



## STAFF REPORT ACTION REQUIRED

### Results of the Service and Organizational Review of Toronto EMS and Toronto Fire Services

<b>Date:</b>	June 18, 2013
<b>To:</b>	Executive Committee
<b>From:</b>	City Manager and Deputy City Managers
<b>Wards:</b>	All

#### SUMMARY

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This report responds to Council's request for the City Manager to conduct a service and organizational review of Toronto EMS and Toronto Fire Services. The purpose of the review was to identify and recommend opportunities that maintain the quality of these core municipal services while achieving potential efficiencies.

The review included an assessment of operational improvements, a demand and resource analysis, and an evaluation of service delivery model options including organizational consolidation. A third party consulting firm, Pomax Ltd., in partnership with Berkshire Advisors, MGT of America and Stantec were retained through a competitive process to undertake this assignment.

The consultants put forward 20 recommendations for the City Manager and Deputy City Managers' consideration related to organization, resources and apparatus, prevention and education, fire inspection and enforcement, and the communications centres. This report communicates the results of the review including the recommended disposition of each. The City Manager and Deputy City Managers recommend implementation of 14 recommendations, further due diligence be undertaken on 4 recommendations and no further action be taken on 2 recommendations.

The Pomax recommendations and the report recommended disposition are summarized in Appendix A. The Pomax Executive Summary is attached as Appendix B and their full report is attached as Appendix C. A summary of their recommendations organized by main topic are described below.

## **Organization**

The consultants recommend that Toronto EMS and Toronto Fire Services continue as separate organizations and concluded that a consolidated model will not yield the expected financial, operational or service benefits for Toronto given the maturity of the City's fire and paramedic services. A firefighter-paramedic service delivery model for Toronto was also considered and not recommended given the significant start up and capital investments required with little evidence of improvement in clinical outcomes for patients.

## **Toronto EMS Resources and Apparatus**

The consultants confirm that call demand for emergency medical response has increased by 28% over the last ten years driven by a growing and aging Toronto population. They estimate a continued increase in call demand of 2 % to 4 % annually and identify that the City requires an additional 169 paramedics over the next three years to meet current and future demand for emergency medical response for a total increase of 220 paramedic positions including positions approved through the 2013 budget process. This report requests authority to submit these investment requests through the 2014 and future years' budget process.

Based on early information, the consultants found that community paramedicine programs are expected to slow the growth of event volume for emergency medical response and transport of patients that have not had the benefit of preventative care. The consultants confirm that the Toronto EMS Community Paramedicine Program provides good value at a relatively low cost to the City and recommends its continuation.

## **Toronto Fire Services Resources and Apparatus**

The review identifies improvements in the deployment of fire resources and apparatus through the use of dynamic staging and predictive modelling. Section 3D of this report provides further information related to dynamic staging and predictive modelling. A predictive modelling project for Toronto Fire Services was approved in the 2013 Capital Budget and a procurement process is underway to purchase this technology. This report requests that the Fire Chief continue to implement dynamic staging and predictive modelling to determine the most strategic and efficient deployment of fire resources and apparatus.

The consultants suggest that the City use fire traffic pre-emption more effectively to improve fire response times. Traffic control pre-emption gives emergency response vehicles a green light at specific signalized intersections and has shown to improve fire response times and reduce the risk of collision involving response vehicles, particularly in congested areas. This report requests the Fire Chief to explore expanding the use of traffic pre-emption in Toronto including leveraging technology investments through related City Transportation Division congestion management initiatives including the Traffic Congestion Management Action Plan and consideration of Intelligent Transportation Systems.

The consultants confirm that demand for fire response (actual fires and false alarms) has remained flat or declined over the last ten years and that the number of actual fires has also

declined even though the population has increased. The consultants identify that there are options available to reconfigure fire resources and apparatus to achieve efficiencies while continuing to provide similar response coverage and outline the possibility of reducing vehicles and stations. Reconfiguring fire resources and apparatus should be carefully considered through a detailed risk assessment including changes to the community risk profile used to establish insurance rates.

The City Manager and the Deputy City Managers agree that there are opportunities to rationalize and realign the distribution of fire resources and apparatus to achieve efficiencies over the longer term particularly as improvements to fire deployment come on line and enhancements to public education and prevention programs are implemented.

The City Manager and the Deputy City Managers also agree that reconfiguring fire resources and apparatus requires further evaluation including a detailed risk assessment and consideration of implications to Toronto's insurance ratings and impacts on service levels. This report recommends that the Fire Chief undertake further evaluation to reconfigure fire resources and apparatus and bring forward changes through an updated Ten-Year Fire Master Plan in 2014 considering the results of the Fire Underwriters Survey and the outcomes of a City-wide risk assessment.

The Fire Underwriters Survey (FUS) is currently underway and the possible closure of station 424 and additional reductions proposed through the 2013 budget process will be considered in their analysis. The Fire Chief anticipates reporting out the results of the FUS in the fall of 2013 in preparation for the 2014 budget.

### **Fire Inspection and Enforcement**

The review identifies that investment in inspection and enforcement in other jurisdictions has shown to reduce false fire alarms, property loss and loss of life and injury to both private citizens and firefighters over time. They suggest that the City adopt a more aggressive enforcement strategy to reduce building code infractions particularly in areas posing the greatest risk to people and property and put forward a number of specific operational improvements. Many of the improvements the consultants put forward are already being implemented including the establishment of a Fire Investigation Team in 2013. This report refers the fire inspection and enforcement improvements to the Fire Chief to commence or continue implementation and report further as required.

### **Fire Prevention and Education**

The consultants found that there is better value for money when emergency services focus on preventing emergencies and mitigating the City's risk to fire and other emergencies. They highlight that prevention and education programs assist in taking pressure off the emergency response system and may reduce emergency response demand over time.

The consultants emphasize that when reconfiguring fire resources and apparatus to achieve efficiencies, changes should be planned in conjunction with enhanced prevention, education

and inspection services to reduce the incidence of fires occurring in the first place. They suggest enhancements in prevention and education which may reduce demand for emergency fire response over the longer term particularly when considering reductions to fire resources and apparatus.

Enhancements to the City's fire prevention and education programs were approved through the 2013 Operating Budget and are currently being implemented. The City's fire education and activities are also currently being evaluated through the Fire Underwriters Survey. This report refers the fire prevention related recommendations to the Fire Chief for further evaluation and to report back as required.

### **Update the City's Fire Master Plan**

Many of the Pomax recommendations related to fire resources and apparatus, inspection and enforcement and prevention and education highlight the need to update the Fire Master Plan. The City's Fire Master Plan was last reviewed and updated in 2007.

An updated Fire Master Plan for Toronto will integrate the current and planned improvements across all fire programs and services and be aligned with the updated Official Plan to ensure that fire requirements resulting from growth are considered. This report requests the Fire Chief to bring forward an updated Fire Master Plan by the end of 2014 incorporating changes resulting from the adoption of recommendations 5 through 9 of this report (related to fire response, prevention and education and inspection and enforcement) and considering the results of a City-wide risk assessment including impacts to the community fire risk profile used to establish insurance ratings.

Toronto Fire Services is also moving forward with accreditation through the Centre for Public Safety Excellence. The Accreditation Program, administered by the Commission of Fire Accreditation International (CFAI), enables emergency response providers to use an accreditation process to set goals, develop strategic action plans and continuously evaluate and improve services provided to the public. The accreditation process involves examining performance across 10 categories, 44 criteria and 253 key performance indicators (KPIs). The results of the accreditation process will also inform the development of an updated Fire Master Plan including ensuring that it is based on leading industry practices. This report recommends that the Fire Chief move forward with the fire accreditation process with a target completion of 2015/2016.

### **Communications Centres**

The consultants did not recommend that the City pursue a consolidated communications centre and identified the cost of cross training, required technology investments, collective agreement issues and variations in funding models as key barriers to integration. The City Manager and Deputy City Managers do not agree that these barriers are insurmountable and recommend additional due diligence be undertaken to explore this further for future consolidation opportunities.

## RECOMMENDATIONS

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**The City Manager and Deputy City Managers recommend that City Council:**

### *Recommendations Related to Toronto Emergency Medical Services*

1. Authorize the Chief of Toronto EMS to submit a business case through the 2014 and future years' budget to add 169 paramedic positions over the next three years from 2014 through to 2016;
2. Request the City Manager and the Chief of Toronto EMS to consult with the Province of Ontario, in particular the Ministry of Health and Long Term Care, regarding confirmation of 50/50 provincial cost-shared funding for paramedic positions being covered in the first year of operation;
3. Affirm the continuation of the Community Paramedicine Program as part of a strategy to reduce call volume pressures and to provide the most appropriate mobile patient care to vulnerable Toronto communities and residents;
4. Request the Chief of Toronto EMS to submit a business case through the 2014 budget process for resources to implement Lean type solutions (Six Sigma and ISO for example) to reduce hospital delays that contribute to paramedic wait times and expand Lean type solutions to both Toronto EMS and Toronto Fire Services to improve operational performance;

### *Recommendations Related to Toronto Fire Services*

5. Refer the following recommendations to the Fire Chief to commence or continue implementation and report further as required:
  - a) Adopt an aggressive enforcement policy for Fire Code violations that impact upon the immediate life safety of the occupants of a building;
  - b) Establish annual Fire Code Compliance inspections of high risk occupancies;
  - c) Pursue mobile technology solutions to improve the efficiency of inspection and enforcement of Fire Code requirements;
  - d) Train fire suppression crews on key areas of the Ontario Fire Code and utilize them to augment incident prevention and inspection activities;
  - e) Establish a Policy requiring building owners to cover the full City cost to inspect premises for non-compliance of orders issued under the Ontario Fire Code; and
  - f) Implement Business Intelligence reporting software and enhance business analysis capability;
6. Request the Fire Chief to move forward with the fire accreditation process with target completion by 2015/2016;

7. Request the Fire Chief to implement a strategy to increase the focus on prevention, public education, and inspection to reduce the incidence of fires and other emergencies and report further through 2013 and future years' Committee process as required;
8. Request the Fire Chief to continue to implement dynamic staging and predictive modelling to improve the City's fire deployment and determine the most strategic and service and cost efficient placement of fire resources and apparatus;
9. Request the Fire Chief to explore an enhanced use of fire pre-emption including leveraging technology through other related traffic congestion management initiatives to improve fire response and report further as required;
10. Refer the possible closure of station 424 at 462 Runnymede Road to the Fire Chief for further evaluation with the other 2013 budget adjustments and to report back in the fall of 2013 when reporting out the results of the Fire Underwriters Survey;
11. Request the Fire Chief to bring forward an updated Fire Master Plan by the end of 2014, incorporating changes resulting from recommendations 5, 6, 7, 8 and 9 of this report, and considering the results of a City-wide risk assessment including impacts to the community fire risk profile used to establish insurance ratings;

#### ***Recommendations Related to the Communications Centres***

12. Authorize the Chief of Toronto EMS and the Fire Chief to undertake a further evaluation of the benefits, limitations, risks, and required investments to consolidate the communications centres and report back in 2014 on the outcomes of the evaluation;
13. Authorize the Fire Chief to evaluate opportunities for the Toronto Fire Services Communications Centre to provide communications services to other municipalities or organizations to generate additional net revenues; and
14. Request the City Manager and the Chief of Toronto EMS to consult with the Province of Ontario, in particular the Ministry of Health and Long Term Care, on the level of staff and funding required for the Toronto EMS Communications Centre to meet the 2 minute call receiving and dispatch standard set by the Ministry of Health and Long Term Care.

#### **Financial Impact**

##### **Toronto EMS**

An increase of 220 paramedic positions is required to deliver an additional 223,451 staffed vehicle hours in Toronto. The 2013 Approved Operating Budget for Toronto EMS is \$179.525 million gross and \$68.368 million net which included funding of \$3.800 million gross and net for 40 additional full-time and 11 part-time paramedic positions as part of the 2013 Budget process.

It should be noted that costs for new paramedics are not eligible for 50/50 provincial cost-shared funding for the first year of operation. As such, the City must fund 100% of salary and benefit costs for new paramedic positions for the first year.

The 2013 approved funding provides the first phase of a four year phase in which will require an increased investment of an additional 169 paramedic positions for a total investment of \$21,962,300 gross and \$10,981,150 net as outlined below.

	FTE's	2013	2014	2015	2016	2017	2018	TOTAL
<b>Convert Overtime to 11 Part-Time Paramedic FTE's</b>								
11 Additional Part Time Paramedics FTE's *								
Provincial Funding								
	<b>11</b>	-	-	-	-	-	-	-
Note: The Budget and 50% Funding for the 11 Part-Time FTE's came from the existing EMS Budget so there is no net cost to the City.								
<b>Add 40 Paramedics in 2013</b>								
40 Paramedics May 1/13		2,800,000	1,280,000					4,080,000
Provincial Funding			(1,400,000)	(640,000)				(2,040,000)
	<b>40</b>	2,800,000	(120,000)	(640,000)	-	-	-	2,040,000
<b>Add 56 Paramedics in 2014</b>								
56 Paramedics May 21/14			3,505,133	2,296,467				5,801,600
Provincial Funding				(1,752,567)	(1,148,233)			(2,900,800)
	<b>56</b>		3,505,133	543,900	(1,148,233)	-	-	2,900,800
<b>Add 56 Paramedics in 2015</b>								
56 Paramedics May 21/15				3,582,950	2,347,450			5,930,400
Provincial Funding					(1,791,475)	(1,173,725)		(2,965,200)
	<b>56</b>		-	3,582,950	555,975	(1,173,725)	-	2,965,200
<b>Add 57 Paramedics in 2016</b>								
57 Paramedics May 21/16					3,715,806	2,434,494		6,150,300
Provincial Funding						(1,857,903)	(1,217,247)	(3,075,150)
	<b>57</b>	2,800,000	3,385,133	3,486,850	3,715,806	576,591	(1,217,247)	3,075,150

<b>Accumulated Increases</b>							
	2,013	2014	2015	2016	2017	2018	
<b>Gross Expenditures</b>	2,800,000	7,585,133	13,464,550	19,527,806	21,962,300	21,962,300	
<b>Provincial Funding</b>	-	(1,400,000)	(3,792,567)	(6,732,275)	(9,763,903)	(10,981,150)	
<b>Net Increase to City</b>	<b>2,800,000</b>	<b>6,185,133</b>	<b>9,671,983</b>	<b>12,795,531</b>	<b>12,198,397</b>	<b>10,981,150</b>	
<b>FTE's</b>	<b>51</b>	<b>107</b>	<b>163</b>	<b>220</b>	<b>220</b>	<b>220</b>	

The Chief of Toronto EMS will also submit a business case for consideration in the 2014 Budget process to fund resources to implement Lean/Six Sigma type solutions to reduce hospital delays that contribute to paramedic wait times.

## **Toronto Fire Services**

Toronto Fire Services' 2013 Operating and Capital Budgets approved by City Council provides funding that enables the Service to proceed with many of the recommendations included in this report. Fire Services' 2013 Operating Budget provides \$1.425 million for 15 new fire prevention inspectors that will enable Fire Services to implement a strategy to reduce the incidence of fires and other emergencies. Further, Fire Services' 2013 Operating Budget includes new funding for one business analyst position that will provide capacity to enhance its business analysis capability using business intelligence tools.

In order to meet 2013 budget targets, the Staff Recommended Operating Budget for Fire Services included proposed service changes that would have resulted in the deletion of 83 firefighter positions. Through its deliberation of the 2013 Operating Budget, Council confirmed Executive Committee's recommendation to restore 20 (of the deleted 83) permanent firefighter positions with a final net reduction of 63 permanent firefighter positions effective July 1, 2013. City Council approved an additional \$3.100 million in one-time funding to retain the remaining 63 firefighter positions until July 1, 2013 pending the outcome of the Fire/EMS Study and the Fire Underwriters Survey. The costs associated with the continuation of these 63 positions until year-end can be accommodated given one-time cost-savings realized from delayed hiring of recruitment classes and other gapping experienced to date. However, the 63 positions are not part of the 2013 base budget. Final firefighter position requirements will be considered further through the 2014 budget process based on the results of the Fire Underwriters Survey; and improved fire response service deployment and cost efficiencies.

Finally, Toronto Fire Services' 2013 Capital Budget includes capital project funding of \$0.300 million to implement predictive modelling tools to enable the Fire Service to support improvements in fire resources and apparatus deployment and management.

The Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact information.

## **DECISION HISTORY**

At its meeting on April 12 and 13, 2011, City Council approved the report from the City Manager and Deputy City Manager/Chief Financial Officer on a Service Review Program, 2012 Budget Process and Multi-Year Service Planning Process which initiated the City's multi-year Service Review Program. The full report can be found at <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2011.EX4.10>.

The report, Core Service Review: Final Report to Executive Committee was considered by City Council at its September 26 and 27, 2011 meeting. This report can be found at <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2011.EX10.1>.

City Council during the 2013 budget process increased the Fire Services Operating Budget by \$3.0 million to add 15 fire prevention officers and 20 firefighters.



Council also added 63 front line firefighters to maintain fire response and suppression at Stations 213, 215, 324, 413 and 424 until July 1, 2013 pending the results of the Pomax study, results of the FUS and updates to the City's Fire Master Plan. The decision document approving the City's 2013 Operating Budget can be found at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2013.EX27.1>

## **ISSUE BACKGROUND**

Toronto is the fourth largest city in North America that covers a geographic area of 650 kilometres with a population of 2.8 million, increasing to 3.6 million during the day due to visitors and people commuting into Toronto for work.

Toronto EMS and Toronto Fire Services are mature and robust emergency services that help keep Toronto safe from fire, health, and other disasters. They provide 24-hour, 7 day per week emergency services in a large and complex urban city.

The first known volunteer fire company was created in 1826 and fire services to protect life and property became recognized as a critical municipal service in the early 1920s after the 1849 and 1904 fires, the former which destroyed much of Bay Street. Toronto Fire Service is now the 5<sup>th</sup> largest fire service in North America and the largest in Canada and operates from 83 fire stations located across the city, with a fleet of 128 apparatus, a fireboat and 3170.3 staff (including 2770 suppression fire fighters, 147 fire prevention staff and 72 communications centre staff) to provide fire suppression and other emergency response and to mitigate fire and other emergency risks through education, prevention and inspection.

Toronto's earliest ambulance transport services began in 1832 using a horse drawn cart to transport cholera victims to hospital. Over the next hundred and thirty years, the transport of sick and injured people in Toronto was provided by a range of private and public operators including hospitals, police, fire and public health. EMS, officially formed in 1975, is now the largest municipal paramedic service in North America and operates from 45 ambulance stations located across the city, with a fleet of 154 transport ambulances, and 1264 staff (including 902 paramedics and 108 emergency medical dispatchers) that provide emergency medical response.

### **Overview of Toronto Emergency Medical Services (Toronto EMS)**

Toronto EMS protects the quality of life in Toronto by providing superior and compassionate pre-hospital and out-of-hospital medical care, responding to patients with health emergencies and to the special needs of vulnerable communities -- through integrated, mobile, paramedic-based health care.

Toronto EMS is responsible for all aspects of land ambulance service for the City of Toronto. It operates a Central Ambulance Communications Centre (CACC) for the City through a formal Performance Agreement with the Ministry of Health and Long-Term Care including performance expectations and guidelines relating to emergency communication and its service delivery to the community.

The *Ambulance Act* and its associated Regulations and Standards govern the delivery of ambulance services in Ontario. The Act stipulates the responsibilities of municipalities, the authority of the Base Hospital, the certification requirements of operators, and the powers, duties and obligations of ambulance service providers.

The certification requirements include a mandatory audit and re-certification of Toronto's land ambulance operations and communications centre by the Ministry of Health and Long-Term Care every three years through a comprehensive evaluation, inspection, and reporting process.

### **Overview of Toronto Fire Services (TFS)**

Toronto Fire Services provides emergency response and fire prevention and education services to protect life, property and the environment from the effects of fire, illness, accidents, natural disasters and all other hazards; enhance fire and life safety, and raise community awareness about hazards through public outreach and education.

The *Fire Protection and Prevention Act, 1997* (FPPA) governs the delivery of fire protection, suppression, and prevention services, and fire inspections to enforce the Fire Code. In Ontario, the Office of the Fire Marshal is the provincial certifying body for firefighters and other fire department personnel and requires municipal fire services to submit an annual compliance report.

Toronto Fire Services also performs a regulatory role in a range of provincial legislation including the *Day Nurseries Act*, *Environmental Protection Act*, *Pesticides Act*, and *Technical Standards and Safety Act*. Toronto Fire Services also performs a regulatory and enforcement role in a range of Toronto municipal by-laws including Chapter 387: Carbon Monoxide Detectors, Chapter 466: Fire Services, Chapter 470: Fire Safety Boxes, and Chapter 880: Fire Routes.

Toronto Fire Services is also the City's all hazards response agency responsible to coordinate the City's response to the direct effects of fire, illness, accidents, natural disasters and other hazards such as earthquakes, hurricanes, tornadoes, multi-casualty incidents, technical rescue and disruption to energy infrastructure. These activities include immediate incident management to preserve life, property and the environment; meet basic human needs; and maintain the social, economic, and political structure of the affected community.

Fire's all hazards response works closely with the Toronto Heavy Urban Search and Rescue unit (HUSAR) if required. HUSAR, a partnership between Toronto Fire Services, Toronto EMS and Toronto Police, responds to disaster situations at a city, provincial and national level as well as offers international assistance as appropriate.

## COMMENTS

### 1. Study Scope

The City Manager initiated an organizational and service review of Toronto EMS and Toronto Fire Services including consideration of the opportunities identified by KPMG through the City's Core Service Review.

The Core Service Review confirmed that the services provided by Toronto EMS and Toronto Fire Service are core City services required by legislation with the exception of the community paramedicine program which they identified as a discretionary service. KPMG put forward several opportunities related to Toronto EMS and Toronto Fire Services that were referred to the City Manager by Executive Committee for inclusion in a broader study.

The opportunities included:

- outsourcing some or all of non-emergency inter-facility patient transports;
- eliminating Community Medicine activities;
- integrating Toronto EMS and Toronto Fire Services organizationally and developing new models to shift more resources to EMS response and less to fire services over time;
- reducing the range of medical calls to which Toronto Fire Services responds; and
- improving fire response times and decreasing equipment requirements through dynamic staging.

Pomax Incorporated in partnership with Berkshire Advisors, MGT of America and Stantec were retained through a competitive process to undertake this assignment.

The study deliverables included:

- documenting and assessing the current operations of Toronto EMS and Toronto Fire Services including service demand and required resource levels;
- identifying operational efficiencies considering a range of strategies such as business process re-engineering, outsourcing or alternative service delivery, automation, shared services and service innovation;
- undertaking a literature and jurisdictional review to identify service delivery model options including best practices, challenges and risks; and
- proposing service delivery and organizational model options for Toronto EMS and Toronto Fire Services that optimize efficiencies while ensuring service effectiveness.

## 2. Key Findings

The review identified a number of key findings related to the organization of Toronto EMS and Toronto Fire Services, resources and apparatus, prevention and education programs, fire inspection and enforcement strategies, and communication centres.

Their key findings include:

- A consolidated model of service delivery will not yield financial, operational or service benefits given the maturity of Toronto's fire and paramedic services. Continuing to promote collaboration, strengthen co-ordination and leverage synergies will improve Toronto's emergency response delivery model.
- A firefighter and paramedic service delivery model will likely not improve patient outcomes and will require significant financial investment to implement and maintain.
- Demand for emergency medical response has increased significantly over the last ten years and is increasing at a rate greater than the city's population growth. Emergency medical response call demand is being driven by a growing and aging population and increased capacity is required to meet current call demand and annual growth projections.
- There are opportunities for Toronto EMS to utilize an individual or organization with certification in Lean methodologies to focus on reducing hospital offload delays that contribute to paramedic wait times. Toronto Fire Services would also benefit from using Lean principles and methods to improve operational performance.
- Community paramedicine programs demonstrate positive outcomes on patient health and well-being, provide a good return on investment and based on early information from other jurisdictions, are expected to slow the growth of event volumes for 911 calls and emergency medical response.
- Demand for emergency fire response has remained flat or declined between 2005 and 2011 and the number of actual fires has declined even though the population has grown.
- Dynamic staging, predictive modelling tools and pre-emptive traffic controls can be used to more effectively predict fire response demand and deploy fire resources and apparatus.
- There are options available to reconfigure fire resources and apparatus to achieve efficiencies while continuing to provide similar response coverage. Reconfiguring fire resources and apparatus should be carefully considered through a detailed risk assessment including changes to the community risk profile used to establish insurance rates.
- Fire prevention and education programs provide a good return on investment and serve to mitigate fire risk and death and reduce demand for fire response and suppression over time.

- Aggressive inspection and enforcement programs targeting highest fire risk areas improve outcomes to protect lives and property.
- Consolidation of the Toronto EMS and Toronto Fire Services communications centres may not yield sufficient benefits given the challenges related to cross-training, collective agreements, technology and differences in funding models.

### **3. Review of Pomax Opportunities**

The consultants put forward 20 recommendations and the City Manager and Deputy City Managers, in consultation with the Chiefs, have reviewed these recommendations and this report suggests the following disposition:

- Implementation of 14 recommendations reporting further as required;
- No further action be taken on 2 recommendations; and
- Further due diligence be undertaken on 4 recommendations.

The 20 Pomax recommendations and the report recommended disposition are listed in Appendix A. The review recommendations are discussed in more detail in the following sections of this report.

#### **A. Continue with Separate Organizations for Toronto EMS and Toronto Fire Services**

The review assessed a range of service delivery models including consolidation, and concluded there is no compelling evidence to suggest that amalgamating fire and emergency medical services provides sufficient financial, operational or organizational benefits to outweigh the risks and challenges given the maturity of Toronto's emergency response system.

The consultants highlight the level of investment and change management required to move to an amalgamated model and identify significant legal and labour challenges when moving services together. Their research concluded that consolidated delivery tends to be most effective in jurisdictions where there is no paramedic service or an emerging paramedic service and less effective where consolidation involves separate, mature and competent emergency response organizations.

The consultants also examined a firefighter-paramedic service delivery model as part of the study and recommend that the City not implement this service delivery model in either a consolidated or stand-alone organization. They found that a firefighter-paramedic model would likely not result in improved clinical outcomes for patients and would require significant operating and capital start up costs. The consultants also highlight the significant challenges involved to maintain advanced paramedic skills for firefighters.

The consultants identified that there are opportunities however to improve synergies across the services by leveraging technology investments more effectively, continuing to pursue the

sharing of common services where appropriate and improving collaboration to achieve shared program goals and objectives. They also noted that there may be some benefits of having the services report through a single Deputy City Manager to better facilitate synergies and collaboration. The City Manager will consider the reporting structure through a single Deputy City Manager further.

### **B. Increase Paramedics to Meet Demand for Emergency Medical Response**

The review confirms that call demand for emergency medical response has grown by 28% over the last ten years and is increasing at a rate greater than the city’s population growth. The consultants observed that call demand is being driven by Toronto’s growing and aging population and will likely continue to increase over the next ten years at a rate of increase of 2 to 4% a year. Figure 1 below summarizes Toronto EMS call volume from 2002 to 2011.

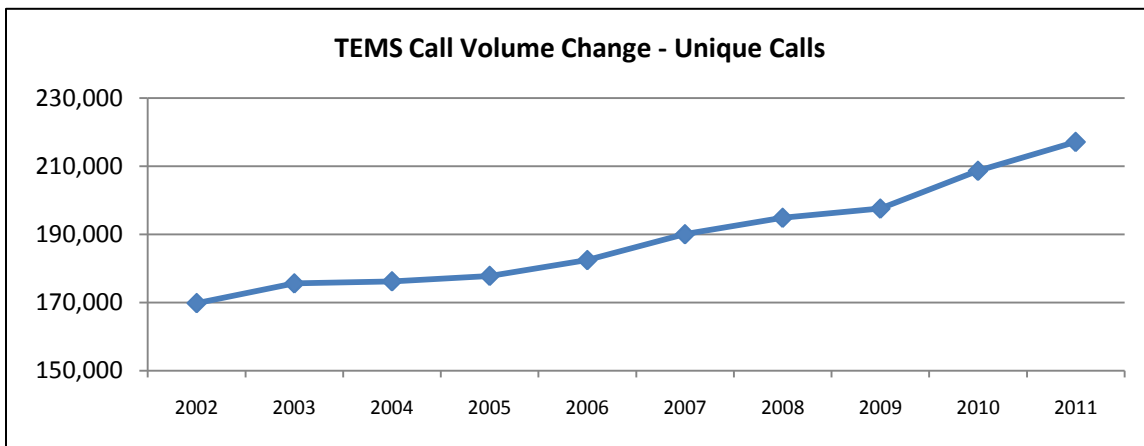


Figure 1: TEMS Unique Calls (2002-2011)

The consultants identify that additional paramedic resources are required to meet current and emerging demand for emergency medical response and recommend an increase of 223,451 staffed vehicle hours over the next four years. This report requests the Chief of Toronto Emergency Medical Services submit a business case to add 169 paramedic positions through the 2014 and future years’ budget process. This investment will result in a 6% annual increase of paramedic resources over the next three years and enable the City to catch up to meet current and projected call demand for emergency medical response and transport.

It should be noted that costs for new paramedics are not eligible for 50/50 provincial cost-shared funding for the first year of operation. As such, the City must fund 100% of salary and benefit costs for new paramedic positions for the first year. This report therefore requests that the City Manager and the Chief of Toronto EMS consult with the Province of Ontario, in particular the Ministry of Health and Long Term Care, about the 50/50 cost share for paramedic positions being made available in the first year of operation.

The consultants also affirmed that changes to scheduling implemented in early 2013 appear to be successfully maximizing current resources by moving paramedics into predictably high emergency call volume areas and peak demand times.

Lastly, they suggest that Toronto EMS use Lean solutions (such as Six Sigma or ISO) to improve business processes particularly related to hospital offloads that contribute to paramedic wait times. The consultants suggest, and the City concurs, that a Lean resource should be shared between the two services to improve operational performance in key areas.

### **C. Continue the Toronto EMS Community Paramedicine Program**

The consultants confirmed that the Toronto EMS Community Paramedicine Program provides good value for money and recommend that the City continue this investment. They observe that the program reduces the number of emergency responses to patients by providing on-scene care and preventative referrals instead of transport to emergency rooms and consistently demonstrates a 50+% reduction in calls to 911 by vulnerable patients who frequently rely on EMS for access to healthcare.

The consultants also highlight that community paramedicine programs have been implemented successfully in many jurisdictions and are viewed as an essential component of the broader social safety net to advance patient care and well-being; and that paramedics are uniquely positioned to provide mobile health care to vulnerable residents. This report recommends that City Council affirm the continuation of this program to reduce pressures on emergency medical transport and provide mobile services to vulnerable residents and connect them with other basic health and social supports.

### **D. Improve Deployment of Fire Resources and Apparatus**

The review identifies opportunities to improve the deployment of fire resources and apparatus now and into the future through dynamic staging and an enhanced use of predictive modelling tools.

Dynamic staging refers to the deployment of emergency resources and apparatus into predictably high emergency call volume areas at peak demand times. Dynamic staging is most often used for ambulances (including Toronto EMS) but has been applied successfully in other jurisdictions to other emergency response vehicles including fire apparatus. Dynamic staging relies on predictive modelling to determine the most strategic and efficient placement of apparatus and uses a flexible rather than station based deployment model. Apparatus movement is calculated using a combination of historical data, real-time Computer Aided Dispatch (CAD) activities, and pre-configured business rules specific to the organization. A predictive modelling project for Toronto Fire Services was approved in the 2013 Capital Budget and a procurement process is underway to purchase this technology.

The consultants also recommend that the City enhance its use of fire traffic pre-emption to improve fire response times, particularly in congested areas. Pre-emptive traffic control systems allow the normal operation of traffic lights to be pre-empted, stopping conflicting traffic and allowing fire vehicles right-of-way to help reduce response times and enhance traffic safety.

Signal pre-emption is also often used at railroad grade crossings to prevent collisions and by transit systems to enable public transportation priority access through intersections to ensure they remain on schedule.

The City currently has 53 signalized intersections that are equipped with fire traffic pre-emption. The existing fire traffic pre-emption is "local" in nature and is provided for a specific movement at the signalized intersection that is in close proximity to the fire hall. This report recommends that the Fire Chief explore expanding the use of fire traffic pre-emption including leveraging technology through related City traffic congestion management initiatives.

The City is currently undertaking strategies to improve traffic congestion management and traffic signal coordination through the development of a Congestion Management Action Plan. The Congestion Management Action Plan will mitigate congestion and improve traffic flow across the city, including for fire vehicles, focusing on the most congested intersections as a first priority. The Congestion Management Plan is reviewing the City's current adaptive control system (SCOOT) including possible upgrades or replacement with another adaptive traffic control system. Fire pre-emption will be considered in any changes to the City's traffic control systems in order that technology investments can be leveraged as appropriate.

### E. Realignment of Fire Resource and Apparatus to Achieve Efficiencies

The consultants confirmed that demand for fire response has remained flat or declined over the last ten years and that the number of actual fires has also declined even though the population has increased. They identify options to reconfigure fire resources and apparatus with a goal of achieving efficiencies while continuing to provide similar response coverage. Figure 2 below summarizes Toronto Fire Services' total number of incidents, not including medical calls, from 2005 to 2011.

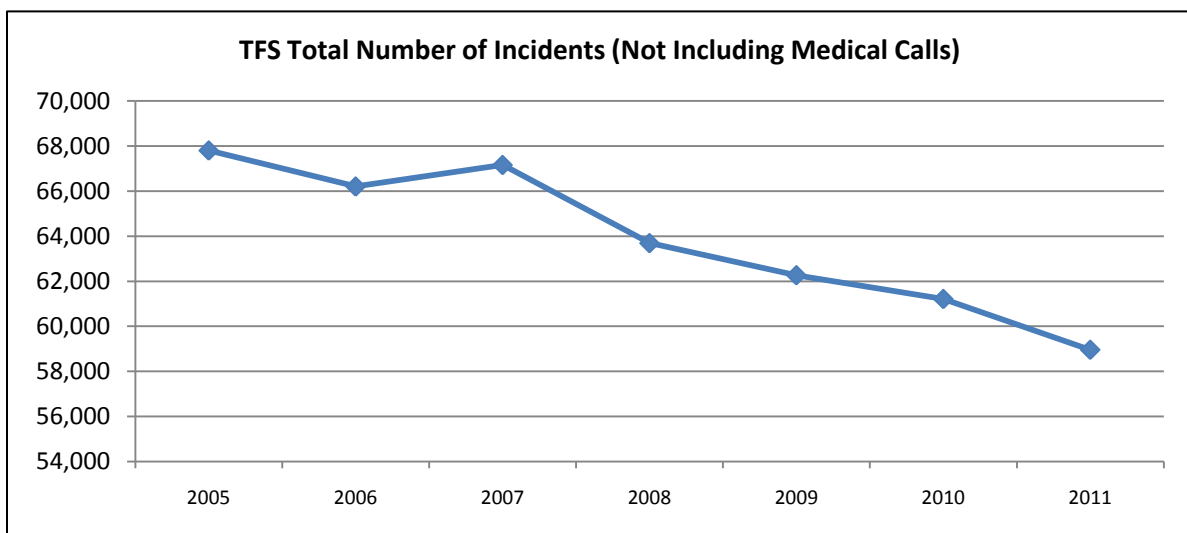


Figure 2: TFS Incidents (2005-2011)



The consultants recommend that the City examine efficiency options further through a detailed risk assessment including implications to the community risk profiles used to establish insurance rates. They also suggest that reconfiguring fire resource and apparatus should be considered in conjunction with an increased focus and investment on fire prevention, education and inspection programs to reduce fire risk. Their recommendations with respect to prevention, education and inspection programs are discussed further in sections F and G of this report.

The fire resource and apparatus modelling the consultants undertook generated two options to reconfigure fire resources and apparatus with a goal of achieving efficiencies while continuing to provide similar response coverage. The consultants used different analytic tools to develop efficiency options and assumed an available contingency of 16 fire apparatus if call demand warrants their use.

### **Pomax Fire Reconfiguration Options to Achieve Efficiencies:**

- Option 1 – Reconfigure and realign the distribution of fire response resources and apparatus to meet the fire coverage requirements city-wide and achieve a 22 fire apparatus reduction by -- adding 14 pumpers, eliminating 28 rescue vehicles, eliminating 8 aerials and maintaining the same number of squads, air light, hazmat and high rise apparatus.
- Option 2 -- Eliminate stations 312, 325, 332, 343 and 424 as there is significant overlap with surrounding fire stations and the other stations can provide response coverage.

It is the City's view that the resource and apparatus modelling that the consultant employed had significant limitations and did not adequately consider congestion, density, and concentration of highrises or other high risk uses in their analysis. The City does not concur with the options that the consultants put forward for fire resource and apparatus reconfiguration as they suggest reductions in some of Toronto's most dense and growing neighbourhoods.

The City Manager and the Deputy City Managers do however agree that there are opportunities to realign and rationalize the distribution of fire resources and apparatus to achieve efficiencies over the longer term particularly as improvements to fire deployment come on line and enhancements to public education and prevention programs are implemented. The City Manager and the Deputy City Managers also agree that reconfiguring and rationalizing fire resources and apparatus requires further evaluation including a detailed risk assessment and consideration of implications to Toronto's insurance ratings and impacts on service levels. This report recommends that the Fire Chief undertake further evaluation and bring forward changes through an updated Ten-Year Fire Master Plan in 2014 considering the results of the Fire Underwriters Survey and the outcomes of a City-wide risk assessment.

The study did not review a specific configuration involving the fire resource and apparatus reductions recommended through the 2013 budget process. The consultant's analysis affirmed some reductions put forward by the Fire Chief and not others.

They did however confirm that station 424 at 462 Runnymede Road is performing better than the response standard and adjacent stations could provide response coverage while continuing to meet the standard.

The Fire Underwriters Survey (FUS) is underway and the possible closure of station 424 and the additional 2013 proposed fire reductions will be evaluated further in that analysis considering the impact to the fire community risk profile used to establish insurance ratings. The Fire Chief will be reporting back on the FUS results, including the possible closure of station 424 and other proposed 2013 budget reductions, in fall 2013.

#### **F. Fire Underwriters Survey (FUS)**

The Fire Underwriters Survey (FUS) is a national organization administered by SCM Risk Management Services Inc. that provides data on public fire protection for fire insurance purposes. While FUS is not involved in setting insurance rates, the information provided through FUS is a key factor used in the development of property insurance rates and is used by underwriters to determine the capacity of risk they are willing to assume in a given community or section of a community.

FUS conducts detailed field surveys of fire risks and fire defences and the results of these surveys are used to establish a Public Fire Protection Classification (PFPC) for each community. To determine a community's PFPC, FUS evaluates fire risk and defences across key areas including fire risk, fire resources and apparatus (accounting for 40%), water supply (accounting for 30%), fire prevention and education programs (accounting for 20%) and emergency communications systems (accounting for 10%).

The Public Fire Protection Classification (PFPC) is a numerical grading system scaled from 1 to 10 that is used by Commercial Lines insurers. Class 1 represents the highest grading possible and Class 10 indicates that little or no fire protection is in place. The PFPC grading system evaluates the ability of a community's fire protection programs to prevent and control major fires that may occur in multi-family residential, commercial, industrial and institutional buildings, and in the course of construction developments. Fire Underwriters Survey also assigns a second grade for community fire protection. The second grading system, entitled Dwelling Protection Grade (DPG), assesses the protection available for small buildings such as single-family dwellings and is used by Personal Lines insurers. The DPG is a numerical grading system scaled from 1 to 5. One (1) is the highest grading possible and five (5) the lowest indicates little or no fire protection is present. This grading reflects the ability of a community to handle fires in small buildings such as dwellings and duplexes.

SCM-Opta is currently conducting a comprehensive evaluation of Toronto's fire risk and fire suppression capacities including consideration of changes proposed in the 2013 budget process. They are also working with Toronto Fire Services to complete the analysis requested by City Council on the requirements to move Toronto's highrise fire rating to the same level as a single family home. The Fire Chief will report the results of the FUS, including changes proposed through the City's 2013 budget process, in the fall of 2013.

The City has recently requested that the new Grade 4 Public Fire Protection Classification rating for Toronto be delayed pending implementation of enhanced fire prevention and investigation activities and development of a pre-fire planning program.

### **G. Adopt a More Aggressive Fire Inspection and Enforcement Strategy**

The consultants put forward a number of recommendations to improve fire inspection and enforcement. They suggest that the City adopt a more aggressive enforcement strategy to reduce building code infractions particularly in areas posing the greatest risk to people and property.

They propose a number of specific improvements including annual fire code inspections for high risk occupancies, enhanced enforcement for violations that impact on immediate building life safety and training fire suppression crews to undertake some inspection activities. They also suggest that the City pursue full cost recovery for building inspections required under the Fire Code for non-compliance with infractions.

The Fire Chief concurs that the City should pursue a more aggressive inspection and enforcement program and enhancements to fire inspection and enforcement, including the establishment of a Fire Investigation Team, which were approved in the 2013 Operating Budget and are currently being implemented. This report refers the fire inspection and enforcement related recommendations to the Fire Chief to continue or commence implementation.

### **H. Enhance Fire Prevention, Inspection and Education Programs**

The consultants found that there is better value for money when emergency services focus on preventing emergencies and mitigating risk. They highlight that prevention and education programs assist in taking pressure off the emergency response system and may reduce emergency response demand over time.

The consultants suggest that the City focus more on fire prevention and education to mitigate and manage fire and other emergency risks. They highlight that over time jurisdictions with a focus on prevention and education have realized reductions in fires and fire deaths. The consultants recommend that the City enhance its investment in fire prevention and education in the short and longer term.

City Council approved an additional 15 fire prevention officers in the 2013 budget and enhancing fire prevention and education programs and activities are already taking place. The additional fire prevention officers are being used to provide two distinct services – an enhanced pre-fire planning program and a pilot project for a risk based inspection program. The pre-fire planning program works with Fire Operations to develop, monitor and track critical information about buildings and contents and facilitates fire crews becoming more familiar with buildings in their response area in order to provide pertinent fire prevention information and to identify the need for a fire inspection. The risk based inspection program will be piloted in one area of the City.

The development of this pilot program will provide the basis for City-wide implementation and will provide comprehensive data about requirements for any additional fire prevention and education resources in future years.

Finally, the conversion of four operations firefighter positions to Fire Investigators in the 2013 approved budget will provide valuable information on the cause of previously "undetermined" fires and assist in the development of effective prevention and awareness programs to reducing the incidence of fires.

In addition to programs that are under development using new staff resources, the Fire Prevention and Public Education division is also moving ahead with the roll-out of new technology to increase the efficiency of existing inspectors. The current One Step program which is used to track inspections, violations and building data has been converted into an application, currently being tested by staff for release on tablets. This technology will enable on-the-spot recording of information as inspections are occurring, drastically reducing the amount of time staff are required to spend in the office transcribing hand-written records.

The consultants also recommend that the City develop a more integrated approach to emergency prevention and education to better coordinate efforts across related City divisions to reduce fire and other emergencies, especially in vulnerable communities. The City Manager and the Deputy City Managers agree that a more integrated approach to prevention and education programs across the City can advance shared goals and objectives and support a multi-disciplinary approach to service delivery. Work to coordinate efforts on particular issues is already happening and this approach can be expanded where appropriate. For example, City efforts related to hoarding are currently being coordinated across a range of City programs and services and this same strategy can be applied to other issues.

The fire prevention, inspection and education programs are also currently under review as part of the Fire Underwriters Survey. The Fire Chief will consider the Pomax recommendations and the results of the FUS further and bring forward a business case as required in the 2014 and future years' budget to continuously improve fire prevention and education programs and activities.

## **I. Developing an Updated Fire Master Plan for Toronto**

Many of the Pomax recommendations related to fire resources and apparatus, inspection and enforcement and prevention and education highlight the need for the City to update its Fire Master Plan. The City's Fire Master Plan was last reviewed and updated in 2007.

A Fire Master Plan is a combination of a strategic and operational plan that sets out a road map for fire programs and services over the short and medium time frame. A comprehensive Fire Master Plan is more than simply a collection of various operational plans across the different fire service areas but an integration of actions to achieve specific fire goals and objectives. A Fire Master Plan also anticipates growth and how communities will change over the time frame of the plan.

An updated Fire Master Plan for Toronto will be considered in the context of the City's updated Official Plan. The Official Plan sets out the vision for where and how Toronto will grow to the year 2031. The City is currently undertaking a statutory 5-Year Review of its Official Plan as required by the *Planning Act*. The Fire Master Plan will consider the updated Official Plan in its development process including areas designated for growth.

Toronto Fire Services is also moving forward with accreditation through the Centre for Public Safety Excellence. The Accreditation Program, administered by the Commission of Fire Accreditation International (CFAI), enables emergency response providers to use an accreditation process to set goals, develop strategic action plans and continuously evaluate and improve services provided to the public.

The accreditation process enables emergency response organizations to monitor and improve operational performance and compare themselves against industry best practices leading to improved service delivery. The accreditation process involves examining performance across 10 categories, 44 criteria and 253 key performance indicators (KPIs). The accreditation process takes approximately 18 months to complete and includes a detailed self-assessment, a peer review and formal accreditation by an 11-member commission, representing a cross-section of the fire industry. The accreditation is valid for five years.

The results of the accreditation process can also be used to inform the development of an updated Fire Master Plan including ensuring that it is based on leading industry practices.

## **J. Review the Toronto EMS and Toronto Fire Services Communications Centres**

The consultants did not recommend that the City pursue a consolidated communications centre and identified the cost of cross training, required technology investments, collective agreements, and variations in funding models as key barriers to integration.

The City Manager and the Deputy City Managers do not agree that these barriers are insurmountable and recommend additional due diligence be undertaken to explore this opportunity further. This report requests the Chiefs to undertake further evaluation of the benefits, limitations, risks and investments required to consolidate the communications centres and report back on the outcome of their analysis.

The consultants also suggest that TFS explore opportunities to provide fire communications services to other municipalities to generate revenue and reduce costs. There are several examples in Ontario where a municipal fire department is providing fire communications services to other municipal fire services through a shared service arrangement. This report recommends that the Fire Chief explore this opportunity further and report back.

The consultants recommend that the City advocate with the Ministry of Health and Long Term Care for acceptable staff levels for the EMS Communications Centre. Toronto EMS is currently not able to meet the 2 minute call receiving and dispatch standard set by the Ministry of Health and Long Term Care. The consultants suggest that more detailed calculations should be undertaken (hour by hour and day by day) to confirm staffing

requirements, however their preliminary analysis suggests that the centre requires 8 or more staff to meet this standard.

This report therefore recommends that the City Manager and the Chief of Toronto EMS consult with the Province of Ontario, in particular the Ministry of Health and Long Term Care, on the level of staff and funding required for the Toronto EMS Communications Centre to meet the 2 minute call receiving and dispatch standard established by the Ministry of Health and Long Term Care.

#### **4. Conclusions**

A review of Toronto EMS and Toronto Fire Services was undertaken to recommend opportunities that maintain the quality of these core municipal services while achieving potential efficiencies. The review confirmed that Toronto EMS and Toronto Fire Services are mature and competent organizations and should continue as separate service delivery models.

The consultants put forward 20 recommendations related to the organization, resources and apparatus, fire inspection and enforcement, prevention and education and the communications centres. This report recommends that no action be taken on 2 of the recommendations, the implementation of 14 recommendations and further due diligence on 4 recommendations.

Moving forward with the recommendations will ensure that Toronto's fire and emergency medical response services continue to meet the needs of the city now and into the future and are using leading industry practices to achieve operational excellence.

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## SIGNATURE

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## ATTACHMENTS

Appendix A: Disposition of Pomax Recommendations

Appendix B: Pomax Executive Summary

Appendix C: Pomax Final Report