



Committee of the Whole Report

Report Number: EMS2023-005
Meeting Date: September 12, 2023
Title: Paramedic Service Operational Key Performance Indicators
Description: Paramedic Service Operational Key Performance Indicators
Author and Title: Sara Johnston, Paramedic Chief

Recommendation(s):

That Report EMS2023-005, **Paramedic Service Operational Key Performance Indicators**, be received.

Department Head: _____

Financial/Legal/HR/Other: _____

Chief Administrative Officer: _____

Background:

The purpose of this report is to provide an overview of a suite of operational key performance indicators (O-KPIs) collected by Kawartha Lakes Paramedic Service for the purpose of performance reporting to Council and the public.

The number one priority of Kawartha Lakes Paramedic Service is to provide the best possible prehospital clinical care to the residents and visitors of the City of Kawartha Lakes and to do so in the most effective and efficient method possible. To achieve this, department administration performs annual analyses of paramedic service call volumes, response times and patient outcomes (where possible). The valuable result of this analyses is evidenced by the Service's ability to meet and exceed response time targets while facing disproportionately higher call volume increases and with rates of service expansion and operating costs which fall below the regional average.

While remaining committed to continual response time and deployment analyses and reporting, the department has broadened the scope of its performance measurement by introducing an expanded suite of operational key performance indicators (O-KPI) that look well beyond traditional (and legislated) response time performance. The intent of O-KPIs is to provide Council and the public a detailed view of the Paramedic Service's operational efficiency and to provide benchmarking that will form the basis of ongoing evaluation and performance strategy.

Analysis

The Operational Key Performance Indicators described within this report consist of a combination of traditional and legislated measures (response time and call volumes) combined with a suite of performance metrics developed by the Paramedic Chiefs of Canada (PCC). These measures were designed to contribute to the systematic improvement of EMS delivery through the advancement of national performance measures that are evidence-informed, comprehensive and able to be broadly applied.

In Ontario, there are very few sources of comparator data for paramedic service performance and benchmarking. The Municipal Benchmarking Network (MBN – www.mbncanada.ca) does include six Emergency Medical Services measurements and where applicable this data is included for comparison.

For summary purposes, this report includes a broad sampling of O-KPI's for the Paramedic Service. For a full analysis, the 2022 O-KPI's Summary sheet is included as Appendix A of this report.

Call Volume – Vehicle Assignments

Traditionally, call volume statistics have included all vehicle assignments in response to calls for Paramedic Service within the City of Kawartha Lakes. This statistic can be somewhat misleading when evaluating service demand as vehicle assignments to provide coverage for other areas (stand-by) are included and often, more than one vehicle may be assigned to a response. To demonstrate demand trends more accurately, this report provides call volume trends in both vehicle assignment and individual requests for service (patients).

In 2022, the number of Emergency/Urgent (Code 4 – Urgent/life threatening) calls dispatched was 9,724 – an increase of 12.81% over 2020 and Prompt (Code 3 – Prompt/Serious) calls was 4,073, an increase of 24.86%. The Paramedic Service responded to unprecedented growth in call volume by making adjustments to the mobile deployment strategy. These adjustments included reducing the number of Code 8’s (stand-by). As such, **there was an overall decrease in vehicle assignments of 6.47%**. Despite this decrease in all vehicle assignments, the average year over year increase for the reporting period below is 2.43% (Figure 1).

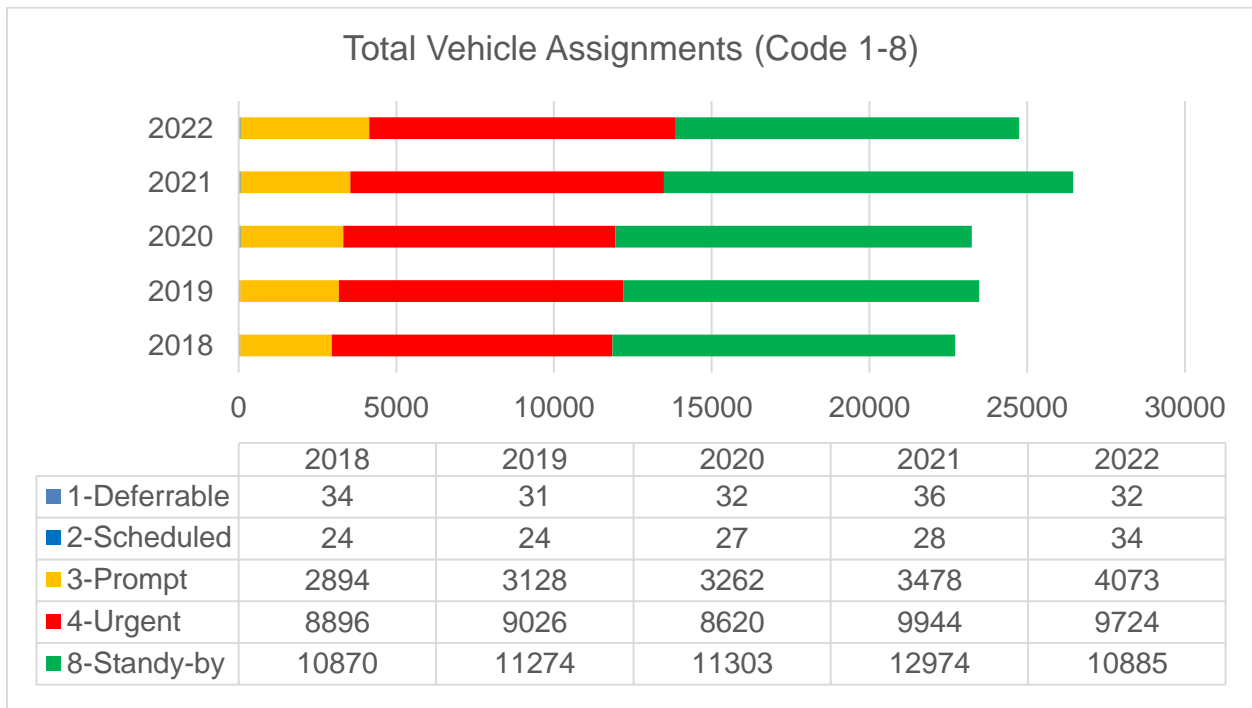


Figure 1

Total Vehicle Assignments (Code 1-8)	22,718	23,483	23,244	26,460	24,748
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Patient Call Volume

An analysis of individual patient call volume is represented in Figure 2, which provides a more meaningful representation of actual demand for service. In 2020 the Paramedic Service experienced a decrease in volume as compared to the previous upward trend. This anomaly appears to be associated with the COVID-19 Pandemic. Paramedic Services across Ontario as well as many Hospital Emergency Departments experienced similar trends. In 2021 and 2022 we returned to an **increase in service demand with an unprecedented rate of 15.74%**. The five-year average rate of increase is 4.15%.

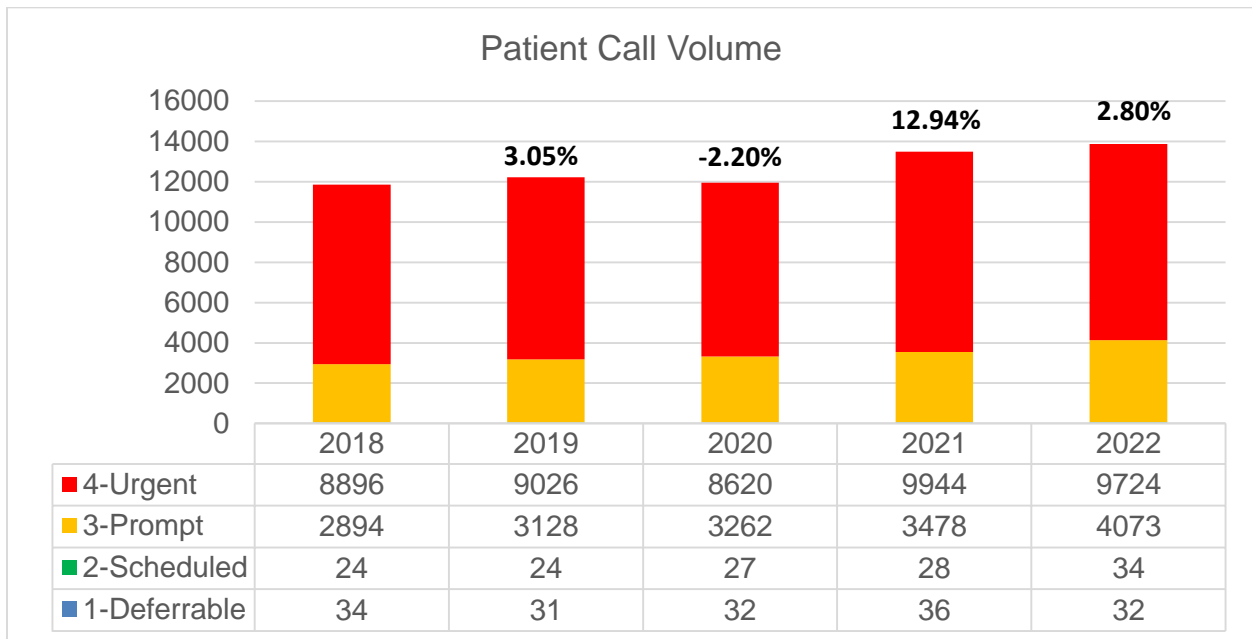


Figure 2

Response Time Performance

O-KPI RTP-1 is a measurement of response time performance against the Council approved Response Time Performance Plan (RTPP). This measurement is also reviewed and reported annually as mandated by the Reg. 257 of the Ambulance Act. As demonstrated in Figure 3 below, Paramedic Service performance continues to exceed all targets, although with some deterioration of performance over the previous year.

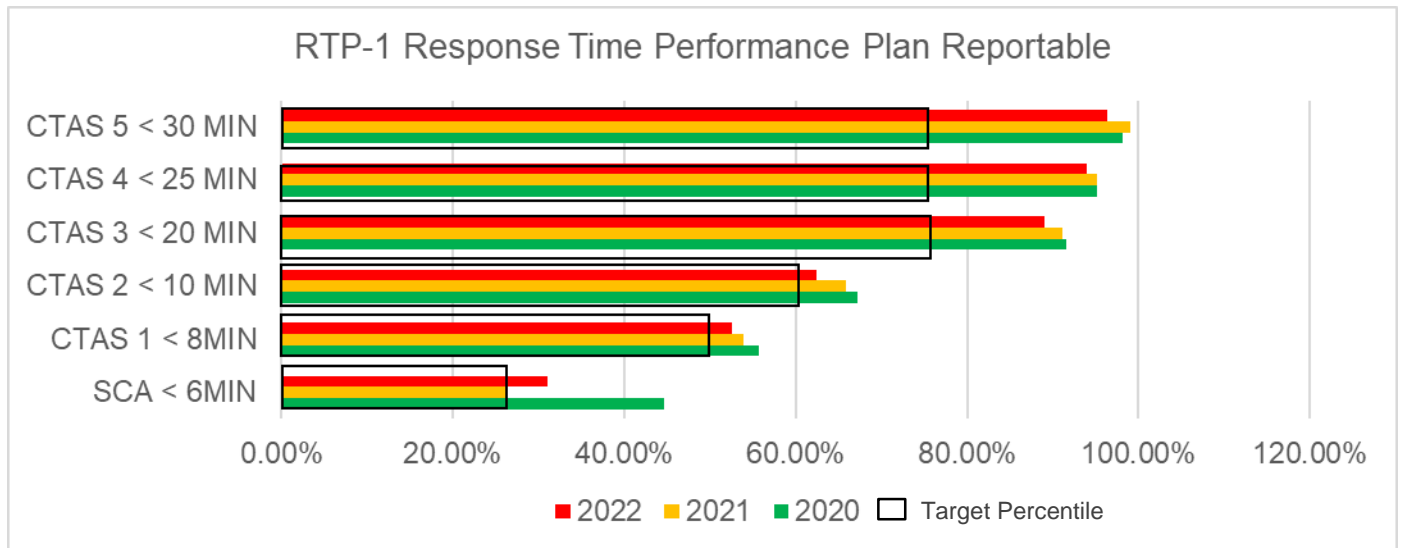


Figure 3

Volume Measures – Per Capita

Figures 4 & 5 below demonstrate the volume measures for both emergency Code 3 and 4 calls (Figure 4) and non-emergency calls Code 1 and 2 (Figure 5) for the City of Kawartha Lakes. Emergency responses per capita remains elevated in 2022 at 174/1000 population.

This demand for service is also significantly higher than those reported by the participants of the Municipal Benchmarking Network (MBN – www.mbnCanada.ca) which reports mean EMS demand for service at 127/1000 population.

Non-urgent call volume remains very low in the City of Kawartha Lakes at 0.83/1000 population. This is a result of deployment plan strategies as well as the significant volume of patient transfers accommodated by Community Care.

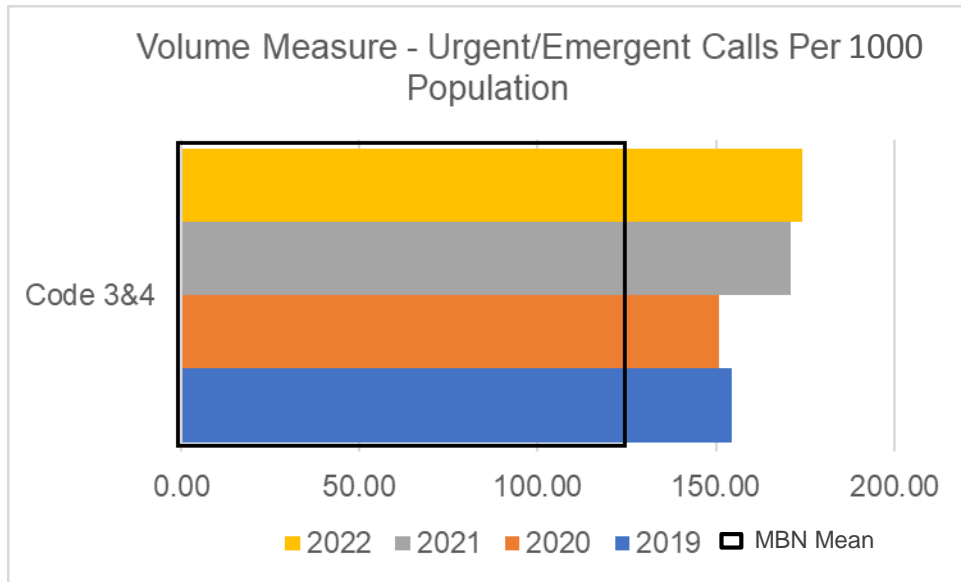


Figure 4

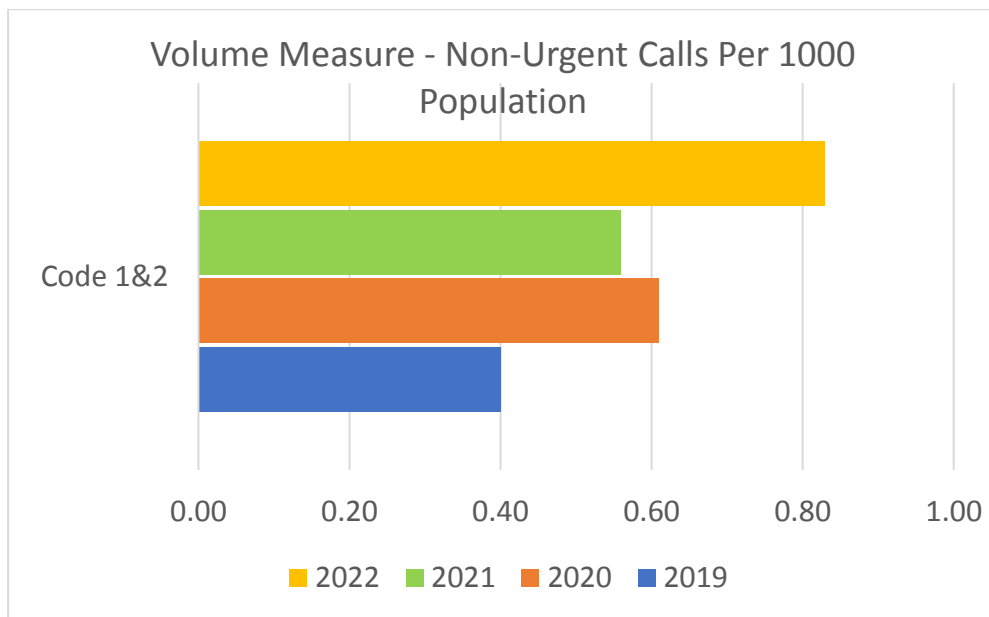


Figure 5

Utilization Measures

Measures U-1 and U-2 are measures used to demonstrate the rates of resource utilization or conversely, rates of resource availability of emergency response for the community. Unit hour utilization varies greatly among EMS systems, and there is no generally accepted consensus regarding the ideal ratio. This is due to many influencing factors such as system design, population/call density and geographic differences. As a general rule however, it has been theorized that in order to maintain system reliability, utilization rates should not exceed 35%. This theory appears to be demonstrated by the increasing Resource Level Zero and Cross Border Call Volume Rates demonstrated below.

It is also important to note that unit hour utilization traditionally does not capture productivity outside of responding to emergency calls, such as the completion of required documentation cleaning, restocking, etc.

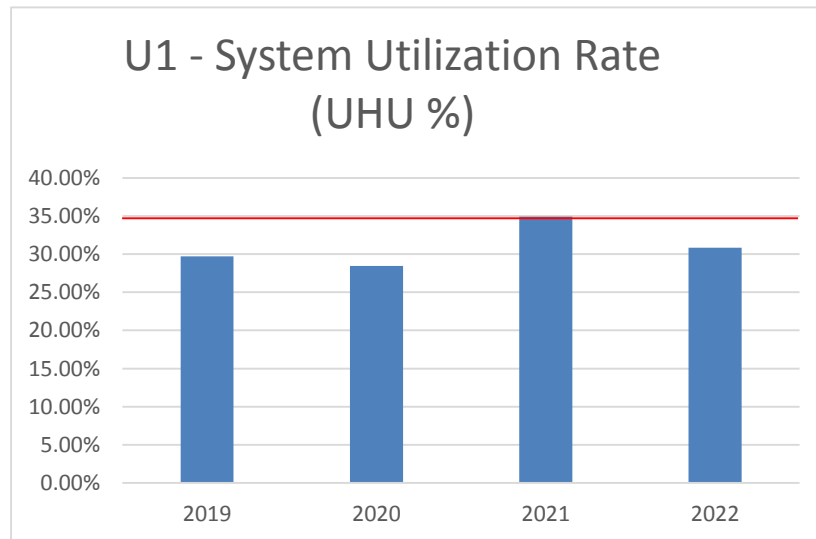


Figure 6

When all ambulances are engaged in calls, the Service is considered to be in Code 0 – meaning there are zero City of Kawartha Lakes ambulances in the area available to respond to an emergency call. Code Zero represents a significant level of patient risk as that call will typically receive a slower than average response time. In 2022, the Code 0 incidents surged over 80%, with the Service experiencing zero ambulance availability 27.4 minutes each day. This does not mean that calls went unanswered,

rather a delay occurred before an ambulance was freed up to respond, or in some cases, attended by a neighbouring service.

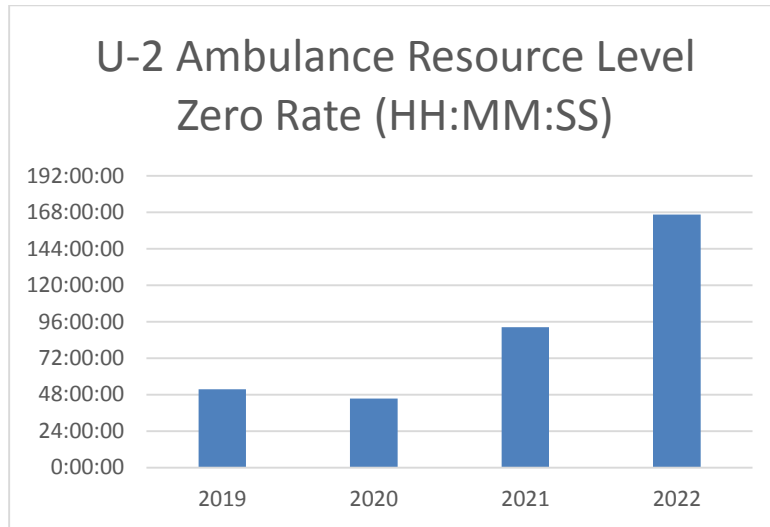


Figure 7

Figure 8 is a utilization O-KPI providing measurement that compares the volume of paramedic service responses within the City of Kawartha Lakes completed by other Municipality's ambulances, against the volume of response by Kawartha Lakes Paramedics into external municipalities.

This measure is useful in evaluating the efficacy of the service levels provided in meeting the current needs. The Service has worked diligently to implement deployment strategies that reduce the reliance on neighbouring services, in efforts to mitigate delayed responses and increased cost associated with cross-border billing agreements. The City of Kawartha Lakes currently has one formal cross-border billing agreement with Haliburton, despite sharing borders with other municipalities (Peterborough, Durham). The City of Kawartha Lakes transferred \$145,000 to Haliburton in 2022 for response to calls within City limits.

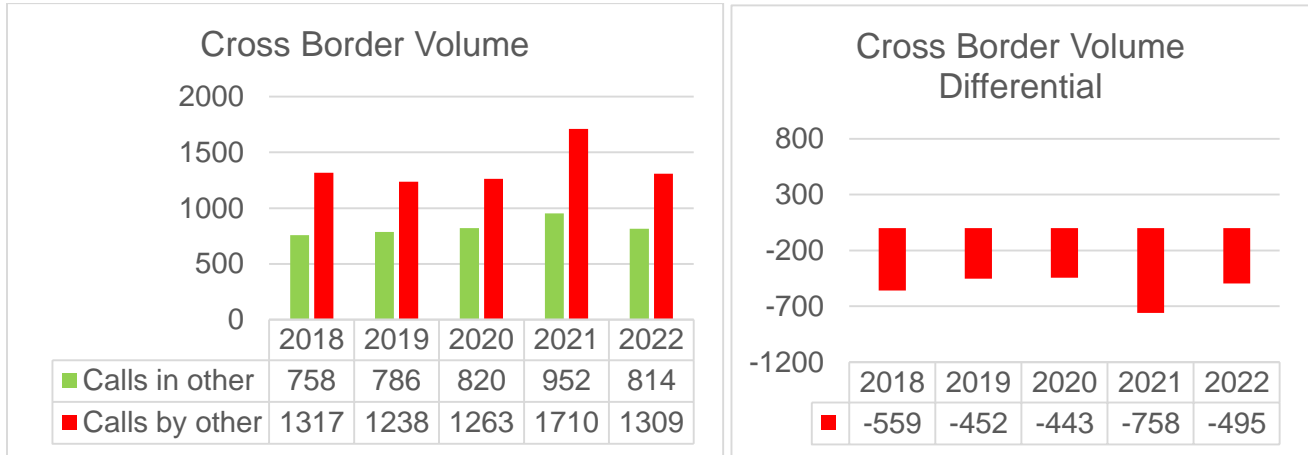


Figure 8

System Design/Deployment Measures

Charted below, in Figure 9, are the System Design and Deployment Measures. The first category shows Average at Hospital Time, with the second category displaying the Average Offload time.

The last two categories are our 90th Percentile at Hospital Time and 90th Percentile Offload Time.

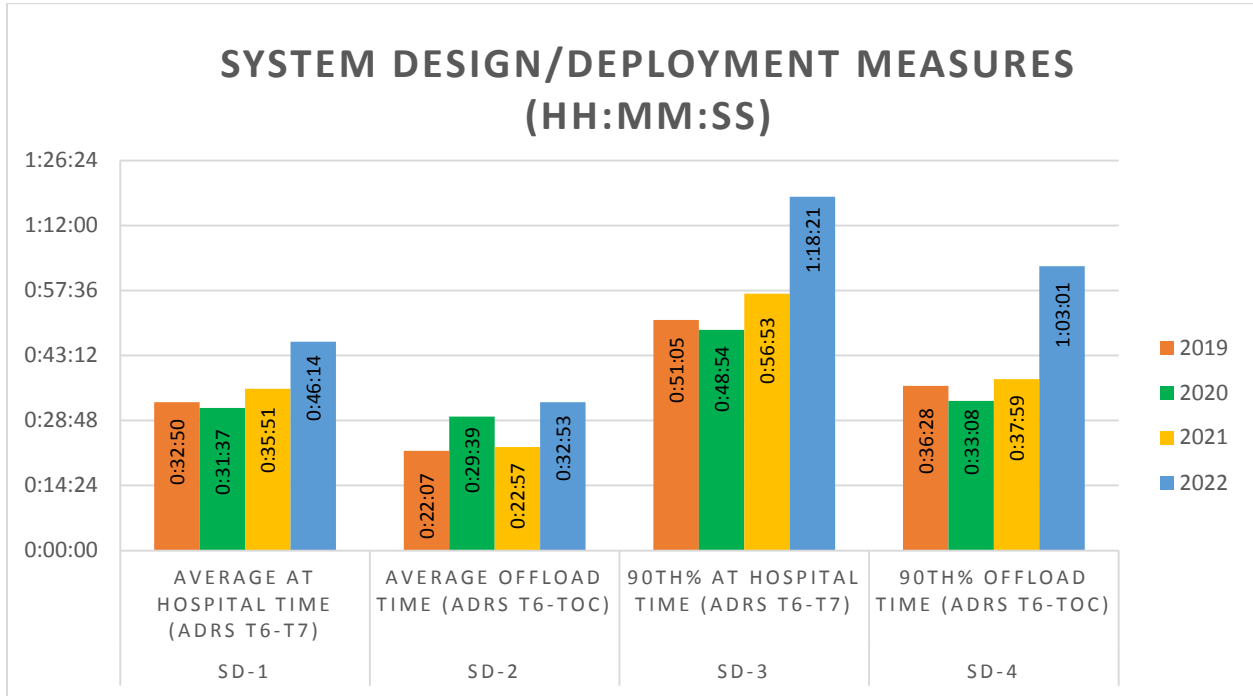


Figure 9

Figure 10, SD – 5 depicts the percentage of emergency responses that received Advanced Care Paramedic response vs Primary Care Paramedic (PCP). SD – 6 represents a comparison if ACP response vs PCP response to CTAS 1 (high acuity) categorized patients. The strategy of the City of Kawartha Lakes to maintain a 50% ACP/PCP ratio has resulted in superior performance in this measurement.

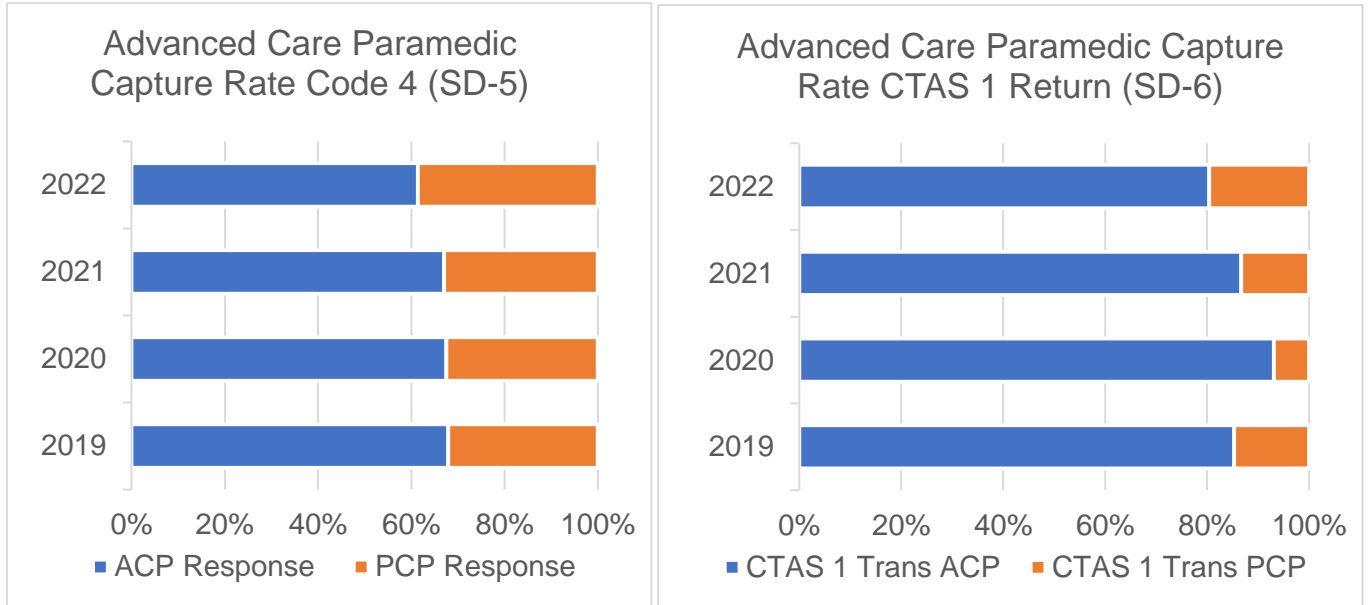


Figure 10

Finance/Funding Measures

Figure 11 compares data for 2022 over previous years for Operating Cost per Capita, Operating Cost per Event and Operating Cost per Unit Hour. With fluctuating call volumes, inflation and equipment costs, 2022 operating cost per event increased over the previous year's rates by 12.77%. Operating Cost per Capita and Operating Cost per Unit Hour have remained fairly static and are below the MBN comparator mean (\$241.00) and at a rate of increase well below the 2022 annual average CPI increase (6.8%).

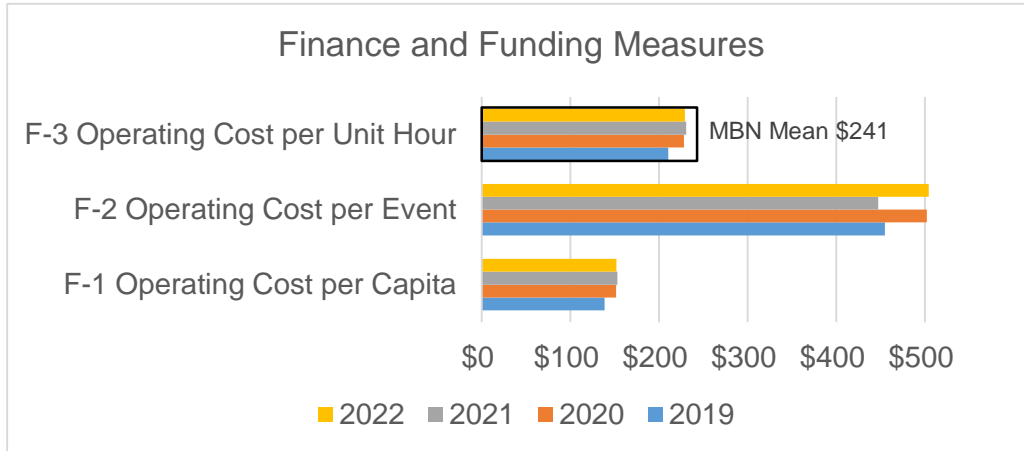


Figure 11

Fleet Measures

Figure 12 below depicts cost per kilometer for both Fleet Maintenance and Fleet Operating (non-capital) Costs. Total fleet operating costs increased by \$0.08 per kilometer in 2022 over 2021 with total per kilometer operating cost at \$0.59/km in 2022 over 2021 at \$0.51/km.

Influencing factors related to this performance measure include significant fuel cost increases and several significant vehicle repairs, given aging fleet and supply chain challenges.

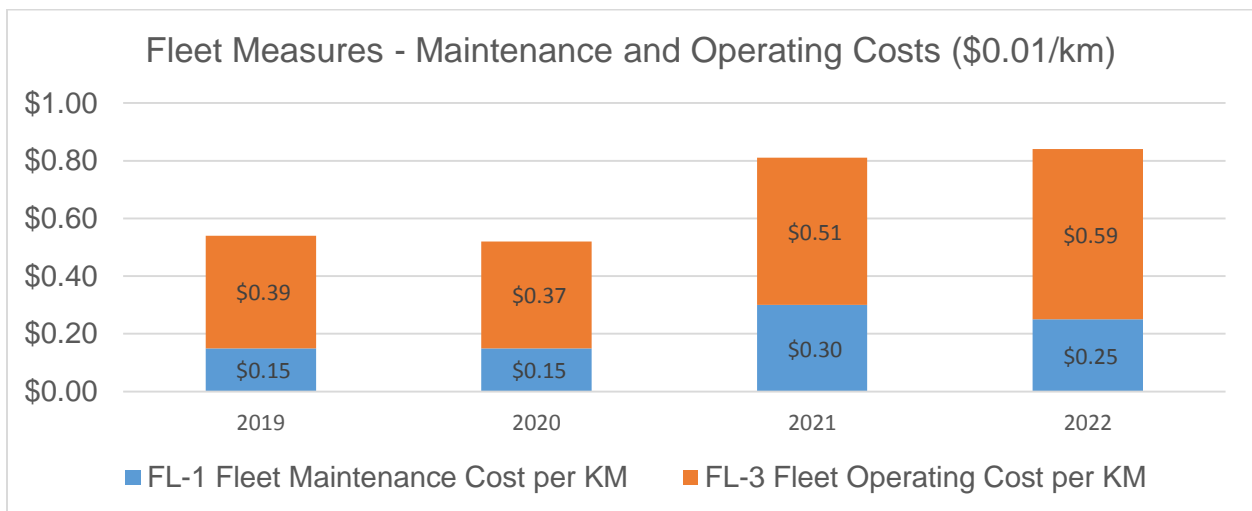


Figure 12

Figure 13 below demonstrates a rate of vehicle incident/collisions on an upward trend per 100,000kms. In 2022, rates indicate an incidents/collision instance rate of 1.68 per 100,000 kms. The department will be examining this trend to seek opportunities to improve.

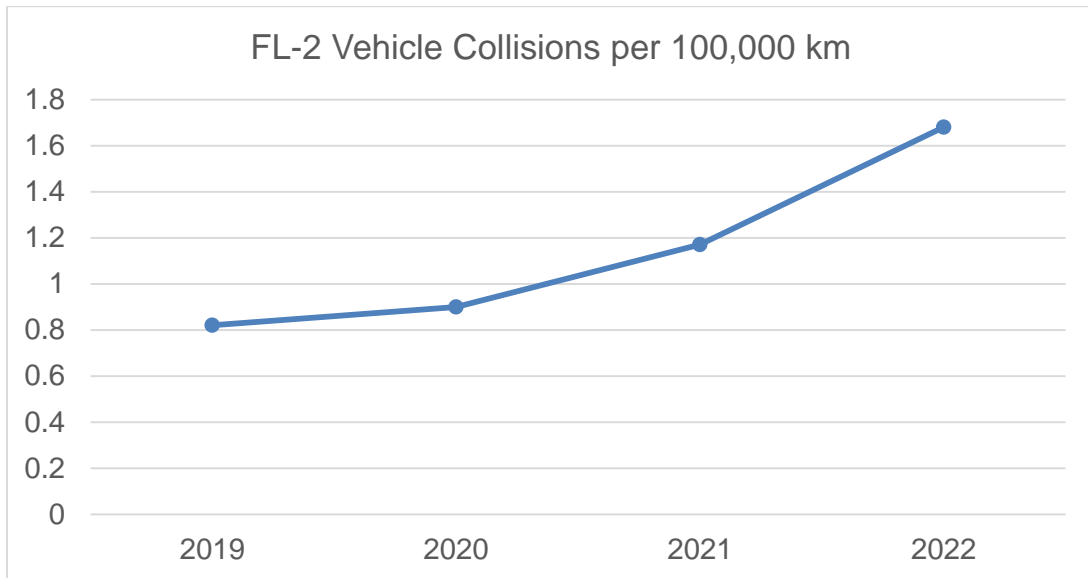


Figure 13

Carbon Emissions Measures

Total Annual Fleet Carbon Emissions and Carbon Emissions per Capita measures increased in 2022 over 2021. This logically follows the increased mileage travelled by the fleet as call volume increases in the absence of mitigation strategy.

Additional influencing factors include fleet age/fuel efficiency, vehicle model and size. Ambulances used in the City of Kawartha Lakes are among the largest models and therefore, higher carbon emitters.

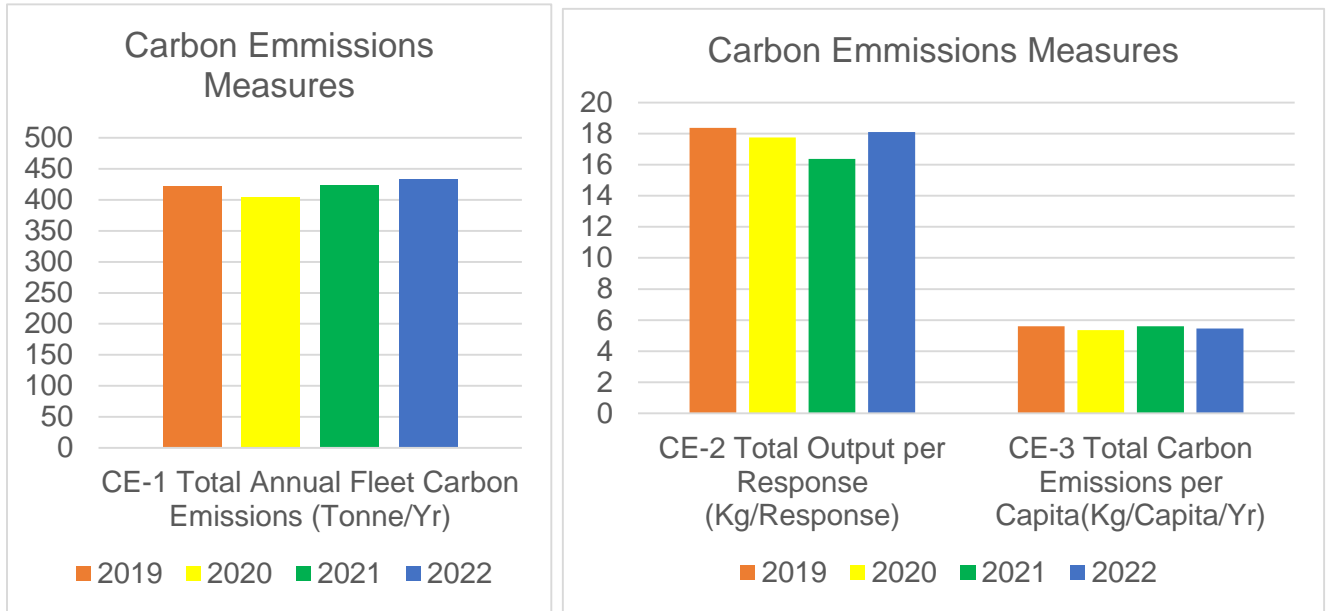


Figure 14

Satisfaction Measures

Paramedic Service Stakeholder satisfaction measurement is a performance metric currently under development for the Paramedic Service. Current methodology is limited to the passive approach of a comparison of commendations vs complaints received as a result of service provided. A measurement of time for complaint investigation has been added for inclusion in future KPI reporting.

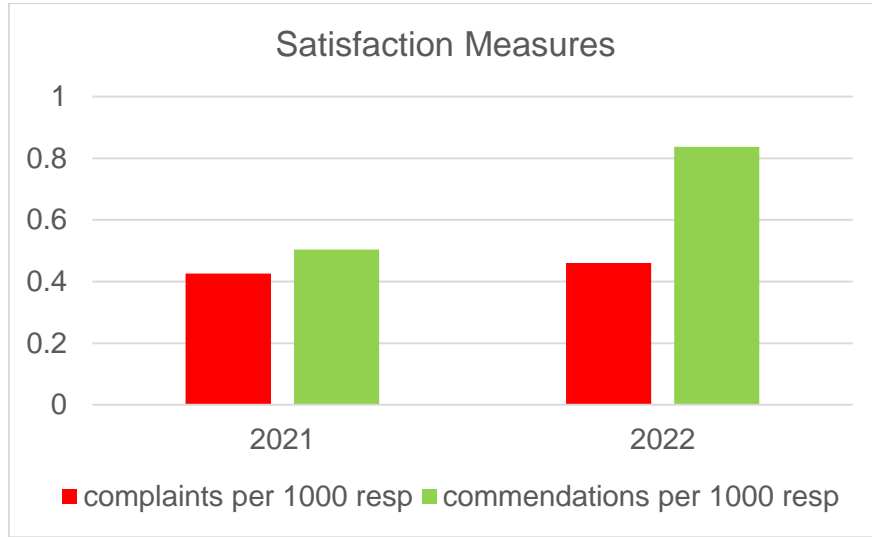


Figure 15

Occupational Health & Safety

Figures 16 and 17 demonstrate Occupational Health and Safety (OHS) Measures, OHS 1 through 4, which evaluate injury rates and resultant lost time claims. Frequency Rate for Injury and Lost Time Incidents remains lower than many comparators, however the average lost time hours per claim is very high. This metric warrants further analysis to identify causes and opportunities for improvement and mitigation.

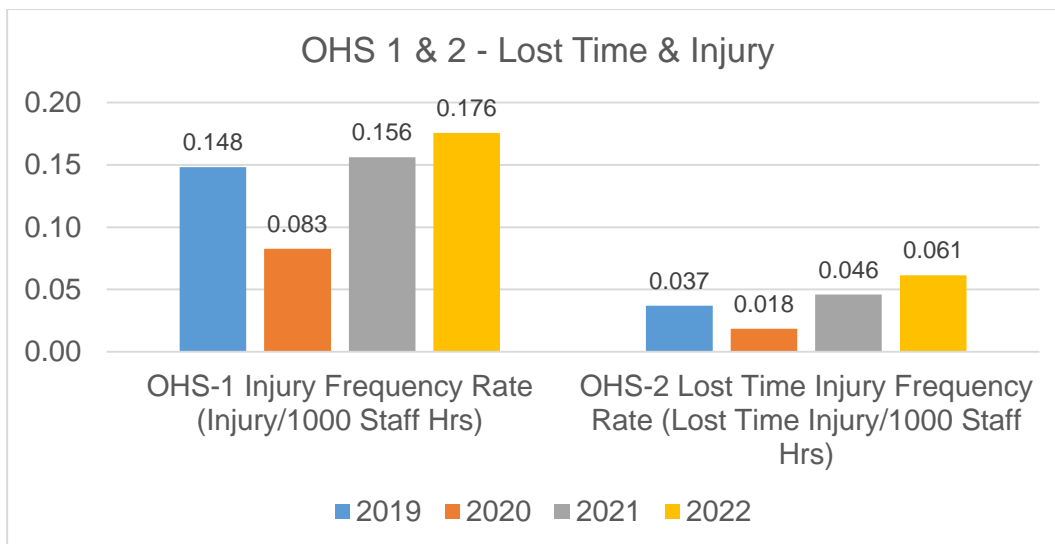


Figure 16

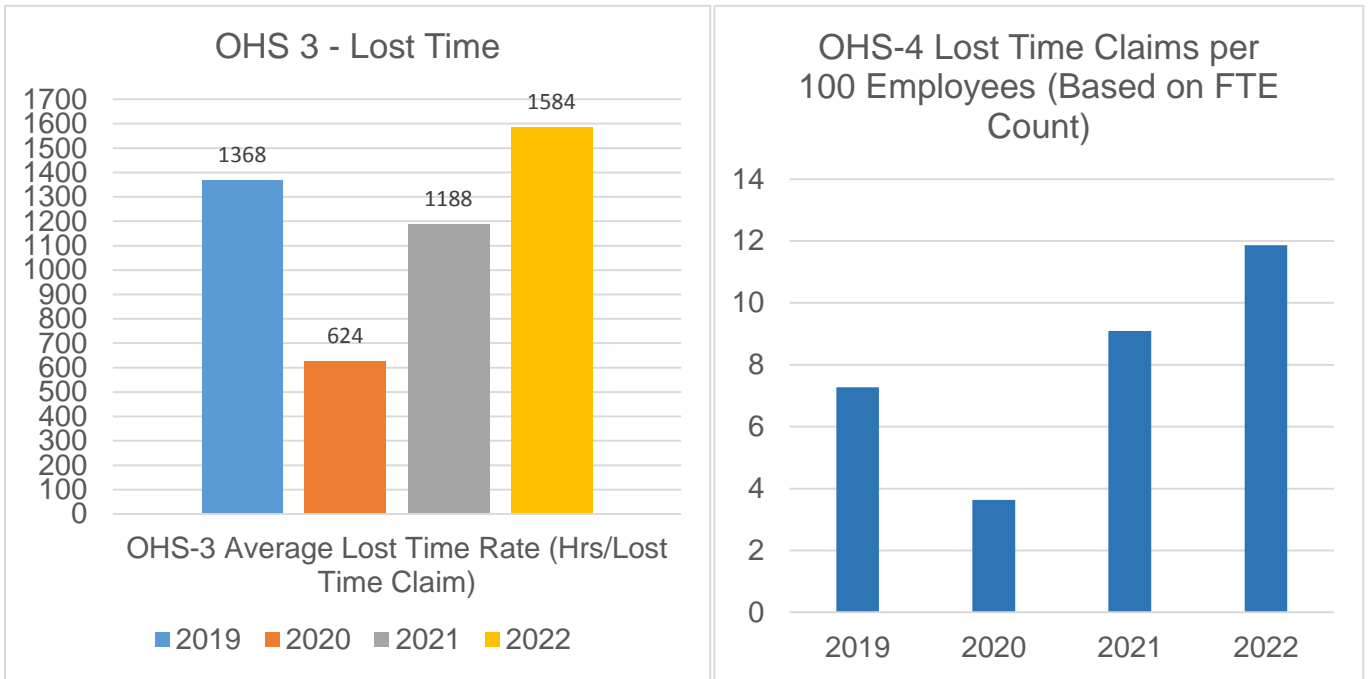


Figure 17

Human Resource Measures

During the O-KPI reporting period, call volumes have continued to rise. During the same reporting period, the Paramedic Service increased staffing levels by four full time Paramedics (1 – 12-hour resource) as demonstrated in HR 1&2 (Figure 18). Along with other mitigation strategies, this has positively impacted the utilization rates as in measure U-1 (Figure 6). Despite mitigation strategies, the Paramedic Service Resource Level Zero Rates as demonstrated in measure U-2 (Figure 7) continues to rise at a concerning rate.

Due to impacts of the COVID-19 pandemic in 2020, Paramedic Services amended work plans to reduce expenses and to limit in person gathering for training. This resulted in a reduction of Paramedic Continued Education hours. The department was able to provide typical training through transition to alternate training methods in 2021 and 2022. (Figure 18)

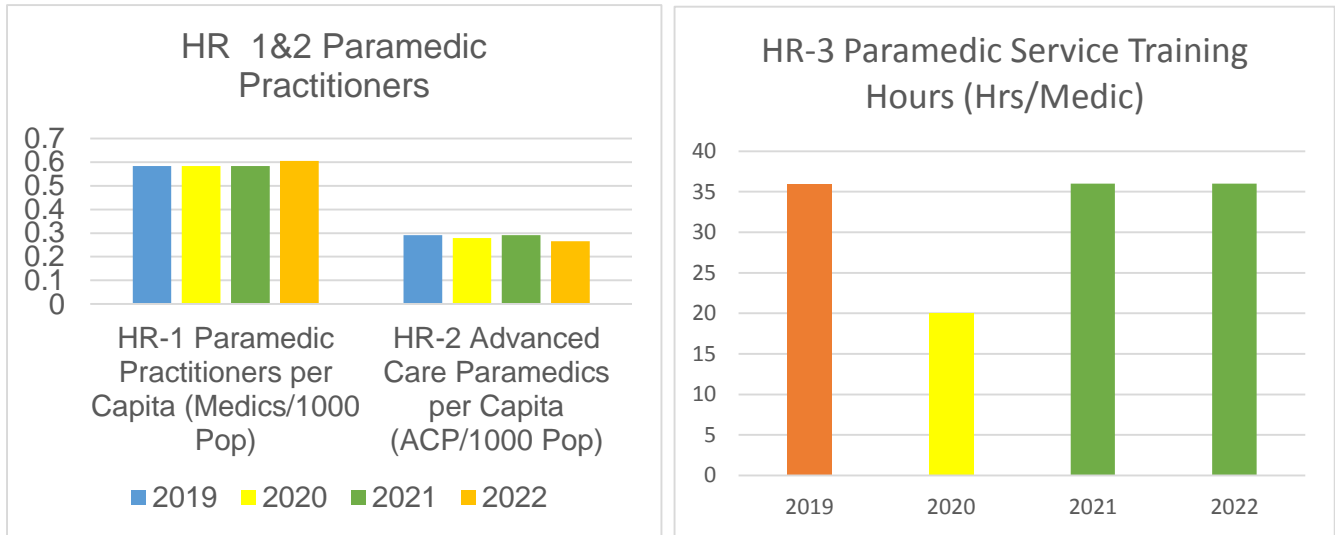


Figure 18

Key Findings:

1. Demand for Service & Resource Level
 - a. Increasing at unprecedented rate
 - b. Increase to frontline staffing levels and deployment strategies have had positive impact on Resource Utilization Rates/system busyness and reliance on cross border service
 - c. Resource Level Zero Rates increased
2. Financial Performance
 - a. Per capita cost increase below annual CPI and remains below Municipal Benchmarking Network comparator mean.
 - b. Fleet costs increasing concurrent with service demand and increasing fuel costs.
3. Human Resources
 - a. Loss time injury rates require attention
 - b. High quality level of care is consistently provided to the community
4. Fleet
 - a. Fleet operational cost likely to exceed current budget expectations due to high fuel and maintenance costs
 - b. Safety measures need to be considered to decrease vehicle incident frequency
 - c. Strategies are required to reduce emissions

5. Stakeholder Satisfaction
 - a. Meaningful measures should be developed to qualify service delivery expectation and performance

Other Alternatives Considered:

N/A

Alignment to Strategic Priorities

The Paramedic Service Key Performance Indicator Report aligns with the following strategic priorities:

Good Government

Development of Performance Metrics supports departmental strategies that ensure municipal assets and operations are managed efficiently and effectively. A continuous review of operational efficiencies ensures that best municipal practices are adopted.

A Vibrant and Growing Economy

Evaluation of Performance Metrics will support effective Paramedic Service response operations and service delivery.

An Excellent Quality of Life and Service Excellence

Implementation of service delivery guided by Performance Metrics will help support efficient delivery of Paramedic Service response operations and assists the general well-being and overall health and safety of residents.

Financial/Operation Impacts:

Performance Metric analysis will be used as a guiding document for the Paramedic Service in supporting and enabling future strategic planning and departmental work plan objectives. Financial impacts either through efficiencies or investment deemed appropriate through O-KPI analysis would be included in future budget deliberation.

Attachments:

Appendix A – 2022 Operational Key Performance Indicator Comparison Chart



Appendix A

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Department Head: Sara Johnston, Paramedic Chief