that ramping up Community Paramedicine and Alternate Pathways would be beneficial to the service, but strongly feel more vehicle hours will be needed to address future call volume growth.
- “New and better stations” were the phrases used most commonly to describe the ideal workplace, while “equal”, “friendly”, “supported”, “progressive”, “united” and “professional” were also frequently used.
- Paramedics support system restructuring (Community Paramedicine/Alternate Pathways) and believe new vehicle hours of service will be required to meet future call volume demand.

Open-ended comments around an “ideal” workplace included multiple references new/improved stations, the importance of teamwork, and a series of operational improvement ideas/suggestions.

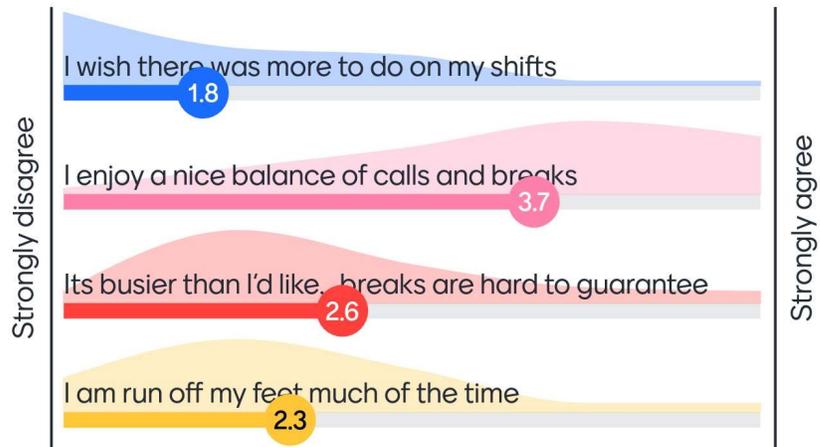
## Training/Skills



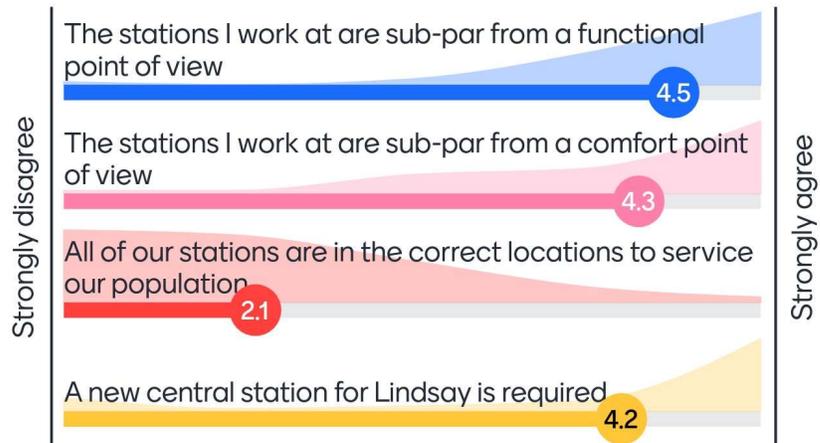
## Safety & Well Being



## Workload & Busyness



## Stations



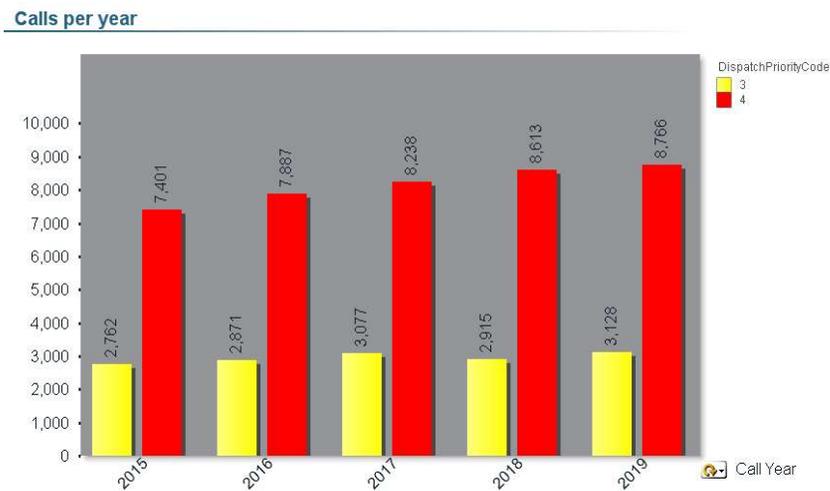


## 4.0 System Performance Analytics

Analytics trends provide important evidence-based insights around the sustainability and effectiveness of the Kawartha Lakes Paramedic Service delivery model. Analytics trends also play an important role in generating 2022-2031 Master Plan recommendations. Each analytics chart/table is supported by a brief factual narrative statement.

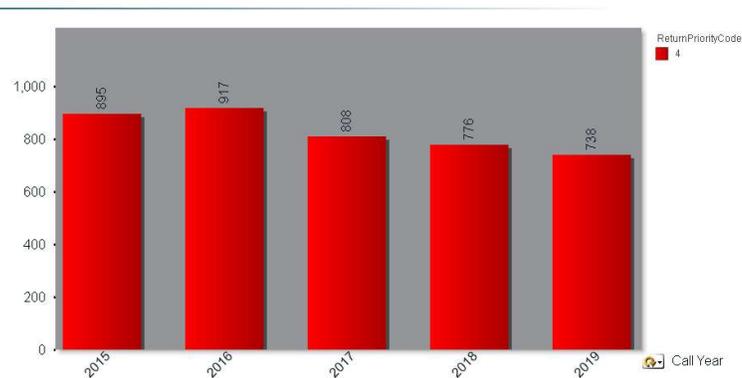
### 4.1 Call Volume Trends

#### Annual Dispatched Code 3-4 Calls (2015-19)



The Kawartha Lakes Paramedic Service has experienced limited growth in dispatched Code 3 “urgent” calls and more significant growth in Code 4 “emergency” calls. Dispatched Code 4 emergency call volume increased by 18 % across the 2015-19 period.

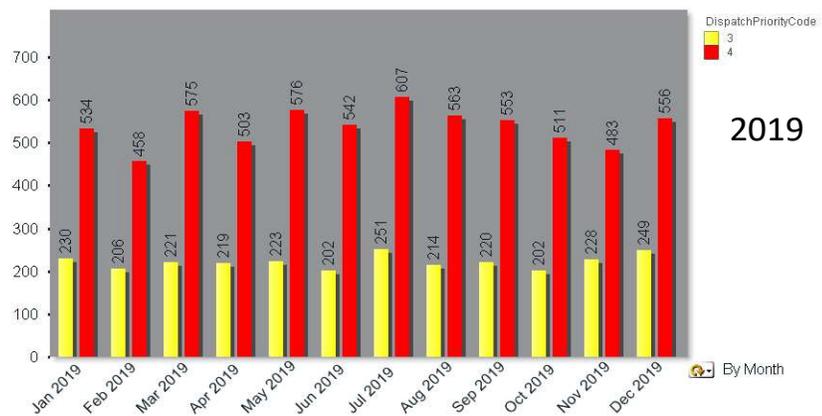
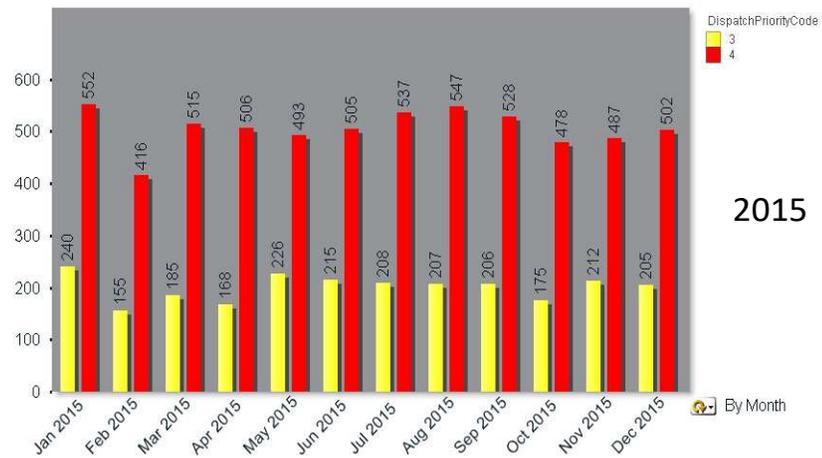
#### Code 4 Returns (2015-19)



Code 4 “lights and sirens” return calls to hospital (after patients have been seen by a paramedic) have declined over the 2015-2019 period - averaging 826 calls per year.

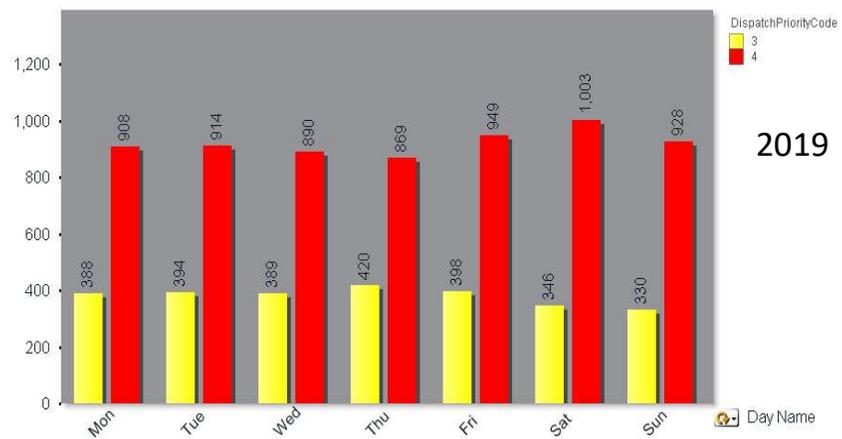
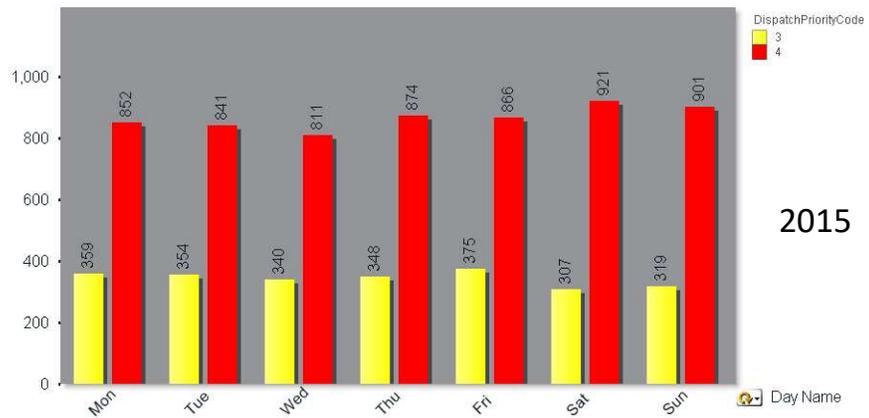
There is no significant monthly/seasonal pattern of call spikes across the year in either 2015 or 2019. Call volumes in July and August are higher than the monthly average, suggesting a possible slight boost from a seasonal “cottaging” population. But there is certainly no concerning/actionable “cottager spike” in summer demand.

## Annual Code 3-4 Calls by Month



Weekend Code 4 call volumes are slightly higher than Monday-Friday call volumes in both 2015 and 2019. However, the weekday versus weekend variation is not significant enough to warrant roster changes in deployed vehicle hours of service.

## Annual Code 3-4 Calls Day of Week



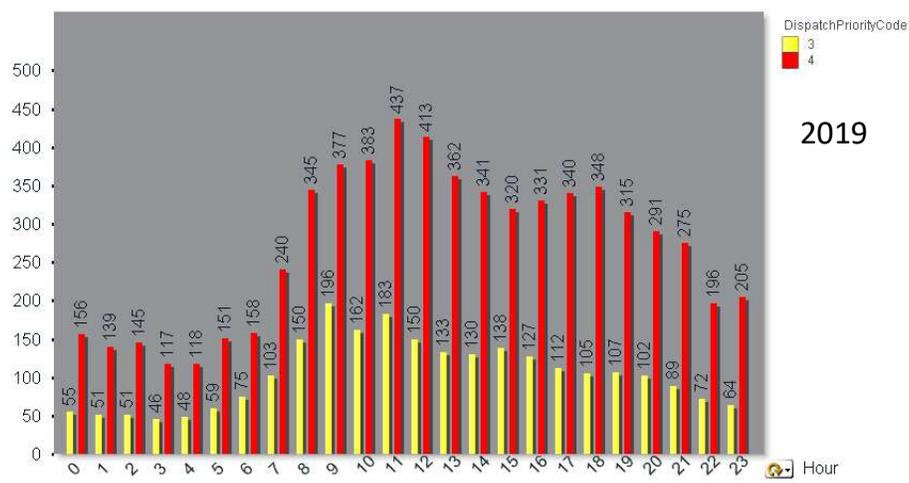
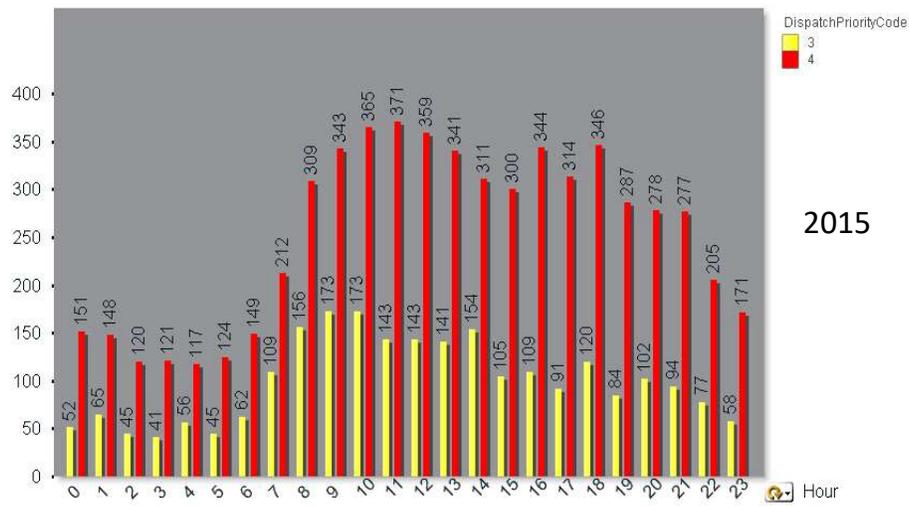
The pattern of Code 4 calls by hour of day is virtually identical across 2015 and 2019 (see chart below). Overnight Code 4 call volumes between midnight and 7am are relatively low. Call activity increases sharply during the morning hours - peaking by mid-day. During the daily peak hour from 11am to 12 pm the Paramedic Service responds to > 365 calls annually. On average this peak hour continually generates a Code 4 call each and every day. In 2019 437 calls in the peak hour of 11am to 12 pm represented an average of 1.2 daily Code 4 calls across the year.

The mid-day peak gradually recedes until approximately 4pm- 6pm, when a second minor peak occurs in both 2015 and 2019. Code 4 call volumes then recede steadily across the late evening until midnight.

Lower volume Code 3 calls follow a flatter, but similar, pattern across the hours of the day.

The Kawartha Lakes Code 4 hour of day call pattern is quite typical of ambulance services across Ontario.

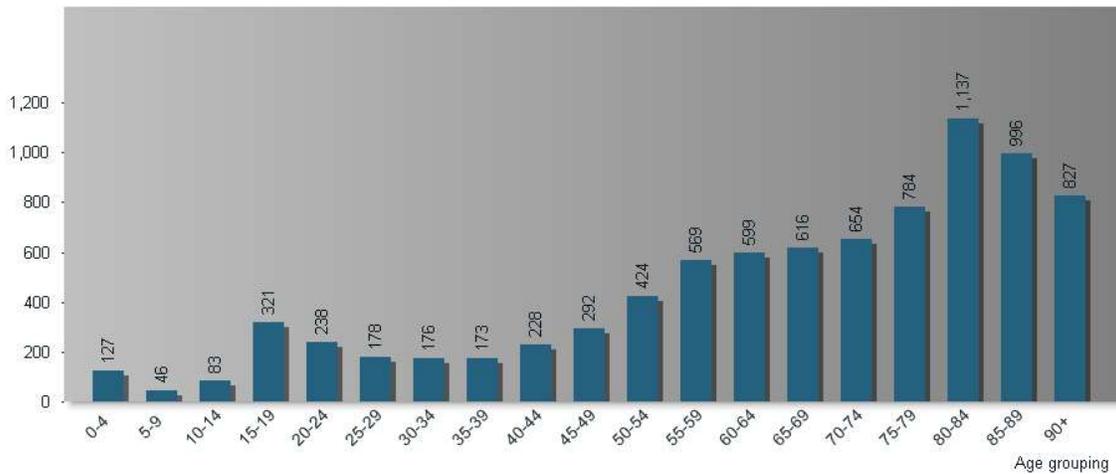
## Annual Code 3-4 Calls by Hour of Day



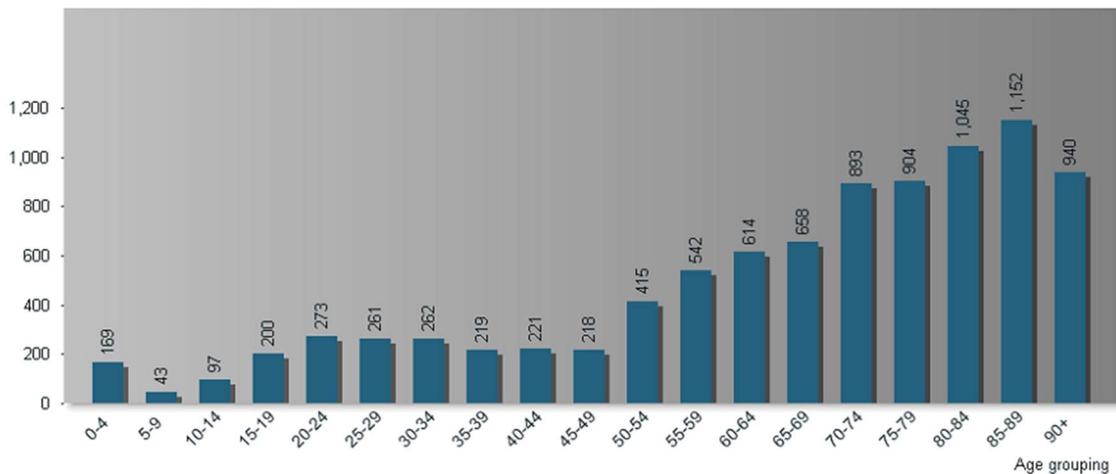
## 4.2 Demography Driven Analytics

Demand for land ambulance service is not just a function of population growth. Service demand is also shaped by demographics within and across population age cohorts. The charts below are instructive in this regard. There is a significant increase in service requests/calls for the population cohorts above 50 years of age. In both 2015 and 2019 there is a steady increase in the number of service requests generated by each age cohort > 50 years of age. The call volume totals for seniors' cohorts > 75 years of age are particularly significant. Relatively limited populations are generating high service requests per capita across the elderly population cohorts of 75 to 90+ years of age.

Calls by Population Age Cohort



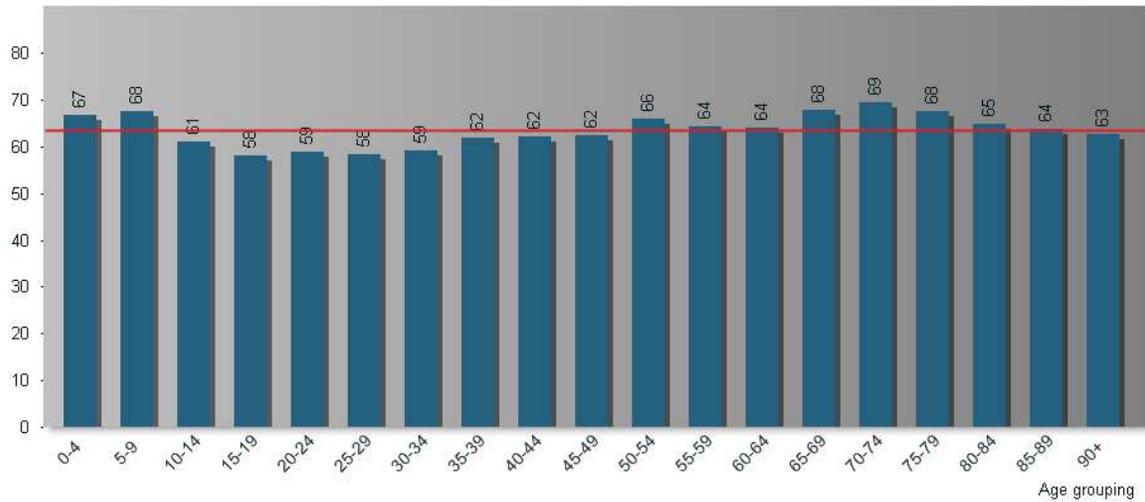
2015



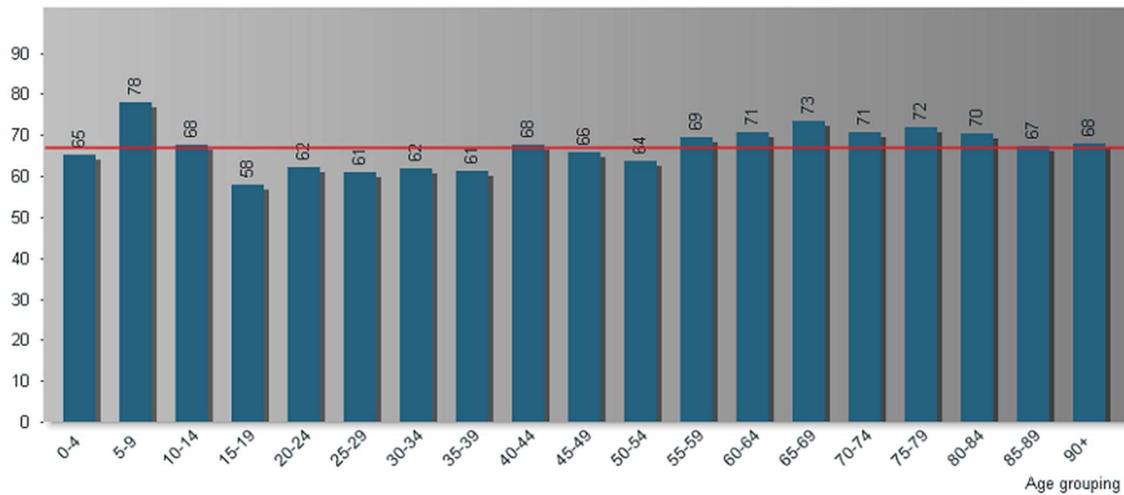
2019

*In-Service Time* refers to the total amount of time an ambulance is linked to a particular call/patient. As is common across Ontario, the in-service times for population cohorts of children and seniors are above the overall population average in both 2015 and 2019.

**Average In Service Time per Call**



2015

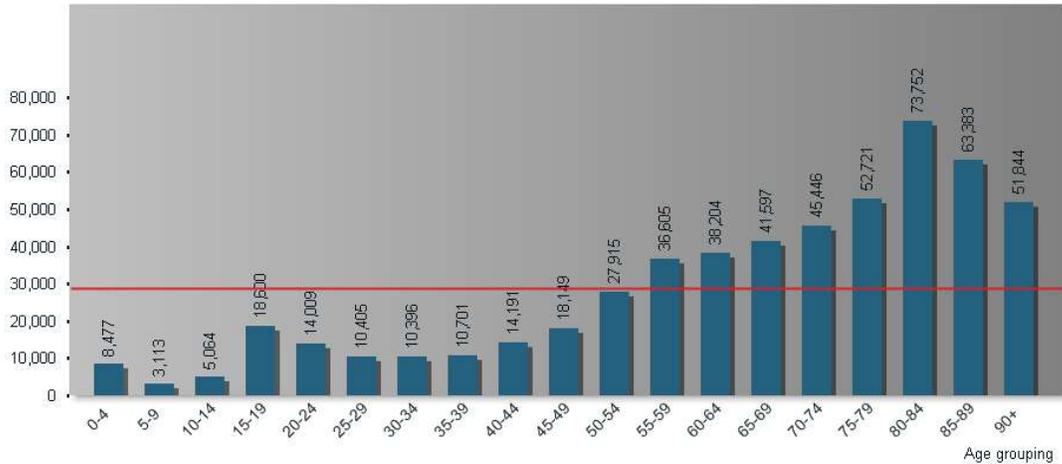


2019

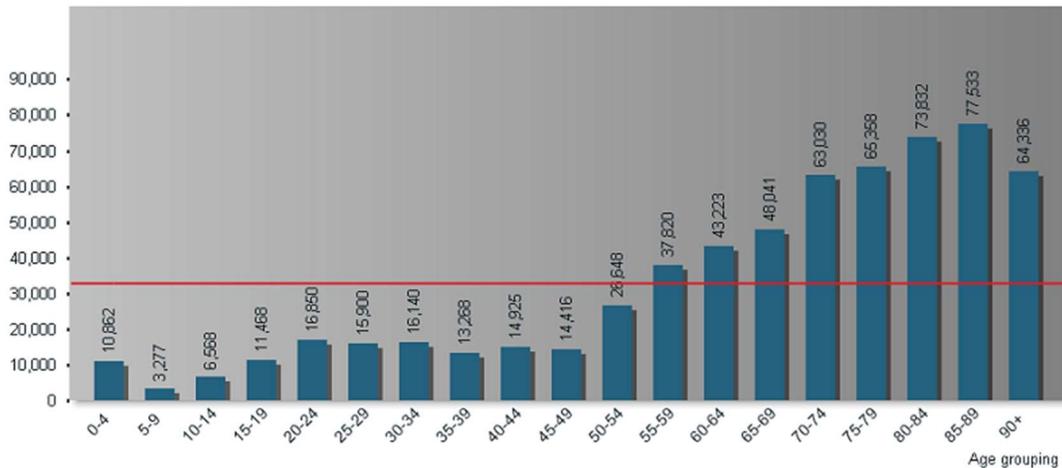
Above average in-service time per call is especially significant for the current and pending aging tsunami of elderly patients. More time per call + more calls per capita translate into a compounding of total in-service time for senior citizen population cohorts.

The aging tsunami impact on the 2022-2031 demand projections is therefore multi-faceted. It is driven by more seniors > 65 years of age. These seniors generate more calls per capita. These calls are of above-average length. The absolute hours of work to be done for calls with aging tsunami patients will exceed the projected number of calls.

**Total Annual In-Service Time**



2015



2019

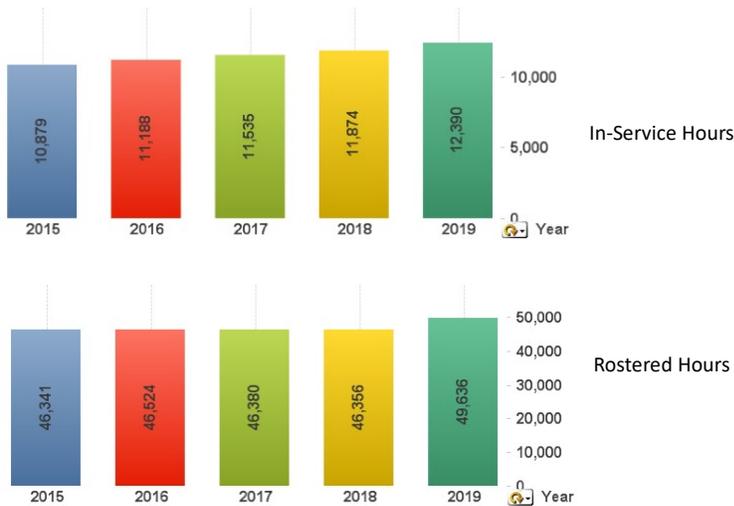
The required in-service time for population cohorts > 65 years of age constitutes the majority of in-service support provided across ALL population cohorts in total. The 2019 total in-service time for population cohorts > 65 years of age was 389,631 minutes - representing an 18% increase over 2015 levels. As the back end of the baby boom moves forward into the senior citizen age cohorts, the aging tsunami distribution pattern of in-service time will intensify.

### 4.3 System Busyness (Unit Hour Activity)

System busyness (UHA) measures the percentage of a deployed vehicle hour of ambulance service that is actually “in service”. System busyness (Unit Hour of Activity) fluctuates widely across Ontario ambulance services. System busyness is a calculated ratio of In-Service Time/Rostered Time. Rostered Time is the best available measure of actual deployed vehicle hours of ambulance resource.

The chart below documents Kawartha Lakes In-Service Hours (work done) and Rostered Hours (deployed resource to do work).

In Service Time + Rostered Time



Annual average levels of system busyness have remained stable across 2015-2019 in the 23% to 26% range (see chart below). This level of system busyness is sustainable on a multi-year basis without increasing deployed vehicle hours of service.

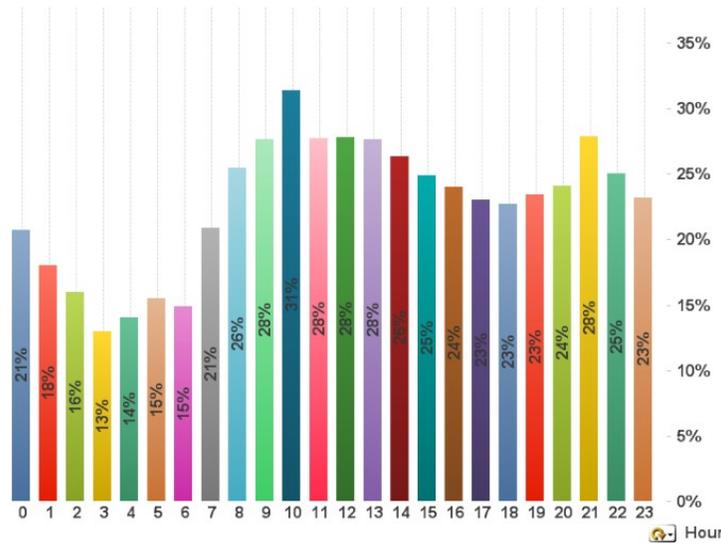
System Busyness (UHA) by Year (2015-19)



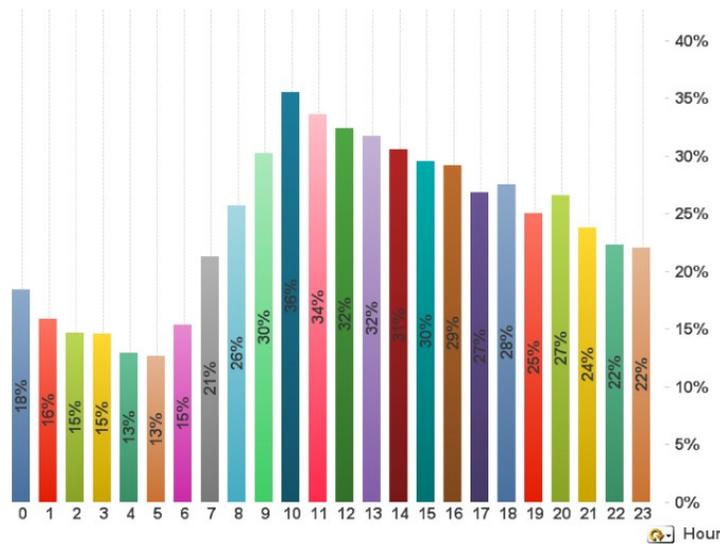
System busyness by hour of day mirrors/tracks against the pattern of Code 4 calls by hour of day (see chart below). This mirroring of Code 4 workload versus system busyness is indicative of a rational/well designed Kawartha Lakes rostering of resources across the 24-hour cycle.

Peak hour busyness levels in 2019 (32%-34%) are noticeably higher than 2015 peak busyness levels (28%). Peak hour busyness can/should act as a trigger for adding vehicle hours of service in the future as growth/aging tsunami demand escalates. Failure to add vehicle hours in the face of escalating system busyness during peak hours will have a negative impact on Code 4 response times.

### UHA by Hour of Day (2015)

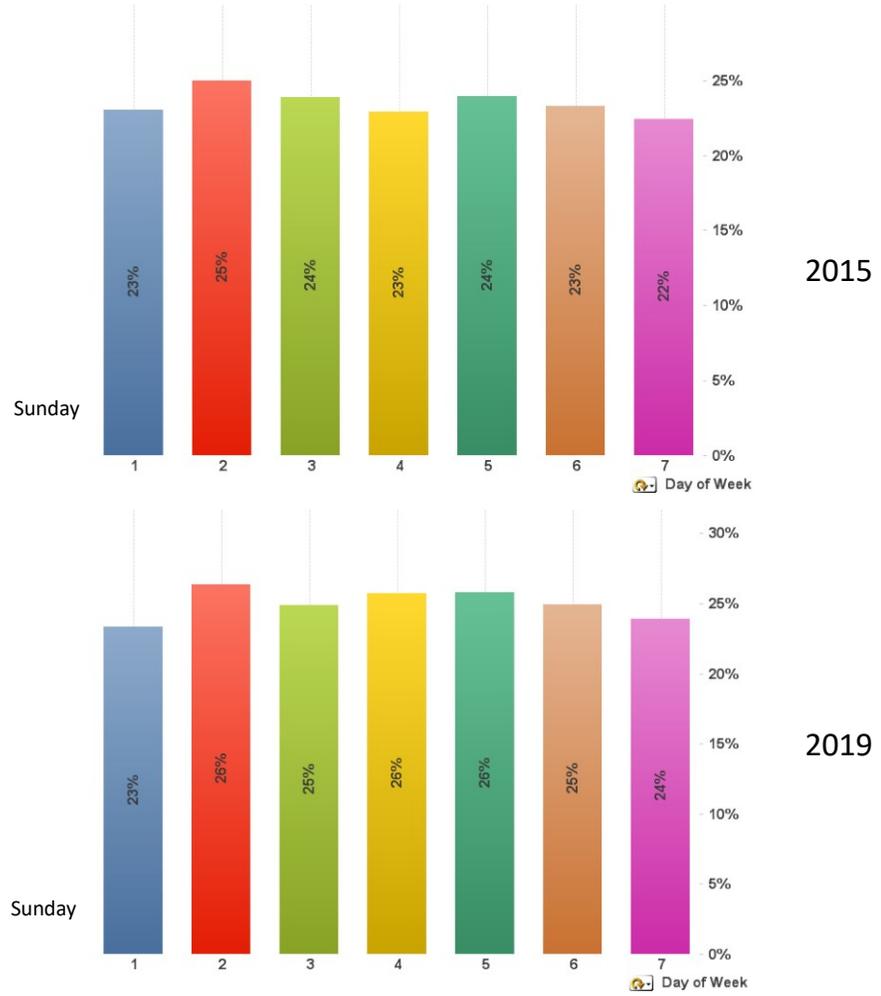


### UHA by Hour of Day (2019)



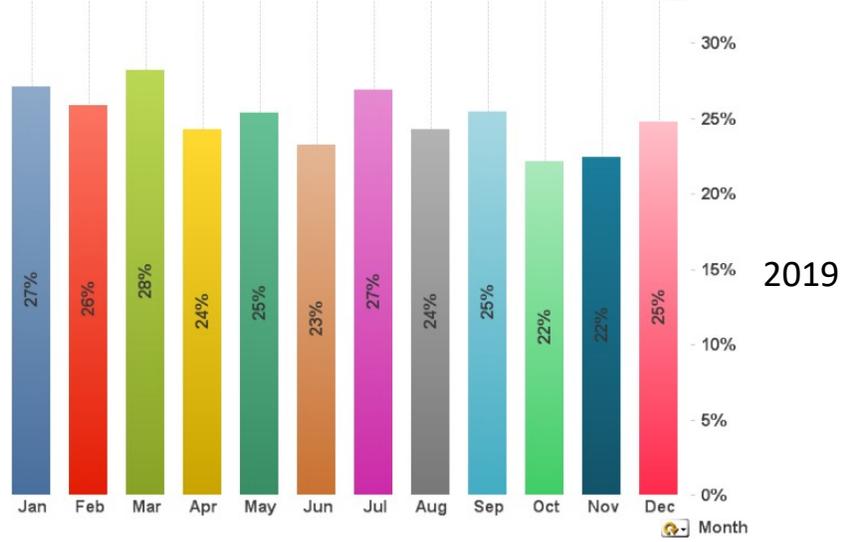
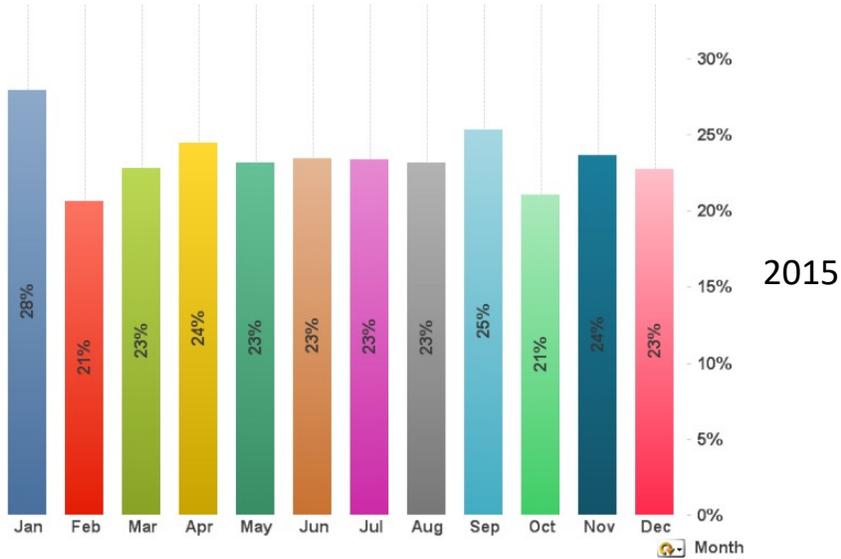
System busyness (UHA) does not vary significantly by day of week across 2015-2019.

### UHA by Day of Week



There is no clear/discernable pattern of system busyness (UHA) variation across the months of the year.

## UHA by Month



## 4.4 Patient Offload Delay

Excessive delays in offloading ambulance patients at hospital can cause significant/avoidable impacts on In-Service time and system busyness (UHA).

Offload delays can cause shortages in available ambulance units and a subsequent erosion in on-scene response times for Code 4 emergency calls.

Offload delay is defined as offload time > 30 minutes per call.

Kawartha Lakes offload delay hours for 2015-2019 are set out in the chart below. While the offload delay hours in 2018/2019 are appreciably higher, they only represent an hour per day of offload performance erosion. This level of offload delay is well below the average across Ontario ambulance services.

Offload delay is currently not a major performance risk at current levels for the Kawartha Lakes Paramedic Service. However, the impact of offload delay may grow as the forecast growth in calls becomes a reality. Offload delay data trends at Ross Memorial and Peterborough Regional should be carefully monitored moving forward.

## Hospital Offload Delay

Total Offload Delay Hours (offload > 30 minutes)



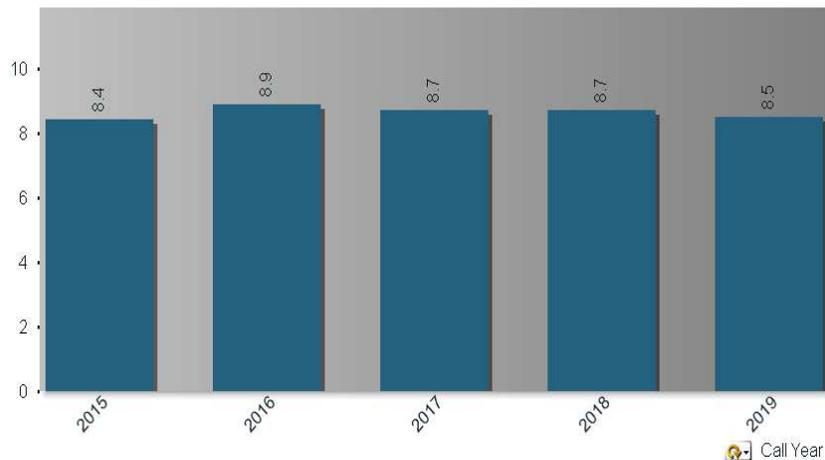
### 4.5 Average Response Times

Dispatched Code 4 average response times measure the time for paramedics to arrive on scene (see first chart below).

Average Dispatched Code 4 response times have remained stable (8.4 to 8.5 minutes) across 2015-2019.

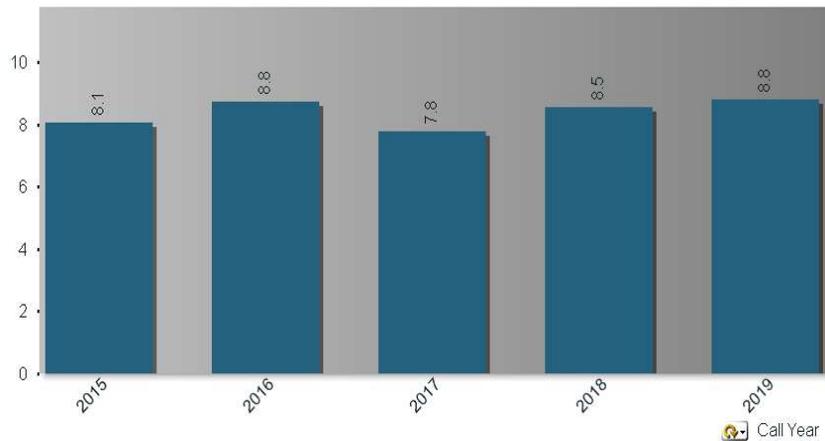
## Code 4 Average Response Times (2015-19)

Response Time



Dispatched Code 4

Response Time



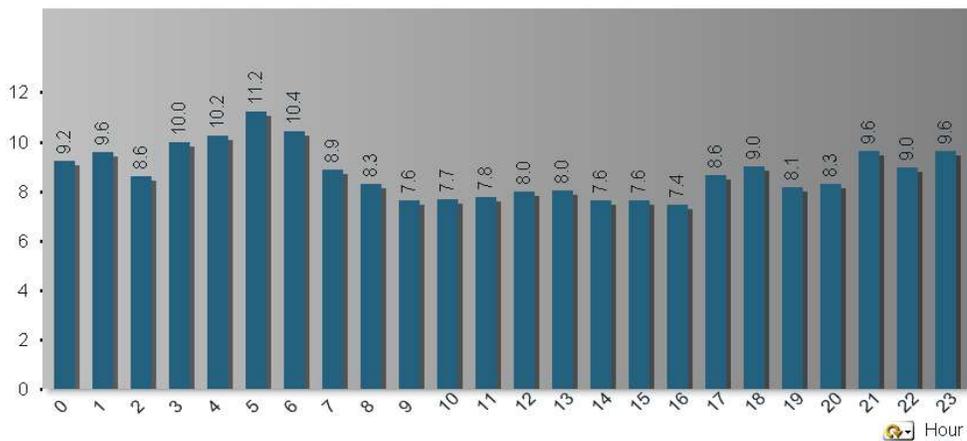
Code 4 Returns to Hospital

Code 4 Returns are calls that transport seriously unwell patients back to hospital “lights and sirens”. The average response times for this important sub-set of Code 4 calls averaged less than 9 minutes across 2015-2019 (see above chart). It is important to remember that Code 4 Dispatched calls only become Code 4 Return calls after a paramedic arrives on-scene and triages the acuity of the patient using the CTAS classification tool.

Average response times are lowest when the system is busiest (mid-day). System-wide mid-day average response times hover at or below 8 minutes. Overnight average response times (a lower call period with fewer deployed vehicles) are somewhat higher (9-11 minutes). Evening average response times run between 8-10 minutes. Overall, 2019 average response times are marginally higher than in 2015 - a trend especially noticeable during the peak business mid-day period.

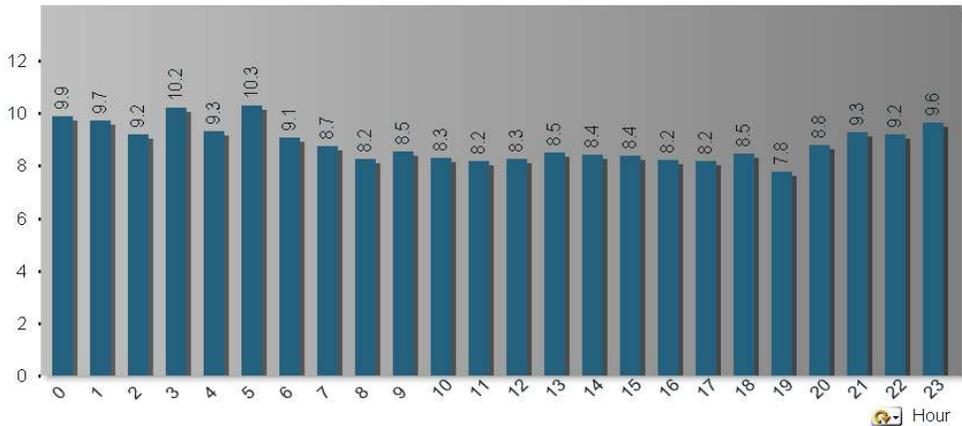
## Dispatched Code 4 Average Response Time by Hour of Day

**Response Time**



2015

**Response Time**



2019

#### 4.6 Ambulance Unit Availability Shortages (Code Black)

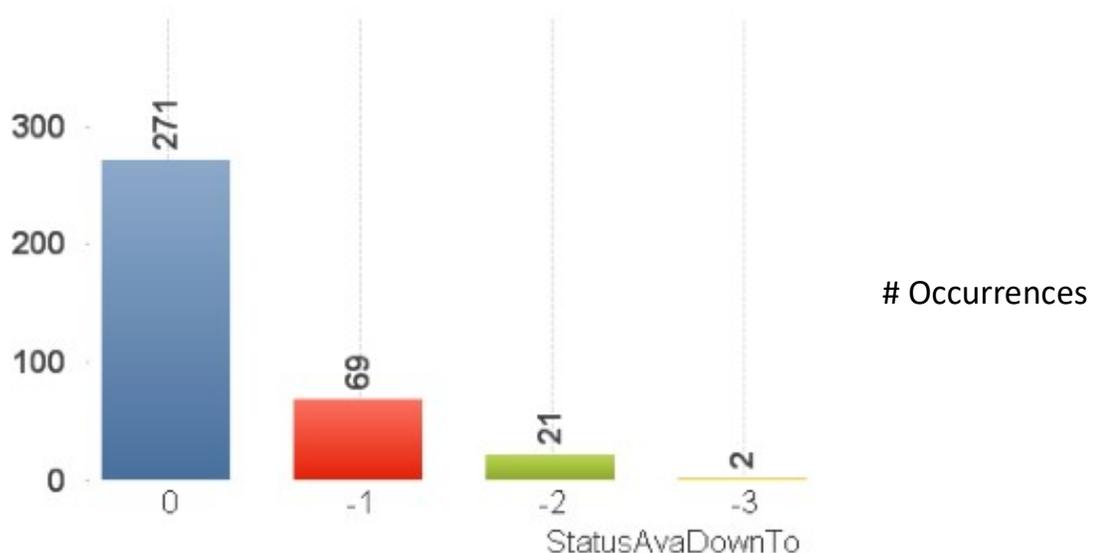
Ontario paramedic services track the erosion of available ambulance units across the busyness cycle of the 24-hour day. When all available/deployed ambulances are engaged on calls, the zero level of availability is referred to as “Code Black”.

Code Black status represents a significant level of patient risk. The next Code 4 emergency call that occurs when a paramedic service is at Code Black (zero availability) will typically receive a slower-than average on scene response. Patient risk can/does escalate with significantly slower on-scene response times for critical sub-sets of Code 4 calls.

The number of Code Black Occurrences, time spent at Code Black levels, and the response times of Code 4 calls generated during a Code Black period are set out below for 2015 and 2019.

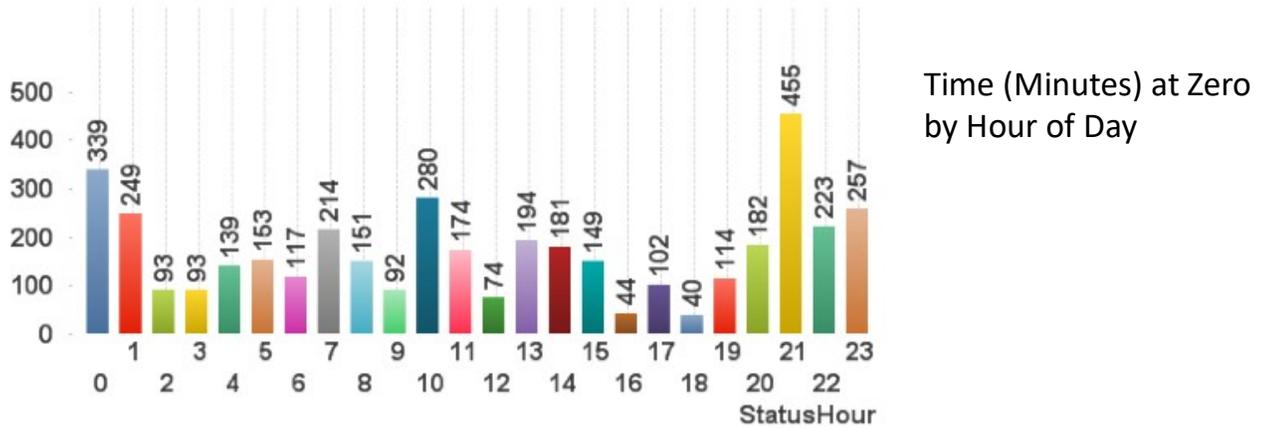
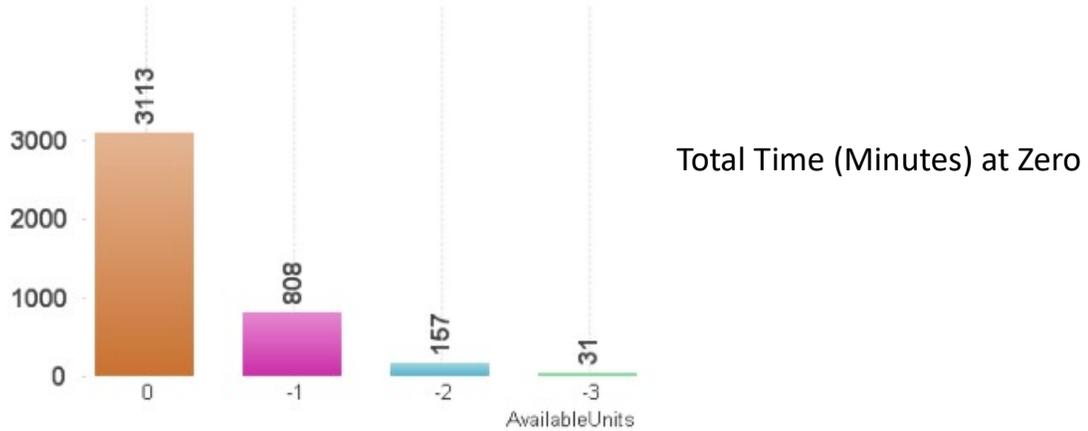
In 2015, Code Black in Kawartha Lakes occurred 363 times (see Chart below). In 92 cases the Code Black level surpassed zero ambulances available - heading into a deficit. This does not mean that calls went unanswered. It means a delay occurred before an ambulance was freed up somewhere else to respond.

### Code Black – Zero Availability (2015) Zero Unit Occurrences



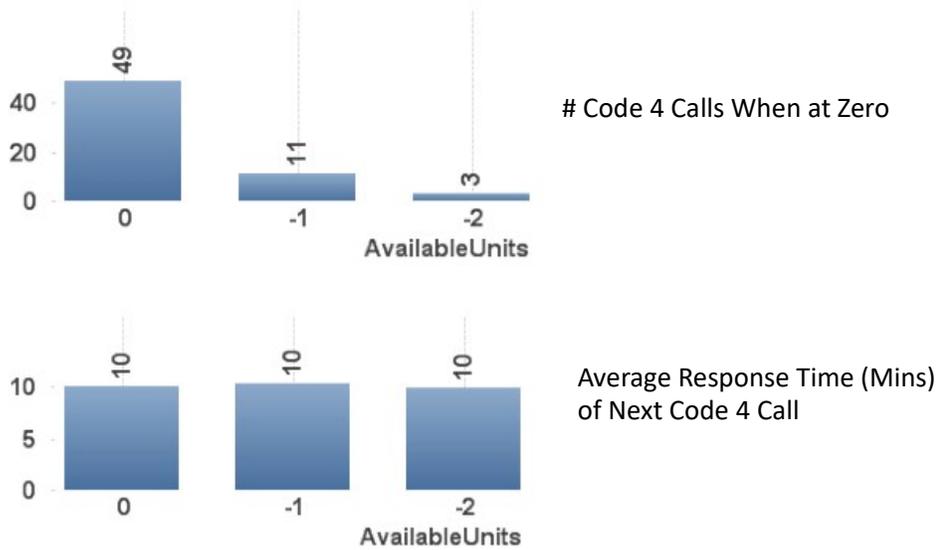
In 2015, Code Black status extended across a total of 4,119 minutes - almost 69 hours. Code Black time was most heavily distributed outside the mid-day period of peak busyness/peak deployed units.

## Code Black – Zero Availability (2015) Time Spent at Zero Units



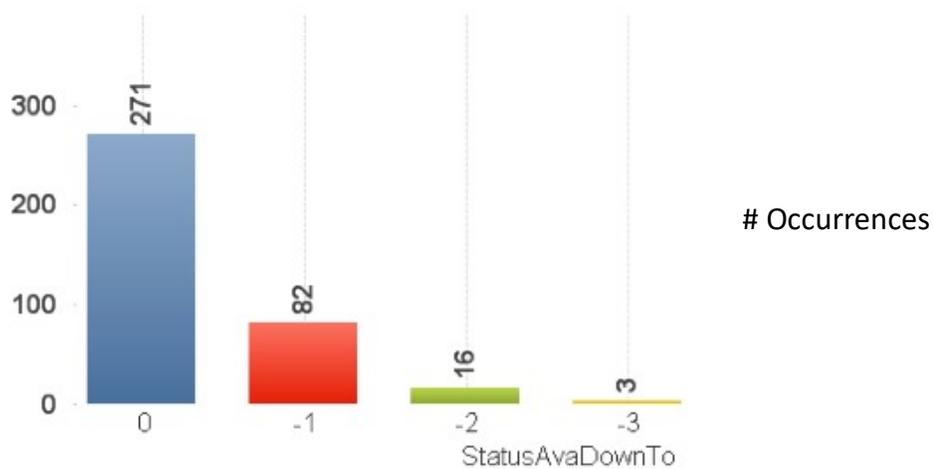
For 63 Code 4 emergency calls occurring during Code Black, a 10-minute average response time resulted.

### Code Black – Zero Availability (2015) Next Code 4 Calls + Response Times



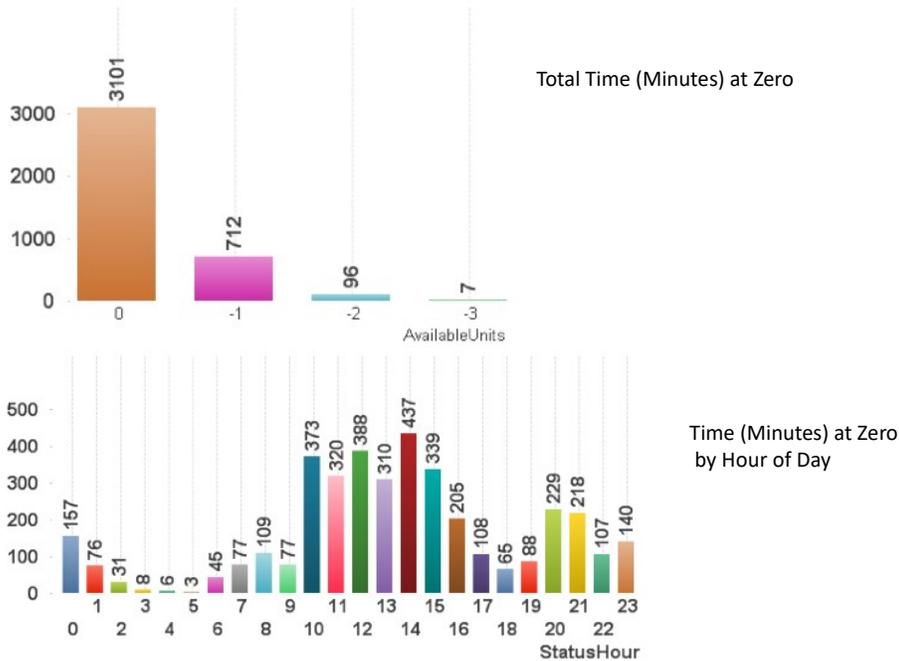
In 2019, Code Black in Kawartha Lakes occurred 372 times (see Chart below). In 101 cases the Code Black level surpassed zero ambulances available - heading into a deficit. The Code 4 occurrence levels in 2019 closely mirrored 2015.

### Code Black – Zero Availability (2019) Zero Unit Occurrences



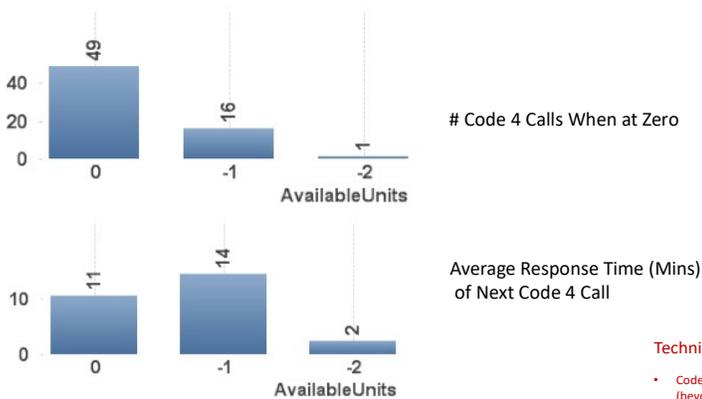
In 2019 Code Black status extended across a total of 3,916 minutes - approximately 65 hours. In marked contrast with 2015, Code Black time in 2019 was most heavily distributed within the mid-day period of peak busyness/peak deployed units.

### Code Black – Zero Availability (2019) Time Spent at Zero Units



For 66 Code 4 emergency calls occurring during Code Black, an 11–14-minute range of average response times resulted.

### Code Black – Zero Availability (2019) Next Code 4 Call Response Times



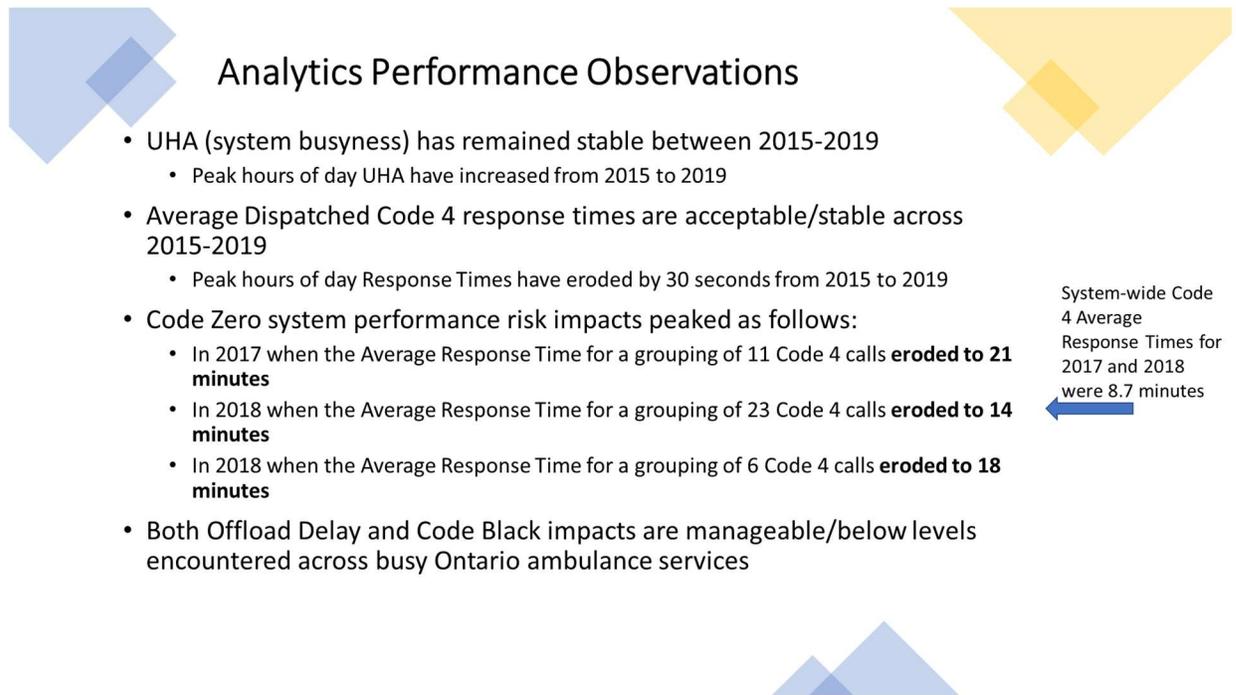
**Technical Caveat...**

- Code Zero modeling does not reflect the periodic upstaffing by Kawartha Lakes Paramedic Service (beyond rostered/scheduled units) during some periods of extreme system busyness (characterized by eroding unit availability). Kawartha Lakes did not track the frequency of upstaffing across 2015-2019.
- Therefore, Code Zero modeling is based only on rostered/scheduled units & probably overstates the number of actual Code Zero Occurrences & Time Spent at Code Zero status

## 4.7 System-wide Analytics Summary

At a system-wide level, the Kawartha Lakes analytics profile reflects a paramedic service delivery model operating within an acceptable risk profile. That being said, drill-down performance data for Lindsay compared to the rest of the municipality may present a different risk profile to consider (see Section 5.4 for detailed geo-spatial response time mapping of 2019 calls).

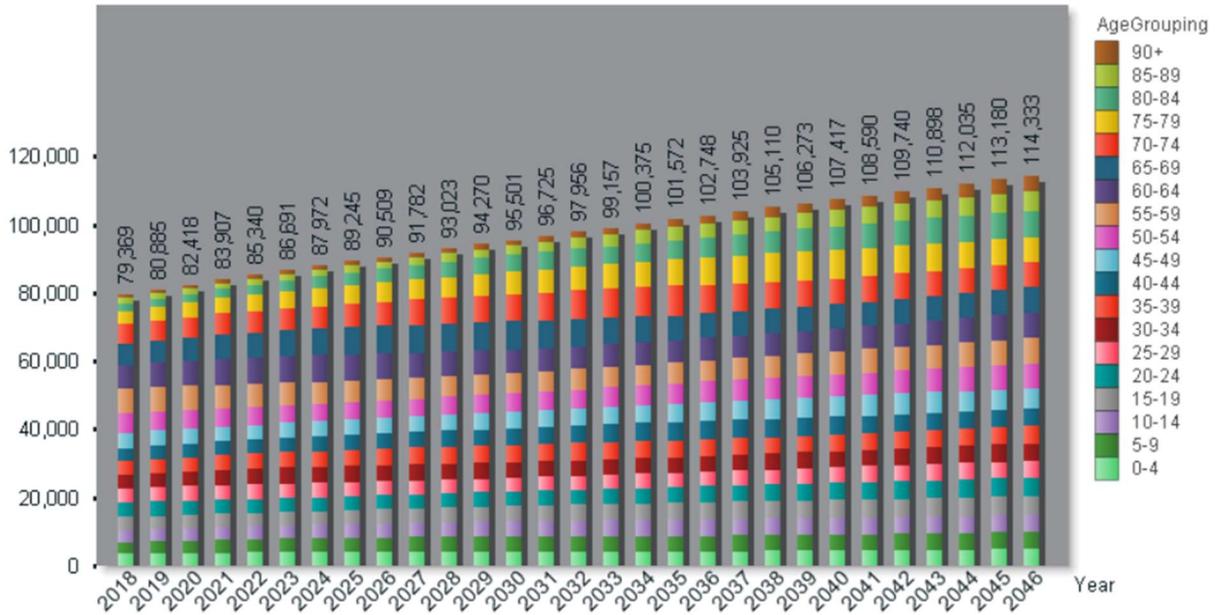
The figure below provides a summary of 2015-2019 system-wide analytics performance:



### 4.8 Demand Forecast (Base Case Scenario)

This 2021-2046 demand forecast (base case) sets out the call volume and time-on-task challenges facing Kawartha Paramedic Service - without implementing significant system restructuring. Attention will be focused on the 2022-2031 period of the long-term 25-year forecast. The first 10-years of the forecast mirror the time horizon of this Master Plan and they are more likely/dependable to unfold as presented, compared to the out-years beyond the next decade.

#### Kawartha Lakes Population Projection: Aligned with *Places to Grow*

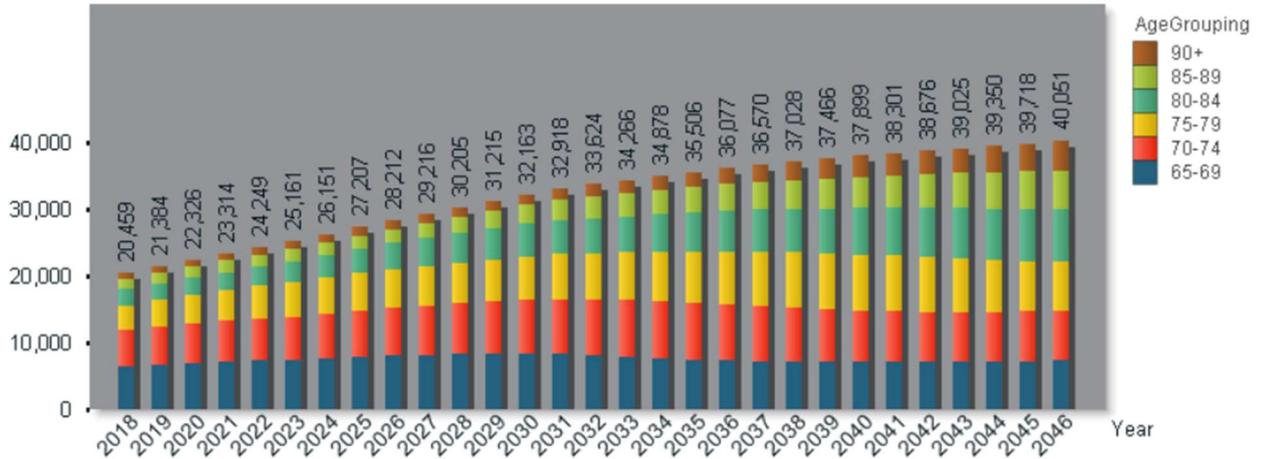


The 2022-2031 Master Plan population forecast is a hybrid of the Ontario Ministry of Finance population projections + the *Places to Grow* 2051 population cap of 117,000 people. This hybrid population forecast combines Ministry of Finance age-cohort data with the *Places to Grow* population cap. It is the data backbone of the call volume/service time demand forecast. The Province predicts moderate/steady population growth of 13% from 2022 to 2031.

However, the senior citizens >65 age cohorts of the forecast population are going to experience significant growth (see chart below). This aging tsunami is a demographic certainty as baby boomers join these > 65 years old population cohorts across Ontario. The much-discussed aging tsunami is affecting health care across Ontario.

Kawartha Lakes Paramedic Service will not be exempt from the service demand impacts of the aging tsunami. The aging tsunami population will increase by approximately 36% over the 10-year master planning horizon of 2022-2031 - compared to just 13% for the overall population. Senior citizen population cohorts are the engine of demand for paramedic emergency call volumes across Ontario.

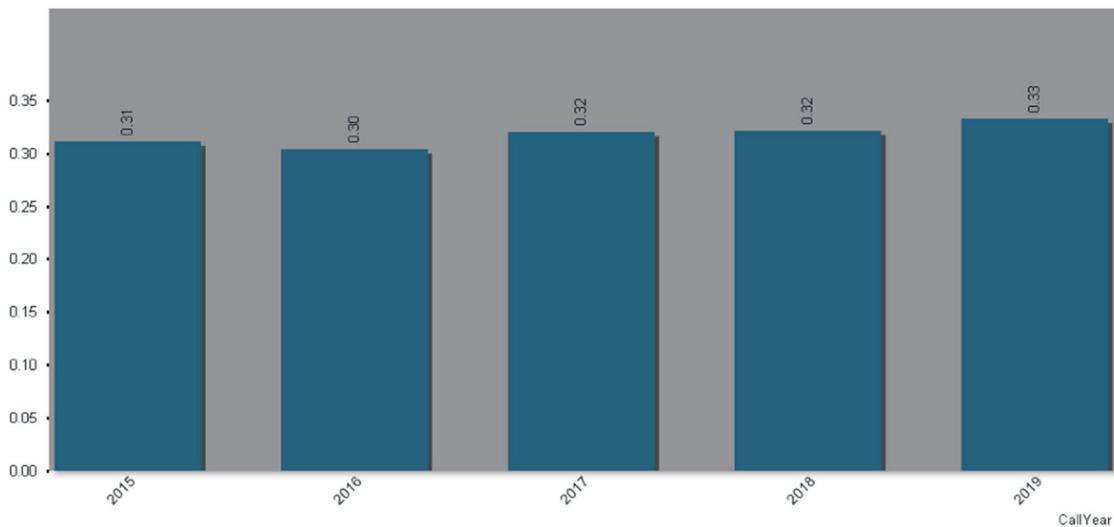
**Aging Tsunami Population Projection (Seniors > 65 Years Old)**



**4.8.1 Increasing Public Likelihood to Call for an Ambulance**

Beyond growth and the aging tsunami, an additional service demand driver is becoming increasingly apparent in Kawartha Lakes. Across all age cohorts, the public is becoming increasingly likely to request ambulance services by calling 9-1-1 (see table below). Ambulance 9-1-1 service requests per capita have increased (1.6%) across the 2015-2019 period.

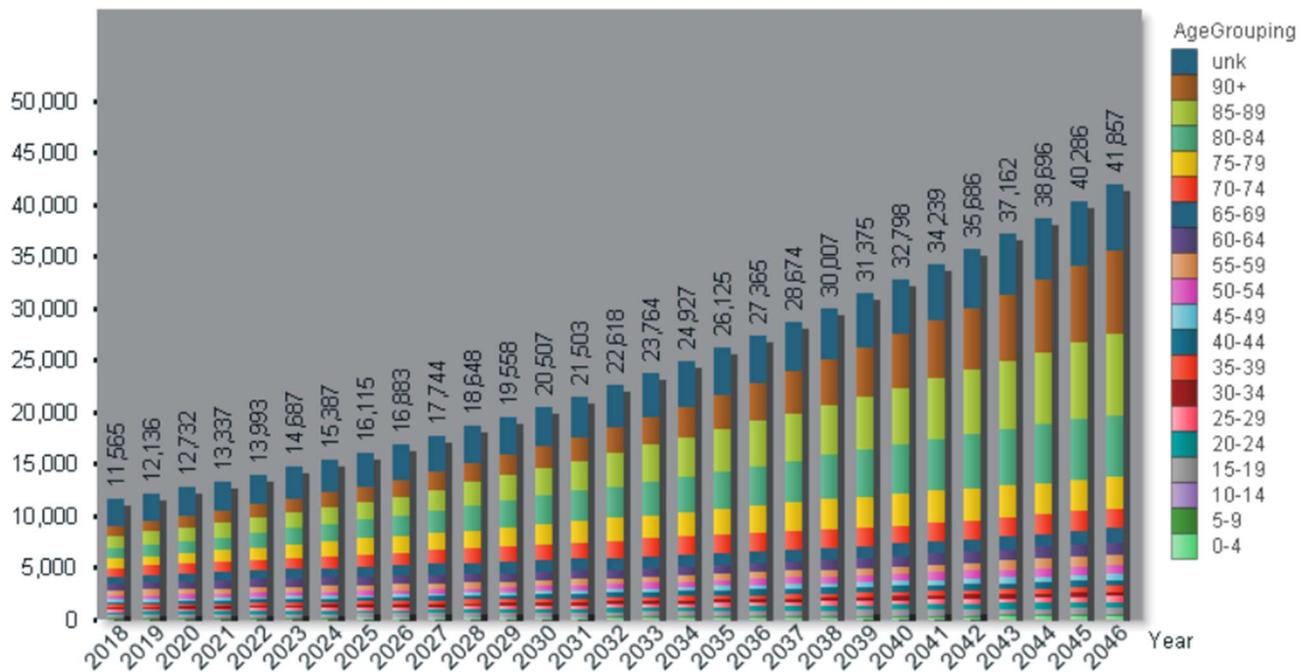
**Public Likelihood to Call 9-1-1 (Ambulance) per Person**



**4.8.2 Base Case Demand Forecast (Growth + Aging Tsunami + Likelihood to Call 9-1-1)**

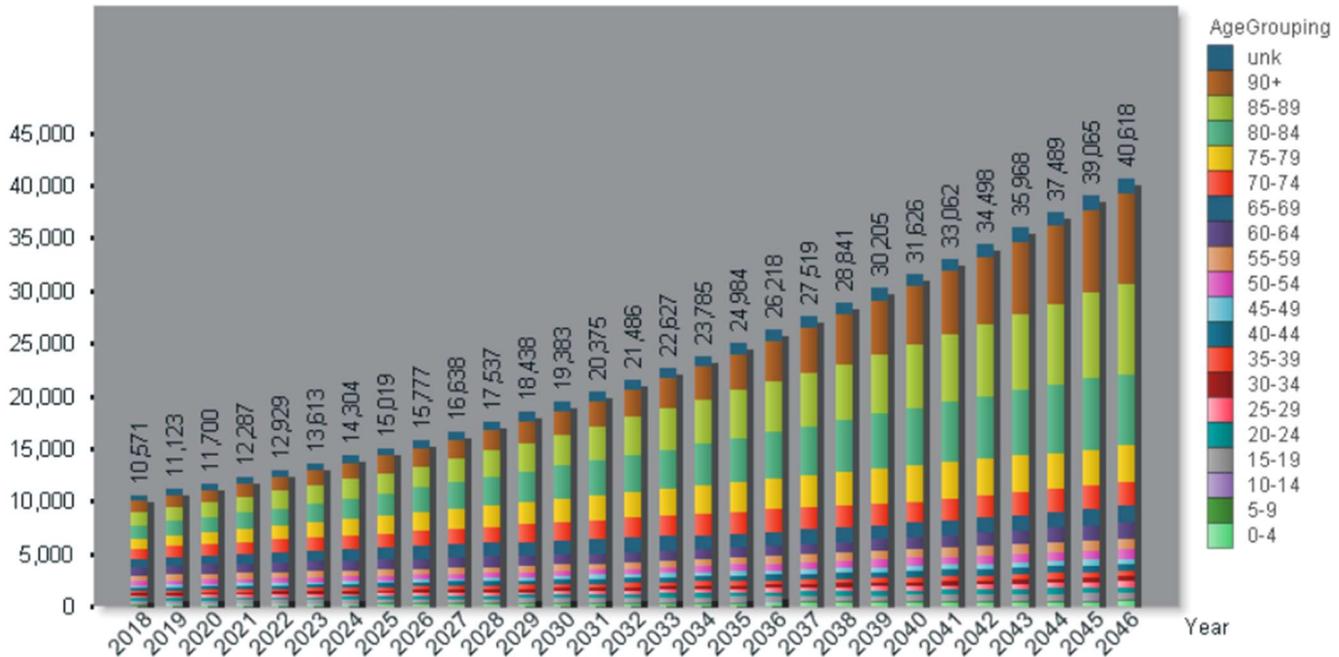
The total base case forecast of Kawartha Lakes Paramedic Service calls is set out in the chart below. This forecast accounts for the impacts of population growth + the aging tsunami + the impact of increasing public willingness to call 9-1-1 for emergency assistance. The 2022 to 2031 master planning horizon of the longer 25-year forecast is instructive/daunting from both a budget and operational perspective. Forecast service requests/calls in 2022 are 13,993. By 2031 at the end of the master planning time horizon, forecast service requests/calls have increased to 21,503. This represents an increase of 7,510 calls over ten years - an increase of 54%. The Kawartha Lakes property tax base/budget framework will be challenged/stressed by the annual average 5% percent call volume increases featured in the base case demand forecast.

**Base Case Call Demand Forecast**



Forecast In-Service time also increases significantly across the 2022-2031 master planning time horizon. By 2031 a forecast 20,375 hours of In-Service work by paramedic units is going to be required. This represents an increase of 7,446 hours of work over the 2022 In-Service hours forecast. The 2031 forecast for In-Service time illustrates the compounding impact of an overall call volume increase + the workload per call realities of the aging tsunami. More calls overall + a growing share of calls involving higher effort senior citizen patients (compounding impact) together explain the daunting 57% increase in the forecast required work to be done by Kawartha lakes ambulance units in 2031 compared to 2022.

**Base Case In-Service Time (Hours) Demand Forecast**



## 4.9 Community Paramedicine and Alternate Pathways

### 4.9.1 Re-imagining Paramedicine

The traditional municipal approach of adding ambulance vehicle hours to deal with increasing call volumes is not sustainable in the medium to long term. Population growth, the aging tsunami and an increasing propensity to call 9-1-1 by all age cohorts will continue to impact both call volumes and In-Service “time on task” workload. With significant residential development now underway in Lindsay, and a 54% projected increase in call volume across the duration of this Master Plan, adding \$0.6 million 12-hour ambulance crews every 1-2 years does not appear to be financially sustainable. A key question for the Ontario paramedic sector: can we reimagine new ways of doing business?

### 4.9.2 Dispatch Enhancements

For many years, Ontario ambulance calls have been prioritized using a computerized Dispatch Priority Card Index (DPCI) developed by the Ministry of Health and Long-Term Care. DPCI uses extremely cautious algorithms and as such, more than 70% of requests for ambulance service are dispatched with Code 4 “lights and siren”. Emphasizing the cautious nature of DPCI, only 10% of these dispatched calls are typically identified by paramedics as life-threatening after seeing the patient, and subsequently return to hospital with “lights and siren”. With 70+% of calls determined as emergencies when dispatched, paramedic resourcing/staffing must be maximized to ensure immediate availability of an ambulance. In short, the DPCI dispatch system’s risk management biases create incentives for municipalities to over-invest in timely response to emergency calls that are not really “emergency” calls. No other jurisdiction in North America employs the DPCI algorithm to triage 9-1-1 calls.

The Ministry of Health and Long-Term Care is presently converting its communications centres from DPCI to the Advanced Medical Priority Dispatch System (AMPDS), long felt to be the worldwide gold standard in ambulance call triaging. AMPDS allows communicators to more sensitively categorize the call by chief complaint and set a determinant level (a.k.a. urgency) ranging from **Alpha** (minor) to **Echo** (immediately life-threatening) relating to the severity of the patient's condition. The AMPDS system also uses the determinant **Omega** which may be a referral to another service or other situation that may not actually require an ambulance response at all (an alternate pathway). In the Niagara Region communications centre, calls may be referred to a nurse located in the centre for further assessment, health advice, referral, etc., thus eliminating the need for an ambulance to be dispatched. Only a small number of calls are sent “hot” (with lights and siren), and lower priority **Charlie** calls can be queued until an ambulance is available. Fewer “lights and siren” responses result in safer roads and more availability for true emergency calls.

The transition to AMPDS first requires all dispatch centres to upgrade to CAD5 (Computer-aided dispatch software). This process has just begun in Ontario with the Lindsay CACC hopeful for a late 2021 transition to CAD5. Full AMPDS transition is not anticipated before 2023.

### 4.9.3 Propensity to Call 9-1-1

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A unique factor driving call volume growth regardless of population growth and aging, is the propensity to call 9-1-1. Whether driven by better awareness through media of emergency services available, prevalence of higher risk activity such as non-prescription drug use, or an “I want it now” mentality (a mistaken belief that arriving by ambulance will bypass the emergency department queue), the number of 9-1-1 ambulance calls per capita has been steadily climbing, at a rate in some municipalities, often exceeding that of population growth and aging. In an effort to reverse this trend, ongoing “Make the Right Call” media campaigns are essential to re-educate the general public.

### 4.9.4 Community Paramedicine

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A number of other patient care innovations are showing promise on a smaller scale, but need to be ramped up significantly to make a quantifiable difference in flattening the call volume demand curve:

“**Community paramedicine**” is an umbrella term that describes a more proactive and preventive approach to care provided by expanded scope paramedics. The City of Kawartha Lakes was an early adopter of community paramedicine, taking on funding responsibility for a pilot program while other municipalities expressed hesitancy about providing primary health care, regardless of the need shown. Most recently, COVID-19 highlighted the potential of community paramedics through critical roles at assessment clinics and assisting during staffing shortages at long term care facilities in crisis. The Province has responded with interim funding for these programs, and more recently, with significant 4-year funding to support patients awaiting long term care beds.

The concept of community paramedicine is quite broad in scope, allowing individual paramedic services to develop programs that best meet the needs of their constituents. During more “normal” times, three potential benefits of community paramedicine are:

- Chronic disease management and injury prevention
- Reduced calls to 9-1-1 and transport to hospital for non-urgent patients
- Providing appropriate follow-up care for high-risk patients without hospital readmission

Community paramedics can aid in routine immunization, disease management and injury prevention by helping patients manage chronic diseases such as diabetes and hypertension. Simple home checks to verify compliance with prescription medications, assessing blood pressure, oxygen saturation and blood sugar, as well as confirming safety of the home environment can go a long way towards keeping patients out of hospital. Utilizing remote monitoring technology to assist with self-monitoring and alerting paramedics when values move out of normal range, ensures proactive action can be taken with the patient’s family physician before symptoms escalate and there is a need to go to hospital. Point-of-care blood testing will soon compliment the community paramedic’s skill set.

A number of studies have shown significant reduction in paramedic calls for those patients enrolled in community paramedicine programs. A group of Ontario medically complex “high users” reduced their 9-1-1 activation by 24%; remotely monitored Ontario patients reduced 9-1-1 activation by 26% and

transportation to the emergency department by 31%; rural Nova Scotia users reduced annual trips to emergency departments by 40%; while residents in an Ontario high-risk social-housing setting showed a 19% reduction in EMS calls to their housing complex.

Two additional initiatives in the Niagara Region show significant potential as well. Activities of their Falls Intervention Team (paramedic and occupational therapist) have resulted in a 3.8% reduction in calls for falls among seniors this year, compared to two years of call volume growth of 9.4 and 14.2% respectively. Transports to hospital in these patients were reduced by 6.3%. Further, their Mental Health and Addictions Response Team (paramedic and mental health nurse) has generated a 6.9% reduction in transport of mental health patients to Emergency Departments, despite an 8.1% increase in the number of calls.

These studies show that injecting lower-cost community paramedicine interventions customized for local needs, have the potential to significantly reduce the ongoing growth of ambulance calls. It is not unreasonable to expect a 20-30% reduction in ambulance call volume once these community paramedicine programs are scaled up appropriately.

The Kawartha Lakes Paramedic Service has two community paramedics providing service to some 50 patients, 12 hours a day, seven days a week. Full 100% funding is being provided by the Province through the CE LHIN, but this funding continues to be delivered in short-term contracts, the current one due to expire March 31<sup>st</sup>.

A business case can certainly be made for community paramedics reducing ED visits, improving service in the community, and ultimately reducing the future cost of ambulance service. A significant increase and stable ongoing funding are essential to positively impact the 2027-2031 back-end of the Master Plan's forecast call volume demand curve.

#### 4.9.5 Alternate Pathways

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Traditionally, paramedics were required to transport all patients to a hospital emergency department, but recent legislative change now allows for alternative destinations instead. This allows paramedics to transport patients directly to a facility that is most appropriate for their complaint, e.g., an Urgent Care, a sobering centre or mental health facility, rather than funneling all patients through a crowded emergency department. One Urgent Care in the CE LHIN is located within a retirement home itself. Not only do patients benefit from more timely and appropriate care from these alternate facilities, but ambulances are not tied up on "offload delays" at hospital and freed up more quickly for emergency service.

While slightly impacted by offload delays, Kawartha Lakes has fortunately not seen the normal multi-hour delays found in larger centres. Ross Memorial currently has a 90<sup>th</sup> percentile 29-minute transfer of care time, which ranks at the lower end of Province-wide rankings. A number of environmental factors are likely responsible, including a 40% reduction in Emergency Department visits over the past 3 years

aided by the creation of Family Health Team after-hours clinics and other “virtual” clinics. When offload delays do occur, relief initiatives have been implemented by the hospital and the paramedic service, in the form of “fit to sit” and other escalation policies.

Unfortunately, no other “physical” alternate pathways are currently available or proposed for Kawartha Lakes. There are no Urgent Cares locally. Despite a significant additions and opioids issue in the community, the nearest detoxication facility is in Peterborough. All mental health patients are cared for through the hospital as a Schedule 1 facility. This will require these patients to continue flowing through the local Emergency Department.

The absence of existing “physical” alternate pathways should not however, preclude discussions continuing about potential pathways or alternate service streams such as assessment and referral, including directly to Community Paramedicine. These system changes are essential if Kawartha Lakes is going to have success flattening the expected call volume growth curve moving forward.

#### **4.9.6 Assess, Treat-and-Release or Assess-and-Refer**

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Not every patient needs to be transported to a facility. Until recently, unless a patient refused care, provincial legislation required any patient who requested an ambulance, to be transported to an acute care hospital. Formalization of protocols are required to allow paramedics to assess patients at the scene, provide needed care and then release the patient or assess the patient and determine they are safe for referrals. These referrals to their GP, clinic (providing a transportation chit if necessary) or for follow-up by a Community Paramedic, would more quickly free up ambulance resources for emergency service.

#### **4.9.7 AMPDS a Potential Game Changer for Resource Planning**

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The call volume projections in the 2022-2031 Master Plan reflect the Province’s current approach to managing risk at the point of dispatch. Approximately 75% of calls are dispatched as Code 4 emergencies - the highest risk category for patients. Therefore, Kawartha Lakes and other ambulance services across Ontario must resource themselves to deliver timely on-scene responses for an excessively large share of total calls. But the majority of Code 4 dispatched 9-1-1 emergency calls end up not being emergencies at all. Once paramedics actually put eyes on these Code 4 emergency patients, only 10-15% are generally triaged as “lights and siren” transports to the hospital (8.4% in Kawartha Lakes). Provincial over-triaging of patient risk drives response time driven resourcing/budget decisions by Councils across Ontario.

The AMPDS triage algorithm can transform demand forecasting, resourcing requirements and municipal budgeting on a go-forward basis. Once the current 75% of dispatched ambulance calls classified as Code 4 “emergencies” are re-classified by AMPDS into three risk-based sub-sets (Echo/Delta/Charlie), differing response time standards can be assigned. Resourcing decisions can be revisited since less

serious Delta/Charlie triaged calls can conceivably be delayed beyond current Code 4 response time standards.

The combination of AMPDS + dispatch centres staffed with health care practitioners capable of diverting patients to alternate pathways may serve as a gamechanger when it comes to resource planning. The daunting call volume forecasts presented in this Master Plan (mostly Code 4 calls) can and should be replaced by smaller forecasts of time-critical Echo/Delta calls. Current resourcing levels will be able to absorb forecast Echo/Delta call volumes because Charlie calls can be deferred during times of peak busyness.

The current Master Plan needs to commit Kawartha Lakes to better understanding these new resource planning realities in the first half of the planning horizon in order to modify resource requirements in the second half of the planning horizon once AMPDS has been rolled out and implemented by the Province. Although no public AMPDS rollout timetable has been made available, implementation within five years across Kawartha Lakes seems likely.

#### 4.10 Revised Demand Forecast(s)

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##### 4.10.1 Flattening the “Base Case” Demand Curve

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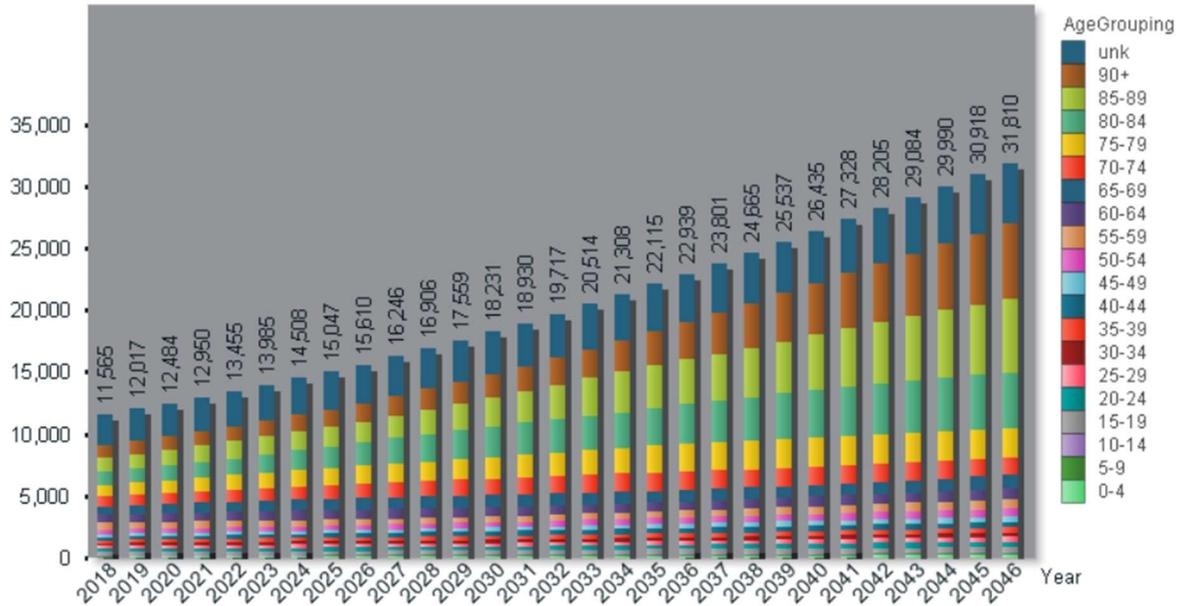
Modified demand forecasts have been prepared to reflect the hoped-for mitigation/flattening impacts of AMPDS, community paramedicine, and alternate pathways. Two revised demand curve scenarios have been developed. The first revised scenario models public requests for 9-1-1 emergency services at 1% annual growth across the Master Plan’s 10-year timeframe. The second revised scenario freezes public requests for 9-1-1 emergency services to 0% annual growth.

These two revised forecasts model realistic demand curve flattening initiatives across the 10-year horizon of the Master Plan. However, it is unlikely that the structural reforms required to secure demand curve flattening can be achieved during the initial five years of the Master Plan. Therefore, the net impact of revised demand curve modeling across the entire 2022-2031 Master Plan will be less than presented in the charts below - likely impacting only years 6-10 of the planning horizon.

4.10.2 Revised Demand Forecast - Scenario 1

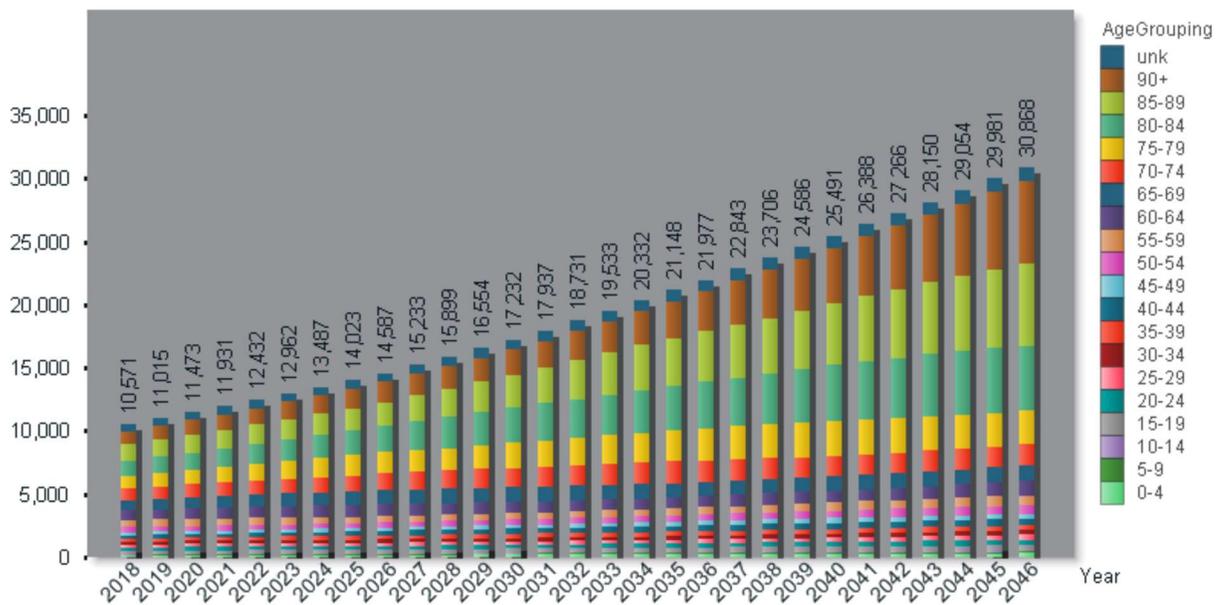
Forecast call volumes by 2031 total 18,930 calls, compared to 21,503 calls set out in the Section 4.8.2 “base case” forecast.

Revised Call Volume Forecast



Forecast In-Service Time in 2031 totals 17,937 hours, compared to 20,375 hours set out in the Section 4.8.2 “base case” forecast.

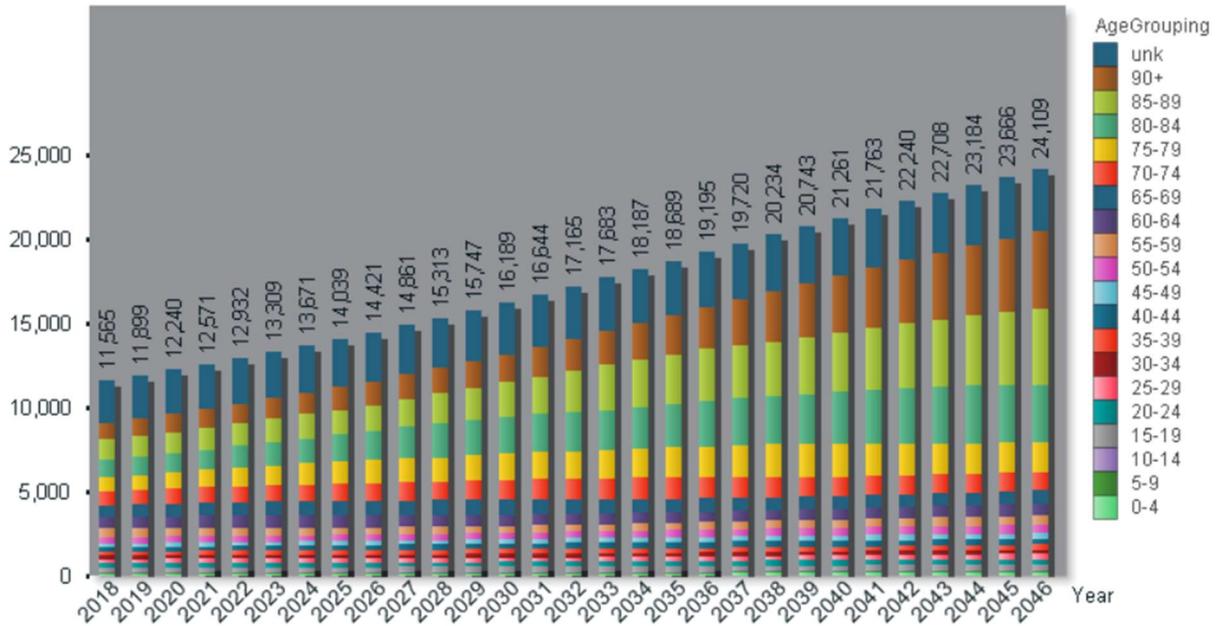
Revised In-Service Time Forecast (Hours)



4.10.3 Revised Demand Forecast - Scenario 2

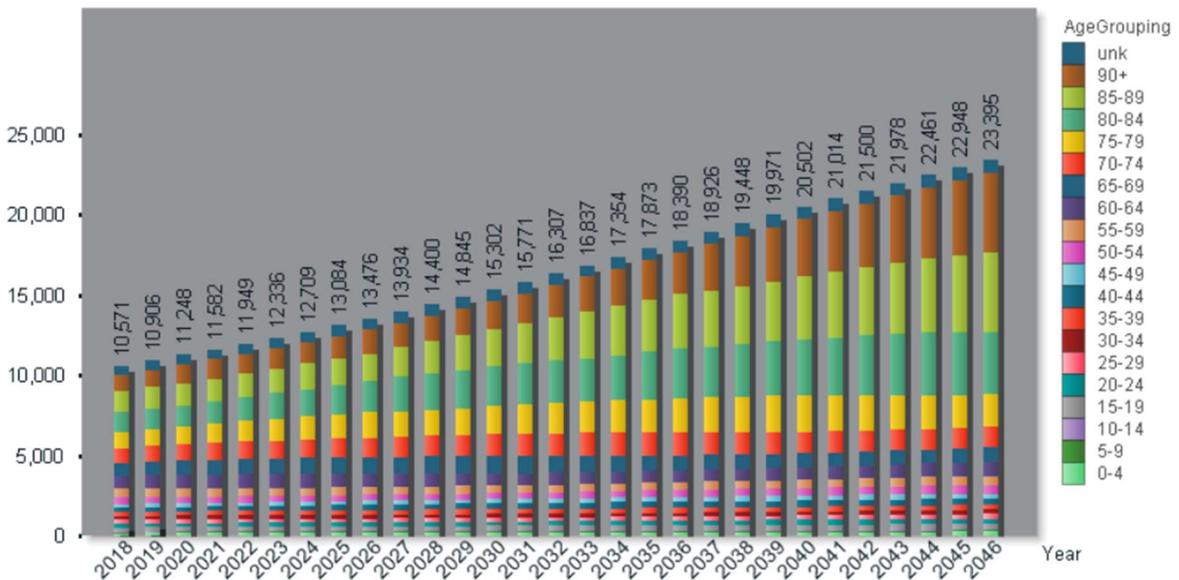
Revised Call Volume Forecast

Forecast call volumes by 2031 total 16,644, compared to 21,503 set out in the Section 4.8.2 “base case” forecast. A reduction in 9-1-1 calls per capita is required to reduce forecast call volumes to this degree.



Revised In-Service Time Forecast (Hours)

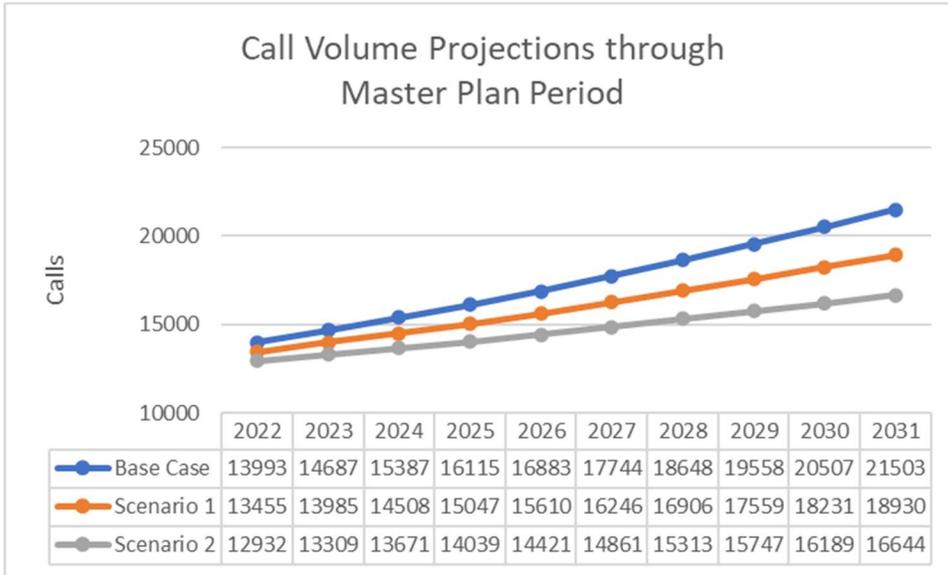
Forecast In-Service Hours in 2031 total 15,771 compared to 20,375 set out in the Section 4.8.2 “base case” forecast. The reduced call volumes in Scenario 2 translate into an even larger reduction in required hours of work, due to fewer/diverted senior citizen calls that take more time on average.



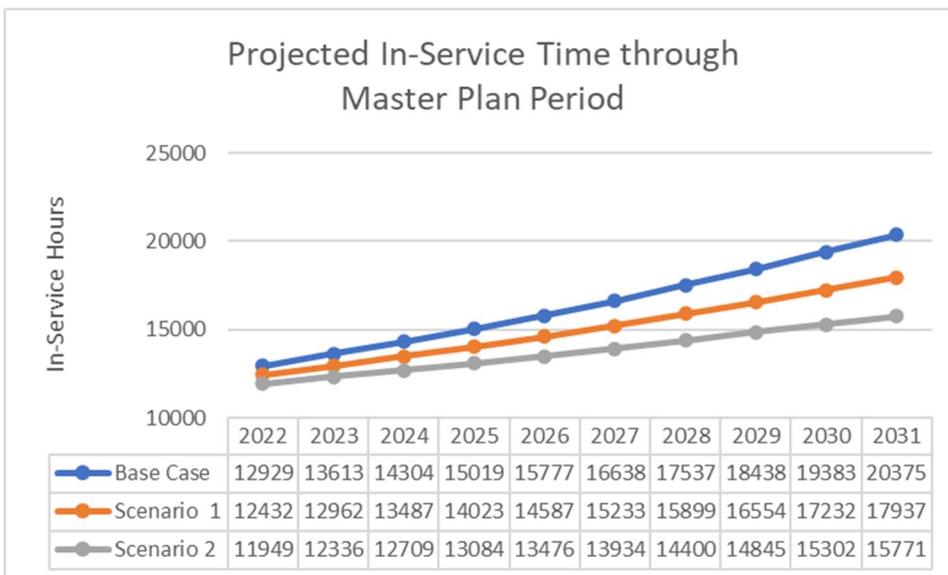
4.10.4 Summary of Projections: Base Case + Revised

The following figures summarize the Base Case demand forecast vs the “flattening the curve” revised forecast scenarios.

Call volume projections range from 21,503 (Base Case) to a low of 16,644 in one of the revised scenarios (Scenario 2).



Similarly, the 20,375 In-Service Hours in the Base Case forecast are reduced to a low of 15,771 In-Service Hours in one of the revised scenarios (Scenario 2).



#### 4.10.5 Growth Projections for Northwest Lindsay

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##### Post COVID Work/Live Realities

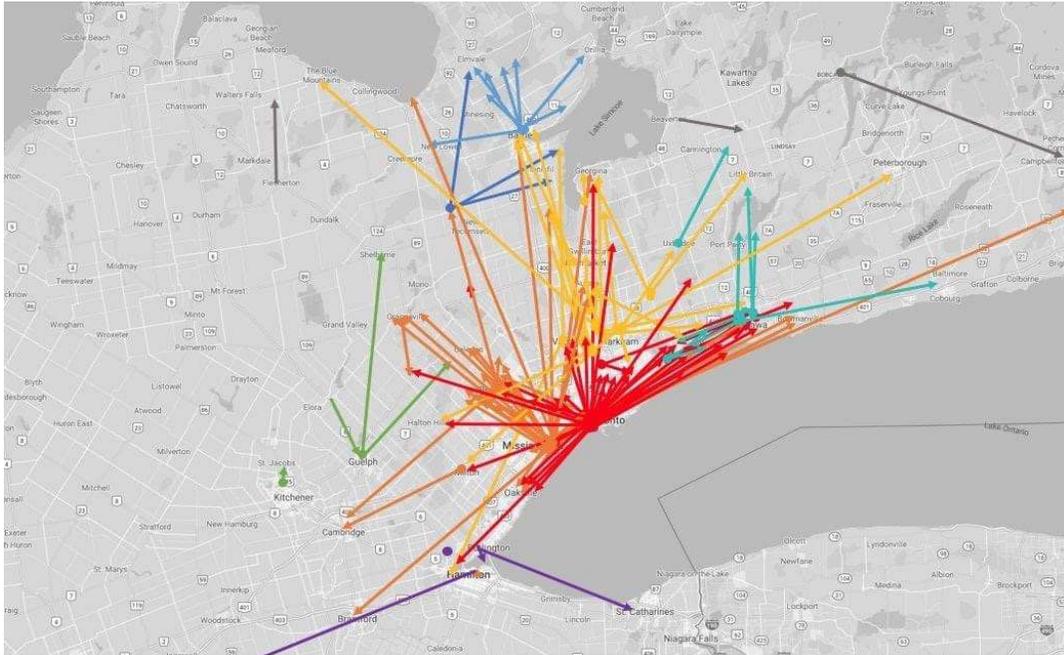
The COVID pandemic has altered long held household attitudes/calculations concerning work/live balance. Prior to the COVID pandemic, employees across urban Ontario selected their housing with the reality of the daily commute to their workplace firmly in mind. Tolerable daily commute times to the workplace largely defined the live/work balance and housing decisions made by hundreds of thousands of Ontario households. Housing prices have been impacted by the need for proximity to work. 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 ten-month rolling experiment on the decentralization of Ontario's corporate and public sector workforce. On-line virtual platforms have now passed the feasibility test. The expensive commercial real estate model that centrally housed entire workforces in the urban core of the GTA, Ottawa and other large Ontario cities has been demonstrated to be changing. It is unlikely that corporate Ontario or large public institutions like the Government of Canada will return to the pre-COVID model.

The new evolving post-COVID model features knowledge workers working from home offices that are fully equipped for online collaboration and can readily access their employer's data. These employees will probably still make the commute to the employer's place of work - but will do so far less often across a typical month.

The options/decisions about where an employee can live is fast becoming uncoupled from any given employer's geographic work location. If an employee chooses to take flight from density (and its previously unavoidable high 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, it becomes desirable for both employees and employers who can downsize their workplace footprint and costs. The figure below documents recent 2020 household relocation data supplied by a GTA real estate firm (for a single day of transactions) documenting the flight from density.

## Flight from Density in Toronto/GTA



The evolving/accelerating flight from density in the GTA, Ottawa and across urban Ontario has profound implications for Kawartha Lakes from an economic development perspective. Kawartha Lakes can position itself to offer moderate cost/higher value housing opportunities for GTA or Ottawa urban knowledge workers who now function in an expanded virtual commuter-shed.

These Post-COVID commuter-shed realities are redefining growth and development patterns across Ontario. Ministry of Finance population projections and our team's derived call volume forecasts do not reflect the recent COVID-inspired changes in work/live relationships and the flight from density. Performance Concepts consulted Kawartha Lakes planning staff in order to better understand upcoming/planned 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 babyboomers will be arriving in Kawartha Lakes just in time to transition into the senior citizen demographic cohorts that serve as the demand engine driving ambulance call volumes.

The following table (see below) is instructive in this regard. The forecast 5,000 new housing units in northwest Lindsay will deliver between 10,000 and 15,000 residents depending on the PPU of the approved residential development. A mid-point of 2.5 PPU and 12,500 residents informs the table below.

### Call Volumes Generated by Upcoming Northwest Lindsay Development

	When 50-60 Years Old	When 60-70 Years Old	When 70-80 Years Old
Per Capita Calls Factor	0.075	0.093	0.193
12,500 New Residents	Arrive	Age In Place	Age In Place
Forecast Calls	941	1159	2418
	By 2031	Beyond 2031	Beyond 2031

At build-out, the estimated 12,500 new residents between 50-60 years old will generate an estimated 941 annual ambulance calls. As they age in place these new back-end babyboomers will deliver a forecast 1,159 annual ambulance calls across their 60's and 2,418 annual calls across their 70's. Beyond the obvious impact on required vehicle hours of service, community paramedicine programs and alternate pathways infrastructure will be required to support aging in place for this bulge of boomers. While the forecast development in northwest Lindsay will generate economic spinoffs and new taxable assessment, it will also generate aging tsunami demand pressures for ambulance vehicle hours and related community health programming.

#### 4.10.6 Additional Lindsay Growth Impacts

The Kawartha Lakes Growth Management Study identifies additional sites for future growth. Unlike the northwest scenario addressed above, it is not clear what the demographic impacts of these sites will be on paramedic service call volumes. Monitoring of this growth for impacts on the aging tsunami call volume trends should be undertaken by Kawartha Lakes Planning staff.

## 4.11 Peer Ambulance Service Benchmarking

COVID-19 activities among neighbouring paramedic services precluded their availability and willingness to participate in a formal Kawartha Lakes master planning benchmarking initiative. However readily available 2018 data (assembled for the Eastern Wardens Review of Eastern Ontario Paramedic Services) was compiled for Kawartha Lakes and its immediate four neighbouring municipalities. Even though Durham Region was outside of the Eastern Wardens report, and has decidedly different operational characteristics, as an immediate neighbour its data extracted from the 2018 Municipal Benchmarking Network Canada (MBN Canada) report was included. When used as an “Ontario” average, Winnipeg data was removed from the MBN Canada values. 2016 Census data was used to standardize population in all benchmarked municipalities.

### 4.11.1 Benchmarking Metrics/Analysis

2018 Peer Benchmarking													
	Population	Staffed Vehicle Hours	Vehicle Hours per 1,000 pop	Operating Budget	Cost per Vehicle Hour	Cost per Capita	C1-4 Calls	C1-4 Calls per 1,000 pop	Cost per Call	% Full-Time ACPs	C4 T2-4 Average Resp Time	RTPP SCA <6 mins	RTPP CTAS 1 <8 mins
Kawartha Lakes	75,423	45,677	606	\$10.4 M	\$228.00	\$133.00	11,525	153	\$ 901.00	51.10%	8:29	44%	59%
Haliburton	18,062	26,712	1479	\$5.7 M	\$213.00	\$307.00	3,383	187	\$ 1,695.00	0.00%	12:43	19%	37%
Northumberland	85,598	56,940	665	\$13.7 M	\$241.00	\$154.00	13,831	162	\$ 989.00	33.90%	7:57	24%	53%
Peterborough	138,236	67,014	485	\$16.2 M	\$242.00	\$111.00	24,445	177	\$ 661.00	27.90%	7:04	68%	72%
EOWC Mean			600			\$138.00			\$ 874.00				
Durham Region	645,862		314		\$237.00			124			6:10	64%	79%
MBN Canada Mean			397		\$230.00			138				59-88	72-82

#### Staffed Vehicle Hours per 1,000 population

This metric is driven by Council-directed level of service investment in staffed vehicle hours and impacted dramatically by geography. For instance, a compact urban built form will result in acceptable response times with fewer vehicle hours per 1,000 population, whereas rural/remote built form requires additional vehicle hours to generate the same response times. This built form reality is illustrated by Haliburton’s 1,479 hours vs Durham Region’s 314 hours and the MBN Canada average rate for Regions and Cities of 397 hours. At 606 vehicle hours per 1,000 residents, Kawartha Lakes is at the mean of the Eastern Warden municipalities.

#### Cost per Staffed Vehicle Hour

While inclusive of all operating costs, this metric is driven mainly by employee costs (e.g., wages and benefits, injury and illness). Haliburton is the low-cost provider at \$213/hour, with Kawartha Lakes below the MBN Canada mean (\$230/hour) at \$228/hour despite providing a higher percentage of Advanced Care Paramedic (ACP) staffing.

### Cost per Capita

In addition to the operating costs described above, this metric is driven by Council-directed level of service, with the understanding that similar response times will cost much more to attain in dispersed low populations. The Haliburton smaller dispersed population results in a \$307 cost per capita that is twice that of Northumberland (\$154). Kawartha Lakes is below the Eastern Wardens' mean (\$138) at \$133.

### Code 1-4 Calls per 1,000 Population

This metric is driven by the age demographic and health status of the municipality. A municipality catering to a retirement age population will typically show a higher number of calls per 1,000 population. In the comparator municipalities, the ratio ranges from 124 calls in Durham Region to 187 calls in Haliburton, with Kawartha Lakes below the Eastern Wardens' mean (170) at 153 calls/1,000 residents.

### Cost per Call

Inclusive of all operating costs, this metric is driven by Council-directed level of service as well as demographic driven call volume. Higher call volumes allow overhead costs to be distributed across more calls. Among Eastern Wardens' comparators, cost ranges from \$661 per call in Peterborough to \$1,695 in Haliburton, with Kawartha Lakes above the mean (\$874) at \$901 per call. This higher than mean cost is likely due to higher wage costs resulting from higher Kawartha Lakes ACP staffing levels.

### Percentage of Full-Time Advanced Care Paramedics

This metric is driven by Council-directed investment in training and staffing to the higher Advanced Care Paramedic care level, rather than the legislated Primary Care Paramedic. Across the Eastern Wardens' comparators, this ranges from zero ACPs in Haliburton to approximately one-third of full-time staff in Northumberland and Peterborough, with Kawartha Lakes over 50% ACPs. The more ACPs on staff, the higher the likelihood that a Code 4 return critically ill patient will receive advanced life support on-scene and during transport.

### Average Response Time

The average response time for the highest urgency calls (Dispatched Code-4) is driven by a combination of factors including available resources, location of resources and number of calls, as well as urban form and need for vertical as well as horizontal travel. At 8 minutes 29 seconds, Kawartha Lakes is at the mean of the comparators.

### Response Time Performance Plan (RTPP)

Two elements of the legislated RTPP have standardized elements that allow for comparison among peers: 1) Percentage of time that an Automated External Defibrillator (AED) will arrive at a Sudden Cardiac Arrest victim in under six minutes; and 2) Percentage of time that a paramedic will arrive at a critical patient (CTAS 1) in under 8 minutes.

#### RTPP SCA <6 mins

This metric is driven by investment in public AEDs, benefited by compact urban form, but impacted negatively by dispersed population and vertical response times in high rise construction. Across the comparators, the percentage of time a victim benefited from arrival of an AED in less than six minutes, ranged from 19% in Haliburton to 64% in Durham Region. Across MBN Canada comparators, results ranged from 59-88%. Kawartha Lakes is mid-quartile at 44%. Given that Kawartha Lakes has made a significant investment in providing public AEDs, and equipping Fire and Police vehicles with these devices, this number is likely low due to a gap in collecting and reporting the arrival time of other than EMS-based AEDs.

#### RTP CTAS 1 <8 mins

This metric is driven by call volume and appropriately located/staffed vehicle hours. Results are benefited by dense urban form but impacted negatively by dispersed population and vertical response times in high rise construction. Across the comparators, the percentage of time a paramedic reached a critical patient in less than eight minutes, ranged from 30% in Haliburton (despite the highest vehicle hours per 1,000 population) to 79% in Durham Region. Across MBN Canada comparators, results ranged from 72-82%. At 50%, Kawartha Lakes is at the Eastern Wardens' mean value.

### 4.11.2 Kawartha Lakes Benchmarking Summary

Kawartha Lakes features a diverse geography that surrounds Lindsay - the location of the municipality's only hospital. Lindsay represents 27% of both the municipality's population and its ambulance call volume. The remaining two-thirds of population and calls are distributed across smaller centres and remote locations with numerous lakes and limited road infrastructure impacting ability to respond in a timely fashion during emergencies. This geographic reality is evidenced by only 59% of critical patients being reached in less than eight minutes, although even this result is above the Eastern Wardens' mean value. Defibrillator arrival is similarly impacted, but this value/data seems falsely low and in need of further investigation.

The number of calls generated per 1,000 population is somewhat below the Eastern Wardens' mean, so it should be no surprise that Kawartha Lakes is similarly near the mean for number of staffed vehicle hours deployed.

Kawartha Lakes has made significant investments in training, equipping and deploying Advanced Care Paramedics across all stations in order to ensure advanced care is provided during lengthy transport times to its only hospital. Despite the higher cost to provide this aggressive level of ACP service, Kawartha Lakes cost per capita is below the Eastern Wardens' mean. Other cost containment measures keep the Kawartha Lakes cost per vehicle hour at below the mean as well. When the impact of higher ACP wages and lower call volumes are combined, Kawartha Lakes understandably shows a higher than mean cost per call.

Overall, Kawartha Lakes compares well to peers from a value-for-money perspective when the unique elements of the municipality's service delivery environment are taken into consideration.

## **4.12 Province-wide Transformation of Paramedic Services**

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### **4.12.1 Potential Impact of Emergency Health Services Modernization**

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During April 2019, the Provincial Government proposed the first restructuring since the transition to municipal control of ambulance services in 1998. Initially floated as a reduction from 52 ambulance services to 10 mega-services Province-wide, there was a similar proposed reduction to 10 Public Health Units. The announcements were accompanied by an immediate freeze in funding at 2018 levels. The backlash was swift and universal and by the end of May 2019, a beleaguered provincial government had cancelled the funding freeze. In August 2019, the government announced an average 4% funding increase for ambulance services Province-wide, albeit budget concerns continued to be voiced by individual ambulance services receiving funding letters for significantly less than that amount. Despite consultation with municipal stakeholders, the plan to reduce the number of ambulance services Province-wide remained an option, with leaked provincial documents showing aligned plans for geographic consolidation of Public Health Units and paramedic services across the Province.

Since that time, the war against COVID-19 has moved any Provincial plans for potential consolidation to the back burner. Regardless, interest around restructuring/merging land ambulance services may well gain momentum post-pandemic.

### **4.12.2 Securing Efficient Economies of Scale**

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The core idea underlying ambulance service amalgamation proposals is securing efficient/optimal economies of scale. Proponents of merged ambulance services believe they can reduce the required overhead staffing, IT systems and governance costs required to operate an ambulance service. Merger proponents point to 50+ operators and claim the existing economies of scale are sub-optimal.

There is nothing particularly controversial about this argument in favour of mergers. Economics 101 supports the idea of spreading fixed cost overheads over a larger number of ambulances. Dispatch is a case in point. Nobody is seriously arguing that 50+ land ambulance dispatch systems represent an

efficient or realistic path moving forward. The concept that Ontario ambulance systems can reduce existing overheads by sharing/spreading fixed overhead costs is not without merit.

But ambulance system mergers (like the Province's proposal) do not stop at sharing fixed overhead costs - typically 25% of total operating costs. These mergers also impact the 75% of forward-facing staff and direct service delivery costs. The treatment of the much larger pool of forward-facing direct costs is where the theoretical benefits of ambulance mergers begin to crumble.

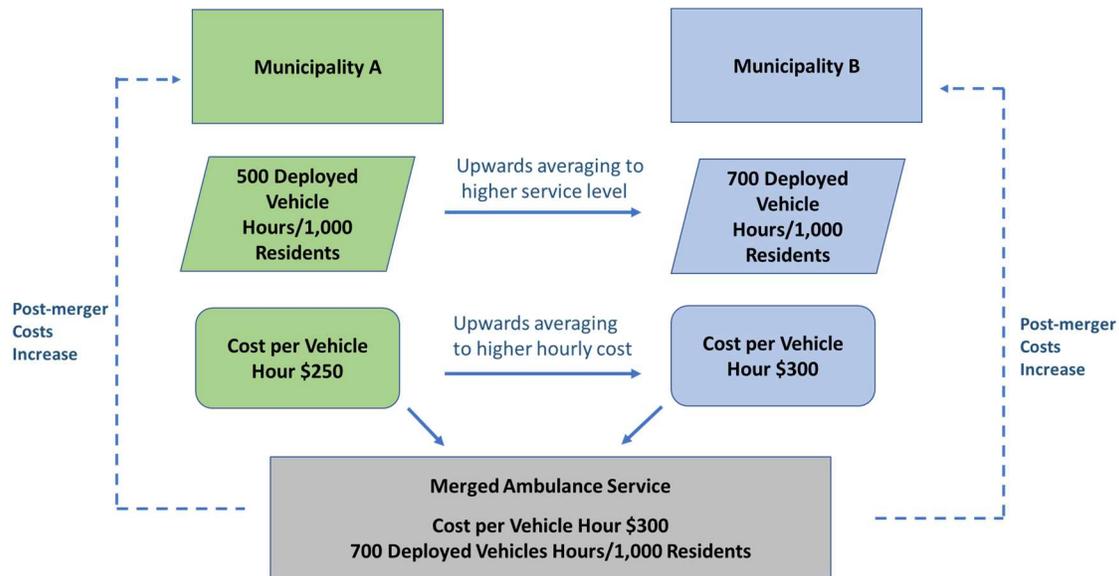
#### 4.12.3 The Risks of Large-Scale Mergers

The Peer Benchmarking section of this Master Plan makes it clear that ambulance services have significant variation in service levels and resourcing platforms. This results in widely differing cost structures per capita and per deployed vehicle hour of service. The property tax burden for ambulance services varies significantly - a function of different cost structures and different blends of residential/non-residential taxable assessment. In short, merging ambulance services requires the participating municipalities/ambulance services to merge diverse service levels, cost structures and property tax bases. Invariably the result is going to be big shifts. Staffing shifts, cost absorption shifts, and tax burden shifts. The problematic impact of these unavoidable shifts on forward facing operations/cost structures dwarfs the potential benefits of reducing the 25% overhead/indirect cost share of total costs.

The impact of municipal mergers over the past 50 years in Ontario is crystal clear. Costs do not go down. The integration of overhead staff, systems and assets is painstakingly slow. Operations are often negatively impacted. And the most significant characteristic of mergers actually increases costs: service level and wage structure "upwards averaging". Upwards averaging is easily explained in a hypothetical example (see Figure below).

- Ambulance service A delivered 500 vehicle hours of service per 1,000 residents prior to a merger. Ambulance service B delivered 700 vehicle hours of service per capita prior to a merger. Ambulance service A vehicle hours cost \$250 each. Ambulance Service B vehicles cost \$300 each due to higher collectively bargained wage rates.
- When the merger occurs two things happen. First, the Ambulance service B wage rates become the default new target for the new post-merger collective agreement. This results in higher go-forward wage costs for Ambulance service A. Second, the residents and Councillors from municipality A now insist on additional vehicle hours of service to reduce/eliminate the service level differential of 200 vehicle hours of service per capita. Their justification is the undeniable reality that every taxpayer is paying for the merged service according to their taxable assessment, so they deserve equal service levels. This upwards averaging of service levels increases costs across municipalities A and B.

### Merger Risk: The Upwards Averaging Problem



Mergers create significant and expensive shifts driven by the upward averaging of collectively bargained costs and diverse service levels. These problematic shifts easily cancel the finite benefits of reduced shared overheads. There are no verified cases of municipal mergers in Ontario that have reduced overall costs. There are numerous merger cases across Ontario where operations/systems/assets/facilities integration did not proceed and the promised overheads consolidation stalls for a up to a decade.

#### 4.12.4 Go-Forward Transformation Principles

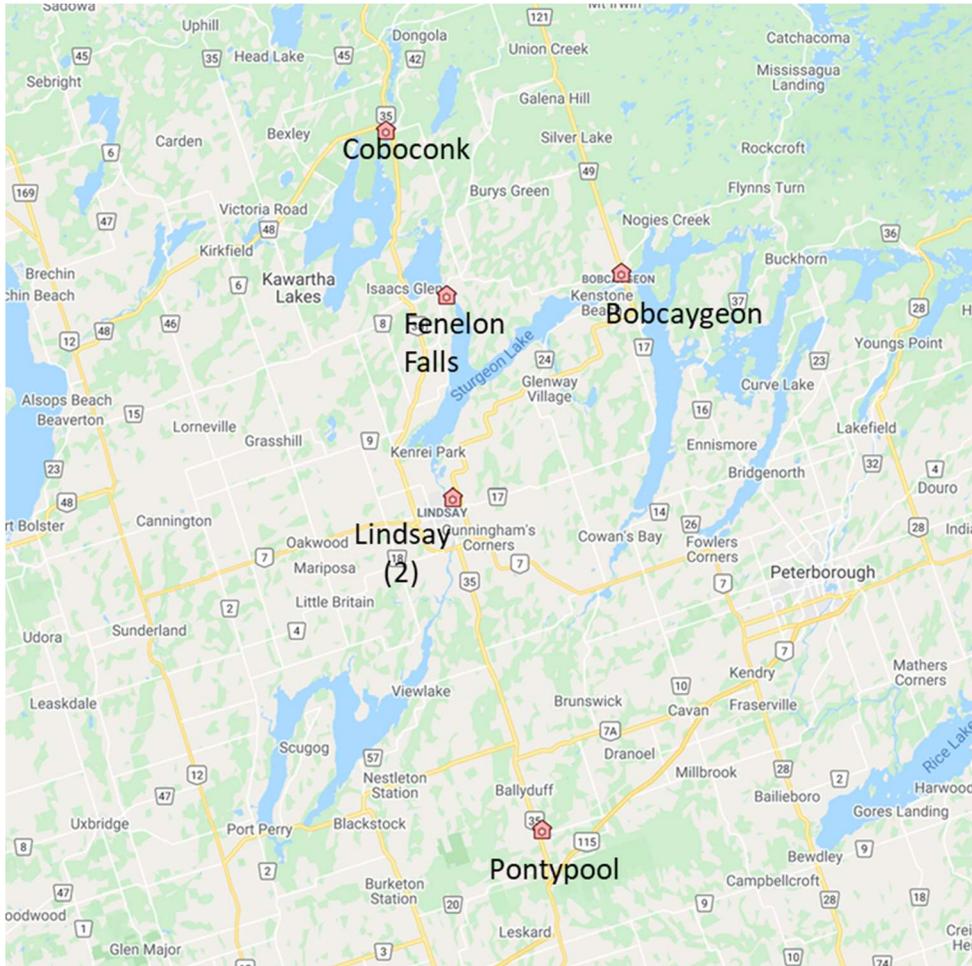
The transformation lesson for Kawartha Lakes (or any ambulance service) is as follows:

*Actively explore innovative approaches to spreading fixed cost overheads via shared service arrangements - without falling into the cost escalation trap of full mergers that will generate unintended cost and service level shifts (upwards averaging) across the to-be-merged organizations.*

*The financial risks associated with any hypothetical future merger should not prevent Kawartha Lakes from improving/optimizing its ambulance system now in order to maximize effectiveness and value-for-money. The patient care risks associated with unrealized performance improvement opportunities far outweigh the impacts of any future, difficult-to-predict Ontario-wide or regional merger scheme.*

## 5.0 Station Functionality Review & Future Station Location Modeling

The station functionality review and the modeling of future station locations are interconnected exercises. The results of the “As Is” functionality review inform the “As Should Be” modeling exercise and its Findings/Recommendations.



### 5.1 Station Functionality Review

The Kawartha Lakes Paramedic Service facilities model was described to our team as somewhat fragmented, and unfortunately this is in fact the case. In addition to six response stations and posts, the Service’s logistics and support functions operate out of an additional four geographically dispersed facilities. As a core component of the 2022-2031 Master Plan, the Performance Concepts team carried out a functional assessment of all Kawartha Lakes Paramedic Service facilities.

### Response Stations (Bases)

Response stations are identified as either 24-hour “bases” where paramedics start and end their shifts, or deployment “posts” that are used to enhance coverage during a shift, either every day, or for select days of the week. A physical/functional assessment of each response station was conducted based on operational “best practices”. The following functional considerations were used to evaluate each response station:

- Appropriate Exterior Signage
- Drive-thru Bays
- Secure Access, e.g., keypad entry
- Adequate space to walk around each stored vehicle and unload stretcher from the rear of the vehicle
- Adequate Floor Drain and Interceptor capability
- Water Resistant Surfaces in vehicle wash areas
- Smoke Detectors/Carbon Monoxide Monitors
- Emergency Lighting
- Emergency Exit Signage
- Emergency Generator
- Eyewash Station
- Adequately sized and powered Overhead Door(s) with safety stop mechanism(s) and manual release
- Time to fully open door of less than 20 seconds
- Electrical Vehicle Plug-in(s) that prevent cord from crossing garage floor
- Garage Ventilation and Exhaust controlled by Carbon Monoxide/Nitrogen Dioxide monitors
- Separate Individual Sleeping Rooms (if required)
- Separate Washrooms and Showers (Individual Unisex or by gender), each with Ventilation Fans
- Crew Quarters appropriately sized for physical distancing based on number of staff present
- Natural Daylight in crew quarters
- Kitchen with fridge, freezer, stove/oven, microwave
- Laundry Facilities
- Sufficient number and size of Staff Lockers
- Sufficient Accessible and Secure Storage for medical supplies
- Adequate Staff Parking
- Paved Vehicle Aprons

Functional deficiencies and exceptions to “best practices” are described by each response station as follows.

5.1.1 Bobcaygeon Base

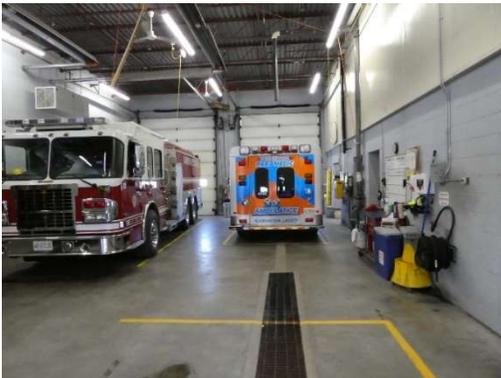
(1,774 sq ft)  
1 Duke St.,  
Bobcaygeon



Combined Bobcaygeon Fire/Paramedic Station



Primary Bay



Secondary Bay



Lockers located in Crew Room



Crew Room



Crew Room/Kitchen



Sleep Room with Folding Murphy Bed



Airmation garage air handling unit

The Bobcaygeon base incorporates a dual tandem drive-thru bay and is shared with Kawartha Lakes Fire. Staffed 24/7, paramedics start and end their shifts at the base. Lounge, kitchen and washroom/shower facilities are shared with firefighters. There is no separate locker room and staff lockers are located along a crew room wall as the lounge/kitchen is the main meeting area in the base, paramedics must vacate the area during Fire staff weekly meetings/training sessions. There is a state-of-the-art Airmation garage air handling system, although during our inspection the main door used by ambulances was not configured to activate ventilation.

Functional deficiencies are as follows:

- 2 unisex washrooms and a single shower

5.1.2 Coboconk Base

(1,000 sq ft)  
47 Grandby Rd.,  
Coboconk



Combined Coboconk Fire/Paramedic Station



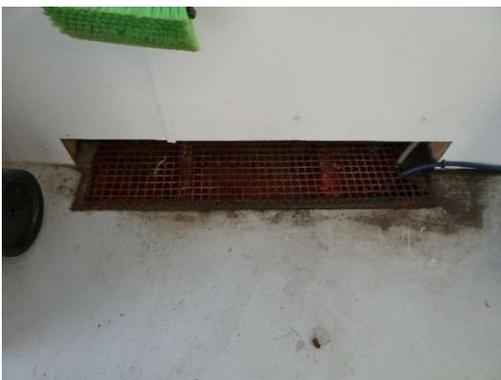
Primary Bay



Crew Lounge



Crew Lounge/Kitchen



Garage Floor Drain

The Coboconk Base is a recently refurbished single bay facility shared with Kawartha Lakes Fire. The facility features a state-of-the-art Airmation garage air handling system. Staffed 24/7, paramedics start and end their shifts in Fenelon Falls. Functional deficiencies are as follows:

- No exterior signage other than warning on overhead door
- Bay is not drive-thru
- Unusual floor drain configuration with drain at side wall
- Apron is heavily rutted
- Single unisex combined washroom/shower
- No separate sleep rooms and no secondary exit from crew area
- No lockers, since the base is intended to serve as intended as a post
- No medical supply storage, since the base is intended to serve as a post
- No laundry facilities on-site since the base is intended to serve as a post

### 5.1.3 Fenelon Falls Base

(2,090 sq ft)  
1 Industrial Park Dr.,  
Fenelon Falls



Fenelon Falls Paramedic Station/Logistics Facility



Sleep Room Window A/C Unit



Response Bays



Combination Locker/Sleep Room with folding Murphy Bed



Crew Lounge



Crew Lounge/Kitchen



Mezzanine Secure Medical Supplies Storage



Exterior Signage

The Fenelon Falls base is a repurposed Public Works facility with two bays dedicated to emergency response. Staffed 24/7, paramedics for both Fenelon Falls and Coboconk start and end their shifts at the base. Two additional oversized bays are utilized by the service for Logistics purposes. These logistics bays will be evaluated in the Support Facilities section. Functional deficiencies are as follows:

- Exterior signage on perimeter fence but not entrance to property or building.
- Bays are not drive-thru
- Apron is not paved
- Two unisex washrooms and single unisex shower
- Crew lounge undersized as per current distancing requirements
- Air conditioning supplemented by window unit in one sleep room
- Secure medical storage located on mezzanine
- No separate locker area. Unisex lockers separated in two sleep rooms
- There is no potable water available at the base

5.1.4 Lindsay Base

(5,937 sq ft)  
89 St. David St.,  
Lindsay



Lindsay Paramedic Station



Emergency Generator



Response Bays (3 front, 2 rear)



Multi-purpose response bay



Clean Uniforms share space with  
Secure Medical Supplies Storage



Asphalt levelling to accommodate  
ambulance parking



Additional square box drain to improve floor drainage



Original slit drains and existing ponding



Crew lounge with no natural daylight



Crew Room/Kitchen



Co-Ed Locker room

The Lindsay base is a repurposed Public Works facility shared with Fleet, Transit and Parks operations. Three bays accommodate a total of 5 vehicles. Staffed 24/7, paramedics for Lindsay, McLaughlin and Pontypool start and end their shifts at the base. Functional deficiencies are as follows:

- Exterior signage at entrance to property but not on building itself
- Staff parking is shared with other facility staff and restricted in space
- Bays are not drive-thru

- Bay 1 has an asphalt hump from role as previous grader parking spot
- Posts/Pillars cause significant backing/manoeuvring hazards
- There is a trailer-mounted emergency generator at the station, but no automatic transfer switch. This requires staff to respond to the building and start the generator whenever needed
- Overhead door slighter slower than ideal at 23 seconds, due to oversize doors from original use
- Single unisex washroom and separate shower
- Crew lounge and unisex locker room undersized as per current distancing requirements
- No natural daylight in crew quarters
- Added square box drains to enhance original slit drains. Still suffers from ponding

### 5.1.5 McLaughlin Post

(800 sq ft)  
10-68 McLaughlin Rd.,  
Lindsay



McLaughlin Garage Bay not sized to accommodate ambulances



Crew Room/Kitchen



Single small round garage floor drain



Floor mounted A/C unit vented to garage bay

The McLaughlin post is a commercially leased single bay that is staffed 12 hours a day to enhance west end coverage. Paramedics for McLaughlin start and end their shifts at the Lindsay base. The McLaughlin post is also used for overnight storage of response/administrative vehicles. Functional deficiencies are as follows:

- No exterior signage other than No Parking sign
- Bay is not drive-thru
- Bay dimensions do not accommodate an ambulance being parked indoors
- There is no garage ventilation or Carbon Monoxide/Nitrogen Dioxide monitoring
- A single small round floor drain precludes washing vehicles
- There is no emergency generator for back-up power
- There is a single unisex washroom and no shower
- No natural daylight in crew quarters
- Air conditioning provided by portable floor unit
- Crew of two maxes out current distancing requirements
- No lockers since intended to serve as a post
- No medical supply storage since intended to serve as a post
- No laundry facilities on-site since intended to serve as a post

### 5.1.6 Pontypool Post

(1,444 sq ft)  
287 John St.,  
Pontypool



Combined Pontypool Fire/Paramedic Station



Vehicle Bay with overhead storage mezzanine



Vehicle Bay from rear



Shared Kitchen



Awaiting repairs



Low headroom storage mezzanine



Crew Room

The Pontypool post is a drive-thru bay design shared with Kawartha Lakes Fire. Originally designed to be a tandem bay, the dimensions are such that only one ambulance can be accommodated. Staffed from 11:00-23:00 Friday, Saturday and Sunday, the paramedics start and end their shifts at the Lindsay base. Kitchen and washrooms/showers are shared with firefighters. During inspection, a water leak above the kitchen ceiling was awaiting repair. Functional deficiencies are as follows:

- Ceiling of ambulance bay (mezzanine floor) is not waterproof, and finish is deteriorating
- Crew of two maximizes current distancing requirements

- No lockers since intended to serve as a post
- Has medical supply storage on low-height mezzanine, even though intended to serve as a post
- No laundry facilities on-site since intended to serve as a post

#### 5.1.7 Summary of Response Facilities (Bases & Posts) Functional Assessment

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While currently “functional” in the technical sense of the word, there is certainly a need for improvement in a number of Kawartha Lakes stations, especially those that have not been purpose-built for emergency service use. The following observations are important moving forward:

- The Lindsay base is not sized or suited for the number of crews deployed there. Interim arrangements have been made during the pandemic to relocate crews to other posts to accommodate social distancing protocols. However, shift changes still require “stick handling” in order to limit number of staff in the Lindsay base at any one time. The garage space requires similar “finesse” to move vehicles among bumps and pillars.
- The McLaughlin post is not suited for “standbys” of any significant duration. There is no capability to keep an ambulance indoors, requiring vehicles to remain running in order to maintain appropriate temperature in the patient compartment.
- Despite recently being renovated to “post” standards, the Coboconk facility is being used as an overnight base and lacks sleep rooms and a secondary exit if sleeping is allowed.
- Fenelon Falls lacks any growth capacity to accommodate additional staff. It is a dated “hodgepodge” of rooms serving multiple purposes.

## 5.2 Support Facilities

Administrative, Support and Logistics functions for the Service are divided between four separate facilities: Headquarters and three sites located 20-25 kms away in different directions. This unwieldy geographic distribution generates hundreds of inefficient kilometers of travel weekly by staff to conduct normal operational business. An assessment of the four distributed sites follows:

### 5.2.1 Headquarters/Administrative Offices

(3,600 sq ft)  
 4 Victoria Ave. N.,  
 Lindsay



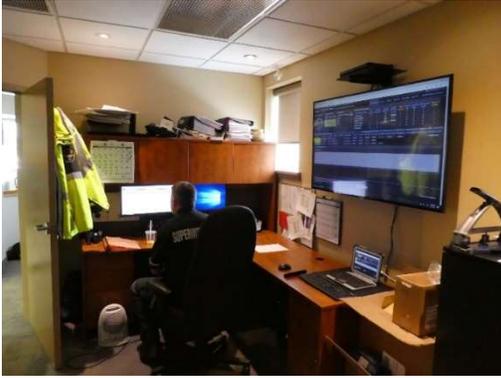
Headquarters/Administrative Offices



Public Entrance Lobby



Upper-Level hallway



Superintendents Office



Superintendents Office second position



Administrative Assistant Workstation



Office Equipment Work Area



Supply Stores



Community Paramedicine Office



Logistics Office



Deputy Chief, Operations



Deputy Chief, Professional Standards



Chief



Executive Assistant



Boardroom

Headquarters is located in an accessible two storey building (ex-Police headquarters, ex-Chamber of Commerce). The HQ building houses the Paramedic Service Chief, two Deputy Chiefs, Executive Assistant, Administrative Assistant, Superintendents, Community Paramedics and Paramedic Support Technician (Logistics) and well as Supply Stores. The HQ building is presently at maximum capacity and cannot accommodate additional staff without reconfiguring the Superintendents' office. There is no garage for parking any vehicles indoors. The HQ building is in excellent condition for reuse.

### 5.2.2 Fenelon Falls Logistics

(2,770 sq ft)

1 Industrial Park Drive,  
Fenelon Falls



Fenelon Falls Paramedic Station/Logistics Facility  
(Two oversized bays nearest camera)



Washing Bays

Attached to the Fenelon Falls station, the Logistics facility is composed of two over-sized vehicle bays and is used to “deep clean” the Service’s vehicles on a regular schedule. All vehicles rotate through this facility and undergo a full emptying, cleaning and restocking every six weeks. In conjunction with the deep clean process, stretchers and other patient transportation equipment receive mandatory inspections and preventative maintenance here. Vehicles requiring additional decontamination outside of this timeframe are also serviced at this facility. Because of the lack of inside parking at Headquarters, the Logistics van used to delivery stock from Supply Stores to the response stations is parked in Fenelon Falls each night during the winter months. This arrangement ensures safe temperatures are maintained for the supplies on-board. The building is suitable for reuse as a vehicle storage facility.

**5.2.3 Fenelon Falls Storage**

(500 sq ft)  
 West St. S. and Wychwood Cres.,  
 Fenelon Falls



Fenelon Falls Quonset Exterior



Quonset Interior

This Quonset hut structure is used to store durable medical equipment such as stretchers, stair chairs, etc. This type of equipment often needs to be accessed on short notice to replace equipment damaged or broken during use. Reuse would be limited to a similar storage use.

**5.2.4 Cameron Training Centre**

(3,726 sq ft)  
 710 Cameron Rd.,  
 Cameron



Combined Cameron Fire/Paramedic Training Centre



One of two main floor training rooms



Uniform Storage



Repurposed Vault being used for secure document storage



Simulation Lab Apartment

The Cameron Training Centre is a two-storey facility shared with Kawartha Lakes Fire. The main floor consists of two large training rooms, while the lower level has a number of separate Paramedic Service functions, including a uniform storage area and reusing an existing vault for secure document storage. A separate two-room suite is configured as an apartment and used as a patient simulation lab for training paramedics. The Fire Department has advised that there would be no impact on their use of the facility if Paramedic Services should relocate.

### 5.3 Vehicles & Equipment Functional Assessment

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The Kawartha Lakes Paramedic Service has an adequate-sized fleet to deploy across normal staffed hours, maintenance requirements and upstuffs. There is a 5-year replacement plan for ambulances based on 50/50 cost-sharing with the Ministry of Health. In order to fund the acquisition of PowerLoad stretchers, recent ambulance replacements have been based on remounting patient modules, i.e., where the patient module is dismounted, refurbished and replaced on a new chassis for a second life cycle. While some staff will complain this is not a “new” vehicle, it is an acceptable, cost-effective practice. Due to ongoing technology changes however, remounting should not be attempted beyond one cycle. The service advises that they have now sourced all necessary PowerLoads and will be reverting to normal vehicle replacements going forward.

The Kawartha Lakes Paramedic Service has up-to-date equipment in all regards and is seen as a progressive leader in adopting new technologies. Staff voiced no concerns about the quality of the medical equipment in use by the service.

### 5.4 Station Location Analysis and Mapping

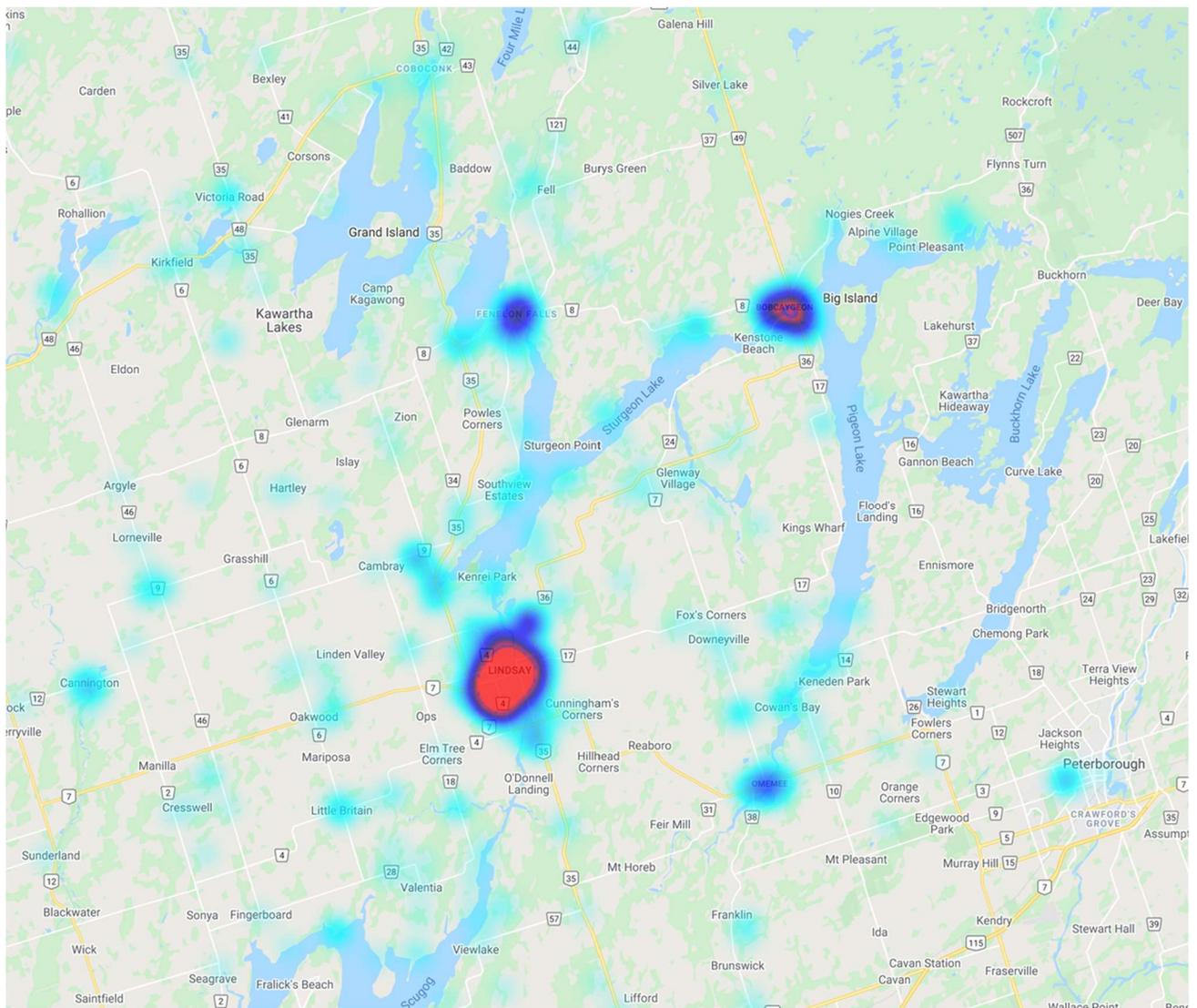
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With 2020 call data skewed by COVID-19, the 2019 data set was considered a “normal” year to examine call volume and distribution across Kawartha Lakes. Mapping of Code 3-4 calls (by geographic cluster and response time) was undertaken by the Performance Concepts/Transnomis team. This technologically advanced mapping analysis considered system-wide trends, individual Base/Post response patterns, and identified any gaps in coverage. Each map is accompanied by a short factual narrative.

### 5.4.1 Call Volume and Response Time Mapping

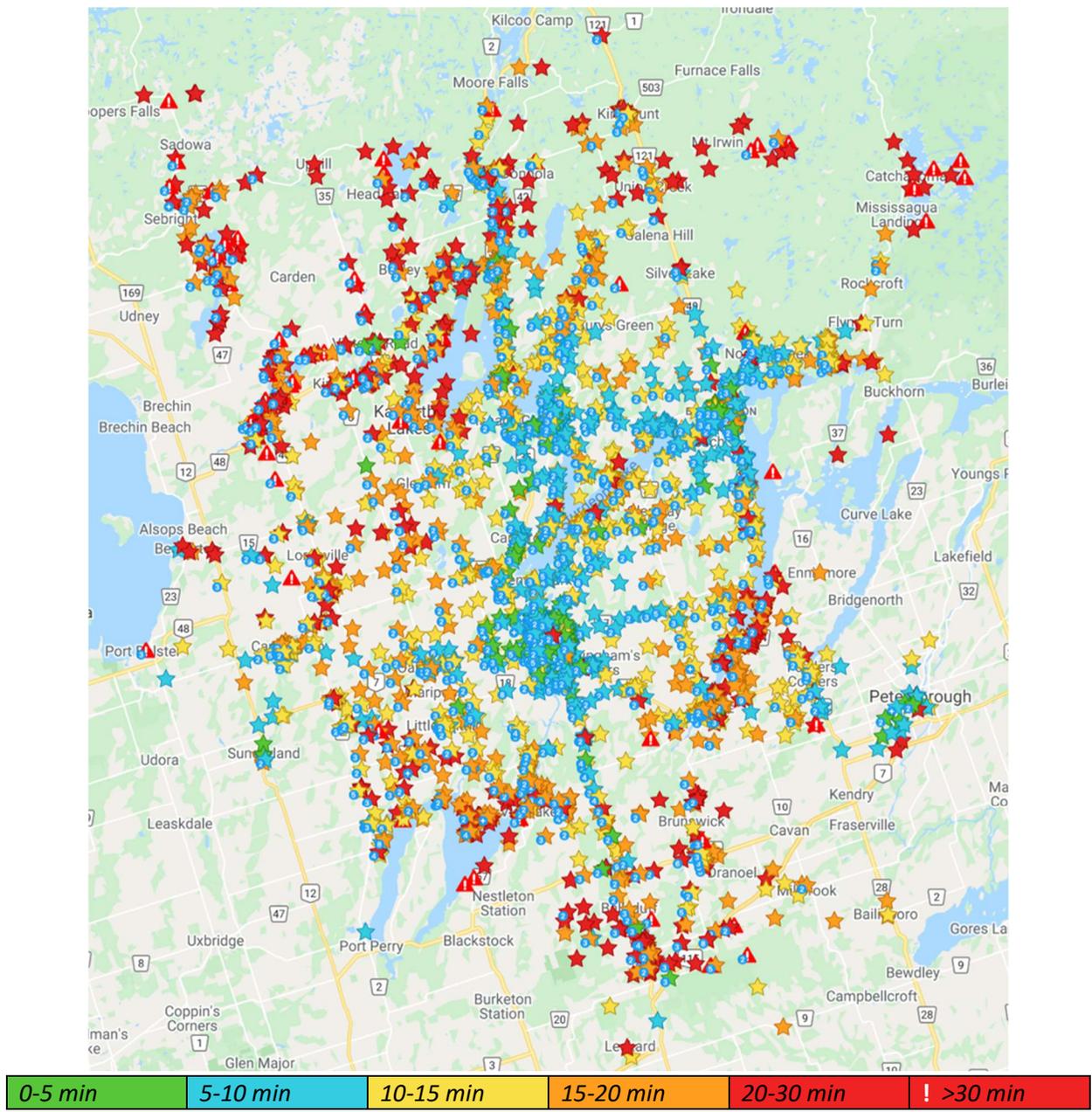
The heat map below uses colours to quantify clusters of multiple calls at a single location. Scale results in clusters congregating in communities where adjoining multiple call clusters exist. While there is no numeric scale, red indicates the highest number of calls, moving downward through purple and dark blue to the lowest call clusters in light blue. The heat mapping reveals expected multiple call clusters in the three major population centres serviced by full-time ambulance bases, i.e., Lindsay, Bobcaygeon and Fenelon Falls as well as identifying a potential gap in the Omeme area. This area is currently seeing the highest call intensity of communities without a dedicated base or post and should be considered for service enhancement moving forward.

#### Call Volume Clusters



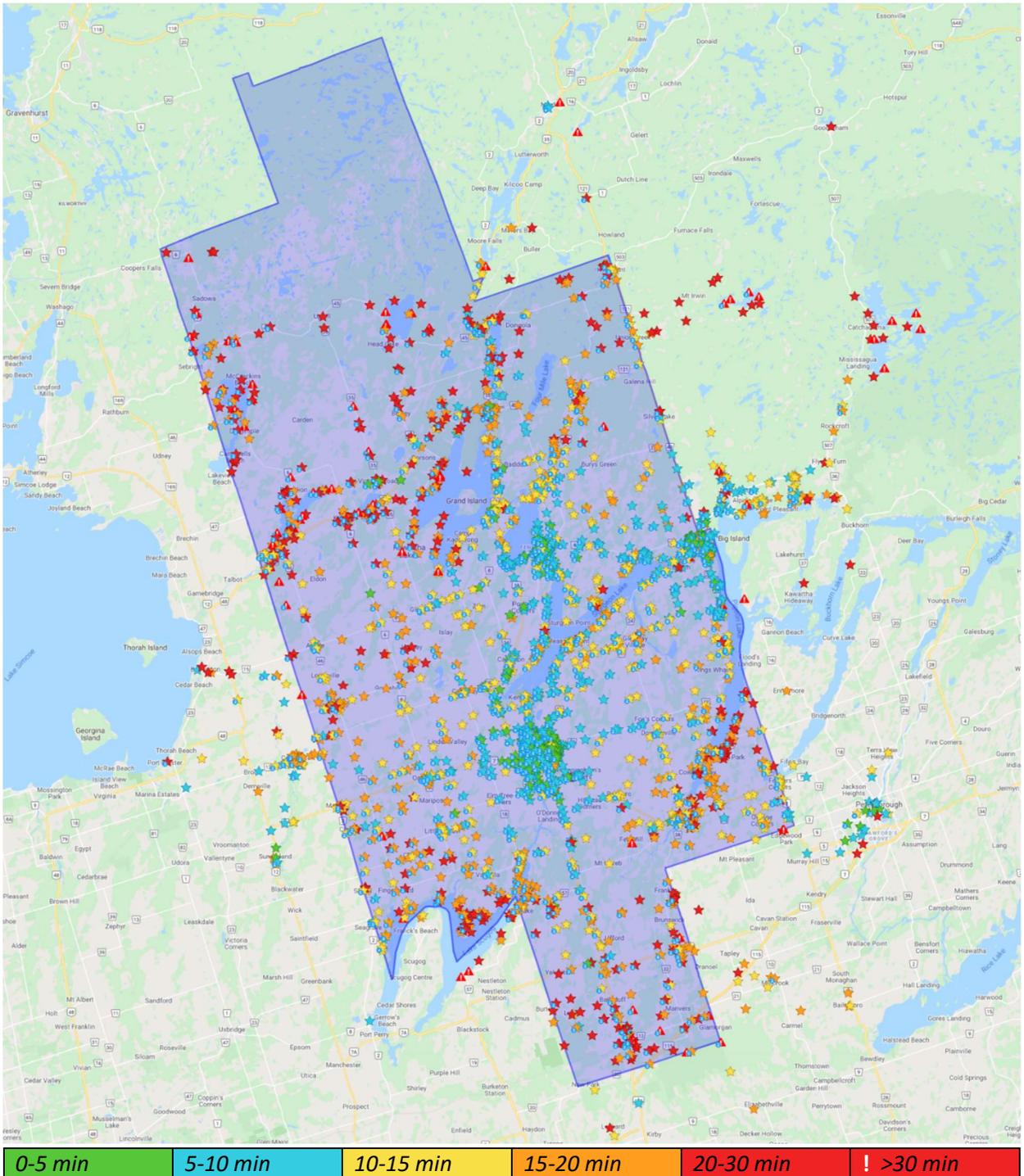
### Call Response Time Mapping

The map below is populated with 11,699 Code 3-4 calls as dispatched during 2019. The map includes Kawartha Lakes ambulances dispatched to calls both inside and outside Kawartha Lakes, as well as other municipal ambulance services dispatched to calls within Kawartha Lakes. The lowest response times (Blue and Green) surround the regularly staffed Bases in the more densely populated communities of Lindsay, Bobcaygeon and Fenelon Falls. The average Kawartha Lakes-wide response time for Code 4 emergency calls during 2019 was 8:39 minutes, but that average is not representative of response times for calls outside those three communities, where 15-30 mins are more common (Red and Orange).



5.4.2 2019 Cross-Border Distribution

Approximately 9% (1,067) of the 2019 Code 3-4 calls were outside the borders of Kawartha Lakes.



A deeper dive based on more recent 2020 ADRS data revealed the following distribution of primary providers of cross-border service involving Kawartha Lakes.

Municipality	Others providing service in Kawartha Lakes	Kawartha Lakes providing service in Other Municipalities	Difference
Durham	443	225	-218
Peterborough	385	385	0
Haliburton	220	124	-96
Rama	89	0	-89
Simcoe	84	36	-48
Northumberland	25	9	-16
<b>Total</b>	<b>1246</b>	<b>779</b>	<b>-467</b>

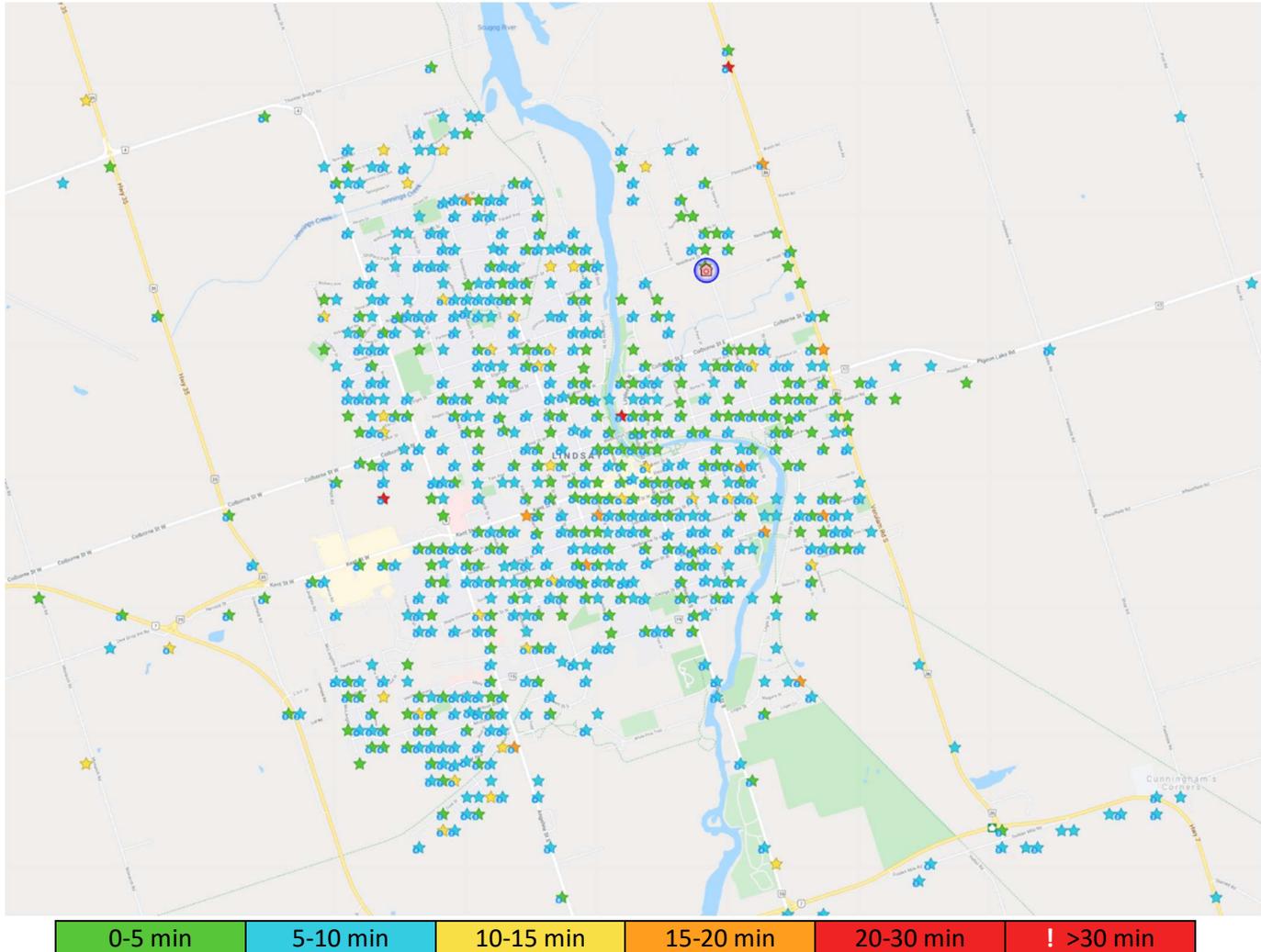
Kawartha Lakes is a net consumer of cross-border service. Durham Region currently provides significant service into the west side of Kawartha Lakes. The less populated northwest portion of the municipality is serviced by Simcoe and Rama, while the northeast is serviced by Haliburton.

The balanced call volume between Peterborough and Kawartha Lakes offers an excellent opportunity for a Cross-Border Service Agreement/Deployment Strategy to maximize coverage and balance costs.

Kawartha Lakes coverage in the western area supported by Durham, provides an opportunity for an improved level of service given the level of outside support presently required.

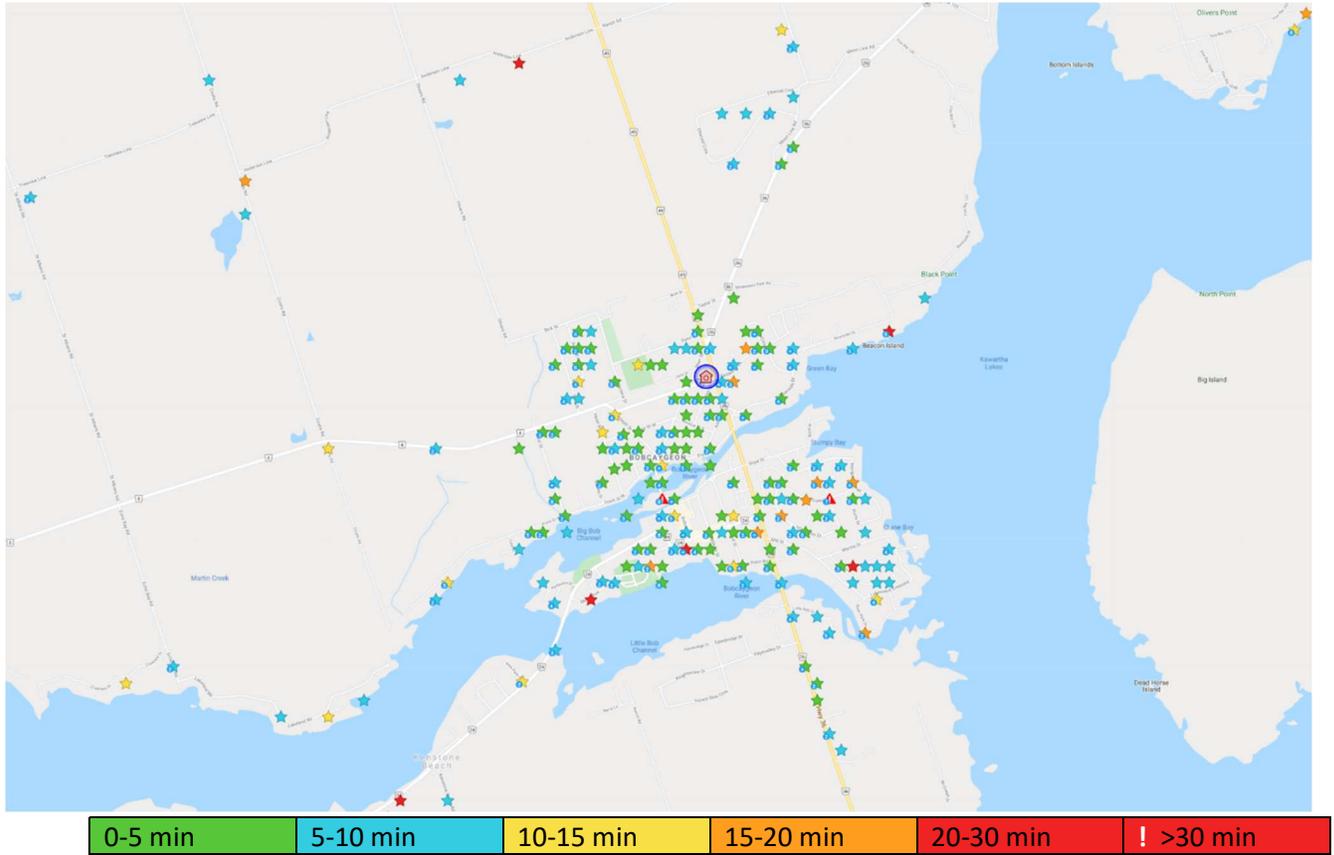
5.4.3 2019 Call Response Time – Lindsay Base

Approximately 27% of 2019 Code 3-4 calls occurred within the geographic boundaries of Lindsay, with the vast majority of calls falling into the Green (0-5 min) and Blue (5-10 min) response time categories.



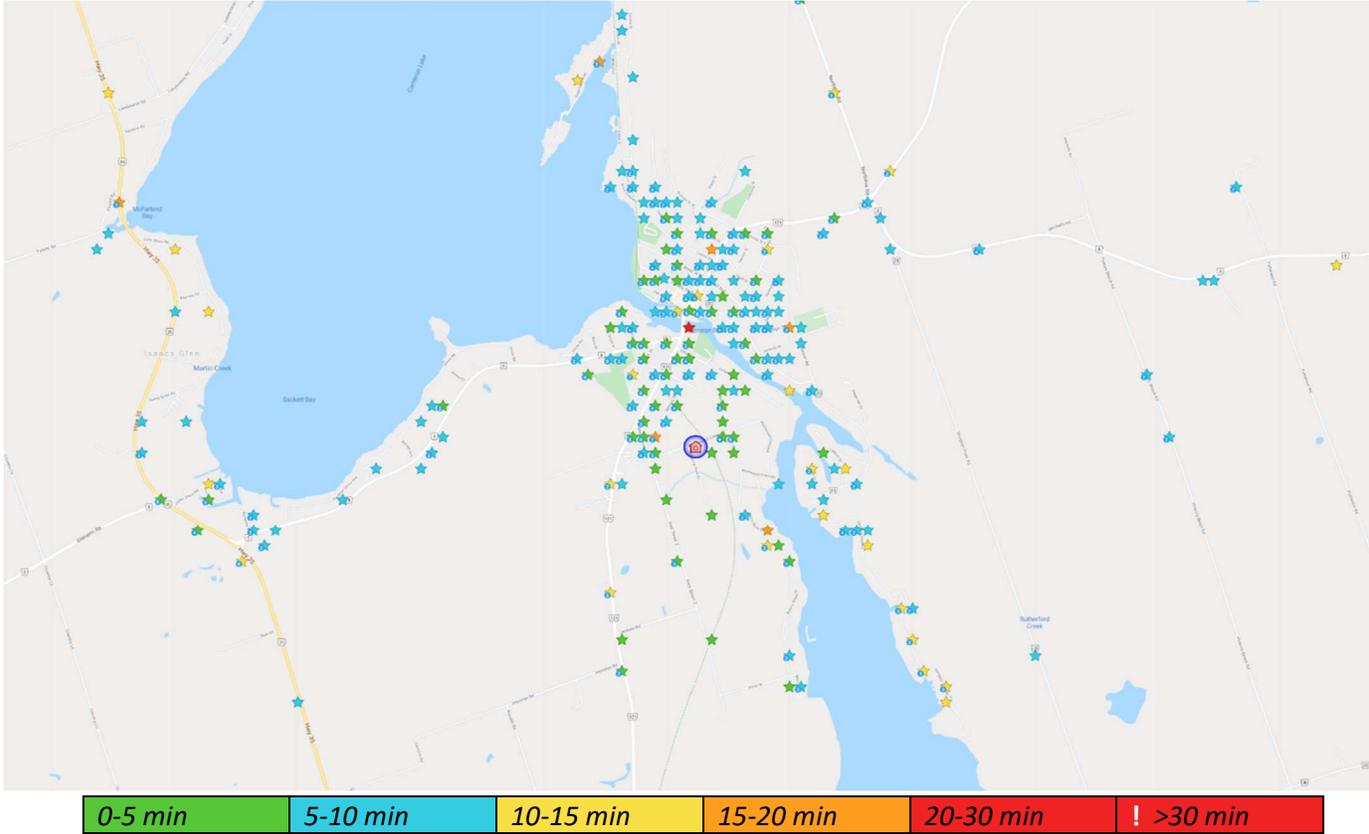
5.4.4 2019 Call Response Time – Bobcaygeon Base

The majority of calls in the Bobcaygeon station area fall into the Green (0-5 min) and Blue (5-10 min) response time categories.



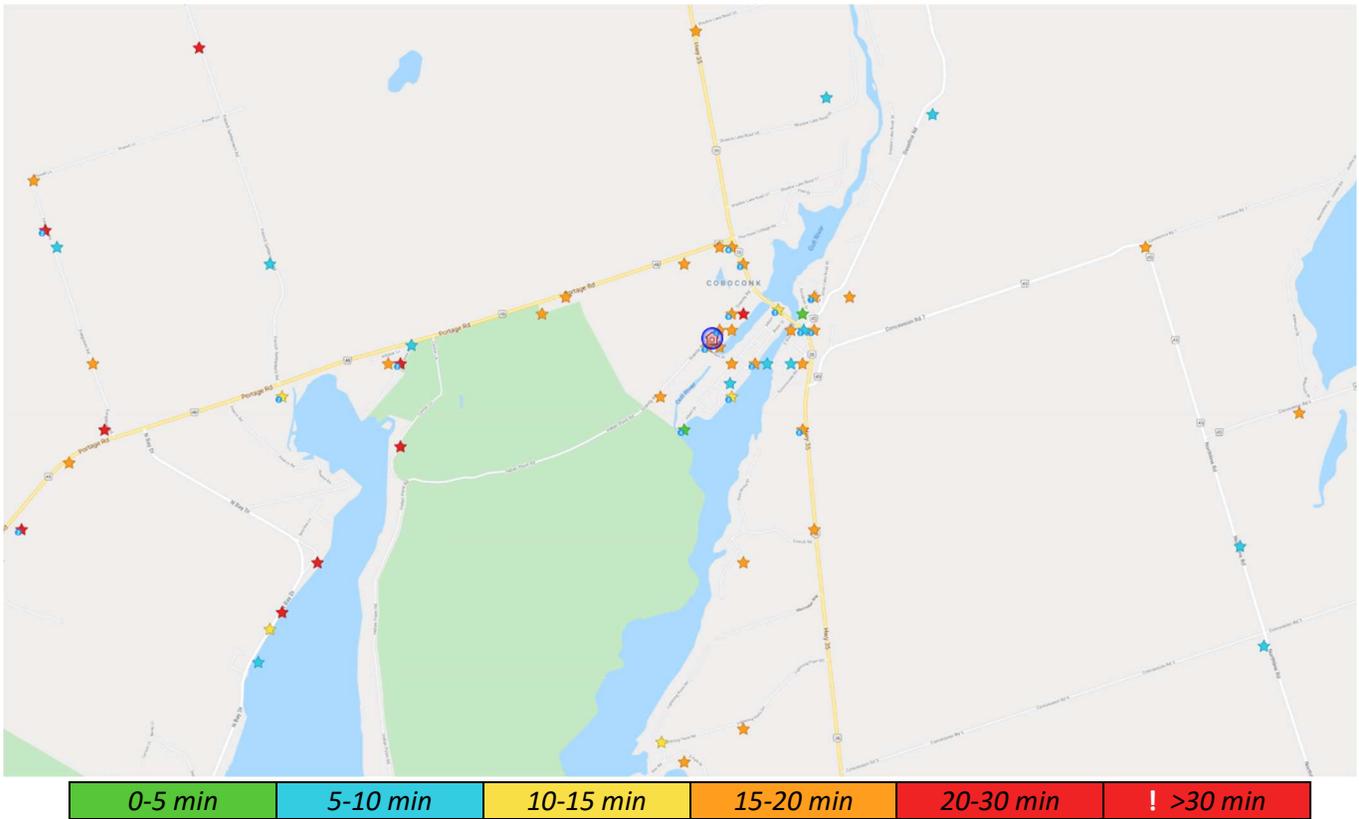
**5.4.5 2019 Call Response Times – Fenelon Falls Base**

The majority of calls in the Fenelon Falls station area are in the Green (0-5 min) and Blue (5-10 min) response time categories.



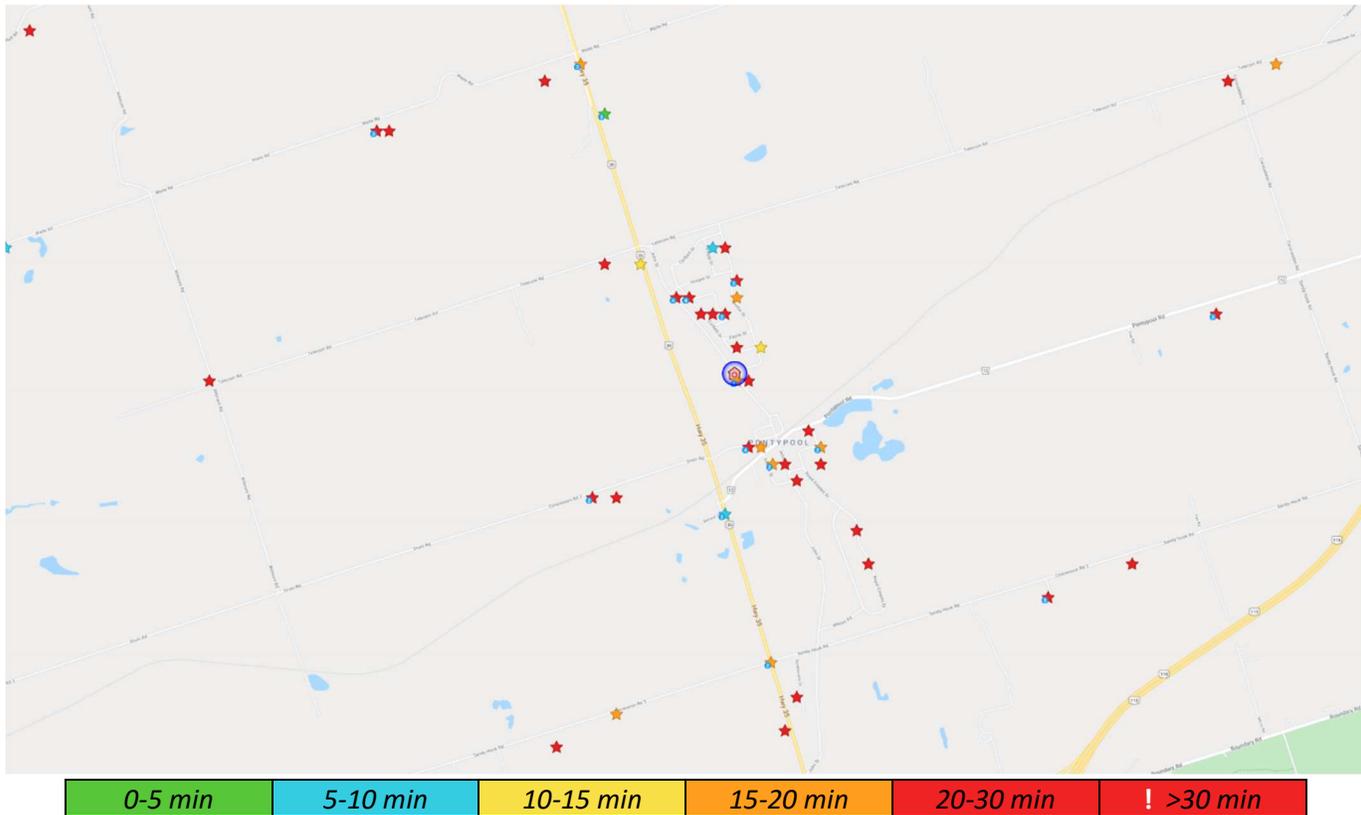
**5.4.6 2019 Call Response Time – Coboconk Post**

The majority of calls in the Coboconk post catchment area are in the Orange (15-20 min) response time categories. This indicates that during 2019, the Coboconk vehicle was rarely in the station when calls occurred. Prior to November 1, 2019, the Coboconk post was only staffed during a 12-hour day shift. Since the vehicle starts and ends its shift in Fenelon Falls, there is also a period of time at the beginning and end of each shift where the vehicle is out of position during transit to and from Coboconk. The Coboconk post also backs up the busier Fenelon Falls base, but even so a 2020 data set view of response times would show an improvement given the additional hours of coverage added at the end of 2019.



**5.4.7 2019 Call Response Time – Pontypool Post**

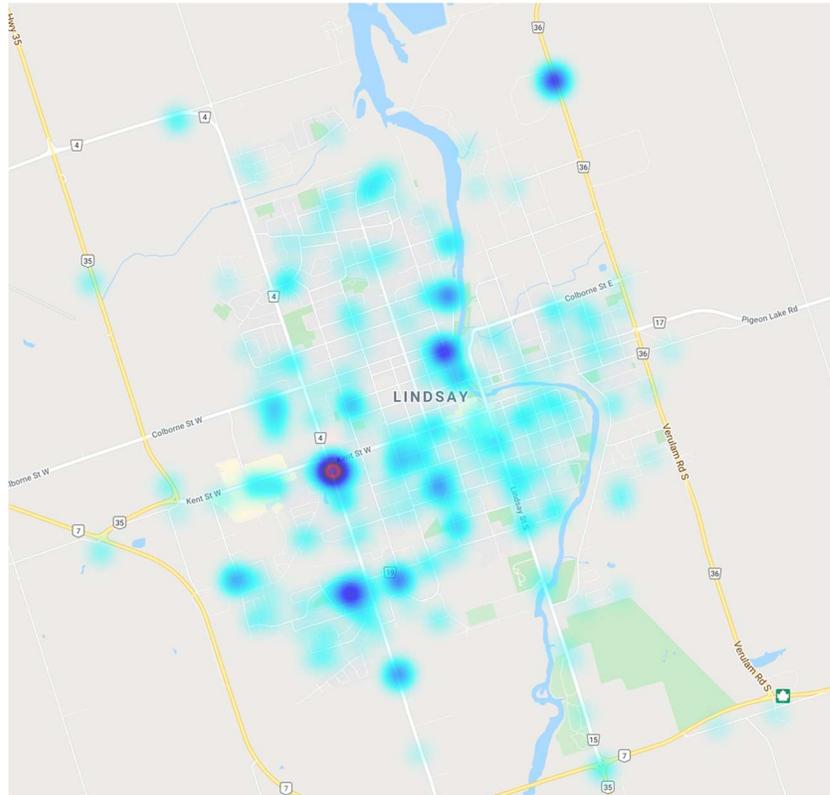
The majority of calls in the Pontypool post catchment area are in the Orange (15-20 min) and Red (20-30 min) response time categories. This indicates that during 2019, the Pontypool vehicle was rarely in the station when calls occurred. This post is only staffed from 11:00-23:00 Fri-Sun and is the first vehicle pulled up the Highway 35 corridor into the Lindsay area when peak busyness call volume challenges regularly occur.



## 5.5 Consolidated Lindsay Facility – Site Location Modelling

### 5.5.1 Lindsay Call Cluster Heat Map

Prior to considering station location, the Lindsay call cluster heat map (see below) is instructive. Clearly, a west-side-of-the-river location is optimal given the number of multiple call clusters shown.



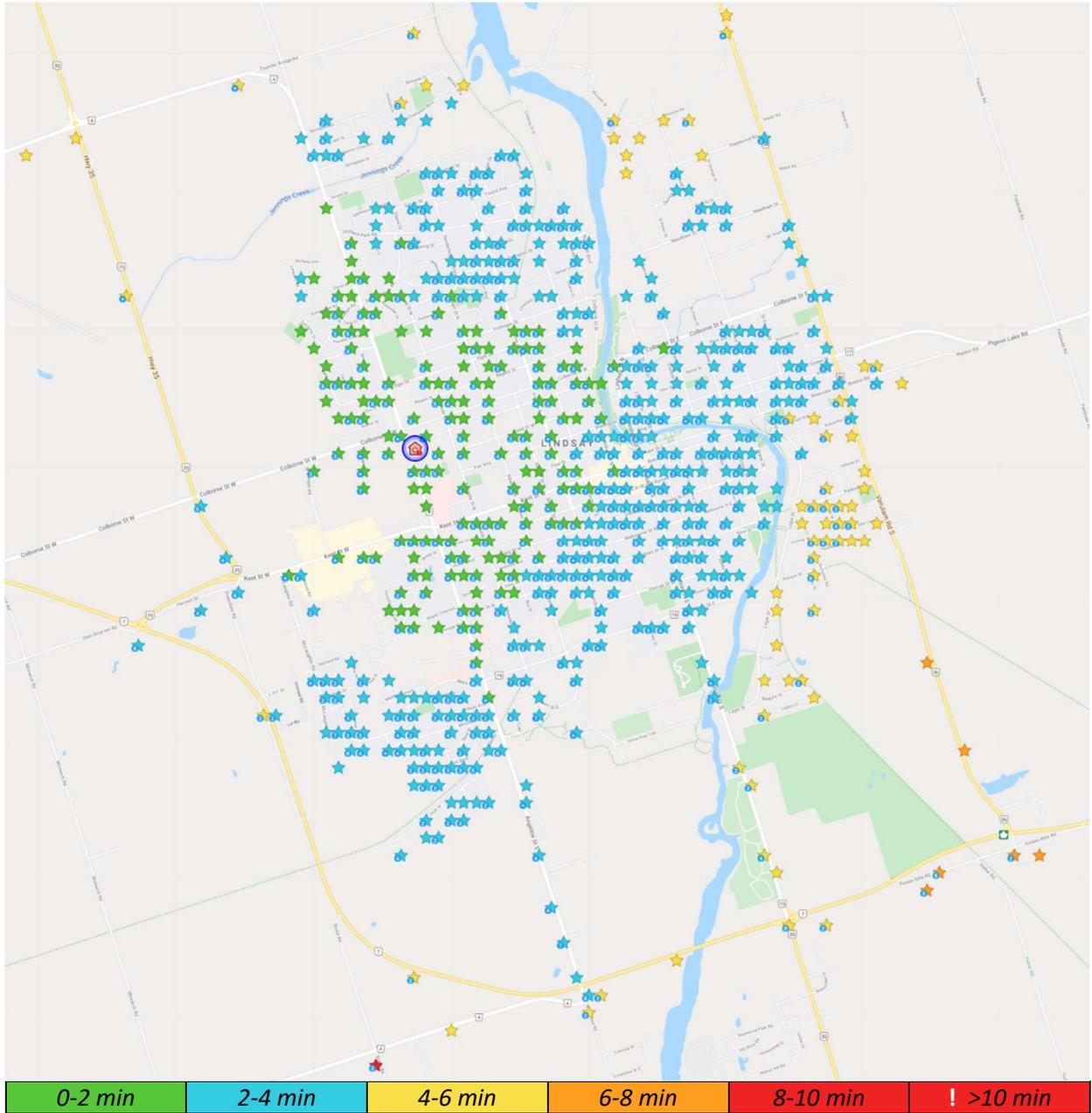
### 5.5.2 Station Location Modelling Approach

Performance Concepts/Transnomis Solutions have modeled travel time scenarios for potential locations for a consolidated Lindsay facility - benefiting from City staff with an intimate knowledge of the area. For all options, the analysis/mapping included the travel impact of the proposed new bridge at Colborne Street. No specific parcels of land are identified in this document; however, consideration should be given to a parcel sufficiently sized to allow for a combined Paramedic/Fire campus if this can also meet Fire response time and other requirements.

To determine an appropriate location for a consolidated Lindsay facility, 2019 Code 3-4 calls were normalized - as if they all occurred from a single start location rather than the multiple starting points that occur normally in the course of daily operations (i.e., mobile, at hospital, at post).

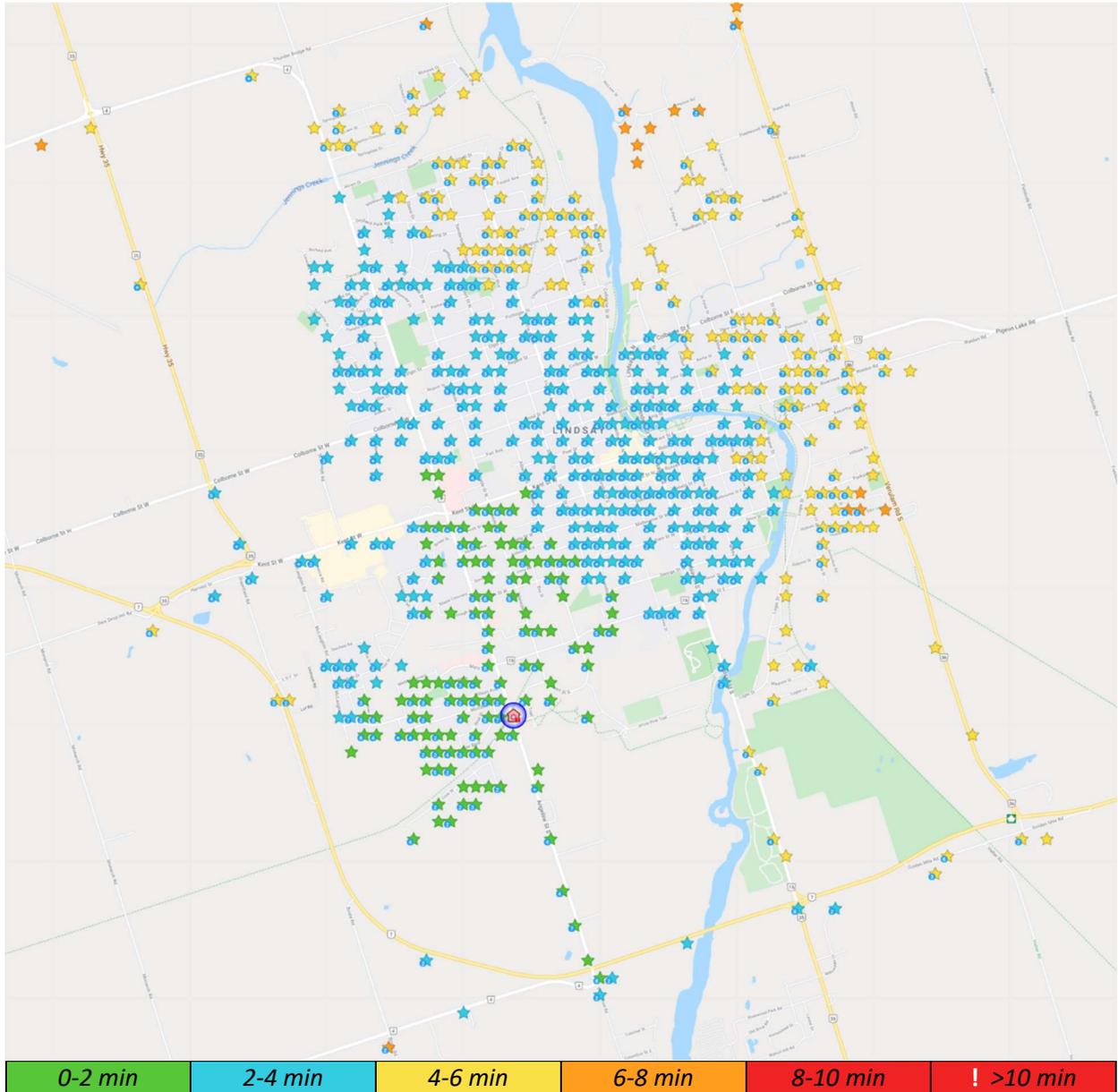
5.5.3 Angeline St. North

Over 99% of modeled travel times for this location were under 6 minutes, and 91% were under 4 minutes.



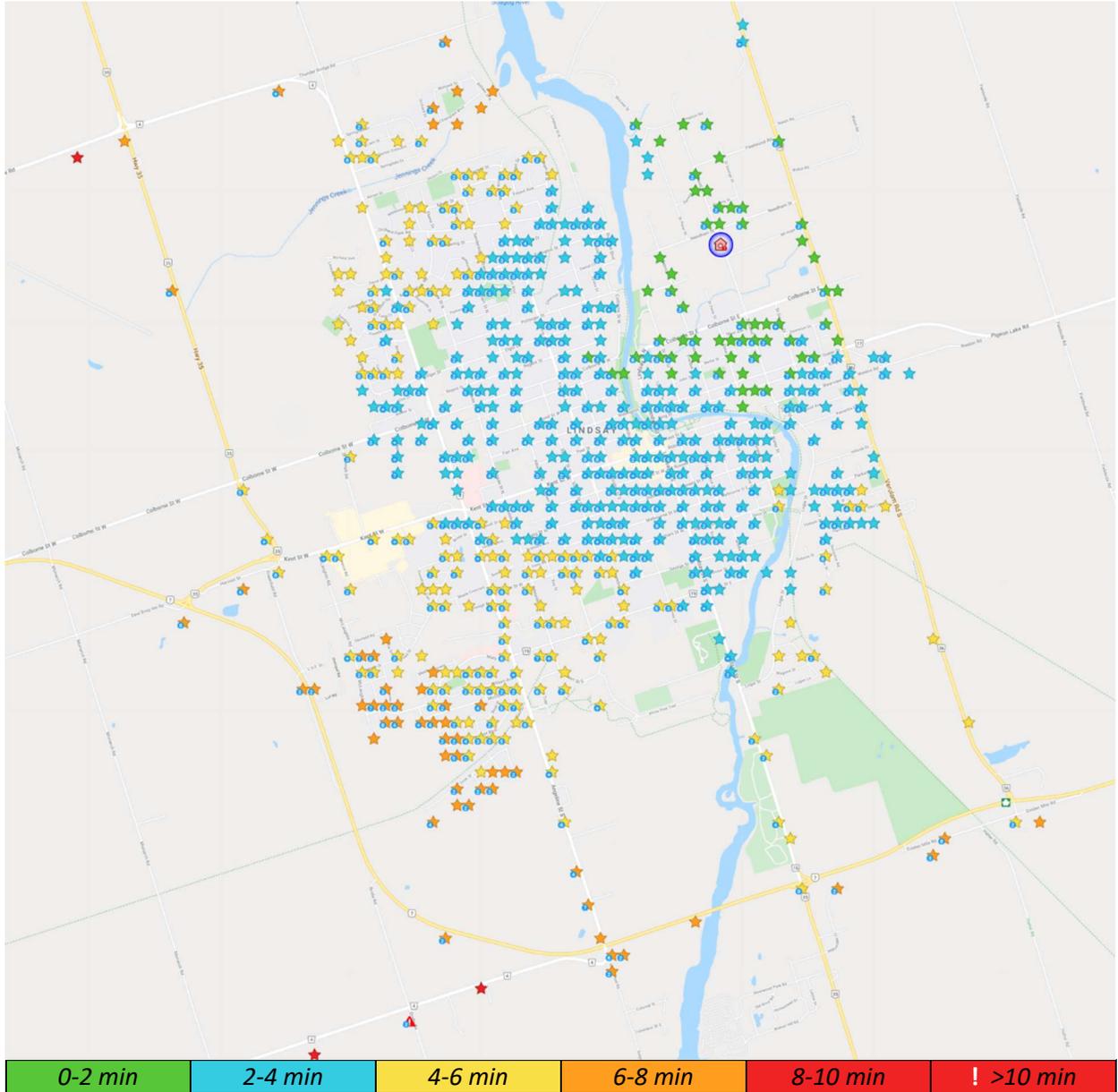
5.5.4 Angeline St. South

Approximately 96% of travel times were under 6 minutes for this location.



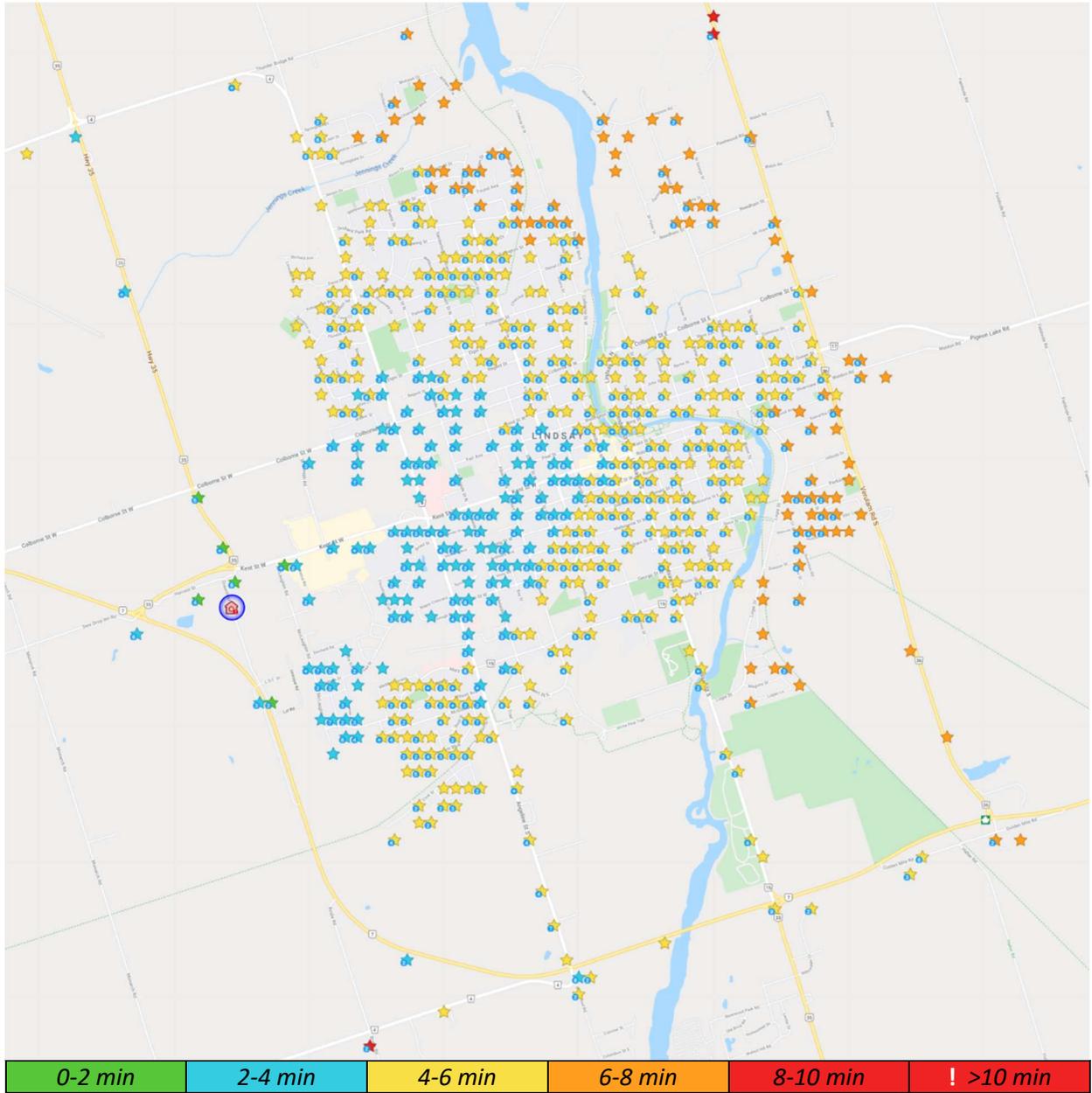
5.5.5 Existing KLPS St. David Location

If space was available on the current property approximately 94% of calls would have travel times under 6 minutes.



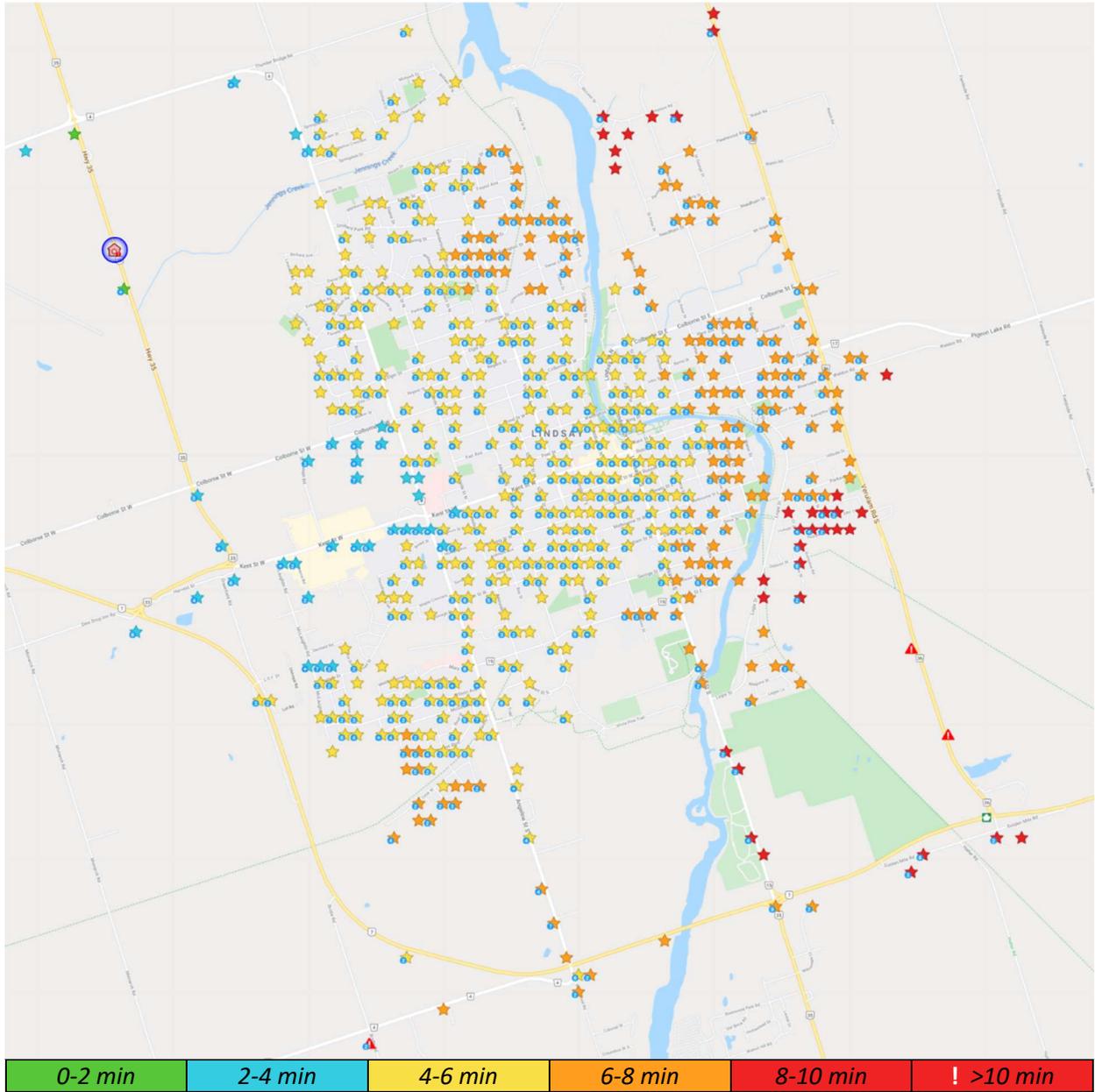
5.5.6 Greenfield Ave.

Approximately 90% of modeled travel times were under 6 minutes.



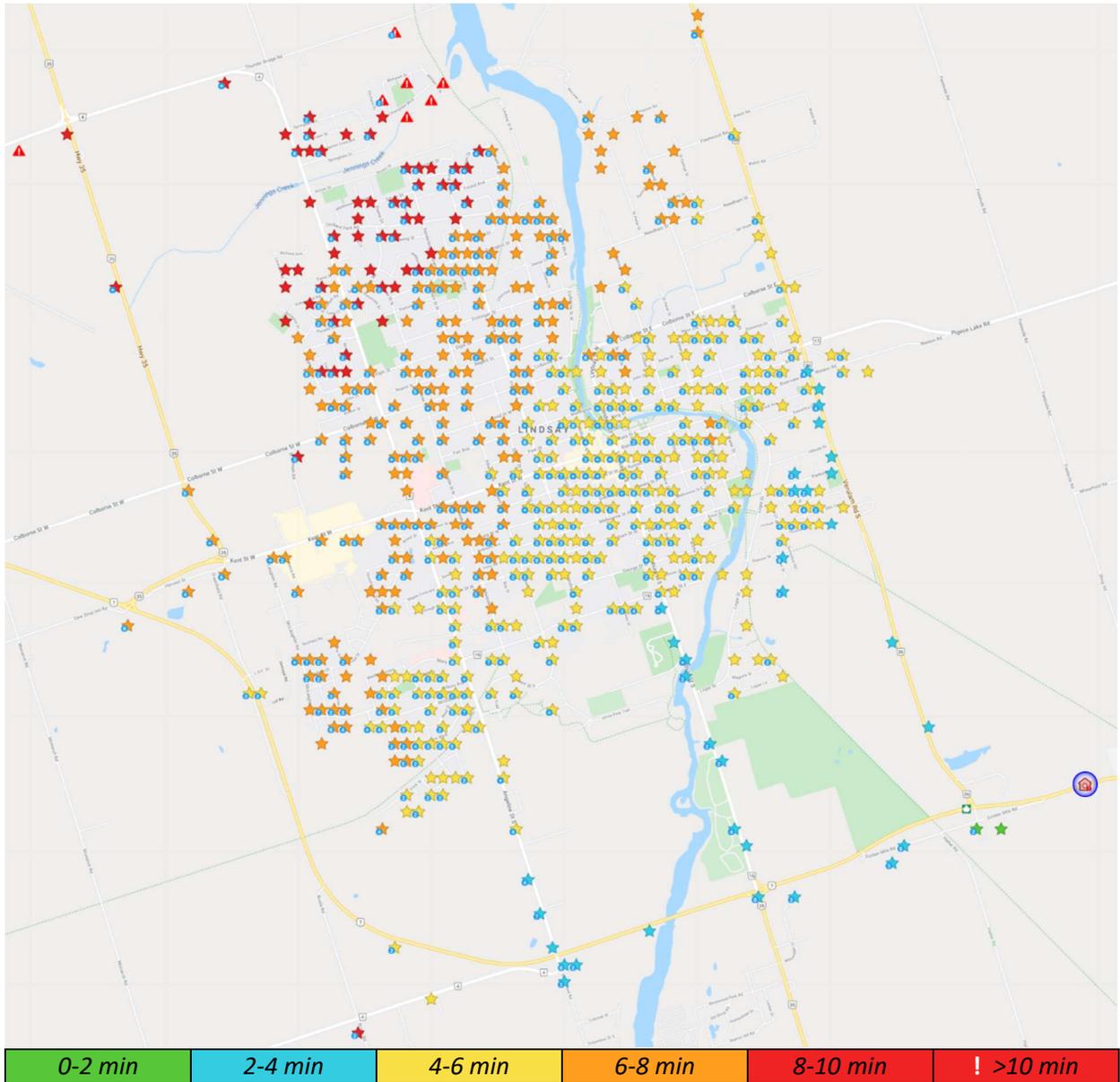
### 5.5.7 Airport

Approximately 77% of travel times were under 6 minutes for this location.



### 5.5.8 Ops Arena

Approximately 59% of travel times were under 6 minutes for this location.



**5.5.9 Lindsay Facility - Modelling Results Summary**

The summary of modelling results is shown below.

The two Angeline St. examples are clearly superior sites in modelling done with the 2019 calls data set reducing average call time per call by between 1 and 1 ½ minutes from that of the status quo St. David St. site.

As the following charts show, the existing St. David St. location provides acceptable travel times. However, the potential Angeline St. sites would provide a travel time improvement of approximately one minute (56-83 seconds), with significantly more calls reached in the shortest travel time measured (< 4 mins).

Some caution must be used in evaluating prospective locations. Modelling is not an exact process, as call distribution will change year-over-year.

Availability and relative cost of land may override a decision otherwise based on narrow differences in travel time performance between competing options.

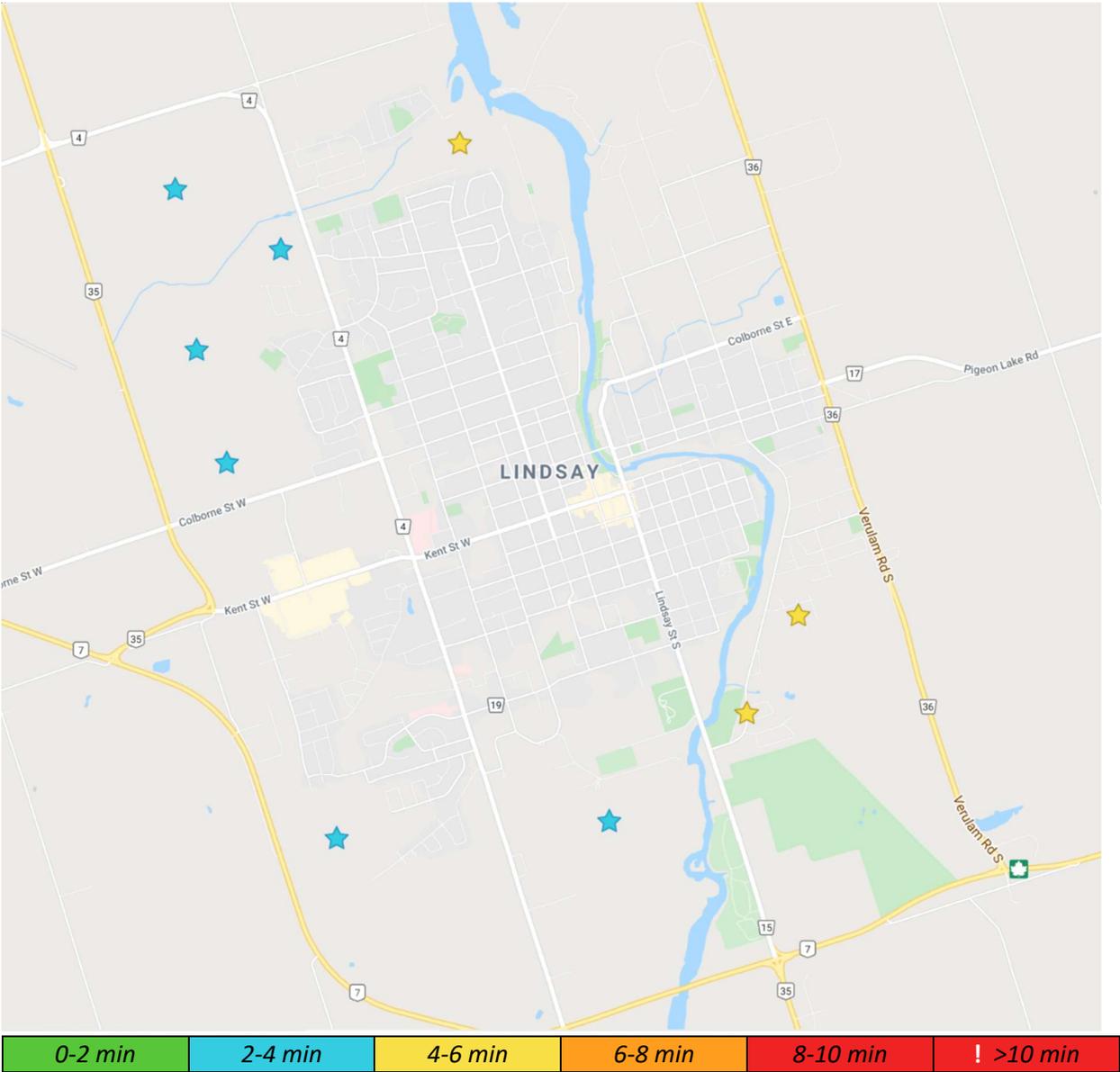
**Potential Locations**

Scenario	% of Travel Times under 4 minutes	% of Travel Times under 6 minutes	Total 2019 Travel Time (hours)	Average Travel Time per call (mm:ss)	Total 2019 Driving Distance One-way (km)	Average Driving Distance (km)
Angeline St. N.	91%	99%	149	02:27	7,247	2.0
Angeline St. S.	79%	96%	177	02:54	8,962	2.5
Greenfield Ave.	30%	90%	274	04:30	11,850	3.2
Airport	14%	77%	329	05:25	17,237	4.7
Ops Arena	3%	59%	363	05:58	22,325	6.1

**Status quo**

St. David St.	61%	94%	233	03:50	11,403	3.1
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Using the best-case examples for future station locations identified (Angeline St. N. or Angeline St. S.), the following map models theoretical travel times to Lindsay’s future development areas as indicated by the stars below:



## 6.0 Master Plan Recommendations

### 6.1 Restructuring Coverage and Improving System Performance

Recommendations are divided into two distinct time frames... the *Early Plan* period (2022-2026) and a subsequent *Late Plan* period (2027-2031). The timing of recommendations has been coordinated with the Section 6.2 recommendations dealing with modernized facilities.

#### Recommendation Bundle - *Early Plan* (Code 4 World/Years 1-5)

*Performance Concepts* recommends the following bundle of Coverage/Resourcing actions:

- ***Kawartha Lakes staff be directed to negotiate with Peterborough County for a Cross-Border Service Agreement between the municipalities. In conjunction with the agreement, the City of Kawartha Lakes and Peterborough County should develop a Common Deployment Strategy to maximize both Bobcaygeon/Trent Lakes and Millbrook/Pontypool coverage and balance costs through cross-border billing.***
- ***Sequence the transition of the existing hours of Pontypool coverage (3x12 hours) and add additional hours of service (2x12 hours) to the Oakwood station once the Millbrook station is occupied. Conduct an analytics “deep dive” to determine the optimal deployment of the (5x12 hour) resource in terms of time-of-day/day-of-week.***
- ***Conduct an analytics reassessment during the first quarter of 2022 to determine the appropriate hours of service/timing of a 12-hour resource to be added to Lindsay coverage in order to manage forecast increases in peak system busyness and response times. Consider the possibility of adding the new Lindsay coverage prior to the redeployment of Pontypool coverage to the Oakwood Station.***

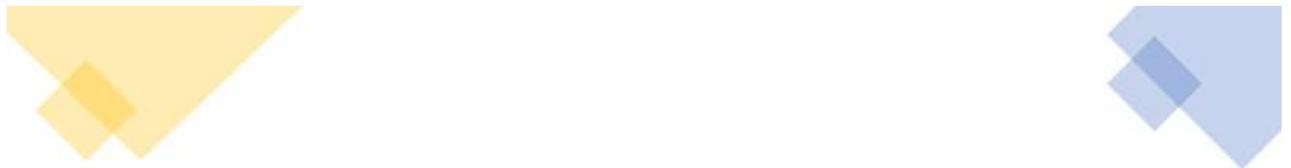
***Rationale:*** A Cross-Border Service Agreement/Common Deployment Strategy with Peterborough County will take advantage of similar cross border call volumes to ensure coverage in the Bobcaygeon/Trent Lakes and Millbrook/Pontypool areas in an efficient and cost-effective manner. As noted in the Pontypool Post mapping in Section 5.4.7, the current staffing pattern (12 hours/3 days a week) is ineffective at servicing the catchment area.

Peterborough County has recently approved plans to build/staff a new paramedic station in Millbrook. This new base creates a potential series of “dominos” for improved coverage in Kawartha Lakes (attacking the red travel time calls). Our recommendation sets these dominos in motion. Oakwood availability has been confirmed. A deep dive analytics refresh in Q1 2022 will further inform the timing of Oakwood and Lindsay resourcing upgrades.

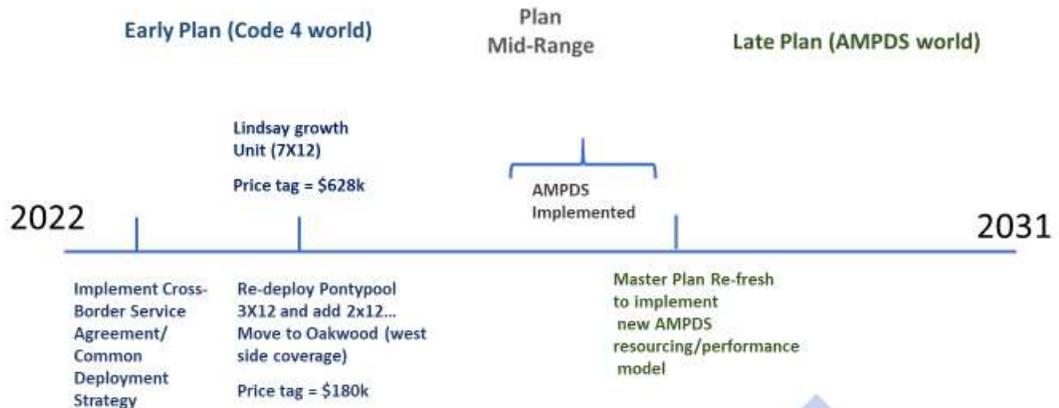
Recommendations Bundle - Late Plan (AMPDS World/Years 6-10)

- Performance Concepts recommends a refresh of this Master Plan to be conducted once the local transition to AMPDS is initiated, to incorporate the impacts of the transition on the remaining years in the Plan. The Master Plan refresh should be combined with a progress assessment focusing on the Implementation Roadmap. While positioned at the mid-point of the current Master Plan, this recommendation may be executed earlier depending on the timing of AMPDS rollout.**

  - Rationale:** The latter period of the plan is much more difficult to predict/plan, given the transition to AMPDS and its effect on every aspect of resource planning and deployment. We expect the provincial transition to be complete mid-plan and recommend this Master Plan be refreshed to incorporate the game changing impacts of AMPDS.

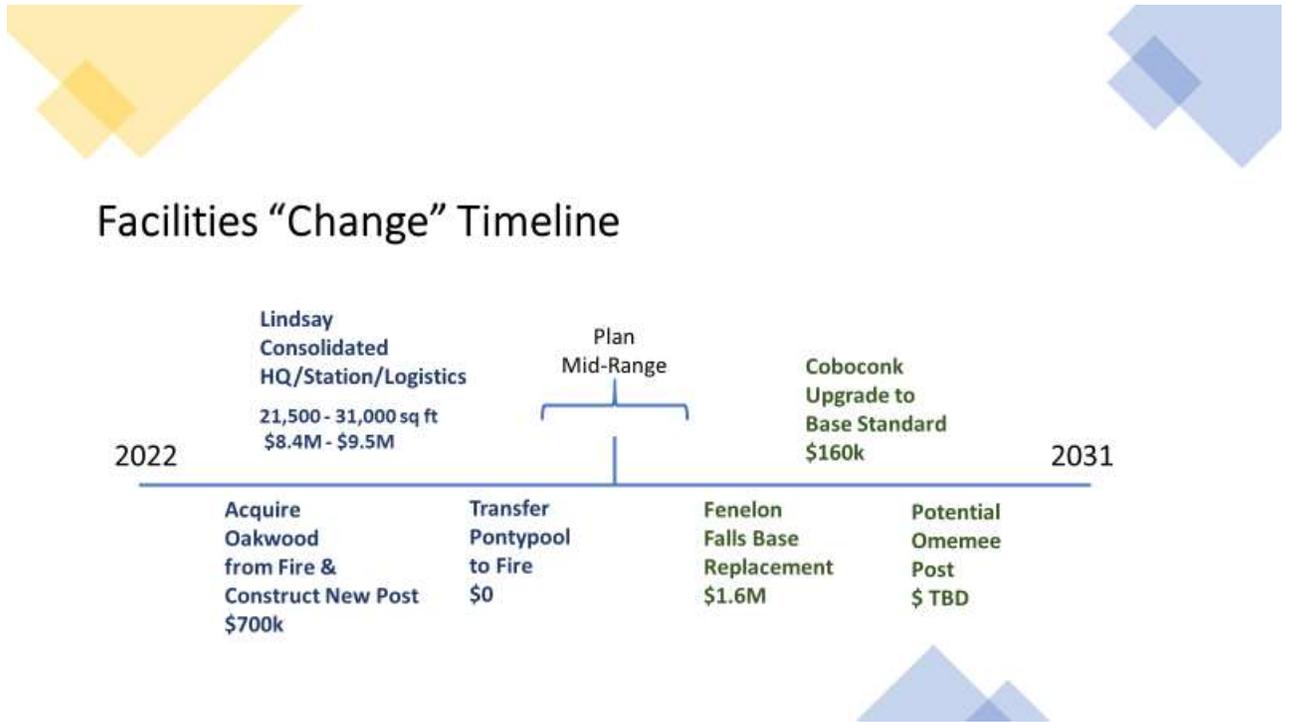


### Coverage Restructuring Timeline



## 6.2 Facility Modernization Recommendations

Recommendations are divided into two distinct time frames... the *Early Plan* period (2022-2026) and a subsequent *Late Plan* period (2027-2031). The timing of recommendations have been coordinated with the Section 6.1 recommendations dealing with restructured coverage and system performance.



### Recommendations Bundle - Early Stage of Plan Facilities (Years 1-5)

Two capital projects are recommended for the first half of the Master Plan.

#### i) Lindsay Facility Consolidation

***Performance Concepts supports/confirms the City staff recommendation to consolidate various Paramedic Service support facilities and the two Lindsay response stations into a single "central start" facility located in West Lindsay as per the modelling summary chart provided in Section 5.5.7 of this Master Paster Plan.***

- The Pro Forma completed by City staff and shown below, describes an appropriately sized and featured facility, which is approximately 3,000 sq ft larger than the combined existing property footprint. This 21,500 sq ft facility has construction costed at \$260 per sq ft. By comparison, the Altus Group 2021 Canadian Cost Guide provides information on public sector construction in two more costly Ontario locations: A GTA cost per sq ft for Fire/EMS stations of between \$450 - \$650, and an Ottawa cost of between \$275 - \$355.

<b>Conceptual Capital Cost Pro Forma for Paramedic South Fleet Centre (2021\$)</b>						
<b>Category</b>	<b>Item</b>	<b>Source / Assumption / Explanation</b>	<b>Quantity</b>	<b>Units</b>	<b>Unit Cost</b>	<b>Extended Cost</b>
Land	Land	2-acre urban site required	2.0	Acres	120,000	240,000
	Legal Services	Legal and transaction expenses	1	Each	13,000	13,000
Construction	Site Preparation	Conversion of site	8,090	m <sup>2</sup>	12	97,000
	Landscaping	20% of site is landscaped	1,620	m <sup>2</sup>	9	15,000
	Paving	35% of site is paved	2,830	m <sup>2</sup>	103	291,000
	Fencing & Gating	Enclosure of irregular site	476	m	98	47,000
	Lighting	1 light standard per acre	2	Each	6,200	12,000
	Building	Paramedic Service Master Plan	21,500	ft <sup>2</sup>	260	5,590,000
	Electricity Service	Connection and emergency generator	1	Each	36,000	36,000
	Water & Sewer Service	Connection to municipal services	1	Each	46,000	46,000
	Storm Sewer Service	Connection to municipal services	1	Each	23,000	23,000
	Fuel Station	Above-ground tank and system	1	Each	41,000	41,000
	Payable HST	1.76% of non-DC construction cost	1	Each	109,000	109,000
	Development Charges	Urban-Lindsay service area	1,998	m <sup>2</sup>	202	404,000
	Other	Design	5% of construction cost	1	Each	336,000
Contract Administration		5% of construction cost	1	Each	336,000	336,000
Contingency		10% of project cost	1	Each	764,000	764,000
<b>Total</b>						<b>8,400,000</b>

***While the size proposed by City staff would appear to address expected conventional growth for the period identified in this Master Plan, a number of recommendations based on best practices in new EMS facility construction are provided for consideration in any new design:***

- ***Make employee wellness a priority. Incorporate a dedicated quiet room that can be used for staff stress relief, breast feeding, caring for walk-in patients, etc. Provide an area for staff to exercise in. Incorporate daylighting and operable windows whenever possible.***
- ***Incorporate environmental stewardship with construction at the LEED Silver standard at minimum, and use of solar technologies to aid with battery charging, reduced power consumption, etc.***
- ***Continue the Kawartha Lakes existing leading-edge practice of utilizing state-of-the-art ventilation technologies such as Airmation to eliminate dangerous particulates in garage spaces.***

- *In the light of changing COVID-19 requirements, ensure staff spaces are adequately sized to meet physical distancing requirements at peak staff times (e.g. shift changes). Consider installing passive disinfection technology such as Ultra-Violet to enhance air filtration throughout the building.*
- *Include an elevator if a two-storey design is utilized.*
- *Incorporate a fenced vehicle storage area.*
- *Include a hazardous waste freezer capability in the hazardous waste storage room.*
- *Include dedicated infectious disease decontamination space for staff, vehicles and equipment beyond normal cleaning needs.*
- *Incorporate an automated or semi-automated truck wash to reduce water use, contain wastewater in a restricted area and prevent slips and falls.*
- *Consider a safe refuge vestibule at the front entrance allowing anyone seeking assistance to be able to secure themselves in a safe vestibule and to call for assistance if no one is at the facility.*
- *Plan ahead for the power and data needs staff require both now and in the future. Power and data needs tomorrow will certainly be greater than today. Additional wiring and access points are easier to incorporate during construction, than adding later.*

*Additional consideration for appropriate building size should extend beyond the Master Plan period. Modelling of projected call volumes, staffing and vehicle needs over the 20-year period (2022-2041) reveals the expected indoor parking need at 20 vehicles. Depending on building design (stacked drive-thru bays vs. open concept), this additional parking capacity would add between 2,600 and 9,520 sq ft to the recommended building size. Based on the projected \$260 per sq ft construction cost, this could add between \$676,000 and \$2,475,200 to the cost of the facility. Given that this is warehouse-like garage construction, we would anticipate that the cost would be significantly lower (Altus Group 2021 Construction Cost Guide of \$110 per sq ft), adding between \$286,000 and \$1,047,200.*

*As such, the total project price is expected to be between \$8,686,000 and \$9,447,200 depending on garage style selected.*

#### **ii) Acquire Oakwood, Build New Post & Transfer Pontypool**

*Performance Concepts recommends the following facility recommendations be executed in sequence with the Year 1-5 Coverage recommendations:*

- *Staff negotiate the transfer of the Oakwood Fire Hall location to the Paramedic Service once it is no longer needed by Kawartha Lakes Fire.*
- *Unfortunately, the existing facility cannot be economically upgraded to meet paramedic needs and standards. As such, funding be put in place to demolish the Oakwood Fire Hall and replace it with a 1,320 sq ft single bay paramedic post.*
- *Staff negotiate the transfer of the Pontypool Paramedic Post to Kawartha Lakes Fire once the move to Oakwood is completed.*

## Recommendations Bundle – *Late Stage of Plan Facilities (Years 6-10)*

Two facility upgrade projects are recommended:

### iii) Rebuild Fenelon Falls Base

- *Performance Concepts recommends the relocation and reconstruction of the Fenelon Falls Base as a 3,480 sq ft conventional three-bay function-specific ambulance station meeting operational best practices and standards.*
- *An ideal City-owned location is currently available on the site of the former Fenelon Falls Arena.*
- *The existing station location may be sold with proceeds helping offset the cost of the new facility.*

### iv) Upgrade Coboconk Post to Base

- *Performance Concepts recommends constructing an addition to the Coboconk Post to better enable its de-facto "Base" functionality, including sleeping quarters, sufficient space to allow appropriate staff distancing, and a second exit from the crew area.*

## 6.3 Flattening the Call Volume Demand Curve

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### Recommendations Bundle

*The following "flatten the curve" initiatives are recommended to secure the call volume and In-Service time reductions set out in the Section 4.10.3 revised demand forecasts for 2022-2031.*

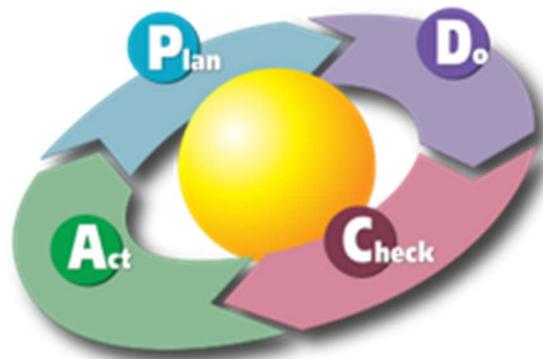
- *Design and execute a 9-1-1 Public Awareness Campaign to reduce unnecessary/avoidable service requests/ambulance calls.*
- *Develop and execute a business plan to scale up CPP \$ and resources, utilizing the large Provincial multi-million dollar funding allocations already received by other Ontario paramedic services.*
- *Engage with the Province (ongoing advocacy campaign) to rollout the AMPDS Dispatch model/alternate pathways based on best practices already adopted in Niagara Region and elsewhere. Work through the Ontario Association of Paramedic Chiefs, AMO and other organizations/forums.*

## 6.4 Annual Report Card & Business Plan Performance Targets

### Recommendations Bundle

*The Kawartha Lakes Paramedic Service should expand its currently mandated Response Time Performance Plan to include other key paramedic system performance metrics and targets.*

- *Expanded KLPS system performance targets/metrics should address annual + hour-of-day system busyness, hospital offload delay, and a Code Zero profile. Measurement of community paramedicine/alternate pathways impacts is also appropriate.*
- *Expanded performance targets should also monitor/address down-staffing service delivery interruptions and community paramedicine work volumes delivered by existing deployed paramedics.*
- *Kawartha Lakes performance targets/results reports should be integrated with the City's annual budget process. The result should be a Results Based Management Plan-Do-Check-Act continuous improvement business planning cycle.*



## 7.0 Implementation Roadmap

### 7.1 Relentless Focus on Execution

Initiating significant change to achieve improved organizational performance is always hard. It requires a relentless focus on the execution of a well-designed Implementation Roadmap.

The Performance Concepts team has created a carefully phased roadmap; balancing a quick/timely pace of change with a recognition that capacity limitations and financial realities need to be realized/respected.

The Roadmap is phased across the following two time periods: **Early Plan** (2022-26) and **Late Plan** (2027-2031). Specific timing of some recommendations to be defined by annual review of analytics “triggers”.

### 7.2 Restructuring Coverage and Improving System Performance

Recommendation	EARLY PLAN 2022-26	LATE PLAN 2027-31
<b>Restructuring Coverage and Improving System Performance</b>		
<ul style="list-style-type: none"> <li>Negotiate Cross-Border Service Agreement/Common Deployment Strategy with Peterborough County</li> <li>Sequence transition of Pontypool coverage to Oakwood</li> <li>Conduct analytics reassessment re. timing of Lindsay 12-hour resource</li> <li>Master Plan refresh/progress assessment upon AMDPS initiation</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> </ul>	<ul style="list-style-type: none"> <li></li> <li></li> <li></li> <li>✓</li> </ul>

### 7.3 Facilities Modernization

Recommendation	EARLY PLAN 2022-26	LATE PLAN 2027-31
<b>Facility Modernization</b>		
<ul style="list-style-type: none"> <li>Lindsay Facility Consolidation</li> <li>Acquire Oakwood, Build New Post &amp; Transfer Pontypool</li> <li>Rebuild Fenelon Falls Base</li> <li>Upgrade Coboconk from Post to Base</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li></li> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> <li></li> <li>✓</li> <li>✓</li> </ul>

#### 7.4 Flattening the Call Volume Demand Curve

Recommendation	EARLY PLAN 2022-26	LATE PLAN 2027-31
<b>Flattening the Call Volume Demand Curve</b>		
<ul style="list-style-type: none"> <li>Design and execute 9-1-1 Public Awareness Campaign</li> </ul>	✓	
<ul style="list-style-type: none"> <li>Develop and execute business case re Provincial CPP funding allocations</li> </ul>	✓	
<ul style="list-style-type: none"> <li>Engage with Province to rollout AMPDS dispatch model/alternative pathways</li> </ul>	✓	

#### 7.5 Annual Report Card & Business Plan Performance Targets

Recommendation	EARLY PLAN 2022-26	LATE PLAN 2027-31
<b>Annual Report Card &amp; Business Plan Performance Targets</b>		
<ul style="list-style-type: none"> <li>Expand KLPS system performance targets</li> </ul>	✓	
<ul style="list-style-type: none"> <li>Expand performance targets to monitor/address down-staffing</li> </ul>	✓	
<ul style="list-style-type: none"> <li>Integrate KLPS performance targets with City's annual budget process</li> </ul>	✓	

## 8.0 Conclusion

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This evidence-based Master Plan puts-forward a series of “front-end” resource deployment/coverage restructuring recommendations. The resource deployment/coverage recommendations are supported and informed by analytics and data. Consistent with patient centric master planning principles, data and evidence determined the “what” storyline of the 2022-2031 Master Plan. This storyline was confirmed by internal and external stakeholder input/feedback.

The Master Plan recognizes that the still-evolving AMPDS/Treat and Refer “gamechanger” renders the back end of the 10-year Master Plan uncertain at this point - a mid-Plan re-fresh will be essential once the AMPDS dispatch model is in place for Kawartha lakes.

The Master Plan also charts a course for a necessary Paramedic Service facilities decade-long modernization program. This asset lifecycle driven capital modernization program is essential from the perspective of frontline paramedics and will ensure compliance with O Reg 588/17. Facility consolidation in Lindsay will generate significant logistic efficiencies compared to the current dispersed model.

Finally, the Master Plan recommendations around more robust performance metrics/public reporting and value-for-money will better inform evidence-based decision-making by Council, and ensure the go-forward planning process remains responsive to evolving circumstances.