Regional Municipality of Waterloo

Community Services Committee

Agenda

Tuesday, October 4, 2016

Approximately 9:30 a.m. (Immediately following Closed Session)

Regional Council Chamber

150 Frederick Street, Kitchener, Ontario

1. **Motion to go into Closed Session**

   That a closed meeting of Planning and Works and Community Services Committees be held on Tuesday, October 4, 2016 at 9:00 a.m. in the Waterloo County Room in accordance with Section 239 of the Municipal Act, 2001, for the purposes of considering the following subject matters:

   a) potential litigation and receiving of advice that is subject to solicitor-client privilege related to a legal matter

   b) labour relations

   c) potential litigation involving the Region of Waterloo

   d) labour relations

   e) personal matters about an identifiable individual

2. **Motion to Reconvene Into Open Session**

3. **Declarations of Pecuniary Interest under the Municipal Conflict Of Interest Act**

4. **Delegations**

   4.1 Ed Besenschek, President and Steve Wood, Recording Secretary, CUPE Local 5191 re: **PHE-PSV-16-05**, Paramedic Services Master
Plan Update (Staff Presentation)

Recommendation: See pages 4-5

Consent Agenda Items

Items on the Consent Agenda can be approved in one motion of Committee to save time. Prior to the motion being voted on, any member of Committee may request that one or more of the items be removed from the Consent Agenda and voted on separately.

5. Request to Remove Items from Consent Agenda

6. Motion to Approve Items or Receive for Information

6.1 PHE-PSV-16-07, 2017 Response Times Performance Plan

Recommendation:


6.2 PHE-PSV-16-06, Paramedic Services Performance Measurement Report – January to June 2016 (mid-year) (Information)

6.3 CSD-HOU-16-18, Region of Waterloo’s Submission to the National Housing Strategy Consultation

Recommendation:

That the Regional Municipality of Waterloo endorse, and submit to the Federal Government, the Region’s response to the Proposed National Housing Strategy, as outlined in report CSD-HOU-16-18, dated October 4, 2016,

And that the Regional Municipality of Waterloo forward a copy of this report to the Federal and Provincial Ministers responsible for housing and homelessness, local Members of Parliament and Members of Provincial Parliament, the Federation of Canadian Municipalities (FCM), the Association of Municipalities of Ontario (AMO) and the Ontario Municipal Social Services Association (OMSSA).

6.4 CSD-SEN-16-06, Creation of the Sunnyside Home Joint Resident, 2238041
Family and Volunteer Advisory Committee (Information)

6.5 **CAO-SPL-16-01**, Community Wellness Initiative

**Recommendation:**

That the Regional Municipality of Waterloo approve the addition of 1.0 temporary full time equivalent staff to support the Community Wellness Initiative for a 15 month period, to be funded as described in Report CAO-SPL-16-01, dated October 4, 2016;

And That the 2016 Operating Budget for the Office of the Chief Administrator be increased by $15,300 gross and $0 net.

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**Regular Agenda Resumes**

7. **Reports – Public Health**

7.1 **PHE-HLV-16-07**, The FRESH-IT Research Project: An Analysis of Waterloo Region Retail Food Environments in Municipally-Funded Recreation Centres (Information)

**Reports – Community Services**

7.2 **CSD-HOU-16-14**, Housing Stability System Evolution Newsletter (Staff Presentation)

8. **Information/Correspondence**

8.1 Council Enquiries and Requests for Information Tracking List

9. **Other Business**

10. **Next Meeting – November 1, 2016**

11. **Adjourn**
Region of Waterloo
Public Health and Emergency Services
Paramedic Services

To: Chair Geoff Lorentz and Members of the Community Services Committee
Date: October 4, 2016 File Code: P05-80
Subject: Paramedic Services Master Plan Update

Recommendation:

That the Region of Waterloo adopt, in principle, the Paramedic Services Master Plan report by APEXPRO Consulting, as described in PHE-PSV-16-05, dated October 4, 2016, subject to regular review of population growth, service demand and annual budget approval.

That the Region of Waterloo adopt the 35% Unit Utilization (UU) target, as outlined in the report, as a Unit Utilization of 35% will support the achievement of the current Council-determined Response Time Performance Plan. (See PHE PSV-16-07).

That the operational resourcing for the 2017 implementation of the Master Plan at the 35% UU be referred to the 2017 budget approval process, and;

That the preliminary 2017-2026 Paramedic Services Capital Program be drafted to include the facility, equipment and vehicle capital requirements set out in the Paramedic Services Master Plan in accordance with a 35% Unit Utilization ratio.

That the Region of Waterloo, in order to achieve service optimization, write to the Minister of Health, attaching the Paramedic Services Master Plan and report PHE-PSV-16-05, to request the following:

a) That Ministry of Health and Long Term Care, Emergency Health Services Branch (MOHLTC EHSB) implement a more discriminating incident triage software such as Advanced Medical Priority Dispatch System (AMPDS), in order to triage
closer to incident priority thus providing greater flexibility in managing the deployment of resources particularly in periods when the service’s capacity is stressed; and
b) That the Ministry of Health and Long Term Care (MOHLTC EHSB) provide Mobile (in-vehicle) data terminals with software interface to the Central Ambulance Communications Centre (CACC) Computer-Aided Dispatch (CAD), which automatically transmits caller location to the closest available ambulance thereby reducing response times by 60 to 90 seconds, and provide funding to implement;

c) That the MOHLTC EHSB support and participate in efforts to consolidate 911 Police, Fire and Ambulance communications with the Region of Waterloo to attain a more rapid and coordinated public safety response to emergencies; and
d) That the MOHLTC provide ongoing funding for offsetting offload delay in the Region of Waterloo, and that funding should be increased to match on-going increases in demand for Paramedics Services calls and hospital Emergency room department pressures which result in offload delay; and
e) That the MOHLTC EHSB explore funding for a Community Paramedicine program in conjunction with community healthcare partners to assist in diverting patients to optimal care pathways rather than local Emergency room departments, as a way to potentially increase outpatient care and decrease ambulance transports.

Summary:

In 2015, staff was directed to complete an update and refresh of the original 2007 EMS Master Plan, taking into consideration accomplishments and assumptions. This update will prepare and guide Paramedic Services decisions going forward over the next 10 years (2017-2027), so as to ensure appropriate goals and resourcing of staff and equipment.

The goal of the Master Plan is to ensure

- Quality of care
- The right care at the right place and the right time
- Resourcing levels to meet peak demand in a reasonable time

This supports attainment of “Excellence in Patient Care” for Paramedic Services.

This report will build on the update brought forward in August (PHE-PSV-16-04) and provide more detail on the final master plan report (attached) and recommendations. A key recommendation is to use a Unit Utilization of 35% as the benchmark target for service planning. Unit Utilization is directly correlated to Response Time, and a Unit Utilization of 35% will allow the Region to attain its Response Time Performance Plan
Report:

This report is the second of two reports being brought to the Community Services Committee for consideration regarding the Paramedic Services Master Plan. The first report (PHE-PSV-16-04) was brought forward on August 9, 2016, and focused on drivers and challenges faced by Paramedic Services as identified by APEXPRO Consulting Inc. during the Master Plan project.

The Master Plan update was undertaken, as the previous Master Plan had concluded in its ability to provide granular recommendations regarding further resourcing for Paramedic Services. The content of the original Master Plan as approved by Council in 2007 focused generally on a 30 year plan to align with the Region’s growth management strategy, but specific recommendations for implementation were focused on the first 10 years.

In June 2015, following a decade of relatively rapid population growth and development, and a rapid escalation in EMS demand (50% over 10 years), Waterloo Regional Council directed staff “… to undertake a review of the original (2007) EMS Master Plan, including accomplishments and assumptions, and to prepare an update that will guide Paramedic Services decisions going forward the next 10 years (2017-2027), so as to ensure appropriate goals and resourcing of staff and equipment going forward ….”(PHE-PSV-15-05)

APEXPRO Consulting Inc. was retained to carry out the project. The project commenced in November 2015. There was also a Steering Committee and Working Group struck to ensure that all stakeholders involved were sought out to provide feedback and input to the process. Consultation included, but was not limited to:

- Regional Councillors (members of the Steering Committee)
- Paramedic Services organization
- Senior staff from Waterloo Region (Public Health, Finance, Fleet, Facilities)
- Ministry of Health and Long Term Care Ambulance Communications Service (CACC)
- Regional Fire Chiefs

There were considerable consultations done with both internal and external stakeholders in order to ensure that we obtained a clear picture of current and past state. Feedback from these consultations was incorporated into the plan.

Context

In consideration of the parallels between the current ROW Paramedic Services and...
performance-based EMS systems operating in other jurisdictions, APEXPRO has concluded that

“... ROW Paramedic Services is transitioning from a best efforts model (inherited by way of a provincial transference of governance in December 2000) to a "performance-based" EMS system”

In November 2015, ROW Paramedic Services underwent an external Ambulance Service Review (ASR) by MOHLTC. The ASR not only concluded that the Service meets Ontario regulations for certification; it also commended ROW Paramedic Services for its efforts relating to service, quality assurance, training and Human Resource Information (HRI) management.

In APEXPRO’s opinion, this commendation by MOHLTC is attributed in large part, to the initiatives taken by Waterloo Region in concert with the Services’ transition to a performance-based EMS system.

ROW Paramedic Services currently operates with a paramedic complement of 118 full-time and 39.2 part-time FTE, from 10 stations, including a fleet centre on Maplegrove Road. In total there are 28 ambulances. Peak staffing is 21 ambulances and 3 RERU which responded to 39,000 requests for service with approximately 45,000 vehicle responses in 2015.

Relative to EMS/Paramedic Services peers, ROW Paramedic Services:

- Employs proportionately fewer paramedics (20% fewer on average);
- Proportionately fewer Operations Supervisors (30% to 40% fewer);
- Proportionately fewer personnel in most supporting functions.
- The service also operates with proportionately fewer in-service hours (25% fewer on average).

Additional resources have been added 2008 through 2016, this included both ambulances and Rural Emergency Response Units (RERU’s). Even with the additional resources, rapid call volume growth and ongoing hospital offload delays continue to strain existing EMS resources, as demonstrated by response times and Unit Utilization (UU), which again are on the rise, despite best efforts to align ambulance staffing to hourly variations in demand.

In 2015, the Service operated at a response time of about 10 minutes (at the 80th percentile), up from 9:29 in 2013; and UU was over 41%, up from 37% in 2013.
The Service is dispatched by the MOHLTC-operated Cambridge CACC.

Stations are well-situated throughout the Region - 86% of incidents are within an 8-minute drive of an existing station, and 92% are within a 9-minute drive.

Forecasts in the report are shown for three service level scenarios, represented by Unit Utilization (UU). This is a key performance indicator that is tied directly to response time and can be readily monitored to ensure that Paramedic Services continues to meet the growing demand. Note that a UU of 35% is correlated with a code 4 80th percentile response time of 9 minutes 12 seconds. A UU of 35% would allow the Region to meet its current CTAS level RTPP Response Time goals (see PHE-PSV-16-07).

The recommended UU asking for adoption through this report is 35 % and the following recommendations are all based on this figure.

System Optimization Recommendations (Based on 35 % UU)

The consultant was directed by the steering committee to identify areas for system optimization. This was to ensure that every avenue was explored which could potentially lead to efficiency in service delivery. Many of these areas were already identified in the ROW Service Review process and were referred to the Master Plan Review process, for further exploration. The following list will outline the areas identified and possible actions to be taken.

1) Internal Practices

Continue to track service drivers and quality performance on a regular basis. Adjust resourcing and delivery practices as appropriate, to maintain a 35% UU.

2) Medical Incident Triage And Dispatch
Lobby Ministry of Health and Long Term Care, Emergency Health Services Branch (MOHLTC EHSB) for:

- a more discriminating incident triage software such as Advanced Medical Priority Dispatch System (AMPDS);
- Mobile (in-vehicle) data terminals with software interface to CACC Computer-Aided Dispatch (CAD), and
- HeadStart add-on to CAD for cost effectively reducing response times to high priority incidents.

3) Consolidated Dispatch

Continue planning efforts to consolidate 911, Police, Fire and Paramedic Services Emergency communications services. Review planning efforts in the broader context of industry leading practices. As the MOHLTC EHSB currently controls CACC, they are urged to participate in these activities.

4) Offload Delay

Hospital offload delay is a major pressure impacting paramedic services across Ontario. In Waterloo Region, it equals the operating capacity of two 12-hour ambulances, and an estimated $1.4 million a year in ambulance spending. Collaborative efforts with local hospitals have successfully contained offload delay growth. Without these efforts, today’s offload delay would be much worse. It is recommended that current collaborative efforts be continued.

**Short-term:** Lobby MOHLTC for additional hospital offload delay funding. Continue to work collaboratively with hospital officials to manage offload delay with the resources that are available.

**Long-term:** Investigate alternative ways for ‘Making Inroads into Healthcare’ (i.e., Community Paramedicine and Telehealth) and by extension, reduce unnecessary patient transports to hospital by ambulance.

5) Emergency Response Units (ERU)

**Short-term:** Continue to use the existing 3 RERU primarily for rural coverage. Once a 35% UU is attained, consider realigning ambulance and ERU resources to where they would serve most effectively.

6) Primary Care Paramedic (PCP) / Advanced Care Paramedic (ACP) Optimization
**Interim strategy:** Defer recruitment of additional ACP until the scope of practice research by the Paramedic Association of Canada (PAC), provincial regulatory bodies and educational institutions are complete, and evidence of ACP utility is better established. Until additional paramedic resources are recruited (as recommended by this Plan), ROW Paramedic Services should eliminate double dispatching to calls; this, as an interim measure for dealing with the Services’ present resource constraints.

7) **Tiered Response**

In consideration of rapidly escalating EMS demand and present resource constraints, increasing Paramedic Services resourcing should be the immediate priority. Consider lobbying the province for “Emergency Medical Responder” training as a minimum training standard for organized community emergency responders. Consider augmenting tiered response using other organized community emergency responders (e.g., university, college and industry first response teams).

8) **Community Paramedicine**

Community Paramedicine (wellness clinics, home visits, patient referrals, etc) is potentially a way in which paramedic services may help to improve outpatient care and reduce ambulance transports. Still at an early stage, the reported benefits are at best anecdotal.

Clearly, a number of these optimization strategies are beyond the Region’s direct control. Thus, they should be pursued by way of provincial lobbying and/or business cases for change, and the information in this Master Plan can be used to such ends. These strategies would optimize service delivery, however, they would not substantively reduce the growing call demand and patient transports, and thus the ongoing need for additional resources as service demand grows.

**Resourcing Recommendations (Based on 35 % UU)**

While Waterloo Region has continued to add Paramedic Services resources as recommended by the original (2007) EMS Master Plan, The added resources over the past 2 years have not been sufficient to keep up with the rapid surge in EMS demand, and service performance has fallen behind.

- Response time has increased to about 10 minutes in 2015, up from 9:29 in 2013 (measured at the 80th percentile).
- Unit Utilization (UU) has increased to over 41% in 2015, up from 37% in 2013.
- Hospital offload delay has increased to 6,873 hours in 2015, up from 3,463 hours in 2013.
- Frequent periods in Code Yellow (3 or fewer ambulances) and in Code Red (no ambulances)

This situation is just the beginning of a trend. As is identified in the report from APEXPRO Consulting, they are forecasting unprecedented growth in Paramedic Services demand due to an aging population. Total population is increasing at an average rate of 1.2% a year. Seniors growth is increasing more rapidly, at an average rate of 3.2% a year.

Paramedic Services demand is forecast to increase to 47,900 vehicle responses by year-end 2016; to 73,700 vehicle responses by 2026; and to 88,000 vehicle responses by 2031. These statistics represent a 60% increase over the next 10 years, and a 90% increase in the next 15 years. The rapid escalation in EMS demand due to an aging population is not unique to Waterloo. This trend is affecting all Paramedic Services, posing significant challenges province-wide.

Notwithstanding future success that may arise from service optimization, additional Paramedic Services resources are still needed to address the declining service performance (specifically Response Time and Unit Utilization) over the past two years (i.e., to “catch up”). Taking into consideration the APEXPRO recommendations, the 2017 needs for additional staff and vehicles, and a preliminary capital program, will be requested through referral to the 2017 budget process.

1. Increase peak staffing to 25 ambulances (up from the current 21). This will add 4 additional 12-hour ambulance shifts. Also increase shift readiness reserves by 1 additional ambulance.

2. To staff the 4 additional ambulance shifts, increase paramedics by 20 FTE

3. Increase the number of Operations Supervisors by 2 FTE

4. Increase the number of Fleet Technicians by 2 FTE

5. Construct Breslau station (Station #11) which is already approved by Regional Council.

6. Construct a new headquarters and fleet centre (Station #12) to augment Maplegrove.

7. In concert with the new headquarters and fleet centre:
a) Recruit an Operations Manager to manage the design and service realignment from central deployment model to divisional deployment centering about two fleet centres.

8. Increase the number of Supervisor vehicles by 2, to accommodate the recommended increase in shift supervision, and the new Operations Manager position.

9. Augment the Professional Standards function with the following new positions:
   a) “Professional Standards Officer”
   b) Community Liaison Officer to coordinate PAD, community education and engagement

Corporate Strategic Plan:

Strategic Plan Focus Area 4.4
Promote and support healthy living and prevent disease and injury

Strategic Objective or Action 4.4.2
Optimize Paramedic Services to improve service standards and response times by developing an updated Paramedic Services Master Plan

Financial Implications:

The 2016 approved budget for Paramedic Services is $26.6 million and includes 179.7 full time equivalents. The cost of the service is funded by provincial grants and the Region’s property tax levy. The current cost sharing ratio is 50:50.

In the past, service enhancements have been funded by Province in the year following their implementation. As a result, the Region has used the Tax Stabilization Reserve as an interim funding source until provincial funding has been received.

Future service enhancements will be subject to review and approval by Regional Council through the operating budget process. For 2017, it is anticipated that the Operating budget request to achieve the 35% Unit Utilization and meet anticipated demand for Paramedic Services will be as follows:

- 20.0 Paramedics
- 7.0 Supervisor and support staff
- 2017 cost $2.1 million
  - Funded by Tax Stabilization Reserve Fund ($1.05 million) and Property tax Levy ($1.05 million).
- Annual cost $4.3 million
Funded by Provincial grants ($2.15 million) and Property Tax Levy ($2.15 million)

The Region’s capital budget will also be impacted by the Paramedic Services Master Plan. As service demands increase, ambulances, equipment and new stations will be required for Paramedic Services. In 2017, 5 new ambulances will be required to meet the master plan’s targets at a cost of $1.1 million. In addition, a North Fleet Centre is required at a total cost of $18.0 million, with construction anticipated in 2017 and 2018. These expenditures will be financed through a combination of reserve funds, debentures and regional development charges. The Region has requested its RDC consultant to review the master plan and advise what share of the projected expenditures can be recovered from development charges. The results of this study will be reflected in the next capital program.

The following table summarizes the changes to the 2017-2026 Capital Budget resulting from the Master Plan.

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1. The 2016-2025 capital budget includes $4,628,000 for a North Fleet Centre. The $18,000,000 is the revised total cost for this facility.
2. The 2017 provision of $1,000,000 is for the construction of a new station in Breslau. This project has been approved by Regional Council.

The 2017 Budget Issue Papers will include information regarding the 2017 operating and capital budget impacts of the master plan.

**Other Department Consultations/Concurrence:**

Corporate Services (Treasury Services, Facilities and Fleet Management), Public Health, and Human Resources
Attachments

Paramedic Services Master Plan (2017-2027) Summary of Findings and Recommendations, APEXPRO Consulting Inc.


Prepared By: Stephen Van Valkenburg, Director/Chief Paramedic Services
Jordan Steffler, Strategic & Quality Improvement Specialist (PH)

Approved By: Dr. Liana Nolan, Commissioner/Medical Officer of Health
PARAMEDIC SERVICES MASTER PLAN (2017-2027)
SUMMARY OF FINDINGS & RECOMMENDATIONS

COMMUNITY SERVICES COMMITTEE MEETING – OCTOBER 4, 2016

APEXPRO CONSULTING INC.
CONTENTS

1. Past Accomplishments
2. Current Challenge
3. Emerging Future Trend
4. Service Planning Going Forward
5. Balancing Service Level and Costs
6. Optimization Strategies
7. Near-Term EMS Resourcing Requirements
8. Service Targets Going Forward
PAST ACCOMPLISHMENTS

• Commenced direct delivery of EMS on December 3, 2000
• Adapted the Service to operate as a central deployment model from Maplegrove Road
• In 2007, adopted a 25-year EMS Master Plan to serve as a going forward planning framework
• Managed EMS performance well for the past 10 years despite a 50% increase in demand
• Added EMS resources as recommended by the original (2007) EMS Master Plan
• Introduced performance enabling technologies
• Established collaborative relationships with stakeholders, which are ongoing
• EXCELLENCE IN PATIENT CARE is the Services’ focus with emphasis on consistency and quality
• Recently commended for service quality by MOHLTC
• Operates a relatively lean and cost-efficient Service relative to peers with
  - Proportionately fewer paramedics (20% fewer on average)
  - Proportionately fewer Operations Supervisors (30% to 40% fewer)
  - Proportionately fewer personnel in most supporting functions
  - Proportionately fewer in-service hours (25% fewer on average)
CURRENT CHALLENGE

The added resources over the past 2 years have not been sufficient to keep up with the rapid surge in EMS demand, and service performance has fallen behind.

- Response time has increased to about 10 minutes in 2015, up from 9:29 in 2013 (measured at the 80th percentile)
- Unit utilization (UU) has increased to over 41% in 2015, up from 37% in 2013
- Hospital offload delay has increased to 6,873 hours in 2015, up from 3,463 hours in 2013
- Extensive periods daily in Code Yellow (3 or fewer ambulances) and in Code Red (no ambulances)
EMERGING FUTURE TREND

- The current challenge is just the beginning of a trend. We are forecasting unprecedented growth in EMS demand due to an aging population.

- Seniors are 13% of the Region’s population and generate 43% of EMS responses. In 10 years they will be over 17%, and in 15 years they will be 19% – and will add considerably to EMS demand.

- EMS demand is forecast to increase by 60% over the next 10 years, and by 90% in 15 years.

- The rapid escalation in EMS demand due to an aging population is not unique to Waterloo. This trend is affecting all Paramedic Services, posing significant challenges province-wide.
SERVICE PLANNING GOING FORWARD

• By undertaking this Master Plan update Waterloo Region has taken a proactive approach to service planning going forward that will ensure the Region’s ongoing capability to provide residents with quality Paramedic Services, in a timely and efficient manner.

• This updated Master Plan will serve as an objective basis for Council’s decision-making over the next 10 years (2017-2027), so as to ensure appropriate goals and resourcing of staff and equipment going forward, and for balancing service levels and costs.

• The Master Plan contains long-term forecasts of:
  - Future ambulance requirements
  - Facility infrastructure requirements
  - Future staffing requirements (paramedics and all other Region of Waterloo support functions)
  - Future costs (both capital and operating)
BALANCING SERVICE LEVEL AND COSTS

- Forecasts are for three service level scenarios, represented by unit utilization (UU), a key performance indicator that is tied directly to response time.

- The three service level scenarios are: current UU of 41%; and more favourable UU of 35% and 30%.

- UU of 35% is the recommended service level arising from the analysis, and is the basis for our recommendations going forward.
OPTIMIZATION STRATEGIES

Significant attention was given to researching best practices and leading edge ideas. Below are a number of the potential optimization strategies that we are recommending:

- Lobby MOHLTC for more discriminating incident triage software such as Advanced Medical Priority Dispatch System (AMPDS) which, according to users (including Toronto and Niagara), consistently triages closer to incident priority; thus providing greater flexibility in managing the deployment of resources (particularly in periods when the service’s capacity is stressed).

- Lobby MOHLTC for advanced in-vehicle software such as HeadStart, an interface introduced in Niagara that automatically transmits caller location to the closest available ambulance. HeadStart reliably reduces response times by 60-90 seconds. We estimate that it would cost Waterloo a minimum of $3 to $5 million a year in additional resourcing to attain similar outcomes.

- Continue planning efforts to consolidate 911, police, fire and EMS communications; this, in order to attain a more rapid and coordinated public safety response to emergencies. Based on research and North American leading practices, consolidating emergency communications services will not reduce costs at the outset; albeit, cost savings will materialize over time.
OPTIMIZATION STRATEGIES (cont’d)

• Hospital offload delay is a major pressure impacting paramedic services across Ontario. In Waterloo Region, it equals the operating capacity of two 12-hour ambulances, and an estimated $1.4 million a year in ambulance spending. Collaborative efforts with local hospitals have successfully contained offload delay growth. Without these efforts, today’s offload delay would be much worse. It is recommended that current collaborative efforts be continued.

• Community Paramedicine (wellness clinics, home visits, patient referrals, etc.) is potentially a way in which paramedic services may help to improve outpatient care and reduce ambulance transports. Still at an early stage, the reported benefits are at best anecdotal. We recommend that Public Health should recruit a “Research Analyst” to flesh out a Waterloo strategy.

• Waterloo Region is served by 3 ERU serving as EMS first responders primarily in the rural areas. The annual cost to operate 3 RERU is about $1.1 million (50% more than a 12-hour ambulance) and they reduce ambulance use by a small fraction. In consideration of these factors, and the rapidly escalating service demand, the short term priority should be to staff more ambulances.
OPTIMIZATION STRATEGIES (cont’d)

• Canadian Paramedic Association, provincial bodies and educational institutions are investigating the “scope of practice” for paramedics. This work may result in a narrowing of the gap between PCP and ACP, and by extension impact existing service delivery models. We recommend that the Region should temporarily defer recruitment of additional ACP until the research is complete.

• Fire Departments in Waterloo Region assist with medical calls. According to several Fire Chiefs the present volume of medical calls is not overly taxing; however, the anticipated rapid escalation in EMS call volumes could pose an issue to some Fire departments. We again recommend that the Region’s near-term priority should be on staffing additional ambulances.

Clearly, a number of these optimization strategies are beyond the Region’s direct control. Regardless, it is our opinion that they should be pursued by way of provincial lobbying and/or business cases for change, and the information in this Master Plan can be used to such ends.
NEAR-TERM EMS RESOURCING REQUIREMENTS

Notwithstanding future success that may arise from optimization, additional EMS resources are still needed to address the declining service performance over the past two years (i.e., “catch up”).

1. Increase peak staffing to 25 ambulances (up from the current 21). This will add 4 additional 12-hour ambulance shifts. Also increase shift readiness reserves by 1 additional ambulance.

2. To staff the 4 additional ambulance shifts, increase full-time paramedics to 134 FTE (up from the current 118), and increase part-time paramedics to 43.2 FTE (up from 39.2).

3. Increase the number of Operations Supervisors to a minimum of 10 FTE (up from current 7 FTE)

4. Increase the number of Fleet Technicians to 11 FTE (up from the current 7 FTE).

5. Construct Breslau station (Station #11) which is already approved by Regional Council.

6. Construct a new headquarters and fleet centre (Station #12) to augment Maplegrove.

7. In concert with the new headquarters and fleet centre:
   a) Recruit an “Operations Manager” to manage the design and service realignment from central deployment model to divisional deployment centering about two fleet centres.
   b) Recruit an additional Logistics Supervisor to oversee the logistics functions at the second fleet centre (up from the current 1 FTE).
NEAR-TERM EMS RESOURCING REQUIREMENTS (cont’d)

8. Increase the number of Supervisor vehicles to 8 (up from the current 6), this to accommodate the recommended increase in shift supervision, and the new Operations Manager position.

9. Augment the “Professional Standards” function with the following new positions:
   a) “Professional Standards Officer”
   b) “Training Coordinator”
   c) “Community Liaison Officer” to coordinate PAD, community education and engagement
   d) “Performance & Data Analyst” to support the Services’ performance-based transition.

10. Incorporate operating budget allowances to cover the cost of escalating professional support requirements from other Regional departments:
    a) 1 additional FTE (Research Analyst) in the Public Health Department, to flesh out a Waterloo “Community Paramedicine” strategy.
    b) 1.5 additional FTE in Corporate HR, to support near-term increases in paramedic staffing.
    c) 1 additional FTE in Fleet Management, to manage Paramedic Services fleet expansion.
SERVICE TARGETS GOING FORWARD

• The Region’s Response Time Performance Plan (RTPP) is an important component of this Plan.

• Council’s approved response time targets are reasonable compared to EMS peers. Performance has fallen behind due to insufficient EMS resourcing to meet demand.

• By adding “catch up” EMS resources at a recommended service level of 35% UU, response times will improve. On this basis, we recommend that Waterloo Region should maintain the present response time targets going forward to 2017 and 2018.

• Both response time and unit utilization should be monitored regularly on a going forward basis, to ensure that the Service continues to meet the growing EMS demand.

<table>
<thead>
<tr>
<th>2015-16 RESPONSE TIME STANDARDS</th>
<th>MINUTES</th>
<th>PERCENTAGE</th>
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</thead>
<tbody>
<tr>
<td>SCA</td>
<td>6</td>
<td>50%</td>
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<tr>
<td>CTAS 1</td>
<td>8</td>
<td>70%</td>
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<tr>
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<td>12</td>
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<tr>
<td>CTAS 5</td>
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** Performance in 2015

** Sudden Cardiac Arrest (SCA) performance statistic excludes fire department assists
Region of Waterloo
Public Health
Paramedic Services

To: Chair Geoff Lorentz and Members of the Community Services Committee

Date: October 4, 2016  File Code: P05-80

Subject: 2017 Response Times Performance Plan

Recommendation:


Summary:

The Region of Waterloo Paramedic Services is required under legislation to submit an adopted and approved Response Time Performance Plan (RTPP), in accordance with the Ambulance Act, O. Reg. 267/08, amending O. Reg. 257/00, under Part VII, Response Time Performance Plans, and Sections 22-24.

Overall, Region of Waterloo Paramedic Services is performing well with regards to response times in relation to the approved RTPP, especially for the most urgent calls. The 2017 RTPP proposal is to maintain the same targets as set for 2016. These were the targets recommended by the Response Time Working Group, and were accepted by Council, in 2014. This would also be in line with the recommendation contained within the Paramedic Services Master Plan (see PHE-PSV-16-05). The RTPP is aligned with having achievable, reasonable and CTAS-specific benchmarks, based on a comparison with other municipalities and the performance of ROW Paramedic Services.

They would be as follows:
Sudden Cardiac Arrest- 6 minutes 50% of the time (unchanged)
CTAS 1 – 8 minutes or less 70 % of the time (unchanged)
CTAS 2 – 10 minutes or less 80% of the time (unchanged)
CTAS 3 – 11 minutes or less 80% of the time (unchanged)
CTAS 4 - 12 minutes or less 80% of the time (unchanged)
CTAS 5 - 12 minutes or less 80% of the time (unchanged)

This report summarizes the analysis of 2015 RTPP data, as well as recommendations from the Paramedic Services Master Plan, to ensure Council has the knowledge and background to be informed when making a recommendation to the Ministry to continue with the existing RTPP targets. Upon approval, this recommendation would be submitted to the Ministry of Health and Long Term Care, Emergency Health Services Branch as required under the Ambulance Act of Ontario (see Appendix 1).

In the RTPP, response time targets have been set for the Region as a whole, (by CTAS levels), as required by the Ministry of Health and Long Term Care. Outside of Ministry requirements, the Region-wide Code 4 80th percentile response time, along with urban, suburban and rural response times, are monitored separately and included in the Paramedic Services Performance Measurement report (see PHE-PSV-16-06).

**Report:**

**Region of Waterloo Response Time Performance Plan**
The historical Ministry performance benchmark for a Code 4 90th percentile response time of 10 minutes 30 seconds, in the Region of Waterloo is no longer in effect. ROW Paramedic Services now tracks the Code 4 80th percentile response time for the purpose of monitoring trends over time, only. This is reported in the Paramedic Services Performance Measurement report.

In March 2016, Region of Waterloo submitted to the Ministry a full year of 2015 response time data using the new targets established in October 2014. The 2015 response time performance is summarized in Figure 1 and the Plan was not altered for 2015, as approved by Council.

**Figure 1  2015: Council-approved Response Time Performance Plan Targets**

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<thead>
<tr>
<th></th>
<th>2015-16 RESPONSE TIME STANDARDS</th>
<th>PERFORMANCE IN 2015</th>
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<td>80%</td>
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<tr>
<td>CTAS 5</td>
<td>12</td>
<td>80%</td>
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</table>

** Sudden Cardiac Arrest (SCA) performance statistic excludes fire department assists
The original RTPP plan was a starting point, with targets for CTAS 2 to 5 based somewhat arbitrarily on the old Response Time Standard (10 minutes 30 seconds). Now, with years of experience in Region of Waterloo the RTPP plan can be grounded on that experience, and ROW can continue to set reasonable targets which have a gradient according to the urgency of the call. Setting faster times for more urgent calls and progressively slower times for less urgent calls has become a standard approach across other municipalities (see Appendix 2).

A link to the Ministry’s website is provided for background information.


For reference, the old target referred to “Code 4” which is the most urgent of calls, as assigned by the provincial dispatch centre when the 911 call comes in. The new target refers to “CTAS” level, which stands for Canadian Triage Acuity Score, and is assigned by the paramedic upon arrival on scene. CTAS 1 is the most urgent of calls and CTAS 5 is less urgent.

Local data analysis – Year to Year comparison of RTPP results

Updated information is provided in Appendix 1. Sudden Cardiac Arrest calls would likely be compliant if data from the Fire Department and Public Access Defibrillators was included. ROW Paramedic Services has been actively exploring how to receive and incorporate this data from local Fire Departments. Work has begun with the area departments on this initiative and should be completed for 2017 reporting. The lack of data (for defibrillation for Sudden Cardiac Arrest provided by someone other than EMS) is a challenge also experienced by other municipalities. Progress has been made in improving response times across all levels of urgency (i.e. CTAS levels) from 2012 to 2015. Based on an informal scan of comparators, the Region of Waterloo EMS is performing within the provincial median as determined by data shared from other municipalities as can be seen from the MOHLTC link :


There has been a slight variation in response times over the past few years but response times have stayed somewhat static. This static state of response times is mostly attributed to increased call volume and unit utilization despite the improvement and investment that Council has made with resources being added to the Region of Waterloo Paramedic Services over the last years. The increases to staffing have only been able to keep up with those increases to call volume and increased utilization rates without adding capacity to the system. Containment of Offload Delays at local area Emergency Departments through collaboration with local hospitals and the MOHLTC offload nurse program is still a top priority and work continues in this area.
Additional drivers on response time performance (for additional information see PHE-PSV – 16-05)

Overall we continue to work on the response times across the Region. The Paramedic Services Master Plan (PHE PSV 16-05) outlines the challenges in maintaining and improving on our response times.

Note that the 2017 RTPP proposal is to maintain the same targets as set for 2016, which is in line with the recommendation contained within the Paramedic Services Master Plan, assuming Council adopts the 35% Unit Utilization benchmark. The RTPP is aligned with having achievable and reasonable and CTAS-specific benchmarks, based on a comparison with other municipalities and the performance of ROW Paramedic Services.

Response Times and Unit Utilization are correlated, therefore Unit Utilization provides guidance as to the level of resourcing necessary to maintain a given response time target. Resourcing Paramedic Services at a UU of 35% is correlated with a Region-wide Code 4 80th percentile response time of 9 minutes and 12 seconds. Council-approved additional resources were instituted as of July 01 2015, to address the challenges in accordance with the original Paramedic Services Master Plan. We will continue to monitor response times though our semi-annual reports and highlight issues to Council for action.

The availability of ambulances to respond when an emergency call is received remains an integral and primary factor in determining success in achieving the compliance to the standards. Call volumes, the number of ambulances on duty and hospital off-load delay remain as contributing factors impacting on the availability of resources.

Vehicle responses continue to increase in 2016 and the projected vehicle responses for 2016 is 47,972. Added staffing resources had improved response times. Offsets to the impact of increases in call volume over time has not been as significant over the past year, due to unprecedented call volumes being experienced. While fluctuating slightly by year, overall call rate per 1000 people is also growing. This means that calls are increasing even after accounting for population growth. This is likely due to the aging of baby boom, as Paramedic Services calls generally increase in older populations. This trend will need to be continually monitored, as it is a significant potential future driver of service demand.

Overall Summary of Recommendations and changes to the RTPP

Given all the data points measured and evaluated by Paramedic Services and reported through to Council, it is recommended that the Response Time Performance Plan benchmarks remain the same for CTAS 1 through CTAS 5 response targets as summarized as follows (see Appendix 1 also):
CTAS 1 - 8 minutes or less 70% of the time
CTAS 2 – 10 minutes or less 80% of the time
CTAS 3 – 11 minutes or less 80% of the time
CTAS 4 - 12 minutes or less 80% of the time
CTAS 5 - 12 minutes or less 80% of the time

Corporate Strategic Plan:

Strategic Plan Focus Area 4.4
Promote and support healthy living and prevent disease and injury

Strategic Objective or Action 4.4.2
Optimize Paramedic Services to improve service standards and response times by developing an updated Paramedic Services Master Plan

Financial Implications: Nil

Other Department Consultations/Concurrence:
This information was reviewed by the Response Time Working Group.

Attachments
Appendix 1 – 2017 Recommended Response Time Performance Plan
Appendix 2 – Year over Year Comparison for Region of Waterloo RTPP

Prepared By: Stephen Van Valkenburg, Director/Chief Emergency Medical Services

Approved By: Dr Liana Nolan, Commissioner/Medical Officer of Health
Appendix 1 – Recommended 2016 Response Time Performance Plan targets

<table>
<thead>
<tr>
<th>Type of Call</th>
<th>Response Time Target</th>
<th>2017 ROW Target</th>
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<tbody>
<tr>
<td>Sudden Cardiac Arrest</td>
<td>Defibrillator Response in 6 minutes or less (Set by MOHLTC)</td>
<td>50% or better (EMS Only)</td>
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<tr>
<td>CTAS 1</td>
<td>EMS Response in 8 minutes or less (Set by MOHLTC)</td>
<td>70% or better</td>
</tr>
<tr>
<td>CTAS 2</td>
<td>EMS Response in 10 minutes or less</td>
<td>80% or better</td>
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<tr>
<td>CTAS 3</td>
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<tr>
<td>CTAS 5</td>
<td>EMS Response in 12 minutes or less</td>
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</tbody>
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Appendix 2 – Year over Year Comparison Region of Waterloo

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Region of Waterloo

Public Health and Emergency Services

Paramedic Services

To: Chair Geoff Lorentz and Members of the Community Services Committee

Date: October 04, 2016

File Code: P05-80

Subject: Paramedic Services Performance Measurement Report – January to June 2016 (mid-year)

Recommendation:

For Information

Summary:

Key performance measures can assess how effective and efficient a program is at meeting specific objectives, priorities, and legislated mandates. The focus of this work is on quality and performance, with measurement being a means to provide information to help make decisions and better manage operations.

In 2015, staff was directed to complete an update and refresh of the original 2007 EMS Master Plan, taking into consideration accomplishments and assumptions. This update will prepare and guide Paramedic Services decisions going forward over the next 10 years (2017-2027), so as to ensure appropriate goals and resourcing of staff and equipment.

The goal of the Master Plan is to ensure

- Quality of care
- The right care at the right place and the right time
- Resourcing levels to meet peak demand in a reasonable time

This supports attainment of “Excellence in Patient Care” for Paramedic Services. To ensure alignment with the updated Paramedic Services Master Plan (2017-2027), content and indicators outlined in this have been adjusted from previous performance
measurement reports. Monitoring these revised indicators over time will allow Region of Waterloo Paramedic Services to identify patterns and address the challenges that arise. Some highlights for 2016 (January to June) include:

Volume and Service Level

- Paramedic Services responded to 20,735 calls resulting in 23,855 vehicle responses. Vehicle responses are up 6.2 per cent from the same period in 2015, and are above the previous five year year-to-date average of 4.9 per cent. Currently, 47,972 vehicle responses are forecasted by year-end 2016 which would be another record year for volume.
- The rate of vehicle responses per 1,000 population, a measure of service demand, is up 3.8 per cent, compared to 2015. The increase continues to outpace population growth, and was influenced by an aging population.
- Unit Utilization ranged from 30.3 per cent at 2AM to 54.6 per cent at 11AM and is at 40.5 per cent for 2016, down 3.0 per cent from 2015. Unit Utilization measures the percentage of an hour that ambulances are actively engaged in responding to calls, as opposed to waiting for calls. When Unit Utilization exceeds a value of 40 per cent, it becomes difficult to ensure an ambulance will be available for the next call within a reasonable time. The Master Plan is recommending an optimal benchmark Unit Utilization of 35 per cent, should Council approve.

Compliance and Quality Assurance

- Compared to 2015, the regional 80th percentile response time to emergency calls has quickened (improved) 2.5 per cent (15 seconds) from 9 minutes 58 seconds in 2015 to 9 minutes and 43 seconds in 2016, and was likely influenced by the additional resources added in mid-year 2015 taking effect, a slight easing in the rate of call growth, and gains made from a reduction in the amount offload delay experienced.
- Currently Paramedic Services is in compliance with the 2016 response time performance plan for resuscitation calls (CTAS1) reaching 71 per cent of calls within the eight minute target. The current target for resuscitation calls is a response time of 8 minutes or less 70 per cent of the time or better. A high proportion of compliance indicates that the most urgent calls are being attended to in the appropriate time frame.

Efficiency Indicators

- To date in 2016, Offload Delay losses are down more than 50 per cent and are now trending near the lower levels last experienced in 2013.
- So far, after large increases in time spent in Code Yellow and Code Red in early 2015 levels have returned to 2013 levels with decreases of 21.4 and 55.2 per cent respectively.
- There are more improvements to be gained in code reds and yellows, which will require additional resources to address growing call volumes, as per the Master
Plan report.

Service and Quality Impact

- Service type indicators tend to fluctuate around the average over time, particularly when a small number of cases are involved. Currently all indicators are within acceptable ranges.

The effects of two additional 12-hour ambulances added in July of 2016 will not be reflected until future performance reports. There will also be a further adjustment in start time for one 12-hour ambulance on January 01, 2017 to better align resourcing to call volumes.

Report:

The report contains four indicator categories:

1. Volume and Service Level (How much did we do?)
2. Compliance and Quality Assurance (How well did we do it?)
3. Efficiency (How efficiently did we do it?)
4. Service and Quality Impact (How well is the service being performed?)

To produce this report and the indicators included in it, a number of data sources were utilized. Due to the nature of Paramedic Services, the Region of Waterloo relies on a joint effort with external parties to access accurate and reliable data in as timely a fashion as possible. The Ambulance Dispatch Reporting System (ADRS), Central Ambulance Communications Centre (CACC) and St. Mary’s Hospital are sources of data for a number of indicators. For the remaining indicators, data values have been pulled from the Paramedic Services TabletPCR (an internal tool used to track information and data relevant to calls and patient care reporting). The Paramedic Services Performance Measurement Report will continue to undergo additional development in the future as new key indicators are identified.

Summary of Results:

Volume and Service Level

- The rate of vehicle responses per 1,000 population, a measure of service demand, is up 3.8 per cent from 2015, and continues to outpace population growth, and was likely influenced by an aging population.
- The projected 47,972 vehicle responses by Paramedic Services for year-end 2016, a measure of service demand, would represent the third year in a row of record volume and an increase of more than 2,600 calls or nearly seven calls more per day compared to 2015.
- To date in 2016 Paramedic Services is averaging nearly 4,000 vehicle responses a month, or more than 130 per day.
- Unit Utilization (UU) increased from a low of 28 per cent at 5am, peaking at 52 per cent at 11am, before gradually decreasing the rest of the day.
• Unit utilization ranged from 30.3 per cent at 2AM to 54.6 per cent at 11AM and is at 40.5 per cent for 2016, down 3.0 per cent from 2015. Unit Utilization measures the percentage of an hour that ambulances are actively engaged in responding to calls, as opposed to waiting for calls. When Unit Utilization exceeds a value of 40 per cent, it becomes difficult to ensure an ambulance will be available for the next call within a reasonable time.

• The Master Plan is recommending an optimal benchmark Unit Utilization of 35 per cent, should Council approve (see PHE-PSV-16-05). Unit Utilization and Response Time are correlated. A Unit Utilization of 35% will ensure Council can meet its Response Time targets as recommended in the Response Time Performance Plan (see PHE-PSV-16-07).

• Staffing is partly based on patterns and predictions seen in Unit Utilization, and monitoring Unit Utilization allows for proactive planning to ensure community needs are met in a reasonable time, using a sustainable level of deployed staff.

• Region of Waterloo Paramedic Services transported patients 81.0 per cent of the time while non-patient responses such as patient refusal, or other non-patient carrying instances made up the remaining 19.0 per cent of dispatched calls for 2016.

• Note that a 12-hour ambulance was added in each July of 2011, 2012, 2013, 2015, and an emergency response unit was added in 2014. Two 12-hour ambulances were added in July of 2016. In addition, a scheduling adjustment of another 12-hour ambulance will be made in on January 01, 2017. As a result, the full impact of the latest additional and reallocated resources, as well as scheduling shifts, will only be reflected in future performance reports.

Compliance and Quality Assurance

• Compared to 2015, the regional 80th percentile response time to emergency calls has quickened (improved) 2.5 per cent (15 seconds) from 9 minutes 58 seconds in 2015 to 9 minutes and 43 seconds in 2016, and was likely influenced by additional resources added mid-year 2015 taking effect, a slight easing in the rate of call growth, and gains made from a reduction in the amount offload delay experienced. A UU of 35% is correlated with a Region-wide Code 4 80th percentile response time of 9 minutes 12 seconds (see PHE-PSV-16-05).

• Paramedic Services continues to monitor response parameters observed from urban, suburban, and rural perspectives, using an 80th percentile response time informal benchmark.

• Response times vary according to population and road density, which is a typical pattern in all paramedic services

• Paramedic Services monitors compliance to its 2016 Response Time Performance Plan.
  o To date, Paramedic Services is in compliance for resuscitation calls (CTAS1) reaching 71 per cent of calls within the eight minute target. The
current target for resuscitation calls is a response time of eight minutes or less 70 per cent of the time or better.
  o Paramedic Services is nearly in compliance for emergent calls (CTAS2) reaching 78 per cent of calls within the ten minute target. The current target for resuscitation calls is a response time of ten minutes or less 80 per cent of the time or better.
  o Should the Master Plan recommended target of 35% UU be adopted, the additional resources will help ensure that all RTPP CTAS targets are met in future.

Efficiency Indicators
- To date in 2016, Offload Delay losses are down more than 50 per cent and are now trending near the lower levels last experienced in 2013.
- Paramedic Services and local hospitals continue to collaborate to address the issue of Offload Delay and the ability of our services to address and limit Offload Delays to Paramedic Services. Strategies to address Offload Delay and return crews to the public for re-assignment are assisting in lowering and stabilizing our Offload Delay losses.
- Time spent in Code Yellow and Code Red both decreased, 21.4 and 55.2 per cent respectively, through the first half of 2016 compared to same time period last year, and currently remains at historical levels. Further improvements will require additional resources to address keep up with growing call volume.

Service and Quality Impact
- Note that service type indicators tend to fluctuate around the average over time, particularly when a small number of cases are involved.
- The percentage of stroke patients taken to stroke facilities was slightly at or above the historical average so far this year.
- Any Return of Spontaneous Circulation (ROSC) is deemed positive. The service remains in an acceptable range, with only a slight downward trend relative to the historical average (variation is normal due to a small numbers of cases).
- Heart attack STEMI (ST-Segment Elevation Myocardial Infarction) Protocol compliance fluctuated around the historical average, providing care in less 90 minutes 74.6 per cent of the time in 2016 compared to 63.1 per cent in 2015.

Corporate Strategic Plan:

**Strategic Plan Focus Area 4.4**
Promote and support healthy living and prevent disease and injury

**Strategic Plan Focus Area 5.4**
Ensure regional programs and services are efficient, effective and provide value for money
Financial Implications:

Paramedic Services budgets are funded 50% by the Ministry of Health and Long Term Care and 50% through the local tax levy.

Other Department Consultations/Concurrence:

Information Technology staff from the Corporate Services Department collaborated with Public Health and Emergency Services staff on the production of this report.

Attachments


The detailed January – June 2016 (mid-year) report is distributed separately for Councillors and is available online at the following link:

- January – June 2016 (mid-year):

Prepared By: Stephen Van Valkenburg, Director/Chief Paramedic Services
Jordan Steffler, Strategic & Quality Improvement Specialist

Approved By: Dr. Liana Nolan, Commissioner / Medical Officer of Health
Appendix A

A. Volume and Service Level Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Mid-year 2015</th>
<th>Mid-year 2016</th>
<th>Per cent change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Vehicle Responses*</td>
<td>22,472</td>
<td>23,855</td>
<td>+6.2%</td>
</tr>
<tr>
<td>Rate of Vehicle Responses per 1,000 population*</td>
<td>78.8</td>
<td>81.8</td>
<td>+3.8%</td>
</tr>
<tr>
<td>Unit Utilization*</td>
<td>41.7%</td>
<td>40.5%</td>
<td>-3.0%</td>
</tr>
</tbody>
</table>

B. Compliance and Quality Assurance Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Mid-year 2015</th>
<th>Mid-year 2016</th>
<th>Per cent change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paramedic Services Response Time to Emergency Calls</td>
<td>9min 58sec</td>
<td>9min 43sec</td>
<td>-2.5%</td>
</tr>
<tr>
<td>Response Time Performance Plan Compliance Resuscitation calls (CTAS1)*</td>
<td>71.1%</td>
<td>71.0%</td>
<td>-0.2%</td>
</tr>
<tr>
<td>Response Time Performance Plan Compliance Emergent calls (CTAS2)*</td>
<td>76.8%</td>
<td>78.4%</td>
<td>+2.1%</td>
</tr>
</tbody>
</table>

C. Efficiency Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Mid-year 2015</th>
<th>Mid-year 2016</th>
<th>Per cent change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offload Delay Measurement (Number of 24 hour ambulance days)*</td>
<td>93.1 days</td>
<td>45.7 days</td>
<td>-50.9%</td>
</tr>
<tr>
<td>Code Yellow Status (per cent of total time)</td>
<td>15.4%</td>
<td>12.1%</td>
<td>-21.4%</td>
</tr>
<tr>
<td>Code Red Status (per cent of total time)</td>
<td>1.6%</td>
<td>0.7%</td>
<td>-55.2%</td>
</tr>
</tbody>
</table>

1 Volume and Service Level indicators can be forecasted, but do not necessarily require targets. They are monitored to identify trends to ensure appropriate action (if any) can be taken to address the changing demands on the service.

2 Compliance and Quality Assurance indicators do have targets, and Paramedic Services strives to continually improve reporting period over reporting period, understanding variances and taking appropriate action.

3 Efficiency indicators provide tracking mechanisms to see overall system status/health. The target is to continually improve reporting period over reporting period, understanding variances and taking appropriate action.
D. Service and Quality Impact Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Mid-year 2015</th>
<th>Mid-year 2016</th>
<th>Per cent change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke Patient to Stroke Facility*</td>
<td>88.2%</td>
<td>86.2%</td>
<td>-2.3%</td>
</tr>
<tr>
<td>Return of Spontaneous Circulation*</td>
<td>13.3%</td>
<td>13.8%</td>
<td>+3.4%</td>
</tr>
<tr>
<td>Heart attack (STEMI) protocol*</td>
<td>63.1%</td>
<td>74.6%</td>
<td>+18.3%</td>
</tr>
</tbody>
</table>

*Indicator is captured in a similar fashion (with some variation in measurement) within a portion of the MBNCanada (formerly OMBI) reporting process.

4 Service and Quality Impact indicators tend to fluctuate around averages, due to the shared nature of responsibility among multiple parties. They are monitored over time for trending to understand possible patterns and improvement opportunities.
Report:  CSD-HOU-16-18

Region of Waterloo
Community Services
Housing Services

To: Chair Geoff Lorentz and Members of the Community Services Committee

Date: October 4, 2016  File Code: D27-80

Subject: Region of Waterloo’s Submission to the National Housing Strategy Consultation

Recommendation:

That the Regional Municipality of Waterloo endorse, and submit to the Federal Government, the Region’s response to the Proposed National Housing Strategy, as outlined in report CSD-HOU-16-18, dated October 4, 2016,

And that the Regional Municipality of Waterloo forward a copy of this report to the Federal and Provincial Ministers responsible for housing and homelessness, local Members of Parliament and Members of Provincial Parliament, the Federation of Canadian Municipalities (FCM), the Association of Municipalities of Ontario (AMO) and the Ontario Municipal Social Services Association (OMSSA).

Summary:

The Regional Municipality of Waterloo (the Region) has had a strong history of supporting the development of a comprehensive and sustainable National Housing Strategy to address the issues of homelessness and affordable housing. Numerous reports to Community Services Committee since 2001 have recommended support for a national plan which includes the provision of adequate long-term capital and sustainable supportive housing funding. The Region has consistently voiced strong support also through written submissions, involvement in consultations and focus groups, and through support to other groups advocating to the federal government the need for a National Housing Strategy.

This report recommends Regional staff input be submitted as the Region’s submission to the National Housing Strategy consultation by the October 21, 2016 deadline.
Report:

The Regional Municipality of Waterloo has consistently voiced strong support for the creation of a National Housing Strategy, through various reports, as summarized in the 2009 report “Need for a National Housing Strategy” (P-09-084/SS-09-059), which was in response to a request to endorse Bill C-304, a private member’s bill that called for the establishment of a National Housing Strategy in Canada. Bill C-304 was not voted on prior to the 2011 federal election being called, and was later re-introduced as a private member’s bill by Marie-Claude Morin as Bill C-400: Secure, Adequate, Accessible and Affordable Housing Act. It was defeated on Feb 27, 2013.

On June 28, 2016, the new federal government met with provincial and territorial ministers responsible for housing to discuss key priorities for housing in Canada. They discussed the development of a National Housing Strategy and agreed that a long term vision is essential for meeting the housing needs of Canadians:

“All Canadians have access to housing that meets their needs and that they can afford. Housing is the cornerstone of building sustainable, inclusive communities and a strong Canadian economy where we can prosper and thrive.”

As noted by the Canadian Housing and Renewal Association, the need for a National Housing Strategy in Canada is great.

“Over the past 25 years, Canada’s population has increased by 30% while the annual federal investment in affordable housing decreased by 46%. 1 in 4 Canadian households cannot afford their housing. Nearly 235,000 Canadians experience homelessness every year. Federal operating agreements for social and affordable housing providers are already expiring, and are set to reach zero by 2040. At minimum, over 100,000 affordable housing units are required to make up for previous backlogs, and there is a backlog to renovate the existing affordable housing stock that is in many cases 40, 50 or 60 years old.”

A National Housing Strategy to achieve positive outcomes for Canadians requires collaboration among many partners. Canada Mortgage and Housing Corporation (CMHC) is holding roundtable discussions with Indigenous and other communities, key stakeholders and housing experts over the summer and early fall, and all Canadians can provide input on a National Housing Strategy online or through written submissions until October 21, 2016. The results from the consultation will be released through an online Town Hall on November 22, 2016 – National Housing Day, and the feedback will help to develop the final options and recommendations for a National Housing Strategy.

In the proposed submission to the consultation on the National Housing Strategy, the Region of Waterloo is requesting adequate, regular, long-term funding for both capital (new supply and repairs to existing housing) and sustainable supportive housing
programs and a clear vision for ending homelessness in Canada (see Appendix 1: Region of Waterloo’s Submission to the Consultation on the National Housing Strategy).

**Corporate Strategic Plan:**

This report contributes to the Region’s 2015-2018 Corporate Strategic Plan, Focus Area 4: Healthy, Safe and Inclusive Communities, and specifically Strategic Objective 4.3: Increase the supply and range of affordable and supportive housing options.

**Financial Implications:**

Nil

**Other Department Consultations/Concurrence:**

Community Services and Public Health Departments were consulted in the writing of this report.

**Attachments**

Appendix 1: Region of Waterloo’s Submission to the Consultation on the National Housing Strategy.

**Prepared By:** Deb Schlichter, Director, Housing Services

**Approved By:** Douglas Bartholomew-Saunders, Commissioner, Community Services
Appendix 1

Region Of Waterloo: Submission to the Consultation on the National Housing Strategy

In its submission to the consultation on the National Housing Strategy, the Region of Waterloo offers the following comments:

General Comments:

Senior levels of government need to provide adequate, regular (predictable), long-term capital for new affordable housing units and for the repair and maintenance of our existing housing stock, and sustainable supportive housing funding, that is less prescriptive to allow those administering housing and homelessness programs the flexibility to meet local needs, and assist with long-term planning and building capacity.

A National Housing Strategy should address the full range of housing and help to preserve existing affordable rental housing and stimulate new rental housing construction in private market.

A National Housing Strategy must specifically address the specialized needs of Canadians experiencing homelessness and strengthen the vision of ending homelessness in Canada.

- Clear definitions, goals and targets need to be identified towards ending homelessness.
- The Strategy must link housing for Canadians exiting homelessness with the adequate and appropriate supports required for this population to remain stably housed and integrated into community.
- Funding for programs that provide housing first supports specific to Canadians experiencing homelessness should be increased to provide real and possible advancement towards ending homelessness.

Comments on the Consultation Discussion Guide:

Vision

“All Canadians have access to housing that meets their needs and that they can afford. Housing is the cornerstone of building sustainable, inclusive communities and a strong Canadian economy where we can prosper and thrive.”

The last phrase should include “everyone” so it states “a strong Canadian economy where everyone can prosper and thrive”.

Principles

The National Housing Strategy will be developed according to ten core principles, the first seven are results-based and the final three are process-based:

1. Environmentally sustainable: we want housing to contribute to a cleaner environment and support a greener tomorrow
2. Performance tied to results: we measure our performance; evaluate our outcomes; and base our decisions on the best evidence of what works
3. Self-reliance: we seek to support greater self-reliance for individuals, families and housing providers, where possible
4. Fiscally responsible: we seek fiscally responsible housing responses and leverage support from others
5. Flexibility: we recognize that there is no one-size-fits-all solution to addressing housing needs
6. Community-centred: we believe housing should be community-based and consider access to public transit, proximity to work, amenities and services
7. Economic stability: we want a stronger housing system that supports stability in the Canadian economy and helps withstand fluctuations in the economic cycle
8. Innovation: we encourage innovative new approaches
9. People-centred: we remember that people are at the heart of all housing solutions
10. Collaboration: we value collaboration and build respectful relationships

Themes and Outcomes

The goal of the National Housing Strategy is to create solutions to the most important housing challenges. To develop the strategy, a wide range of themes and issues will be explored, as well as desired outcomes

   Environmental, Social and Financial Sustainability: to reduce the environmental impact of housing, provide a foundation for a better quality of life, and have a strong housing system.

   Affordability: so that Canadians can affordable housing that meets their needs.

   Inclusivity: to contribute to social inclusion and wellness for all Canadians, and respect different cultural and social needs.

   Flexibility: so that Canadians have access to housing options that meet their diverse and changing housing needs.

Within the principle of “self-reliance” and theme of “financial sustainability”, there is a suggestion that “a strong affordable housing sector is less reliant on government funding”. While some may agree with this statement, there should also be mention that any funding from senior levels of government should be adequate, regular (predictable), and long-term for both the repair/maintenance of
existing “social housing” stock and the creation of new affordable housing units, with maximum flexibility to enable those responsible for administering housing to address most pressing local community issues and to allow for capacity building and long term planning.

Within the theme of “inclusivity”, there should be mention of supports to housing. There needs to be better integration and alignment of housing with supports to help people find and/or maintain housing. This would also include Federal/Provincial supports for housing and homelessness to have regular annualized increases to provide adequate funding to cover increasing program costs.
Region of Waterloo
Community Services
Seniors’ Services

To: Chair Geoff Lorentz and Members of the Community Services Committee

Date: October 4, 2016
File Code: S14-20

Subject: Creation of the Sunnyside Home Joint Resident, Family and Volunteer Advisory Committee

Recommendation:
For information.

Report:

Seniors’ Services is moving towards a more “person centred” model of care where resident and family input is actively sought in relation to planning of activities and the operation of Sunnyside Home. In order to facilitate this, the division is creating a joint resident, family and volunteer advisory committee. The purpose of the committee is to involve key stakeholders in informing the decision making process regarding the delivery of programs and services as well as to help Seniors’ Services staff to have a better understanding of the needs and preferences of residents and family members.

It is important to note that this committee will augment, rather than replace Sunnyside Home’s three existing advisory committees (Resident’s Council, Family Council and the Volunteer Advisory Committee). The key difference with this committee is that the agenda items will be staff driven and the committee will be used to seek more in-depth input on programs, policies, procedures and operational priorities. Residents, family members and volunteers with items they wish to bring forward for consideration will continue to be encouraged to utilize the forums provided by the Resident’s Council, Family Council and the Volunteer Advisory Committee.

While this committee will provide valuable input, make recommendations and provide endorsements, it will not have decision-making authority regarding the operation of Sunnyside Home. Decisions will continue to be made by the Seniors’ Services
Leadership Team or by individuals with a higher level of authority (e.g., the Commissioner, Community Services or Regional Council) with consideration of the Advisory Committee’s feedback.

This committee will focus on Sunnyside Home. Other programs operated by the Seniors’ Services division such as the Community Alzheimer Programs and Supportive Housing will continue to use existing mechanisms and advisory bodies to seek client, family and stakeholder input.

**Corporate Strategic Plan:**

The Sunnyside Home Joint Resident, Family and Volunteer Advisory Committee supports the Region’s 2015 Corporate Strategic Plan, Focus Area 5: Responsive and Engaging Government Services, and Strategic Objective 5.1 (to) enhance opportunities for public engagement, input and involvement in Regional decision making.

**Financial Implications:**

Nil

**Other Department Consultations/Concurrence:**

Nil

**Attachments**

Appendix A - Sunnyside Home Joint Resident, Family and Volunteer Advisory Committee Terms of Reference

**Prepared By:** Connie Lacy, Director, Seniors’ Services  
Kelly Buxton, Social Planning Associate, Seniors’ Services

**Approved By:** Douglas Bartholomew-Saunders, Commissioner, Community Services
Appendix A
Sunnyside Home Joint Resident, Family and Volunteer Advisory Committee Terms of Reference

Purpose
Sunnyside Home is committed to providing resident, client and family centred care. The Sunnyside Home Joint Resident, Family and Volunteer Advisory Committee plays an important role by providing counsel and advice to Sunnyside staff with respect to planning activities and the operation of Sunnyside Home.

Objectives
The Sunnyside Home Joint Resident, Family and Volunteer Advisory Committee will:
- Provide a venue/forum for stakeholder and community input to improve the quality of services offered by Sunnyside Home.
- Provide advice and feedback on Sunnyside Home policy, planning and services.

Scope
The Committee will provide input into the operation of Sunnyside Home and help Seniors’ Services staff to have a better understanding of the needs and preferences of residents and family members.

This committee differs from the Resident and Family Council in that the agenda is driven by Sunnyside Home staff to seek advice on initiatives and operational priorities. Resident and Family members with items they would like to bring forward should continue to utilize the forums provided by the Resident’s Council and/or the Family Council.

This committee also differs from the Volunteer Advisory Committee. Unlike the Volunteer Advisory Committee which guides the Seniors’ Services volunteer program, volunteers on this committee will be focused on helping Seniors’ Services to better understand and meet the needs of residents and families. Concerns/issues in regards to volunteers or volunteer positions will be redirected to the Volunteer Advisory Committee.

While this committee provides valuable input, makes recommendations and provides endorsement, it does not have authority to make decisions regarding the operation of Sunnyside Home. Decisions will continue to be made by the Seniors’ Services Leadership Team or by people with a higher level of authority (e.g., the Commissioner of Community Services or Regional Council).

This committee will focus on Sunnyside Home. Other programs operated by the Seniors' Services division such as the Community Alzheimer Programs and Supportive Housing are outside the scope of this committee.
Meeting Schedule
The Committee will meet four times a year or at the call of the Chair.

Meeting Protocols
The Committee will use a consensus decision-making approach when making recommendations or endorsing actions related to the operation of Sunnyside Home. Where consensus cannot be achieved, majority approval by vote will be used to arrive at a decision. Majority approval is 50% of Committee members present at the meeting plus 1. Additionally, quorum to make a recommendation/endorsement is defined as 50% of the total Committee membership plus 1. The Chair will only vote in the event of a tie.

Membership
The Committee will include the Resident’s Council Leadership Team, persons that have family members residing at Sunnyside Home and people who actively volunteer at Sunnyside Home. Members include:

<table>
<thead>
<tr>
<th>Members</th>
<th>Voting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator, Seniors’ Services (Chair)</td>
<td>1</td>
</tr>
<tr>
<td>Resident’s Council Leadership Team</td>
<td>5</td>
</tr>
<tr>
<td>Family Members of People Residing at Sunnyside Home</td>
<td>3</td>
</tr>
<tr>
<td>Sunnyside Home Volunteers</td>
<td>2</td>
</tr>
<tr>
<td>Social Planning Associate, Seniors’ Services (planning support)</td>
<td>non-voting</td>
</tr>
<tr>
<td>Total Voting Members</td>
<td>11</td>
</tr>
</tbody>
</table>

Members will endeavor to not represent their own interest but the broader interests of the group they represent.

Selection of Members
The Resident’s Council Leadership Team will be selected as outlined in their Constitution.

Family Members and Volunteers will be asked to apply to be a member of the committee. Selection of committee members will initially be completed by the Chair and Social Planning Associate. After the committee is established, new members will be voted on by the committee.

Family members are required to currently have, or have had a family member residing at Sunnyside Home within the past 12 months.

Volunteer members are required to remain active in their involvement with Sunnyside Home. For the purposes of this committee, an active volunteer is defined as someone who volunteers at Sunnyside Home for at least 4 hours per month (not including the time spent at Advisory Committee meetings).
Term of Office
The term of office is one year with the option to serve two additional terms. Memberships may be extended or reviewed based on special circumstances with approval from The Joint Resident, Family and Volunteer Advisory Committee.

Attendance at Meetings
If a member is absent from three consecutive meetings, the member’s ongoing participation with the committee will be reviewed by the Chair in consultation with the member.

Agenda Preparation for the Meeting
Meeting agendas will be prepared by the Chair and Social Planning Associate. Agendas will be finalized and circulated in advance of the meeting.

Minutes of the Meeting
Minutes of the meetings will be produced by the Social Planning Associate.

Conflict of Interest
Committee members will adhere to the Conflict of Interest Policy for Advisory Committees approved by Regional Council on May 28, 2003. All Committee members will be required to sign a copy of the Policy to indicate that they agree to abide by it. Members in violation of the Policy may be asked to refrain from participating or leave the Committee.

The Terms of Reference be reviewed annually.

Date Approved:
Date Revised:
Region of Waterloo
Office of the Chief Administrator
Strategic Planning and Strategic Initiatives

To: Chair Geoff Lorentz and Members of the Community Services Committee
Date: October 4, 2016  File Code: A26-50/COMMWELL
Subject: Community Wellness Initiative

Recommendation:

That the Regional Municipality of Waterloo approve the addition of 1.0 temporary full time equivalent staff to support the Community Wellness Initiative for a 15 month period, to be funded as described in Report CAO-SPL-16-01, dated October 4, 2016;

And That the 2016 Operating Budget for the Office of the Chief Administrator be increased by $15,300 gross and $0 net.

Summary:

Community wellness/wellbeing is shaped by a wide variety of conditions and systems in which individuals and communities are born, grow, work, live, and age.

Waterloo Region is a community that has a number of partnerships which have made significant progress towards dealing with complex issues of community wellness/wellbeing. Over the past several years there have been many conversations that have identified some urgency to collaborate across these partnerships to further advance a more integrated, holistic approach to community wellness/wellbeing. This is premised on the belief that only together can we create significant solutions to impact community wellness as there are so many factors and systems that interconnect and influence the wellbeing of the community.

The main goals of the Community Wellness initiative are as follows:

- **Engage in a collaborative process:** Create a process that brings community partners together to develop a shared vision of community wellness.
- **Develop a shared vision and collective plan for community wellness:** Develop a shared vision and collective aspirations related to community
wellness, based on a desired future state. Based on the shared vision and analysis of the data, a limited number of priority areas for initial collective action will be developed.

- **Develop a coordinated measuring and monitoring approach to measure community wellness in Waterloo Region**: A commonly agreed upon set of indicators of community wellness will be identified to provide regular reports on the state of community wellness in Waterloo Region through a collaborative process.

- **Strengthen community capacity**: A series of development opportunities will be hosted in order to build community capacity.

- **Foster community engagement and communication**: A plan to engage and inform the community in the Community Wellness Initiative will be supported throughout the process.

**Report:**

1.0 **Background / Context**

Waterloo Region is a community that has created a number of cross-sectoral partnerships which have made significant progress towards dealing with complex issues and different population needs at a systems level, e.g. Crime Prevention Council; Homelessness, Housing Umbrella Group; Immigration Partnership; Integrated Drugs Strategy; Rural Realities; Children’s Planning Table, etc. Over the past several years there have been many conversations and meetings that have identified some urgency to collaborate across the systems to further advance a more integrated, holistic and measured approach that coordinates resources and investments, to create sustainable and impactful solutions.

Since January 2013, a number of meetings to explore this opportunity have been arranged by Waterloo Regional Police Services, the Local Health Integration Network in conjunction with Crime Prevention Council. These meetings had a community safety and well-being focus and generated ongoing conversations on how best to move forward with a community safety and well-being plan. Although there was interest to move forward, there was still the need for more clarity about the vision, the purpose, and what the next steps would be to move this work forward.

In order to understand the initial progress on the initiative, and to provide insight into how best to move the initiative forward, a review of the process was conducted by Dr. Kathy Hogarth from the School of Social Work at Renison University College at the University of Waterloo in late 2014. Community partner organizations (Appendix 1) that participated in the review conducted by Dr. Hogarth, were invited to be part of a “reference group” to follow-up on the review and to discuss how best to move forward with the Community Wellness Initiative.

To continue to move the conversations and process forward, Regional Chair Ken Seiling volunteered the Region of Waterloo to bring together partners to plan for the next steps. A smaller “Planning Group” has been working with Chair Seiling to help with
these next steps. Members include: The United Way of Kitchener and Waterloo and Area (Jan Varner); The Kitchener and Waterloo Community Foundation (Rosemary Smith); Crime Prevention Council (Chris Sadeler, Shayne Turner); Waterloo Regional Police Services (Chief Bryan Larkin and Board Chair Tom Galloway); Local Health Integration Network (Bruce Lauckner); Region of Waterloo (Regional Chair Ken Seiling, Mike Murray, Liana Nolan, Douglas Bartholomew-Saunders and Lorie Fioze).

In order to bring further clarity to what the Community Wellness Plan could or should entail, a series of “Discovery meetings” with existing collaboratives, networks and area municipalities were held between July and September, 2016.

All of these meetings and conversations have informed the process and approach which are described in the following sections of this report.

2.0 The Framework for Community Wellness

A common idea that was identified by numerous stakeholders was to adopt a broad framework to anchor this work. The Social Determinants of Health (SDOH) were seen as the appropriate framework to use as they define the multi-dimensional factors that connect and interact to impact community wellness. The Social Determinants of Health as defined by the Public Health Agency of Canada are found in Figure 1.

**Figure 1: Social Determinants of Health**

![Diagram of Social Determinants of Health](image-url)
2.1 Planning Approach

Collective Impact has been used as the approach to develop the Community Wellness Initiative model described in this report as it meets some of the needs from the discussions over the past several years and aligns well with the community discussions conducted to-date.

Collective Impact provides a structured approach to work on complex issues and achieve significant and lasting social change by multiple sectors coming together on a common agenda, shared measurement and alignment of effort. The approach is premised on the belief that no single policy, government department, organization or program can tackle or solve the increasingly complex social problems we face as a society. John Kania & Mark Kramer identified five key conditions for a successful Collective Impact approach (Figure 2) which have been incorporated into the approach and process for the Community Wellness Initiative.

Figure 2:

The 5 Conditions of Collective Impact

1. Common Agenda
   - Common understanding of the problem
   - Shared vision for change

2. Shared Measurement
   - Collecting data and measuring results
   - Focus on performance management
   - Shared accountability

3. Mutually Reinforcing Activities
   - Differentiated approaches
   - Coordination through joint plan of action

4. Continuous Communication
   - Consistent and open communication
   - Focus on building trust

5. Backbone Support
   - Separate organization(s) with staff
   - Resources and skills to convene and coordinate participating organizations

3.0 Purpose and Goals of the Initiative

Community wellness is shaped by a wide variety of conditions and systems in which individuals and communities are born, grow, work, live, and age. A definition for community wellness will need to be articulated throughout this process for Waterloo Region.
The reason that many community partners are interested in pursuing a community wellness initiative – the “WHY” – could be summarized as follows:

We are trying to do together what no organization has accomplished or can accomplish on its own. In order to create new, significant and impactful solutions, we wish to work together to identify and address collective priorities that will improve community wellness so that everyone in our community is able to thrive, and no one is left behind.

3.1 Goals for the Community Wellness/Wellbeing Initiative

The following goals (illustrated in Figure 3) will form the bulk of the work in the initial stages of the initiative (June 2016 – October 2017) and will evolve, overlap and influence one another as the process moves forward. They are an attempt to identify and define what the community is hoping to accomplish through a community wellness initiative. They are not in sequential order and aspects of the work will need to occur in parallel.

The following provide a short description of the work to be accomplished in each of the goal areas.

**Engage in a collaborative process:** Create a process that brings community partners to develop a shared vision of community wellness. The process will provide opportunities to develop an integrated, shared, holistic and measured agenda and action plan for community wellness. This work would build on existing cross-sectoral partnerships that have made significant progress towards dealing with complex issues and different population needs at a systems level.

**Develop a coordinated measuring and monitoring approach to measure community wellness in Waterloo Region:** A commonly agreed upon set of indicators of community wellness will be identified to provide regular reports on the state of community wellness in Waterloo Region through a collaborative process. Numerous stakeholders cited the Social Determinants of Health (SDOH) as a potential framework to build this measurement and reporting framework on as they are the conditions and the wider set of forces and systems shaping the conditions of wellbeing.

**Develop a shared vision and collective plan for community wellness:** Develop a shared vision and collective aspirations related to community wellness, based on a desired future state. Based on the shared vision and analysis of the data, a limited number of priority areas for initial collective action will be developed. These priority areas would be informed by various indicators of community wellness and could be used by various organizations in the community to align their activities to advance greater collective impact on community wellness, particularly the priority areas for collective action. Potential priority areas could include: enhanced outcomes for children/young people, improved graduation rates, fewer people in the criminal justice system, reduced poverty, etc.
**Strengthen community capacity:** A series of development opportunities will be hosted in order to build community capacity. This was cited as important through the conversations by community stakeholders, to not only involve the community in the initiative, but also build upon the community’s existing skills and capacity. Opportunities for community members to learn from others involved in similar processes and from those doing similar work is a core concept of the approach.

**Foster community engagement and communication:** A plan to engage and inform the community in the Community Wellness Initiative will be supported throughout the process. In order to achieve this, the Community Wellness Initiative will be promoted and communicated broadly, capitalizing on existing networks. A transparent and inclusive approach will be taken to maximize opportunities for engagement by all members of the community, to facilitate understanding, and to keep people informed of progress.

**Figure 3: Goals for the Initiative**
4.0 Structure

There was agreement that the approach and conceptualization of the initiative needs to be defined and shared broadly by the community as no one agency, level of government or specific sector has the supports, mandate and resources to address the complexities of community wellness alone. Based on this feedback the reference group will provide advice and direction on the overall process (see Appendix 1) until a formal structure has been identified. Greater detail regarding an appropriate structure to coordinate and facilitate this initiative will be developed once the areas of priority and action become identified.

5.0 Funding to support the initiative

The Waterloo Wellington Local Health Integration Network (LHIN), the Kitchener and Waterloo Community Foundation (KWCF) and the United Way Kitchener-Waterloo and Area (UWKWA) are providing one-time funding up to $130,000 in the 2016/17 and 2017/2018 fiscal years to support the work of the Community Wellness Initiative. This funding will primarily be used to fund a temporary full-time community engagement coordinator position. It will also cover the various facilitation and logistics costs.

The Region of Waterloo’s Chief Administrator’s Office, was identified by various partners as an appropriate organization to provide interim support to the initiative, including organizing a process for vision and strategy identification, logistics for meetings and Working Groups, developing shared measurement practice, and mobilizing funding. With the funding support noted above, the Region is able to provide this infrastructure or “backbone” support (as defined by the collective impact approach found in Section 2) on an interim basis until the priorities are identified and the most appropriate organization identified to provide ongoing support if needed.

6.0 Next Steps

6.1 First Community Forum

A community wellness/wellbeing forum is being planned for Thursday, October 13, 2016 at the Waterloo Memorial Recreation Complex from 1:00 p.m. – 4:30 p.m. to work together with people from across Waterloo Region to:

- Discuss the factors that contribute to community wellness/wellbeing.
- Identify what is already happening to support community wellness/wellbeing in Waterloo Region.
- Gauge interest and identify potential areas of focus to enhance wellness/wellbeing for all in Waterloo Region.

To find out more go to bit.ly/wrwellness-wellbeing.

6.2 Measurement and Monitoring Working Group

A Measurement and Monitoring Working Group, a collaborative of data experts from a variety of sectors will be meeting for the purpose of developing a coordinated measuring
and monitoring approach of community wellness in Waterloo Region by:

- Sharing data and research.
- Bringing a data perspective to system level work.
- Being expert consultants/reference group related to data and research in the area of wellness.

6.3 Engagement and Communications Plan

A plan to engage the community and provide ongoing information will be developed in order to understand community wellness needs and the aspirations for a thriving community. This community engagement process and ongoing communication updates will be built throughout the entire process in a variety of different formats.

6.4 Develop an Action Plan with Shared Vision and Collective Priorities for Community Wellness

Once the shared aspirations and collective priorities are identified, an action plan/strategy will be drafted by the backbone organization, with advice and direction from the collective community process. The plan would communicate the collective vision, goals, and the top priorities to focus on over the next several years.

Corporate Strategic Plan:

This initiative supports the Strategic Plan focus area related to Healthy, Safe and Inclusive Communities.

Financial Implications:

The costs associated with the Community Wellness Initiative are being funded by the Waterloo–Wellington LHIN, The Kitchener and Waterloo Community Foundation and the United Way of Kitchener Waterloo and Area through one-time funding of $130,000 to March 31, 2018. One temporary full-time staff will be hired to support the Community Wellness Initiative. The costs of the position in 2016 are approximately $15,000, and it is recommended that the 2016 budget be adjusted accordingly.

If approved, the 2017 Budget currently under development will include sufficient expenditures and revenues to fund the initiative during 2017.

Other Department Consultations/Concurrence:

The Community Services and Public Health and Emergency Services Departments are involved in this initiative, and provided input to this report.

Attachments

Appendix 1: Interim Reference Group.

Prepared By: Lorie Fioze, Manager of Strategic Planning and Strategic Initiatives

Approved By: Mike Murray, Chief Administrative Officer
### Appendix 1: Interim Reference Group

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alison Scott</td>
<td>Family and Children’s Services</td>
</tr>
<tr>
<td>Barry Zehr</td>
<td>Waterloo Regional Police Service</td>
</tr>
<tr>
<td>Bill Davidson</td>
<td>Lang’s Farm</td>
</tr>
<tr>
<td>Bruce Lauckner</td>
<td>Waterloo Wellington Local Health Integration Network</td>
</tr>
<tr>
<td>Bryan Larkin</td>
<td>Waterloo Regional Police Service</td>
</tr>
<tr>
<td>Christiane Sadeler</td>
<td>Waterloo Region Crime Prevention Council</td>
</tr>
<tr>
<td>Derek Haime</td>
<td>Waterloo Catholic District School Board</td>
</tr>
<tr>
<td>Douglas Bartholomew-Saunders</td>
<td>Region of Waterloo – Community Services</td>
</tr>
<tr>
<td>Jan Varner</td>
<td>The United Way of Kitchener - Waterloo and Area</td>
</tr>
<tr>
<td>John Colangeli or Randall Penny</td>
<td>Lutherwood</td>
</tr>
<tr>
<td>Kathy Payette</td>
<td>Lutherwood</td>
</tr>
<tr>
<td>Ken Seiling</td>
<td>Regional Chair, Regional of Waterloo</td>
</tr>
<tr>
<td>Liana Nolan</td>
<td>Region of Waterloo – Public Health</td>
</tr>
<tr>
<td>Lisa Short</td>
<td>Cambridge &amp; North Dumfries Community Foundation</td>
</tr>
<tr>
<td>Lorie Fioze</td>
<td>Region of Waterloo – CAOs office</td>
</tr>
<tr>
<td>Marg Alfieri</td>
<td>CFFM - KW 4 Health Link</td>
</tr>
<tr>
<td>Mike Murray</td>
<td>Region of Waterloo</td>
</tr>
<tr>
<td>Nancy Bird</td>
<td>The United Way Kitchener - Waterloo and Area</td>
</tr>
<tr>
<td>Peter Ringrose</td>
<td>Police Services Board</td>
</tr>
<tr>
<td>Peter Rubenschuh</td>
<td>Waterloo Region District School Board</td>
</tr>
<tr>
<td>Ron Dowhaniuk</td>
<td>United Way of Cambridge and North Dumfries</td>
</tr>
<tr>
<td>Rosemary Smith</td>
<td>The Kitchener and Waterloo Community Foundation</td>
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<tr>
<td>Shayne Turner</td>
<td>Waterloo Region Crime Prevention Council</td>
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<tr>
<td>Tom Galloway</td>
<td>Regional Services Police Board</td>
</tr>
<tr>
<td>Toni Lemon</td>
<td>Waterloo Wellington Local Health Integration Network</td>
</tr>
<tr>
<td>Tracy Elop</td>
<td>Carizon</td>
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</tbody>
</table>
Report: PHE-HLV-16-07

Region of Waterloo
Public Health and Emergency Services
Healthy Living Division

To: Chair Geoff Lorentz and Members of the Community Services Committee

Date: October 4, 2016

File Code: P13-20

Subject: The FRESH-IT Research Project: An Analysis of Waterloo Region Retail Food Environments in Municipally-Funded Recreation Centres

Recommendation:
For information.

Summary:
Region of Waterloo Public Health and Emergency Services is participating in a Canada-wide research initiative known as FRESH-IT. FRESH-IT is a knowledge mobilization research project focusing on retail food environments in small urban and rural settings in Canada. Waterloo Region is one of four sites participating in this Canadian Institute of Health Research funded project. As part of FRESH-IT, an assessment based on four criteria has been conducted in recreation settings that sell food or beverages in vending machines or concession stands. In early October, the research team will meet with decision-makers from each municipality to present their individualized assessment results.

On October 20th, a forum will be held with municipal decision-makers, food service operators, food distributors and elected officials. Attendees will have the opportunity to hear from food environment researchers and participate in a facilitated discussion to determine how to utilize the findings from the assessments.

This report is a follow-up report to the Childhood Obesity: A High Level Overview Community Services Committee report (PHE-HLV-16-06) and the Nutrition Environment in Waterloo Region, Physical Activity and Health Research Project – Diet and Food Environment Findings Community Services Committee report (PH-14-034/P-14-086).
Report:

The FRESH-IT project provides an opportunity for Public Health to share the Nutrition Environment in Waterloo Region, Physical Activity and Health report findings with area municipalities. The project is expected to raise awareness among decision-makers and stakeholders about the importance of reducing exposure to less healthy food in general.

The density of less healthy food retail environments, located close to where children live, learn or play, along with the pricing, placement and promotion of less healthy food, has been shown to negatively influence children’s diets.\(^1,2\) This makes it more likely that children will purchase certain food and beverages on their own or make persistent requests that their parent’s purchase less healthy food.\(^3\) In addition, parents often cite lack of time as one of the reasons that they make less healthy food choices\(^4\) and involvement in recreation activities may reduce the time parents have to focus on healthy food procurement and preparation.\(^5,6\) To improve diet quality among children, the goal must be to reduce exposure to less healthy food and beverages where children live, learn and play. Addressing food retail in recreation settings is a high priority and a reasonable place to begin the process of changing the food environment in our community. Additionally, municipally-funded recreation settings were also chosen for this project because of the synergy and momentum created by the ongoing Healthy Kids Community Challenge.

Components of the FRESH-IT project:

Assessment:

As part of the FRESH-IT project, recreation centers in Waterloo Region that sell food and beverages in vending machines or concession stands have been assessed in the following ways:

- Access to tap water for drinking
- Nutritional quality of food and beverages based on the Nutrition Standards for Workplaces
- The relative price of healthy options compared to less healthy options
- Marketing or promotion of less healthy food and beverages

Presentation of Findings:

The FRESH-IT research team will meet individually with municipal decision-makers to provide an overview of the assessment results.

Decision-Maker Forum:

On October 20, a forum will be held that includes members of the Healthy Kids Community Challenge Steering Committee, municipal decision-makers for food service operations in recreation settings, food service operators, food service distributors and
elected officials from each municipality. Mayors and Councillors from each municipality are welcome to attend the forum to decide on next steps.

Dr. Kim Raine will be the keynote speaker for this forum. As a Professor and Associate Dean in the School of Public Health at the University of Alberta, she has extensive experience working on healthy food options in recreation settings. In addition Katie Neil, a Public Health Nutritionist from Oxford County Health Unit will present her project focused on implementing healthier choices in recreation settings. Andrea Bodkin from Health Communications Link (also known as HC Link) will facilitate a group discussion to determine next steps.

After the forum, Public Health will present a follow-up report to members of the Community Services Committee outlining the outcome of the forum along with pertinent research findings.

**Next Steps for Region of Waterloo Public Health and Emergency Services:**

Addressing the food environment in Waterloo Region is challenging, as no one stakeholder or decision-maker is responsible for shaping the food environment and the FRESH-IT project addresses only one piece. Making changes to the food environment in our community will require willingness and effort on the part of municipal decision-makers such as city planners and facilities staff, elected officials, food producers, food manufacturers, food distributors and food retailers. The FRESH-IT research project represents an opportunity to have a dialogue with municipal leaders and decision-makers that may facilitate further discussions, efforts and collaborations to address other retail food environments in Waterloo Region beyond the timelines and mandates of this research project.

**Ontario Public Health Standards:**

Under the Health Protection and Promotion Act, Region of Waterloo Council serves as Waterloo Region’s Board of Health. Boards of Health are expected to adhere to the Ontario Public Health Standards, which outline the expectations for providing public health programs and services. This report provides information related to the compliance with the following Chronic Disease Prevention requirements in the Standards:

- #6 - The board of health shall work with municipalities to support healthy public policies and the creation or enhancement of supportive environments in recreational settings and the built environment.

This report also provides information that supports ongoing education for Board of Health members to help them remain abreast of relevant trends and emerging public health issues.
Corporate Strategic Plan:

2015 – 2018 Strategic Objective: Healthy, Safe and Inclusive Communities

4.4 Promote and support healthy living and prevent disease and injury.

Financial Implications:

Region of Waterloo Public Health and Emergency Services will receive funds from the FRESH-IT project to support local planning initiatives.

Other Department Consultations/Concurrence:

Nil

Attachments

Nil

Prepared By: Ellen Gregg, RD MSc Public Health Nutritionist

Adèle Parkinson, Acting Manager, Healthy Eating and Active Communities

Approved By: Dr. Liana Nolan, Commissioner/Medical Officer of Health

References


<table>
<thead>
<tr>
<th>Meeting date</th>
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<th>Request</th>
<th>Assigned Department</th>
<th>Anticipated Response Date</th>
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Region of Waterloo
Community Services
Housing Services

To: Chair Geoff Lorentz and Members of the Community Services Committee

Date: October 4, 2016  File Code: D27-80

Subject: Housing Stability System Evolution Newsletter

Recommendation:
For information.

Summary:
The Housing Stability System Evolution newsletters, distributed three times per year, were designed to provide updates on key system change processes within the housing stability system between 2013 and 2016. The attached newsletter is the ninth and final Housing Stability System Evolution newsletter. Future updates will be available on the Region’s website.

This newsletter will be broadly distributed to community and other interested stakeholders both electronically and in hardcopy after October 4, 2016 and is posted on the Region’s website at http://communityservices.regionofwaterloo.ca/en/communityPlanningPartnerships/resources/Newsletter-Fall-2016.pdf

For any questions, please contact Marie Morrison, Manager Housing Stability at mmorrison@regionofwaterloo.ca or 519-575-4400 ext. 4671.

Attachments
Housing Stability System Evolution Newsletter

Prepared By: Marie Morrison, Manager, Housing Stability

Approved By: Connie Lacy, Acting Commissioner, Community Services
What did people learn and take away from the day?
Some of the learnings participants reported included: a deeper understanding of the Progressive Engagement Model, Emergency Shelter program updates and changes, the Long Term Affordable Housing Strategy (LTAHS), and information related to the Renter's Toolkit.
New for 2016: Cambridge STEP Home Team Pilot

**STEP Home** (Supports to End Persistent Homelessness) has been operating across Waterloo Region since 2008. **STEP Home in Cambridge** is piloting a new team-based model over 2016-2018. The team pilot includes the following agencies and positions working in a collaborative model:

<table>
<thead>
<tr>
<th>Agency</th>
<th>Positions</th>
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<tbody>
<tr>
<td>Argus Residence for Young People</td>
<td>2 FTE Youth-Specific Housing Support Workers</td>
</tr>
<tr>
<td>Cambridge Self-Help Food Bank</td>
<td>1.5 FTE Housing Focused Street Outreach Workers</td>
</tr>
<tr>
<td></td>
<td>1 FTE Housing Support Worker</td>
</tr>
<tr>
<td>Cambridge Shelter Corporation</td>
<td>3 FTE Housing Support Workers</td>
</tr>
<tr>
<td></td>
<td>1 FTE Peer Support Worker</td>
</tr>
<tr>
<td>Lutherwood</td>
<td>1 FTE Team Lead</td>
</tr>
<tr>
<td></td>
<td>1 FTE Team Coordinator</td>
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<tr>
<td></td>
<td>2 FTE Housing Liaison Workers</td>
</tr>
<tr>
<td></td>
<td>2 FTE Housing Support Workers</td>
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</tbody>
</table>

The team has been focused on start-up activities from April to July 2016. The team is located at the Tiger Lofts building at 35 Water St. S (staff only touchdown location). It is anticipated that a minimum of 40 new STEP Home participants will be served between 2016-2018. The learnings from the Team Pilot will be shared and will help inform a review of STEP Home programs across Waterloo Region over 2017/18. For more information, contact Marie Morrison at MMorrison@regionofwaterloo.ca

New CHPI Supportive Housing Program and Coordinated Access

The newly redesigned CHPI Supportive Housing Program launched April 1, 2016. The focus of the program is to offer permanent, affordable housing with onsite support staff to help people with a history of homelessness to stay housed and reduce the risk of returning to homelessness. Eight providers identified through the Request for Proposal (RFP) process offer this program at 11 different buildings located throughout the region, with approximately 300 units/spaces. Buildings offer a mix of bachelor, one-bedroom, two-bedroom, and three-bedroom units in apartment buildings, or private and shared bedrooms in residential homes or retirement homes. The program serves a broad range of people including individuals, couples, youth and families with some buildings serving men only, women only, or older adults.

A new brochure outlining supportive housing options available in the region and details about eligibility and access to the CHPI Supportive Housing program is now available. You can find this brochure and other information about CHPI Supportive Housing on our newly updated webpage http://communityservices.regionofwaterloo.ca/en/communityProgramsSupports/chpi.asp.

For more information, contact Lisa-Dawn Brooks at LBrooks@regionofwaterloo.ca
What’s New in Emergency Shelter?

In the October 2015 and February 2016 newsletters, you heard about plans to review our local shelter program through the development of a new Emergency Shelter Program Framework. The new framework will describe the Emergency Shelter Program that is funded by the Region, outlining the role of shelters in our local housing stability system and setting policy direction for years to come.


A short survey to provide feedback on the draft framework until October 21st is available here: https://row.survey.esolutionsgroup.ca/TakeSurvey.aspx?SurveyID=m2K23842

The final framework is planned to be submitted to Council in early 2017. Once approved, it will be attached to Service Agreements with the Region beginning April 1, 2017.

Recognizing that the framework represents a shift in program delivery, the Region has established an implementation period to March 31, 2018. During this time, the Region will work closely with shelter providers to further develop new program elements and engage in additional consultation as appropriate.

For more information, contact Angela Pye at APye@regionofwaterloo.ca

The following activities are planned to support further community consultation on the draft framework:

Meetings and consultations with:

- Various working groups in the housing stability system and other key stakeholders.
- Region staff and advisory committees.
- Other local funders of the ES Program.

The main focus of these consultations will be on the draft definition of shelter and the ten guiding principles.

Over the last year, local shelter providers have been piloting new or enhanced shelter practices, and sharing what they are learning along the way. Many of these pilots will continue through the upcoming winter 2016/17 season, including:

- Exploring diversion options at intake - supporting people to stay where they are or helping them to find other safe and appropriate places to stay (even for a few days) while more permanent housing is secured;
- Using consistent communication scripts about how people access shelter and what to expect during a shelter stay;
- Strengthening referral processes between shelters in the region and with shelters in other communities;
- Limiting service restrictions to 14 days; service restrictions longer than 14 days are reported to the Region;
- Using common Diversion Plan and Housing Plan templates; and
- Supporting people with their individualized “Safety and Engagement” Plans (similar to the Safety Plans that were piloted winter 2015/16).
Renter’s Toolkit - Now Available!

The Renter’s Toolkit is now available on the Region of Waterloo’s website.

The Renter’s Toolkit is designed as a series of online materials to help people find and keep their housing.

This user-friendly resource is organized around common renting phases. Information in each phase is presented in a variety of formats (i.e., print, audio, and video), with hyperlinks to tip sheets and worksheets including additional services, supports, and further reading.

People can review the information at their own pace, referring to the sections and tools that are most relevant to them.

It is our hope that the toolkit will be of interest to a broad audience of renters as well as service providers who assist individuals and families with finding and keeping housing.

We would like to thank the many service providers, community members, and persons with lived experience who provided recommendations on toolkit content and format and reviewed early versions of materials. The aim is to make the toolkit a “living” resource, so that it can be updated and modified as information changes and new tools are identified. Because the toolkit will continue to grow and evolve, website visitors will be encouraged to provide ongoing feedback and recommendations for additions and improvements.

Please check out the Renter’s Toolkit at www.regionofwaterloo.ca/renterstoolkit and let us know what you think!

For more information, contact Jody Brown at JoBrown@regionofwaterloo.ca
Additional HPS Funding

The Government of Canada announced in June that the Region of Waterloo would receive additional Homelessness Partnering Strategy (HPS) funding of $220,903 per year for 2016/17 and 2017/18. This represents a 50% increase to current funding through HPS and is intended to enhance the continued implementation of Housing First and complementary initiatives in our community.

Recommendations for distributing the additional funding were presented to and endorsed by the Community Advisory Board (CAB) on July 20, 2016. The proposed funding plan was presented to Regional Council on August 9.

For more information, contact Tristan Wilkin TWilkin@regionofwaterloo.ca

The additional HPS funding will support the following projects:

- Increasing investment in the Kitchener-Waterloo Urban Native Wigwam Project to move the current tenant liaison support worker from part-time to full-time. This increase more closely aligns overall HPS funding with the proportion of the Aboriginal population accessing service within the housing stability system.

- STEP Home Housing Liaison worker for Kitchener-Waterloo (Lutherwood) as currently only the Cambridge STEP Home Team Pilot has this position.

- Supportive Housing Start-up worker for 84 Frederick (YWCA K-W).

- Family STEP Home part-time worker serving Waterloo Region (YWCA-K-W).

- Two Rapid Re-Housing workers (one at YWCA-KW and one at Lutherwood) as currently all other emergency shelters have this position.

Coming Soon! Virtual Tours

This summer we took photos of all our Supportive Housing and Emergency Shelter sites to create virtual tours of these spaces. As part of the virtual tours, we will also include brief descriptions of the buildings and amenities. The first tours will be posted on our website beginning in October with the remainder posted over the fall. Check out the tours at our Emergency Shelter and Supportive Housing webpages at http://communityservices.regionofwaterloo.ca
New contact Information for Housing Services at the Region of Waterloo

Through our commitment to integrate Housing and Homelessness programs, some staff from Housing Programs and the Homelessness to Housing Stability Unit are now co-located on the 4th floor at 20 Weber St. Kitchener (see chart below). Housing Services also has staff at 235 King St. Kitchener and 150 Main St. in Cambridge who are remaining at those locations.

<table>
<thead>
<tr>
<th>Name (in alphabetical order)</th>
<th>Position</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amber Robertson</td>
<td>Social Planning Associate</td>
<td>519-575-4400 ext.4678</td>
</tr>
<tr>
<td>Angela Pye</td>
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<tr>
<td>Cynthia Dufault</td>
<td>Housing Coordinator</td>
<td>519-575-4789</td>
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<tr>
<td>Fauzia Baig</td>
<td>Social Planning Associate</td>
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<tr>
<td>Giuditta Poelzl</td>
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</tr>
<tr>
<td>Helen Georgiou</td>
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<td>519-575-4033</td>
</tr>
<tr>
<td>Jeffrey Schumacher</td>
<td>Supervisor, Housing Supply Initiatives</td>
<td>519-575-4821</td>
</tr>
<tr>
<td>Jennifer Murdoch-Martin</td>
<td>Manager Housing Programs</td>
<td>519-575-4005</td>
</tr>
<tr>
<td>Jody Brown</td>
<td>Social Planning Associate</td>
<td>519-575-4400 ext.4672</td>
</tr>
<tr>
<td>Judy Maan Miedema</td>
<td>Principal Planner</td>
<td>519-575-4400 ext.3328</td>
</tr>
<tr>
<td>Lisa-Dawn Brooks</td>
<td>Social Planning Associate</td>
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</tr>
<tr>
<td>Marie Morrison</td>
<td>Manager, Housing Stability</td>
<td>519-575-4400 ext.4671</td>
</tr>
<tr>
<td>Nicole Wildeboer</td>
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</tr>
<tr>
<td>Teresa Rafferty</td>
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<td>519-575-4400 ext.3771</td>
</tr>
<tr>
<td>Tristan Wilkin</td>
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<td>519-575-4400 ext.4673</td>
</tr>
<tr>
<td>Van Vilaysinh</td>
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</tr>
</tbody>
</table>

Region of Waterloo Housing Services

Address:
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Kitchener, ON N2H 1C3

Fax: 519-575-4026
Telephone: See list

If you have any questions about the information provided in this newsletter, please contact:

Marie Morrison at MMorrison@regionofwaterloo.ca
Or by phone at 519 575-4400 ext. 4671
FINAL REPORT:

PARAMEDIC SERVICES MASTER PLAN (2017-2027)

APEXPRO CONSULTING INC.
AUGUST 26, 2016
August 26, 2016

Mr. Jordan Steffler  
Strategic & Quality Improvement Specialist  
Public Health and Emergency Services  
Region of Waterloo  
99 Regina Street, South  
Waterloo, ON N2J 4V3

Dear Mr. Steffler:

PARAMEDIC SERVICES MASTER PLAN (2017-2027)

It is with great pleasure that we submit our final report on the above project.

As described within the report, EMS demand is escalating rapidly due to an aging population, and while Waterloo Region manages the Paramedic Services well, performance is falling behind due to insufficient EMS resourcing to meet demand.

Improving services through optimization has been an important aspect of this project. Significant attention was given to researching best practices and leading edge ideas, including advancements in incident triage, in-vehicle software interface to the dispatch centre (to replace voice dispatch), and community paramedicine.

Notwithstanding future success that may arise from optimization, our report concludes that additional EMS resources are needed to address the declining service level. Recommendations in this regard are included in the document.

The assessment within this report is intended to serve as an objective basis for Regional Council’s decision-making over the next 10 years; this, so as to ensure appropriate goals and resourcing of staff and equipment going forward, and for balancing service levels and costs.

It is our opinion that by developing this Master Plan, Waterloo Region has taken a proactive approach to future service planning, which will ensure the Region’s ongoing capability to provide residents with quality Paramedic Services, that are both timely and efficient.

Thank you for giving us the opportunity to work on this most interesting assignment.

APEXPRO CONSULTING INC.

[Signature]

Marvin Rubinstein  
President

c.c. Dr. Liana Nolan, Commissioner/Medical Officer of Health  
Stephen Van Valkenburg, Director/Chief Paramedic Services
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PREAMBLE

On June 16, 2015, following a decade of relatively rapid population growth and development, and a rapid escalation in EMS demand (of almost 50% over 10 years), Waterloo Regional Council directed staff ...

... to undertake a review of the original (2007) EMS Master Plan, including accomplishments and assumptions, and to prepare an update that will guide Paramedic Services decisions going forward the next 10 years (2017-2027), so as to ensure appropriate goals and resourcing of staff and equipment going forward ....

In July 2015 Regional staff initiated a request for proposals process to secure the services of a professional consulting firm to help carry out the assessment.

APEXPRO Consulting Inc.’s involvement in this project is the direct result of this request for proposals process. We submitted a Letter of Interest on August 13, 2015, and a Detailed Work Plan and Fee Proposal on September 24, 2015. We also attended a consultant selection interview on October 1, 2015.

Notice of project award was received on October 7, 2015, and the project officially commenced by way of an initial meeting with the Project Steering Committee on November 13, 2015. The Steering Committee consisted of Regional senior management and elected officials, who met at approximately 2-month intervals.

Project management was provided by a Core Project Team of senior staff from the Public Health Department, which periodically drew on the services of other departmental staff for professional, technical and administrative support.

A Project Manager serving on behalf of the Core Project Team was responsible for project coordination and progress oversight. APEXPRO met monthly with the Core Project Team, and liaised weekly with the Project Manager.

Our approach to this project was informed by previous experience, industry leading (best) practices, provincial legislation, and evidentiary and qualitative considerations derived from peer comparisons and stakeholder consultations. We consulted the following stakeholders:

- Regional Councillors (Steering Committee members)
- All levels of the Paramedic Services organization
  - Chief
  - Deputy Chiefs (3)
  - Operations Supervisors (2)
  - Paramedics including CUPE executives (20)
  - Professional Standards and Training Supervisors (2)
  - Fleet technicians (3)
  - Scheduling Coordinator
  - Program Assistant
- Senior staff from Waterloo Region Public Health, Facilities and Fleet, and Finance
- MOHLTC-operated Cambridge Central Ambulance Communications Centre (CACC)
- Local Fire Chiefs.
We thank all of the stakeholders who contributed to the successful outcome of this project, and in particular, we wish to acknowledge the following individuals.

PROJECT STEERING COMMITTEE

- Ken Seiling, Regional Chair
- Sue Foxton, Regional Councillor (North Dumfries)
- Helen Jowett, Regional Councillor (Cambridge)
- Geoff Lorentz, Regional Councillor (Kitchener)
- Jane Mitchell, Regional Councillor (Waterloo)
- Dr. Liana Nolan, Commissioner/Medical Officer of Health [Steering Committee Chair]
- Stephen Van Valkenburg, Director/Chief Paramedic Services
- Jane Albright, Commissioner Human Resources and Citizen Service
- Anne Schlorff, Director Public Health Central Resources
- Lee Parent, Manager, Financial Services

CORE PROJECT TEAM

- Dr. Liana Nolan, Commissioner/Medical Officer of Health [Core Project Team Chair]
- Stephen Van Valkenburg, Director/Chief Paramedic Services
- Dr. Hsiu-Li Wang, Associate Medical Officer of Health
- Anne Schlorff, Director Public Health Central Resources
- Celina Sousa, Manager Strategic and Quality Initiatives
- Jordan Steffler, Strategic & Quality Improvement Specialist [Project Manager]

PARAMEDIC SERVICES LEADERSHIP

- Stephen Van Valkenburg, Director/Chief Paramedic Services
- Kevin Petendra, Deputy Chief Operations
- Robert Crossan, Deputy Chief Logistics and Support
- Michael Adair, Deputy Chief Professional Standards

PROFESSIONAL, TECHNICAL AND ADMINISTRATIVE SUPPORT

- Arianne Folkema, Epidemiologist
- Stephen Drew, Health Data Analyst
- Kathy Proksch, Senior Administrative Assistant

Readers are advised that while this report is based in part on opinions expressed by the project Steering Committee, and in part on inputs provided by the Core Project Team and others, APEXPRO in its role as consultant takes responsibility for the findings and recommendations.

While the Client may choose to accept some or all of our recommendations, they also may decide to pursue alternative strategies.

Respectfully submitted,

APEXPRO CONSULTING INC.
EXECUTIVE SUMMARY

PAST ACCOMPLISHMENTS

The Region of Waterloo commenced direct delivery of Emergency Medical Services (EMS) as a Division of the Regional Public Health Department on December 3, 2000; this, following a provincial decision to transfer responsibility for land ambulance services to upper tier municipalities.¹

Shortly thereafter, the EMS Service was adapted to operate as a central deployment model from a headquarters and fleet centre located on Maplegrove Road. This decision was taken to ensure efficiency, flexibility and responsiveness in operations and performance going forward.

In November 2005, work began on the development of a 25-year EMS Master Plan that would review and build upon the EMS decisions that had been taken, and serve as a going forward planning framework by which to regularly evaluate EMS resourcing and operations relative to the Region’s future growth and development.

The 25-year EMS Master Plan was approved by Regional Council on December 4, 2007, and has served the Region well for the past 10 years.

During this period EMS demand increased by almost 50% to 45,000 vehicle responses in 2015 (up from 31,925 in 2006), yet despite the rapid escalation in EMS demand, EMS operations and performance continue to be reasonably well-managed.

EMS resources were added to meet demand over time as recommended by the original (2007) EMS Master Plan. Performance enabling technologies were introduced; and collaborative relationships with stakeholders were established and continue on an ongoing basis (i.e., with hospitals to manage offload delay; with Cambridge CACC to manage deployment and response time performance; and with local Fire departments for tiered response (medical assists).

EXCELLENCE IN PATIENT CARE is the Services’ primary focus. To this end, the primary emphasis is on consistency and quality of EMS services delivery. MOHLTC, which recently carried out an external certification review (in November 2015), commended the Service for its efforts in this regard.

While these accomplishments have come at an increased cost to Regional taxpayers, compared to peers, Waterloo Region continues to operate a relatively lean and cost-efficient Paramedic Service.

Compared to peers the Service employs proportionately fewer paramedics (20% fewer on average); proportionately fewer Operations Supervisors (30% to 40% fewer); and proportionately fewer personnel in most supporting functions. The Service also operates with proportionately fewer in-service hours (25% fewer on average).

¹ For reasons of convenience, this report uses the following terms interchangeably: paramedic services, Emergency Medical Services (EMS), and land ambulance services.
EMERGING FUTURE CHALLENGE

While Waterloo Region has continued to add EMS resources as recommended by the original (2007) EMS Master Plan, the added resources over the past 2 years have not been sufficient to keep up with the rapid surge in EMS demand, and service performance has fallen behind.

- Response time has increased to about 10 minutes in 2015, up from 9:29 in 2013 (measured at the 80th percentile).
- Unit utilization (UU) has increased to over 41% in 2015, up from 37% in 2013.
- Hospital offload delay has increased to 6,873 hours in 2015, up from 3,463 hours in 2013.
- Frequent periods in Code Yellow (3 or fewer ambulances) and in Code Red (no ambulances)

This situation is just the beginning of a trend. We are forecasting unprecedented growth in EMS demand due to an aging population. Total population is increasing at an average rate of 1.2% a year. Seniors growth is increasing more rapidly, at an average rate of 3.2% a year.

Seniors are currently 13% of the total population and they generate 43% of EMS responses. In 10 years, seniors will be over 17% of the total population, and in 15 years they will be 19% of the total – and will add considerably to EMS demand.
EMS demand is forecast to increase to 46,900 vehicle responses by year-end 2016; to 73,700 vehicle responses by 2026; and to 88,000 vehicle responses by 2031. These statistics represent a 60% increase over the next 10 years, and a 90% increase in the next 15 years.

The rapid escalation in EMS demand due to an aging population is not unique to Waterloo. This trend is affecting all Paramedic Services, posing significant challenges province-wide.

![EMS Demand Forecast Chart]

**SERVICE PLANNING GOING FORWARD**

By undertaking this Master Plan update Waterloo Region has taken a proactive approach to service planning going forward that will ensure the Region’s ongoing capability to provide residents with quality Paramedic Services, in a timely and efficient manner.

This updated Master Plan will serve as an objective basis for Council’s decision-making over the next 10 years (2017-2027), so as to ensure appropriate goals and resourcing of staff and equipment going forward, and for balancing service levels and costs.

The Master Plan contains long-term forecasts of:

- Future ambulance requirements (in Section 5)
- Facility infrastructure requirements (in Section 7)
- Future staffing requirements, for paramedics and all other Region of Waterloo support functions (in Section 8)
- Future capital and operating costs (in Sections 9, 10 and 11).

Forecasts are shown for three service level scenarios, represented by unit utilization (UU), a key performance indicator that is tied directly to response time and can be readily monitored to ensure that the Service continues to meet the growing demand.
The three service level scenarios are: current UU of 41%; and more favourable UU of 35% and 30%.

A UU of 35% is the recommended service level arising from the analysis, and is the basis for our recommendations going forward.

**OPTIMIZATION STRATEGIES**

Improving service delivery through optimization has been an important part of this Master Plan update, to which significant attention was given by researching best practices and leading edge ideas. Below are a number of the potential optimization strategies that we are recommending as a result of our research:

- Lobby MOHLTC for more discriminating incident triage software such as Advanced Medical Priority Dispatch System (AMPDS) which, according to users (including Toronto and Niagara), consistently triages closer to incident priority; thus providing greater flexibility in managing deployment of resources (particularly when the service’s capacity is stressed).

- Lobby MOHLTC for more advanced in-vehicle software such as HeadStart, an interface introduced in Niagara that automatically pages and transmits caller location to the closest available ambulance. HeadStart reliably reduces response times by as much as 60-90 seconds. We estimate that it would cost Waterloo Region a minimum of $3 to $5 million a year in additional resourcing to attain similar outcomes.

- Continue planning efforts to consolidate 911, police, fire and EMS emergency communications services; this, in order to attain a more rapid and coordinated public safety response to emergencies. Based on research and North American leading practices, consolidating emergency communications services will not reduce costs at the outset; albeit, cost savings will materialize over time.

- Hospital offload delay is a major pressure impacting paramedic services across Ontario. In Waterloo Region, offload delay presently equals the operating capacity of two 12-hour ambulances, and an estimated $1.4 million a year in ambulance spending. Collaborative efforts with local hospitals have successfully contained offload delay growth. Without these efforts, today’s offload delay would be much worse. It is recommended that current collaborative efforts be continued.
Community Paramedicine (i.e., wellness clinics, home visits, patient referrals, etc) is potentially a way in which paramedic services may help to improve outpatient care and reduce ambulance transports. Still at an early stage, the reported benefits are at best anecdotal. We recommend that the Public Health Department should recruit a “Paramedic Research Analyst” to flesh out a Waterloo strategy.

Waterloo Region is served by 3 Emergency Response Units (ERU) serving as EMS first responders primarily in the rural areas. The annual cost to operate 3 RERU is about $1.1 million (50% more than a 12-hour ambulance) and they reduce ambulance use by a small fraction. In consideration of these factors, and the rapidly escalating service demand, the short term priority should be to staff more ambulances.

The Paramedic Association of Canada, provincial regulatory bodies and educational institutions, are investigating the “scope of practice” for paramedics. This work may result in a narrowing of the gap between PCP and ACP, and by extension impact existing service delivery models. We recommend that Waterloo Region should temporarily defer recruitment of additional ACP until the research is complete.

Fire Departments operating in Waterloo Region assist with medical calls in accordance with terms set out in agreed-upon Tiered Response Agreements. According to several Fire Chiefs the present volume of medical assists is not overly taxing; however, the anticipated rapid escalation in EMS call volumes could pose an issue to some Fire departments. We recommend that the Region’s near-term priority should be on staffing more ambulances.

Clearly, a number of the optimization strategies that we investigated are beyond the Region’s direct control. Regardless, it is our opinion that they should be pursued either by way of provincial lobbying and/or business cases for change, and the information contained in this Master Plan can be used to such ends.

NEAR-TERM EMS RESOURCING REQUIREMENTS

Notwithstanding future success that may arise from optimization, additional EMS resources are still needed to address the declining service performance over the past two years (i.e., “catch up”), as listed below.

1. Increase peak staffing to 25 ambulances (up from the current 21). This will add 4 additional 12-hour shifts. Also increase shift readiness reserves by 1 additional ambulance.

2. To staff the 4 additional ambulance shifts, increase full-time paramedics to 134 FTE (up from the current 118), and increase part-time paramedics to 43.2 FTE (up from 39.2).

3. Increase the number of Operations Supervisors to a minimum of 10 FTE (up from the current 7 FTE).

4. Increase the number of Fleet Technicians to 11 FTE (up from the current 7 FTE).

5. Construct Breslau station (Station #11) which is already approved by Regional Council.

6. Construct a new headquarters and fleet centre (Station #12) to augment Maplegrove.
7. In concert with the new headquarters and fleet centre:
   a) Recruit an “Operations Manager” to manage the design and service realignment from central deployment model to divisional deployment centering about two fleet centres.
   b) Recruit an additional Logistics Supervisor to oversee the logistics functions at the second fleet centre (up from the current 1 FTE).

8. Increase the number of Supervisor vehicles to 8 (up from the current 6), this to accommodate the recommended increase in shift supervision, and the new Operations Manager position.

9. Augment the “Professional Standards” function with the following new positions:
   a) “Professional Standards Officer”
   b) “Training Coordinator”
   c) “Community Liaison Officer” to coordinate PAD, community education and stakeholder engagement
   d) “Performance & Data Analyst” to support the Services’ performance-based transition.

10. Incorporate operating budget allowances to cover the cost of escalating professional support requirements from other Regional departments, as follows:
   a) 1 additional FTE (Research Analyst) in the Public Health Department, to flesh out a Waterloo “Community Paramedicine” strategy
   b) 1.5 additional FTE in Corporate HR, to support near-term increases in paramedic staffing
   c) 1 additional FTE in Fleet Management, to manage Paramedic Services fleet expansion.

**SERVICE TARGETS GOING FORWARD**

The Region’s Response Time Performance Plan (RTPP) was also an important component of this Master Plan update. Our analysis concludes that Council’s approved response time targets are reasonable compared to EMS peers. However, performance has fallen behind due to insufficient EMS resourcing to meet demand.

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<tr>
<td>CTAS 5</td>
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<td>80%</td>
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** Sudden Cardiac Arrest (SCA) performance statistic excludes fire department assists
By adding “catch up” EMS resources at a recommended service level of 35% UU, response times will improve. On this basis, we recommend that Waterloo Region should maintain the present response time targets going forward to 2017 and 2018.

Both response time and unit utilization should be monitored regularly on a going forward basis, to ensure that the Service continues to meet the growing demand.
1 INTRODUCTION

1.1 CONTEXT

On December 4, 2007 Waterloo Regional Council approved a 25-year EMS Master Plan, to serve as:

- A long-term EMS strategic planning framework in support of the Regional Growth Management Strategy (RGMS), and
- As means by which to regularly evaluate and adjust EMS services relative to future land ambulance needs of the Region.

The Plan contained recommended response time targets, baseline service improvements, and projected resource needs for a 25-year planning horizon. The Plan also included a detailed implementation focus on the first 10 years (2007-2016).

On June 16, 2015, following a decade of relatively rapid population growth and development, and a rapid escalation in EMS demand (of almost 50% over 10 years), Waterloo Regional Council directed staff...

... to undertake a review of the original (2007) EMS Master Plan, including accomplishments and assumptions, and to prepare an update that will guide Paramedic Services decisions going forward the next 10 years (2017-2027), so as to ensure appropriate goals and resourcing of staff and equipment going forward ....

In July 2015 Regional staff initiated a request for proposals process to secure the services of a professional consulting firm to help carry out the assessment. The project terms-of-reference defined the project goals and scope of work as follows.

Goals

The new Paramedic Services Master Plan (2017-2027) will ensure the following goals:

- Quality of care
- The right care at the right place and the right time
- Resourcing levels to meet peak demand in a reasonable time

Scope

To accomplish these goals, the new Paramedic Services Master Plan (2017-2027) will include updated forecasts of future resourcing and operational requirements, and detailed multi-year operating and capital projections for the next 10 years.

The project will review and assess:

- Service Drivers: call volume and population projections
- Service Targets: response times (considering urban/rural differences) and self sufficiency measures (including code reds and cross border calls)
- Resources: including facility locations, staff and equipment requirements, staff mix and vehicle mix including use of Emergency Response Units (ERU), and deployment planning

- Optimizing response: including agency collaboration (dispatch and tiered response); and triage and destination protocols.

An objective moving forward will be to structure the Regional Paramedic Services as a self-sustaining service (as much as possible), taking into account the role of MOHLTC’s Central Ambulance Communications Centre (CACC), to dispatch the closest, available and most appropriate ambulance, even when this necessitates the deployment of an ambulance across Regional boundaries.

The project will review the current triaging and dispatch systems used by MOHLTC, and the consolidated dispatch model which Waterloo Region is currently evaluating. It also will review destination protocols and the possibility of transporting patients to destinations other than Emergency Departments, where applicable and appropriate.

1.2 MASTER PLAN OBJECTIVES

Below is APEXPRO’s interpretation of the new Paramedic Services Master Plan (2017-2027) objectives.

1. To comprehensively assess the capabilities of the Paramedic Services Division relative to the ambulance service needs of the Region for the next 10 years (2017-2027).

2. To inform service planning that will ensure the Region’s long-term capability to provide the right Paramedic care, at the right place and time.

3. To provide a forward-going systematic approach for the provision of high quality paramedic services:

   - That are appropriate to the needs of the Region for the next 10+ years
   - That are delivered promptly, effectively and efficiently with optimum numbers of personnel, facilities, equipment, and funding
   - That align with industry leading (best) practices and standards, and with provincial legislation and regulations for Ontario land ambulance operations.

4. To serve as a strategic blueprint / objective basis for Regional Council’s deliberations in respect to the future needs of the Paramedic Services Division.

1.3 PROJECT APPROACH

Our approach to this project was informed by previous experience, industry leading (best) practices, provincial legislation, and evidentiary and qualitative considerations, including:

- EMS incident records from the Ambulance Dispatch Reporting System (ADRS)
- Population growth and development plans provided by ROW Planning Department
- ROW Paramedic Services deployment and response time performance plans
- Collective bargaining agreement for Paramedic Services employees
- Fire tiered response agreements
- Ambulance service budgets (capital and operating) provided by ROW Finance Department.

The condition and suitability of existing ambulance stations was determined by way of a station tour and visual inspection.

Input was received from multiple stakeholders including:

- Regional Councillors (Steering Committee Members)
- All levels of the Paramedic Services organization
  - Chief
  - Deputy Chiefs (3)
  - Operations Supervisors (2)
  - Paramedics including CUPE executives (20)
  - Professional Standards and Training Supervisors (2)
  - Fleet technicians (3)
  - Scheduling Coordinator
  - Program Assistant
- Senior staff from Waterloo Region Public Health, Facilities and Fleet, and Finance
- MOHLTC-operated Cambridge Central Ambulance Communications Centre (CACC)
- Local Fire Chiefs.

Additional relevant information, in the form of peer comparisons, was drawn from Municipal Benchmarking Network Canada (MBNCanada), and from interviews with ambulance services of comparable size, including: Durham Region, Halton Region, Hamilton, Middlesex County, Niagara Region and Simcoe County.
2 HISTORICAL RETROSPECTIVE

2.1 TRANSFERENCE OF GOVERNANCE

In 1997, the Province of Ontario announced its intention to transfer responsibility for land ambulance services to upper tier municipalities (UTM), commencing with transference of financial responsibility in 1998 and overall governance by January 1, 2001.

Governance responsibility for the provision of land ambulance services within Waterloo Region transitioned to the Regional Municipality on December 3, 2000. The Region of Waterloo assumed the human and physical assets of the predecessor ambulance services (Cambridge Memorial Hospital Ambulance Service and Kitchener Waterloo Regional Ambulance (1987) Inc.), and commenced direct delivery of Emergency Medical Services (EMS) as a Division of the Regional Public Health Department.

In the ensuing years 2001 to 2005, the EMS operation was adapted to better serve the ambulance service needs of the Region. Changes included increased paramedic staffing, additional vehicles, new enabling technologies, and facility upgrades.

A key Regional decision that was taken during this period, was to adapt the Service to operate as a central deployment model from a “Headquarters and Fleet Centre” on Maplegrove Road. This decision was taken to ensure efficiency, flexibility and responsiveness in operations and performance going forward.

At the time, almost all Ontario EMS services utilized a “station deployment” model and therefore, Waterloo Region’s decision to implement “central deployment” was concurrently unique and innovative (i.e., forward thinking).

Since then, other Ontario EMS services (including Peel and Ottawa) have also adopted “central” deployment or variation thereof known as “divisional” deployment (centering about multiple geographic areas each with its own fleet centre and resourcing complement), in lieu of a station-based deployment approach; and additional EMS services (including Middlesex-London and Niagara) are moving, or developing plans to move in this direction.

2.2 EMS MASTER PLAN (2006-2031)

Waterloo Region has historically been one of the fastest growing communities in Canada. In June 2003, following extensive community consultations, Regional Council adopted the Regional Growth Management Strategy (RGMS), as a long-term strategy for guiding the Region’s future growth and development. RGMS aligns with Provincial policy set out in the Ontario Places to Grow Growth Plan for the Greater Golden Horseshoe (P2G).

In support of RGMS, work began in November 2005, on the development of a 25-year EMS Master Plan that would serve as a long-term strategic planning framework for the EMS Division, and provide the means by which to regularly evaluate and adjust EMS services relative to future land ambulance needs of the Region.

The EMS Master Plan was completed in late 2007. The Plan contained recommended response time targets and baseline service improvements, as well as projected resource needs for a 25-
year planning horizon. The Plan also included a detailed implementation focus on the first 10 years (2007-2016).

On December 7, 2007, Regional Council endorsed the following actions in regard to recommendations contained in the EMS Master Plan report:

1. Adopt 6 minutes, 90% of the time, as the Region’s community target time for arrival of a defibrillator at the scene of a cardiac arrest call;

2. Adopt 10 minutes 30 seconds, 90% of the time, as the Region’s EMS response time target for Code-4 emergency calls (from time crew notified until arrival at scene);

3. Adopt in principle, the recommended 25-year optimized staffing requirements necessary to maintain the 10 minute 30 second response time target, subject to a regular and ongoing review of needs and the annual budget process;

4. Approve the following baseline recommendations subject to the 2008 Budget process:
   - The addition of 1.25 FTE paramedics for an emergency response unit in the rural areas;
   - Investigate adding beneficial medical skills/procedures for area firefighters at the discretion of each area municipality;
   - Enhance the Region’s traffic light pre-emption infrastructure to allow EMS vehicles to change traffic lights during emergency calls;
   - Fund the acquisition of enhanced dispatch technologies to optimize dispatching through the current MOHLTC-operated Dispatch Centre;
   - Investigate the efficiency and effectiveness of other dispatch models relative to the current system;
   - Establish a community-wide public First Aid/CPR/PAD awareness program;
   - Standardize collection of agency response time data to enable development of a “community response time target” for cardiac arrests;
   - Work at the most senior levels with area hospitals and the provincial government to investigate alternate patient care pathways and limit the impact of hospital offload delays on EMS; and
   - Develop a formal advocacy plan to lobby for changes in provincial legislation to allow needed flexibility in local provision of EMS.

5. Adopt changes necessary in the 10-year Capital Plan to accommodate the recommended station construction and Fleet Centre renovation schedule that was included as an appendix to the report. The schedule recommended that additional funding be set aside for the construction of stations (in Downtown Kitchener, South Kitchener and in the northeast area of Waterloo), and for an expansion of the EMS Headquarters and Fleet Centre.

6. That staff be directed to prepare draft terms of reference for a Traffic Signal Pre-Emption Working Group and a Dispatch Model Review Working Group.
2.3 MAJOR ACCOMPLISHMENTS 2007-2016

The recommendations and forecasts set out in the original (2007) EMS Master Plan have served the Region well for the past 10 years. Major accomplishments attributed in whole or in part to the original Plan include:

Dispatch Model Review Working Group

A Dispatch Model Review Working Group was established in 2008, to investigate the full range of emergency dispatch services delivery options for Waterloo Region. The Working Group included Waterloo Regional Police Service (WRPS), Waterloo Region EMS, Kitchener Fire Department (which dispatches for self as well as Waterloo, Woolwich, Wellesley and Wilmot Fire Departments), and Cambridge Fire Department (which dispatches for self and for North Dumfries). The Working Group recommended ‘consolidation’ as the preferred delivery model for emergency communications services in Waterloo Region. Under WRPS’ leadership, emergency services operating in Waterloo Region have commenced initial planning towards this eventual outcome.

Traffic Signal Pre-Emption Working Group

A Traffic Signal Pre-Emption Working Group was established to investigate the use of traffic signal pre-emption devices and their impacts on roadway traffic. The Working Group included Waterloo Region EMS, local Fire departments, and Regional staff from the Transportation Department, Traffic and Transit. Following Regional Council’s approval of the Working Group’s recommendation (in 2010), traffic signal pre-emption devices were installed on EMS vehicles and Grand River Transit buses. Local municipalities have also installed traffic signal pre-emption devices on fire department vehicles.

Community Awareness and Response to Emergencies (CARE) Program

A Community Awareness and Response to Emergencies (CARE) Program was established as a working partnership between Waterloo Region EMS and local branches of the Heart and Stroke Foundation of Ontario, the Canadian Red Cross and St. John Ambulance, to co-ordinate the placement and ongoing maintenance of Public Access Defibrillators in Regional buildings, police vehicles, schools, and other public venues across the Region. The CARE program also provides public awareness sessions, encouraging CPR and First Aid training.

Response Time Targets

In July 2008, MOHLTC introduced an amended regulation to the Ontario Ambulance Act, which requires all municipal delivery agents, including Waterloo Region, to establish their own response time standards based on patient acuity, as defined by the Canadian Triage Acuity Scale (CTAS). CTAS categories are defined in Appendix C of this report.

In compliance with the new regulation, which came into force in October 2012, Waterloo Region has developed a Response Time Performance Plan (RTPP), which it reviews annually (using the previous year’s response times), and adjusts as appropriate. The RTPP established by Waterloo Region is discussed further in Section 4.2 of this report.
Rural Emergency Response Unit (RERU)

Regional Council approved the addition of a second Rural Emergency Response Unit (RERU) in 2008, and a third RERU was introduced in 2014. Operating primarily in the rural townships, the RERU serve as EMS first responders to enhance response time performance. The RERU operate year-round (365 days), each one on a 12-hour shift.

Hospital Offload Delays

Waterloo Region commenced discussions with hospital officials and the Community Care Access Centre (CCAC), to investigate alternate patient care pathways and limit the impact of hospital offload delays on EMS. Waterloo Region also secured provincial funding for recruitment of Emergency Department nurses to expedite the transfer of patient care. This dedicated funding is commonly referred to as offload nurse funding.

25-Year Optimized Staffing

The original (2007) EMS Master Plan included a long-term (25-year) forecast of future staffing requirements needed to maintain a 10 minute 30 second response time. Waterloo Region adopted this forecast as an optimal staffing requirement in principle, subject to regular and ongoing review of needs and the annual budget process. Over the past decade, Paramedic Services resourcing has been increased, generally in accordance with the original Plan’s staffing projections. Also, ROW Paramedic Services works closely with MOHLTC Cambridge CACC to manage EMS deployment and response area coverage.

10-Year Capital Plan for EMS Stations

In accordance with a recommended schedule set out in the original (2007) Plan, EMS Headquarters and Fleet Centre was expanded to accommodate fleet increases; new EMS stations were constructed in Kitchener (downtown and at Conestoga College); Wilmot station was relocated (Phillipsburg); and planning for the construction of a new station at Breslau is underway.

Skills Expansion for Firefighters

The EMS Master Plan included the following recommendation: investigate adding beneficial medical skills/procedures for area firefighters at the discretion of each area municipality. In this regard, Tiered Response Agreements with all area fire departments have been jointly reviewed and updated. There have been no requests from area fire departments, to augment firefighter medical skills.

Provincial Advocacy

The Regional Chair, Chief Administrative Officer (CAO), Commissioner/Medical Officer of Health, and Chief of Paramedic Services continue to work with their respective peers, including the Association of Municipalities of Ontario (AMO) and the Ontario Association of Paramedic Chiefs (OAPC), to lobby the province for EMS advancement.
2.4 TRANSITION TO A PERFORMANCE BASED SYSTEM

In 2013, Waterloo Region introduced “Excellence in Patient Care” as a major initiative to improve the consistency, quality, effectiveness, efficiency and accountability of EMS service delivery.

Supported by Regional senior administration and elected officials, the “Excellence in Patient Care” initiative has contributed to:

- Rebranding as the “Paramedic Services Division”, to more clearly convey the renewed emphasis on quality and prompt delivery of the services. ²
- Increased resourcing of staff and equipment.
- Expansion of the Logistics and Support (i.e., the vehicle readiness function) by two new positions: Deputy Chief and a Supervisor.
- Re-emphasis of the Professional Standards’ portfolio on Quality Assurance, risk management and accountability.
- Transparent and accurate reporting of operational performance on an ongoing basis.

In consideration of the parallels between the current ROW Paramedic Services and performance-based EMS systems operating in other jurisdictions, APEXPRO has concluded that...

ROW Paramedic Services is transitioning from a best efforts model (inherited by way of a provincial transference of governance in December 2000) to a “performance-based” EMS system ....

In November 2015, ROW Paramedic Services underwent an external Ambulance Service Review (ASR) by MOHLTC.

The ASR not only concluded that the Service meets Ontario regulations for certification, it also commended ROW Paramedic Services for its efforts relating to service, quality assurance, training and Human Resource Information (HRI) management.

In APEXPRO’s opinion, this commendation by MOHLTC is attributed in large part, to the initiatives taken by Waterloo Region in concert with the Services’ transition to a performance-based EMS system.

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² The reader is advised that for reasons of convenience, this report uses the following terms interchangeably: paramedic services, Emergency Medical Services (EMS), and land ambulance services.
3 SERVICE DRIVERS AND DEMAND

The rapid escalation in EMS demand (by almost 50% over the past 10 years) is tied intimately to growth in total population and seniors’ population.

The Paramedic Services Master Plan is predicated on future population projections that align closely with a “Moderate (Stretched) Forecast”. A variance analysis of this forecast relative to a faster pace of growth, namely “High (P2G)”, a forecast that aligns with “Places to Grow” legislation, is discussed in Section 6.

The Paramedic Services Master Plan timeframe is 10 years, 2017 to 2027. However, our analysis in support of the Master Plan carries forward 15 years to 2031.

By doing so, we have incorporated potential buffers for:

- Ongoing rapid growth in EMS service demand beyond the next decade, which will continue to influence the Region’s long-term future needs for additional vehicles, paramedics, supporting staff, and facilities infrastructure, as well as
- Additional future capital requirements that may arise within the 10-year master planning timeframe (2017-2027) under a faster pace of growth such as High Places to Grow (P2G).

3.1 SERVICE DRIVERS

Total population is forecast to increase at an average rate of 1.2% a year, from the current 580,000 persons, to 648,000 persons by 2026, and to 680,000 by 2031. This works out to an additional 10,000 Regional residents every 1.5 years.

Seniors growth is projected to increase more rapidly, at an average rate of 3.2% a year.

EXHIBIT 3.1: SERVICE DRIVER FORECASTS

![Population Forecasts](image-url)

![Percentage of Population Aged 65+](image-url)
Seniors are currently 13% of the total population and they generate 43% of EMS responses. In 10 years, seniors will be over 17% of the total population, and in 15 years they will be 19% of the total – and will place considerably higher demand on the Region’s Paramedic Services.

Growth forecasts by local municipality are shown in Exhibit 3.3 (below) and Exhibit 3.4 (next page). According to these forecasts, the relative population by community is essentially fixed for the master planning timeframe.

Kitchener, Waterloo and Cambridge collectively house about 90% of the current population. Going forward long-term, these three municipalities will continue to house over 88% of the total population. Woolwich and Wilmot will continue to house over 8% of the population; and North Dumfries and Wellesley will each house between 1% and 2%.
3.2 SERVICE DEMAND

In 2015, Waterloo Region generated 39,000 incidents requiring emergency medical assistance. Paramedic services responded with approximately 45,000 vehicle responses.

More accurately, ROW Paramedic Services responded with 99% of the vehicle responses, whereas neighbouring ambulance services (primarily Guelph-Wellington) performed about 1% (about 450 responses), when ROW Paramedic Services’ ambulances were otherwise occupied.

ROW Paramedic Services also performs vehicle responses on behalf of neighbouring ambulance services when they require assistance i.e., on behalf of Guelph-Wellington, Brant, Oxford and Perth ambulance services.

Based on historical records, ROW Paramedic Services performs over 500 cross-border responses annually, in neighbouring municipalities. This is roughly equal to the responses performed in Waterloo Region by neighbouring ambulance services.
Ambulance calls are dispatched by triage priority, ranging from Priority 1 (calls of lowest priority) to Priority 4 (calls of highest urgency / dispatch with lights and siren). Refer to ambulance dispatch priority definitions in Appendix B.

Exhibit 3.6 shows the geographic dispersion of all ambulance calls that were dispatched as Priority 4, for the 12-months Nov 1, 2014 to October 31, 2015. The exhibit includes all such calls attended by ROW Paramedic Services - both within the Region and in neighbouring municipalities (i.e., to the east in Guelph). It also includes calls in Waterloo Region that were attended by neighbouring ambulance services (primarily Guelph-Wellington).

As demonstrated by the exhibit, EMS demand aligns with land use density. Kitchener, Waterloo and Cambridge collectively house 90% of the population and generate 90% of EMS responses. Woolwich and Wilmot house 8% of the population and generate 8% of EMS responses. North Dumfries and Wellesley each generate about 1% of EMS responses.

APEXPRO’s projection of the future growth in EMS demand to 2031 is shown in Exhibit 3.7 (next page).

In 2015, EMS demand was reported to be approximately 45,000 vehicle responses (up from 31,925 in 2006). EMS demand is forecast to increase to 46,900 vehicle responses by year-end 2016; to 73,700 vehicle responses by 2026; and to 88,000 vehicle responses by 2031.

These statistics represent a 50% increase in vehicle responses over the past 10 years, a 60% increase in vehicle responses over the next 10 years, and a 90% increase in the next 15 years.
As noted previously, the rapid escalation in EMS service demand is tied intimately to total population growth and to seniors’ population growth, in particular. If one or both of these parameters increases at a faster pace, then so also will demand for EMS services increase more rapidly. Conversely, should population growth or seniors’ growth proceed more slowly, then so also will demand for EMS services proceed more slowly. The forecast growth in EMS demand by local municipality is shown below.

Row Planning Department provided information on approved and proposed future plans of subdivision. This information was used to develop “heat maps” showing how the demand for EMS services is anticipated to change over time, across the geographic area of the Region. The heat maps are shown in Exhibit 3.9 on the next page.
EXHIBIT 3.9: GEOGRAPHIC DISTRIBUTION OF EMS DEMAND OVER TIME
4 SERVICE PROFILE AND PRESSURES

4.1 SERVICE PROFILE

ROW Paramedic Services is responsible for the provision of land ambulance services within Waterloo Region, an area of 1,369 sq. km., currently housing about 580,000 residents.

The Service presently operates with a paramedic complement of 118 full-time and 39.2 part-time FTE, from 10 stations, including a fleet centre on Maplegrove Road. Stations are well-situated throughout the Region - 86% of incidents are within an 8-minute drive of an existing station, and 92% are within a 9-minute drive.

The Service is dispatched by the MOHLTC-operated Cambridge CACC, which deploys ambulances in accordance with a Deployment Plan developed by ROW Paramedic Services. The Plan makes effective use of paramedic service resources by prescribing: response time targets; resource scheduling; and priority postings that align to variations in demand.

In total there are 28 ambulances. Peak staffing is 21 ambulances and 3 Rural Emergency Response Units (RERU) that serve as EMS first responders primarily in the rural townships.

Demand for ambulance services fluctuates over each 24-hour period, increasing steadily from early hours of the morning, reaching a peak in the late afternoon / early evening. The pattern is similar across all days of the week. The Service aligns ambulance staffing to when calls occur.
4.2 RESPONSE TIME PERFORMANCE

Response time is defined as the interval between crew notification (T2) and their arrival on scene (T4). In this respect, response time (T2-T4) consists of two components, the first being getting ready to go mobile (T2-T3), and the second being the drive to scene (T3-T4).

For ROW Paramedic Services, the getting ready component (T2-T3) is typically 60 seconds or less, whereas the drive to scene may take upwards of 8 minutes or more, depending on traffic, weather and road conditions.

The methodology for municipal reporting of response time was originally set out by Regulation 257/00 of the Ontario Ambulance Act. The regulation required municipal delivery agents to report a 90th percentile response time for Pr. 4 calls (i.e., calls of highest urgency) relative to a provincial standard.

For the ROW Paramedic Services the 90th percentile response time standard for Pr. 4 calls was 10:30. This standard was intended to mean that 90 percent of all Pr. 4 calls will be responded to in a timeframe of 10 minutes and 30 seconds, or less.

In July 2008, MOHLTC introduced an amended regulation to the Ontario Ambulance Act, which requires that by October 31, 2012 and again each year thereafter, municipal delivery agents will provide the Ministry with a Response Time Performance Plan (RTPP) setting out ambulance response time targets by Canadian Triage Acuity Scale (CTAS). Performance relative to RTPP targets is to be assessed annually, and updated as appropriate. CTAS is defined in Appendix C.

Waterloo Region’s response time targets for 2015 and 2016 are shown in Exhibit 4.4.

<table>
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<tr>
<th>2015-16 RESPONSE TIME STANDARDS</th>
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<td>PERCENTAGE</td>
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<td>CTAS 1</td>
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<td>CTAS 3</td>
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<td>CTAS 4</td>
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</tr>
<tr>
<td>CTAS 5</td>
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</tbody>
</table>

** SCA performance statistic excludes fire department assists
The above exhibit also shows the actual level of performance for 2015. ROW Paramedic Services’ performance in 2015 was slightly below target in almost all CTAS categories. These results are consistent with those reported for prior years 2013 and 2014 (in Appendix D).

The ROW’s response time performance targets were compared to peer EMS services of comparable size. That information, also presented in Appendix D, reveals that the ROW’s targets for most CTAS categories are more stringent than those established by peers.

For internal planning and reporting of performance, ROW also benchmarks response time for Pr. 4 calls at a 50th percentile (median value) and an 80th percentile. Exhibit 4.5 shows these values for year 2015, organized by development density, as either urban, suburban or rural.

Exhibit 4.5: EMS RESPONSE TIMES (2015)

For urban areas of the Region (i.e., areas having significantly higher population and road network densities) EMS response time at an 80th percentile is reported as 9:35. For suburban areas it is 13:00 and for rural areas it is 15:44.  

Region-wide, the response time to medical emergencies is about 10 minutes at the 80th percentile. This value is driven primarily by relatively large numbers of ambulance calls originating in urban areas.

4.3 UNIT UTILIZATION

Response time is one key measure of paramedic service performance. Unit Utilization (UU) is another. UU is defined as the number of hours that an ambulance spends on task (T3-Tmax) relative to the number of hours on shift.

For example, if an ambulance were to spend 4 hours attending calls over a 12-hour shift, then its UU would be 33%. Alternatively, if an ambulance were to spend 6 hours attending calls over a 12-hour shift, then its UU would be 50%.

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3 Fire response to “structure” fires also vary by development density. The NFPA 1710 standard for “career” fire departments, is an initial response in 5 to 6 minutes or less at the 90th percentile. The NFPA 1720 standard for “volunteer” fire departments, is: urban - 15 firefighters within 9 minutes (90th percentile); suburban - 10 firefighters within 10 minutes (80th percentile); and rural - 6 firefighters within 14 minutes (80th percentile).
UU is typically reported for calls of priority 1 to 4, but may also be reported for priority 8 vehicle relocations (for standby coverage). UU may be reported for a single ambulance, or for the service as a whole, and for any time period – a shift, day, month or year.

Experience shows that response time and UU are directly related. Paramedic services that operate at high system-wide UU, typically have little or no capacity-in-reserve to address overlapping calls or external impediments (e.g., hospital offload delay), and their response times are relatively lengthy. Conversely, paramedic services which operate at low UU, typically have relatively large reserves of capacity (by design), and their response times are more rapid.

Experience also shows that it is undesirable to operate above an annualized system-wide UU upper threshold of 40% for an extended period.

In addition to lengthy response time, adverse impacts potentially include frequent / costly vehicle maintenance, frequent overtime, increased stress and labour concerns.

Leading practices would suggest targeting to a lower UU (potentially 30% to 35%), as this would contribute to: more optimal operations (vehicle use, overtime, labour), fewer response delays and more rapid response times.

According to MBNCanada data, the annualized system-wide UU for most peer EMS services ranges between 25% and 40%.

In comparison, as shown by Exhibit 4.6 (below) ROW Paramedic Services operated at over 41% UU in 2015, up from 37% in 2013; and response time in 2015 was about 10 minutes (at the 80th percentile), up from 9:29 in 2013.
4.4 SERVICE PRESSURES

4.4.1 Proportionately Fewer EMS Resources

APEXPRO compared ROW Paramedic Services to EMS peers of comparable size, i.e.: Durham Region, Halton Region, Hamilton, Middlesex County, Niagara Region and Simcoe County.

Organizational constructs vary among the peers. Position titles also vary. For example, some services use the term “Supervisor” whereas others use the term “Superintendent”. This notwithstanding, key functional components are consistent, regardless of the title assigned or where the function resides in the organizational construct.

To facilitate peer comparisons, we organized positions under four headings (i.e., Leadership, Admin. & Performance; Operations; Logistics and Support; and Professional Standards), and we adopted a common set of position titles.

The results, presented below, show that relative to EMS peers, ROW Paramedic Services employs proportionately fewer paramedics (20% fewer on average); proportionately fewer Operations Supervisors (30% to 40% fewer); and proportionately fewer personnel in most supporting functions. The Service also operates with proportionately fewer in-service hours (25% fewer on average).

<table>
<thead>
<tr>
<th></th>
<th>WATERLOO</th>
<th>EMS PEERS OF COMPARABLE SIZE</th>
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<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
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<tr>
<td><strong>LEADERSHIP, ADMIN. &amp; PERFORMANCE</strong></td>
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<td><strong>FLEET (AT PEAK STAFFING)</strong></td>
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<tr>
<td>ERU</td>
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</tbody>
</table>

EXHIBIT 4.7: PEER COMPARISONS
4.4.2 Response Time and UU are on the Rise

Despite the rapid escalation in EMS services demand in recent years, response time performance has been managed by periodically increasing paramedic resources, generally in accordance with the staffing recommendations set out in the original (2007) EMS Master Plan.


These investments notwithstanding, rapid call volume growth and ongoing hospital offload delays continue to strain existing EMS resources, as demonstrated by response times and unit utilization (UU), which again are on the rise (per Exhibit 4.8).

In 2015, the Service operated at a response time of about 10 minutes (at the 80th percentile), up from 9:29 in 2013; and UU was over 41%, up from 37% in 2013.

4.4.3 Extensive Periods in Code Yellow and Red

The strain on existing EMS resources is also demonstrated by extensive periods each day when the Service is in Code Yellow (3 or fewer ambulances are available to respond to the next call) and in Code Red (no ambulances are available / they all are tied up on calls) - this despite the Paramedic Services’ best efforts to align ambulance staffing to hourly variations in demand. This is shown in Exhibit 4.9 on the next page.
Despite the two additional ambulances that were introduced in July 2016, service performance is not expected to change significantly - this due principally to the projected rapid rise in service demand to almost 47,000 vehicle responses by year end (up from 45,000 in 2015).

4.5 SUMMARY

Based on factors such as those above, APEXPRO has concluded that ROW Paramedic Services requires a NEAR-TERM infusion of additional ambulances and paramedic staffing.

Since EMS demand will continue to escalate over the next decade and beyond, the Service will also require additional increases in paramedic resourcing on a going forward basis.

Forecasts showing the number of ambulances that will be needed going forward to 2031 are presented in Section 5.

The Service will also require additional supporting staff and facilities infrastructure. Facility infrastructure requirements are presented in Section 7, and staffing forecasts are presented in Section 8. Cost projections (capital and operating) are presented in Sections 9, 10 and 11.

The forecasts are shown for three (3) unit utilization (UU) scenarios: 41%, which is the Services’ current UU; and for more favourable UU of 35% and 30%, which will markedly improve response time performance, and contribute to more optimal EMS operations.
5 PROJECTED AMBULANCE REQUIREMENTS

This section presents forecasts showing the number of ambulances that will be needed going forward to 2031. These forecasts are driven by the projected growth in EMS service demand, discussed previously in Section 3.

The forecasts are for shifts of 12 hours’ duration, operating 365 days a year. This is consistent with current practices by ROW Paramedic Services and most EMS peers. The forecasts are shown for a UU of 41% (current), and for more favourable UU of 35% and 30%.

Peak staffing forecasts are presented in Exhibit 5.1 (below). The projections for 2017 are:

- 41% UU: 22 ambulances (up from current 21 ambulances)
- 35% UU: 25 ambulances (up from current 21 ambulances)
- 30% UU: 29 ambulances (up from current 21 ambulances)

Peak staffing forecasts beyond 2017 are summarized below.

- 41% UU: 23 ambulances in 2018 increasing to 39 ambulances by 2031.
- 35% UU: 26 ambulances in 2018 increasing to 44 ambulances by 2031.
- 30% UU: 30 ambulances in 2018 increasing to 52 ambulances by 2031.

AMBULANCE FORECASTS - PEAK STAFFING

Total ambulance requirements, including vehicles for shift readiness are shown in Exhibit 5.2 (next page).

These forecasts include an allowance for one additional ‘shift readiness’ vehicle for every two additional ambulances that are staffed at peak. Pursuing this approach, shift readiness vehicles, which currently represent 24% of fleet, will increase to 30% by 2031, in keeping with industry leading (best) practices.
Total projections for 2017 (including fleet readiness vehicles) are:

- 41% UU: 29 ambulances (up from current 28 ambulances)
- 35% UU: 33 ambulances (up from current 28 ambulances)
- 30% UU: 39 ambulances (up from current 28 ambulances)

Total projections (including fleet readiness vehicles) beyond 2017 are summarized below.

- 41% UU: 31 ambulances in 2018 increasing to 56 ambulances by 2031.
- 35% UU: 35 ambulances in 2018 increasing to 63 ambulances by 2031.
- 30% UU: 41 ambulances in 2018 increasing to 74 ambulances by 2031.

EXHIBIT 5.2: AMBULANCE FORECASTS - TOTAL VEHICLES

As discussed previously, both EMS demand and ambulance requirements are driven by growth in population, and the Region’s population for the next 15 years is forecast to increase by approximately 10,000 additional residents every 1.5 years.

If future population increases at a faster pace than currently anticipated, then so also will demand for EMS services increase more rapidly. Conversely, should future population growth proceed more slowly, then so also will demand for EMS services proceed more slowly.

Accordingly, the projected ambulance requirements beyond 2017 may be restated as follows:

- 41% UU: For every additional 10,000 residents,
  - Peak staffing requirement increases by an additional 1.9 ambulances
  - Total requirement (with fleet readiness) increases by an additional 2.9 ambulances.

- 35% UU: For every additional 10,000 residents,
  - Peak staffing requirement increases by an additional 2.1 ambulances
  - Total requirement (with fleet readiness) increases by an additional 3.2 ambulances.

- 30% UU: For every additional 10,000 residents,
  - Peak staffing requirement increases by an additional 2.5 ambulances
  - Total requirement (with fleet readiness) increases by an additional 3.8 ambulances.
6 VARIANCE ANALYSIS

The Paramedic Services Master Plan is predicated on the “Conservative (MoF)” population projection that aligns closely with the “Moderate (Stretched) Forecast”.

APEXPRO was asked to carry out a variance analysis of the two forecasts. We also were asked to conduct a variance analysis relative to a faster pace of growth forecast known as “High (P2G)”, which aligns with “Places to Grow” legislation.

These variance analyses are discussed respectively in Sections 6.1 and 6.2 below.

The three forecasts – Conservative (MoF), Moderate (Stretched), and High (P2G) – are shown in Exhibit 6.1. All three are year-end forecasts which include permanent residents and temporary student residents. For comparative purposes the graphic also includes a mid-year forecast that MoF publishes annually.

Over the past 15 years the Region’s year-over-year rate of growth has been about 1.4%.

The Conservative (MoF) forecast used in this project assumes a going forward growth rate of 1.0 to 1.1% per annum, as does the Moderate (Stretched) forecast. High (P2G) assumes a 60+% faster pace of growth, of about 1.8% per annum.

The High (P2G) forecast assumes a population of 707,900 by 2026. The Moderate (Stretched) forecast does not attain this population until 2033, and the Conservative (MoF) forecast does not reach it until 2035.
6.1 VARIANCE ANALYSIS RELATIVE TO THE MODERATE (STRETCHED) FORECAST

Region-wide, the maximum variance between the two forecasts - “Conservative (MoF)” and “Moderate (Stretched)” - is projected to be less than 2%. This maximum variance of 2% does not occur until 2036.

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<thead>
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<th>2011</th>
<th>2016</th>
<th>2021</th>
<th>2026</th>
<th>2031</th>
<th>2036</th>
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<td>Moderate (Stretched)</td>
<td>474.6</td>
<td>519.0</td>
<td>551.5</td>
<td>584.1</td>
<td>620.1</td>
<td>655.7</td>
<td>690.8</td>
<td>730.5</td>
</tr>
<tr>
<td>Variance</td>
<td>0.0</td>
<td>0.0</td>
<td>0.1</td>
<td>1.3</td>
<td>4.8</td>
<td>7.6</td>
<td>10.6</td>
<td>14.3</td>
</tr>
<tr>
<td>% Variance</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.2%</td>
<td>0.8%</td>
<td>1.2%</td>
<td>1.6%</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

By local municipality, 90% of the forecast variances are within 2.4%.

<table>
<thead>
<tr>
<th>municipality</th>
<th>2001</th>
<th>2006</th>
<th>2011</th>
<th>2016</th>
<th>2021</th>
<th>2026</th>
<th>2031</th>
<th>2036</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambridge</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.2%</td>
<td>-0.1%</td>
<td>1.1%</td>
<td>2.2%</td>
<td></td>
</tr>
<tr>
<td>Kitchener</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.2%</td>
<td>0.3%</td>
<td>0.4%</td>
<td>0.7%</td>
<td></td>
</tr>
<tr>
<td>Waterloo</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.5%</td>
<td>2.6%</td>
<td>2.1%</td>
<td>1.5%</td>
<td></td>
</tr>
<tr>
<td>North Dumfries</td>
<td>0.0%</td>
<td>0.0%</td>
<td>-0.1%</td>
<td>-1.8%</td>
<td>-5.8%</td>
<td>-4.7%</td>
<td>-2.4%</td>
<td></td>
</tr>
<tr>
<td>Woolwich</td>
<td>0.0%</td>
<td>0.0%</td>
<td>-0.1%</td>
<td>-0.7%</td>
<td>-1.5%</td>
<td>1.8%</td>
<td>3.9%</td>
<td></td>
</tr>
<tr>
<td>Wilmot</td>
<td>0.0%</td>
<td>0.0%</td>
<td>-0.1%</td>
<td>-0.6%</td>
<td>4.4%</td>
<td>-1.4%</td>
<td>-1.0%</td>
<td></td>
</tr>
<tr>
<td>Wellesley</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.1%</td>
<td>-0.5%</td>
<td>-0.6%</td>
<td>-0.7%</td>
<td></td>
</tr>
</tbody>
</table>

Percent seniors’ forecasts also align closely.

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2006</th>
<th>2011</th>
<th>2016</th>
<th>2021</th>
<th>2026</th>
<th>2031</th>
<th>2036</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservative (MoF)</td>
<td>11%</td>
<td>11%</td>
<td>12%</td>
<td>13%</td>
<td>15%</td>
<td>17%</td>
<td>19%</td>
<td>21%</td>
</tr>
<tr>
<td>Moderate (Stretched)</td>
<td>11%</td>
<td>11%</td>
<td>12%</td>
<td>14%</td>
<td>16%</td>
<td>18%</td>
<td>20%</td>
<td>23%</td>
</tr>
<tr>
<td>Variance</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>2%</td>
</tr>
</tbody>
</table>

In consideration of these findings, we affirm that the Conservative (MoF) and Moderate (Stretched) forecasts align closely.

6.2 VARIANCE ANALYSIS RELATIVE TO THE HIGH (P2G) FORECAST

Region-wide, the variance in population between “Conservative (MoF)” and “High (P2G)” is projected to be about 5% in 2021, increasing to 9% by 2026, 13% by 2031, and to 17% by 2036.
The two forecasts are based on the same seniors’ population targets: 15% by 2021, increasing to 17% by 2026, to 19% by 2031, and to 21% by 2036.

<table>
<thead>
<tr>
<th>% OF POPULATION AGED 65+</th>
<th>2001</th>
<th>2006</th>
<th>2011</th>
<th>2016</th>
<th>2021</th>
<th>2026</th>
<th>2031</th>
<th>2036</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservative (MoF)</td>
<td>11%</td>
<td>11%</td>
<td>12%</td>
<td>13%</td>
<td>15%</td>
<td>17%</td>
<td>19%</td>
<td>21%</td>
</tr>
<tr>
<td>High (P2G)</td>
<td>11%</td>
<td>11%</td>
<td>12%</td>
<td>14%</td>
<td>15%</td>
<td>17%</td>
<td>19%</td>
<td>21%</td>
</tr>
<tr>
<td>Variance</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Exhibit 6.2 shows the projected growth in EMS service demand under the two population forecasts.

The variance analysis results are summarized below. The variance analysis compares Conservative (MoF) projections in 2031, to the faster pace of growth forecast High (P2G) in 2026.

Although the population forecast under Conservative (MoF) is lower, the projected seniors’ growth is higher. Since seniors’ population is the primary service driver of EMS demand, the 2031 demand projected by Conservative (MoF) is higher than the demand projected by High (P2G) in 2026.
High (P2G) forecasts of future ambulance (vehicle) requirements are shown in Exhibit 6.3.

The variance analysis results, summarized below, show that the projected 2031 requirements for Conservative (MoF) are higher than those for High (P2G) in 2027.

<table>
<thead>
<tr>
<th>TOTAL AMBULANCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT UTILIZATION</td>
</tr>
<tr>
<td>CONSERVATIVE (MoF) – 2031</td>
</tr>
<tr>
<td>HIGH (P2G) – 2027</td>
</tr>
<tr>
<td>DIFFERENCE</td>
</tr>
</tbody>
</table>

Based on these results we have concluded that, although our analysis is based on Conservative (MoF), a relatively lower rate of growth compared to High (P2G), by carrying the analysis forward 15 years to 2031 we have incorporated potential buffers for:

- Ongoing rapid growth in EMS service demand beyond the next decade, which will continue to influence the Region’s long-term future needs for additional vehicles, paramedics, supporting staff, and facilities infrastructure, as well as
- Additional future capital requirements that may arise within the 10-year master planning timeframe (2017-2027) under a faster pace of growth such as High Places to Grow (P2G).
7  PROPOSED FACILITY REQUIREMENTS

7.1  CENTRAL DEPLOYMENT

As discussed previously in Section 2, shortly after Waterloo Region assumed governance responsibility for land ambulance services, a decision was taken to adapt the EMS Service to operate as a central deployment model from a headquarters and fleet centre located on Maplegrove Road. Regional Council took this decision in order to ensure efficiency, flexibility and responsiveness in operations and performance going forward.

At the time, almost all Ontario EMS services utilized a “station deployment” model and therefore, Waterloo Region’s decision to implement “central deployment” was concurrently unique and innovative (i.e., forward thinking).

Since then, other Ontario EMS services (including Peel and Ottawa) have also adopted “central” deployment or variation thereof known as “divisional” deployment (centering about multiple geographic areas each with its own fleet centre and resourcing complement); and additional EMS services (including Middlesex-London and Niagara) are moving, or developing plans to move in this direction.

Brief descriptions of the two deployment approaches are presented below in Exhibit 7.1. While both approaches have advantages and disadvantages, on balance the information presented supports central deployment as a preferred model.

More importantly, the central deployment model implemented by Waterloo has served the Region well, and continues to do so, demonstrating efficiency, flexibility, responsiveness and accountability in both operations and performance.

<table>
<thead>
<tr>
<th>MAIN FEATURES</th>
<th>STATION DEPLOYMENT</th>
<th>CENTRAL DEPLOYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Paramedics and vehicles start and end shifts at a designated station, and each individual station is designed to be self-sustaining. Each station generally includes: stores for regulated medications, for spare equipment, linens and supplies replacement; locker rooms and showers in addition to washrooms; and on-site facilities for deep cleaning of vehicles and equipment. Paramedics working out of the station are responsible for ensuring that vehicles are clean and fully stocked. Incoming crews are required to check vehicles and equipment at shift change. Twenty minutes at start of shift is generally set aside for such purposes.</td>
<td>All paramedics and vehicles start and end shifts at the central fleet centre. Central stores for regulated medications, for spare vehicles, and for equipment and supplies replacement. Specialized staff (fleet technicians) at the fleet centre carry out ambulance readiness functions (cleaning, inspection, and restocking of vehicles and equipment) and inventory management, under the oversight of a supervisor.</td>
</tr>
</tbody>
</table>

EXHIBIT 7.1: STATION-BASED VS. CENTRAL DEPLOYMENT
ADVANTAGES / DISADVANTAGES

<table>
<thead>
<tr>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>In practice, vehicle inspections are generally rudimentary. Also, responding to a high priority call takes precedent. Occasional downsides include compromised or missing equipment, risk of waste and expiry of less utilized stock/medications. Less consistent management of fleet, including deep cleaning. Occasional delays to incoming crews when a vehicle return is delayed beyond end of shift. Occasionally, time is wasted retrieving equipment or trying to find a piece of equipment in a vehicle that is in service at one of the stations. Logistics and Support technicians are required to transport stock to stations, and vehicles to service depots and back to station following maintenance/repair. Without aggressive oversight by Supervisors, the Service runs a relatively higher risk for non-compliance to MOHLTC certification standards.</td>
<td>Opportunity for paramedics to have face time with an Operations Supervisor at start and end of shift. Increased flexibility to fill short-notice vacancies in shift scheduling. Centralized tracking and control (i.e., increased security) for medications, equipment and supplies. More consistent and thorough inventory management. More consistent and thorough management of fleet work, including regularly scheduled deep cleaning. Increased accountability, ensuring that fleet work is carried out to specified standards, and performed cost-effectively in a timely manner. Greater assurance of vehicle and equipment readiness at start of paramedic shift assignments. Less downtime for crews due to readily available central depository for spare vehicles, equipment and supplies. Greater assurance that MOHLTC standards for vehicles and equipment are met. Deployment stations are tailored to basic coverage (i.e., no need for significant stores, lockers, showers, cleaning bays, etc).</td>
</tr>
</tbody>
</table>

7.2 HEADQUARTERS AND FLEET CENTRE

The Maplegrove facility was originally built in 2004 with the subsequent addition of a garage expansion in 2011. The administration component of the building (which includes offices, meeting space et al) is about 7,300 sq. ft. The fleet centre component (i.e., garage) has a usable space of about 11,000 sq. ft.

Paramedic Services resourcing (paramedics, supervisory and supporting staff, and fleet) has increased substantially in the past decade, and currently exceeds the capacity at Maplegrove.

The garage component currently has a shortfall of about 3,000 sq. ft. This means that currently there is not enough space available in the garage, to make ready and store all off-duty ambulances indoors, as required by MOHLTC, and in the short term ROW Paramedic Services is having to use borrowed space.

Within the administration component of the facility there currently is not enough space for all of the staff and functions that need to be carried out. Significantly more room is needed to
accommodate the present requirements for office space, meeting room space, training room space, and locker room space. There also is not enough space in the outdoor parking lot to accommodate staff and visitors’ vehicles.

Since the Services’ resourcing requirements are projected to increase substantially over the next 15 years, so also will the need for additional space at Headquarters and the Fleet Centre increase – particularly, the requirement for additional garage space to accommodate off-duty ambulances indoors, as required by MOHLTC.

The projected garage space requirements are shown in Exhibit 7.2 for three service level scenarios, as represented by unit utilizations (UU) of 41%, 35% and 30%.

EXHIBIT 7.2: PROJECTED FLEET CENTRE (GARAGE) SPACE REQUIREMENTS

<table>
<thead>
<tr>
<th>UNIT UTILIZATION</th>
<th>41%</th>
<th>35%</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROJ’D REQ’T (SQ. FT.)</td>
<td>GROSS</td>
<td>SHORTFALL</td>
<td>GROSS</td>
</tr>
<tr>
<td>2016</td>
<td>14,000</td>
<td>(3,000)</td>
<td>16,000</td>
</tr>
<tr>
<td>2021</td>
<td>18,000</td>
<td>(7,000)</td>
<td>22,000</td>
</tr>
<tr>
<td>2026</td>
<td>23,000</td>
<td>(12,000)</td>
<td>28,000</td>
</tr>
<tr>
<td>2031</td>
<td>28,000</td>
<td>(17,000)</td>
<td>34,000</td>
</tr>
</tbody>
</table>

At a UU of 41%, the projected garage space requirements are 18,000 sq. ft. by 2021, 23,000 sq. ft. by 2026, and 28,000 sq. ft. by 2031; and given that Maplegrove current has a usable space of about 11,000 sq. ft., Waterloo Region will require an increase in garage space of 7,000 sq. ft. by 2021, 12,000 sq. ft. by 2026, and 17,000 sq. ft. by 2031.

At a UU of 35%, the shortfall in garage space (relative to current) is projected to be 23,000 sq. ft. in 2031; and at a UU of 30%, it is projected to be 29,000 sq. ft. in 2031.

There is not enough land available at Maplegrove to accommodate a major building expansion. Regardless, based on best practices, it is preferable not to concentrate all fleet activities at the one location; this, given the planned expansion of development throughout the Region.

In consideration of the above factors, we have concluded that a new headquarters and fleet centre is presently needed to augment the space at Maplegrove. Our analysis assumes that a new HQ/fleet centre will be operational by year end 2018. This assumption aligns with timeframes for such a facility that were set out in the original (2007) EMS Master Plan.

The location of a new facility is yet to be determined. From discussions with Facilities Management, there are several potential sites; one being the Waterloo Region Emergency Services Training and Research Complex (WRESTRC) site.

In our opinion, the new headquarters and fleet centre should be of size sufficient to accommodate the projected resourcing requirements for a minimum of 15 years (to 2031).
Based on peer comparisons, this would be:

- An overall building size of 40,000 to 43,000 sq. ft. A building of this size could potentially also house a Regional Emergency Operations Centre (EOC).

- A fleet centre (garage) component within the building envelope, of at least 23,000 sq. ft. (based on a preferred UU of 35%). At this size the fleet centre can also function as a deployment station for up to 2 ambulances.

Once the new facility is implemented, the current central deployment model will need to be adjusted to a divisional deployment model centering about two geographic areas, each one having a complement of assigned vehicles, paramedics, supervisory and supporting staff; a fleet centre (where paramedics will start and end their shifts); and multiple deployment stations.

7.3 DEPLOYMENT STATIONS

ROW Paramedic Services currently operates from 10 stations, including Maplegrove. Some stations are stand-alone; others are joint with Fire. All stations have drive-through capability, and indoor parking for 1 to 2 vehicles.

Stations vary in age from 1 to 20+ years. All but two appear to be functionally suitable for ongoing paramedic services operations.

Station #02 (Waterloo at the corner of Westmount and University), a former fire station, will need to be replaced over time for reasons of age, condition and environment. Similarly, Station #03 (co-located with Kitchener Fire at Queen and Fisher-Hallman) will also need to be replaced.

According to our forecasts, at 41% UU the Services’ long-term (15-year) requirement is 14 stations. At 35% it is 15, and at 30% it is 18 stations.

<table>
<thead>
<tr>
<th>UNIT UTILIZATION</th>
<th>41%</th>
<th>35%</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>2021</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>2026</td>
<td>12</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>2031</td>
<td>14</td>
<td>15</td>
<td>18</td>
</tr>
</tbody>
</table>

The map in Exhibit 7.4 (next page) shows the optimum locations for replacement stations, and future new stations in priority sequence, based on our assessment of future service demand growth.

All new stations should feature a 1-storey building of approximately 2,000 sq. ft., with indoor garage for up to two vehicles.
The chart in Exhibit 7.5 shows the recommended timetable for future facility construction (based on a preferred UU of 35%). The timetable is subject to periodic review and the annual budget process.

**EXHIBIT 7.5: RECOMMENDED TIMETABLE FOR FUTURE FACILITY CONSTRUCTION**

<table>
<thead>
<tr>
<th>RECOMMENDED TIMETABLE FOR FUTURE FACILITY CONSTRUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>NEW</em> deployment station (#11 - Breslau) in 2017 *</td>
</tr>
<tr>
<td><em>NEW</em> headquarters and fleet centre (Station #12) by year-end 2018</td>
</tr>
<tr>
<td>Replace Station #02 (Waterloo) in 2020 and Station #03 (Kitchener) in 2022</td>
</tr>
<tr>
<td><em>NEW</em> deployment stations (#13 to #16) at a going-forward pace of one station every 2 years, beginning in 2024</td>
</tr>
</tbody>
</table>

* *Breslau station has already been approved by Regional Council*
8 PROJECTED STAFFING REQUIREMENTS

8.1 ORGANIZATIONAL STRUCTURE

The current organizational structure, shown in Exhibit 8.1, aligns to paramedic services leading practices.

Leadership is provided by a Director/Chief who reports to the Commissioner of Public Health. The Chief is supported by Deputy Chiefs who respectively are responsible for Operations, Professional Standards, and Logistics and Support.

Full-time and part-time paramedics deliver the EMS services. Other personnel are responsible for operations, scheduling, logistics, professional standards, training and administration.

The Service receives professional support as required from other areas of the Corporation, including budget and financial services support, facilities and fleet management, performance and data analysis, IT support, legal support, and Human Resources advisory services.

Informed by previous experience, our analysis of the Services’ staffing requirements is predicated on the following principles. In this, a primary objective is to ensure the Services’ successful transition and ongoing future operations as a performance-based system:

- Build on the Services’ existing organizational structure, which aligns to paramedic services leading practices for risk and quality management.
Organizational resourcing at a level appropriate to the land ambulance services needs of the Region, as defined by principal service drivers (i.e., total population and seniors’ growth).

Preserve a cost-efficient level of resourcing, drawing additional expertise when needed from other areas of the Corporate Administration.

Sustain an organizational structure that is of relatively simple design, and manageable in terms of the number of levels of authority, and clearly defined functional accountabilities.

Maintain organizational flexibility, capable of accommodating changes in scale and form, in response to external factors (i.e., future variations in growth and development).

Make use of service enhancing technology where available.

The Transitional Staffing Model shown below is our recommended organizational structure going forward.

EXHIBIT 8.2: TRANSITIONAL STAFFING MODEL

For the reader’s convenience, structural changes to the Division (new positions) are shown in red. Divisional functions requiring near-term staffing increases are shown in green, and support services staffing increases are shown in blue.

Staffing changes, including long-term (15-year) staffing forecasts, are discussed on the following pages.
### 8.2 LONG-TERM (15-YEAR) STAFFING FORECASTS

Long-term staffing forecasts for 41% UU are shown in Exhibit 8.3. Forecasts for 35% UU are shown in Exhibit 8.4, and those for 30% UU are shown in Exhibit 8.5 (next page).

#### EXHIBIT 8.3: STAFFING FORECAST – 41% UU

<table>
<thead>
<tr>
<th>YEAR</th>
<th>POP'N (IN THOUSANDS)</th>
<th>VEHICLES</th>
<th>LEADERSHIP, ADMIN. &amp; PERFORMANCE</th>
<th>OPERATIONS</th>
<th>LOGISTICS &amp; SUPPORT</th>
<th>PROFESSIONAL STANDARDS</th>
<th>TOTAL FTE</th>
<th>CHANGE FROM PREVIOUS YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>582.8</td>
<td>28</td>
<td>1</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>181.7</td>
<td>--</td>
</tr>
<tr>
<td>2017</td>
<td>588.9</td>
<td>29</td>
<td>1</td>
<td>10</td>
<td>1</td>
<td>1</td>
<td>196.7</td>
<td>15.0</td>
</tr>
<tr>
<td>2018</td>
<td>595.3</td>
<td>32</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>203.7</td>
<td>7.0</td>
</tr>
<tr>
<td>2019</td>
<td>601.7</td>
<td>34</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>208.7</td>
<td>5.5</td>
</tr>
<tr>
<td>2020</td>
<td>608.5</td>
<td>36</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>214.7</td>
<td>11.0</td>
</tr>
<tr>
<td>2021</td>
<td>615.3</td>
<td>38</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>220.2</td>
<td>6.0</td>
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<td>2022</td>
<td>621.5</td>
<td>40</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>226.2</td>
<td>5.0</td>
</tr>
<tr>
<td>2023</td>
<td>628.0</td>
<td>42</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>232.2</td>
<td>12.0</td>
</tr>
<tr>
<td>2024</td>
<td>634.6</td>
<td>44</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>238.2</td>
<td>7.0</td>
</tr>
<tr>
<td>2025</td>
<td>641.5</td>
<td>46</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>244.2</td>
<td>5.5</td>
</tr>
<tr>
<td>2026</td>
<td>648.1</td>
<td>48</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>250.2</td>
<td>12.0</td>
</tr>
<tr>
<td>2027</td>
<td>654.1</td>
<td>50</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>256.7</td>
<td>6.5</td>
</tr>
<tr>
<td>2028</td>
<td>660.4</td>
<td>52</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>263.2</td>
<td>5.5</td>
</tr>
<tr>
<td>2029</td>
<td>666.9</td>
<td>54</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>270.2</td>
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#### EXHIBIT 8.4: STAFFING FORECAST – 35% UU

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<th>YEAR</th>
<th>POP'N (IN THOUSANDS)</th>
<th>VEHICLES</th>
<th>LEADERSHIP, ADMIN. &amp; PERFORMANCE</th>
<th>OPERATIONS</th>
<th>LOGISTICS &amp; SUPPORT</th>
<th>PROFESSIONAL STANDARDS</th>
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8.3 STAFFING CHANGES GOING FORWARD

8.3.1 Administrative & Clerical Support

Present incumbents serve as a central resource, providing administrative support to the Divisional management team and customer service to others, including clients, other Regional departments, and members of the public.

The incumbents report administratively to Public Health Central Resources. This arrangement, while somewhat unique to the industry, appears to work well.

The existing staff complement is 1.5 FTE, which includes 1 FTE working full-time and 0.5 FTE working part-time. Among peer EMS services, staff reporting for corresponding functions is a minimum of 2 FTE, increasing to 3 FTE or more for services employing larger paramedic staff complements, this as shown previously in Exhibit 4.7.

The full-time incumbent is a unionized employee, whereas the part-time incumbent is management excluded. Given the nature of the administrative function, which requires frequent access to personnel records, the conventional practice across emergency services organizations (police, fire, and ambulance), is to staff this position as management excluded.

Conclusions: In keeping with conventional practice both positions should be designated as management excluded. The staffing levels are presently sufficient, but should be increased to 2.0 FTE when the full-time paramedic complement exceeds 175 FTE.
8.3.2 Performance & Data Analyst

This is a suggested structural change to the Division (i.e., a new position). The position will perform the following functions:

- Track quality performance of the operations on an ongoing basis
- Track logistics practices, professional standards practices, training practices, and risk on an ongoing basis
- Perform service planning relevant to divisional operations, including front-line deployment and delivery support
- Document ongoing analyses and provide periodic reporting.

ROW Paramedic Services currently receives some of these services from Public Health Central Resources. Overall, the arrangement works well; however, in our opinion, 1 FTE dedicated to these functions is needed to support the Services’ transition to a performance-based system.

This opinion is consistent with the approach adopt by peer EMS services where, as shown by Exhibit 4.7, staffing for corresponding functions is a minimum of 1 FTE. The function typically reports to a member of the senior leadership team.

Conclusions: Introduce a “Performance & Data Analyst” position to support the Services’ transition to a performance-based system. The position should be staffed with 1 FTE working full-time. It should be filled in 2017, and should initially report to the Chief.

8.3.3 Operations Supervisors

Operations Supervisors are responsible for monitoring and coordinating the continuous operations of the Paramedic Services division on a 24/7 basis; and for ensuring quick, competent and effective services that satisfy established standards and legislative regulations for quality performance, health and safety, and certification for land ambulance operations.

To such ends, Operations Supervisors are required to perform a vast range of duties, including:

- Supervises and oversees the operation of the division’s personnel, vehicles and other resources during an assigned shift. Maintains the shift schedule, arranging staff as required to cover identified routine and emergency needs. Ensures that scheduling of full-time and part-time staff is conducted with strict adherence to collective agreement requirements. Ensures staff meals and other breaks are provided in accordance with legislation and collective agreement requirements.

- Ensures that personnel assigned to a shift report on time, fit for duty, properly attired, and aware of the safe, normal or special requirements of each work assignment.

- Directly supervises on-duty Paramedics and support staff. Assists in the interviewing and selection. Provides training. Assigns and monitors work. Investigates unusual incidents and initiates appropriate action, including discipline up to and including suspension. Counsels employees regarding performance improvement. Identifies staff requiring additional training, and recommends same to management through written performance
assessment reports. Makes recommendations to division management for long-term suspension or termination. Participates in grievance proceedings, as appropriate.

- Patrols the coverage area. Monitors and evaluates individual paramedic performance. Provides guidance and assistance to staff in performance of their duties. Gives direction and recommends action to supervised staff on health and safety issues, and ensures that the Occupational Health and Safety Act and other related legislation is followed.

- Ensures the operational readiness of fleet and stations through random inspections. Takes appropriate action to ensure maintenance of stations, and control of inventory, supplies, and equipment. Ensures that vehicles and equipment are maintained at a high standard of cleanliness and preparedness, liaising with Fleet Services regarding vehicle repair and maintenance needs. Ensures that CACC is notified of vehicles removed from services and that the fleet status board is updated.

- Carries out first response activities. Functions as Officer in Command, in the absence of senior management, at multi-casualty or other significant incidents.

- Ensures adherence to health and safety standards. Functions, in the absence of senior management, as primary Designated Officer for follow up of staff exposure to body fluids or other potentially infectious disease contacts. Provides staff support and guidance, including referral to Critical Incident Stress debriefing and professional counseling through the Employee Assistance Program, when appropriate.

- Conducts investigations on accidents involving Regional vehicles, unusual occurrences and/or complaints. Conducts the initial investigation and reports on patient care and other call-related complaints received. Reports major incidents to division management as per established protocol. Ensures that reports are submitted in a timely fashion for processing.

- Maintains shift reports. Passes information relevant to the assigned shift to the oncoming supervisor. Reviews monitoring devices for driving infractions and takes appropriate action. Reviews Ambulance Call Reports (ACRs), ensuring that an ACR is completed for each patient contact recorded by the CACC. Reviews all incident reports for accuracy and completeness. Assists in the formal chart audit program as assigned.

- Participates on committees and working groups as required. Liaises with other health care and emergency agencies to promote good relations. Participates in public relations and marketing activities to increase the profile and awareness of the division in the community. Acts as the division’s initial media contact with regards to incident information.

- Verifies daily payroll entries and approves travel expense reports and inventory requisitions for supplies. Authorizes emergency vehicle repairs and towing. Authorizes overtime and emergency staffing, as well as other incident support costs such as meals/refreshments, small repair parts, and tools. Monitors expenditures within area of authorization and alerts management when variances from target occur or are projected.

To deliver on such responsibilities, and for reasons of risk management, the conventional practice among peer EMS services is to staff each shift with a minimum of two (2) Operations Supervisors.
To attain this target, a minimum of 10 FTE are required - 8 FTE for round-the-clock coverage plus 2 FTE (25%) for backfill. The number of Operations Supervisors employed by similar-sized EMS services operating in Ontario ranges from 10 FTE to 14 FTE (where additional supervisory staffing is assigned to busier shifts).

In contrast, ROW Paramedic Services operates with 7 FTE. Weekday day shifts are staffed with 2 Operations Supervisors, whereas coverage at night and on weekends is reduced to one.

Operating with 7 FTE diminishes the Services’ capability to fulfill the vast responsibilities of the position, as listed above. It also requires each Operations Supervisor to directly supervise up to 30 on-duty Paramedics – this, in comparison to peer EMS services, where Operations Supervisors directly supervise an average of 25 paramedics.

Conclusions: The number of Operations Supervisors should be increased to a minimum of 10 FTE (up from the current 7 FTE). This change should be implemented in 2017. Increasing the number of Operations Supervisors to a minimum of 10 FTE will result in a paramedics-to-Operations Supervisor ratio of 25:1. This ratio should be adopted as a going forward standard for determining future Operations Supervisor staffing level requirements.

8.3.4 Operations Manager

This is a suggested structural change to the Division (i.e., a new position).

As discussed previously in Section 7, we have concluded that ROW Paramedic Services presently requires a new headquarters and fleet centre to augment the space at Maplegrove. Our analysis assumes that a new HQ/fleet centre will be operational by year end 2018.

Once the new facility is implemented, the current central deployment model will need to be adjusted to a divisional deployment model centering about two geographic areas, each one having a complement of assigned vehicles, paramedics, supervisory and supporting staff; a fleet centre (where paramedics will start and end their shifts); and multiple satellite stations.

In this respect, Waterloo Region is proceeding down a path similar to that taken by the Peel Regional Paramedic Services (PRPS). PRPS operates a divisional deployment model that presently centres about two geographic areas – each one having a fleet centre serving as a central start, and multiple satellite stations that serve as temporary housing for paramedics between calls. The two divisions operate semi-autonomously with their respective complements of vehicles, paramedics, supporting staff and supervisory staff. Loosely the model is referred to as a ‘hub and spoke’ arrangement.

By year end 2016, PRPS will migrate to 3 divisions operating out of 3 fleet centres, and according to present plans, to 4 divisions with 4 fleet centres in the next few years.

Divisional deployment presents its own set of unique challenges which include geographic-based operations, logistics, supply distribution, CACC relations, staff scheduling and field supervision. Peel Region’s staffing model is uniquely designed and staffed to deal with such challenges.
ROW will inherit similar challenges when its second fleet centre becomes operational (possibly by year end 2018), and to deal with such unique challenges, the ROW Paramedic Services’ staffing model will need to be appropriately structured.

**Conclusions:** An “Operations Manager” position should be introduced to manage the transition from central deployment to divisional deployment centering about two fleet centres. This position should consist of 1 FTE, and it should be staffed in 2017 so that the incumbent may carry out the requisite advanced service planning and preparations. The position should initially report to the Chief. Once the second fleet centre is operational (potentially by year end 2018), the incumbent should assist the Deputy Chief of Operations in the management of the divisional deployment arrangement.

### 8.3.5 Paramedics

Our estimates of future paramedic staffing requirements are based on the ambulance forecasts (at peak staffing) presented previously in Section 5. The estimates incorporate the following assumptions, which are consistent with industry leading practices:

- 5 FTE are needed to staff an ambulance for shifts of 12 hours’ duration, operating 365 days a year. This includes 4 FTE for round-the-clock coverage plus 1 FTE (25%) for backfilling vacation, illness, WSIB, bereavement, CME, leave, etc.

- Core services will be staffed with full-time paramedics. Part-time paramedics will be used for backfill. Again, this is consistent with industry practices.

**Conclusions:** Paramedic staffing forecasts at 41% UU are shown in Exhibit 8.3. For 35% UU they are shown in Exhibit 8.4, and for 30% UU they are in Exhibit 8.5. The projected paramedic staffing requirements for 2017 are summarized below:

- **41% UU:**
  - 122 FTE full-time (up from current 118 FTE)
  - 40.2 FTE part-time (up from current 39.2 FTE)
  - This will provide for 1 additional 12-hour ambulance shift.

- **35% UU:**
  - 134 FTE full-time (up from current 118 FTE)
  - 43.2 FTE part-time (up from current 39.2 FTE)
  - This will provide for 4 additional 12-hour ambulance shifts.

- **30% UU:**
  - 150 FTE full-time (up from current 118 FTE)
  - 47.2 FTE part-time (up from current 39.2 FTE)
  - This will provide for 8 additional 12-hour ambulance shifts.

### 8.3.6 Scheduling

The Scheduling function is responsible for ensuring that all shifts are appropriately staffed by coordinating and applying schedules to staff in the time and attendance management system.
(TAMS) in accordance with collective agreements, policies and procedures. The function also audits attendance data, to ensure accurate and timely processing of employee pay.

The staffing complement for the scheduling function is currently 2 FTE. This includes a Scheduling Coordinator working full-time, and several part-time personnel serving as Assistant Schedulers. Stakeholders within the Paramedic Services Division advise that at present the scheduling workload is manageable.

For Waterloo Region, the paramedics-to-Scheduler ratio is approximately 100:1. The figure is consistent with that of peer EMS services.

Conclusions: The present staffing level is sufficient for the function; however, it will need to be increased over time in proportion to future increases in paramedic staffing. A paramedics-to-Scheduler ratio of 100:1 should be adopted as a going forward standard for determining future staffing levels for the Scheduling function.

8.3.7 Logistics

Paramedic Services resourcing (paramedics, supervisory staff and fleet) has increased appreciably over the past decade, whereas staffing for the logistics function has not kept pace. The function is presently staffed by a full-time Supervisor and 7 FTE serving as Fleet Technicians (3 FTE are full-time and 4 FTE are part-time).

Stakeholders within the Paramedic Services Division suggest that an increase in Fleet Technician staffing to a minimum of 9 FTE is presently needed (up from current 7 FTE).

As noted previously, Peel Region Paramedic Services (PRPS) uses a similar fleet-centred deployment model. Using PRPS as a comparator, we have confirmed the views expressed by Waterloo Region stakeholders.

At 9 FTE, the staffed ambulance-to-technician ratio at ROW would be 2.3:1. Our forecasts of future Fleet Technician requirements are predicated on this figure as a going forward standard.

Our analysis assumes that a new HQ/fleet centre will be operational by year end 2018 to augment Maplegrove. At that point, the Service will also require a second Logistics Supervisor (i.e., one Supervisor at each fleet centre).

Apportionment of Fleet Technicians between the two fleet centres will depend on several factors, including the number of vehicles and specialized services to be assigned to each fleet centre. We leave those details for senior management to work out at a later date.

Conclusions: The present number of Fleet Technicians should be increased, using a staffed ambulance-to-technician ratio of 2.3:1 as a going forward standard. A second Logistics Supervisor should be recruited in concert with the implementation of the new HQ/fleet centre, in 2018.
8.3.8 Professional Standards

The Professional Standards function is presently staffed with 2 FTE - a full-time Professional Standards Supervisor and a full-time Training Supervisor.

The Professional Standards Supervisor is responsible for designing, maintaining, and evaluating the internal investigative and quality management program to ensure consistency of delivered services, and compliance with legislation, directives, policies and staff training. Duties include:

- Maintains up-to-date knowledge of trends and developments related to paramedic training and education, best practices, and procedures. Represents the division on committees and workshops. Works with staff to develop public awareness/education campaigns for community events.
- Performs internal investigations, engaging stakeholders and MOHLTC as appropriate. Supervises internal investigations, assigning investigations to Operations Supervisors, as required. Monitors the status of assigned investigations. Analyzes issues, and prepares reports including recommendations.
- Participates in Ambulance Call Report (ACR) Audit and Field Audit programs. Helps to monitor staff performance and to ensure appropriate Paramedic certification. Helps to determine training requirements.
- Works with Corporate staff on matters relating to the Personal Health Information Protection Act (PHIPA) and Municipal Freedom of Information and Protection of Privacy Act (MFIPPA).
- Participates with Training Supervisor in developing training related certification reports, including quality assurance and ePCR audits as required. Assists in review of incidents to identify cause and effect, and areas for improvement. Consults to Divisional senior management. Maps, evaluates and recommends internal process adjustments.

The Training Supervisor is responsible for developing, coordinating and conducting paramedic training and educational programs in compliance with legislation and certification requirements, to ensure paramedic staff performance and competency relative to ongoing service and quality assurance objectives. Duties include:

- Develops paramedic training and educational programs required for ongoing certification and skills development, including planning, evaluation, and research activities. Working with senior management, determines training requirements to ensure adherence with legislation, directives, policies, and procedures.
- Coordinates systems design to support new initiatives, as well as the design of training curriculum, including job aids and resources. Researches external training programs to identify, assess, and recommend their adoption.
- Develops and implements individual training/education plans to ensure staff compliance with clinical practice requirements (e.g., return to clinical practice plans, remediation plans). Monitors progress including clinical coaching in the field. Follows up as required.
- Coordinates paramedic Continuing Medical Education (CME). Working with the Scheduling Coordinator, schedules ongoing paramedic education. Tracks staff attendance and certification to ensure compliance with standards, and legislation.

- Conducts staff training and skills development/educational initiatives. Serves as a resource to staff for ongoing professional education. Develops training evaluation metrics. Assembles and compiles evaluation results. Generates training-related certification reports, including quality assurance and ePCR audits as required. Assists in review of incidents to identify cause and effect, and areas for improvement.

- In conjunction with senior management and Human Resources, assists in paramedic recruitment. Coordinates intake training and orientation for new hires.

- Represents the Division on various committees and workshops. Works with staff to develop public awareness and education campaigns for community events. Liaises with Base Hospital on CME, quality assurance, and other matters. Liaises with Conestoga College or other educational institutions regarding student preceptorship program.

To deliver on the responsibilities listed above, the two incumbents frequently enlist the aid of Operations Supervisors, i.e.: to help carry out investigations, to serve as service instructors on a part-time basis, etc.

While this approach is comparable to peer leading practices, given the relatively few number of Operations Supervisors employed by ROW Paramedic Services, their involvement in Professional Standards and Training seriously hampers their own ability to carry out their core set of functions which, as stated previously, is integral to the competent and effective delivery of quality paramedic services that satisfy standards, and legislative regulations for health and safety.

As shown previously in Exhibit 4.7, among peer EMS services, the staffing for corresponding functions averages between 4 and 5 FTE. Also, several peers dedicate at least 1 FTE on a full-time basis, to coordinate their PAD program, community education and stakeholder engagement.

Conclusions: In support of the Services’ successful transition and ongoing future operations as a performance-based system, the staffing complement for the Professional Standards function should be increased to 5 FTE (up from current 2 FTE). This should be accomplished by adding the following new positions:

- “Professional Standards Officer” who would report to the Professional Standards Supervisor. This position should be filled in 2017.

- “Training Coordinator” who would report to the Training Supervisor. This position should be filled in 2017.

- “Community Liaison Officer” to be dedicated full-time to PAD coordination, community education, and stakeholder engagement. The position, which would report to the Deputy Chief Professional Standards, should be filled in 2017.
8.4 PROFESSIONAL SUPPORT FROM OTHER REGIONAL DEPARTMENTS

8.4.1 Paramedic Research Analyst

In addition to the analysis of Paramedic Services resourcing, we have identified a number of potential strategies for improving service delivery through optimization.

As discussed in Section 12 of this report, they include: lobbying the province for enhanced dispatch and triage; lobbying the province for additional hospital offload delay funding; and participating with other organizations including regulatory bodies and educational institutions, in research including alternative ways for ‘Making Inroads into Healthcare’ (i.e., by way of Community Paramedicine and Telehealth).

Currently, neither the Paramedic Services Division nor the Public Health Department has the resource capacity to undertake the work needed to flesh out these strategies within a Region of Waterloo context.

**Conclusions:** A “Paramedic Research Analyst” position should be introduced to investigate implementation strategies for ‘Making Inroads into Healthcare’ (i.e., Community Paramedicine and Telehealth). Given the Public Health Department’s involvement in other health-related research, this function should be situated in Public Health Central Resources. The position should consist of 1 FTE, and it should be staffed in 2017. Also, given that the research is intended to support the work of the Paramedic Services Division, the Services’ operating budget going forward should include provision by which to reimburse Public Health Central Resources for the services.

8.4.2 OH&S and Labour Relations

The need for additional Human Resources (HR) professional support to accommodate near-term and long-term Paramedic Services resourcing increases was discussed at a meeting of the Steering Committee. The discussions also noted that the need for additional HR support will further increase as a result of Bill 163, provincial legislation requiring implementation of Post-Traumatic Stress Disorder (PTSD) plans for Ontario’s First Responders.

The additional HR support requirements are related to Occupational Health and Safety (OH&S), and Labour Relations, as discussed below.

**OH&S Advisor** provides health and safety advice to all levels of staff; develops, promotes, implements, and monitors safe and healthy work practices and programs; and interprets and communicates organizational and regulatory requirements. Duties include:

- Carries out risk assessments. Helps to develop policies, procedures and programs; and communicates changes to employees.

- Investigates and assesses concerns regarding working conditions, equipment, methods, and procedures. Recommends corrective measures, design changes, and methods to control hazards, reduce injuries and costs, and ensure compliance.
- Collaborates with management in long-range planning, priority setting, and budgeting from a corporate health and safety perspective.

- Technical advice and guidance on labour relations matters related to health and safety, WSIB and PTSD. Represents the Region’s interests in meetings with local and national union executives. Helps to resolve issues involving Ministry of Labour (MOL) and other agencies, including work refusals, accident investigations, field visits, orders, non-compliance issues, etc.

- Identifies training needs. Researches, develops, coordinates, and conducts customized training programs.

- Provides advice and guidance on emergency planning. Participates in emergency management initiatives, including training management staff in building-related contingency planning. Participates in mock emergency response exercises and training; playing a role to ensure business continuity.

- Prepares submissions for health and safety budget (e.g., training, consultant costs), and recommendations regarding use of WSIB reserve fund. Negotiates contracts for specialized training. Maintains specialized sampling and testing equipment in good working condition.

- Liaises with the MOL, enforcement agencies, other health and safety professionals, consultants, legal representatives, safety equipment suppliers, and safe workplace associations to exchange information, collaborate, keep knowledge up-to-date, identify best practices, and represent the Region’s interests. Occasionally provides information and education programs to external agencies, municipalities, and Waterloo Region Police.

Labour Relations Advisor provides labour relations advice to all levels of staff; administers collective agreements; and maintains relationships and communications with unions. Duties include:

- Serves as an advisory resource on labour relations matters (including Return to Work), collective agreement interpretation, employee performance and relations, human rights complaints, and harassment/workplace issues.

- Conducts/advises on investigations, discipline, remedial steps, and terminations. Mediates workplace conflicts. Administers procedures related to settlements, case preparation, and arbitration and rights hearings.

- Designs, coordinates, and conducts training related to labour relations, performance management, and impact of new legislation and collective agreement language.

- Assists clients to implement change initiatives and negotiates agreements with bargaining units.

Conclusions: The conclusion arising from the discussions is that Corporate HR will require an further 1.5 FTE, in order to accommodate the Paramedic Services’ additional near-term requirements related to Occupational Health and Safety (OH&S), and Labour Relations. It was
suggested that these hires will be needed by 2018. It was further suggested that the Paramedic Services’ operating budget going forward should include provision by which to reimburse Corporate HR for these additional hires.

8.4.3 Fleet Management

As the Paramedic Services’ fleet increases in size over time, so also will the pressure for additional Fleet Management services increase, and as a consequence, over time the Facilities & Fleet Management Division will have to increase the number of personnel for this function.

Conclusions: Discussions were held with several representatives of the Facilities & Fleet Management Division. The conclusion arising from the discussions is that Fleet Management will require an additional 1 FTE, in order to accommodate the anticipated near-term increase in the size of the Paramedic Services’ fleet. It was suggested that the additional 1 FTE will be needed by 2021. It was further suggested that the Paramedic Services’ operating budget going forward should include provision by which to reimburse Fleet Management for the additional hire.
9  VEHICLE CAPITAL FORECASTS

The forecasts in Exhibit 9.1 show the estimated capital costs for expansion of the Paramedic Services’ fleet over the next 15 years in response to anticipated future growth in EMS demand.

A breakdown by individual cost component is presented in Exhibit 9.2.
Vehicle capital forecasts for 2017 are summarized below:

- 41% UU: $0.4 million (includes 1 additional ambulance and 2 additional ERU)
- 35% UU: $1.2 million (includes 5 additional ambulances and 2 additional ERU)
- 30% UU: $2.5 million (includes 11 additional ambulances and 2 additional ERU).

Assumptions

Fleet Expansion

The capital cost estimates are for additional new vehicles (ambulances, ERU and administrative vehicles), and include new in-vehicle equipment (i.e., defibrillator, laptop and stretcher).

The analysis does not include provisions for fleet or equipment replacement, which are included under Operating Costs (in Section 11).

Current (2016) Dollars

The cost estimates are in current (2016) dollars. They do not include allowances for potential future increases in the price of vehicles and equipment.

Ambulances

The analysis is based on the forecast ambulance requirements shown previously in Exhibit 5.2. These forecasts include vehicles for shift readiness, and are for shifts of 12 hours’ duration, operating 365 days a year.

Emergency Response Units (ERU)

The Paramedic Services fleet currently includes 6 ERU. Paramedics operate 3, principally in rural areas of the Region; Operations Supervisors use 2; and 1 is for shift readiness.

As discussed in Section 12, under the heading “Optimization”, our recommendation going forward is to maintain the present number of paramedic-operated ERU (3 staffed plus 1 for shift readiness). This notwithstanding, we recommend that for 2017, the total number of ERU should be increased to 8 (up from the current 6), this to accommodate the recommended enhancement of shift supervision, and the introduction of an Operations Manager position.

Administrative Vehicles

The Paramedic Services fleet currently includes 2 administrative vehicles. Our recommendation going forward to 2018, is to increase the total number of administrative vehicles to 4 (up from the current 2) to accommodate the anticipated transition from central deployment to divisional (geographic-based) deployment centering about two fleet centres.
In-Vehicle Equipment

The analysis assumes that each new ambulance will be outfitted with defibrillator, laptop and stretcher; and that each new ERU will be outfitted with defibrillator and laptop.

Pricing Assumptions

Based on information provided by the Region’s Finance Department the price of an ambulance is assumed to be $209,600. This figure includes $153,000 for the vehicle and $56,600 for defibrillator, laptop and stretcher.

For ERU, the assumed price is $100,000. This includes $60,000 for the vehicle and $40,600 for defibrillator and laptop.

For administrative vehicles, the assumed price is $40,000.

Used / Retired Vehicles

The cost forecasts do not include income from the sale of used / retired vehicles.

In this regard, we recommend that used / retired vehicles should be retained for a period of a year or two (beyond the point of retirement), to supplement the Services’ shift readiness capabilities; this, assuming that the vehicles are in reasonable condition.

This recommendation is intended to serve as a near term strategy until the Services’ shift readiness capabilities align more closely with industry leading practices.
10 FACILITY CAPITAL FORECASTS

The forecasts in Exhibit 10.1 show the estimated capital costs for new facilities and replacement stations over the next 15 years.

EXHIBIT 10.1: FACILITY CAPITAL FORECASTS

Assumptions

Current (2016) Dollars

The cost estimates are in current (2016) dollars. They do not include allowances for potential future increases in construction wages, or in the price of building materials.

Building Upkeep and Renewal

The figures do not include provisions for building upkeep and renewal, which are included under Operating Costs (in Section 11).

Construction Timetable

The construction timetable shown in Exhibit 10.1 is a recommended timetable for future facility construction based on a preferred UU of 35%. The timetable is subject to periodic review and the annual budget process.

Pricing Assumptions

All new deployment stations, including Breslau Station, are assumed to be 1-storey buildings of approximately 2,000 sq. ft., with indoor garage for up to two vehicles.
Based on information provided by the Region’s Finance Department, the cost to construct Breslau (Station #11) is $1.24 million, and the cost to construct other new deployment stations (Stations #13-16) is assumed to be $1 million.

The new Headquarters and Fleet Centre (Station #12) is assumed to be of an overall size of 40,000 to 43,000 sq. ft., with a fleet centre (garage) component within the building envelope, of at least 23,000 sq. ft. (based on a preferred UU of 35%).

The cost to construct the new Headquarters and Fleet Centre is assumed to be $18 million. This figure was derived by averaging the costs of comparable facilities built/planned by peers, including:

- Peel Fernforest - a facility of about 40,000 sq. ft., with a garage of about 20,000 sq. ft., which cost over $20 million.
- Peel Rising Hill - a facility of about 30,000 sq. ft., with a garage of about 20,000 sq. ft., which is anticipated to cost about $15 million.
- Middlesex-London - a facility of about 43,000 sq. ft., with a garage of about 16,000 sq. ft., which is anticipated to cost about $14 million.

**Land Costs**

The cost estimates do not include the cost of land.
11 OPERATING COST FORECASTS

Exhibit 11.1 presents the operating cost forecasts for the next 15 years. Operating costs include Paramedic Services staffing and operations; building upkeep and renewal; vehicle and equipment replacement; and professional support from other Regional departments.

EXHIBIT 11.1: OPERATING COST FORECASTS

A breakdown of the operating cost forecast at 41% UU is shown in Exhibit 11.2. Cost breakdowns for 35% and 30% UU are shown in Exhibits 11.3 and 11.4 (next page).

EXHIBIT 11.2: BREAKDOWN OF THE OPERATING COST FORECAST – 41% UU

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### EXHIBIT 11.3: BREAKDOWN OF THE OPERATING COST FORECAST – 35% UU

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### EXHIBIT 11.4: BREAKDOWN OF THE OPERATING COST FORECAST – 30% UU

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Assumptions

Gross Costs
The figures shown are gross estimates which may be eligible for MOHLTC subsidy at 50%.

Current (2016) Dollars
The cost estimates are in current (2016) dollars. They do not include allowances for potential future collective agreement increases which historically, have ranged between 1.5% and 3% per annum. Nor do they account for potential future increases in cost of fuel, oxygen et al.

2016 Operating Budget
The Region’s Finance Department advises that the Paramedic Services Division’s operating budget for 2016 is $26.64 million.

This is the gross operating budget (prior to MOHLTC subsidy) and covers all costs, including: staffing and operations; building upkeep (utilities, janitorial, landscaping and snow removal) and renewal; fleet maintenance and repairs; vehicle and equipment replacement; and the cost of professional support from other departments

Fleet Impact – Ambulances
This component of the analysis is based on the peak staffing forecasts shown previously in Exhibit 5.1. These forecasts are for shifts of 12 hours’ duration, operating 365 days a year.

The Region’s Finance Department advises that it costs $737,200 to staff and operate an ambulance for a 12-hour shift, 365 days a year. We applied this figure to all additional new ambulances.

| EXHIBIT 11.5: 12-HOUR AMBULANCE OPERATING COSTS |
|----------|--------|--------|
| WAGES (INCLUDES VACATION, TRAINING & PREMIUMS) | $486,500 | 66.0% |
| BENEFITS (INCLUDES LIEU BENEFITS FOR PART-TIME) | $160,000 | 21.7% |
| TOTAL STAFFING | $646,500 | 87.7% |
| RESERVE CONTRIBUTION (VEHICLE, STRETCHER & LAPTOP REPLACEMENT) | $46,300 | 6.3% |
| FUEL | $10,000 | 1.4% |
| SUPPLIES (UNIFORMS & MEDICAL SUPPLIES) | $18,000 | 2.4% |
| FLEET COSTS | $13,500 | 1.8% |
| INSURANCE | $1,200 | 0.2% |
| OTHER | $1,700 | 0.2% |
| TOTAL ANNUAL COST | $737,200 | 100.0% |

Fleet Impact – ERU and Admin. Vehicles
The analysis is based on the following assumptions: the number of ERU is increased to 8 in 2017 (up from the current 6); and the number of administrative vehicles is increased to 4 in 2018 (up from the current 2). The cost to operate each additional ERU / administrative vehicle is assumed to be $5,000 a year.
Fleet Replacement

This component of the analysis is based on:

- Ambulance forecasts shown previously in Exhibit 5.2. These forecasts include vehicles for shift readiness. The turnover rate for ambulances is maintained at 4.5 years.
- Increasing the number of ERU to 8 in 2017 (up from the current 6). The turnover rate for ERU is maintained at 4.5 years.
- Increasing the number of administrative vehicles to 4 in 2018 (up from the current 2). The turnover rate for administrative vehicles is maintained at 7 years.

Fleet replacement details are summarized in Exhibit 11.6.

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<tr>
<td>ADMIN. VEHICLES - REPLACEMENT (7 YEARS)</td>
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<td>CHANGE FROM PREVIOUS YEAR</td>
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</table>

Facility Impact – Building Operations

The Region’s Facilities & Fleet Management Division charges the Paramedic Services Division an all-inclusive monthly rate of $42,000 to cover the operating expenses for Maplegrove and the deployment stations. The approximate split is $15,000 a month for Maplegrove and $27,000 a month for the deployment stations. For the 9 existing deployment stations this works out to $3,000 a month per station.

For a new HQ/fleet centre of 40,000 to 43,000 sq. ft. (which is roughly twice the size of Maplegrove), our analysis assumes an operating cost of $30,000 a month, which works out to an annual cost of $360,000. For each additional new deployment station, our analysis assumes an operating cost of $3,000 a month, which works out to an annual cost of $36,000.

Facility Impact – Building Renewal

The Region’s Facilities & Fleet Management Division provided a 10-year capital renewal forecast for the Maplegrove facility. The forecast, which is based on actual planned work,
averages out to annual expenditure of about $80,000 a year. Our analysis is predicated on this figure.

Based on information provided by the Region’s Facilities & Fleet Management Division, our analysis assumes an annual capital renewal allowance of $5,000 for each deployment station owned by Waterloo Region. For stations that are leased, the burden for capital improvements is in the lease costs.

Waterloo Region currently owns the following stations: Station #06 (St. Jacobs), Station #08 (Weber), Station #09 (Conestoga College), and Station #10 (Phillipsburg). Our analysis assumes that all additional new deployment stations will be owned by the Region.

Our analysis assumes an annual capital renewal allowance of about $70,000 for the New Headquarters and Fleet Centre, commencing in 2019. This figure is derived from the Maplegrove experience, allowing for the relative difference in size.

**Supporting Staff - ROWPS**

This component of the analysis is predicated on the long-term staffing forecasts set out previously in Exhibits 8.3, 8.4 and 8.5.

For changes in organizational structure (new positions) and increases in the number of staff, the analysis assumes the following annual compensations, which were supplied by the Region’s Finance Department. These figures include both wages and benefits.

<table>
<thead>
<tr>
<th>Position</th>
<th>Annual Compensation</th>
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<tr>
<td>Administrative and Clerical</td>
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<td>Performance and Data Analyst</td>
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<tr>
<td>Operations Manager</td>
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<td>Operations Supervisor</td>
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<td>Assistant Scheduler</td>
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<td>Fleet Technician</td>
<td>$77,600</td>
</tr>
<tr>
<td>Professional Standards Officer</td>
<td>$120,100</td>
</tr>
<tr>
<td>Training Coordinator</td>
<td>$120,100</td>
</tr>
<tr>
<td>Community Liaison Officer</td>
<td>$120,100</td>
</tr>
</tbody>
</table>

**Support from Other Regional Departments**

The analysis includes the following operating budget provisions to cover the cost of professional support provided by other Regional departments:

- $113,100 a year for a Paramedic Research Analyst in Public Health Central Resources. This cost is assumed to commence in 2017.

- $187,500 a year for increased Corporate HR support, specifically OH&S and Labour Relations support (1.5 FTE). This cost is assumed to commence in 2018.

- $130,000 a year for an additional 1 FTE in Fleet Management. This cost is assumed to commence in 2021.
12 OPTIMIZATION STRATEGIES

Potential strategies for improving service delivery through optimization are discussed below.

The reader is advised that no provision for either the costs or potential savings that could result from these optimization strategies has been included in the operating cost forecasts of the Master Plan (discussed previously in Section 11).

12.1 INTERNAL PRACTICES

ROW Paramedic Services is undergoing transition to a performance-based system that emphasizes:

- Excellence in Patient Care.
- Consistency, quality, effectiveness, efficiency and accountability of EMS services delivery.
- Appropriate resourcing of staff and equipment.
- Transparent reporting of operational performance on an ongoing basis.

To such ends, the Service tracks operational performance on a regular basis, making effective use of enabling technology, including portable laptops, electronic Patient Care Reports (ePCR), and Time and Attendance Management System (TAMS) scheduling software.

Additional, technologies under consideration include inventory control software, dashboard metrics software, and a mobile (in-vehicle) wireless platform.

Optimization Strategies: ROW Paramedic Services should continue to track service drivers and quality performance on a regular basis. Resourcing and service delivery practices should be adjusted as appropriate, to maintain a favourable UU of 35%.

12.2 MEDICAL INCIDENT TRIAGE AND DISPATCH

The MOHLTC-operated Cambridge CACC operates with a leading edge TriTech CAD system which is well integrated with an E911 interface for caller location, ambulance dispatch and incident record management. The system also has built in provisions for emergency backup. Should Cambridge CACC go offline, one of the neighbouring CACC’s will immediately step in to provide emergency dispatch coverage.

Communicators and supervisors are well-trained, and are committed to supporting the in-the-field paramedic services provided by Waterloo Region. Overall, the CACC’s relationship with ROW Paramedic Services is good.

The above notwithstanding, our review of ROW incident records and our discussions with key stakeholders, reveal that there are several areas related to incident triage and dispatch that would benefit from the introduction of enhanced technology, as discussed below.

Advanced Medical Priority Dispatch System (AMPDS)

The Ministry’s standard software system for incident triage is the Dispatch Priority Card Index V2.0 (DPCI2). This is the software system used by almost all ambulance communications
services in Ontario, including Cambridge CACC. DPCI2 triages each incident according to the particulars conveyed by the incoming caller, and assigns a dispatch priority.

We reviewed the ROW incident information captured by Cambridge CACC. The call data for year 2015 is summarized in Exhibit 12.1 according to: (a) information conveyed by the incoming caller, and (b) information reported by the paramedic crew following patient assessment at scene.

According to the information conveyed by the incoming caller, 16% of the requests for paramedic services were potentially of high urgency (where the particulars suggested the incident to involve cardiac arrest or stroke). An additional 34% were potentially urgent, involving problem breathing, poisoning, seizures, an unconscious patient or diabetic situation. The remaining 50% were of a lesser priority.

According to the information reported by the paramedic crews at scene, less than 20% of the incidents were of high urgency. Two percent (2%) were categorized as Sudden Cardiac Arrest (SCA) or CTAS 1 requiring immediate aggressive medical interventions. An additional 17% were categorized as CTAS 2, requiring rapid medical interventions or delegated acts, in order to treat a condition that might potentially threaten life, limb or function.

The above notwithstanding, approximately 70% of all ambulance requests originating in ROW are dispatched as Priority 4 (high urgency) with lights and siren.

EMS services operating in municipalities across Ontario report similar findings where large proportions of calls are dispatched with lights and sirens, whereas the information recorded on file suggests that fewer numbers may actually have warranted this high priority response.

In this, of principal concern is the ability to deliver affordable EMS services in the face of rapidly escalating costs, which is further exacerbated by over triaging of calls. To such ends, numerous EMS providers are advocating for a more discriminating triage tool i.e., the Advanced Medical Priority Dispatch System (AMPDS).

AMPDS has been adopted by EMS services operating in other Canadian jurisdictions, many Services in the U.S.A., and overseas; also, by several Ontario paramedic services that self-dispatch e.g., Toronto and Niagara. According to information released by such municipalities,
AMPDS consistently triages closer to transport priority, dispatching fewer incidents with lights and siren.

Another feature built into AMPDS is a rigorous call review/QA process for protocol compliance and data accuracy.

*Optimization Strategies:* In consideration of the rapidly escalating demand for EMS services, and service delivery costs, Waterloo Region should lobby MOHLTC for a more discriminating incident triage software such as AMPDS, using all available means including organized agencies such as AMO, OAPC et al.

**Mobile Data Terminals**

ROW ambulances are voice-dispatched either by paging system (at base) or by radio (when mobile). Ambulances are equipped with mobile radio and laptop with GPS but not with wireless data transmission capability. Crews carry portable radios and cell phone for patch to base hospital.

ROW paramedic crews transcribe incident assignments and details from voice-dispatch, and they use in-vehicle laptop or smart phones to locate incident address locations, and for routing.

This is the standard dispatch arrangement currently in place for most paramedic services across Ontario that are dispatched by ambulance communications centres operated by, or on behalf of MOHLTC.

In contrast, Toronto and Niagara ambulance services (i.e., services that self-dispatch), and many EMS services operating in other Canadian jurisdictions, in the U.S.A., and overseas, dispatch using information that is transmitted electronically from a computer aided dispatch (CAD) system at a communications centre, directly to a mobile (in-vehicle) data terminal.

Many other emergency service organizations (police and fire) have also adopted mobile data terminals as their preferred approach for dispatch.

The advantages of direct electronic interface between CAD and mobile data terminal include:

- Ensures immediate notification of call is assignment
- Reduces likelihood of transcription errors
- Integrated mapping replaces need for looking up incident address locations and routing
- Two-way information flow
- Provides an immediate electronic record of call details, including status times, which help to expedite paperwork at the conclusion of incident.

Kitchener Fire Department, which dispatches for self, as well as the fire departments serving Waterloo, Woolwich, Wellesley and Wilmot, is participating in a MOHLTC pilot project involving automatic CAD-to-CAD electronic notification. They affirm that automatic electronic notification is preferable to voice dispatch.
Cambridge Fire Department, which dispatches for self and for North Dumfries, is not included in the MOHLTC pilot, but they also consider automatic electronic notification to be preferable to voice dispatch.

**Optimization Strategies**: Waterloo Region should lobby MOHLTC for replacement of voice-dispatch with mobile (in-vehicle) data terminals with software interface to CACC CAD.

**HeadStart**

HeadStart is a software system add-on to the TriTech CAD system, which CAD North developed for Niagara EMS (an Ontario paramedic service that self dispatched). Its purpose is to significantly reduce ambulance response times.

With this add-on feature, the following takes place. As soon as the Niagara Ambulance Communications Service answers a 911 call, HeadStart automatically pages and transmits caller location to the closest available ambulance (i.e., the ambulance which the CAD system considers to be in the best position to arrive first).

The Niagara experience shows that HeadStart reliably reduces response times to high priority incidents by as much as 60-90 seconds. In this, HeadStart is much more cost-effective than spending additional millions of dollars a year, to staff additional ambulances to attain similar outcomes.

According to the information presented previously in Exhibit 5.1, Waterloo Region would need to increase peak staffing by at least 3 to 4 additional ambulances (operating 12-hour shifts) to attain a response time reduction of 60 seconds (at the 80th percentile); this, at a cost of up to $3 million a year in additional spending. To attain a response time reduction of 90 seconds, peak staffing would need to be increased by at least 7 additional ambulances, at a cost of about $5 million a year in additional ambulance spending.

*Optimization Strategies*: Waterloo Region should lobby MOHLTC for the HeadStart add-on to the TriTech CAD system, as a cost-effective approach for reliably reducing response times to high priority incidents.

**12.3 CONSOLIDATED DISPATCH**

Emergency communications plays a significant role within the continuum of police, fire and EMS public safety services. As the 'first' of the first responders, emergency communications personnel serve as the critical link between callers and the emergency help they require.

Providing continuous coverage by way of telephone, radio and computer aided dispatch (CAD) systems, emergency communications personnel evaluate incoming 9-1-1 calls to determine the

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4 The financial impact is based on a cost of $737,200 to staff and operate an ambulance for a 12-hour shift, 365 days a year. The cost estimate is in current (2016) dollars. It does not include allowances for potential future collective agreement increases which historically, have ranged between 1.5% and 3% per annum. Nor does it account for potential future increases in cost of fuel, oxygen et al. This is a gross operating expenditure that may be eligible for MOHLTC subsidy at 50%.
location and urgency of each incident, and they dispatch emergency responder resources as required (police, fire and EMS).

Emergency communications personnel also provide front-line responders with communications support, monitoring front-line responder activity, responding as requested with additional information, dispatching additional resource support and when required, executing a coordinated multi-agency response.

In times of crisis it is not only the caller (i.e., the public) that relies on emergency communications for help. Emergency service responders (police, fire and EMS) also rely on emergency communications for expedient call taking and dispatch services that will enable their front-line resources to respond quickly, safely and effectively.

In short, the timeliness, speed and quality of the work performed by emergency communications personnel directly impacts the efficiency and effectiveness of the emergency services that the public receives from police, fire and EMS responders.

Currently, the emergency communications services in Waterloo Region are independently managed from separate locations, and they operate with multiple CAD / radio technologies.

EXHIBIT 12.2: CURRENT STAND-ALONE ARRANGEMENT

Waterloo Regional Police Service (WRPS) operates a fully integrated 9-1-1 / police communications center, which in addition to the 9-1-1 function, dispatches and coordinates the deployment of WRPS resources. Emergency (9-1-1) calls requiring paramedic services are routed to the Cambridge CACC, and those requiring Fire services are routed to either the Kitchener Fire Department (which dispatches for self as well as Waterloo, Woolwich, Wellesley and Wilmot Fire Departments), or to the Cambridge Fire Department (which dispatches for self and for North Dumfries).

Research, and leading practices drawn from a number of North American municipalities (including Calgary, Denver, Portland and Fairfax Virginia), affirm that a ‘fully integrated’ emergency communications services system designed to deliver 9-1-1 on an integrated basis with dispatch services for police, fire and EMS, would be preferable to the Region’s existing stand-alone dispatch model. Such a model is illustrated in Exhibit 12.3 (next page).
Key features of a fully integrated dispatch model include:

- Co-location
- Consolidation of emergency communications staffing, including training and labour representation
- Use of a common CAD platform and radio system for increased interoperability
- Integrated dispatch delivery by communications staff who are cross-trained to carry out multiple functions (911 and dispatch for police, fire and EMS)
- Individual responders (police, fire and EMS) having direct access to their respective call records.

The more successful integrated systems also feature: a consolidated governance structure and functional independence, operating as a separate business unit embedded with a progressive accountability framework.

Potential benefits include:

- Enhanced public safety response
- Functional streamlining
- More rapid response times (in the communications centre and in the field)
- Greater interoperability / information sharing
- Increased responder coordination and safety.

Drawing from the experience of agencies that have transitioned to fully integrated emergency communications systems, reducing cost at the outset is not the primary objective. The principle objective is to enhance a public safety response to an emergency. The potential for cost savings will depend predominantly on the choice of service level. It will take a number of years to establish a fully integrated dispatch system, and it will also take a number of years to attain the full cost savings.

Under WRPS’ leadership, emergency services operating in Waterloo Region have commenced initial planning towards the eventual consolidation of emergency communications functions.

*Optimization Strategies:* Working with the local municipalities, Waterloo Region should continue planning efforts to consolidate 911, police, fire and EMS emergency communications services. To ensure successful consolidation, planning efforts should be reviewed in the broader context of industry leading practices.
12.4 HOSPITAL OFFLOAD DELAY

Hospital offload delay refers to the excessive amount of time that paramedics spend in a hospital Emergency Department (ED) awaiting formal transfer of patient care. Delay is defined as time in excess of 30 minutes (which historically has been the norm).

Hospital officials and staff have been working collaboratively with ROW Paramedic Services to manage hospital offload delay for a number of years. This collaborative effort has been most successful (as discussed below), and is ongoing.

Since 2008, MOHLTC has provided numerous ambulance services across Ontario with funding to reimburse hospitals for the cost of providing a nurse within the ED, dedicated solely to assuming care of EMS patients. The “Offload Nurse” receives a patient report from the paramedics and assumes care of the patient so the paramedics may leave the hospital quickly and return to their primary role of providing care in the community. ROW Paramedic Services is one of the ambulance services that receives offload nurse funding.

According to records supplied by ROW Paramedic Services, offload delay was reduced by 54% over the 12-months 2012 to 2013, from 7,588 hours in 2012 to 3,463 hours in 2013. This significant improvement resulted from the successful collaboration of local hospitals and ROW Paramedic Services, and the availability of offload nurse funding.

Over the past 2 years however, offload delay has once again increased, to 6,873 hours in 2015 (up from 3,463 hours in 2013); this, despite the ongoing collaboration of local hospitals and ROW Paramedic Services (which has not slipped), and the ongoing availability of offload nurse funding (which the province has not reduced).

In consideration of these factors, APEXPRO has concluded that the recent increases in offload delay are attributed to two factors: one being the rapid escalation in EMS service demand and the other being a similar rapid increase in demand for hospital services - both of which are being driven by an aging population.

Clearly, hospitals and paramedic services across Ontario are being hit with similar increases in service demand, and both are struggling to keep up with sufficient resources. Without sufficient hospital resourcing in both the ED and in other hospital departments upstream of the ED, the system backs up creating numerous challenges, including of note to this project, offload delay pressures to paramedic services operations.

It is equally clear that, without the historical gains attained by the aforementioned collaborative efforts involving local hospitals and ROW Paramedic Services, today’s offload delay challenges in Waterloo Region would be much worse than they are.

Hospital offload delay is one of the major pressures impacting paramedic services operations across Ontario. Exhibit 12.4 (next page) illustrates the percent of ambulance time lost to hospital offload delay, derived from MBNCanada statistics for 2014.
EXHIBIT 12.4: PERCENT OF AMBULANCE TIME LOST TO HOSPITAL OFFLOAD DELAY

Source: This exhibit is derived from MBNCanada statistics for 2014.

Presented in Exhibit 12.5 (below) is the financial impact from the 6,873 offload delay hours that ROW Paramedic Services incurred in 2015, while operating at a unit utilization (UU) of 41%.

The 6,873 offload delay hours are equivalent to the operating capacity of two 12-hour ambulances, and an estimated $1.4 million a year in additional ambulance spending. Put another way, if offload delay were eliminated entirely, then the Region’s cost, to maintain the present level of EMS performance (at 41% UU) would be lower by $1.4 million a year.

EXHIBIT 12.5: FINANCIAL IMPACT OF OFFLOAD DELAY TO WATERLOO REGION

<table>
<thead>
<tr>
<th>OFFLOAD DELAY HOURS</th>
<th>UU</th>
<th>12-HOUR AMBULANCE EQUIVALENCY</th>
<th>OFFLOAD DELAY COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,873</td>
<td>41%</td>
<td>2 AMBULANCES</td>
<td>$1.4 MILLION</td>
</tr>
</tbody>
</table>

As forecast previously in Exhibit 5.1, for Waterloo Region to attain a more favourable UU of 35%, and a response time reduction of about 60 seconds (at the 80th percentile), the Region would need to increase peak staffing by 3 additional ambulances (operating 12-hour shifts), at an additional cost of about $2.2 million a year. This forecast is based on a service that includes the present offload delay hours.

If present offload delay hours were not included in the forecast (i.e., eliminated entirely) then Waterloo Region would require only 1 additional ambulance (operating 12-hour shifts) at an additional cost of only $737,200 a year to attain the same results.

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5 The financial impact is based on a cost of $737,200 to staff and operate an ambulance for a 12-hour shift, 365 days a year. The cost estimate is in current (2016) dollars. It does not include allowances for potential future collective agreement increases which historically, have ranged between 1.5% and 3% per annum. Nor does it account for potential future increases in cost of fuel, oxygen et al. This is a gross operating expenditure that may be eligible for MOHLTC subsidy at 50%.
Optimization Strategies: Previous and ongoing collaborative efforts by local hospitals and ROW Paramedic Services, to jointly manage hospital offload delay, have been most successful (as discussed above). In consideration that the seniors’ population is driving both paramedic and hospital services demands, and that the seniors’ population is increasing rapidly, placing considerably higher demands on paramedic and hospital services, it is recommended that these collaborative efforts should be continued; also where feasible, alternate (innovative) approaches should be jointly investigated, as discussed below.

12.5 COMMUNITY PARAMEDICINE

Making Inroads into Healthcare is one of the innovative approaches identified by our research into optimization strategies.

The reference herein, is to identifying ways by which paramedic services may be used to improve outpatient primary care and by extension, to reduce both ambulance transport and hospital service demands – this predominantly for the benefit of patients.

In this regard, potential strategies that are being investigated (or piloted) by multiple organizations include Community Paramedicine, Telehealth and Scope of Practice for paramedics, as discussed below.

Community Paramedicine

Community Paramedicine is an organized system of “non-emergency” community-based services determined by local needs, which are provided by paramedics in collaboration with others, to address gaps between hospital and outpatient primary care.

The services may include paramedics supplementing healthcare services in underserviced rural and remote areas (e.g., wellness clinics, home visits, checking vital signs, etc); paramedics collaborating with healthcare and social services providers to connect patients (often EMS high volume users) to appropriate community-based resources; and paramedics routinely performing treatments in assisted living facilities in lieu of patient transport.

Community Paramedicine programs are evolving in multiple municipalities with about one-half of Ontario ambulance services providers participating in one form or another.

Many of the programs include a patient referral component focusing on “high risk” callers i.e., individuals with mental health issues or chronic medical conditions who call for EMS services repeatedly (i.e., 10 or more times a year). For this relatively small sector of the population, the benefits can be substantial with reductions in ambulance transports of 30% to 50% or more being reported.

Most of these programs are still at an early stage, and the benefits to the population as a whole are at best anecdotal, with some programs suggesting overall reductions in ambulance transports to hospital of 1% to 2% of total volume.

Waterloo Region does not presently deliver Community Paramedic Services. However, in consideration of the emerging service demand challenges due to an aging population, it would be appropriate to investigate this option further.
Telehealth & Scope of Practice

Telehealth is a telephone-based call centre service that has not changed significantly since 2001. MOHLTC recently issued an RFP for consultant advisory services to undertake a redesign that will expand the service to include web-based, virtual service offerings, based on patient complexity and need.

In the above context, an emerging opinion is that ambulance communications centres, and ambulance providers, should be prepared to augment present services with new technology that will allow them to make a positive contribution (i.e., Facetime and Skype).

Multiple Paramedic Chiefs are advocating for an aggressive review of EMS clinical protocols which, if supported by a structured on-line physician oversight model, will see more patients treated in place (and referred for follow up care to their family physician), and fewer patients transported by ambulance to an emergency department.

Telehealth and Scope of Practice initiatives also are at an early / conceptual stage. Their benefits may potentially materialize in the long-term.

Optimization Strategies: While the above initiatives may merit consideration, and while there may be potential opportunities by which ROW Paramedic Services might make meaningful contributions, currently neither the Paramedic Service nor the Public Health Department has the resource capacity to undertake the work needed to flesh out these strategies within a Waterloo context. For such purposes, we have previously included the following recommendation in Section 8.4: that a “Paramedic Research Analyst” position should be introduced to investigate implementation strategies for Making Inroads into Healthcare.

12.6 EMERGENCY RESPONSE UNITS (ERU)

An Emergency Response Unit (ERU) is a vehicle operated by a paramedic (PCP/ACP), or Operations Supervisor, which is intended to supplement the services of a patient transport capable ambulance fleet. For paramedic services that utilize ERU, the principal features of the arrangement include:

- Under management control of the Paramedic Service
- Operated by one staff in lieu of a crew of two
- Vehicle is part of the Service fleet and is dispatched by CACC
- No patient transport capability. Patient transport to hospital by ambulance.
- conforms to same policies and protocols as a fully-outfitted ambulance
- Delivers same level of paramedical services, and is subject to the same rigorous QA
- No different than other service add-on’s, e.g.: bike-edic / marine-edic.

ERU use varies depending on the service’s objectives. Below is a range of roles / uses:

- Serve as EMS first responders
- Enhance response time performance (clock-stopper)
- Call off ambulances when patient transport is not required
- Specialty team operations (Tactical Paramedics, Incident Response/Haz-Mat)
- Supervisory units that can be tasked if required.
ROW Paramedic Services operates with 3 ERU staffed at peak.

Referred to as Rural ERU (RERU), they operate primarily in the rural townships serving as EMS first responders, enhancing response time performance (clock-stopper), and calling off ambulances when patient transport is not required. The RERU operate year-round (365 days), each one on a 12-hour shift, one starting at 6 a.m., the other two at 12 p.m. (noon).

In Waterloo Region, the ratio of staffed ambulances to ERU is 7:1 (based on 21 ambulances and 3 RERU). Two (2) EMS peers of comparable size also operate at a ratio of staffed ambulances to ERU of about 7:1; while two others operate at a ratio of 6:1. One peer operates at a ratio of 4:1; and two others do not use ERU at all.

ERU operations require mature self-starters who are capable and willing to work alone. This may include working a medical emergency on their own, for an extended period awaiting arrival of ambulance transport. ERU have proven to be beneficial in the urban scene. Economically, their value in rural, low call volume areas is questionable, as discussed below.

![Exhibit 12.6: Region of Waterloo RERU Metrics for 2015](image)

- Average # of calls per RERU was 762 / daytime UU was about 8%.
- Average # of calls per ambulance was >2,000 / daytime UU was >50%.
- The 3 RERU responded to a total of 2,286 incidents, which represents about 5% of the annual 45,000 vehicle responses.
- Of the 2,286 incidents, 800 (35%) were treat and release / 1,486 (65%) required ambulance transport.
- The annual cost to operate a 12-hour ambulance is $737,200.
- The annual cost to operate a 12-hour ERU is about one-half the cost of an ambulance, i.e., about $368,600.
- The annual cost to operate three 12-hour ERU is about $1,105,800.

According to the above statistics:
- ROW spends 50% more than the cost of one 12-hour ambulance to operate three 12-hour RERU (i.e., $1,105,800 vs. $737,200).
- The 3 RERU collectively reduce ambulance use by only a fraction of the workload that a single 12-hour ambulance is capable of handling (i.e., reduces ambulance use by only 800 responses, which is 40% of a single 12-hour ambulance’s workload).
If the 3 ERU were re-located to the urban areas, then according to the above statistics,

- The ERU workload is likely to increase to over 6,000 responses a year, while the cost would remain the same ($1,105,800 a year), and
- At a treat and release rate of 35%, the ERU would likely reduce ambulance use by at least 2,000 calls a year.

In summary, ERU are intended to supplement, not replace patient transport capable ambulances. Enhancing core services with patient transport units (ambulances) should be Waterloo Region’s priority. The economics favour the use of ERU in urban (higher call volume) areas.

*Optimization Strategies:* In the short-term, Waterloo Region should continue to use the existing 3 RERU primarily for rural coverage. Once a more favourable 35% UU is attained, Waterloo Region should consider realigning ambulance and ERU resources to where they would serve most effectively.

### 12.7 PCP / ACP OPTIMIZATION

A summary comparison of paramedic competencies - Primary Care Paramedic (PCP) vs. Advanced Care Paramedic (ACP) - is presented in Appendix E.

The summary comparison, which is based on the National Occupational Competency Profile for Paramedics, by the Paramedic Association of Canada, 2011, demonstrates that PCP and ACP competencies differ in terms of education, skills and the administration of medication.

In Waterloo Region, the top end PCP wage is currently about $80,400 a year, whereas for ACP it is about $90,000. A wage variance of roughly this scale is common to most EMS services.

ACP employed by ROW Paramedic Services represent about 50% of the total full-time paramedics, and the percent of CTAS 1 (high priority) calls captured by ACP is about 62%.

Relative to peers of comparable size, this level of ACP employment is proportionately higher than most, and the level of ACP capture is proportionately lower.

For example, for Peer “D”, ACPs represent 29% of the total full-time paramedic work force, and the percent ACP capture is about 50%. Similarly, for Peers “A” and “F”, ACPs represent 50% or less of the total full-time paramedic work force, and the percent ACP capture is higher than that reported by Waterloo, at about 75%.

<table>
<thead>
<tr>
<th></th>
<th>ACP AS A % OF FULL-TIME PARAMEDICS</th>
<th>% OF CTAS 1 CALLS CAPTURED BY ACP</th>
</tr>
</thead>
<tbody>
<tr>
<td>WATERLOO</td>
<td>50%</td>
<td>62.2%</td>
</tr>
<tr>
<td>PEER A</td>
<td>50%</td>
<td>75.0%</td>
</tr>
<tr>
<td>PEER B</td>
<td>39%</td>
<td>--</td>
</tr>
<tr>
<td>PEER C</td>
<td>26%</td>
<td>--</td>
</tr>
<tr>
<td>PEER D</td>
<td>29%</td>
<td>50.2%</td>
</tr>
<tr>
<td>PEER E</td>
<td>66%</td>
<td>93.9%</td>
</tr>
<tr>
<td>PEER F</td>
<td>45%</td>
<td>75.5%</td>
</tr>
</tbody>
</table>

*Source: MBNCanada 2014 supplemented by peer interviews*
In this context, we offer the following comments. First, percent capture by ACP, while interesting, does not provide insight on whether treatment by ACP has made a difference in outcome. Second, for ACP to be used exclusively for the higher acuity emergencies, will require a more discriminating triage and dispatch tool such as AMPDS.

Ongoing work by the Paramedic Association of Canada (PAC), provincial regulatory bodies and educational institutions, will define the future “scope of practice” for paramedics. We understand that the ongoing work is considering such areas as listed below:

- Under-graduate level degree for entry to EMS practice (per Australia)
- Broader range of skills, and medications, for PCPs
- Clinical practice guidelines that would see paramedics interfacing more frequently with other healthcare professionals in the delivery of care
- Broader regulations, and the possibility for increased self-regulatory models (per Alberta, Saskatchewan and New Brunswick).

Potential outcomes from this ongoing work may include:

- Narrowing of the gap between PCP and ACP competencies which, by extension, will impact existing service delivery models
- ACP numbers may decrease and they may be used exclusively for higher acuity emergencies
- Regulatory and physician oversight models may come together, or they may continue to vary by province, as in the case of Ontario where the function remains a joint responsibility of the province and the health care system through the Base Hospital program.

In the above context, we suggest the following optimization strategies.

*Optimization Strategies:* As an interim strategy, Waterloo Region should defer recruitment of additional ACP until the scope of practice research by the Paramedic Association of Canada (PAC), provincial regulatory bodies and educational institutions is complete, and evidence of ACP utility is better established. Until additional paramedic resources are recruited (as recommended by this Master Plan), ROW Paramedic Services should eliminate double dispatching to calls – this, as an interim measure for dealing with the Services’ present resource constraints.
12.8 TIERED RESPONSE

Fire Departments operating in Waterloo Region assist with medical calls, in accordance with terms set out in agreed-upon Tiered Response Agreements (listed below).

EXHIBIT 12.7: FIRE TIERED RESPONSE CRITERIA

<table>
<thead>
<tr>
<th>CAREER FIRE DEPTS (CAMBRIDGE, KITCHENER, WATERLOO) &amp; VOLUNTEER FIRE DEPTS (N. DUMFRIES, WILMOT)</th>
<th>WELLESLEY VOLUNTEER FIRE DEPT</th>
<th>WOOLWICH VOLUNTEER FIRE DEPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breathing Compromise</td>
<td>Breathing Problem</td>
<td>Cardiac Arrest / VSA Adult</td>
</tr>
<tr>
<td>Breathing Problem</td>
<td>Cardiac Arrest / VSA</td>
<td>Cardiac Arrest / VSA</td>
</tr>
<tr>
<td>Burns</td>
<td>Child/Infant</td>
<td>Chest Pain / Heart Problem</td>
</tr>
<tr>
<td>Cardiac Arrest / VSA Adult</td>
<td>Childbirth / Labour</td>
<td>Choking Adult/Child</td>
</tr>
<tr>
<td>Cardiac Arrest / VSA</td>
<td>Choking Infant</td>
<td>Convulsion/Seizure</td>
</tr>
<tr>
<td>Child/Infant</td>
<td>Environmental Exposure</td>
<td>MVCs – All</td>
</tr>
<tr>
<td>Chest Pain / Heart Problem</td>
<td>MVCs – All</td>
<td>Near Drowning</td>
</tr>
<tr>
<td>Choking Adult/Child</td>
<td>Stroke/CVA</td>
<td>Trauma (Blunt) / Assault</td>
</tr>
<tr>
<td>Choking Infant</td>
<td>Trauma (Penetrating) / Wound</td>
<td>Trauma (Penetrating) / Wound</td>
</tr>
<tr>
<td>Convulsion/Seizure</td>
<td>Unconscious</td>
<td>Unconscious</td>
</tr>
<tr>
<td>Electrocution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCI’s – All</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MVC’s – All</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Near Drowning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke/CVA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trauma (Blunt) / Assault</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trauma (Penetrating) / Wound</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unconsciousness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The MOHLTC-operated Cambridge CACC tiers Fire automatically, or within 60 seconds of committing a call. When firefighters are first to arrive at the scene of a medical emergency, they will provide patient care in accordance with the training they have received (refer to Appendix F).

Fire response times and information on Fire first arrival to medical incidents within Waterloo Region, were not readily available. Listed below are the response time standards promoted by the National Fire Protection Association (NFPA). The standards apply to interior structural firefighting. Most Fire departments use NFPA response time standards as their operating targets.

- NFPA 1710 standard for “career” fire departments, is an initial response in 5 to 6 minutes or less at the 90th percentile.
- NFPA 1720 standard for “volunteer” fire departments, is: urban - 15 firefighters within 9 minutes (90th percentile); suburban - 10 firefighters within 10 minutes (80th percentile); and rural - 6 firefighters within 14 minutes (80th percentile).
According to several Fire Chiefs, the present volume of medical calls is not overly taxing but the anticipated rapid escalation of EMS call volume could pose a future issue, depending on each individual Fire department’s capacity and training.

In this context, we offer the following strategies for Waterloo Region to consider.

**Optimization Strategies:** In consideration of rapidly escalating EMS demand and present EMS resource constraints, increasing Paramedic Services resourcing should be the Region’s immediate priority. Waterloo Region may wish to consider lobbying the province for “Emergency Medical Responder” training as a minimum training standard for organized community emergency responders. Waterloo Region may also wish to consider augmenting tiered response using other organized community emergency responders (e.g., university, college and industry first response teams).
13 RECOMMENDATIONS

13.1 OPTIMIZATION STRATEGIES

Improving service delivery through optimization has been an important part of this Master Plan update, to which significant attention was given by researching best practices and leading edge ideas. Below are a number of the potential optimization strategies that we are recommending as a result of our research:

- Lobby MOHLTC for more discriminating incident triage software such as Advanced Medical Priority Dispatch System (AMPDS) which, according to users (including Toronto and Niagara), consistently triages closer to incident priority; thus providing greater flexibility in managing deployment of resources (particularly when the service’s capacity is stressed).

- Lobby MOHLTC for more advanced in-vehicle software such as HeadStart, an interface introduced in Niagara that automatically pages and transmits caller location to the closest available ambulance. HeadStart reliably reduces response times by as much as 60-90 seconds. We estimate that it would cost Waterloo Region a minimum of $3 to $5 million a year in additional resourcing to attain similar outcomes.

- Continue planning efforts to consolidate 911, police, fire and EMS emergency communications services; this, in order to attain a more rapid and coordinated public safety response to emergencies. Based on research and North American leading practices, consolidating emergency communications services will not reduce costs at the outset; albeit, cost savings will materialize over time.

- Hospital offload delay is a major pressure impacting paramedic services across Ontario. In Waterloo Region, offload delay presently equals the operating capacity of two 12-hour ambulances, and an estimated $1.4 million a year in ambulance spending. Collaborative efforts with local hospitals have successfully contained offload delay growth. Without these efforts, today’s offload delay would be much worse. It is recommended that current collaborative efforts be continued.

- Community Paramedicine (i.e., wellness clinics, home visits, patient referrals, etc) is potentially a way in which paramedic services may help to improve outpatient care and reduce ambulance transports. Still at an early stage, the reported benefits are at best anecdotal. We recommend that the Public Health Department should recruit a “Paramedic Research Analyst” to flesh out a Waterloo strategy.

- Waterloo Region is served by 3 Emergency Response Units (ERU) serving as EMS first responders primarily in the rural areas. The annual cost to operate 3 RERU is about $1.1 million (50% more than a 12-hour ambulance) and they reduce ambulance use by a small fraction. In consideration of these factors, and the rapidly escalating service demand, the short term priority should be to staff more ambulances.

- The Paramedic Association of Canada, provincial regulatory bodies and educational institutions, are investigating the “scope of practice” for paramedics. This work may result in a narrowing of the gap between PCP and ACP, and by extension impact existing service
delivery models. We recommend that Waterloo Region should temporarily defer recruitment of additional ACP until the research is complete.

- Fire Departments operating in Waterloo Region assist with medical calls in accordance with terms set out in agreed-upon Tiered Response Agreements. According to several Fire Chiefs the present volume of medical assists is not overly taxing; however, the anticipated rapid escalation in EMS call volumes could pose an issue to some Fire departments. We recommend that the Region’s near-term priority should be on staffing more ambulances. Clearly, a number of the optimization strategies that we investigated are beyond the Region’s direct control. Regardless, it is our opinion that they should be pursued either by way of provincial lobbying and/or business cases for change, and the information contained in this Master Plan can be used to such ends.

13.2 NEAR-TERM RESOURCING REQUIREMENTS

Notwithstanding future success that may arise from optimization, additional EMS resources are still needed to address the declining service performance over the past two years (i.e., “catch up”), as listed below.

1. Increase peak staffing to 25 ambulances (up from the current 21). This will add 4 additional 12-hour shifts. Also increase shift readiness reserves by 1 additional ambulance.

2. To staff the 4 additional ambulance shifts, increase full-time paramedics to 134 FTE (up from the current 118), and increase part-time paramedics to 43.2 FTE (up from 39.2).

3. Increase the number of Operations Supervisors to a minimum of 10 FTE (up from the current 7 FTE).

4. Increase the number of Fleet Technicians to 11 FTE (up from the current 7 FTE).

5. Construct Breslau station (Station #11) which is already approved by Regional Council.

6. Construct a new headquarters and fleet centre (Station #12) to augment Maplegrove.

10. In concert with the new headquarters and fleet centre:

   a) Recruit an “Operations Manager” to manage the design and service realignment from central deployment model to divisional deployment centering about two fleet centres.

   b) Recruit an additional Logistics Supervisor to oversee the logistics functions at the second fleet centre (up from the current 1 FTE).

11. Increase the number of Supervisor vehicles to 8 (up from the current 6), this to accommodate the recommended increase in shift supervision, and the new Operations Manager position.

12. Augment the “Professional Standards” function with the following new positions:

   a) “Professional Standards Officer”

   b) “Training Coordinator”
c) “Community Liaison Officer” to coordinate PAD, community education and stakeholder engagement
d) “Performance & Data Analyst” to support the Services’ performance-based transition.

11. Incorporate operating budget allowances to cover the cost of escalating professional support requirements from other Regional departments, as follows:

a) 1 additional FTE (Research Analyst) in the Public Health Department, to flesh out a Waterloo “Community Paramedicine” strategy
b) 1.5 additional FTE in Corporate HR, to support near-term increases in paramedic staffing
c) 1 additional FTE in Fleet Management, to manage Paramedic Services fleet expansion.

With the aforementioned near-term changes ROW Paramedic Services’ staffing will align more closely to EMS peers, as shown in Exhibit 13.1 (below).

**EXHIBIT 13.1: PEER COMPARISONS WITH NEAR-TERM STAFFING CHANGES**

<table>
<thead>
<tr>
<th>LEADERSHIP, ADMIN. &amp; PERFORMANCE</th>
<th>WATERLOO (2016)</th>
<th>EMS PEERS OF COMPARABLE SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIEF / DIRECTOR</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>DEPUTY CHIEF</td>
<td>3</td>
<td>B</td>
</tr>
<tr>
<td>MANAGER, ADMINISTRATION</td>
<td>–</td>
<td>C</td>
</tr>
<tr>
<td>ADMINISTRATIVE &amp; CLERICAL SUPPORT (FTE)</td>
<td>1.5</td>
<td>D</td>
</tr>
<tr>
<td>PERFORMANCE &amp; DATA ANALYST (FTE)</td>
<td>–</td>
<td>E</td>
</tr>
</tbody>
</table>

| OPERATIONS                        |               | F                       |
| OPERATIONS MANAGER                | –              |                          |
| OPERATIONS SUPERVISORS            | 7              |                          |
| PARAMEDICS: FULL-TIME             | 118            |                          |
| PARAMEDICS: PART-TIME (HEAD COUNT)| 79             |                          |

| LOGISTICS & SUPPORT               |               |                          |
| LOGISTICS & SUPPORT MANAGER       | –              |                          |
| SCHEDULING (FTE)                  | 2              |                          |
| SUPERVISOR, LOGISTICS & SUPPORT   | 1              |                          |
| FLEET TECHNICIANS (FTE)           | 7              |                          |

| PROFESSIONAL STANDARDS            |               |                          |
| MANAGER                           | –              |                          |
| PROFESSIONAL STDS, TRAINING, PAD, | 2              |                          |
| AND COMMUNITY PROGRAMS            | 5              |                          |

| FLEET (AT PEAK STAFFING)          |               |                          |
| AMBULANCES                        | 21             |                          |
| ERU                               | 3              |                          |

**13.3 SERVICE TARGETS GOING FORWARD**

The Region’s Response Time Performance Plan (RTPP) was also an important component of this Master Plan update.

Our analysis concludes that Council’s approved response time targets are reasonable compared to EMS peers. However, performance has fallen behind due to insufficient EMS resourcing to meet demand.
By adding “catch up” EMS resources at a recommended service level of 35% UU, response times will improve. On this basis, we recommend that Waterloo Region should maintain the present response time targets going forward to 2017 and 2018.

For the reader’s convenience, Council’s response time targets are summarized in Exhibit 13.2 (below).

Both response time and unit utilization should be monitored regularly on a going forward basis, to ensure that the Service continues to meet the growing demand.

EXHIBIT 13.2: RECOMMENDED SERVICE TARGETS

<table>
<thead>
<tr>
<th></th>
<th>2015-16 RESPONSE TIME STANDARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MINUTES</td>
</tr>
<tr>
<td>SCA</td>
<td>6</td>
</tr>
<tr>
<td>CTAS 1</td>
<td>8</td>
</tr>
<tr>
<td>CTAS 2</td>
<td>10</td>
</tr>
<tr>
<td>CTAS 3</td>
<td>11</td>
</tr>
<tr>
<td>CTAS 4</td>
<td>12</td>
</tr>
<tr>
<td>CTAS 5</td>
<td>12</td>
</tr>
</tbody>
</table>

13.4 LONG-TERM (15-YEAR) RESOURCING RECOMMENDATIONS

1. Adopt the long-term Paramedic Services resourcing forecasts shown in Exhibit 8.4, in principle, subject to regular and ongoing review of needs and the annual budget process. These forecasts set out the future resourcing requirements for ambulances, paramedics and Paramedic Services supporting staff at a favourable UU of 35%.

2. Adopt the station locations in Exhibit 7.4 as the optimum locations for replacement stations, and future (new) stations in priority sequence.

3. Adopt the timetable in Exhibit 7.5 as the recommended long-term timetable for future facility construction. The timetable is subject to periodic review and the annual budget process.

4. All new / replacement deployment stations should feature a 1-storey building of approximately 2,000 sq. ft., with indoor garage for up to two vehicles.
APPENDIX A: LIST OF ACRONYMS
### APPENDIX A: LIST OF ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACP</td>
<td>Advanced Care Paramedic</td>
</tr>
<tr>
<td>ACR</td>
<td>Ambulance Call Report <em>(this term is used interchangeably with PCR)</em></td>
</tr>
<tr>
<td>ADRS</td>
<td>Ambulance Dispatch Reporting System</td>
</tr>
<tr>
<td>AMO</td>
<td>Association of Municipalities of Ontario</td>
</tr>
<tr>
<td>AMPDS</td>
<td>Advanced Medical Priority Dispatch System</td>
</tr>
<tr>
<td>ASR</td>
<td>Ambulance Service Review</td>
</tr>
<tr>
<td>CACC</td>
<td>Central Ambulance Communications Centre</td>
</tr>
<tr>
<td>CAD</td>
<td>Computer Aided Dispatch</td>
</tr>
<tr>
<td>CAO</td>
<td>Chief Administrative Officer</td>
</tr>
<tr>
<td>CARE</td>
<td>Community Awareness and Response to Emergencies Program</td>
</tr>
<tr>
<td>CCAC</td>
<td>Community Care Access Centre</td>
</tr>
<tr>
<td>CME</td>
<td>Continuous Medical Education</td>
</tr>
<tr>
<td>CODE YELLOW</td>
<td>3 or fewer ambulances are available to respond to the next call</td>
</tr>
<tr>
<td>CODE RED</td>
<td>No ambulances are available / they all are tied up on calls</td>
</tr>
<tr>
<td>CTAS</td>
<td>Canadian Triage Acuity Scale</td>
</tr>
<tr>
<td>DPCI2</td>
<td>Dispatch Priority Card System V2.0</td>
</tr>
<tr>
<td>eACR</td>
<td>Electronic Ambulance Call Report <em>(this term is used interchangeably with ePCR)</em></td>
</tr>
<tr>
<td>ED</td>
<td>Emergency Department</td>
</tr>
<tr>
<td>EMS</td>
<td>Emergency Medical Services <em>(this term is used interchangeably with the terms ‘ambulance’ and ‘paramedic services’)</em></td>
</tr>
<tr>
<td>EOC</td>
<td>Emergency Operations Centre</td>
</tr>
<tr>
<td>ePCR</td>
<td>Electronic Patient Care Report <em>(this term is used interchangeably with eACR)</em></td>
</tr>
<tr>
<td>ERU</td>
<td>Emergency Response Unit</td>
</tr>
<tr>
<td>FTE</td>
<td>Full time equivalent</td>
</tr>
<tr>
<td>HR</td>
<td>Human Resources</td>
</tr>
<tr>
<td>HRI</td>
<td>Human Resource Information</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>MBNCana</td>
<td>Municipal Benchmarking Network Canada</td>
</tr>
</tbody>
</table>
MOF         Ministry of Finance
MOL         Ministry of Labour
MOHLTC      Ministry of Health and Long-Term Care
NFPA        National Fire Protection Association
OAPC        Ontario Association of Paramedic Chiefs
OHS         Occupational Health and Safety
P2G         Places to Grow Growth Plan for the Greater Golden Horseshoe
PAD         Public Access Defibrillation
PCP         Primary Care Paramedic
PCR         Patient Care Report (this term is used interchangeably with ACR)
PRPS        Peel Regional Paramedic Services
PTSD        Post-Traumatic Stress Disorder
QA          Quality Assurance
RERU        Rural Emergency Response Unit
RGMS        Regional Growth Management Strategy
RTPP        Response Time Performance Plan
ROW         Region of Waterloo
ROWPS       Region of Waterloo Paramedic Services
TAMS        Time and Attendance Management System
UTM         Upper Tier Municipalities
UU          Unit Utilization
WRESTRC     Waterloo Region Emergency Services Training and Research Complex
WRPS        Waterloo Regional Police Service
WSIB        Workplace Safety and Insurance Board
APPENDIX B: AMBULANCE DISPATCH PRIORITIES
APPENDIX B: AMBULANCE DISPATCH PRIORITIES

The MOHLTC’s standard software system for incident triage and dispatch is the Dispatch Priority Card System V2.0 (DPCI2). This software system assigns a dispatch priority to each incoming request, selecting from the five priority codes listed below:

**Priority 1 ‘Deferrable’**
- This refers to a NON-URGENT call that does not have an associated time element (e.g., a patient being transferred from hospital to a long-term care facility). Such calls may be temporarily delayed without being physically detrimental to the patient.

**Priority 2 ‘Scheduled’**
- This refers to a NON-URGENT call that does have an associated time element (e.g., a patient requiring transport from one hospital to another for a scheduled diagnostic, treatment or other form of medical appointment). The time element is not set by patient convenience, but rather by the availability of the resources at the receiving facility.

**Priority 3 ‘Prompt’**
- This refers to an URGENT but NON LIFE-THREATENING call, where a moderate delay will not adversely affect the outcome (e.g., a patient under professional care who is stable and not in immediate danger, who requires transport to hospital for additional treatment). For such calls, ambulances are dispatched without lights and siren.

**Priority 4 ‘Urgent’**
- This refers to a call where the patient has a LIFE THREATENING or potential life threatening condition, where a delay in medical intervention and transport can have an adverse effect on outcome (e.g., a patient with acute chest pain or serious trauma). For such calls rapid response time is crucial, and ambulances are dispatched with lights and siren.

**Priority 8 ‘Standby’**
- This refers to a TEMPORARY POSTING of an ambulance from one station to another, or to an alternate geographic location, in order TO MAINTAIN BALANCED EMERGENCY COVERAGE, e.g., posting an ambulance midway between its service area and the service area of an adjacent municipality that is temporarily without ambulance coverage.
- From this position, the ambulance will temporarily provide coverage to both service areas, until the latter’s own coverage is restored.
- Standbys do not involve patient contact. While on standby an ambulance may be dispatched to a call involving a patient. When this occurs the standby designation is replaced by one of the above four dispatch priorities.
APPENDIX C: CANADIAN TRIAGE & ACUITY SCALE (CTAS)
APPENDIX C: CANADIAN TRIAGE & ACUITY SCALE (CTAS)

On arrival at the scene of a medical incident, paramedics will rapidly carry out an assessment of the patient’s condition, and subsequently proceed with appropriate medical interventions.

The patient’s condition prior to medical interventions, the nature of the medical interventions, and the patient’s condition following medical interventions are recorded in an incident log, referred to as an Ambulance Call Report (or alternatively, as a Patient Call Report).

The patient’s condition is categorized relative to the Canadian Triage and Acute Scale (CTAS), as defined generally below.  

<table>
<thead>
<tr>
<th>CTAS CATEGORY</th>
<th>DEFINITION</th>
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<tbody>
<tr>
<td>SCA</td>
<td>Sudden cardiac arrest / requires defibrillation.</td>
<td>Immediate</td>
</tr>
<tr>
<td>CTAS 1 Resuscitation</td>
<td>Conditions that are, or may pose, an imminent threat to life or limb (or imminent risk of deterioration) requiring immediate aggressive interventions.</td>
<td>Immediate</td>
</tr>
<tr>
<td>CTAS 2 Emergent</td>
<td>Conditions that potentially threaten to life, limb or function, requiring rapid medical interventions or delegated acts.</td>
<td>Within 15 minutes</td>
</tr>
<tr>
<td>CTAS 3 Urgent</td>
<td>Conditions that could potentially progress to a serious problem requiring emergency intervention. May be associated with significant discomfort or affecting ability to function at work or activities of daily living.</td>
<td>Within 30 minutes</td>
</tr>
<tr>
<td>CTAS 4 Semi Urgent</td>
<td>Conditions that may be related to patient age, distress, or potential for deterioration or complications, which would benefit from intervention or reassurance within 1-2 hours.</td>
<td>Within 1 hour</td>
</tr>
<tr>
<td>CTAS 5 Non-Urgent</td>
<td>Conditions that may be acute but non-urgent as well as conditions which may be attributed to a chronic problem. Interventions may be delayed for several hours.</td>
<td>Within 2 hours</td>
</tr>
</tbody>
</table>


APPENDIX D: RESPONSE TIME PERFORMANCE PLANS AMONG PEERS
APPENDIX D: RESPONSE TIME PERFORMANCE PLANS AMONG PEERS


### WATERLOO REGION

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Due March 31, 2016
APPENDIX E: PCP / ACP COMPETENCIES
## APPENDIX E: PCP / ACP COMPETENCIES

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<th>PRIMARY CARE PARAMEDIC (PCP)</th>
<th>ADVANCED CARE PARAMEDIC (ACP)</th>
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<td><strong>ACADEMIC TRAINING</strong></td>
<td>2-YEAR COLLEGE PROGRAM (LICENSURE)</td>
<td>3-YEAR COLLEGE PROGRAM (LICENSURE)</td>
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| **PARAMEDICAL SERVICE DELIVERY** | • Rooted in formal education and training, including instruction in symptom relief and controlled/delegated medical acts  
• Measured in terms of knowledge, problem-solving and decision-making | • Added knowledge and skills for more advanced assessment, treatment and management of life-threatening problems |
| **ASSESSMENT / DIAGNOSTICS**    | • Triage and manage a multiple-patient incident  
• Take patient history / conduct assessment including cardiovascular, neurological, respiratory, gastrointestinal, psychiatric and bariatric  
• Assess vital signs / perform diagnostic tests including sepsis, stroke and heart attack  
• Perform 12 lead ECG and identify S-T Elevation Myocardial Infarction (STEMI) cardiac patients | All PCP skills PLUS  
• More advanced assessment and treatment for toxicological syndromes and neonatal patients  
• More advanced cardiac and ECG assessment, including 15 lead ECG and ability to identify complex cardiac dysrhythmias |
| **AIRWAY MANAGEMENT / VENTILATION** | • Placement of Oro and Nasopharyngeal airways and King LT Supraglottic airway  
• Use of Continuous Positive Airway Pressure (CPAP) on patients with severe respiratory difficulty | All PCP skills PLUS  
• Advanced Airway placement via Nasal or Oral Endotracheal Intubation  
• Foreign body airway blockage removal via laryngoscope and McGill Forceps |
| **RESPIRATORY SUPPORT**        | • Administer oxygen using portable delivery system  
• Ventilation using manual (mechanical) positive pressure device | All PCP skills |
| **CARDIAC**                    | • Cardiopulmonary Resuscitation (CPR)  
• Automated external defibrillation (AED)  
• Manual defibrillation  
• PCP-IV, IV fluid | All PCP skills PLUS  
• IV therapy with medications  
• Cardioversion and other advanced cardiac pacing |
| **TRAUMA INJURIES**            | • Dressing, bandaging and immobilization procedures for soft tissue injuries including burns, eyes, penetration wounds, and local cold injuries  
• Immobilize and treat suspected fractures  
• Traction splint for femurs  
• Application of Kendrick Extrication Device (KED)  
• Taser probe removal | All PCP skills PLUS  
• Needle Chest Decompression (Needle Thoracotomy) for Tension Pneumothorax |
| **MEDICATION ADMINISTRATION**  | Carries medication to treat:  
• Diabetic emergencies  
• Narcotic overdose reversal  
• Nausea and vomiting  
• Allergic reactions | All PCP medications PLUS  
• ACLS cardiac medications  
• Post cardiac arrest  
• Sepsis B/P support (Dopamine)  
• Pain medication (morphine)  
• Cardiac dysrhythmia management medications  
• Seizures  
• Chemical sedation |

Principal Source: National Occupational Competency Profile for Paramedics, by Paramedic Association of Canada, 2011
APPENDIX F: EMERGENCY RESPONDER TRAINING
## APPENDIX F: EMERGENCY RESPONDER TRAINING

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<tr>
<th>FIREFIGHTER (EMERGENCY RESPONDER)</th>
<th>EMERGENCY MEDICAL RESPONDER</th>
<th>COMBINED PCP/ACP AMBULANCE CREW</th>
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<td><strong>IN SERVICE TRAINING</strong></td>
<td><strong>RECOGNIZED TRAINING PROGRAM</strong></td>
<td><strong>COLLEGE PROGRAM (LICENSURE)</strong></td>
</tr>
<tr>
<td>8-40 HOURS</td>
<td>80-120 HOURS</td>
<td>PCP - 2 YEARS / ACP - 3 YEARS</td>
</tr>
<tr>
<td>• Periodic updates (8-20 hours)</td>
<td>• Recertification 40-44 hrs every 3 years</td>
<td>• Structured CQI / Rigorous QA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Annual recertification (Base Hospital)</td>
</tr>
<tr>
<td>• Basic airway management</td>
<td>• Basic airway management</td>
<td>• More advanced airway management including CPAP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Intubation &amp; foreign blockage removal (ACP)</td>
</tr>
<tr>
<td>• Administer oxygen</td>
<td>• Administer oxygen</td>
<td>• Administer oxygen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Manual respiratory support</td>
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<td>• CPR / AED</td>
<td>• CPR / AED</td>
<td>• CPR / AED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Manual defibrillation / IV starts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cardioversion and other advanced cardiac pacing (ACP)</td>
</tr>
<tr>
<td>• Scene assessment, rapid body survey</td>
<td>• Basic triage and assessment of multiple patients</td>
<td>• Advanced triage, assessment &amp; diagnostic testing</td>
</tr>
<tr>
<td>• Standard first aid, basic wound management, C-spine immobilization</td>
<td>• Advanced first aid, dressing, bandaging and immobilization</td>
<td>• 12 lead ECG / 15 lead (ACP)</td>
</tr>
<tr>
<td>• Symptom assist (but not local Fire Dept’s)</td>
<td>• Trained in symptom assist</td>
<td>• Advanced problem identification and treatment, ranging from relatively minor to complex life-threatening</td>
</tr>
<tr>
<td>• May administer Glucagon for low blood sugar, and EpiPen (Epinephrine)</td>
<td>• May administer Glucagon for low blood sugar, and EpiPen (Epinephrine)</td>
<td>• Trained in symptom relief and controlled / delegated medical acts</td>
</tr>
<tr>
<td>• No controlled / delegated medical acts</td>
<td>• No controlled / delegated medical acts</td>
<td>• May administer 15+ medications</td>
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<tr>
<td></td>
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<td>• Presently may not apply EpiPen</td>
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</table>
Performance Measurement Report (mid-year)
For the Period of January – June 2016
Produced on August 31st, 2016

As a result of work related to the Paramedic Services master plan, a number of best practice recommendations were implemented resulting in significant changes to the methodology of this report. Due to these changes, such as switching from counting distinct calls within Waterloo Region to counting vehicle responses by Paramedic Services both inside and outside of Waterloo Region, results in this report are not comparable to previously published reports and therefore trends cannot be inferred from the data. Further, throughout this report, the term vehicle response is used. A vehicle response is generated when an ambulance or emergency response unit is dispatched to a call; there can be more than one vehicle response per call (multiple ambulances/emergency response units assigned to the same call; for example multi-casualty incidents).
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## Summary

### A. Volume and Service Level Indicators

<table>
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<th>Indicator</th>
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<th>Per cent change</th>
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<td>Rate of vehicle responses per 1,000 population*</td>
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<td>81.8</td>
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<tr>
<td>Unit Utilization</td>
<td>41.7%</td>
<td>40.5%</td>
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</tbody>
</table>

### B. Compliance and Quality Assurance Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Mid-year (2015)</th>
<th>Mid-year (2016)</th>
<th>Per cent change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paramedic Services Response Time to Emergency Calls</td>
<td>9min 58sec</td>
<td>9min 43sec</td>
<td>-2.5%</td>
</tr>
<tr>
<td>Response Time Performance Plan Compliance Resuscitation calls (CTAS1)</td>
<td>71.1%</td>
<td>71.0%</td>
<td>-0.2%</td>
</tr>
<tr>
<td>Response Time Performance Plan Compliance Emergent calls (CTAS2)</td>
<td>76.8%</td>
<td>78.4%</td>
<td>+2.1%</td>
</tr>
</tbody>
</table>

### C. Efficiency Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Mid-year (2015)</th>
<th>Mid-year (2016)</th>
<th>Per cent change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offload Delay*</td>
<td>93.1 days</td>
<td>45.7 days</td>
<td>-50.9%</td>
</tr>
<tr>
<td>Code Yellow Time</td>
<td>15.4%</td>
<td>12.1%</td>
<td>-21.4%</td>
</tr>
<tr>
<td>Code Red Time</td>
<td>1.6%</td>
<td>0.7%</td>
<td>-55.2%</td>
</tr>
</tbody>
</table>

### D. Service and Quality Impact Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Mid-year (2015)</th>
<th>Mid-year (2016)</th>
<th>Per cent change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke Patient to Stroke Facility*</td>
<td>88.2%</td>
<td>86.2%</td>
<td>-2.3%</td>
</tr>
<tr>
<td>Return of Spontaneous Circulation*</td>
<td>13.3%</td>
<td>13.8%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Heart attack (STEMI) protocol*</td>
<td>63.1%</td>
<td>74.6%</td>
<td>+18.3%</td>
</tr>
</tbody>
</table>

*A similar indicator is captured, with some variation in measurement units, within a portion of the MBNCanada (formerly OMBI) reporting process.*
A. Volume and Service Level Indicators

**Definition of Indicator Group**
Quantity type indicators that show values related to work intake and work breakdown (how much did we do?).

**Summary of Results**
For the first half of 2016, Paramedic Services responded to 20,735 calls resulting in 23,855 vehicles responses, up 6.2 per cent from the same time period in 2015, and is above the previous five year average of 4.9 per cent. Currently 47,972 vehicles responses are projected for year-end 2016. The rate of vehicle responses, 81.8 for every 1,000 people, is up 3.8 per cent from 2015, continues outpace population growth and was influenced by the aging population. Unit utilization ranged from 30.3 per cent at 2AM to 54.6 per cent at 11AM. When Unit Utilization exceeds 40 per cent it becomes difficult to ensure an ambulance will be available for the next call in a reasonable time. Monitoring unit utilization allows for proactive planning to ensure community needs are met in a reasonable time while using a sustainable level of deployed staff. Note that the effects of two additional 12-hour ambulances added in July of 2016 and a scheduling adjustment of another 12-hour ambulance in September 2016 will not be reflected until future reports.

<table>
<thead>
<tr>
<th>Indicator Name</th>
<th>Indicator Definition</th>
<th>Mid-year (2015)</th>
<th>Mid-year (2016)</th>
<th>Per cent change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Vehicle Responses</td>
<td>A measure of service demand. The total number of ambulances or emergency response units (vehicles) that responded to calls dispatched to Region of Waterloo Paramedic Services inside or outside of Waterloo Region. More than one vehicle may respond to a single call; for example, multiple casualty incidents.</td>
<td>22,472</td>
<td>23,855</td>
<td>+6.2%</td>
</tr>
<tr>
<td>Rate of Vehicle Responses per 1,000 population</td>
<td>A measure of service demand. The rate of vehicle responses per 1,000 population to calls dispatched to Region of Waterloo Paramedic Services inside or outside of Waterloo Region. More than one vehicle may respond to a single call; for example, multiple casualty incidents.</td>
<td>78.8</td>
<td>81.8</td>
<td>+3.8%</td>
</tr>
<tr>
<td>Unit Utilization</td>
<td>Unit utilization measures the per cent of time that ambulances and emergency response units are actively engaged in responding to calls (codes 1 to 4) – as opposed to being deployed waiting for calls. Monitoring resource deployment through unit utilization helps ensure sufficient staffing to meet community needs. When unit utilization exceeds 40 per cent, it becomes difficult to ensure vehicles will be available for the next call within a reasonable time.</td>
<td>41.7%</td>
<td>40.5%</td>
<td>-3.0%</td>
</tr>
</tbody>
</table>
### Number and rate of vehicle responses per 1,000 population, by dispatch priority code and year

Region of Waterloo Paramedic Services, inside and outside of Waterloo Region, January 1st to June 30th, 2011-2016

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Deferrable</td>
<td>472</td>
<td>422</td>
<td>310</td>
<td>289</td>
<td>81</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>2 – Scheduled</td>
<td>59</td>
<td>86</td>
<td>86</td>
<td>79</td>
<td>57</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>3 – Prompt</td>
<td>5,523</td>
<td>5,913</td>
<td>5,520</td>
<td>5,398</td>
<td>6,586</td>
<td>6,294</td>
<td></td>
</tr>
<tr>
<td>4 – Urgent</td>
<td>12,836</td>
<td>13,537</td>
<td>13,919</td>
<td>14,606</td>
<td>15,748</td>
<td>17,430</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rate per 1,000 (YTD)</th>
<th>69.1</th>
<th>72.2</th>
<th>71.2</th>
<th>72.3</th>
<th>78.8</th>
<th>81.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual change (%)</td>
<td>4.8%</td>
<td>4.5%</td>
<td>-1.3%</td>
<td>1.6%</td>
<td>8.9%</td>
<td>3.8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total vehicle responses (YTD)</th>
<th>18,890</th>
<th>19,958</th>
<th>19,835</th>
<th>20,372</th>
<th>22,472</th>
<th>23,855</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual change (%)</td>
<td>6.2%</td>
<td>5.7%</td>
<td>-0.6%</td>
<td>2.7%</td>
<td>10.3%</td>
<td>6.2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total vehicle responses (annual)</th>
<th>37,924</th>
<th>40,461</th>
<th>40,238</th>
<th>42,096</th>
<th>45,344</th>
<th>47,972*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual change (%)</td>
<td>7.0%</td>
<td>6.7%</td>
<td>-0.6%</td>
<td>4.6%</td>
<td>7.7%</td>
<td>5.8%</td>
</tr>
</tbody>
</table>

* Projected

Source: ADRS (August 10th, 2016)
Rate of vehicle responses per 1,000 population, by municipality and year
Region of Waterloo Paramedic Services, inside and outside of Waterloo Region, January 1st to June 30th, 2011-2016

<table>
<thead>
<tr>
<th>Rate of vehicle responses per 1,000, by year, within Waterloo Region</th>
<th>2011 → 2016</th>
<th>Min. - Max.</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cambridge</td>
<td></td>
<td>63.5 - 89.5</td>
<td>89.5</td>
</tr>
<tr>
<td>Kitchener</td>
<td></td>
<td>74.9 - 88.8</td>
<td>88.8</td>
</tr>
<tr>
<td>Waterloo</td>
<td></td>
<td>48.4 - 61.0</td>
<td>61.0</td>
</tr>
<tr>
<td>Cities total</td>
<td></td>
<td>65.1 - 81.7</td>
<td>81.7</td>
</tr>
<tr>
<td>Townships</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Dumfries</td>
<td></td>
<td>49.7 - 86.4</td>
<td>86.4</td>
</tr>
<tr>
<td>Wellesley</td>
<td></td>
<td>32.4 - 49.2</td>
<td>40.3</td>
</tr>
<tr>
<td>Wi lmot</td>
<td></td>
<td>51.8 - 66.6</td>
<td>61.5</td>
</tr>
<tr>
<td>Woolwich</td>
<td></td>
<td>60.2 - 79.0</td>
<td>74.6</td>
</tr>
<tr>
<td>Townships total</td>
<td></td>
<td>52.3 - 69.0</td>
<td>66.5</td>
</tr>
<tr>
<td>Waterloo Region total</td>
<td></td>
<td>63.6 - 79.9</td>
<td>79.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number and proportion of total vehicle Responses outside Waterloo Region*</th>
<th>2011 → 2016</th>
<th>Min. - Max.</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of vehicle responses</td>
<td>379 - 627</td>
<td>557 calls</td>
<td></td>
</tr>
<tr>
<td>Proportion of total vehicle responses</td>
<td>1.8 - 3.5</td>
<td>2.3 per cent</td>
<td></td>
</tr>
</tbody>
</table>

*A population based rate of calls cannot be accurately calculated for calls outside of Waterloo Region because it is difficult to determine the size of the service population (denominator).

Source: ADRS (August 10th, 2016)
### Region of Waterloo * Paramedic Services PERFORMANCE MEASUREMENT

#### Number and rate of vehicles responses per 1,000 population, by municipality and month

Region of Waterloo Paramedic Services, inside and outside of Waterloo Region, January 1\(^{st}\) to June 30\(^{th}\), 2016

<table>
<thead>
<tr>
<th>Rate of vehicle responses per 1,000, by month, within Waterloo Region</th>
<th>Jan  →  Dec</th>
<th>Year-to-date (YTD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cambridge</td>
<td></td>
<td>89.5</td>
</tr>
<tr>
<td>Kitchener</td>
<td></td>
<td>88.8</td>
</tr>
<tr>
<td>Waterloo</td>
<td></td>
<td>61.0</td>
</tr>
<tr>
<td><strong>Cities total</strong></td>
<td></td>
<td>81.7</td>
</tr>
<tr>
<td><strong>Townships</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Dumfries</td>
<td></td>
<td>86.4</td>
</tr>
<tr>
<td>Wellesley</td>
<td></td>
<td>40.3</td>
</tr>
<tr>
<td>Wilmot</td>
<td></td>
<td>61.5</td>
</tr>
<tr>
<td>Woolwich</td>
<td></td>
<td>74.6</td>
</tr>
<tr>
<td><strong>Townships total</strong></td>
<td></td>
<td>66.5</td>
</tr>
<tr>
<td><strong>Waterloo Region total</strong></td>
<td></td>
<td>79.9</td>
</tr>
<tr>
<td><strong>Outside Waterloo Region total</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Waterloo Region Paramedic Services total</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* A population based rate of calls cannot be accurately calculated for calls outside of Waterloo Region because it is difficult to determine the size of the service population (denominator).

Source: ADRS (August 10\(^{th}\), 2016)
Number of patient transports, by return priority code
Region of Waterloo Paramedic Services, inside and outside of Waterloo Region, January 1st to June 30th, 2014-2016

<table>
<thead>
<tr>
<th>Priority Code</th>
<th>2016</th>
<th>2015</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Deferrable</td>
<td>2,814</td>
<td>3,080</td>
<td>3,055</td>
</tr>
<tr>
<td>(2) Scheduled</td>
<td>91</td>
<td>82</td>
<td>89</td>
</tr>
<tr>
<td>(3) Prompt</td>
<td>11,751</td>
<td>10,843</td>
<td>10,042</td>
</tr>
<tr>
<td>(4) Urgent</td>
<td>1,722</td>
<td>1,522</td>
<td>1,537</td>
</tr>
<tr>
<td>(6) Transport deceased</td>
<td>-</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Total patient transports</td>
<td>16,378</td>
<td>15,531</td>
<td>14,724</td>
</tr>
</tbody>
</table>

Source: TabletPCR (August 10th, 2016)
Various measures of service provided by Region of Waterloo Paramedic Services, by year
Inside and outside of Waterloo Region, January 1st to June 30th, 2011-2016

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of unique calls (T1, code 1-4)</td>
<td>16,906</td>
<td>17,739</td>
<td>17,524</td>
<td>18,252</td>
<td>19,580</td>
<td>20,735</td>
<td></td>
<td>22.6</td>
</tr>
<tr>
<td>Number of vehicles dispatched (T2, code 1-4)</td>
<td>18,890</td>
<td>19,958</td>
<td>19,835</td>
<td>20,372</td>
<td>22,472</td>
<td>23,855</td>
<td></td>
<td>26.3</td>
</tr>
<tr>
<td>Number of vehicles arriving on scene (T4, code 1-4)</td>
<td>17,116</td>
<td>17,980</td>
<td>17,959</td>
<td>18,392</td>
<td>19,953</td>
<td>21,231</td>
<td></td>
<td>24.0</td>
</tr>
<tr>
<td>Number of vehicles transporting patients (T6, code 1-4)</td>
<td>12,109</td>
<td>12,570</td>
<td>12,875</td>
<td>13,553</td>
<td>14,270</td>
<td>15,072</td>
<td></td>
<td>24.5</td>
</tr>
<tr>
<td>Per cent of vehicles dispatched arriving on scene</td>
<td>90.6</td>
<td>90.1</td>
<td>90.5</td>
<td>90.3</td>
<td>88.8</td>
<td>89.0</td>
<td></td>
<td>-1.8</td>
</tr>
<tr>
<td>Per cent of vehicles arriving on scene transporting patients</td>
<td>70.7</td>
<td>69.9</td>
<td>71.7</td>
<td>73.7</td>
<td>71.5</td>
<td>71.0</td>
<td></td>
<td>0.3</td>
</tr>
</tbody>
</table>

Note that due to differences between the ADRS and TabletPCR data sources, there may be variance between similar indicators.

Source: ADRS (August 10th, 2016)
Unit Utilization, by hourly average (24 hour clock)
Region of Waterloo Paramedic Services, January 1st, 2013 to December 31st, 2015, January 1st to June 30th, 2015 and 2016

Source: ADRS (August 10th, 2016)
**B. Compliance and Quality Assurance Indicators**

**Definition of Indicator Group**

Indicators that monitor Paramedic Services’ adherence to internal process, procedure, legislated mandates etc. (how well did we do it?).

**Summary of Results**

To June 2016 the 80th percentile response time to emergency calls (code 4) within Waterloo Region was 9 minutes and 43 seconds, 2.5 per cent (15 seconds) faster than 2015, and likely influenced by additional resources added mid-year 2015 taking effect and a slight easing in the rate of call growth. Using an informal benchmark Paramedic Services monitors response times observed from urban, suburban, and rural perspectives as defined by call density. Response times vary according to population and road density. Drives times are longer in rural areas. Compliance to the 2016 Response Time Performance Plan improved for the most urgent call types and worsened for the less urgent call types indicating that the most urgent calls are being given a more appropriate priority and are being attended to faster. Setting faster times for more urgent calls and progressively slower times for less urgent calls is a standard approach. Note that the effects of two additional 12-hour ambulances added in July of 2016 and a scheduling adjustment of another 12-hour ambulance in September 2016 will not be reflected until future reports.

<table>
<thead>
<tr>
<th>Indicator Name</th>
<th>Indicator Definition</th>
<th>Mid-year (2015)</th>
<th>Mid-year (2016)</th>
<th>Per cent change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paramedic Services Response Time to</td>
<td>A measurement of the Paramedic Services’ ability to meet performance a summary</td>
<td>9min 58sec</td>
<td>9min 43sec</td>
<td>-2.5%</td>
</tr>
<tr>
<td>Emergency Calls</td>
<td>performance indicator, response time to code 4 calls, 80th percentile.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response Time Performance Plan</td>
<td>Resuscitation calls involve conditions that are, or may pose, an imminent threat to</td>
<td>71.1%</td>
<td>71.0%</td>
<td>-0.2%</td>
</tr>
<tr>
<td>Compliance</td>
<td>life or limb or risk of deterioration requiring immediate aggressive interventions;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resuscitation calls (CTAS1)</td>
<td>ideal physician assessment is immediate. The current target for resuscitation calls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>is a response time of 8 minutes or less 70 per cent of the time or better. A high</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>proportion of compliance indicates that the most urgent calls are being attended to</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>in the appropriate time frame.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response Time Performance Plan</td>
<td>Emergent calls involve conditions that potentially threaten to life, limb or</td>
<td>76.8%</td>
<td>78.4%</td>
<td>+2.1%</td>
</tr>
<tr>
<td>Compliance Emergent</td>
<td>function, requiring rapid medical interventions or delegated acts; ideal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>calls (CTAS2)</td>
<td>physician assessment is within 15 minutes. The current target for emergent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>calls is a response time of 10 minutes or less 80 per cent of the time or better.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Response time to emergency calls (code 4), 80th percentile, by month
Any paramedic service, inside Waterloo Region, January 1st, 2013 to December 31st, 2015, and January 1st to June 30th, 2016

Sources: ADRS (August 10th, 2016)
Response time to emergency calls (code 4), 80th percentile, by vehicle response density
Any paramedic service, inside Waterloo Region, January 1st to June 30th, 2013-2016

Source: ADRS (August 10th, 2016)
## Compliance to 2016 response time performance plan, by Canadian Triage Acuity Score (CTAS)

Region of Waterloo Paramedic Services, inside or outside of Waterloo Region, January 1st to June 30th, 2015 and 2016

<table>
<thead>
<tr>
<th>Type of call</th>
<th>Response Time Target</th>
<th>Approved 2016 Region of Waterloo target</th>
<th>2015 (year-to-date)</th>
<th>2016 (year-to-date)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Paramedic Services notified (T2) to arrive scene (T4)</td>
<td></td>
<td>Per cent compliance</td>
<td>Per cent compliance</td>
</tr>
<tr>
<td>Sudden Cardiac Arrest</td>
<td>Defibrillator response in 6 minutes or less (set by MOHLTC)</td>
<td>50% or better (Paramedic Services only)</td>
<td>36%</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>06:59</td>
<td>06:55</td>
</tr>
<tr>
<td>CTAS 1</td>
<td>Paramedic Services response in 8 minutes or less (set by MOHLTC)</td>
<td>70% or better</td>
<td>71%</td>
<td>71%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>07:53</td>
<td>08:18</td>
</tr>
<tr>
<td>CTAS 2</td>
<td>Paramedic Services response in 10 minutes or less</td>
<td>80% or better</td>
<td>77%</td>
<td>78%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10:34</td>
<td>10:23</td>
</tr>
<tr>
<td>CTAS 3</td>
<td>Paramedic Services response in 11 minutes or less</td>
<td>80% or better</td>
<td>76%</td>
<td>79%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11:39</td>
<td>11:23</td>
</tr>
<tr>
<td>CTAS 4</td>
<td>Paramedic Services response in 12 minutes or less</td>
<td>80% or better</td>
<td>78%</td>
<td>81%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12:30</td>
<td>12:08</td>
</tr>
<tr>
<td>CTAS 5</td>
<td>Paramedic Services response in 12 minutes or less</td>
<td>80% or better</td>
<td>77%</td>
<td>76%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12:34</td>
<td>12:15</td>
</tr>
</tbody>
</table>

Source: ADRS and TabletPCR (August 10th, 2016)
C. Efficiency Indicators

Definition of Indicator Group

Indicators that outline how timely Paramedic Services is being performed by staff and offered to the Region (how well did we do it?).

Summary of Results

For the first half of 2016, Offload Delay losses declined 50.9 per cent from the same time last year, a savings of nearly 50 ambulance days. Offload Delay is currently trending below the previous lows last observed in 2013. Paramedic Services and local hospitals continue to collaborate closely to address the issue of Offload Delay to limit the effects of Offload Delays on Paramedic Services. Collaboration on new and innovative strategies to address Offload Delay and return crews to the public for re-assignment helps to limits our Offload Delay losses. Time spent in Code Yellow and Code Red declined in the first half of 2016, 21.4 per cent and 55.2 per cent respectively from the same time last year. Code Yellow and Code Red are now trending at or slightly above the historical average. Note that the effects of two additional 12-hour ambulances added in July of 2016 and a scheduling adjustment of another 12-hour ambulance in September 2016 will not be reflected until future reports.

<table>
<thead>
<tr>
<th>Indicator Name</th>
<th>Indicator Definition</th>
<th>Mid-year (2015)</th>
<th>Mid-year (2016)</th>
<th>Per cent change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offload Delay Measurement</td>
<td>The amount of 24 hour ambulance days lost to offload delay over the course of a month.</td>
<td>93.1 days</td>
<td>45.7 days</td>
<td>-50.9%</td>
</tr>
<tr>
<td>Code Yellow Status</td>
<td>The percentage of time where Paramedic Services is in a Code Yellow Status for the month (≤ three vehicles available).</td>
<td>15.4%</td>
<td>12.1%</td>
<td>-21.4%</td>
</tr>
<tr>
<td>Code Red Status</td>
<td>The percentage of time where Paramedic Services is in a Code Red Status for the month (zero vehicles available).</td>
<td>1.6%</td>
<td>0.7%</td>
<td>-55.2%</td>
</tr>
</tbody>
</table>
Number of ambulance days lost to offload delay, by month
Region of Waterloo Paramedic Services, inside and outside of Waterloo Region, January 1\textsuperscript{st} to December 31\textsuperscript{st} 2012-2015 and January 1\textsuperscript{st} to June 30\textsuperscript{th}, 2016

<table>
<thead>
<tr>
<th></th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>YTD</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>11.1</td>
<td>17.4</td>
<td>20.6</td>
<td>16.9</td>
<td>17.1</td>
<td>12.3</td>
<td>11.1</td>
<td>10.5</td>
<td>15.8</td>
<td>20.5</td>
<td>13.2</td>
<td>23.2</td>
<td>95.4</td>
<td>189.7</td>
</tr>
<tr>
<td>2013</td>
<td>17.2</td>
<td>10.6</td>
<td>5.8</td>
<td>6.4</td>
<td>4.9</td>
<td>4.6</td>
<td>4.1</td>
<td>5.2</td>
<td>6.0</td>
<td>5.1</td>
<td>2.6</td>
<td>5.8</td>
<td>49.4</td>
<td>78.2</td>
</tr>
<tr>
<td>2014</td>
<td>11.3</td>
<td>8.8</td>
<td>9.8</td>
<td>10.5</td>
<td>9.0</td>
<td>6.9</td>
<td>4.3</td>
<td>5.3</td>
<td>6.0</td>
<td>10.3</td>
<td>10.3</td>
<td>11.2</td>
<td>56.3</td>
<td>103.7</td>
</tr>
<tr>
<td>2015</td>
<td>17.7</td>
<td>14.2</td>
<td>15.7</td>
<td>19.9</td>
<td>14.4</td>
<td>11.2</td>
<td>9.9</td>
<td>10.5</td>
<td>10.2</td>
<td>14.4</td>
<td>6.7</td>
<td>5.2</td>
<td>93.1</td>
<td>150.0</td>
</tr>
<tr>
<td>2016</td>
<td>6.6</td>
<td>9.3</td>
<td>12.9</td>
<td>5.5</td>
<td>6.9</td>
<td>4.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>45.7</td>
<td>45.7</td>
</tr>
</tbody>
</table>

Source: TabletPCR (August 10\textsuperscript{th}, 2016)
Percentage of time in code yellow status, by month
Region of Waterloo Paramedic Services, inside and outside of Waterloo Region, January 1\textsuperscript{st} to December 31\textsuperscript{st} 2012-2015 and January 1\textsuperscript{st} to 30\textsuperscript{th}, 2016

Source: CACC (August 15\textsuperscript{th}, 2016)
Percentage of time in code red status, by month
Region of Waterloo Paramedic Services, inside and outside of Waterloo Region, January 1st to December 31st 2012-2015 and January 1st to 30th, 2016

Source: CACC (August 15th, 2016)
D. Service and Quality Impact Indicators

**Definition of Indicator Group**
Indicators that measure not only the timely provision of service, but how well that service is being provided by Paramedic Services’ staff (How well is the service being performed?).

**Summary of Results**
Note that service type indicators tend to fluctuate around the average over time, particularly when a small number of cases are involved. The percentage of stroke patients taken to stroke facilities was down 2.3 per cent from the same time last year. Results for the Return of Spontaneous Circulation (ROSC) indicator continued to trend down compared to the historical average. As any Return of Spontaneous Circulation is deemed to be positive, results are in an acceptable range (variation is normal due to the small number of cases). Heart attack STEMI (ST-Segment Elevation Myocardial Infarction) Protocol compliance (providing care in less than 90 minutes) also fluctuated around the historical at 74.6 per cent for the year-to-date (variation is expected for heart attack STEMI due to the numerous variables involved).

<table>
<thead>
<tr>
<th>Indicator Name</th>
<th>Indicator Definition</th>
<th>Mid-year (2015)</th>
<th>Mid-year (2016)</th>
<th>Per cent change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke Patient to Stroke Facilities</td>
<td>The percentage of stroke patients taken to Provincial Stroke Facilities. *Note that ‘stroke protocol’ outlines that only patients with certain symptoms and within certain timelines are transported to a stroke facility. Due to this, a variance under 100% may not necessarily represent a missed target.</td>
<td>88.2%</td>
<td>86.2%</td>
<td>-2.3%</td>
</tr>
<tr>
<td>Return of Spontaneous Circulation (ROSC)</td>
<td>The percentage of cardiac arrest patients with the return of pulse.</td>
<td>13.3%</td>
<td>13.8%</td>
<td>+3.4%</td>
</tr>
<tr>
<td>Heart attack (STEMI) Protocol ST-Segment Elevation Myocardial Infarction</td>
<td>The percentage of STEMI patients where care was provided in less than 90 minutes ('STEMI' represents a type of heart attack). *Note that indicator results are shared among Paramedic Services and St. Mary’s Hospital. Paramedic Services can only control time from patient contact to arrival at St. Mary’s Hospital; the remaining time to the 90 minute target is Hospital dependent.</td>
<td>63.1%</td>
<td>74.6%</td>
<td>+18.3%</td>
</tr>
</tbody>
</table>
Percentage of stroke patients transported to a stroke facility†, by quarter
Region of Waterloo Paramedic Services, inside and outside of Waterloo Region, January 1st to December 31st, 2012-2015 and January 1st, 2016 to June 30th, 2016

†Stroke facilities include: Grand River, Brantford General, Hamilton General, Stratford General, and Guelph General.
Source: TabletPCR (August 10th, 2016)
Percentage of cardiac arrest patients with return of spontaneous circulation (ROSC), by quarter
Region of Waterloo Paramedic Services, inside and outside of Waterloo Region, January 1\textsuperscript{st} to December 31\textsuperscript{st}, 2012-2015 and January 1\textsuperscript{st}, 2015 to June 30\textsuperscript{th}, 2016

Source: TabletPCR (August 10\textsuperscript{th}, 2016)
Percentage of heart attack patients where care was provided in less than 90 minutes (STEMI protocol), by quarter
Region of Waterloo Paramedic Services, inside and outside of Waterloo Region, January 1st to December 31st, 2012-2015 and January 1st to June 30th, 2016

Source: St. Mary’s Hospital (August 31st 2016)
E. GLOSSARY

**ADRS:** Ambulance Dispatch Reporting System

**CACC:** Central Ambulance Communications Centre

**Call density:** A 1km x 1km grid was overlaid across Waterloo Region so each call could be assigned a grid square based on its location. The total number of calls and an average per month calculated for each grid square. Grid squares were then assigned one of three classes:

- **Urban** - A grid square was classed as urban if there were more than two calls per month per square kilometer and at least half of its neighbouring grid squares were of the same density or higher.
- **Suburban** - A grid square was classed as suburban if there were less than or equal to two calls and more than 0.5 calls per month per square kilometer and at least half of its neighbouring grid squares were of the same density or higher.
- **Rural** - A grid square was classed as suburban if there were less than or equal to 0.5 calls and more than 0.08 calls per month per square kilometer and at least half of its neighbouring grid squares were of the same density or higher.

**Cardiac Arrest:** A sudden, sometimes temporary, cessation of the heart’s functioning.\(^i\)

**Code 1 (Deferrable):** A routine call that may be delayed without detriment to the patient (e.g. a non-scheduled transfer; a minor injury).\(^ii\)

**Code 2 (Scheduled):** A call which must be done at a specific time, for example because of special treatment or diagnostic facility requirement (e.g. inter-hospital transfers or a scheduled meet with an air ambulance).\(^iii\)

**Code 3 (Prompt):** A call that should be performed without delay (e.g. serious injury or illness).\(^iv\)

**Code 4 (Urgent):** A call that must be performed immediately where the patients ‘life or limb’ may be at risk (e.g. Vital Signs Absent patient or unconscious head injury).\(^v\)

**Code Red:** When the Region of Waterloo Paramedic Services is at a level where no ambulances are available to respond to the next emergency call and no out of town services are immediately available to assist.\(^vi\)

**Code Yellow:** When the Region of Waterloo Paramedic Services is at minimum coverage of three vehicles or less.\(^vii\)
CTAS Level: The ‘Canadian Triage & Acuity Scale’ is used to assign a level of acuity to a patient. Acuity refers to the gravity of the situation – the potential for death and/or irreversible illness. CTAS is a tool that more accurately defines the patient’s need for care. Assignment of the CTAS level is to be based upon not only the presenting complaint identified on the initial assessment made by the paramedic, but also on their examination findings, and response to treatment.

Defibrillator: An electronic device that applies an electric shock to restore the rhythm of a fibrillating heart.

Dispatch Priority Code: The priority code number that is assigned to the call by the dispatcher. It identifies the priority under which the ambulance responds to the call location (e.g. an urgent response would be entered as Code 4).

Emergency Calls: Based on dispatch priority only. Emergency calls are categorized as Code 4 (Urgent).

Indicator: A defined part of a program/team/system that is deemed important to measure and provide “specific information on the state or condition of”, as it contributes to the efficient and effective achievement of an outcome.

MBNCanada: Municipal Benchmarking Network Canada, formerly the Ontario Municipal Benchmarking Initiative (OMBI), is a partnership between Canadian municipalities for the purpose of fostering and supporting a culture of service excellence through the identification, creation, and collection of consistent and comparable performance data, and the sharing of operational best practices and collaboration on creative solutions to improve performance.

Offload Delay: Offload delay measures the offload of patients at local hospitals, which can impact the resources required and availability to respond to calls.

Patient Transport(s): The total number of patients carried in the ambulance during a given call.

Performance Measurement: A method to monitor, observe and describe program implementation. It portrays information to tell that outputs are being delivered as planned, and gives an idea of whether outcomes are occurring. It provides information to be used for evaluation.

Response: See vehicle response.

Response Time: Response time means the time measured from the time a notice is received to the earlier of either the arrival on-scene of a person equipped to provide any type of defibrillation to sudden cardiac arrest patients or the arrival on-scene of the ambulance crew.
Return of Spontaneous Circulation: Signs of the return of spontaneous circulation (ROSC) include breathing (more than an occasional gasp), coughing, or movement. For healthcare personnel, signs of ROSC also may include evidence of a palpable pulse or a measurable blood pressure.\(^{xvi}\)

Return Priority Code: The priority code number that is assigned to the call by the ambulance crew. It identifies the priority under which the patient is transported (e.g. a prompt return to a medical facility would be entered as a Code 3).\(^{xvii}\)

STEMI: A STEMI (ST-Segment Elevation Myocardial Infarction) is a specific type of myocardial infarction (MI), or in other words a type of heart attack, which demonstrates characteristic ECG (electrocardiogram; a tool to measure electrical activity of the heart) changes including marked elevation in the ST-segment in the cardiac cycle.\(^{xviii}\)

STEMI Facilities: A hospital that houses onsite Percutaneous Coronary Intervention (PCI) facilities with an experienced interventional team.\(^{xix}\)

Stroke Facilities: Stroke facilities are based on a collaborative model of 11 regional stroke networks. Each regional network is comprised of a Regional Stroke Centre (RSC), District Stroke Centres (DSCs) and community hospitals. The regional stroke networks are collaborative partnerships of care providers that span the care continuum from prevention to community re-engagement. The goal is to coordinate equitable access and improve outcomes for stroke survivors.\(^{xx}\)

T1: The time point when a call is entered in to the queue at the Central Ambulance Communications Centre and is available for dispatch.

T2: The time point when ambulance/response unit is notified by the Central Ambulance Communications Centre of a call.

T4: The time point when an ambulance/response unit arrives at the dispatched call’s location/scene. This is not the time point when a paramedic is at the patient’s side.

T6: The time point when an ambulance arrives at its destination (e.g. hospital).

TabletPCR: An internal tool used to track information and data relevant to calls and patient care reporting.

Unit Utilization: Percentage of staffed vehicles utilized during any unit of time.\(^{xvi}\) Note that when UU exceeds a value of 40 per cent, it becomes difficult to ensure an ambulance will be available for the next call in a reasonable time.
Vehicle response: A vehicle response is generated when an ambulance or emergency response unit is dispatched to a call; there can be more than one vehicle response per call (multiple ambulances/emergency response units assigned to the same call; for example, multi-casualty incidents).

YTD: Year-to-date refers to the period extending from the beginning of the current reporting year (January 1st) to the end of the reporting period. For the mid-year report’s end date is June 30th, and the year-end report’s end date is December 31st.
F. Contact Information

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Paramedic Services
120 Maple Grove Road
Cambridge, Ontario N3H 4R6
Tel: 519-650-8295
Fax: 519-650-3855

Stephen VanValkenburg, Director/Chief, Paramedic Services
svanvalkenburg@regionofwaterloo.ca

Accessible formats of this document are available upon request. Please call the Coordinator, Health Communications at 519-575-4400 ext. 2244, (TTY 519-575-4608) to request an accessible format.
Notes


