Council Direction:
Not Applicable

Information:
The purpose of this report is to provide supplementary information to the 2014 budget enhancement request for Hamilton Paramedic Service.

Integrated Performance Solutions (IPS), an internationally recognized consulting firm which includes Emergency Medical Services deployment, planning, and operations within their specialties, was contracted by the City in 2006 to provide analysis of the developing “Code Zero" issues, and to make operational, staffing, and deployment recommendations.

Report HES06005(a) - Resource and Deployment Review of Emergency Medical Services (EMS) (City Wide) which was received by Council on June 29, 2007 included the IPS Report as an attachment. As outlined in HES06005(a), the consulting firm recommended an increase in supervisory and support staff plus an increase equivalent to 9.5 transport ambulances staffed 24/7, with a staffing complement increase of 100 FTE’s, at an estimated 2007 cost of $11.99M.

Based upon staff recommendations, Council approved some supervisory and staff support positions, a transport ambulance increase equivalent to 2 vehicles staffed 24/7, and an increase of six (6) single person Emergency Response Vehicles (ERV). The staffing increase was 58 FTE’s at an estimated gross cost of $7.03M.
The IPS Report further recognized future ongoing call volume growth, population demographic shifts, and municipal development in recommending the addition, at peak demand hours, of a further 6 ambulances over the next four years (2008 through 2011).

These forward facing service demand staffing recommendations were not addressed within the staff report summary and were not implemented.

Subsequent to the 2006 review, and implementation of staffing in 2007 and 2008, Hamilton Health Sciences announced their Access to Best Care Plan (ABC) which would modify health service delivery across their sites. In particular, the McMaster University Medical Centre would no longer accept adult ambulance patients.

Concerns were expressed regarding the impact this would have on ambulance availability for response as result of increased transport and offload times.

A second IPS Consultant report was commissioned to address these issues and was received by Council on March 10, 2009 attached to Report HES09002 “Third Party Review Report on Additional Costs to EMS Resulting from Hamilton Health Sciences Access to Best Care Plan (City Wide)”. To address the MUMC change in roles, the consultant recommended the addition of one (1) ambulance 24 hours per day, as well as 10.0 full time equivalent paramedics, to address the impact of longer transport times, vehicles being out of normal response areas, the potential for increased volumes, and to maintain response times.

Following this report, Council approved one (1) single person Emergency Response Vehicle (ERV), and a total of 5.5 FTE’s to address the potential problems of the MUMC change. Further direction was given to staff to return to Council with a report following implementation of the changes and any recommendations for required ambulance coverage and staffing increases.

Staff returned to Council in January and May 2011 with Reports HES12001 and HES12007 respectively. Staff concluded that because of expected improvements in ambulance offload times as result of anticipated increases in MOHLTC funding for offload nurse staffing they did not recommend moving forward at that time with the implementation of the additional transport ambulance capacity.

These anticipated MOHLTC grant funding increases are restricted to the provision of 26,448 hours of dedicated offload nurse staffing. Funding was established at $1.307M, for the period April 1, 2012 through March 31, 2013 and an inflationary increase brought this funding to $1.343M for the 2013-14 fiscal year. Funding is equally distributed to the Hamilton General Hospital, Juravinski Hospital, and St. Joseph’s Hospital.

Most recently Report CS13019 (Code Zero Update) advised Council that Hamilton Paramedic Service (HPS) continues to be challenged in ability to respond to emergency
calls as a result of call volumes and the duration of calls. The workload created from these operational challenges impacts our paramedic and supervisory staff through increased end of shift overtime, an inability to provide consistent breaks over the course of the work shift, and constant response performance pressure from high volumes of calls which are frequently overlapping during their shift. Code Zero occurrences is a primary indicator that workload is excessive and that the ability of the service to respond is challenged. A Code Zero occurrence is an instance where there are one or less transport ambulances available to respond to emergency ambulance requests within the City.

Staff analysis of the response data for the 12 month period before and after the restriction on transporting adult patients to the McMaster University Medical Centre (MUMC) Emergency Department confirms that approximately 2,400 patients per year that would have previously been transported to MUMC by ambulance are now being transported to one of the three remaining adult sites. The average time on task for these patients is approximately 30 minutes longer than it would be had they been transported to MUMC. Further, to maintain response time performance other ambulances are utilized to “cross cover” back into the MUMC area which adds to paramedic workload.

Further, Report CS13019 also outlines that the Hamilton average of 133 responses per 1,000 population continues to be higher than the Provincial average. Approximately 99% of all calls are currently dispatched by the MOHLTC operated dispatch centre as either urgent or life-threatening.

As previously identified to Council, the average “time on task” (TOT) for Hamilton Paramedic Service is now at an average of 91 minutes, longer than our peer comparators.

The longest portion of the current average TOT for HPS is that time period from arrival at the receiving hospital through transfer of care for the patient and subsequent ability of the paramedics to clear the hospital after getting the required equipment available for another response. The targeted time period for this is to have the ambulance ready for their next assignment within 30 minutes of arrival 90 percent of the time.

Dispatch records year to date show that the average time to clear hospital is 62 minutes, and that 10% of transports result in the crew being at hospital for more than 1 hour and 47 minutes. The 2012 OMBI report indicates that 23.8% of every staffed transport ambulance hour is spent at hospital, a duration above the provincial median and the second highest reported measure in the Province. Over the first eight (8) months of this year, staff experienced almost 8,000 incidents, an average of 29 times a day, where the ambulance was longer than one hour from arrival at hospital until clear and available. Offload delays in excess of 4 hours occurred 186 times. Delays
resultant from transporting patients from Urgent Care Centres to hospital for urgent or emergent medical care is a significant contributor to these delays.

Despite the initial belief that increasing offload nurse funding through MOHLTC grant funding would appropriately offset the lost ambulance response capacity resultant from both volume increases and time on task, that premise has not been actualized. Hamilton Paramedic Service continues to be challenged by long times at the hospital. Over the first eight months of the calendar year our records indicate that 8,900 cases took more than 60 minutes for ambulances to clear the hospital following arrival.

Senior hospital representatives suggest that while the additional offload nurse hours are valuable, other systemic issues related to hospital patient flow have also impacted on the various sites’ ability to offload ambulance patients in an expeditious manner as intended. Hospital representatives express a belief that had the increase in offload nursing staff for receipt of ambulance patients not been available the offload times would have in fact deteriorated further.

To determine workload comparisons, staff have also reached out to similar paramedic services for comparative evaluation of transport ambulance staffing levels. In particular, Unit Utilization (UU)\(^1\) rates, a proxy measure that incorporates the three primary factors of response volume, time on task, and staffed vehicle hours, were calculated following receipt of current data. The 2013 Hamilton transport ambulance Unit Utilization rate at 0.63 is significantly higher than our closest large neighbours, the Regions of Halton (0.316) and Niagara (0.330). Other large service comparators are similarly much lower than Hamilton including Peel Region (0.376), York Region (0.352), and Ottawa (0.403).

The inverse of UU is Unit Availability, a measure of the time that ambulances are available for response. These comparisons confirm that Hamilton Paramedic Service has a much higher Unit Utilization rate at 0.63, and inversely a lower response availability rate than our peers.

The three main contributing factors to Code Zero events and Unit Utilization rates are:

(a) response volumes;
(b) the number of ambulances available; and,
(c) time on task which is the time an ambulance is committed to a call from the time they are assigned the call by the ambulance dispatch until they

\(^1\) Unit Utilization (UU) is calculated by multiplying Response Volume by the Time on Task, and dividing the results by the total number of transport ambulance hours available for the same period. For example, if there is one ambulance staffed for 12 hours (720 minutes), and it does 6 responses with an average TOT duration of exactly 60 minutes per call, the UU calculation is 0.50 

\((6 \text{ responses} \times 60 \text{ minute avg TOT}) / 720 \text{ minutes available}) = 0.50.\)

Actual calculations for 2012 show that Hamilton transport ambulances performed 61,648 responses, with an average TOT duration of 89 minutes, and a planned transport ambulance hour staffing of 144,905 hours per year, creating a UU of 0.631.
are again available for assignment following cancellation of the call enroute, at the scene, or after having unloaded the patient at the hospital.

The following three primary strategies will begin to address this problem:

1. Conversion of some single person ERV’s to full staffed transport ambulances.
2. Reducing hospital delays to decrease overall time on task.
3. Increasing the number of ambulances available through staffing enhancement.

Effective January 5, 2014, staff implemented the first strategy to address the shortfall in transport ambulances through the conversion of three (3) single person ERV’s to fully staffed ambulance coverage, which resulted in increased transport ambulance coverage of 36 unit hours per day.

The second strategy to be implemented is a reduction of the total time on task, with a focus on continuation of the work with our hospital partners to reduce offload delays at hospitals, particularly the longer delays where ambulances are unable to unload for one or more hours after arrival.

The 2014 funding enhancement request addresses the third strategy, providing a further 24 transport ambulance unit hours per day.

While paramedics continue to provide exemplary, caring service to the citizens and visitors to the City of Hamilton, the system pressures combine to impact both response time performance and our paramedic staff members’ ability to cope with the overall pressures.

Staff further recommend that a longer term service delivery and staffing plan should be developed by well qualified and informed emergency medical service experts and reported back to Council to guide further adjustments in a systematic rather than reactive fashion.