



## Committee of the Whole Report

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**Report Number:** EMS2022-001

**Meeting Date:** May 3, 2022

**Title:** **Paramedic Service Operational Key Performance Indicators**

**Description:** An update on Kawartha Lakes Paramedic Service performance, including 2021 annual performance reporting and past year comparisons.

**Author and Title:** Randy Mellow, Paramedic Chief

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### Recommendation(s):

**That** Report EMS2022-001, **Paramedic Service Operational Key Performance Indicators**, be received; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council meeting on May 17, 2022.

**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 City of Kawartha Lakes and to do so in the most effective and efficient method possible. To achieve this, department administration performs annual analysis of paramedic service call volumes, response times and patient outcomes (where possible). The valuable result of this analysis is evidenced by the services 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 analysis 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 the City and public a detailed view of the paramedic service 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 tradition 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 comparators data for paramedic service performance and benchmarking. The Municipal Benchmarking Network (MBN – [www.mbncanada.ca](http://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 2021 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 and often more than one vehicle may be assigned to a response. To demonstrate demand trends more accurately, this report provides call volume trend in both vehicle assignment and individual requests for service (patients).

In 2021, the number of Emergency/Urgent (Code 4 – Urgent/life threatening) calls dispatched was 11,136 – a increase of 18.02% over 2020 and Prompt (Code 3 – Prompt/Serious) calls was 4,162, an increase of 10.54%. **There was an overall increase of 15.27%** for all responses including incident standby calls (Code 8). The average year over year increase for the reporting period below is 3.73% (Figure 1)

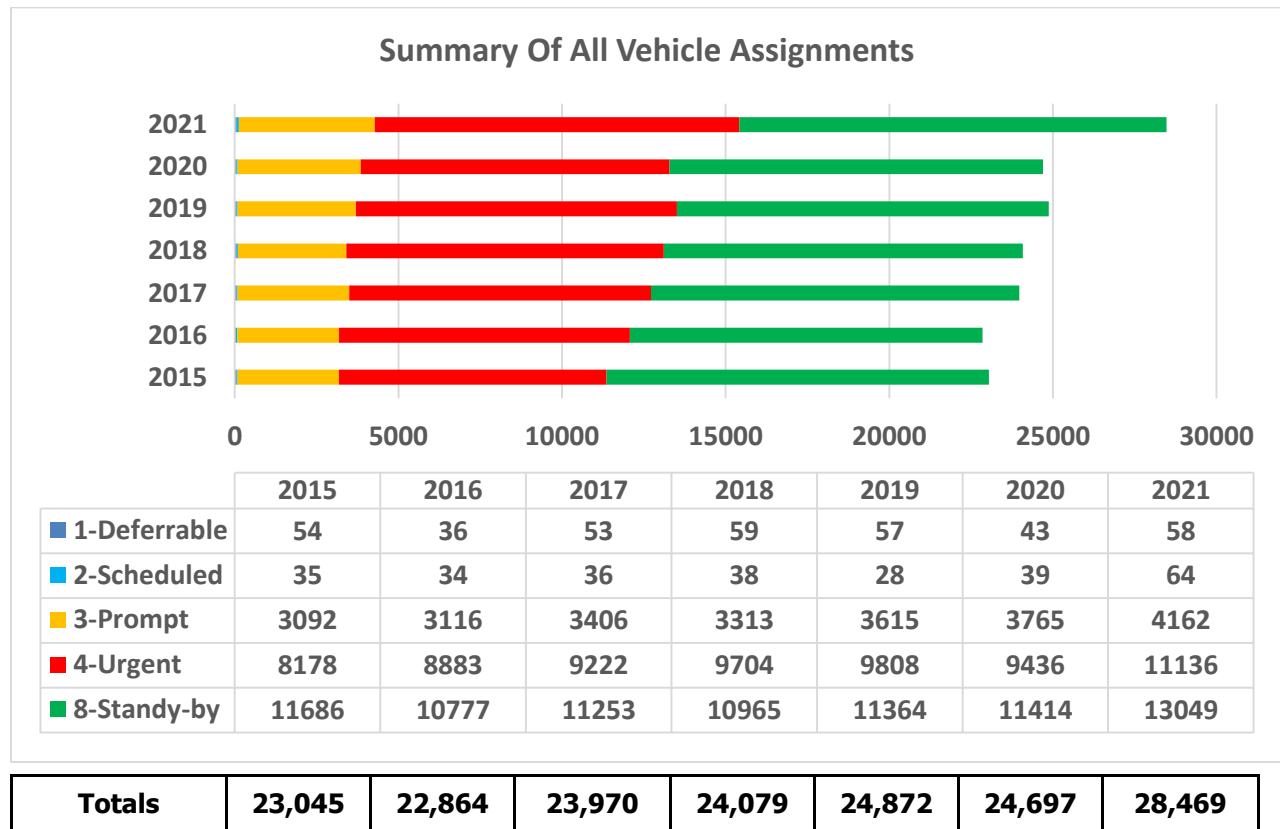


Figure 1

### 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 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 reductions. In 2021 we returned to **increase in service demand with an unprecedented rate of 15.04%**. The seven year average rate of increase is 4.31%.

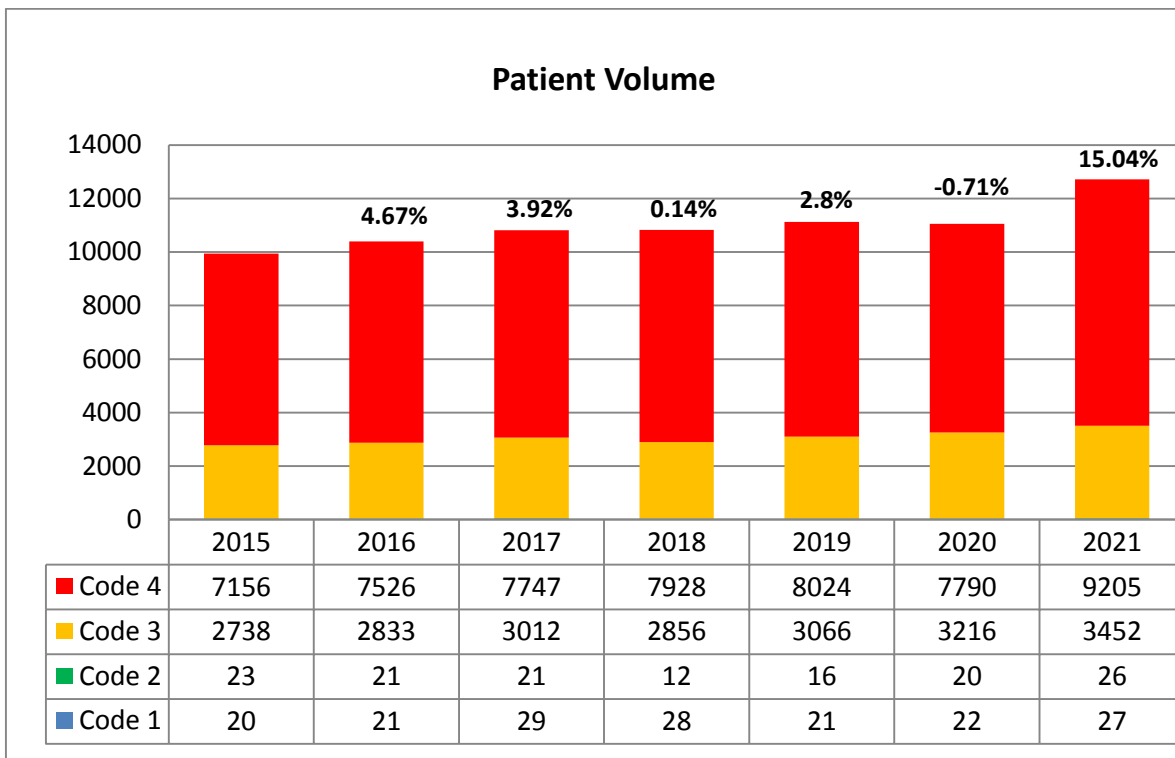


Figure 2

### 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.

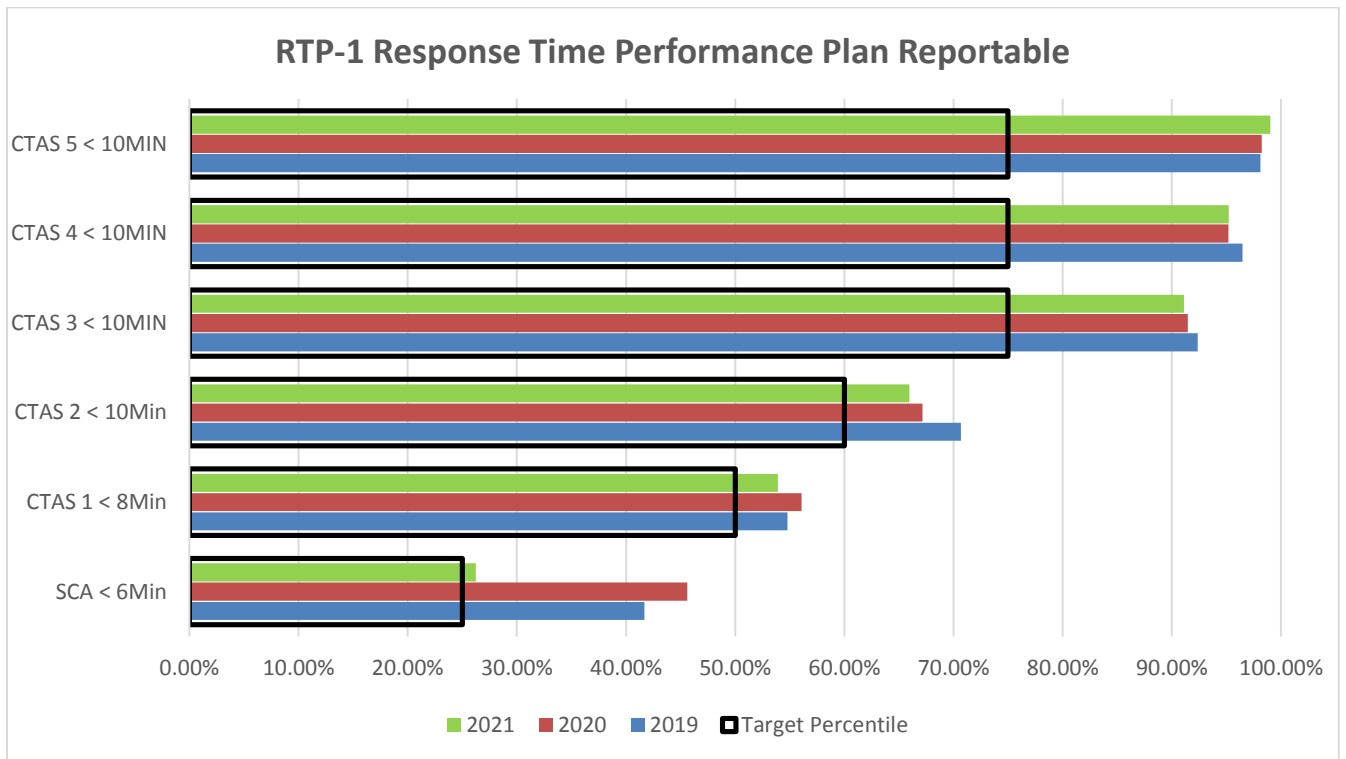


Figure 3

RTP-2 & 3 provides an analysis of urban (Lindsay area) average Code 4/Emergent response time performance against service area wide average response time for 2021. As demonstrated in Figure 4 below, response times in the urban setting exceeds the performance in the rural areas as does the concentration of call volume.

While response times in Lindsay improved in 2021, over all response time average increased as compared to 2020.

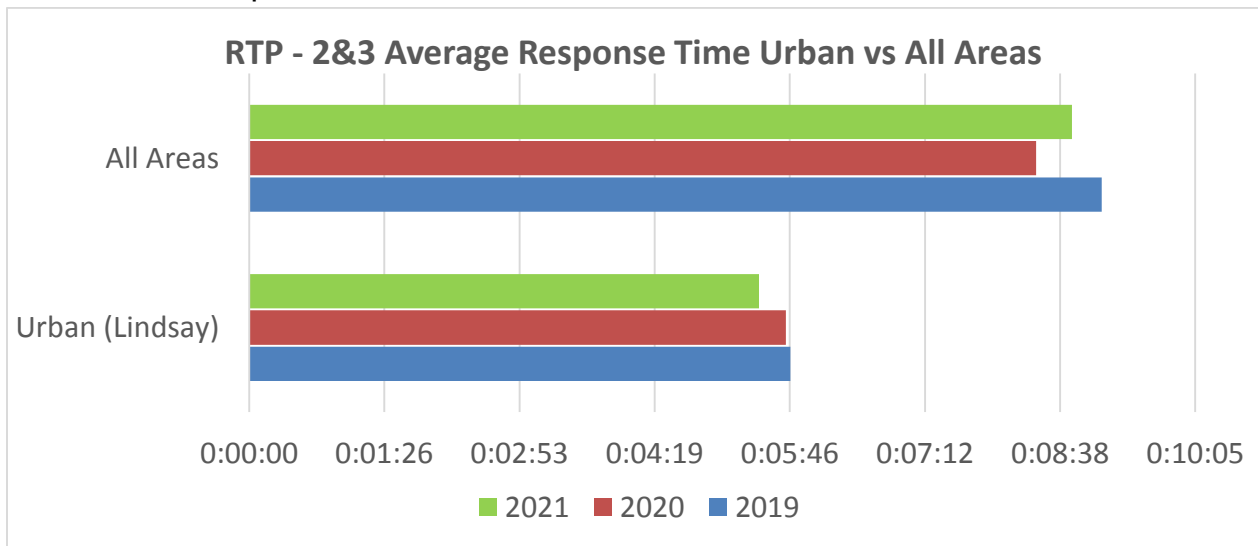


Figure 4

### Volume Measures – Per Capita

Figures 5 & 6 below demonstrate the volume measures for both emergency Code 3 and 4 calls (V1 - Figure 5) and non- emergency calls Code 1 and 2 (V2 - Figure 6) for the City of Kawartha Lakes. Emergency responses per capita significantly increased in 2021 at 171/1000 population.

This demand for service is also significantly higher than those reported by the participants of the Municipal Benchmarking Network (MBN – [www.mbncanada.ca](http://www.mbncanada.ca)) which reports mean EMS demand for service at 122/1000 population.

Non-urgent call volume remains very low in the City of Kawartha Lakes at .56/1000 population. This is a result of deployment plan strategies as well as the significant volume of patient transfers accommodated by Community Care.

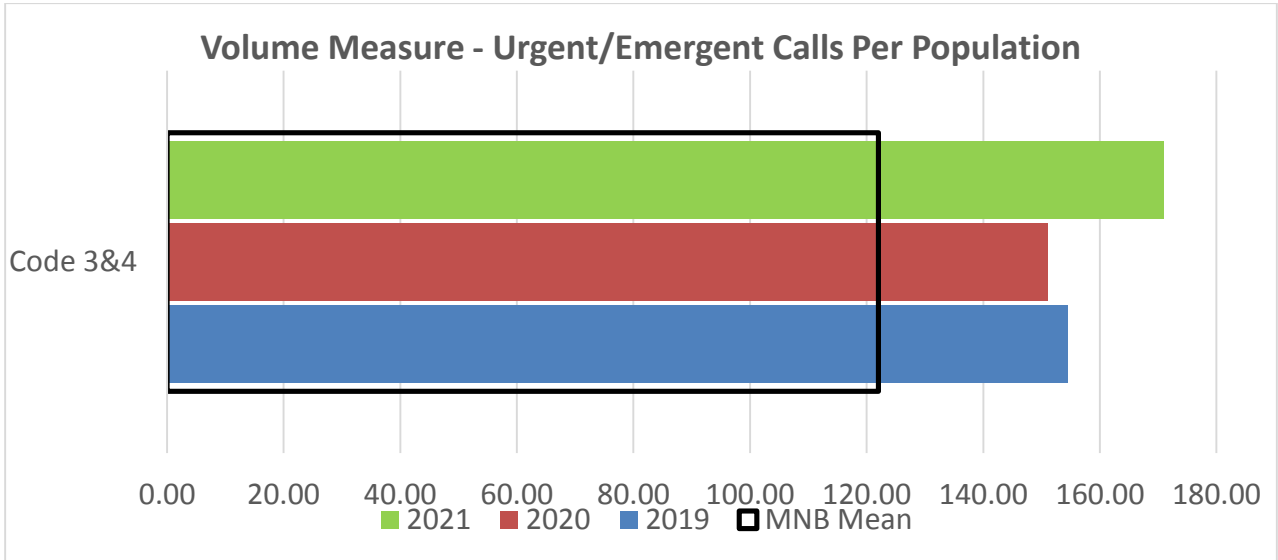


Figure 5

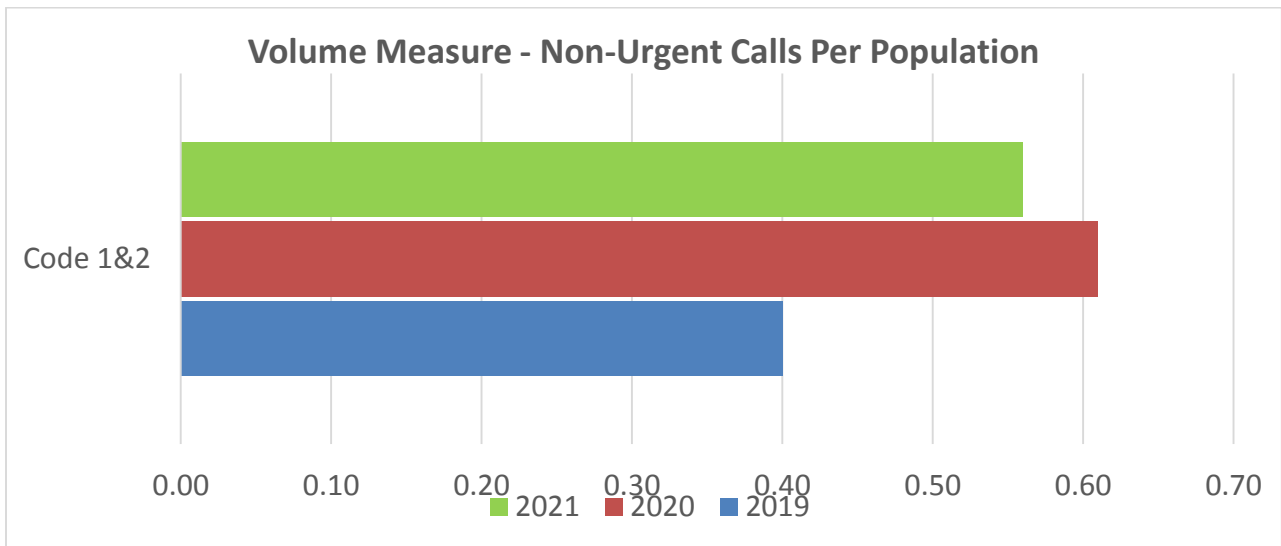


Figure 6

## 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.

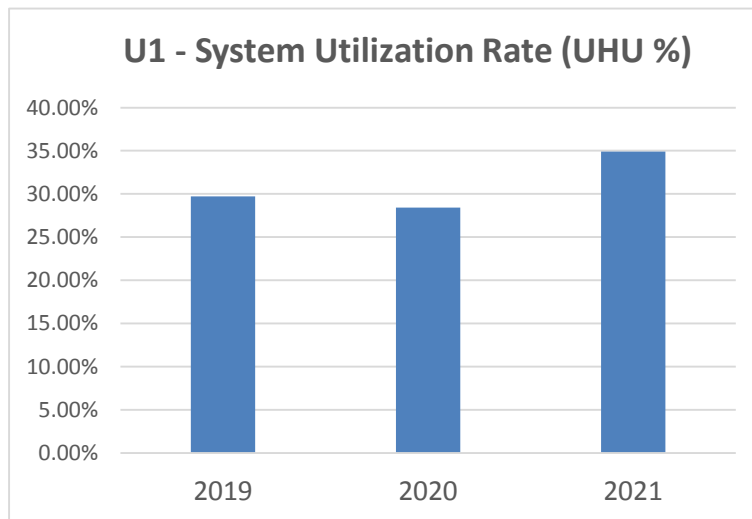


Figure 7



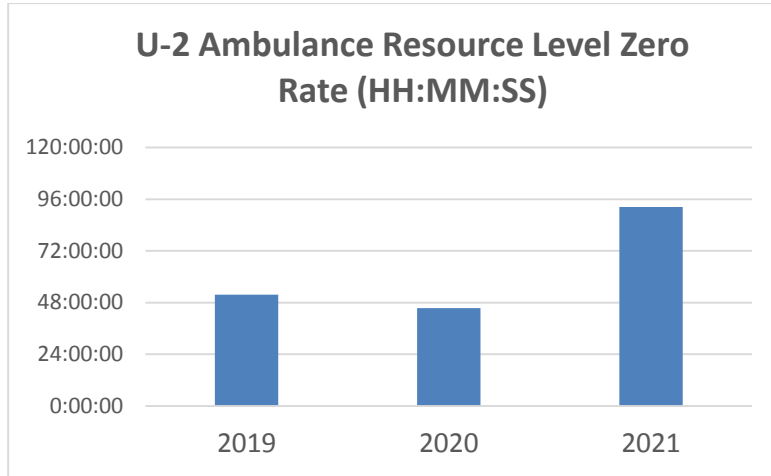


Figure 8

U-3 (Figure 9) 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 level provided in meeting the current needs. As the call volumes have been increasing in an absence of service enhancement, the reliance on neighboring services has been increasing resulting in delayed responses and increased cost associated with cross-border billing agreements.

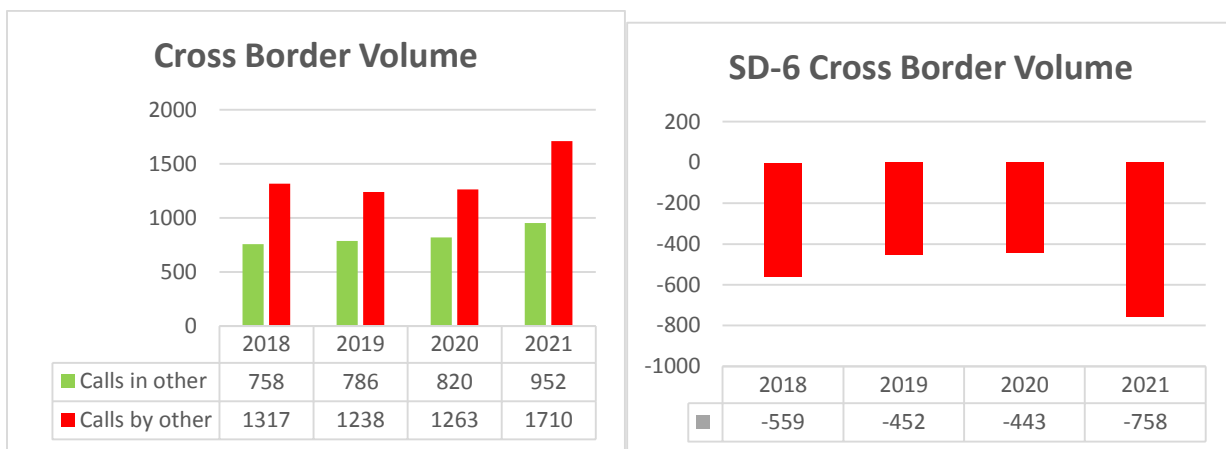


Figure 9

System Design/Deployment Measures

Charted below are the System Design and Deployment Measures. First category shows average at hospital time with the second category displaying the Average Offload time.

The last two categories are our 90<sup>th</sup> percentile at Hospital Time and 90<sup>th</sup> percentile Offload Time.

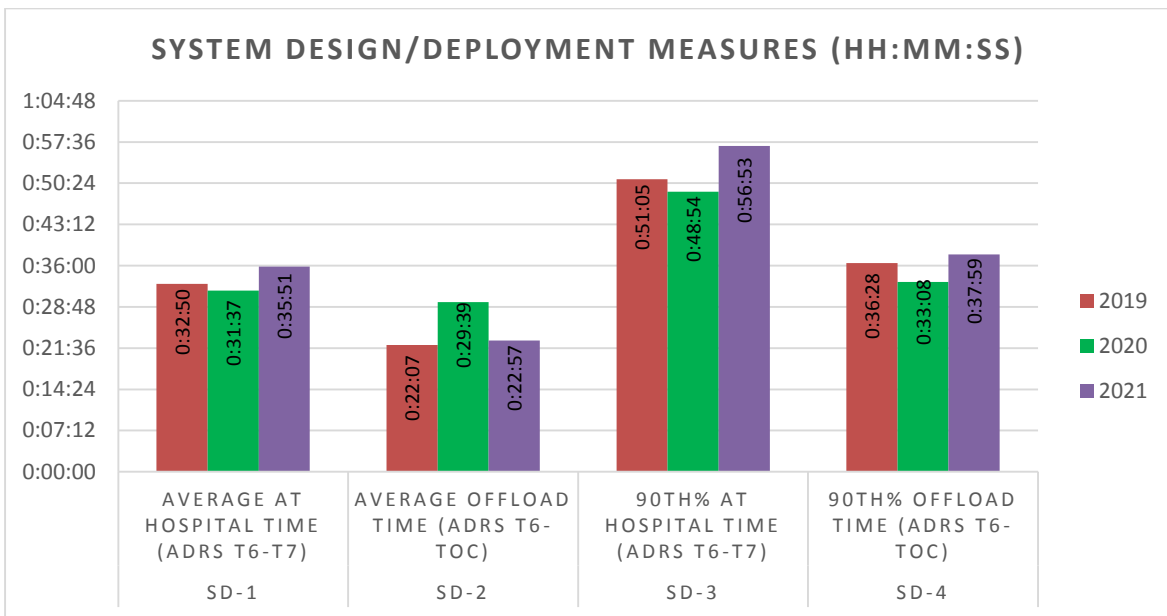


Figure 10

Figure 11, 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.

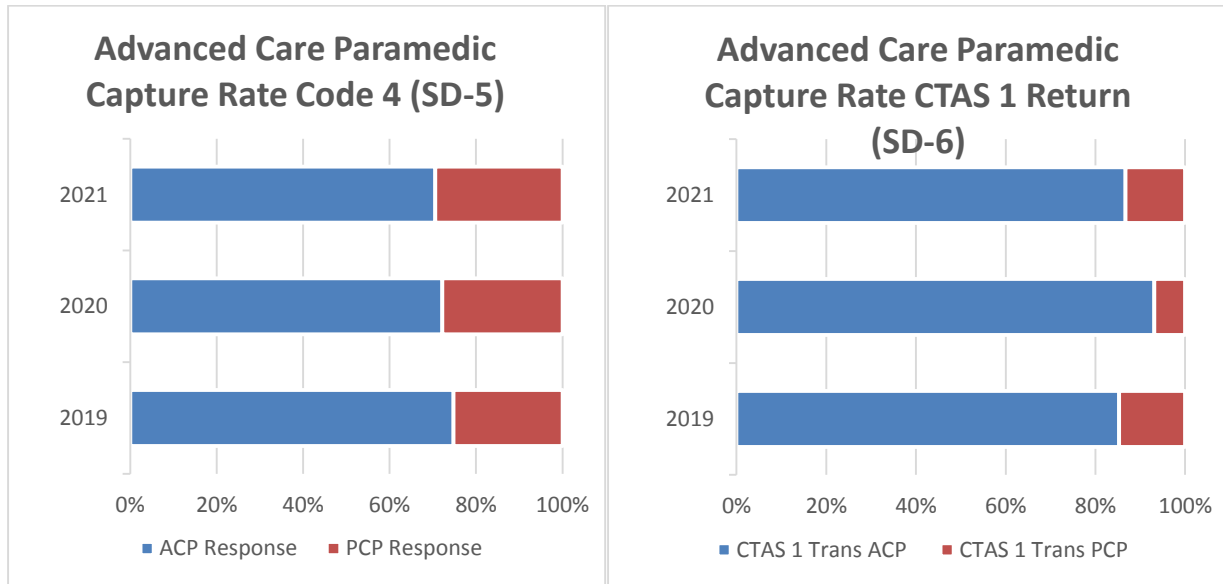


Figure 11

Finance/Funding Measures

Figure 12 compares data for 2021 over previous years for Operating Cost per Capita, Operating Cost per Event and Operating Cost per Unit Hour. With increasing call volumes, inflation and equipment costs, 2021 costs per unit hour and per capital increased over the previous year rates. The unit hour cost increased by 1.77% to \$229.05/uh which remains lower than the MBN comparator mean (\$245.00) and at a rate of increase well below the 2021 annual average CPI increase (3.4%).

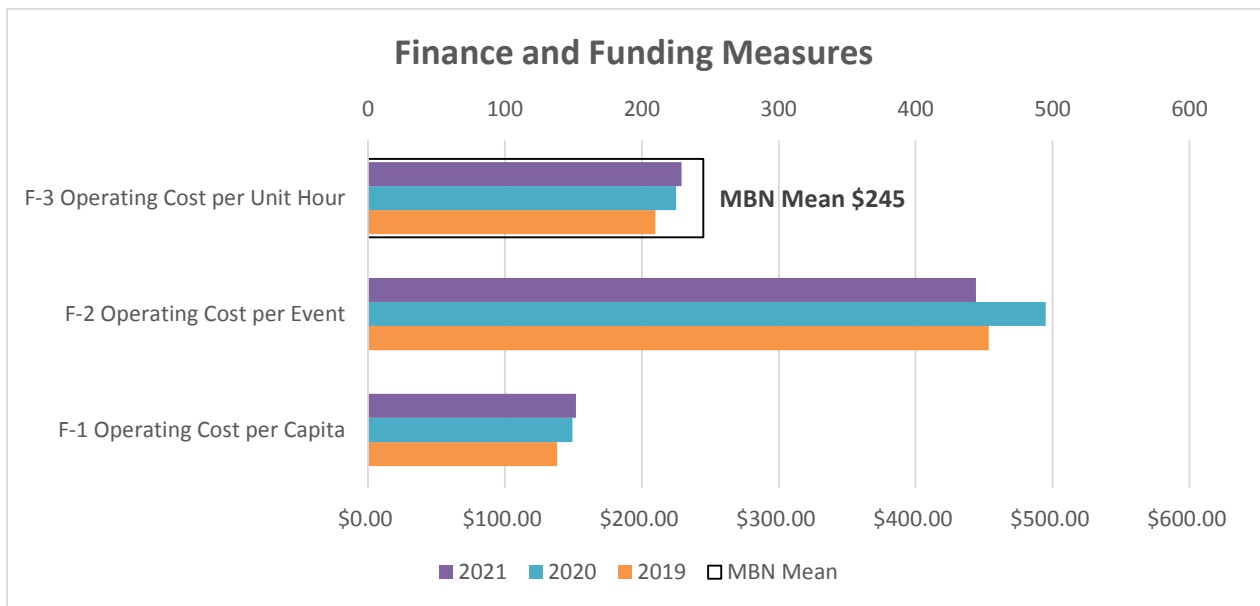


Figure 12

Fleet Measures

Figure 13 below depicts cost per kilometer for both Fleet Maintenance and Fleet Operating (non-capital) Costs. Total fleet operating costs increased by \$0.114 per kilometer in 2021 over 2020 with total per kilometer operating cost at \$0.484/km in 2021 over 2020 at \$0.37/km.

Influencing factors related to this performance measure include significant fuel cost increases in 2021 (24% average price increase) and several significant vehicle repairs, including three transmission replacements.

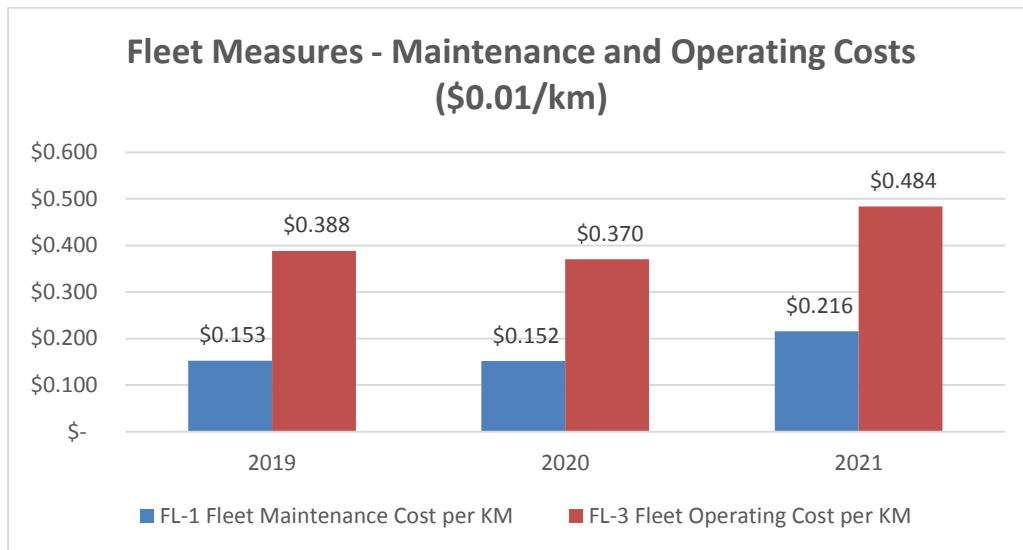


Figure 13

Figure 14 below demonstrates a rate of vehicle incident/collisions on an upward trend per 100,000kms. In 2021, rates indicate an incidents/collision instance rate of 1.17 per 100,000 kms. The department will be examining this trend to seek opportunities to improve.

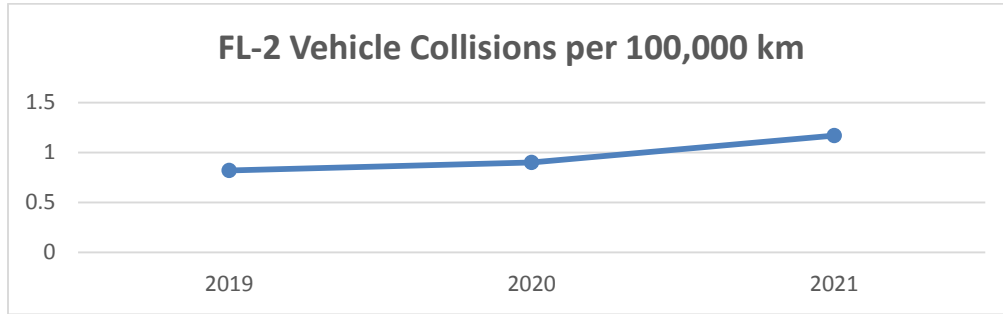


Figure 14

**Carbon Emissions Measures**

Total Annual Fleet Carbon Emissions and Carbon Emissions per Capita measures increased in 2021 over 2020. 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.

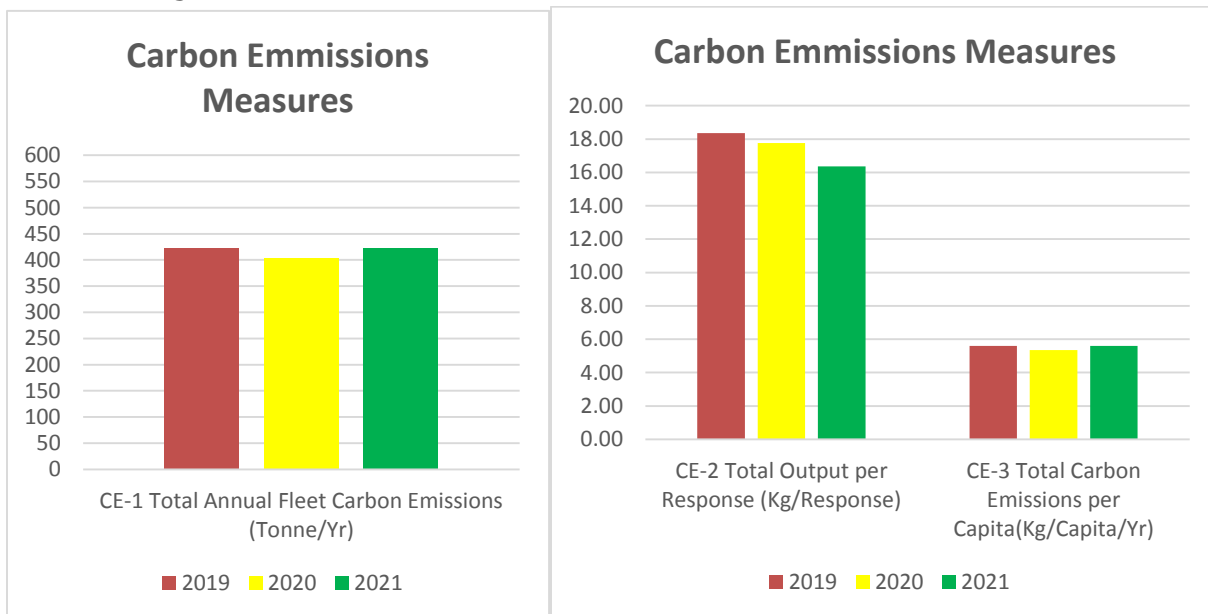


Figure 15

### 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.

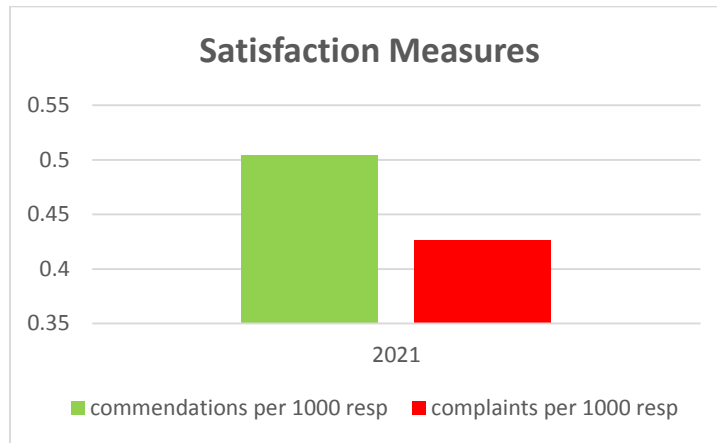


Figure 16

Occupational Health & Safety

Figures 17 and 18 demonstrate 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.

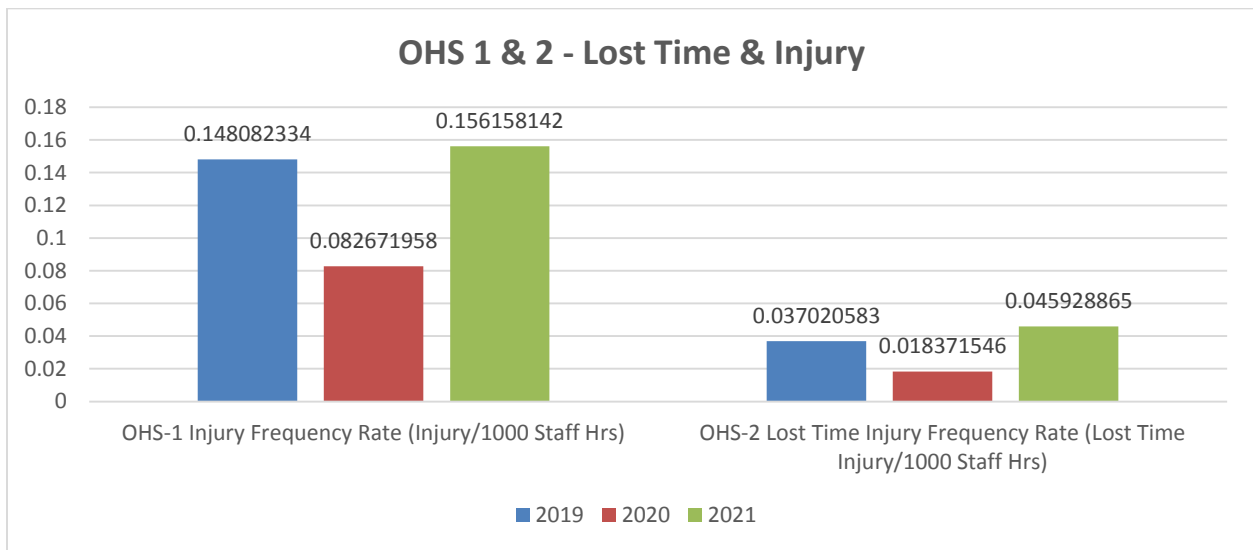


Figure 17

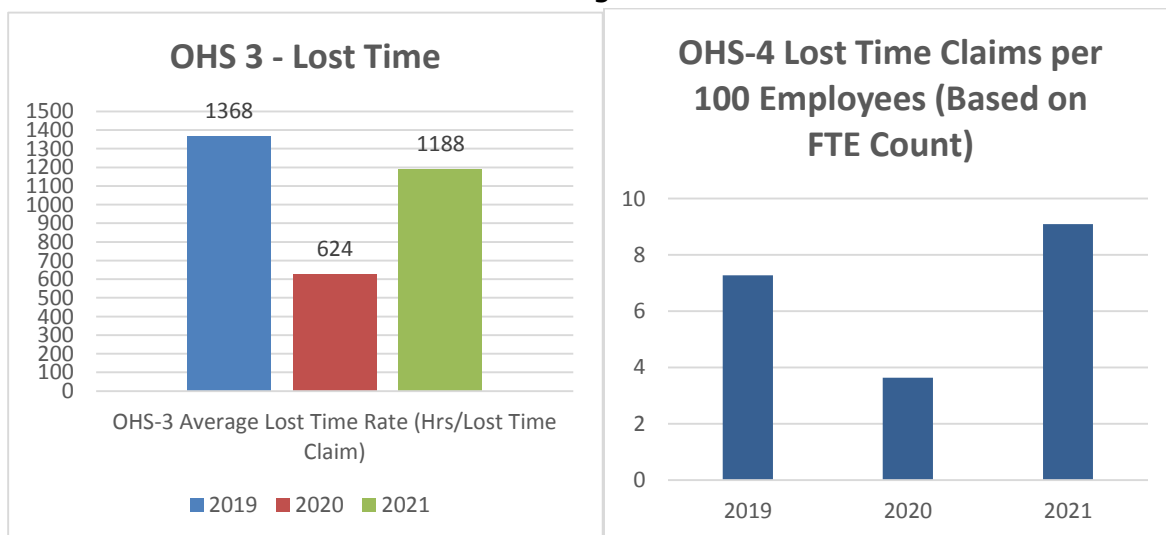


Figure 18



Human Resource Measures

Service staffing levels have remained consistent over the KPI reporting period as demonstrated in HR-1 & 2 (Figure 19). During the same reporting period, call volumes have continued to rise resulting in significant increases in utilization rates as in measure U-1 and increasing Resource Level Zero Rates as demonstrated in measure U-2 (Figures 7 & 8).

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. (Figure 19)

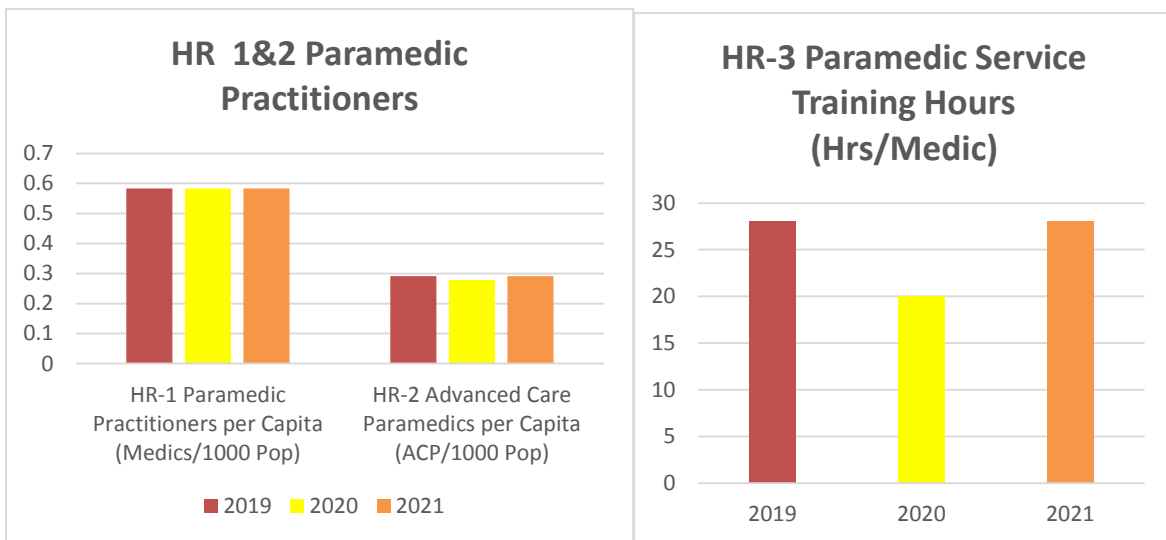


Figure 19

### **Key Findings:**

1. Demand for Service & Resource Level
  - a. Increasing at unprecedented rate
  - b. Frontline staffing levels have remained unchanged
  - c. Resource Utilization Rates approaching maximum
  - d. Resource Level Zero Rates increased
  - e. Reliance on cross border service increasing
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**

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 KPI analysis would be included in future budget deliberation.

**Attachments:**

Appendix A – 2021 Operational Key Performance Indicator Comparison Chart



2021 Operational  
Key Performance Ind

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**Department Head:** Randy Mellow, Paramedic Chief