

Paramedic Services Long Term Facilities Capital Plan Update

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Appendix II Paramedic Services System Update

Purpose

The purpose of this report is to provide an update on the prediction analyses that supported development of the Paramedic Services Capital Facility Plan, 2021-2030 presented to Regional Council on December 3, 2020.

Context

On December 3, 2020, Regional Council approved the methodology presented in the report titled: “Paramedic Services Long Term Facilities Capital Plan, Key Supporting Analyses” (Resolution 2020-1041) hereafter referred to as the 2020 Report. The report summarized key descriptive and predictive analyses illustrating rising future demand on the Peel Regional Paramedic Services (Paramedic Services) and informed development of the 2021-2030 Capital Facility Plan. The report also recommended that all call volume projections be re-calculated annually with the incorporation of more recent data to ensure projections are kept current.

This report presents updated call volume and areas of high call density predictions with the addition of 2022 data.¹ Call volume projections span from 2023 to 2036, going beyond the original 2021-2030 Capital Facility Plan timeframe to provide a more thorough long-term picture of the anticipated future call demand.

Predictions on Service Demand

As described in the 2020 Report, the key drivers of paramedic service demand (i.e., call volumes) are population growth and population age. These drivers were applied to the updated call volume data to generate updated call volume predictions.

Call Volumes, Past Trends and Future Predictions

Over the last 18 years, call volumes have been increasing and are expected to climb as the population continues to grow and age. There were 67,956 calls received in 2005 compared to 147,689 calls in 2022, representing a 117.3 per cent increase in calls over the last 18 years. It is important to note that the COVID-19 pandemic greatly affected call volume, especially in 2020 where there was a marked decrease in demand for service compared to the prior and following years, likely resulting from pandemic-related restrictions and government-imposed lock-down measures. As a result, an adjustment was made to the 2020 call volume; an average of the call volumes in 2019 and 2021 was calculated and used as the volume of calls in 2020.

Using the modified age-period-cohort model methodology approved by Council in December 2020, population growth and user age were applied to the updated data to generate call

¹ 2022 call volume data are based on January 1 – November 30 actuals and estimated December volumes. The Region will receive updated 2022 data from the Ministry of Health when they become available.

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volume predictions. Updated predictions confirm that the increasing trend continues in the future. Figure 1 illustrates the actual number of calls, including the adjusted calls for 2020 (blue line), and the predicted number of calls (orange line). Also noted is the 95 per cent prediction interval (shaded area in light orange) from 2023 to 2036. It is predicted that there will be 263,623 calls in 2036, with a 95 per cent prediction interval i.e., there is a 95 per cent chance that the predicted number of calls for 2036 will fall between 197,352 and 352,513. The predictions indicate that calls will increase by 78 per cent between 2022 and 2036. A comparison of updated predictions with the previous call volume predictions presented in the 2020 Report can be found in the Appendix (Table A1).

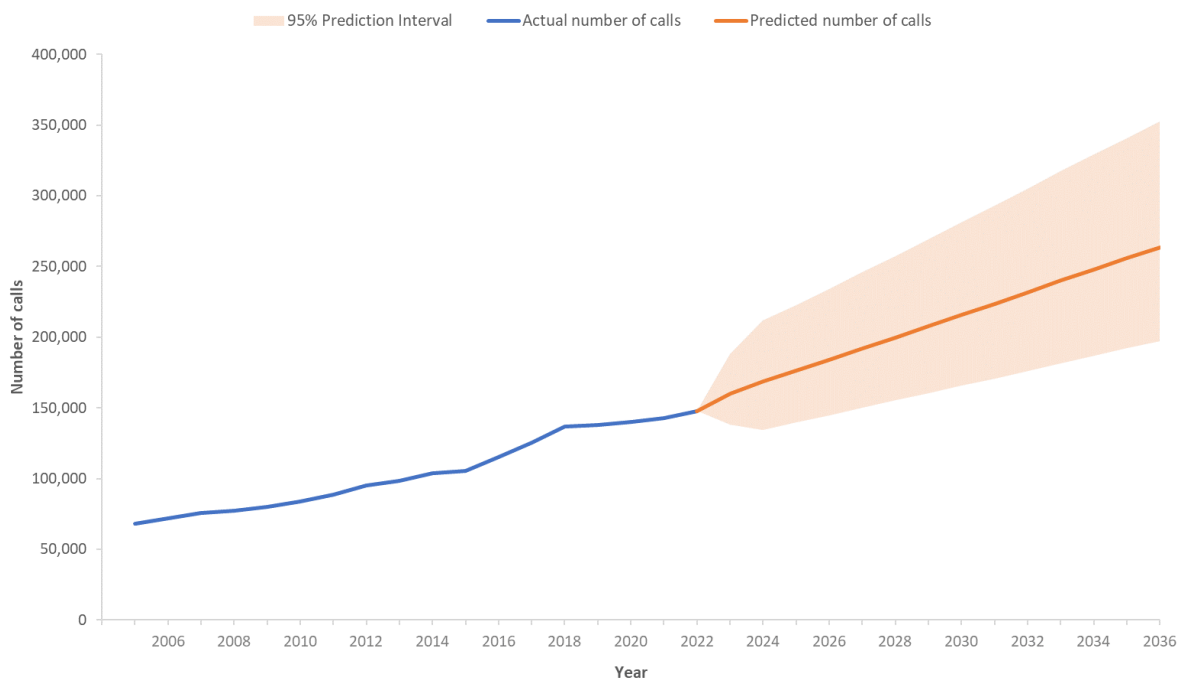


Figure 1. Yearly Paramedic Services calls and call growth projections, 2005 to 2036

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Forecasted Areas of High Demand

Again, using the Geographically Weighted Regression methodology supported by Council in the 2020 Report, call volume growth was re-quantified by Secondary Plan (SP) areas within Peel. The updated call volume densities show that the same areas noted in the 2020 Report are still expected to further intensify; these include the downtown city cores of each municipality, specifically the areas surrounding Square One Shopping Centre and Hurontario Street Corridor in Mississauga, Main Street and Queen Street corridor in Brampton, and Bolton in Caledon.

Similarly, other spatial patterns also hold constant; the areas apart from the downtown city cores with the highest anticipated growth in call volume density by 2036 are still found in the north-west corners of Brampton and Mississauga. Caledon is still expected to experience some growth, with some villages and hamlets, particularly Caledon East and Mayfield West, anticipated to experience more moderate increases in call volume density by 2036.

Future Resource Needs

The updated call volume predictions presented illustrate the expected growth in call volumes in the Region II over the next 15 years. The estimated future resource needs presented in the 2020 Report remain unchanged for Peel Paramedic Services to respond to this growing demand. Figure 2 illustrates the number of current (orange dotted line) and predicted (blue dotted line) ambulances from 2017 to 2036 as presented in the 2020 Report. Four additional ambulances were approved as part of the 2022-2023 Region of Peel Budget, alongside the staff to address and manage the growth in demand. As reported previously, 201 ambulances will be required to meet growing service demands by 2030, representing an increase of 67 ambulances or 50.0 per cent in the 2021 fleet size.

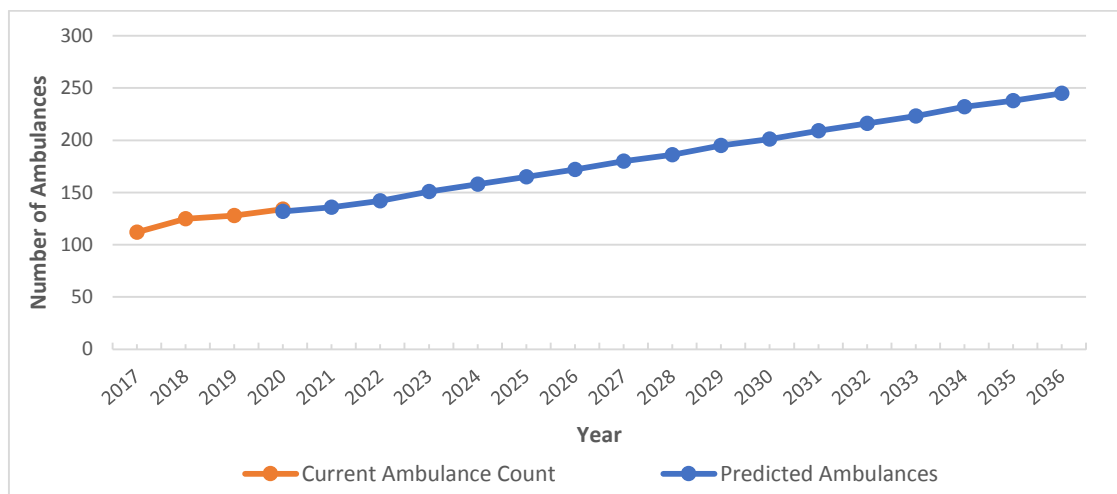


Figure 2. Number of current and predicted ambulances over time as presented in the 2020 Report, 2017 to 2036

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Table 1 provides details on the number of reporting and satellite stations, noting the corresponding year by which stations should be in operation as proposed in the 2020 Report. There are four reporting stations in operation today. A new (fifth) reporting station to be built in the north-end of Brampton near the Caledon border is in the design phase and expected to be operational by 2026.

Table 1. Proposed year of operation and number of new reporting stations and satellite stations as presented in the 2020 Report, 2023 to 2030

Proposed Year of Full Operation	Number of New Reporting Stations	Number of New Satellite Stations
2023	1	3
2025	1	1
2029	1	1
Total number between 2023 - 2030	3	5

Conclusion

The updated analyses reinforce the findings presented in the 2020 Report that the demand for Peel Paramedic Services will continue to grow at a steady pace, with the same areas in the Region anticipated to experience high call volume densities by 2036. The required future resource estimates presented in the 2020 Report continue to hold constant to meet the growing needs of Peel's communities and to ensure consistent high-quality service delivery.

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Appendix: Additional Tables

Table A1. Call volume predictions comparison with previous report, by five-year increments, 2022 to 2041

Year	Previous Report Predictions		Current Predictions	
	Predicted number of calls	95% Prediction Interval	Predicted number of calls	95% Prediction Interval
2022 *			147,689	NA
2026	189,351	(146,168 – 245,547)	183,745	(144,600 – 233,750)
2031	223,506	(173,313 – 311,097)	223,506	(170,840 – 292,724)
2036	274,886	(200,658 – 376,976)	263,623	(197,352 – 352,513)
2041	316,552	(227,349– 441,134)	301,712	(222,828 – 408,916)

*Note: 2022 call volume data is are based on January 1 – November 30 actuals and estimated December volumes.