

<b>To:</b>	Warden Milne and Members of Grey County Council
<b>Committee Date:</b>	February 9, 2023
<b>Subject / Report No:</b>	PSR-CW-02-23
<b>Title:</b>	Paramedic Services Comprehensive Deployment Review
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<b>Reviewed by:</b>	Kim Wingrove, Mary Lou Spicer
<b>Lower Tier(s) Affected:</b>	
<b>Status:</b>	Recommendation adopted by Committee as presented per Resolution CW31-23; Endorsed by County Council February 23, 2023, per Resolution CC19-23.

## Recommendation

1. That report PSR-CW-02-23 regarding the Paramedic Service Comprehensive Deployment Review be received; and
2. That County Council supports the recommendations in principle outlined in the Paramedic Service Comprehensive Deployment Review; and
3. That staff be directed to bring forward the recommendations as detailed in the Comprehensive Deployment Review during annual budget deliberations for County Council consideration.

## Executive Summary

The Paramedic Services Comprehensive Deployment Review 2023 to 2033 was completed to ensure paramedic services can meet Grey County's growing demand and sustain current service levels up to 2033.

Operational Research in Health (ORH) benchmarked Grey County Paramedic Services (GCPS) against its database of Ontario ambulance service data. Generally, GCPS benchmarks well and was not a particular outlier in any measure. Currently, GCPS eight bases were found to be in very close proximity to optimal locations to meet service demand within Grey County.

GCPS met all CTAS reporting targets at County-wide level, although these are not met in some of the more rural, lower tier municipalities including the Township of Chatsworth and the Municipality of Grey Highlands. Paramedic services are required to report figures to the Ministry

of Health at County level, but it is important to understand the variation across the service. Annually, GCPS have not consistently attained the 90<sup>th</sup> percentile in 15-minutes CTAS2 target, however, have been close to this measure.

To meet the 15-minute, 90<sup>th</sup> percentile in 2022, the minimum resources required is a 17% increase in vehicle hours, or an extra 252 ambulance hours weekly.

Future demand modelling is showing an average increase in call volumes of 5.8% per annum and a 68% increase over the next 10 years.

The recommended resource additions to maintain performance in 2022 by Municipality for 2033 is being proposed in a phased plan to make the most efficient staggering of resource and capital changes over the next ten years. An additional 672 weekly ambulance hours are required, which would include upstaffing the 12-hour First Response Unit (FRU) to an ambulance.

Operational and logistical support will also include the addition of a new ambulance base in Feversham as well as increases to the size of the ambulance base build in Durham to add more room for supplies and equipment, increases to vehicles, increases to garage space and increases to scheduling and supervisor support.

## Background and Discussion

As part of the 2022 budget process, staff requested approval to complete a comprehensive review of deployment to meet the services current and future needs in the setting of increasing call volumes. In the Spring of 2022, Operational Research in Health (ORH) was selected through an RFP process to complete the review. ORH assists emergency services around the world, including several in Ontario, to optimize resource use and respond in the most effective and efficient way. For more than 35 years, ORH has been continuously active in undertaking paramedic services reviews around the world.

Grey County Paramedic Services (GCPS) comprehensive deployment review highlights the evolving demands in emergency services and provides a foundation for paramedic services to build capacity and respond effectively over the next 10 years.

As paramedic services has become an integral part of the health care system, it is important to build and sustain our capacity to meet the current and future needs of patients by improving access to care, collaborating with and linking patients to primary and community care partners.

The commitment and perseverance of our service members, the support of County Council, and the collaboration with our community partners have enabled us to continue providing the high level of service for which we are known.

The role of paramedics, which has historically been viewed as emergency response and transportation, has expanded to include a range of community-based health and social services that are improving access to care services by linking patients to primary and community care.

### **Purpose of the Paramedic Services Comprehensive Deployment Review 2023 to 2033**

Grey County Paramedic Services completed the comprehensive deployment review to have evidence-based guidance for decision making on the allocation of staff, vehicles, and station

locations for Grey County and to maintain a high level of service and meet response time standards.

The Paramedic Services Comprehensive Deployment Review 2023 to 2033 was developed to ensure paramedic services can meet Grey County's growing demand and sustain current service levels up to 2033. The comprehensive deployment review forecasted population growth, demographic trends and the evolution of demand in the County. Against this backdrop, development of the review included detailed analysis of potential response time performance, considering factors such as roadway networks, urban development, travel time, and community resources.

The purpose of the comprehensive deployment review is to identify future staffing needs, fleet and station resources required to respond to 911 demand and the needs of the County's growing and aging population, equitably and consistently across all local municipalities. Realization of these resources depends on the County's budget process, availability of Provincial funding and actual population growth and forecasts. The review also identifies opportunities to mitigate costs.

Assessing the resources needed, requires setting a standard for performance. Following detailed analysis including modelling scenarios, this comprehensive deployment review uses a performance standard of responding to Priority 4 (life threatening) incidents in 15 minutes or less, 90% of the time, regardless of the local municipality where the 911 call originated from. This standard is in line with the Provincial legislation and Council approved response time targets. While considerable infrastructure is required to operate an exceptional service including bases, ambulances, and specialized equipment, at its core, effective paramedicine requires highly qualified and compassionate staff. The comprehensive deployment review will also be used to help guide workforce development and ensure we have the proper support in place to meet the well-being needs of our paramedics.

### **Current Level of Service**

As of September 4<sup>th</sup>, 2004, The County of Grey assumed the responsibility of delivering Paramedic Services. GCPS provides emergency and non-emergency, out-of-hospital primary care and community paramedic care to approximately 100,000 permanent residents as well as several thousand seasonal residents, over a 4,500 square kilometer area in Ontario. Grey County is located in south-western Ontario and is bordered by the County of Simcoe, the County of Dufferin, the County of Wellington, the County of Huron and the County of Bruce.

The current fleet consists of twenty-three vehicles, inclusive of ambulances and response units. GCPS provides nine transport ambulances at peak, and eight transport ambulances off peak.

GCPS employs nine management staff, three administrative staff as well as one hundred and forty-five full-time and part-time paramedics. The operations include not only emergency responses, but a complement of community programs.

GCPS operates from within eight response bases, all of which are currently staffed 24/7. These staff are dispatched by the London Central Ambulance Communications Centre (CACC), operated by the Ministry of Health (MoH).

### **Current Service Profile**

ORH collected data from Ambulance Dispatch Recording System (ADRS) to understand the demands placed on GCPS, the usage of resources deployed, and the response performance achieved within Grey County.

Analysis from January 2018 to May 2022 data, showed that GCPS responded to an average of 33.4 incidents per day excluding standby moves. Priority 4 (P4) calls accounted for 59% of all incidents. P3 and P4 demand generally increases annually at 4.2% per annum. Demand levels ranged from 32.6 incidents per day in the peak period (December to February) to 27.8 incidents per day in the off-peak period, mainly driven by changes in the Blue Mountains.

ORH benchmarked GCPS against its database of Ontario ambulance service data and concluded that generally, GCPS benchmarked well and was not a particular outlier in any measure, capturing that GCPS had a quicker time to scene and time to hospital when compared to other rural services. This, as well as a shorter time at hospital, contributed to GCPS having the shortest total occupied time out of the benchmarked services.

Currently, all eight ambulances bases were found to be in very close proximity to optimal locations to meet service demand within Grey County.

### Response Times

Paramedic resources and facilities are planned and located to enable GCPS to respond to 911 demand within the Provincial legislation and Council approved response times. The Canadian Triage Acuity Scale (CTAS) is a five-level tool used to assess the severity of a patient's condition and the need for timely care. CTAS level 1 is the most severe (resuscitation) and CTAS level 5 being the least severe (non-urgent). The County of Grey approved response time plan is indicated in the table below:

Target	Call Type	Provider	Response Time Target	Percentage of Time Achieved
1.	Sudden Cardiac Arrest	Community Defibrillator Response	Six (6) minutes or less	40%
2.	CTAS 1	Paramedic Response	Eight (8) minutes or less	60%
3.	CTAS 2	Paramedic Response	Fifteen (15) minutes or less	90%
4.	CTAS 3	Paramedic Response	Twenty (20) minutes or less	90%
5.	CTAS 4	Paramedic Response	Twenty (20) minutes or less	90%
6.	CTAS 5	Paramedic Response	Twenty (20) minutes or less	90%

While response time performance is based on CTAS scores applied to patients by paramedic assessment on scene, calls to the 911 dispatch system are categorized by a 4-level Call Priority Code. The most commonly dispatched codes are Priority 4 (life threatening – “lights and sirens”) responses for severe incidents such as cardiac arrest, chest pain, stroke and trauma. Priority 3 (urgent – non “lights and sirens”) responses are for less severe incidents such as general illness, non-severe headache and minor agitation. Priority 1 and Priority 2 responses are considered non-urgent transfers.

GCPS met all CTAS reporting targets at County-wide level, although these are not met in some of the more rural, lower tier municipalities including the Township of Chatsworth and the Municipality of Grey Highlands. Paramedic services are required to report figures to the Ministry of Health at County level, but it is important to understand the variation across the service. Annually, GCPS have not consistently attained the 90<sup>th</sup> percentile in 15-minute CTAS2 target, however, have been close to this measure.

The modelling focused on 8-minute performance as this aligns with CTAS reporting to the Ministry of Health. There is also a focus on 15-minute performance as this is important to consider in a service with a relatively rural geography. Historically, Grey County's 90<sup>th</sup> percentile for Priority Emergency calls has been at or around the 15-minute mark.

The minimum resource requirement to achieve GCPS 15-minute Priority 4 Emergency, 90<sup>th</sup> percentile target was found, which would require a 17% increase in vehicle hours, or an extra 252 ambulance hours weekly. This requirement is without any additional demand – it is the investment required to meet a 15-minute, 90<sup>th</sup> percentile in 2022.

## **Demand Projections**

ORH collected data from the ADRS from January 1, 2018 to June 1, 2022 in order to understand the demands placed on GCPS, the usage of resources deployed, and the response performance achieved within Grey County. For this report, demand is generally defined as GCPS responded incidents including out-of-area demand; if two vehicles mobilize to or attend the scene of the same incident, this unique incident is only counted once.

Future demand modelling is showing an average increase in call volumes of 5.8% per annum and a 68% increase over the next 10 years.

## **Future Demand Modelling**

A 2033 ‘Do Nothing’ position was modelled to quantify the impact of demand increases (average 5.8% per annum or 68% over 10 years) with no other operational changes. Priority 4 Emergency, 8-minute response performance is projected to degrade from 61.6% in 2020 to 47.5% in 2033 whereas the 15-minute response performance degrades from 87.5% to 74.5%.

With the aim of maintaining 2022 performance in each Municipality, an additional 672 weekly ambulance hours are required, which would include upstaffing the 12-hour FRU to an ambulance. Maintaining performance in each Municipality leads to a 4.0 percentage point improvement county-wide for Priority 4 (Emergency), 8-minute response performance.

## **Phasing of Resources**

The recommended resource additions to maintain 2022 performance by Municipality for 2033 is presented below in a phased plan to make the most efficient staggering of resource and capital changes over the next ten years. In addition to this scenario, it was decided to also include the day shift ambulance at Feversham to improve response times in rural areas.

If possible, the following phasing schedule is suggested to ensure that performance is maintained at base position levels in each year:

2024: Additional 12-hour day shift at Owen Sound and Hanover bases

2025: Open a new location at Feversham with a 12-hour day shift, plus an additional 12-hour day shift at Meaford base

2027: Additional 12-hour late shift at Owen Sound base

2029: Additional 12-hour day shift at Durham base

2031: Additional 12-hour night shift at Owen Sound base

2033: Additional 12-hour day shift at Craigeleith base

Since the deadline has passed for 2023 budget submissions, staff cannot add resources within this year, but these should be added in 2024.

GCPS staff will monitor performance achieved over the next ten years, and the County may wish to make alterations to this phasing plan should demand increase or performance diverge significantly from the projected levels. For example, if the Town of the Blue Mountains developments are built more quickly than assumed, the additional shifts at Meaford or Craigeleith may need to be introduced earlier.

### **Organizational Structure and Support Services**

ORH subcontracted the Association of Ambulance Chief Executives (AACE) to review the organizational structure and supplemental functions required to deliver paramedic services across Grey County.

The review took in a high-level view of current operations and support services arrangements, based on interviews with key individuals and a limited review of pertinent documentation.

It was found that the organizational leadership structure within GCPS, which includes the senior management team and the additional business partnering arrangements that have been put in place for other support functions is wholly reasonable, given the overall size of the organization.

### **Supervisor Support**

The frontline supervisor to frontline staff ratio in Grey County is currently 28:1, similar to that used within other Ontario paramedic services. To maintain this ratio, GCPS would require an additional supervisor in 2025 and another in 2031.

### **Scheduling Support**

Scheduling of crews to roster patterns is currently allocated to one full-time scheduler position working Monday to Friday during office hours. The responsibility for scheduling outside of office hours falls on the Paramedic Supervisor. It was recommended that GCPS makes a case for an

additional scheduler to enhance the hours of operation for this function, with coverage extending into the evenings and weekends with the ability to fill shifts for the next day. This would increase the resilience of the function to effectively cover absences such as annual leaves as well as supporting the workload of the operational supervisors. This additional resource could potentially be shared with the County to support other scheduling requirements.

## **Logistics**

The logistics function is predominantly delivered from the operational base in Owen Sound. Currently, this building is at full capacity and there is no ability to expand this site which could present issues, in relation to business continuity for example. The redevelopment of the Durham base was proposed as a potential site to accommodate this expansion. If a new base is built in this location, it is important to future-proof with enough logistics capacity and bays for operational and spare vehicles.

## **Base and Vehicle Needs**

If a total of eight additional shifts are added, the required procurement of three more spare vehicles would be needed to maintain the current ratio. Currently, GCPS operates with five spare vehicles, however, with current bases at capacity, this will result in vehicles being displaced. Consideration of space for spare vehicle capacity should be given when building new bases in Durham, Feversham and potentially Craigleith.

## **New Models of Care**

It was recommended that GCPS continue to examine how different models of care and increased integration with Community Paramedicine could be deployed with the associated clinical and wider health system benefits. If the wider Ontario paramedic system changes in the future and introduces a different dispatch system, deployment models could enable greater use of treat and release and treat and refer.

## **Clinical Supervision**

An additional layer of 'clinical supervision' does not generally exist within Ontario in the same terms as it exists in the UK and Australasia. Clinical supervision is a term used to describe a formal process of professional support and learning which enables individual practitioners to develop knowledge and competence, assume responsibility for their own practice and enhance consumer protection and safety of care in complex situations. Effective clinical supervision creates an environment that encourages shared learning and allows participants to reflect, evaluate, evolve, and refine their own clinical practice. It encourages staff to support one another, promoting teamwork, creating a positive and just culture by celebrating good practice and demonstrating that the organization values its people. It also provides a safe environment for staff to explore and discuss personal and emotional responses to their work, with a strong focus on supporting staff wellbeing. Staff will look at possibilities of implementing this model as the service grows.

## **Simulation Modeling - AmbSim**

As a part of the work ORH completed, GCPS has been provided an ambulance simulation modeling tool called AmbSim. Loaded with Grey County data AmbSim reflects current operations and it can be considered to be a "virtual replica" that can be used to predict

outcomes (such as response performance, utilization and vehicle workload) under a wide range of potential scenarios.

## Staffing Considerations

Increase in staffing to meet recommendations of the Comprehensive Deployment Review will be brought forward in applicable years for budget considerations.

## Legal and Legislated Requirements

Land Ambulance Response Time Standard Reg 257/00 Part VIII

Upper tier municipalities are responsible, either directly or through selected operators, for ensuring that patient care and transport are carried out in accordance with applicable legislation, standards and procedures. They are also responsible for the supervision of staff, maintenance of vehicles and equipment, and the provision of a quality assurance program.

## Financial and Resource Implications

Based on 2023 wage and benefit rates staff estimate that the approximate cost of one 12-hour shift is approximately \$675,000 per year. This includes 4 full time paramedic staff with back fill.

## Relevant Consultation

- External:
- Internal: CAO, Finance

## Appendices and Attachments

[ORH - Draft Final Report](#)