

A Service and Organizational Study of Toronto's  
Emergency Medical Services and Fire Services

Executive Summary

June 2013

***Pomax***

## Executive Summary

The purpose of reviewing Toronto EMS (TEMS) and Toronto Fire Services (TFS) was to identify and recommend opportunities that maintain the quality and robustness of services associated with these two core municipal services while achieving potential efficiencies.

The objectives of the review included:

- An assessment of service delivery including opportunities for efficiencies and improvements;
- A demand and resource analysis;
- A review of jurisdictions; and
- An assessment of the advantages and disadvantages of delivery models including consolidation.

The study principles and goals were:

- To rely on factual evidence for concept development and study recommendations;
- To understand the issues, concerns or suggestions of front-line fire and EMS responders, and managers;
- To evaluate the experience, success and challenges of other service delivery models; and
- To assess reasonable alternatives and service delivery models within the needs and constraints of Toronto.

The study consisted of the following activities:

- Key informant Interviews;
- Site visits;
- Review and assessment of organizational and staffing models;
- Research and analysis of best practices and service delivery models;
- Data collection and analysis;
- Resource and apparatus modelling;
- Fire sub-risk overview;
- Concept development and analysis; and
- Jurisdiction and literature review.

### Key Findings and Recommendations

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From this review, 20 recommendations were put forward, clustered across 6 categories including:

- Organization of TEMS and TFS
- Resource and Apparatus

- Education and Prevention
- Fire Inspection and Enforcement
- Communication Centres
- Continuous Improvement

The following findings, observations and recommendations were informed by the research and consultations conducted during the course of this review. A more fulsome discussion of findings and observations can be found in the final Pomax report.

## Organization of TFS and TEMS

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### 1. Do not consolidate TFS and TEMS.

- Consolidation of TFS and TEMS is not well suited for Toronto given the maturity of its fire and paramedic services.
- Consolidation appears to be most effective when it is implemented in jurisdictions with a mature fire service and an emerging paramedic service or no paramedic service.
- There is little evidence to suggest that a consolidated fire and paramedic service is financially, operationally, or organizationally advantageous in the circumstance where the two organizations are competent.
- Significant evidence exists demonstrating that merging separate fire and emergency medical services takes significant investment and is often beset with challenges including substantial legal and labour issues.
- By working closely together and with other divisions and community partners, TFS and TEMS can create synergies, reduce costs, and improve operational performance.

### 2. Do not consider implementing a firefighter-paramedic model of pre-hospital emergency medical care in either an organizationally consolidated entity or in the existing separate organizational design.

- The implementation of paramedics within the fire service, whether as part of an integrated service delivery model or the continuation of the two entities, would require extensive review of operating parameters.
- System modification to place a paramedic on every, or most, responding fire apparatus would likely not result in improved clinical outcomes for patients.
- Startup costs, including the cost to train firefighters to deliver care at the primary care paramedic level are significant and maintenance of skills presents a significant challenge particularly given the size of Toronto's emergency response services.

- The applicability of the *Ambulance Act* and other regulations to a firefighter paramedic response model would have to be carefully considered.
- The existing responder training level for Toronto Fire Service personnel is clinically appropriate for immediate response to most medical or traumatic injuries, when responders are appropriately trained and qualified paramedics follow closely.
- Toronto's first responder system for Toronto Fire Service to provide needed time-critical interventions until a paramedic arrives is appropriate as a supplement to, but not a substitute for, Toronto EMS.

## Resource and Apparatus Requirements

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### 3. Increase TEMS response capacity by 223,451 staffed vehicle hours to meet demand.

- There has been a 28% increase in emergency call demand for paramedics over the last ten years. This call volume trend continues to increase at a rate greater than the city's population growth and will likely continue to increase by 2 to 4 % annually.
- Toronto's growing and aging population will continue to drive increased call demand for emergency medical response in the coming decade.
- Resource modeling confirms that Toronto EMS requires enhanced paramedic resources over the next four years to meet current and projected call demand for emergency medical response.

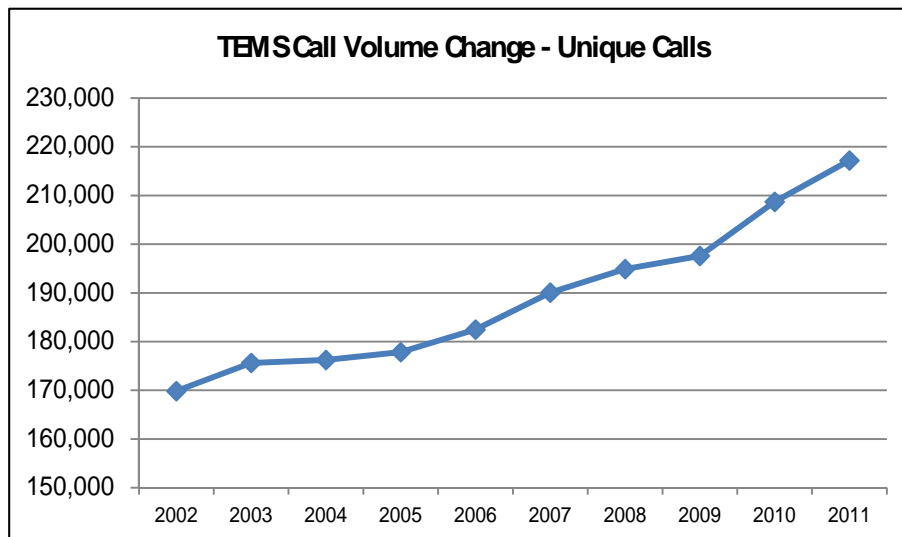


Figure 1: TEMS Unique Calls (2002-2011)

**4. Implement dynamic staging and use predictive modeling and pre-emptive traffic controls to better predict demand and more effectively deploy fire resources and apparatus.**

- Toronto's current fire resources and apparatus could be used more effectively through the use of dynamic staging and an enhanced technology to better predict demand and deploy resources. Dynamic staging and predictive modeling tools will allow Fire Services to determine the most strategic and efficient placement of fire apparatus based on critical response points to mitigate coverage holes.

**5. Conduct a city-wide comprehensive fire risk analysis to review opportunities and rationalization of fire response and suppression resources and apparatus.**

- Demand for fire response has remained flat or declined over the last ten years and the number of actual fires in Toronto has declined even though the population has increased.
- The modeling analysis identifies that there are different options available to the City to reconfigure fire resources and apparatus to achieve efficiencies while continuing to provide similar response coverage.
- Reconfiguring fire resources and apparatus should be further evaluated by the City through a detailed fire risk assessment including the impact of any reconfiguration upon the community risk profile used to establish insurance ratings.
- Reconfiguring fire resources and apparatus should be planned in conjunction with an increased emphasis on prevention and education to reduce the risk of fires from happening in the first place. Enhanced investment in prevention and education may reduce demand for emergency fire response over the longer term.

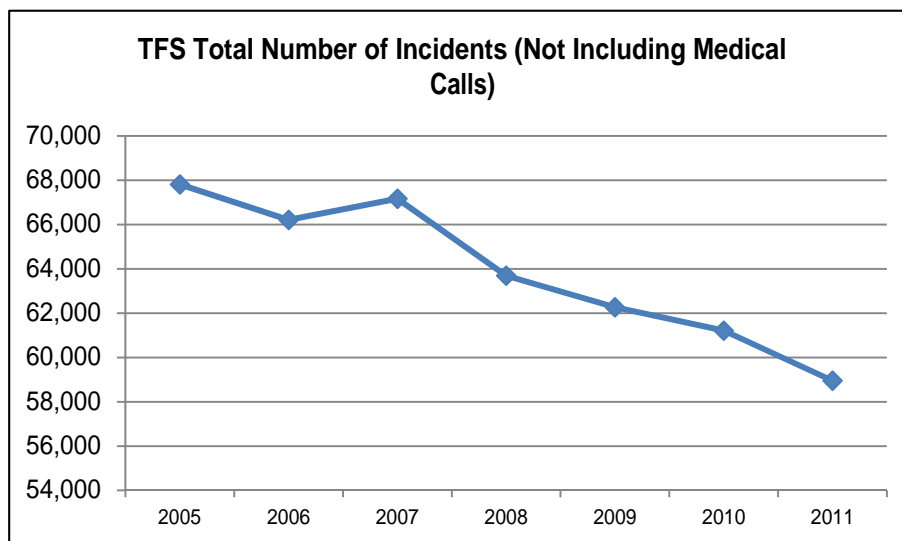


Figure 2: TFS Incidents (2005-2011)

**6. Continue to move forward with the closure of station 424 at 462 Runnymede Road and consider other apparatus rationalization.**

- Station 424 has been recommended for closure through various studies through the years including the 1987 Fire Master Plan, 1999 KPMG study examining the City's fire stations and most recently the 2007 Fire Master Plan.
- Station 424 is currently performing better than the 4 minutes response standard. Our analysis confirms that adjacent stations can provide response coverage while continuing to meet a 4 minute response.

## Education and Prevention

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**7. Continue the Community Paramedicine program as part of a strategy to provide the most appropriate patient treatment and reduce emergency medical response call volume demand.**

- The Community Paramedicine program provides good value for a relatively low cost to the City particularly given the Province covers 50% of the cost.
- Toronto EMS treats 30% of residents of Toronto who are 75+ years of age, at least once per year. Many of these calls are not life-threatening or time sensitive and paramedics are uniquely positioned to connect with the elderly and vulnerable in their homes.
- Based on early information from EMS systems in the UK, Europe, Australia and some parts of North America, community paramedicine programs are expected to slow the growth of event volumes for 911 calls and emergency medical response and are shown to reduce the need for emergency response and transport of patients that have not had the benefit of preventative care.

**8. Implement a strategy to focus TFS resources on prevention, inspection and public education to reduce the incidence of fires and other emergencies. The strategy should consider increasing public education, prevention and inspection staff at TFS by 54 FTEs in the shorter-term with a further increase of 46 FTEs in future years.**

- An investment in public education reduces the risk for and incidence of fires including a reduced risk of loss of life and injury to both private citizens and firefighters.
- The resulting reduction in fire response demand achieved through an increased focus on prevention and education may enable the city to reduce suppression resources over a 10 year period and recover the cost of investment.

9. **Develop a more integrated City approach to emergency prevention and education to better coordinate City efforts across multiple divisions to reduce fire and other emergencies, particularly in vulnerable communities.**
  - An integrated approach to emergency prevention and education can better leverage organizational partnerships and collaboration to advance shared emergency prevention and education goals and objectives.
  - Emergency prevention and education programs should be more effectively targeted to areas of greatest risk identified through enhanced research and the use of fire risk management tools and software.
  - Emergency prevention and education programs should be better coordinated with related City programs and services to ensure an integrated and multi-disciplinary approach to program delivery, particularly in vulnerable communities.

#### Fire Inspection and Enforcement

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10. **Adopt an aggressive enforcement policy for Fire Code violations that impact upon the immediate life safety of the occupants of a building.**
11. **Establish a policy and method to require building and site owners to bear the cost for follow up inspections required as a result of non-compliance with the Ontario Fire Code.**
12. **Establish annual Fire Code Compliance inspections of high risk occupancies.**
  - Fire inspections, code enforcement and fire investigation are key components to decreasing fire occurrence as well as the resulting impact upon people and property.
  - An investment in fire inspection reduces the risk for and incidence of fires, and has been shown to reduce false alarms, property loss and loss of life and injury to both private citizens and firefighters.
  - Efforts to investigate residential fires to determine origin and cause are important. Where investigations uncover Ontario Fire Code violations there should be a policy for aggressive prosecution.
13. **Establish a Fire Investigation team to conduct in-depth investigations and determine the cause of fire incidents in Toronto. Improve prevention programs by integrating causes identified by fire investigations into program design.**
14. **Train fire suppression crews on key areas of the Ontario Fire Code and utilize them to augment incident prevention and inspection activities.**
  - Effective prevention begins with knowing what the fire problem is in the community, which requires the investigation and determination of the cause of fires.

- Fire operations (suppression) personnel should be engaged in more fire prevention related activities as part of their regular duties. Suppression crews should be trained to a level of understanding in the application of the Ontario Fire Code to allow them to carry out at least a basic level of inspection, particularly where there is a mixed commercial/residential use of a building.
- Crews should be trained to a level of understanding related to Fire Code requirements for immediate life safety issues, higher risk residential occupancies such as highrise apartments and condos, retirement homes, etc., so that they can coordinate inspection and follow up requirements with fire prevention officers.

## Communication Centres

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- 15. Do not move to a full operational consolidation of the TFS and TEMS communication centres but evaluate sharing technology platforms when upgrading emergency services communications technology.**
- 16. Evaluate opportunities for the TFS communications centre to provide service to other municipal fire departments to generate revenue and offset costs.**
- 17. Advocate with the Ministry of Health and Long Term Care for acceptable staff levels for the TEMS communications centre.**
  - Consolidation is most often feasible from a technical infrastructure and facilities point of view and easier to achieve when the amalgamation involves a single emergency discipline (police or fire or EMS). Greater challenges are experienced when multi-jurisdictional agencies are considered for dispatch amalgamation.
  - Differences in staff qualification criteria, intake training, the need for staff to learn dissimilar operational methods, continuing education, maintaining skill sets by discipline, and the stressors of changing dispatch roles (switching between police, fire, and ambulance methods) all have a profound impact on the operation of consolidated dispatch centres as well as field operations.
  - The benefits of consolidating the current separate fire and emergency medical service centres can be achieved without consolidation. The two communications centres are already housed in the same building, use the same radio communication system and other infrastructure, and have an opportunity to reduce future technology costs, particularly in the fire service, by building onto existing EMS technology platforms.
  - Consolidating the centres will precipitate the negative effects of labour relations issues and the possibility of opening up communications centre funding negotiations with the Ministry of Health and Long Term Care.



- Toronto EMS is not currently meeting the 2 minute call receiving and dispatch standard established by the Ministry of Health and Long Term Care. Preliminary analysis suggests that additional staff is required to meet the 2 minute standard but more detailed calculations (hour by hour and day by day) are recommended to more accurately define the actual staffing requirements on a daily basis. The Ministry of Health and Long Term Care funds 100% of the TEMS communications Centre. More detailed calculations will enable the City to move forward with a business case with the Ministry of Health and Long Term Care to enhance funding for the communications centre.

## Continuous Improvement

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### **18. Utilize Lean processes to define the activities that contribute to paramedic wait times at hospitals and identify possible relief techniques.**

- Individuals or organizations with certification in Lean processes (such as Six Sigma or ISO for examples) can help define and improve practices that take place during hospital waits through business process review and reengineering. This can support work with hospitals in streamlining the pre-transfer time.
- Introduction of Lean principles in other facets of the emergency medical services department can contribute to improved effectiveness and efficiencies. There is a reasonable expectation that the cost of investment can be recovered.
- Lean resources could also be shared with TFS which could also benefit from Lean values and philosophy to improve business processes and operational performance.

### **19. Continue to implement Business Intelligence reporting software in TFS as a means to enhance the availability and depth of statistical and response information. Enhance business analysis capability in TFS to maximize the use and capacity of the Business Intelligence software.**

- The ability to determine the most efficient and effective distribution of resources requires an acceptable support structure that includes Business Intelligence tools as well as resources to utilize software to provide detailed information to fire administrators.

### **20. Pursue mobile technology solutions to improve the efficiency of inspection and enforcement of Fire Code requirements.**

- An investment in mobile technology for fire inspection and enforcement will improve the effectiveness of inspectors and enable real time recording from the field.

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## **Acknowledgements**

It is important to acknowledge the cooperation we received from the City of Toronto, Toronto Fire Services, and Toronto Emergency Medical Services throughout this review. All parties were fully engaged in the project and response to our questions was rapid and complete. This was an enjoyable project on which to work and we thank the City of Toronto for providing us with this opportunity.