REPORT FOR ACTION

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Toronto Paramedic Services: Multi-Year Staffing Plan

Date:	June 03, 2025
То:	Executive Committee
From:	Chief, Toronto Paramedic Services
Wards:	All

SUMMARY

This report responds to City Council's direction for the Chief, Toronto Paramedic Services to develop a Multi-Year Staffing Plan by June 2025 following the completion of a detailed staffing analysis, for consideration through the annual budget processes to add staff resources over the next five years to respond to:

- Hospital/health care system pressures,
- Rising emergency call demand and;
- Increasing response times to critical patients.

Toronto Paramedic Services continues to experience increasing emergency call demand of 2% to 5% annually, along with ongoing healthcare system pressures, including persistent challenges from in-hospital paramedic wait times, which have increased by 11% since 2019. These combined pressures are leading to increased service demands, and significant strain on ambulance availability and frontline staff. Factors driving these pressures include: an aging and growing population, the drug toxicity crisis and a lack of access to primary care, particularly for vulnerable individuals. In response to these growing pressures, the Multi-Year Staffing Plan provides a proactive and data-driven approach to strengthening frontline paramedic resources and addressing urgent service challenges to help protect public safety.

Toronto Paramedic Services conducted a detailed analysis to determine frontline paramedic resource needs, factoring in hospital/healthcare system pressures and rising emergency call demand. The analysis indicates that Toronto Paramedic Services anticipates an increase in emergency call demand of 11% by the end of 2028, combined with ongoing healthcare system pressures from in-hospital paramedic wait times. In 2024, healthcare system pressures and increasing call demand led to a 300% increase in the duration of low ambulance availability across the city compared to pre-pandemic levels.

This Multi-Year Staffing Plan includes the addition of 331 frontline positions from 2025 to 2028 to address growing service demands, to improve ambulance availability and to increase emergency coverage for the community. This is in addition to the new frontline positions approved through the 2025 budget process to address immediate operational needs and lasting pressures incurred from the pandemic. A four-year staffing plan was developed versus a longer-term plan due to significant forecasting challenges and uncertainties past 2028.

Beyond a four-year horizon, the accuracy of projections diminishes considerably, increasing the risk of misalignment between staffing levels and operational needs.

In addition to operational improvements, this plan is designed to support the long-term resilience of Toronto's paramedic workforce. Immediate and long-term investments in additional staffing aim to reduce workload and the reliance on overtime, mitigate staff burnout, and improve retention and morale. Toronto Civic Employees Union, Local 416 was consulted in the development of this Multi-Year Staffing Plan.

Impacts and Outcomes

The staffing investment outlined in this Multi-Year Staffing Plan is anticipated to have a positive impact on service delivery, organizational capacity, and staff well-being. It is anticipated that full implementation of this Multi-Year Staffing Plan and achievement of a 65% resource utilization (which measures how much time emergency vehicles are busy on calls compared to their total work hours) will result in an increase of ambulance availability by up to 20% by the end of 2028; this enhancement is essential as availability is a primary driver affecting emergency response time. By addressing staffing challenges, the investment will support improved ambulance availability and service delivery. Enhanced staffing levels will also help to reduce reliance on overtime and help balance workload amongst frontline staff. Foregoing these investments will not address increasing service demand, thereby negatively impacting service delivery and placing staff well-being at risk. Toronto Paramedic Services will measure and report the impacts of the staffing investments through annual budget processes.

RECOMMENDATIONS

The Chief, Toronto Paramedic Services, recommends that:

- Subject to confirmation of provincial funding, City Council authorize the addition of 112 staff complement to the Toronto Paramedic Services' 2025 Operating Budget as an in-year adjustment, comprising 102 frontline Paramedic Full Time Employees, five supervision staff, and five support staff resources (i.e., fleet, administrative, payroll, scheduling, training, planning and professional standards) to help mitigate frontline staff workload as a result of increased emergency call demand pressures.
- 2. Subject to confirmation of provincial funding, City Council request the Chief, Toronto Paramedic Services to bring forward business cases through the 2026 and future budget processes seeking additional resources as outlined in Appendix A, to respond to the projected 3% average annual increase in emergency call demand.

FINANCIAL IMPACT

The proposed implementation of this Multi-Year Staffing Plan (2025-2028) is expected to result in estimated annual increases to Toronto Paramedic Services' Operating Budget of \$4.2 million gross (\$2.1 million net) in 2025; \$15.2 million gross (\$7.0 million net) in 2026; \$19.1 million gross (\$9.5 million net) in 2027; \$11.4 million gross (\$5.7 million net) in 2028; and \$2.7 million

gross (\$0.7 million net) in 2029 – representing a total investment of \$52.6 million gross (\$26.3 million net) over 2025-2029 as presented in Table 1 below. Additional details are provided in Appendix A.

	2025	2026	2027	2028	2029	Total 2025- 2028
Hires	112	94	86	70		362
						Annualized
						<u>Ongoing</u>
Operating (Incremental)						<u>Operating</u>
_\$ Millions						<u>Cost</u>
Gross Expenditure	4.2	15.2	19.1	11.4	2.7	52.6
Funding*	2.1	8.2	9.5	5.7	0.7	26.3
Net Expenditure	2.1	7.0	9.5	5.7	1.9	26.3

Table 1 – 4-Year Plan Financial Summary

*Assumes 50% funding based on Land Ambulance Service Grant agreement

These estimates assume, and are contingent upon, the continuation of a 50% cost-sharing partnership with the Province. The Ministry of Health currently funds Toronto Paramedic Services primarily through grants for land ambulance services, which have been a critical source of support. Toronto Paramedic Services anticipates continued support from the Ministry of Health for these additional positions through the existing formal legal agreement between the City of Toronto and the Ministry of Health. In the absence of continued support, a revised proposal would need to be developed, which may include extending the implementation timeline over a longer timeframe to ensure feasibility through 2026 and subsequent budget processes.

In addition to the Operating Costs included in Table 1, the Multi-Year Staffing Plan will require capital investment for an estimated seven ambulances at \$0.4 million each (\$2.8 million) annually in each of 2025 through 2028. The Capital Plan for these requests will be considered through the annual Budget process. It is expected that this capital investment will require contributions (from operating expense) of \$0.7-\$0.9 million annually for asset replacement.

The Chief Financial Officer and Treasurer has reviewed this report and agrees with the financial impact information.

EQUITY IMPACT STATEMENT

This Multi-Year Staffing Plan helps to address service disparities in neighbourhoods where there have historically been longer response times. By increasing paramedic staffing levels, the plan enhances ambulance availability, contributing to a more equitable level of emergency response for residents across the city.

Recruitment and training initiatives will prioritize diversity, ensuring that Toronto's paramedic workforce reflects the community it serves. Paramedics will be equipped with anti-racism, anti-

oppression, and cultural competency training, enabling them to provide patient-centered care that meets the needs of Toronto's diverse population, including newcomers, Indigenous communities, and individuals facing language or accessibility barriers.

DECISION HISTORY

On February 11, 2025, City Council adopted Toronto Paramedic Services' 2025 Capital and Operating Budgets. City Council requested the Chief, Toronto Paramedic Services to provide a Multi-Year Staffing Plan by June 2025 after completing a detailed staffing analysis for consideration through annual budget processes to add staff resources over the next five years to respond to hospital/healthcare system pressures, rising emergency call demand and increasing response times to critical patients. The specific direction can be found as item numbers 35 & 36 at:

https://secure.toronto.ca/council/agenda-item.do?item=2025.CC27.1

At its meeting on June 18, 2019, City Council adopted Toronto Paramedic Services Multi-Year Staffing and Systems Plan in which Toronto Paramedic Services was directed to report back in 2019, prior to the 2020 budget process, on a multi-year hiring and systems plan to address the approximate four percent growth in emergency call demand. The 2019 council decision can be found at: <u>https://secure.toronto.ca/council/agenda-item.do?item=2019.EC5.3</u>

COMMENTS

OVERVIEW OF TORONTO PARAMEDIC SERVICES

Toronto Paramedic Services is the largest municipal paramedic service in North America and is responsible for all aspects of land ambulance service for the City of Toronto. Toronto Paramedic Services has stewardship for more than 45 ambulance stations (including a Multi-Function Station), a fleet of 236 transport ambulances, 1,555 paramedics, and 148 Emergency Medical Dispatchers.

Toronto Paramedic Services operates a Central Ambulance Communications Centre for the City through a formal Performance Agreement with the Ministry of Health. This agreement encompasses performance expectations and guidelines relating to the dispatching of ambulances within Toronto and all the emergency communication and the Central Ambulance Communications Centre's service delivery to the community.

The *Ambulance Act* and its associated Regulations and Standards (for patient care and transportation, documentation, vehicles, equipment, inspections, qualifications for employment, investigations, etc.) govern the delivery of ambulance service in Ontario. The *Act* stipulates the responsibilities of municipalities, the authority of the Base Hospital, the certification requirements of operators, and the powers, duties and obligations of ambulance service providers.

In addition to the *Ambulance Act*, Toronto Paramedic Services is required to comply with a broad range of legislation, including medical statutes (e.g., *Coroner's Act, Narcotics Act, Child & Family Services Act*) and privacy laws (e.g., *Municipal Freedom of Information and*

Protection of Privacy Act (MFIPPA), Personal Health Information Protection Act (PHIPA), Health Care Consent Act). Toronto Paramedic Services also relies on numerous partnerships with other City, provincial, federal, and public organizations which are direct and indirect customers and beneficiaries of the services provided.

The last comprehensive multi-year staffing plan for Toronto Paramedic Services was initiated in 2019 by adding 338 frontline positions between 2019 and 2024 to improve service levels and address increasing emergency call volumes and service demands.

Despite these efforts, Toronto Paramedic Services continues to face challenges in meeting the growing demand for emergency services. Emergency call volumes are forecasted to increase by an average of 3% annually. In response to these persistent pressures, an additional investment of \$3.4 million gross and \$1.7 million net for hiring additional 102 operational staff and covering associated operating costs was incorporated into the 2025 Operating Budget for Toronto Paramedic Services. This new/enhanced investment, which is cost shared with the Province, will address workload pressures due to increasing call demand and hospital and healthcare system as part of the 2025 Budget process.

To support the addition of frontline positions, Toronto Paramedic Services has implemented a comprehensive recruitment and onboarding plan. The April 2025 paramedic intake class recently completed orientation, and an additional paramedic intake class commenced in late May. After accounting for exits, Toronto Paramedic Services has already hired nearly 40% of the additional paramedic positions included in the 2025 Operating Budget. Classes are also scheduled for June, October and November, each with a capacity of 50 paramedics. Two additional intake classes are planned for spring 2026.

Job market challenges experienced across Ontario, including competition from other paramedic services and a scarcity of qualified paramedics, have started to subside. Several paramedic services have returned to smaller, pre-pandemic hiring numbers, leading to a less competitive job market. In June 2023, the Province of Ontario added 368 spaces to paramedic programs across Ontario.

Toronto Paramedic Services recruitment teams have recently visited colleges to showcase the service and encourage paramedic applicants, in addition to offering full-time employment and flexible start dates to candidates. These enhanced efforts have resulted in year-over-year increases in the number of applicants to paramedic positions since 2023.

Exit rates for Toronto Paramedic Services have been steadily decreasing since 2021. In 2024, the paramedic exit rate was 6.2%, compared to the City of Toronto exit rate of 11.3%. As of the end of April 2025, there were 13 paramedic vacancies.

DRIVERS OF EMERGENCY CALL DEMAND

Over the past several years, Toronto Paramedic Services has experienced a steady increase in emergency call demand (Figure 1 below), driven by an aging and growing population, drug toxicity crisis and increased public reliance on paramedic services due to lack of access to primary care. Call demand is projected to continue rising at 2% to 5% per year, placing additional pressure on frontline resources.



The healthcare system continues to face significant pressures that directly impact staffing needs and service delivery. Long wait times for long-term care placements, limited access to family physicians, and lengthy waitlists for specialists contribute to increased demand on emergency services. Rising mental health concerns, the ongoing drug toxicity crisis, and the complexity of navigating the healthcare system further strain resources (Figure 2 below adapted from Auditor General's report on Toronto Paramedic Services (City of Toronto, 2024)).



Figure 2 Pressures in the Healthcare System

In-Hospital Paramedic Wait Times

Toronto Paramedic Services is facing continuing challenges related to in-hospital paramedic wait times, which negatively impact ambulance availability and response times. In-hospital paramedic wait time is measured from the time an ambulance patient arrives at a hospital emergency department to the time the patient is physically transferred to a hospital emergency department room where care for the patient is then assumed by emergency department staff.

In 2024, paramedics spent up to 93 minutes per call in hospitals 90% of the time across the city's 13 hospitals, accounting for 60% of their service time. Across the city, this amounts to more than 700 hours per day spent in hospitals, reducing the number of ambulances available to respond to new emergencies in the community. Fewer ambulances available to respond to 9-1-1 calls means greater system pressures and increased response times.

Demographic and Population Growth

Census data from 2021 indicates that the city had 477,000 individuals over the age of 65. This number is projected to increase by more than 50% by 2041. In 2023, Toronto saw a population increase of over 125,000 residents, with nearly one-third of new immigrants to Canada settling in the city. During the same period, the number of refugee claimants in Toronto's shelter system nearly doubled, from 2,544 to 4,193, leading to a greater reliance on paramedic services for primary and urgent care due to precarious housing and healthcare barriers.

As a result of these combined pressures above, Toronto Paramedic Services' response times to life-threatening calls and patient transport volumes have continued to increase since prepandemic levels (2019) (Figure 3 below).



Figure 3 Response Time & Growth in Emergency Patient Transport

STAFFING ANALYSIS

Toronto Paramedic Services conducted a detailed analysis to inform the development of this staffing plan. The staffing analysis found that Toronto Paramedic Services requires 331 additional paramedics from 2025 to 2028 to maintain service levels and improve response times, broken down as follows: 102 in 2025, 86 in 2026, 79 in 2027, and 64 in 2028.

Toronto Paramedic Services: Multi-Year Staffing Plan

The analysis determined that a five-year staffing plan presents significant forecasting challenges due to the dynamic nature of key variables such as service demand, healthcare system pressures, legislation and policies, and workforce availability. Beyond a four-year horizon, the accuracy of projections diminishes considerably, increasing the risk of misalignment between staffing levels and operational needs. Hence, the 2025-2028 window was chosen to allow for more precise forecasting.

Methodology

The staffing analysis estimated the future paramedic resources Toronto Paramedic Services requires by forecasting service time, which is the duration from paramedic crew assignment to call completion time. Using a regression model with historical data, the forecast considered factors like time of day, day of week, seasonality, and transport status. Service time is influenced by call volume, on-scene times and external delays (e.g., hospital offloads, traffic congestion, etc.). The model produced detailed predictions of total required service hours through 2028, which were then translated into required paramedic staffing levels.

KEY FINDINGS

Ambulance Availability

As noted above, ambulance availability is influenced by in-hospital wait times for paramedics and emergency call demand. In 2024, persistent in-hospital wait times and increasing emergency call demand led to a 300% increase in low ambulance availability across the city compared to pre-pandemic levels. Figure 4 illustrates the number of daily hours where the number of available ambulances fell below 10%. Sustained periods of low ambulance availability increase response times and pose risks to patients, particularly during peak demand periods. In addition, low ambulance availability contributes to increased paramedic workload and increased risk of fatigue and injury.



Figure 4 Daily Hours with <10% of Available Ambulances

Service Time

Service Time refers to the cumulative time spent by paramedics servicing an emergency call, from the time each paramedic crew is assigned to a call until the time each paramedic crew is cleared from a call. Service times, driven largely by in-hospital wait times, have increased by 15% since 2019 and are projected to continue increasing.



Figure 5 Total Hours Servicing Calls

Resource Utilization

Resource utilization refers to the proportion of a paramedic crew's service time relative to their total available working hours. A higher utilization rate means that fewer paramedic crews are available to respond to new emergencies in the community. The analysis found that Toronto Paramedic Services should target a maximum resource utilization rate of 65%. A resource utilization of 65% will provide Toronto Paramedic Services with added capacity to respond to forecasted service demands and maintain ambulance availability. Higher resource utilization rates risk delays in responses to life-threatening emergencies.

SERVICE EFFICIENCIES IMPLEMENTED

Health811 Referrals

Toronto Paramedic Services continues to refer appropriate 9-1-1 callers to Health811 (formerly Telehealth Ontario) as an alternative healthcare option. In 2024, Toronto Paramedic Services referred nearly 5,500 low-acuity calls to Health811, mitigating the need for a 9-1-1 paramedic response.

Toronto Community Crisis Services Referrals

Toronto Paramedic Services has been working closely with the Toronto Community Crisis Service (TCCS) to better care for those experiencing a mental health crisis. In January 2025, Toronto Paramedic Services partnered with TCCS to launch a pilot referral program. Since the launch, 150 calls have been referred to TCCS directly from Toronto Paramedic Services. The effectiveness of the program continues to be monitored, and program enhancements and expansion continue to be explored.

Public Education Campaign

In 2024, Toronto Paramedic Services supported the launch of the corporately released *Make the Right Call* campaign. This is a targeted education campaign that provides the public with

alternative numbers to consider (i.e., 211, 311, 811) to ensure they receive the right service at the right time, thereby helping to ensure 9-1-1 is used only for emergencies.

Stabilization Centre

In late 2022, Toronto Paramedic Services collaborated with University Health Network on the opening of a Stabilization and Connection Centre, where paramedics can transport patients experiencing alcohol and opiate intoxication directly to a specialized care facility. Patients can receive nourishment, space for rest and recovery, and referrals to community organizations and supports. This initiative has demonstrated offload delay can be significantly reduced while providing appropriate care to those that need it. Since opening, more than 4,200 individuals have been transported to this facility instead of the hospital emergency department.

Community Paramedicine

Toronto Paramedic Services' Community Paramedicine Program provides community-based medical care, referrals and system navigation to seniors and vulnerable individuals through home visits, remote consultations and wellness clinics. Specially trained Community Paramedics match each patient's unique needs to the most appropriate intervention, with a focus on health promotion and injury prevention. The program increases the level of support available to clients by aiding with system navigation and helping manage recurring medical emergencies that may contribute to frequent 9-1-1 and/or emergency department use. An analysis conducted in 2022 showed a 53% reduction in 9-1-1 use for newly enrolled clients six months following their initial Community Paramedic visit and an analysis in 2023 showed a 10% reduction in 9-1-1 use for frequent callers who reside at wellness clinic locations three months following the clinic start.

Determinant Based Response

Implemented in late 2024, Determinant Based Response is an evidence-based refinement to Toronto Paramedic Services' call assignment process. The approach improves alignment of patient needs with paramedic skills and is overseen by Toronto Paramedic Services' Medical Director. In developing the model, over 900,000 emergency calls over three years of patient care and outcome data were analyzed and compared with paramedic interventions on the scene of emergency calls as well as the call priority that was assigned based on information provided by the 9-1-1 caller. Through refinements to various call priority assignments, Determinant Based Response also aids in improving opportunities to provide paramedics with meal breaks and helps reduce end-of-shift overtime. While still early in its implementation, the program continues to be monitored and refined to ensure patient safety is always prioritized.

Dedicated Offload Nurses Program

The Ministry of Health continues to provide 100% funding for the Dedicated Offload Nurses Program. The Program involves the use of dedicated nurses to help expedite the offload of ambulance patients at hospital. In addition, Toronto Paramedic Services provides monthly compliance reports to each hospital to identify successes and areas for further improvements. Between April 1, 2024, to March 31, 2025, the Dedicated Offload Nurse Program supported the offloading of 40,395 ambulance patients across 11 hospitals. Without this support, Toronto Paramedic Services would experience greater in-hospital pressures and negative impacts on ambulance availability.

In addition, the City Manager and Toronto Paramedic Services Chief have formally requested that the Ministry of Health consider establishing a provincially mandated target for wait times to

offload a patient to encourage hospitals to better manage offload delays.

Fit2Sit

In 2023, in partnership with all Toronto hospitals, Toronto Paramedic Services launched the Fit2Sit program to expedite the safe triaging of low-acuity ambulance patients at hospital, thereby reducing the time Paramedics spend in hospital. Eligible patients are registered at the hospital and wait in the waiting room independently. This supports ambulance availability and increases opportunities for paramedic downtime, meal breaks and reduced end of shift overtime. More than 8,100 patients have been enrolled in the program to date.

Alternate Patient Care Models

Through regulatory changes made to the *Ambulance Act* in 2023, Toronto Paramedic Services continues to work with the Ministry of Health in examining and implementing models for providing alternative care to 9-1-1 callers in an effort to reduce the need for patient transport to hospital. As an example, in 2023, Toronto Paramedic Services implemented the Treat and Discharge model, where an eligible patient may be treated on-scene by paramedics and discharged with recommendations for follow-up care if needed (for example, by a primary care physician or home and community care provider), avoiding the need for transport to hospital.

The City Manager and Toronto Paramedic Services Chief have also formally requested that the Ministry of Health invest in a centralized database of integrated healthcare to facilitate paramedic referrals to alternate healthcare providers and the transport of patients to nonhospital facilities.

Multi-Function Station Strategy

As part of its Council-approved 10-year capital plan, Toronto Paramedic Services continues to move towards a city-wide multi-function station model. The first such station began operation in 2017 with two additional stations slated to start construction within the next two years. These large facilities provide efficiencies through centralized book-on and logistical support for paramedic crews within a geographical area and are considered an industry best practice. Similar models are found in Ottawa, Peel and Waterloo Regions. Benefits of this model include the reduction of start-of-shift downtime, end-of-shift overtime and vehicle downtime, thereby positively contributing to ambulance availability.

EFFORTS TO SUPPORT STAFF

Psychological Health and Wellness Program

Toronto Paramedic Services' comprehensive Psychological Health and Wellness program is designed to support a work environment that is psychologically and physically healthy and safe. The program is focused on prevention, reduction of stigma, timely intervention, post-incident support and making a suite of resources available to all staff. In addition, the program helps strengthen employee resilience, while mitigating the likelihood of post-traumatic stress. It was developed in consultation with CUPE Locals 416 and 79, the City's Employee Assistance Program staff, City of Toronto Ombudsman, and the People & Equity Division. The Psychological Health and Wellness Program is led by an in-house Staff Psychologist and Superintendent Psychological Health & Wellness. A Peer Resource Team is also available to all staff.

Education and Advancement

Toronto Paramedic Services continues to provide educational opportunities to staff to support career advancement and growth. These include Advanced Care Paramedic and Critical Care Paramedic Programs, expanded paramedic scope of practice, and special team opportunities for employees to learn and develop beyond their regular positions.

Equipment and Technology

Toronto Paramedic Services continues to invest in equipment and technology to help improve employee health and safety, patient outcomes, and overall employee satisfaction. Recent investments include individual issue smartphones for paramedics, new ambulance vehicles and patient care equipment.

Improved Scheduling of Staff

In collaboration with Toronto Civic Employees Union Local 416, Toronto Paramedic Services implemented a harmonized shift schedule in 2023 that more consistently aligns paramedics with each other and their supervisors.

CONCLUSION

The Multi-Year Staffing Plan proposes adding 331 frontline positions from 2025 to 2028 to meet increasing service demands and increase ambulance availability as the city continues to age and grow. This is in addition to the new positions approved in the 2025 budget to address immediate operational needs and ongoing pandemic-related pressures. Implementation of this plan is projected to increase ambulance availability by up to 20% by the end of 2028, which positively impacts emergency response times.

Toronto Paramedic Services is facing immediate pressures related to increasing emergency call demand, in-hospital wait times and, as a result, reduced ambulance availability. This has led to an increased and unsustainable reliance on overtime, increasing WSIB pressures, as well as negative staff impacts related to workload, fatigue, burnout and retention.

The staffing investment described in this Multi-Year Staffing Plan is expected to positively impact service delivery, organizational capacity, and staff well-being. By addressing staffing challenges, this investment will enhance ambulance availability in order to improve service delivery. Increased staffing levels also aim to reduce reliance on overtime and help distribute the workload more evenly among frontline staff. Without these investments, rising service demand will not be met, potentially impacting service delivery and staff well-being.

CONTACT

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ATTACHMENTS

Appendix A – Multi-Year Financials Appendix B – TPS Staffing Resource Needs Detailed Analysis

Appendix A – Multi-Year Financials

						Total 2025-
-	2025	2026	2027	2028	2029	2028
Hires	112	94	86	70		362
Paramedics	102	86	79	64		331
Superintendents	5	4	4	3		16
Support	5	4	3	3		15
						Annualized
						Ongoing
Operating (Incremental)						Operating
_\$ Millions						<u>Cost</u>
Total Salaries & Benefits	3.7	14.7	18.6	10.9	2.7	50.6
Salaries & Benefits	3.4	13.4	17.5	9.9	2.4	46.7
2025 Staffing	3.4	10.5				13.9
2026 Staffing		2.9	9.1			12.1
2027 Staffing			8.3	2.9		11.2
2028 Staffing				7.0	2.4	9.5
Other S&B	0.3	1.3	1.1	1.0	0.2	3.9
Non-S&B	0.5	0.5	0.5	0.5	0.0	2.0
Gross Expenditure	4.2	15.2	19.1	11.4	2.7	52.6
Funding*	2.1	8.2	9.5	5.7	0.7	26.3
Net Expenditure	2.1	7.0	9.5	5.7	1.9	26.3

*Assumes 50% funding based on Land Ambulance Service Grant agreement

Appendix B - Toronto Paramedic Services Resource Needs Analysis for 2025

Table of Contents

Executive Summary	17
ntroduction2	20
Purpose	20
Dbjective	20
Scope	20
Definitions	21
Background	23
lethodology	26
1. Forecasting Service Demands 2	26
2. Determining an Optimal Rate of Resource Utilization	29
3. Analysing Resource Needs	32
indings and Recommendations	35
Sonclusion	35

Executive Summary

Overview

Toronto Paramedic Services (TPS) is the largest municipal Paramedic Service in Canada, responding to over 350,000 distinct emergency calls per year, 24 hours a day, 365 days per year. Emergencies can happen at any time. Accordingly, TPS requires sufficient availability of resources to support timely and appropriate responses to life-threatening emergency calls. TPS has undertaken a resource needs analysis to determine the Service's front-line paramedic staffing needs. This document summarizes the recommendations and the approach taken to arrive at an informed projection of the paramedic resources required to meet and respond to future service demands through to the end of 2028.

Recommendations

1. TPS should target 65% as a maximum overall resource utilization rate¹.

A planned resource utilization of 65% will provide TPS with added capacity to respond to forecasted service demands, and should be considered a maximum rate of utilization to protect ambulance availability. Utilization above 70% risks delayed responses to lifethreatening emergencies due to the potential for an imbalance between ambulance availability and service demands.

To service the anticipated call demands by 2028, while targeting a maximum 65% resource utilization, it is recommended that TPS **add** <u>64</u> twelve-hour Transport Units to the daily roster (i.e. fully staffed ambulances).

To operate the recommended increase in daily rostered units, <u>331²</u> additional frontline paramedic staff are required by the end of 2028.

2. TPS should continuously review and update service demand forecasts and staffing analysis.

Background

- TPS is a high-volume, urban paramedic service, covering a large geographic area and servicing a diverse population.
- Each TPS ambulance (transport unit) is operated by two Paramedics and provides response to emergency calls where patients are assessed, treated, and transported to Toronto and area hospitals for definitive care.
- TPS Paramedics work 12-hour shifts, averaging 40 hours per week over 6-week cycles.

¹ This measures how much time emergency vehicles are busy on calls compared to their total work hours. ² This recommendation is based on the current state of paramedic operations, which does not account for the new positions already approved for 2025. This recommendation also considers the service's ability to obtain the required resources at the start of the calendar year.

- TPS call volume³ has historically⁴ increased at an exponential rate, year-over-year. It is expected to increase by 11% by the end of 2028 (compared to 2024).
- In recent years, the number of hours in a given day with low unit availability⁵ has increased by 300% compared to pre-pandemic levels, which has contributed to an increase in response times to life-threatening calls over the same period.
- Service time, defined as the cumulative sum of time spent on emergency incident assignments, has been increasing at a higher rate than call volume in recent years. It is expected to increase by 20% by the end of 2028 (compared to 2024).
- Healthcare system pressures are the primary drivers of the service time.
- The city's aging population, drug toxicity crisis, and lack of access to primary care continue to drive service demand, while patient care and paramedic skill set have increased in scope and complexity.
- This analysis focused on resource utilization which measures the proportion of time paramedic staff resources are actively engaged in responding to calls relative to their total available working hours (service time).
- Higher resource utilization rates mean paramedics and transport units are busier, leaving fewer resources available for responding to new emergencies. This can lead to increased response times, potentially impacting the service's ability to provide timely care to the community.
- TPS can balance its rate of resource utilization to a maximum of 65% overall by increasing the number of on-duty paramedic resources on its daily roster.

Approach

To estimate TPS's future paramedic resource requirements, a forecast of expected service demands through to the end of 2028 was generated, using a third order polynomial regression applied to historic TPS service time data. The historic service time dataset included data for TPS transport units assigned to all call priorities, and the forecast model considered annual change, transported versus non-transported incidents, seasonality, time of day, and day of week.

A conservative service demand forecast was used to recommend a target rate of resource utilization that would provide TPS with capacity for higher-than-average scenarios (for example, during peaks and surges in demand), to ensure TPS has emergency coverage and is prepared for busy periods. A target resource utilization rate of 65% was recommended from this analysis to allow for a margin of additional ambulance availability during surges of demand and to account for the Paramedic workload outside of an emergency call.

³ Call volume refers to the distinct count of 911 calls processed and responded to by TPS.

⁴ Between 2010 and 2019, TPS experienced exponential growth in annual call volume. This growth trend was interrupted by the COVID-19 pandemic in early 2020, when TPS experienced an unprecedented decrease in the number of emergency calls. Shortly thereafter, TPS call volume increased sharply, catching-up to pre-pandemic levels in 2023 and has continued to increase year-over-year at a sustained rate. Although the pre-COVID-19 exponential growth trend has not yet been observed since the onset of the pandemic, a similar exponential trend may become apparent over the coming years as the city continues to recover from the labour market, demographic, and social impacts of the pandemic.

⁵ Low ambulance availability: Refers to discrete instances where 0 to 5 transport ambulances where available in the City of Toronto.

The service time forecasts, and the recommended rate of resource utilization were combined into a projected-resource-needs model to produce the total number of unit hours required to meet the forecasted service time hours at the overall rate of 65% resource utilization. The number of required unit hours was translated into staffing requirements by factoring in assumptions such as the number of staff required to operate a 24-hour ambulance and the expected staff non-productive time. The assumptions used to translate the required unit hours into staffing requirements in the model are described in Table 1.

Category	Assumption	Value
[A1] Annual Active Ambulance Hours	The number of active (in-service) hours for one 24- hour ambulance in year is equal to the number of hours in a year.	8760:00
[A2] Annual Active Unit Hours	The number of paramedic unit hours required to operate one 24-hour ambulance in a year is equal to the number of hours in a year multiplied by 2 (two, two-crew 12-hour shifts per day).	17520:00
[A3] Annual Active Paramedic Hours (Excluding Non- Productive Time)	The number of hours a paramedic works in one year (excluding non-productive time) is equal to 40 hours * 52 weeks.	2080:00
[A4] Annual Resource Count per Ambulance (Not Accounting for Non- Productive Time)	The number of paramedics required to operate one 24-hour ambulance in a year, not accounting for expected non-productive time, is equal to [A2] / [A3]	8.3
[A5] Annual Non- Productive Rate	The expected rate of non-productive hours in a year is based on vacation allotment, floating statutory holidays, ill and ill dependent leave, WSIB. It is the percentage of planned shifts where a non-productive code is used.	30%
[A6] Annual Resource Count per Ambulance (Accounting for Non-Productive Time)	The number of paramedics required to operate one 24-hour ambulance in a year, accounting for the expected non-productive rate, is equal to [A4] * [A5]	11

Table 1: Resource Needs Analysis Assumptions

Introduction

Toronto Paramedic Services ("TPS" or "the Service") is the largest municipal Paramedic Service in Canada. TPS provides 24/7 paramedic-based healthcare services within the city of Toronto, with services covering emergency medical dispatch, paramedic care, land ambulance transportation to hospitals, and community paramedicine. In 2023, TPS responded to over 350,000 unique emergency incidents, with the communications centre processing more than 900 emergency calls daily.

In 2019, City Council approved a multi-year staffing plan to address the Service's expected resource needs until the end of 2024. That plan enabled the Service to add 338 front-line staff, 18 support staff, and 18 multi-function station staff to its complement.

Following careful review of the 2019 multi-year plan, TPS has conducted a comprehensive analysis to estimate its front-line, paramedic staffing needs in 2025, 2026, 2027, and 2028. An updated methodology was developed for the purposes of this analysis. The new approach and methodology (the "Resource Needs Analysis") considers anticipated service demands through the end of 2028. Several system components were considered to assess resource needs, including call volume, peak demands, staffing, service time, and response times.

The results and methodology of the analysis are provided in this document for consideration.

Purpose

The purpose of this report is to provide a summary of the findings and methodology of the Resource Needs Analysis.

Objective

The objective of the Resource Needs Analysis is to estimate the Service's front-line paramedic resource needs through to the end of 2028.

Scope

The scope of the Resource Needs Analysis includes all TPS front-line operations resources capable of responding to and servicing 911 emergency medical calls.

Definitions

- **Transport Unit (Paramedic Unit)**: Refers to the paramedic crew in operation of an ambulance that can respond to 911 calls, transport one or more patient(s), and that otherwise meets the definition of "ambulance" in the Ambulance Act, R.S.O. 1990, c. A.19, s 1(1).
- Daily Roster: Refers to the (average) total daily count of "On-Duty" Transport Units.
- Emergency Assigned Incidents (Call Volume, Emergency Calls): Refers to distinct incidents with emergency priority codes where one or more TPS Transport Unit was assigned to.
- **Emergency Attended Incidents:** Refers to distinct incidents with emergency priority codes where one or more assigned TPS Transport Unit arrived on scene.
- Unit Service Time: Refers to the cumulative sum of time spent on emergency incident assignments by TPS Transport Units. It captures every minute that every Transport Units spends servicing calls -- from the time each unit was assigned to a call until the time each unit was cleared from a call. It is independent of whether a unit arrived on scene or transported a patient.
- Active Roster Hours (Unit Hours): Refers to the cumulative sum of time that a Transport Unit is considered On-Duty. It captures every minute that every Transport Unit is "On-Duty", actively operating, and contributing to the Daily Roster count. The metric is independent of planned shift length.
- **Resource Utilization:** Refers to the proportion of time that TPS Transport Units are actively responding-to and servicing calls (Unit Service Time) relative to their total available working hours (Active Roster Hours). A higher utilization rate means that fewer resources are available for responding to new emergencies in the community.
- Service Demand: Refers to the combination of Call Volume and Unit Service Time.
- **Hospital Offload Delay:** Refers to the additional time spent in hospital from arrival to transfer of care, above the industry best practice of 30 minutes.
- **Time Unit Assigned to Call:** Refers to a data point recorded that captures the timestamp of when a TPS Transport Unit was assigned to an emergency call.
- **Time Call Cleared:** Refers to a data point recorded that captures the timestamp of when a TPS Transport Unit was cleared from an emergency call.

Summary of Findings and Recommendations

- 1. TPS Service Demands are Expected to Increase
 - Total unit service time is forecast to increase 20% by the end of 2028 (vs 2024), or approximately 5% annually.
 - Call volume is forecasted to increase 11% by the end of 2028 (vs 2024).
- 2. TPS Should Target 65% as a Maximum Overall Resource Utilization Rate to Protect Resources
 - A planned resource utilization of 65% maximum will provide TPS with added capacity to respond to forecasted service demands and maintain availability. Utilization above 70% risks delay in responses to life-threatening emergencies due to the potential for an imbalance between unit availability and service demands. A planned resource utilization of 65% translates to a 35% resource availability. This should be considered a maximum rate of utilization to protect unit availability.
- 3. TPS Should Add Active Roster Hours to Daily Operations⁶
 - To service the anticipated call demands in 2028, while targeting 65% resource utilization, TPS will require approximately 3,000 roster hours per day.
 - To meet the 3,000 required roster hours per day, an equivalent of 64 twelve-hour additional transport units will need to be added to the daily roster by the end of 2028. An equivalent of 331⁷ paramedic staff are required to operate 64 twelve-hour Transport Units.
 - TPS should examine a suite of options for adding roster hours into operations, including but not limited to hiring paramedic staff.
- 4. TPS should continuously review and update service demand forecasts and further leverage granular service demand and resource-use forecasts in its daily operations and planning.

⁶ These counts are based on a 2024 baseline state of TPS operations (actual worked roster hours) and do not account for the new positions already approved for 2025.

⁷ This recommendation is based on the current state of paramedic operations, which does not account for the new positions already approved for 2025. This recommendation also considers the service's ability to obtain the required resources at the start of the calendar year.

Background

- TPS is a high-volume, urban ambulance service, covering a large geographic area and servicing a diverse population.
- TPS paramedics are dedicated professionals who respond to calls for help during some of the most challenging moments in people's lives.
- TPS paramedics work 12-hour shifts, averaging 40 hours per week over 6-week cycles, providing compassionate care and assessment of a broad range of problems including: heart attacks, strokes, traumatic hemorrhages, overdoses, seizures, falls, cardiac arrests, childbirth, among many others.
- TPS transport units are operated by two paramedics and provide response to emergency calls where patients are assessed and treated by the paramedics and transported to Toronto and area hospital emergency departments for definitive care. Refer to *Table 1* for breakdown of the components of a 911 call.
- In 2024, there were 364 paramedics on-duty per day, on-average, each working a 12-hour shift. Shift start times are staggered, with daytime shifts commencing at 06:00, 07:00, 09:00, 11:00, and 14:00, and evening shifts at 18:00 and 19:00. Peak staffing occurs during daytime hours.
- TPS has historically experienced sustained increases in annual call volume. Between 2010 and 2019, TPS experienced exponential growth in annual call volume. This growth trend was interrupted by the COVID-19 pandemic in early 2020, when TPS experienced an unprecedented decrease in the number of emergency calls. Shortly thereafter, beginning in 2021, TPS call volume increased sharply, catching-up to pre-pandemic levels in 2023. TPS call volume has since increased year-over-year at a sustained rate.
- Although the pre-COVID-19 exponential growth trend has not yet been observed since the onset of the pandemic, a similar exponential trend may become apparent over the coming years as the city continues to recover from the labour market, demographic, and social impacts of the pandemic.
- Service time, however, accelerated throughout the height of the COVID-19 pandemic. From 2018 to 2023, total unit service time increased by 18%.
- Unit service time was steadily increasing prior to the pandemic. Between 2018 and 2019, unit service time increased 28%. However, it began to increase significantly in 2021, largely due to system-wide healthcare pressures that resulted in prolonged hours in hospitals. By the end of 2023, these pressures eased somewhat, with service time demands continuing to increase, albeit at a lower rate.
- Lengthy offload delays significantly increased the in-hospital portion of TPS unit service time. Between 2021 and 2023, offload delays of more than 3 hours per patient transport became routine (the province-wide best practice is 30 minutes).
- While offload delays have improved over the past year, the in-hospital portion of an emergency call remains the largest component of unit service time (approximately 60% of the total unit service time).
- The supply of resources and roster hours has not kept pace with the increases in service time, presenting challenges to TPS operations. Between 2018 and 2023, the

total number of hours with low ambulance availability⁸ increased by 300% compared to pre-pandemic levels and ambulance availability challenges contributed to a 15% increase in 90th percentile response times to life-threatening calls, over the same period.

- The factors affecting unit service time range from external influences such as hospital staffing levels and hospital pressures across 13 primary sites in Toronto, to demographic changes affecting the nature of calls and the complexity of on-scene care provided to patients.
- In recent years, the overall, annual rate of TPS's resource utilization has exceeded 70%. During peak hours of the day, the Service's rate of resource utilization can fluctuate, evening exceeding 85% during busy hours of the day. Operating at higher rates of resource utilization negatively impacts the Service's ability to respond to emergent needs, as sufficient capacity to protect resources for incoming emergency calls during peak demands becomes challenging to maintain.
- TPS can balance its rate of resource utilization, thereby minimizing low unit availability events, by increasing its number of on-duty paramedic resources on its daily roster. The analysis described below details resource needs to keep pace with forecasted service demands between 2025 and the end of 2028.

⁸ Low Unit Availability = discrete instances where 0 to 5 Transport Units are available.

Table 1: 911 Call Components (Time Intervals)

Time Interval	Description	Typical proportion of total 911 call service time
T0 – T1	Emergency request for service (911 call) to call entering the active call queue.	2%
T1 – T2	Call entering the call queue to an ambulance being dispatched.	2%
T2 – T3	Ambulance dispatched to ambulance mobile.	2%
T3 – T4	Ambulance mobile to an ambulance arriving at the scene.	7%
T4 – T5	Ambulance arrived at the scene to an ambulance departing the scene to a hospital.	20%
T5 – T6	Ambulance departed the scene to ambulance arrival at a hospital.	11%
T6 – T7	Ambulance arrived hospital to ambulance was returned to available.	56%

Methodology

To estimate the paramedic resources required for TPS to respond to future service demands, service time and call volume were forecasted, resource utilization scenarios were analysed, and a model to interpret the forecast service demands and system capacity needs was developed to estimate the Service's net new resource needs. Each of these steps is described below.

1. Forecasting Service Demands

Service Demands are analysed by-way of unit service time. Unit service time is a holistic measure of system demand, encompassing both total call volume and total time spent on the calls. Unit service time is the cumulative duration (expressed in hours in this report) from when a paramedic unit was assigned to an incident until that unit was cleared from that incident ("Time Unit Assigned" until "Time Call Cleared").

The number of future paramedic staff and roster hours that the Service requires can be calculated directly from a forecast of unit service time; as such, the staffing recommendations outlined in this report are based on forecasted unit service times.

1.1 Limitations

Historic unit service time trends are complex and nuanced. The factors affecting unit service time range from external influences such as the hospital pressures at 13 emergency departments across Toronto, to demographic changes affecting the nature of emergency calls, to the complexity of on-scene care provided to patients. Furthermore, the disruptions brought on by the COVID-19 pandemic introduced additional limitations for forecasting. This is true for organizations across all industries. The change in service demands during this time deviated significantly from historical patterns, which presents challenges for forecasting future events. These challenges were considered and analysed, and an iterative approach was taken to determine an appropriate forecast model.

Notwithstanding the complexities and limitations described above, unit service time was assessed to be the most appropriate measure of service demand, as it effectively captures temporal increases in 911 call volume as well as the external influences and trends contributing to the time required to respond to emergency calls and deliver patient care (such as hospital off-load delays, on-scene times, traffic).

1.2 Approach

To forecast the total expected unit service time in 2025, 2026, 2027, and 2028, a third order polynomial regression was applied to historic Unit Service Time data from 2015 to 2024, representing more than six million hours of accumulated unit service time over nine full years. The historic unit service time dataset included data for TPS transport units assigned to all call priorities.

The unit service time forecast model considered annual change, transported versus nontransported incidents, seasonality (month), time of day (morning, peak, evening, night⁹), and day of week (weekday versus weekend).

To complement the unit service time forecast, call volume was also forecast. However, it is worth noting that changes to call volume are also effectively captured in service time.

To forecast expected call volume in 2025, 2026, 2027, and 2028, a third order polynomial regression was applied to historical emergency assigned incident data from 2020 to 2024. The dataset of emergency assigned incidents represented more than 1.5 million calls over 5 years.

The call volume forecast model considered the annual change, transported versus nontransported incidents, seasonality (month), time of day (morning, peak, evening, night), and day of week. Like the unit service time forecast, the call volume model's output is a granular forecast that predicts the expected number of transported and non-transported emergency incidents, covering every day in 2025 through to the end of 2028.

1.3 Results

The unit service time forecast model's output is a granular prediction of the expected sum of accumulated unit service time hours for month, time of day, day of week, covering every day in 2025 through to the end of 2028. The final output of the unit service time forecast compared to the historic years is shown in *Figure 1*.

Figure 2 shows a summary of the call volumes, historic and forecast, by year. The call volume forecasts provide context to the unit service time forecasts, though they were not explicitly used in the resource needs analysis. *Figure 3* compares the year-over-year change in call volume versus service time, historic and forecast. *Figures 4* shows the forecasted unit service time by month. The monthly forecasts follow anticipated trends, wherein peak service time occurs during the fall months, when seasonal illnesses emerge, causing predictable pressures primarily during hospital offload.





⁹ Morning = 06:00-09:00, Peak = 09:00-19:00, Evening = 19:00-01:00, Night = 01:00-06:00

Figure 2: Emergency Assigned Call Volume, Historic and Forecasted, 2010-2028



Figure 3: Year-Over-Year Percentage Change in Assigned Incident Volume and Unit Service Time Hours, Historic and Forecasted, 2016 - 2028



Figure 4: Forecasted Unit Service Time by month, 2025-2028



2. Determining an Optimal Rate of Resource Utilization

Resource Utilization is used to understand and/or measure the proportion of time paramedic staff resources are actively engaged in responding to calls relative to their total available working hours (Unit Service Time). Higher utilization rates mean paramedics and transport units are busier, leaving fewer resources available for responding to new emergencies. This can lead to increased response times, potentially impacting the service's ability to provide timely care to the community.

Resource utilization is effectively a measure of supply and demand. In the context of TPS operations, supply refers to front-line paramedic staffing resources (Unit Roster Time), while demand is driven by on-task service hours (Unit Service Time). Accordingly, resource utilization can be expressed as follows,

 $Resource \ Utilization = \frac{Unit \ Service \ Time}{Unit \ Roster \ Hours}$

2.1 Limitations

There is little-to-no reporting on optimal rates of resource utilization for large urban paramedic services. In the absence of objective evidence, TPS undertook an analysis of its ability to service the forecasted call volume and service demands across different rates of resource utilization.

Further consideration should be considered for the Paramedic workload outside of call response, which is not captured by this analysis. This represents a different type of service time, or time-on-task, outside of that on an emergency call. This workload includes vehicle

checks, vehicle refueling, uniform changes, wash and clean-up, post assignments, meal breaks, medication check and lock-up, incident reporting, paperwork completion, and other administrative tasks. These examples are all routine activities that make up a Paramedic's shift and are not captured in the resource utilization numerator. Accordingly, the recommended rate of utilization from this analysis should be considered a maximum.

2.2 Approach

The primary goal of this analysis was to recommend a maximum overall rate of resource utilization for TPS to target that provides capacity to meet surges in demands as well as the forecast service demands.

For this analysis, a conservative service demand forecast was used to recommend a target rate of resource utilization that provides TPS with sufficient capacity for higher-than-average scenarios (for example, during peaks and surges in demand), to ensure TPS has coverage and is prepared for busy periods.

The forecasts described earlier in this report represent average expected values. Statistically, the actual service demands could be higher or lower than these forecast, about half the time. Whereas, statistically, the actual service demands could be higher or lower than the conservative forecast about ten percent of the time.

Both the conservative and average forecast for 2025 were brought together for this analysis.

2.3 Results

Figure 5 presents the average and conservative forecasts for each month in 2025 over six (6) levels of planned resource utilization – 60%, 65%, 70%, 75%, 80%, and 85%. The dotted green line in each scenario represents the maximum number of unit service hours available at 100% utilization.

Figure 5: Forecasted Unit Service Time and Capacities for 6 Resource Utilization Scenarios in 2025



As presented in Figure 6, the area between the dotted green line (maximum capacity) and the orange line (conservative service demand forecast) represents the resource buffer required to absorb surges in service demand and complete non-emergency call workload. In scenarios where planned resource utilization is above 70%, the orange line aligns with the green line for part of the year, indicating that the Service will be unable to meet service demand during periods within those months, or would need to be operating at 100% utilization.

While the notion of 100% utilization is achievable in theory, it is not likely in practice. Moreover, operating at nearly 100% utilization is not appropriate for an emergency service, as it leaves the Service without capacity to respond to incoming demands in the community or perform other required administrative tasks. Accordingly, a target resource utilization rate of 65% is recommended to allow for a margin of additional availability in such scenarios, and to account for the Paramedic workload outside of an emergency call.

3. Analysing Resource Needs

To assess future resource needs, the unit service time forecasts and the recommended rate of resource utilization were combined into a projected-resource-needs model, which further leverages the resource utilization measure described above.

3.1. Approach

To determine future resource requirements, the numerator of the Resource Utilization equation becomes '*Forecasted* Unit Service Time', while the Unit Hours denominator is dynamically calculated based on the set rate of resource utilization, such that the supply of unit roster hours required to service the forecasted service hours balances to this rate. The resource utilization rate is a value between 0 and 100%, representing the percentage of unit roster time spent servicing calls. As described in the sections above, the recommended rate of resource utilization for TPS is 65%.

The Resource Utilization equation used to calculate resource needs is as follows,

 $Resource \ Utilization = \frac{Forecast \ Service \ Time \ Hours}{Required \ Unit \ Hours}$

Where the unit hours denominator is equal to the Forecasted Service Hours divided by the target Resource Utilization rate, thereby becoming *Required* Unit Hours.

The number of required unit hours are translated into unit counts and staffing requirements by factoring in assumptions such as the number of staff required to operate a 24-hour ambulance and the expected staff non-productive time. The assumptions used to translate the required unit hours into unit counts and staffing requirements in the model are described in *Table 2*.

A baseline of the active roster hours from the previous period can be used to derive the additional, net new, resource needs from the required unit hours. This net new count is equal to the number of additional hours required in the future, over and above the count of hours worked historically. Therefore, the 'Additional Required Unit Hours' is the remainder of the required unit hours less actual (worked) roster hours during the previous period.

Net New Paramedic Staff Count = $\frac{Additional Required Unit Hours}{Total Hours in Projection Period} \times Annual Resource Count per Ambulance$

Where the 'Annual Resource Count per Ambulance' is equal to 11 (see *Table 2*, Assumption #A6).

Table 2: Assumptions Used in the Resource-Needs Analysis

Assumption		Value
[A1] Annual Active Ambulance Hours	The number of active roster hours for one 24-hour Transport Unit in year is equal to the number of hours in a year.	8760
[A2] Annual Active Unit Hours	The number of paramedic unit hours required to operate one 24-hour ambulance in a year is equal to the number of hours in a year multiplied by 2 (two 12-hour shifts per day).	17520
[A3] Annual Active Paramedic Hours (Excluding Non- Productive Time)	The number of hours a paramedic works in one year (excluding non-productive time) is equal to 40 hours * 52 weeks.	2080
[A4] Annual Resource Count per Ambulance (Not Accounting for Non-Productive Time)	The number of paramedics required to operate one 24-hour ambulance in a year, not accounting for expected non- productive time, is equal to [A2] / [A3]	8.3
[A5] Annual Non- Productive Rate	The expected rate of non-productive hours in a year is based on vacation allotment, floating statutory holidays, ill and ill dependent leave, WSIB. It is the percentage of planned shifts where a non-productive code is used.	30%
[A6] Annual Resource Count per Ambulance (Accounting for Non- Productive Time)	The number of paramedics required to operate one 24-hour ambulance in a year, accounting for the expected non- productive rate, is equal to [A4] * [A5]	11

3.2 Results

The projected resource needs are presented by year in *Table 3*. The resource needs model considered the annual forecasted service time and produced the roster hours required to meet the service time at an overall resource utilization rate of 65%. The roster hours output is converted into transport unit and front-line paramedic staff counts, using the assumptions outlined in *Table 2*.

The model bases its resource counts for each year on the assumption that the required roster hours from the previous year were actualized. Increases in the unit hours and "net new" counts presented in *Table 3* reflect increases in required resource counts over and above those of the previous period (i.e. the previous calendar year, building from the 2024 baseline).

Table 3: Summary of Resource Needs Analysis at 65% overall Resource Utilization, for 2025, 2026, 2027, 2028

	Year	Annual Change in total Unit Hours (%)	Annual Change in Unit Roster Time (Daily 12- Hour Unit Count Equivalent)	Annual Change in total Service Time (%)	Annual Overall Resource Utilization (%)
Actual	2020	0	0	-12	60
Actual	2021	3	6	24	72
Actual	2022	1	2	4	74
Actual	2023	5	10	0	70
Actual	2024	0	0	3	71
Forecast	2025	14	29	4	65
Forecast	2026	5	11	5	65
Forecast	2027	5	12	5	65
Forecast	2028	5	12	5	65

Findings and Recommendations

To meet the forecasted service demands by 2028 and achieve an overall resource utilization rate of 65%, TPS will require approximately 1.15 million total active roster hours, or approximately 3,000 active roster hours per day. This is a 30% increase from the roster hours realized in 2024. This increase in roster hours diverges from the forecasted 20% increase in service demands due to the fact that TPS has, in recent years, been operating at an overall rate of resource utilization in excess of 65%. Increasing roster hours at a rate commensurate to the anticipated increases in service time would mean operating at 100% utilization.

Since TPS has been operating at an overall rate of resource utilization in excess of 65%, the results shown in *Table 3* for 2025 (i.e. the first forecasted year of the model) are disproportionately higher than the latter forecasted years. This reflects a degree of "catch-up" necessary to balance the overall resource utilization to 65%. Should this analysis be considered in any future resource planning, the upfront "catch-up" of resources should be more equally distributed over multiple years, with the caveat that resource utilization will remain above 65% until these additional hours are put into operations.

The analysis identifies a need for new resources starting January 1st annually to meet utilization targets, but acquiring and integrating resources by this time is not feasible. Therefore, the staffing plan must adopt a more practical approach, scheduling gradual staff increases over the multi-year term. This strategy will ensure we build towards and ultimately achieve the target utilization rate by the end of the plan. In all, the additional number of Unit Hours required to meet the forecasted service demands in 2028 at 65% resource utilization, is equivalent to 331¹⁰ additional paramedic staff operating 64 twelve-hour additional Transport Units per day. This count is built from a 2024 baseline state of TPS operations (actual (worked) active roster hours) and does not account for any new positions already approved in 2025.

The results of the Resource Needs model are summarized in *Table 3* above.

Conclusion

The analysis described in this report represents one step for TPS to consider in its resource planning.

Further, this analysis has identified an objective resource utilization target to balance the supply and demand-side of TPS operations. Planning for surges in emergency call volume will enable the Service to develop strategies and programs to improve response times to life threatening calls.

TPS should continuously review and update service demand forecasts and further leverage granular service demand and resource-use forecasts in its daily operations and planning.

¹⁰ This recommendation is based on the current state of paramedic operations, which does not account for the new positions already approved for 2025. This recommendation also considers the service's ability to obtain the required resources at the start of the calendar year.