The Regional Municipality of Halton

Report To:	Chair and Members of the Health and Social Services Committee
From:	Hamidah Meghani, Commissioner and Medical Officer of Health
Date:	May 19, 2015
Report No. - Re:	MO-14-15 - Paramedic Services 10-Year Master Plan

RECOMMENDATION

THAT Report No. MO-14-15 Re: "Paramedic Services 10-Year Master Plan" be adopted as a strategic planning framework for operational, capital and organizational decisions related to the delivery of paramedic services.

REPORT

Executive Summary

- The Paramedic Services 10-Year Master Plan provides a strategic planning framework for public policy, organizational, capital and operational decisions pertaining to the delivery of paramedic services.

- The Master Plan outlines the anticipated pressures that the Paramedic Services Division is expected to face over the next 10-years as well as the paramedic, administrative, technology and physical resources that will be required to address these pressures.

Background

In 2005, Regional Council approved the original 10-Year Master Plan for paramedic services (Report No. MO-06-05 Re: Emergency Medical Services 10-Year Master Plan). The objective of the original Master Plan was to serve as a strategic planning framework (blueprint) for public policy, organizational, capital and operational decisions pertaining to the delivery of paramedic services. The plan also recommended strategies to ensure Halton Region was adequately prepared to address the various pressures related to the provision of paramedic services between 2005 and 2015. All of the recommendations contained in the original Master Plan have been addressed, or in the case of station construction are underway (Report Nos. MO-44-09, MO-21-11, MO-17-12, MO-15-13).

As a result of a request for proposal an award was issued to Pomax Consulting Inc. (Pomax) to update to the master plan for the period 2015 to 2025. Due to the timing of the completion of the master plan, the consultant was requested to include anticipated requirements through to 2026.

Discussion

The Master Plan is intended to serve as a strategic planning framework for operational, capital and organizational decisions related to the delivery of paramedic services. The purpose of this report is to summarize the staff recommendations based on an assessment of the Pomax technical report.

Staff are supportive of a number of the recommendations contained in the master plan, specifically:

- Maintaining the existing population to paramedic staffing ratio.
- Maintaining the existing approved 20:1 paramedic to superintendent ratio.
- Utilizing the low growth forecast for the 10-year budget forecast and planning purposes, while monitoring the impact of population growth and aging which may require additional staff beyond the existing population to paramedic staffing ratio.
- Augmenting administrative and technical support to reduce the dependence on accommodated/modified duties staff.
- Reviewing options to address garage and logistics space through the creation of a central reporting station facility and expanded headquarters facility.
- Enhancing technology to ensure the division has the tools to remain responsive and efficient.
- Monitoring community paramedic pilot projects currently underway in several municipalities across the province and report back to Regional Council during the life of the master plan regarding opportunities to explore programs of this nature in Halton Region.

Regulatory Framework

Under the local services realignment initiative, upper tier municipalities/designated delivery agents were given responsibility for the delivery of paramedic services with the Province retaining responsibility for regulatory oversight, including setting and ensuring compliance with standards. The Province provides annual grant funding of up to 50% of eligible costs.

The Province also retained responsibility for all communications functions related to ambulance services, including the answering of incoming calls, dispatching ambulances and the provision of all telecommunications infrastructure. Communications functions for the Regions of Halton and Peel are handled through the Ministry of Health and Long-Term Care (MOHLTC) operated Mississauga Central Ambulance Communications Centre (CACC).

Upper tier municipalities/designated delivery agents are responsible for all other aspects of paramedic services, including response time standards, establishing service levels, quality assurance, education and planning.

Different parts of an ambulance call are the responsibilities of the MOHLTC and Halton Region. Figure 1 outlines the various phases of a call and who is responsible for each.

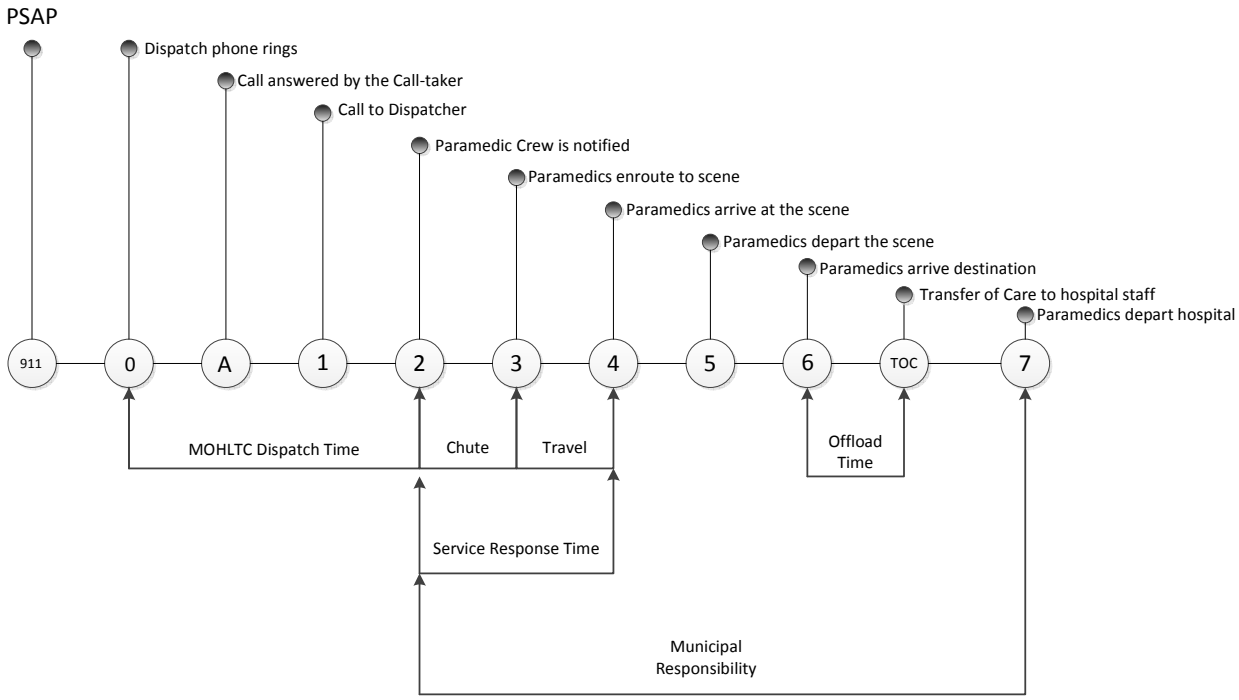


Figure 1: Anatomy of an Ambulance Call

Pomax reviewed the various call phases between 2003 and 2013 to identify any significant trends. For the most part, times for all call phases have seen only minimal change during this 10-year period. The consultants noted ". . . no significant resource pressure being exerted on the Halton Paramedic Service; that is, none of the phases – except for the period 2011 to 2013 in the Arrived Destination to Clear Destination (paramedics depart hospital) phase – indicate a consistent upward trend in duration." (p. 16)

The increase in the Arrived Destination to Clear Destination time is directly attributed to an increase in hospital offload delay. In 2014, Halton Healthcare Services – Georgetown Site was the only Halton hospital to consistently meet the 30 minute ambulance offload standard.

Response Time Performance

Pomax noted that 90th percentile and average response times to priority 4 life-threatening calls (paramedic crew notified to paramedics arrive at the scene) for the period 2003 to 2014 have remained consistent despite call volume increasing by over 50% during the same period (Figure 2).

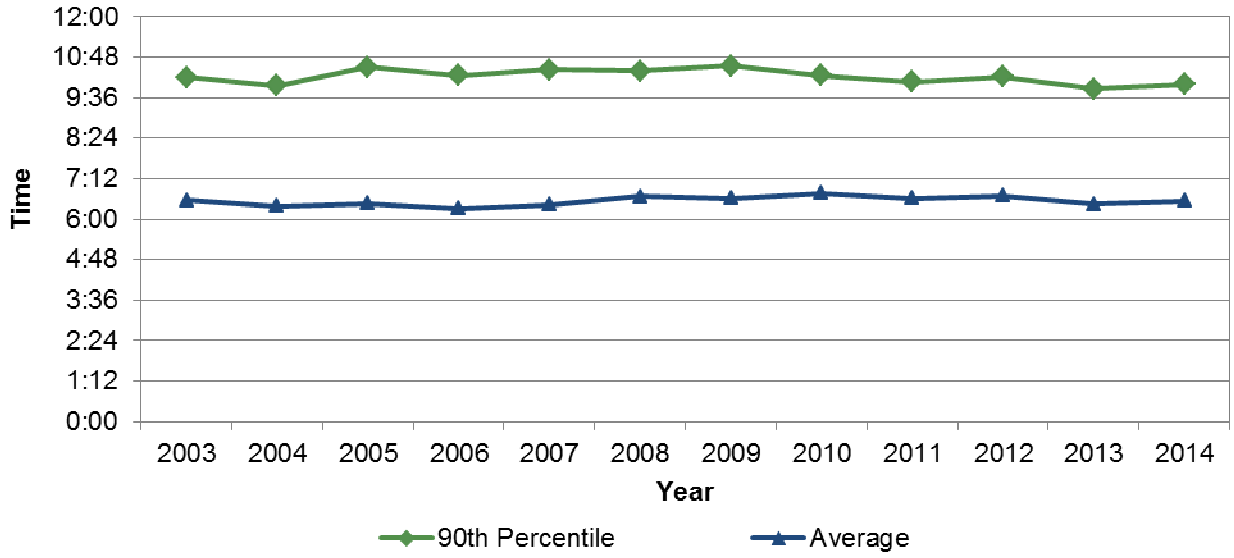


Figure 2: Response times for priority four life-threatening calls, average and 90th percentile values, 2003-2014

Growth in Call Volume

Over the past 10 years call volume increased from 28,707 calls in 2005 to 40,664 calls in 2014, an increase of 41.7%.

Pomax reviewed potential call volume during the master plan period and has identified two scenarios. The first is based on the ratio of calls to population remaining consistent at the current rate of 0.076 calls per capita during the life of the plan and the second scenario has call volume increasing at a higher rate of 0.081 calls per capita as of 2017.

Staff are recommending that for planning purposes the low growth forecast be utilized for the 10-year budget forecast. Staff will continue to closely monitor call volume and system performance and report back to Regional Council if call volume exceeds the current rate of calls per capita.

Recommendation #1: That for planning purposes the low growth forecast be utilized for the 10-year budget forecast.

The primary drivers for the increasing call volume is population and employment growth along with the impact of an aging population. During the life of the master plan, Halton's population is forecast to increase by 27%.

The impact of the aging population is significant as persons over age 65 typically utilize paramedic services at a higher rate than those in other age cohorts. In 2014, approximately 14% of the population was over age 65, but this group accounted for over 50% of all paramedic calls (Figure 3). As noted in the Halton Older Adults Plan (Report No. SS-23-15/MO-12-15) the number of older adults in Halton will double over the next 20 years, to over 127,000 by 2031. During the life of the master plan the number of older adults is forecast to increase by 43%.

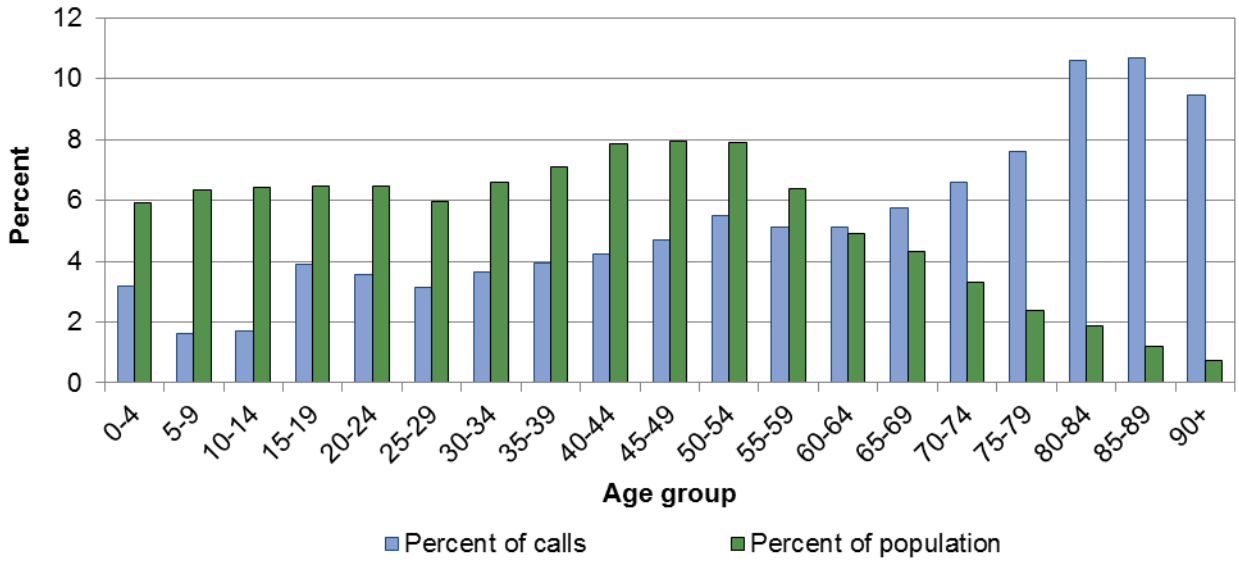


Figure 3: Percent of the population utilizing paramedic services and associated call volumes, by age group, 2014

Resource Requirements

The 2015 Paramedic Services budget provides 131,400 hours of ambulance staffing and 13,140 hours of Emergency Response Unit (ERU) staffing. Call volume typically begins to increase at 8 am and continues to rise until peaking at noon; call volume remains high until approximately 11 pm. Given the hourly variation in call volume, the division attempts to match paramedic staffing to demand. Currently, a total of 19 ambulances are staffed during the busiest periods, decreasing to 12 ambulances after 11 pm when call volume is at the lowest level.

Between 2015 and 2026 the Master Plan has identified a requirement for 6 additional 24-hour ambulances based on the lower forecast of 0.076 calls per capita.

A total of 11.6 FTE are required to staff 1 ambulance, 24-hours per day, 7-days a week, or 8,760 hours of staffing annually. Six additional 24-hour ambulances will require 69.6 paramedic FTE. This requirement includes the 5.8 FTE approved in the 2015 budget to staff an additional ambulance 12-hours per day.

In addition to ambulances, Pomax is also recommending that the division continue to utilize a dedicated ERU program as a component of the service delivery model. A total of 6 ERUs staffed 12-hours per day are required during the life of the master plan.

The primary benefits of ERUs are:

- enhanced coverage, either to areas of high demand or to areas outside of existing station coverage areas,
- the cost, a fully equipped ERU is approximately 50% of the cost of a fully equipped ambulance, and
- ERUs arriving first on the scene of a call contribute to reduced response times

Dedicated ERUs staffed by a single paramedic were introduced in 2011; the division currently staffs 3 ERUs 12-hours per day in rural Milton, South West Oakville and North Burlington. While ERUs play an important role in enhancing paramedic service, they cannot replace transport capable ambulances.

Staff of 2.9 FTE are required for an ERU 12-hours per day, 7-days a week, or 4,380 hours of staffing annually. Six additional 12-hour ERUs will require 17.4 paramedic FTE.

The increase in the size of the paramedic workforce will also require an increase in superintendent staffing to maintain the approved paramedic to superintendent ratio of 20:1. A total of 5 FTE superintendents are required under the low growth scenario. This includes the 2 FTE approved in the 2015 budget.

Non-Paramedic FTE

Pomax noted that while the number of paramedics and superintendents has increased over the past 10 years due to growth, administrative, technical, and logistics staffing required to support the division has not increased, resulting in activities that should be completed by dedicated staff being completed by operations superintendents or paramedics restricted to modified duties due to medical reasons. The reliance on modified duties staff creates challenges as staff typically remain on modified duties for brief periods of time which results in frequent re-training when staff return to regular duties and new staff are assigned to modified duties. On occasion there are periods when no staff are assigned to modified duties, resulting in tasks being delayed or not completed.

In order to address current administrative and support staff requirements, as well as future growth, the Master Plan identifies a requirement for 17.3 non-paramedic FTE during the life of the master plan. This includes the 1.0 FTE Operations Coordinator position approved in the 2015 budget to provide administrative and scheduling support to operations, therefore the total non-paramedic FTE requirements are 16.3.

Recommendation #2: That an additional 16.3 non-paramedic FTE be considered during the next 10-years.

Station Locations and Emergency Coverage

Pomax assessed the emergency response coverage capability provided by the existing and future stations. They observed that the planned 2031 expanded urban areas were generally adequately covered by the existing and future stations with some shortfall near the fringes and across natural and man-made barriers; coverage can be further improved when mobile ambulances and emergency response units are deployed strategically on the roadway network.

As the existing paramedic stations are well located to provide coverage, but have limited options for expansion to accommodate additional vehicle requirements, Pomax concluded that a hybrid model of the existing local ambulance stations and a 25 bay central reporting station combined with a mobile emergency response unit strategy is the best approach for Halton Region over the next 10 years. This strategy has been adopted by a number of jurisdictions, including the City of Ottawa, the City of Toronto, Peel Region and Waterloo Region.

Under this model, rather than building additional 2 or 3-bay stations in the community, an expanded headquarters facility/central reporting station capable of housing all of the additional vehicles would be utilized. Staffing at the existing stations would be maintained with additional enhancement staffing reporting to the central reporting station and then deployed into the community.

The MOHLTC ambulance service licence renewal process contains a requirement that all vehicles are housed indoors in a temperature-controlled environment. At present the division has 40 vehicles, but only 33 bays, resulting in the balance of vehicles being stored outside when not in use. The 2015 budget includes additional funding for leased space which will accommodate indoor parking for an additional 5 vehicles on an interim basis until a long-term plan is implemented.

In addition to the space required related to a central reporting station Pomax completed a high level analysis of administrative space requirements to accommodate non-paramedic FTE growth which identified a need for an additional 6,548 square feet. This results in an estimated total additional space requirement of 20,974 square feet.

While Pomax has identified an expansion of the existing headquarters facility as the preferred approach; further review is required to determine options to accommodate the additional administrative space requirements and the optimum location of a central reporting station. Staff is recommending that this review be completed as a component of a longer-term accommodation strategy that includes a review of the viability of the Woodlands site and the impact to the existing clients located at Woodlands.

Recommendation #3: That options related to a central reporting station and additional headquarters space requirements be reviewed in 2016/17 as a component of a longer-term accommodation strategy.

Technology

The Master Plan identifies several technology items that are required over the next 10-years to ensure the division has the tools available to remain responsive and efficient. A number of the technology recommendations are either already underway or require further review. There are three key technology recommendations that are being recommended for implementation during the life of the master plan: dispatch connectivity, scheduling software, and business intelligence software.

Dispatch Connectivity

Dispatch connectivity refers to a link between the MOHLTC-operated CACC dispatch computers and Paramedic Services in-vehicle computers or mobile data terminals. This connectivity will allow incident data to be sent to paramedics electronically rather than via voice over the radio network. This method of dispatching will significantly reduce notification time, and will improve the accuracy of the dispatching process as paramedics will have instant access to all call information, including location, routing options, call details and call times.

This recommendation is consistent with the Greater Toronto Area Dispatch Services Review (Report No. MO-10-12) that noted operational efficiencies could be achieved through the implementation of additional technology at the CACC.

In the past, the MOHLTC has been reluctant to implement applications of this nature; however, the MOHLTC has recently indicated that they are now prepared to look at providing upper tier municipalities with access to this technology upon the completion of pilot testing which is anticipated to begin in 2015 in a small number of municipalities.

Recommendation #4: That a Business Case, including any implications on resource requirements, will be developed for consideration during the budget process for the year in which availability of the dispatch connectivity service from MOHLTC is anticipated.

Scheduling Software

The scheduling, time and attendance processes and systems used by Paramedic Services were implemented over a decade ago to meet the division's requirements at that time. As the division continues to grow these processes and supporting systems will require modernization and renovation to meet the requirements of a larger service.

Recommendation #5: That a Business Case regarding scheduling software, including any implications on resource requirements, will be developed for consideration during the 2017 budget process.

Business Intelligence Software

Paramedic Services coordinates numerous sources of data. Given that this data is located in a number of different systems, the Master Plan recommends that Paramedic Services implements a data warehouse and business intelligence reporting tool that would centralize information and allow for ad hoc reporting.

Staff proposes that this recommendation is addressed through the creation of a management information system strategy for Paramedic Services. The strategy will define the information required to inform management decisions, the processes required to maintain the information and systems required to support these processes, and a multi-year roadmap to achieve the program.

Recommendation #6: That a Business Case be developed for consideration during the 2016 budget process to define a Management Information System Strategy for Paramedic Services.

Other Technology Recommendations

There are a number of other technology recommendations in the master plan that are either already in progress or require further review by staff and therefore are not being included for consideration at this time.

Mobile Integrated Healthcare Model

The Master Plan includes a section regarding the concept of mobile integrated healthcare as an option to mitigate the impact of call volume growth by reducing the number of patients that are transported to hospital. They describe Mobile Integrated Healthcare as "… the provision of healthcare using patient-centred, mobile resources in the out-of-hospital environment. It may include, but is not limited to, services such as providing telephone advice to 9-1-1 callers instead of resource dispatch; providing community paramedicine care, chronic disease management, preventive care or post-discharge follow-up visits; or transport or referral to a broad spectrum of appropriate care, not limited to hospital emergency departments." (p. 72)

This approach has been adopted in several jurisdictions in the United States and in the United Kingdom. The model outlined by Pomax would be driven at the local level by Halton Region, while in the United Kingdom these initiatives are being driven at the national government level.

Similar to the concept of mobile integrated healthcare, a number of programs utilizing paramedics in non-traditional emergency response roles have been implemented in Ontario. These programs are typically referred to a "Community Paramedic" programs and include referrals to the Community Care Access Centre and utilizing paramedics in jurisdictions with low call volume to provide home visits.

The MOHLTC has highlighted the potential role of community paramedic programs in their February 2015 Patients First Action Plan for Health Care and the Seniors Strategy for Ontario. Both of these reports make reference to paramedics visiting vulnerable patients in their residence and providing a range of services, including managing chronic disease and providing referrals to health or community services. These programs could support high users of paramedic services to avoid emergency department visits, hospitalizations and potentially delay entry into a long-term care home. (Ontario Seniors Strategy p. 17)

In addition to community paramedic projects, the MOHLTC is funding local community Health Links to provide coordinated, efficient and effective care to patients with complex needs. Each of the local Health Links teams has expressed a desire to utilize paramedics in their business plan. Staff have provided feedback on business case development as well as analysis of paramedic data regarding high users, but have not committed to further participation at this time.

Paramedic Services has also supported the Crisis Prevention/COMMANDE initiative that was piloted in the Town of Milton and will continue to participate as this program is expanded to other Halton municipalities in 2015.

Paramedic Services is supportive of programs intended to support higher users of paramedic services to reduce the number of emergency calls and the number of patients requiring transportation to hospital. Rather than proceeding with a Mobile Integrated Healthcare model at this time, staff are recommending that the Paramedic Services Division monitors the community paramedic pilot projects currently underway in several municipalities across the province and report back to Regional Council during the life of the master plan regarding opportunities to explore programs of this nature in Halton Region.

Recommendation #7: That staff report back to Regional Council regarding opportunities related to community programs intended to reduce the demand for paramedic services.

Conclusion

The Master Plan outlines the anticipated pressures that the Paramedic Services Division is expected to face over the next 10-years as well as the paramedic, administrative, technology and physical resources that will be required to address these pressures.

FINANCIAL/PROGRAM IMPLICATIONS

A detailed financing plan will be included in the 2016 Budget and Forecast, based on the recommendations discussed above and budget considerations. The following summarizes the anticipated impact of the proposed Master Plan.

Additional Program Needs:	Existing as of 2015	Additional Needs per Master Plan 2016-2020	2021-2026	Total	% Increase	Total cumulated
Vehicles (# of)	45	12	12	24	53%	69
Defib. (# of)	35	9	9	18	51%	53
Stations (Sq. ft)	51,611	29,245	-	29,245	57%	80,856
Paramedics/Superintendants (FTE)	173.4	38.7	45.5	84.2	49%	257.6
Support Staff (FTE)	16.0	12.3	4.0	16.3	102%	32.3

For the period between 2016 and 2026, the Master Plan (Plan) identifies the additional program needs that represent significant increases from the current operation in order to support growth. These include 24 additional ambulance/ERU vehicles, requiring 18 defibrillators and 84.2 paramedics and superintendents as well as 16.3 additional support staff. Further, the Plan identifies a station expansion of 29,245 sq.ft. to facilitate the centralized reporting station approach and to house increased vehicles and staff. Information Technology (IT) needs (i.e. dispatch connectivity, scheduling software and business intelligence) have also been newly identified to support the growing operation. Some of these additional needs have been incorporated in the 2015 budget forecast, except for the requirements related to station expansion, IT and support staff which will be addressed as part of the 2016 budget process.

In support of the program needs identified above, funding requirements and the resulting financial impact are estimated as follows.

2015 Paramedics Master Plan
Financial Implications ($000s, $2015)

Capital Expenditures:	**2016-2020**	**2021-2026**	**Total**
Vehicles & Defib.	$ 2,094	$ 3,923	$ 6,017
Stations	8,103	-	8,103
IT	440	440	880
Total	$ 10,638	$ 4,363	$ 15,001

Operating Impact:	**2016-2020**	**2021-2026**	**Total**
Operating Cost:			
Staff	$ 4,992	$ 5,851	$ 10,842
Maintenance	1,050	733	1,783
Sub-total	$ 6,042	$ 6,584	$ 12,626
Capital financing:	617	152	769
Less: Subsidy	(2,900)	(3,160)	(6,060)
Net Impact	**$ 3,759**	**$ 3,576**	**$ 7,335**
Average Annual Increase	**$ 752**	**$ 596**	**$ 667**
2015 Forecast (Average Annual Increase)	$ 538	$ 404	$ 465
Incremental Increase	**$ 214**	**$ 192**	**$ 202**

The expansion of the program will require a total of $15.0 million in capital funding, $10.6 million of which is needed within the next five years. This will provide vehicles/defibrillators, IT requirements and will accommodate the centralized reporting station. As noted earlier, the station requirements will be assessed as part of the Regional Accommodation Strategy, and the timing and funding requirements will be further refined through this process. The capital requirements will be funded through a combination of Regional reserves, debt and development charges (DC). With respect to the capital expenditures, approximately 65% of growth-related costs will be funded from DCs, and this funding requirement will be incorporated in the next DC by-law update currently scheduled in 2016.

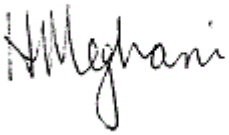
The increase in operating expenditures would total $12.6 million, with $6.0 million expected in the first five years (2016-2020) and $6.6 million in the remaining forecast period (2021-2026), driven mainly by the staff cost. The estimated operating impact includes subsidy at 48% of the cost share ratio based on funding provided in recent years. When combined with capital financing impact, the net increase in operating cost totals $3.8 million in the first five years and $3.6 million in the remaining years. This represents an average annual budget increase of $752,000 in the first five years and $596,000 in the remaining forecast period.

The provisions related to the additional paramedics and vehicles were already included in the 2015 budget forecast, at an average annual budget increase of $538,000 (2016-2020) and $404,000 (2021-2026). With these provisions taken into account, the additional incremental impact anticipated in the forecast is an average annual increase of $214,000 for the first five years and $192,000 for the remaining years. The financial impact of the staffing and capital program will be determined annually through the budget process.

Recommendation #8: That any of the financial requirements identified in the Master Plan will be subject to review in the annual budget process.

Respectfully submitted,

Greg Sage
Chief/Director, Paramedic Services



Hamidah Meghani, MD
Commissioner and Medical Officer of Health

Approved by

Jane MacCaskill
Chief Administrative Officer

If you have any questions on the content of this report, please contact: Greg Sage Tel. # 7091

Attachments: Master Plan for Halton Region Paramedic Services – Executive Summary