Commissioner of Community Services,
Housing and Health Services

September 26, 2007

TO: The Regional Chairman and Members of Regional Council

On September 6th, 2007, the Health and Emergency Medical Services Committee received a presentation regarding EMS System Performance Overview. Staff were directed to prepare a report that:

a) addressed the issues raised in the presentation
b) identified EMS resources provided and enhanced by the Region
c) evaluated available information from other jurisdictions and the Province, and
d) made recommendations to the Province to address the aforementioned issues.

This communication provides summary information available to date and highlights the key presentation points for consideration.

York Region's Investment in Emergency Medical Services (EMS):

Since 2000, Council has more than doubled the number of permanent full-time York Region paramedics from 112 to 247 and increased the number of active emergency response vehicles by 17. In 2001, Council also approved the addition of a PRU program which added a further 6 active vehicles on the road.

Correspondingly, from 2000 to 2006 York Region's population has grown by 26% and EMS call demand has risen by 76% (from 60,393 to 106,344). In addition the total length of an ambulance call has also increased by 22% or 15 minutes from 2000 to 2007.

In spite of the rapid growth in population, increase in call demand and length of ambulance calls, York Region EMS has kept response times at a relatively stable level.

Three Areas of Control within EMS System:

The following three distinct areas of control exist within the EMS system and each are controlled by separate organizations:

1. **Provincial Central Ambulance Communication Centre:**
   The Ministry of Health and Long-Term Care (Emergency Health Services Branch) is responsible for the provision of EMS call taking, call triaging, EMS deployment and

inter-agency communication province-wide. With the exception of the City of Toronto, and the Region of Niagara, the Ministry of Health and Long-Term Care either directly operates communication services or contracts services through performance agreements (as in the case of the City of Ottawa). The Georgian Central Ambulance Communication Centre in Barrie provides dispatch services for York Region and Simcoe County.

2. **York Region Emergency Medical Services:**
   The Regional Municipality of York as the delivery agent for Land Ambulance Service is responsible for staffing, incident response, patient care, transport, training and quality assurance.

3. **Regional and GTA Hospitals**
   Hospitals within the Region and the GTA are responsible for accepting care of patients from EMS, providing on-going patient care and making inter-facility transfer requests as patient requirements dictate.

York Region only controls one-third of the system and options to improve system performance are limited.

System Performance Measurement - Ambulance Call Length:

Ambulance Call Length is an emerging measure of performance North America-wide as it is viewed as being more indicative of the entire system performance. Ambulance Call Length is the length of time in minutes an EMS call lasts from the initial response to the ambulance being available for the next response (call). It includes dispatch processing, travel to the scene, patient care at the scene, transport to the hospital, hospital off-load, transfer of care, clean up and restocking times.

Primary Factors Impacting Ambulance Call Length:

1. **Dispatch Proficiency**
   The Central Ambulance Communication Centre screens each call through a fixed process called interrogation. The interrogation process endeavors to extract key information relating to the nature of the patient condition and severity. At the end of 2006, 87% of all 911 calls for EMS were deemed as life-threatening through this process. In 2001, 78% of all 911 calls for EMS were given the same severity.

   Of the responses generated as life-threatening, less than 25% return from the scene to hospital with the same severity. Other dispatch systems in use in North America, utilizing a more sensitive interrogation process, generate about 45% high priority responses to the scene.

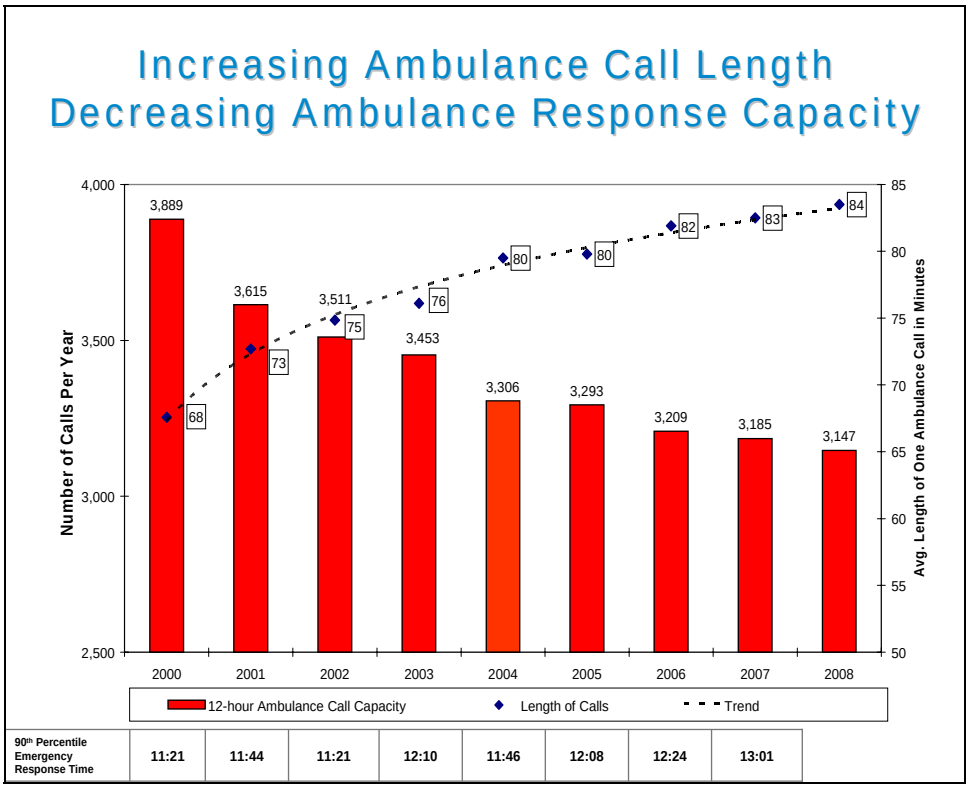
2. **Hospital Off-Load Delays**
   Because hospitals are facing their own particular operational challenges, it has resulted in hospital emergency department staff leaving York Region EMS paramedics to continue caring for ambulance patients for extended periods after their initial arrival to emergency

departments. From 2000 to 2006, time at hospital has increased by 34%. This increase represents over 20,500 unit hours (one ambulance staffed with two paramedics) in 2006 compared to 3,750 unit hours in 2000. Off-load delays lasting 60 to 90 minutes have increased 483% since 2000.

Ambulance Call Length impacts System Capacity:

Increases in call length impact the system capacity to respond to the community needs as fewer calls can be completed by available Ambulance Unit Hours.

From 2000 to the present, the Ambulance Call Length in York Region EMS has increased from 68 minutes to 83 minutes. The net impact of this increase in 2007 represents over 40,000 unit hours of reduced system capacity from 2000.



System Capacity Impacts Response Time Reliability:

Response time reliability is directly impacted by system capacity. The fewer resources available to take new calls, the more likely response times will lengthen.

Actions/Steps Taken to Date:

Recognizing the impact of increasing Ambulance Call Length and the resulting decrease in system capacity, vigilance to improve system performance within the span of Regional control has been ongoing. The following outlines the actions/steps taken to this point:

1. **Additional Ambulance Stretchers**
   Since 2003, York Region EMS has provided additional ambulance stretchers at local hospitals. These stretchers initially allowed ambulances to leave their patient at the hospital and take an empty stretcher to return to service quicker. A challenge in this practice was the required training for safe use of the ambulance stretcher. Because of their more mobile features, ambulance stretchers require two trained persons when moving the stretcher; patients can not be left unattended and hospital staff is not trained in their use. Overcoming these challenges led to action point number two (doubling-up of patients).

2. **Doubling-up of Patients**
   Since 2004, York Region EMS has used the practice of doubling-up care at local hospitals. When multiple ambulances are on off-load delay at a facility, EMS Supervisory staff direct one Paramedic crew to assume the care of a patient from an arriving Paramedic crew. The arriving crew can then take the additional stretcher and return to service while the first Paramedic crew looks after both patients until they are transferred to a hospital stretcher. This practice continues.

3. **Off-Load Paramedics**
   In 2004 and 2006, York Region EMS conducted two studies placing EMS staff in local hospitals. The first study was a small 30-day observational study. In this study, a Paramedic was placed in a local emergency department during the peak-hours to observe, collect, and validate data on the causes of off-load delay and the impact to patients, Paramedics and the Regional EMS system. This Paramedic performed no patient care activities.

   The second study was an interventional study in which an EMS Supervisor was assigned to a local hospital to attempt to mitigate increasing ambulance off-load time. The supervisor was assigned for 61 days from January to May 2006. Different strategies were employed including assuming care for patients and coordinating the 'doubling-up' of patients. The study demonstrated that ambulances that transferred patients to other Paramedics or the supervisor returned to service an average of 43 minutes quicker. However, this savings was off set by longer time spent providing patient care for the "doubled-up" patients. In addition only 36% of patients experiencing an off-load delay were able to be "doubled-up" due to severity. On occasion, patients under the care of supervisors were beyond the scope of regular paramedic training and thus required hospital medical staff care in any event.

4. **Ambulance Redirect**
   In July 2005, the Ministry of Health and Long-Term Care Central Ambulance Communications Centre abolished ambulance 'redirect consideration' (RDC). Under the RDC system, emergency departments would identify when they were busy, requesting ambulances with non-critical patients be directed to facilities that were not as busy. Prior to 2005 this system worked relatively well. However by 2005 all hospitals were on RDC status for long periods of time which lead to the cancellation of this system.

5. **Addition of Paramedic Response Units**
   As part of the deployment strategy York Region EMS deploys several single Paramedic Response Units (PRU). These units are 'non-transporting' and therefore, do not get tied up at hospitals. A function of PRUs is to provide protection to the community when the local ambulances are not available.

6. **Peak-Demand Staffing**
   The movement and location of the population affect EMS call demand. York Region EMS uses a peak-demand staffing model. Under this model, Ambulance and Paramedic Response Unit (PRU) staffing follow the peaks and valleys of call demand throughout the day. Peak demand generally occurs at between 12:00 and 15:00 hours each afternoon, and the lowest point occurs between 03:00 and 05:00 hours each morning. Therefore, more Ambulances and PRUs are staffed during the afternoon and evening shifts than in the early morning hours. Hospitals off-load delays also occur during theses peak periods.

7. **Fluid Deployment Model**
   Under the fluid deployment model, when one ambulance responds on a call, an available ambulance or PRU from another service area is re-deployed to back-fill for the first ambulance. This ensures that available resources are always maximized to provide the best response to the community.

8. **Presentation to Hospital Boards**
   In 2006 and 2007, York Region EMS presented information on the impact of off-load delays to the three local hospital boards. Meetings are scheduled this fall with York Region Hospital CEOs to develop joint initiative to reduce the impacts of off-load delays and advocate for Provincial action to reduce the occurrences of off-load delays.

Next Steps:

In an effort to move forward staff will:

1. Continue to work with regional hospitals to implement local solutions and advocate for Provincial action to reduce the effects of off-load delays.
2. Continue to explore a partnership with GTA EMS Services to commission a consultant review of the feasibility of a GTA Central Ambulance Communication Centre.
3. Report back to Committee and Council when other information requested from the Province and other service providers is available for comparative purpose.

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