Appendix A: Background Information

Guided by the Paramedic Services Master plan and using a data informed approach to decision making and planning, performance measurement and monitoring allows assessment of results in comparison to the plan and assists in ensuring quality performance and excellence in patient care.

a) Volume and Service Level Indicators

- From January 1 to October 15, 2022 there were 55,201 vehicle responses by Paramedic Services, an increase of 5,975 vehicle responses (11.7 per cent) compared to the same period in 2021 (Figure 1).
- Year-over-year growth from 2021 to 2022 is expected to be 10.3 per cent; well above the 5-year, pre-pandemic (2015-2019), average annual growth rate of 6.7 per cent.
- More than 70,000 vehicle responses are expected by year-end 2022 and about 75,000 vehicle responses are expected by year-end 2023.
- Relative to the updated Master Plan projections, growth in call volumes continue to align to the projected high response volume scenario.

Figure 1. Actual and forecast number of vehicle responses by year, 2015 to 2023

![Figure 1](image)

b) Unit Utilization

- Unit utilization is the percentage of an hour that ambulances are actively engaged in responding to calls as opposed to waiting for calls. The Paramedic Services Master Plan set a target of 35 per cent for unit utilization, based on industry best practices. Above this threshold, it becomes difficult to
ensure an ambulance will be available for the next call in a reasonable time. For unit utilization, a decreasing trend is good, while an increasing trend is bad.

- Unit utilization for the January 1 to October 15, 2022 period was 47.4 per cent compared to 40.6 per cent in for the same period in 2021; well above the recommend threshold of 35 per cent and considered unsustainable.

- Across the day in 2022, unit utilization was often above 50 per cent for 8 hours at a time (7am to 2pm), peaking at nearly 64 per cent from 11am to 12pm. Currently, only 3 hours of the day were below the 35 per cent target.

- As a result of the investments Council has approved in support of the Paramedic Services Master Plan, Unit Utilization had been slowly decreasing from 2018 to early 2021. However, beginning April 2021 unit utilization rapidly increased and then steadily trended upward until June 2022 (Figure 2).

- As part of the 2022 budget process, in an effort to reduce the unit utilization, and to help improve the balance in unit utilization across the day, two new 12-hour ambulance shifts were added in July 2022; one at 12pm to 12am and the other from 6pm to 6am.

- Following the addition of these two new 12-hour ambulance shifts in July 2022, unit utilization quickly decreased (improved); however, unit utilization almost immediately returned to its previous level, and continues to trend upward as of October 2022 (Figure 2).

- The impact of the three additional 12-hour ambulance shifts, implemented in October 2022, will not be known until future reporting.
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See Figure 2 below for a visual representation of when resources were added and the effect on Unit Utilization.

**Figure 2: Unit Utilization (ambulance use), by month**
Region of Waterloo Paramedic Services, January 1, 2015 to October 15, 2022

![Graph showing unit utilization over time with shifts and ambulance additions highlighted.]

**c) Response Times**
- For the January 1 to October 15, 2022 period the 80th percentile response time to emergency calls (code 4) within Waterloo Region was 9 minutes and 9 seconds in 2022, 14 seconds (2.6 per cent) slower compared to the same period in 2021.
- Response times have remained relatively stable despite increasing demands on the service. The five year average 80th percentile response time was 9 minutes and 11 seconds, and ranged from 9 minutes 20 seconds (2019) to 8 minutes 55 seconds (2020).

**d) Offload Delay**
- From January 1 to September 30, 2022, nearly double the number of ambulance days had been lost to offload delay in 2022 (465 days) than in all of 2021 (249 days).
- The reduction in offload delay during the early part of the pandemic was largely due to substantially lower walk-in patient volumes in hospital emergency departments as well as reduced demand for paramedic services during periods of lock-down.
  - As of March 2022, the offload delay trend had surpassed pre-pandemic levels, and has only increased since that time (Figure 3).
- As of October 15, 2022, the 12-month moving average of ambulance hours per day lost to offload delay was 35.8 compared to an average of 12.5 ambulance hours lost per day as of September 30, 2021, an increase of 23 hours and 18 minutes or
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186.4% per cent.

- Paramedic Services is currently losing the equivalent of three, 12-hour ambulance shifts per day, to offload delay; more than negating the two additional 12-hour ambulance shifts added by council in July 2022.

- The extreme increase in offload delay locally has been mirrored across the province and is not unique to Waterloo Region.

**Figure 3: Offload delay and moving average of offload delay, by month**
Region of Waterloo Paramedic Services, January 1, 2015 to September 30, 2022

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**e) Code Yellow and Code Red**

- A code yellow event occurs when there are three or less local vehicles available to respond to new calls. A code red event occurs when there are no local vehicles available to respond to the next call.

- As of September 30, 2022 the 12-month moving average of time spent in code yellow was 1 hours 50 minutes per day or 7.6 per cent of a day (Figure 4). This represents an increase of 1 hour 9 minutes compared to the same period in 2021 (41 minutes 8 seconds per day).

- As of September 30, 2022 the 12-month moving average of time spent in code red was 4 minutes 50 seconds per day or 0.3 per cent of a day (Figure 4). This represents an increase 3 minutes 52 seconds, compared to the same period in 2021 (58 seconds per day).
In the first nine-months of 2022, there have been more and longer code yellow and code red events compared to the first nine-months of 2021.

- Year-to-date 2022, there have been 786 code yellow events totalling 505.6 hours in duration, and with a median duration of 23 minutes and 42 seconds. For the same period in 2021, there were 436 code yellow events, totalling 200.3 hours, and a median duration of 20 minutes and 5 seconds.

Year-to-date 2022 there have been 87 code red events totalling 23.5 hours in duration, and with a median duration of 13 minutes and 48 seconds. For the same period in 2021, there were 21 code red events, totalling 5.3 hours, and a median duration of 12 minutes and 26 seconds.