



**STAFF REPORT  
ACTION REQUIRED**

**Fire Services Master Plan, 2007 – Implementation Status**

<b>Date:</b>	May 10, 2011
<b>To:</b>	Community Development and Recreation Committee
<b>From:</b>	Fire Chief and General Manager, Toronto Fire Services
<b>Wards:</b>	All
<b>Reference Number:</b>	p:\2011\ClusterB\FIR\cd1117.doc

**SUMMARY**

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City Council, at its meeting of February 24, 2011, requested that the Fire Chief report to the Budget Committee, through the Community Development and Recreation Committee on the status of the Master Fire Plan, with a strategy to complete its implementation, including achieving the NFPA Standard 1710, and Communications Systems improvements, and identify any resources required for consideration in the 2012 Operating and Capital Budgets.

The current Toronto Fire Services Master Plan, entitled, “*Toronto Fire Services Master Fire Plan – 2007*”, was developed to serve as a strategic planning framework to guide policy, organizational, capital and operational decisions over a five year period that will expire at the end of 2011.

During the course of the past five years, Toronto Fire Services (TFS) has made considerable progress in commencing and delivering many of the recommendations contained in the current Master Plan. The rehabilitation, replacement and construction of a number of fire halls has commenced, a number of key communications projects are underway and recommendations contained in the 2006 Auditor General’s Operational Review, have been successfully implemented.

Despite these achievements, issues such as ongoing staffing shortfalls and an aging mechanical fleet are impacting on TFS’ ability to meet and/or surpass a number of recommended standards and guidelines; particularly those contained in National Fire Prevention Standard (NFPA) 1710. Notwithstanding the current economic climate and the on-going challenge to optimize the allocation of resources, these issues make it increasingly more difficult for TFS to deliver it’s core services in the safest and most efficient manner possible.

## RECOMMENDATIONS

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1. The Fire Chief and General Manager of Fire Services recommends that the Community Development and Recreation Committee forward this report to the Budget Committee for information.

### Financial Impact

There is no financial impact associated with the recommendation in this report. All resource requirements identified in recommendations in the approved 2007 Master Fire Plan that have not been funded already in the approved 2011 Capital Budget and 2012–2020 Capital Plan (Appendix C) and the approved 2011 Operating Budget for Fire Services are for information purposes only. Funding requests to implement the remaining recommendations in the Master Fire Plan will be included in the submission for the 2012 Capital Budget and 2013–2021 Capital Plan and the 2012 Operating Budget as noted in Appendix B. These initiatives will concurrently be included in the revised Master Fire Plan for 2012.

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

### ISSUE BACKGROUND

Link to the Master Fire Plan – 2007

[http://www.toronto.ca/fire/pdf/master\\_plan.pdf](http://www.toronto.ca/fire/pdf/master_plan.pdf)

Link to the 2006 Operational Review – Toronto Fire Services

[http://www.toronto.ca/audit/2006/operational\\_review\\_tfs\\_final\\_report\\_%20jan2006.pdf](http://www.toronto.ca/audit/2006/operational_review_tfs_final_report_%20jan2006.pdf)

### COMMENTS

The current Master Plan was developed to serve as a strategic planning framework to guide policy, organizational, capital and operational decisions over a five year period that will expire at the end of 2011.

#### Guiding Legislation:

The *Fire Protection and Prevention Act, 1997* (FPPA) came into force in October 1997. It is an act to promote fire prevention and public safety in Ontario and as such, it and the regulations enacted thereunder such as O.Reg 213/07 (the Ontario *Fire Code*) addresses the delivery of fire suppression, fire prevention, and fire safety education, communication, training of persons involved in the provision of fire protection services, and rescue and emergency services.

The *Fire Protection and Prevention Act, 1997* (FPPA):

- Establishes the authority of the Fire Chief of a municipality who is ultimately responsible to the Council of the municipality that appointed him or her for the delivery of fire protection services (Section 6.3); and
- Defines the role of the Office of the Fire Marshal and defines its relationship with municipal fire departments (Section 9.1 and 9.2).

In addition to the FPPA, TFS is also affected by a number of other pieces of Provincial Legislation, as set-out in Appendix “A” of this report.

### **Master Fire Plan, 2007**

The current Master Plan includes a total of eighty one (81) recommendations from various sources, including its predecessor, the 2003 Strategic Plan, a consultant’s report commissioned by City Council (KPMG) in 1999 and an Operational Review conducted by the Auditor General in 2006.

A number of the recommendations relate specifically to NFPA 1710 (Standards for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations). Information regarding NFPA Standard 1710 is provided in a separate section of this report.

### **Implementation Status – Summary**

Appendix “B”, attached, lists the recommendations (81) contained in the current Master Plan, along with a current implementation status comment. Recommendations identified as carry-forward, should be considered as preliminary at this time and subject to the review and finalization by senior staff. All recommendations, aside from five that are no longer applicable, have either been completed and/or are considered as on-going obligations. Many are identified as carry-forward for inclusion in the upcoming new *Master Fire Plan 2012*, given their linkage to NFPA 1710.

The columns on the right-hand side of Appendix “B” denote (where applicable) 2012 capital and/or operating resources that have been identified with a specific recommendation. For information purposes, identified capital or operating dollar amounts include a brief explanation/comment following the recommendation.

Identified 2012 capital resources are referenced in Toronto Fire’s approved 10 Year Capital Plan (Appendix “C”). Identified 2012 operating resources are either items approved or requested but deferred in the current Fire Services’ 2011 Operating Budget

As this report precedes the 2012 formal budget process, identified 2012 resource requirements have been included for information purposes only.

**National Fire Prevention Association (NFPA) Standard 1710** (*Standards for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations*)

NFPA 1710 Standard sets out the recommended resource requirements for fires, emergencies and other incidents and establishes targets and guidelines related to the organization and deployment of fire suppression operations, emergency medical operations and special operations. It emphasizes three key areas of a successful operation: service delivery, capabilities and resources.

The Standard covers a broad range of guidelines and targets that include fire operations, staffing compliments, geographic station coverage, communications systems, public education, fire prevention initiatives, health and safety standards, and protective and mechanical equipment. High level comments regarding various 1710 targets and standards are included in the body of this report, while specific recommendations in the current Master Plan 2007 relating to NFPA 1710 Standard are identified in Appendix “B”.

Response Times

There are three time components defined in the NFPA 1710 Standard that relate to emergency response system performance. The components and definitions as follows:

- Call receipt and processing time – the interval between receipt of the emergency alarm at the public safety answering point to the moment where sufficient information is known to the dispatcher and applicable units are notified of the emergency. The maximum time for this component is specified in NFPA 1221;
- Turnout time – the interval between acknowledgement of notification of the emergency by the units to the beginning point of response time; and
- Response time – the time that begins when units are en route to the emergency incident (wheels rolling) and ends when units arrive on scene (wheels stopped at the address).

Business Intelligence Project (BI)

Multiple data sources and limitations with existing in-house and external communications systems and software restrict TFS’ ability to accurately report out on all of the NFPA 1710 time components, noted above. The Business Intelligence Project (BI) is a 2010 Capital Project with a total project cost of \$ 0.500 million that is designed to address this shortfall in data collection.

The main objective of the project is to establish a process that will facilitate the extraction of a variety of operational data from multiple sources that range from CAD and RMS systems to phone and radio communications systems, in a manner that is compliant with

NFPA 1710 and NFPA 1221 (standards for the installation, maintenance and use of emergency services communication systems). Once implemented, BI will enable the benchmarking of current performance and create the analysis tools required for continuous improvement.

Toronto Fire Services Performance

The recommended response to comply with NFPA 1710 guidelines, local Standard Operating and property risk considerations and the Fire Underwriters Survey, is for the first arriving company to arrive at the scene within 4 minutes and for sufficient apparatus of the correct type to arrive at the scene within 8 minutes, to deliver a sufficient number of fire fighters to conduct all the necessary tasks in a safe manner.

Table 1, below, shows both the NFPA 1710 recommended personnel and maximum travel times for the first arriving company (90<sup>th</sup> percentile) and TFS’ corresponding performance in 2010.

**Table 1  
NFPA 1710  
Travel Time Standard  
2010 Toronto Fire Services Performance**

	NFPA 1710 Guidelines		TFS Performance	
	Minimum Personnel	Maximum Response Time	Minimum Personnel	Maximum Response Time
<b>First Arriving Company (90<sup>th</sup> Percentile)</b>	<b>4</b>	<b>4 minutes</b>	<b>4</b>	<b>4:53</b>

As noted above, TFS exceeded the maximum 4 minute NFPA 1710 response time target in 2010. However; it should be noted that city-wide response times take into consideration the varying physical geography of the city and areas that range from rural fringe environments, to typical suburban and urban residential neighbourhoods, to commercial/industrial parks and high density/high risk/ high traffic congestion locations; such as the downtown core.

**Current Master Plan Achievements:**

During the course of the past five years, Fire Services has made considerable progress commencing and implementing a number of the recommendations in the Master Plan. Appendix B provides an update for all recommendations contained in the current Master plan.

2006 Operational Review:

A significant achievement involved responding to and implementing (where required) 33 of 36 recommendations contained in the 2006 Operational Review, conducted by the Auditor General. A link to the Operational Review is included in the Issue Background section of this report.

This comprehensive review focused on a number of areas including compliance with City policies and expenditure payments, fire prevention and inspection services, vehicle maintenance services and management control over warehouse inventory. It is anticipated that the process to implement these recommendations; which commenced in 2006, will be formally completed during the second quarter of 2011.

#### Quality Assurance (QA) Review:

A Quality Assurance (QA) Review that was undertaken in 2009, assessed the technology in use in the Communications Centre, with a view to validating current systems and/or identifying remedial actions necessary to ensure available data supports various TFS processes.

The anticipated project outcome is to establish a process that will facilitate the measurement of performance in a manner that is compliant with NFPA 1710 and 1221 Standards. Both standards address the delivery of emergency services from the initial receipt of an alarm to the arrival of appropriate emergency response units to the incident scene. Targeted for implementation in 2011/2012, the Business Intelligence (BI) project will enable the benchmarking of current performance and create the analysis tools required for continuous improvement.

Including an allocation of \$0.500 million for the Business Intelligence Project, TFS is funding communications related projects totalling \$1.344 million in 2011. Other projects include the communications disaster recovery project, emergency phone system upgrades and improved CAD2/CAD system interfaces. Capital funds for emergency phone system replacement have been identified in 2012, as part of the approved 2011-2020 Capital Plan.

#### Station Refurbishment, Relocation and New Construction:

A number of station refurbishment, relocation and new construction projects are either completed, currently underway or are scheduled to commence construction in the near future. Table 2 below, identifies current locations, construction start and target completion years.

Overall; start times for station refurbishment, relocation and new construction identified in the Master Plan, 2007 have been adhered to, with minor carry-forwards and deferrals. Significant deferral projects (outside of the five year Capital Program) include the replacement of Stn 214 and the construction of Station G (Sunnybrook). These deferrals were necessary to accommodate the priority replacement of the Chaplin Avenue Station and the rehabilitation of the CNE Station.

**Table 2  
Fire Hall Construction Projects**

<b>Fire Hall Location</b>	<b>Project Description</b>	<b>Construction Start Target Completion Year</b>
1904 Queen Street East	Restoration	Complete
Chaplin Avenue Station	Replacement*	2011-2012
Meadowvale Rd - Stn 214	Renovation/Expansion	Deferred
Keele St btwn Sheppard/Wilson (Stn B)	New Build	2014-2016
Hwy 27 & Rexdale Blvd (Stn A)	New Build	2012-2014
Eglinton & Midland (Stn D)	New Build	2011-2012
Sunnybrook (Stn G)	New Build	Deferred to 2020/21
CNE (Exhibition Place)	Rehabilitation	2011-2012

\*Advanced to 2011 to ensure emergency response times in immediate vicinity are maintained.

Although construction starts have been identified and funded in the in the 10 Year Capital Plan, it should be noted that station construction costs (partly funded through development charges) have escalated to the point that the eligible percentage of development charges allocated to these projects has decreased from 47% to 29%. This will result in construction delays and undoubtedly push back anticipated completion dates.

### **Current Master Plan: Areas for Concern**

#### Additional Staff:

Master Plan, 2007 identified a number of staffing requirements that are tied to Fire Services' ability to deliver its core services and meet various NFPA 1710 standards and guidelines.

Although annual business cases have been submitted to City Council to fill these positions as part of the budget process; none of the staff resource needs identified in the Master Plan, 2007 has been approved by City Council. Of particular concern are the 24 positions required to meet the NFPA 1710 Standard for crew compliments on Aerial Fire Trucks to ensure optimum operational efficiency of aerial equipment in areas of highest risk.

Table 3, below, identifies the service and number of positions required to address on-going staffing shortfalls.

Although not formally requested, The Master Plan also identified the need for an additional 57 Code Enforcement Inspectors to meet the Ontario Fire Marshal's (OFM) recommended population ratio of 1:15,000. TFS has been operating with an inspector to population ratio of 1:23,000 prior to and in the time since 2007. These needs were based on 2007 population data.

Similarly, a need for an additional 30 Public Educators was also identified to meet the OFM recommended population ratio of 1:50,000. TFS has been operating with an Educator to population ratio of 1:125,000 prior to and in the time since 2007. These needs were also based on 2007 population data.

**Table 3  
Master Plan, 2007 – Additional Staffing Needs**

<b>Item</b>	<b>Service</b>	<b>Gross \$000's</b>	<b>Revenue \$000's</b>	<b>Net \$000's</b>	<b>Positions</b>	<b>Description</b>
1.	Professional Development & Mechanical Support	485.3	0.0	485.3	5.0	Fleet Maintenance mechanics for current workload
2.	Fire Prevention	597.9	0.0	597.9	6.0	Fire Cause Determination Staff
3.	Operations	924.8	0.0	924.8	8.0	New district in South Command
4.	Operations	2,411.4	0.0	2,411.4	24.0	Staffing Aerials to NFPA standards
5.	Professional Development Mechanical Support	60.1	0.0	60.1	1.0	Fleet Maintenance storeroom control
6.	Communications & Ops Support	194.1	0.0	194.1	2.0	Recruitment Outreach staff
7.	Communications & Ops Support	112.6	0.0	112.6	1.0	Communication Training Captain
<b>2011 New Staff Requests</b>		<b>4,936.7</b>	<b>0.0</b>	<b>4,936.7</b>	<b>47.0</b>	

Current staffing compliments in the Professional Development and Training Unit of Fire Services are making it difficult to keep pace with training demands brought about by the changing nature of firefighting. Changes in fire behaviour brought about by new building materials and products, requires the on-going development of new training techniques, programs and modules; in addition to the already significant regiment of other legislated training and officer development programs.

Lags in completing the requisite training for new recruits and firefighters creates a ripple effect across all Divisions in Fire Services, as the completion of a number of training programs is required prior to allowing staff to engage in incident response activities.

Vacant Positions:

Delays in filling vacant positions are an on-going concern for Fire Services. Notwithstanding the staffing shortfalls noted above, these delays dramatically impact on TFS' ability to deliver many of its key administrative and support services. There are currently a total of four vacant non-uniformed positions that have not been backfilled.

### Staff Attrition:

The average age of Fire Services Association staff is 46.28 years. Based on recent retirement profile data, nearly 500 staff could conceivably retire now if they chose to do so. While the above figure has remained relatively constant for some time, it is important to consider the consequences that a mass retirement exodus could bring; in terms of meeting the NFPA 1710 Standard and TFS' ability to hire and train a larger than normal volume of new recruits over an extended period of time. Typically, two classes of forty recruits per group are trained on an annual basis.

On April 18, 2011, the Ontario government introduced Bill 181 that would, if passed, amend the Fire Protection and Prevention Act, 1997 to provide for the mandatory retirement at age 60 of firefighters regularly assigned to fire suppression duties, in certain circumstances. Should the bill achieve royal assent and become law in Ontario, mandatory retirement numbers for suppression firefighters could range from 120-185 staff, depending on what year (2011 or 2012) the bill were to become law.

### Succession Planning

A number of Master Plan 2007 recommendations deal with the need to develop a succession planning framework. TFS currently has 14 individuals that are involved in the Succession Management Program, whereby each individual is assigned to a Deputy Chief for program monitoring and mentoring.

Developing and implementing a robust succession plan that will permit identified staff to rise to more responsible positions within the organization will be a challenging undertaking, given restrictions in the current collective agreement, existing promotional policies and limited educational funding opportunities and resources. TFS has not been in a position to strategically act or comment on corresponding financial resource needs at this time.

Nonetheless, Master Plan 2012 will identify the development of a more detailed succession plan as an on-going priority project that is essential to maintaining the tradition of service excellence that TFS has come to be associated with.

### Aging Fleet

Fire Services' heavy fire apparatus fleet currently consists of 179 vehicles of which 40 or 23% are currently 15 years of age and older. The Fire Underwriters Survey; which is the instrument by which the insurance industry evaluates fire risk using various indicators, recommends that the replacement of all front line apparatus should take place after a maximum of 12 years. Vehicles in excess of 12 years of age can be held as reserve vehicles for an additional 3 years, for a total of 15 years. There are currently a total of 53 vehicles, or 29.6% of the fleet that are 12 years of age or older.

Fire Services Fleet Reserve contributions in both 2010 and 2011 was \$5.702 million. Maintaining the current contribution rate would result in 60, as opposed to the required 74 vehicles being replaced by 2015. In order to achieve the Fire Underwriters' recommended replacement target, the annual contribution rate would need to be increased to \$7.2 million annually. The annual reserve contribution figure of \$7.2 million was adopted by Council in 2003; however cost containment initiatives and scarce financial resources have resulted in an annual reserve contribution reduction of nearly \$1.5 million since 2009.

The projected shortfall in fleet replacement that maintaining reserve contributions at \$5.702 million until 2015, as opposed to the recommended minimum of \$7.2 million is noted in Table 4, below.

**Table 4  
Vehicle Replacement Shortfall  
Current vs. Required Reserve Contribution Rate Comparator**

<b>Replacement Rate Based on Annual Fleet Reserve Contribution</b>	<b>\$5.702 million</b>	<b>\$7.2 million</b>
Vehicles to be replaced in 2011	10	13
2012	12	16
2013	12	15
2014	12	17
2015	14	13
<b>Total Vehicles Replaced within 5 year Replacement Target</b>	<b>60</b>	<b>74</b>
<b>Total Vehicles outside 5 year Replacement Target</b>	<b>14</b>	<b>0</b>
<b>Total Vehicles 15 Yrs of Age or Older by 2015</b>	<b>74</b>	<b>74</b>
<b>Cost to Replace 74 Vehicles 15 Yrs or Older by 2015</b>	<b>\$35.225</b>	<b>\$35.225</b>
<b>Funds Available from Reserve Contributions</b>	<b>\$28.510</b>	<b>\$36.000</b>
<b>Surplus/(Shortfall)</b>	<b>(-\$6.715)</b>	<b>\$0.775</b>

If the current annual reserve contribution remains fixed at \$5.702 million, a total of 14 vehicles (approximately 7.8% of the fleet) would not comply with the recommended replacement age of 15 years by 2015.

At its meeting of February 24, 2011, City Council, requested that the Fire Chief report to the Budget Committee prior to the 2012 Budget process on the adequacy of Fire Services' fleet reserve contribution, the current status of the existing fleet and the projected necessary annual contribution level to provide sustainable emergency response. This report will be forthcoming.

### **Master Fire Plan, 2012 – Framework and Implementation Strategy**

The 2012 Master Fire Plan will follow a similar format to the current Master Plan; however there will be a greater emphasis placed on identifying, assessing and prioritizing “risk” through the development of a risk register, as it applies to the capital and operating needs across Fire Services.

Recommended deliverables and expected outcomes will be reviewed and updated on an annual basis. This approach will allow Fire Services to pro-actively manage risk more effectively and incorporate a degree of flexibility in terms of its capital and operating resource needs between 2012 and 2016. Risk register updates will be included in TFS' Annual Report. A listing of carry-forward and new recommendations for the 2012 Master Fire Plan is currently being developed and finalized.

It is important to note that although Fire Services will continue to endeavour to maximize the use of available resources and develop efficiencies in the delivery of its services, the successful implementation of the new Master Plan will ultimately depend on adequately funding the capital and operating budget needs that are tied to meeting NFPA Standards 1710 and 1221.

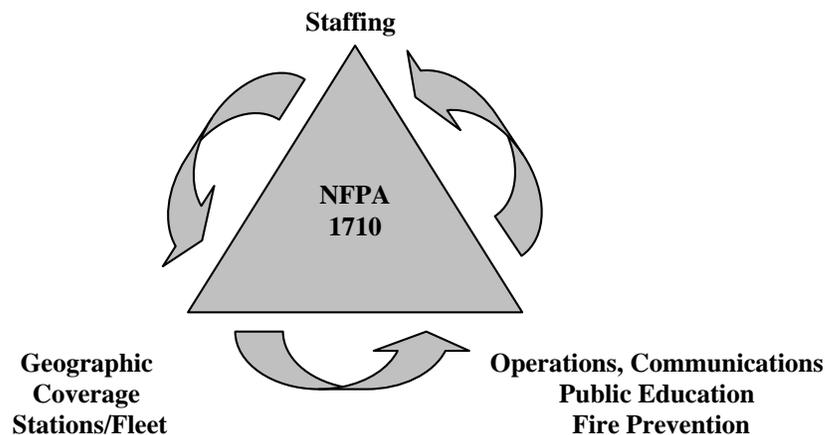
### **2012 Capital and Operating Resources**

This report has endeavoured to set-out the issues and associated financial resources that are necessary for Toronto Fire to meet NFPA 1710 Standard and carry out its core services in the safest and most efficient manner possible. Identified resource needs cited throughout the body of this report and in attached Appendices "A" and "B" have been taken from the Fire Services' approved 2011 Capital Budget and 2012– 2020 Capital Plan, and the currently approved base Operating Budget. All 2012 figures are for information purposes only and subject to formal consideration as part of the 2012 budget approval process

#### NFPA 1710 Standard and the Sustained Funding Paradigm:

The illustration below represents a simplified approach to understanding the relationship between necessary funding and meeting NFPA 1710 Standard. As previously noted, NFPA 1710 Standard revolves around three core concepts: service delivery, capabilities and resources.

#### Sustained Funding Paradigm – NFPA 1710 Standard



These core concepts are inexorably linked in terms of being able to achieve the Standard. If funding resources for any one variable do not adequately address the needs of a given municipality, the standard essentially becomes unachievable. This is the dilemma TFS and virtually all professional Fire Services across Canada and the United States, has faced for a number of years.

In fact, in TFS' case, gross expenditures (adjusted) between 2007 and 2011 have remained virtually unchanged from \$340,790.00 in 2007 to \$339,707.00 in 2011, despite the submission of annual business cases that have demonstrated a need for increased funding.

Faced with increasing densification, increasing emergency response times due to higher levels of traffic congestion, increasing call volumes and new construction materials that cause structures to burn hotter and faster than in the past; the effects of not funding certain elements of the Master Fire Plan exacerbates the difficulties TFS already faces in trying to achieve the NFPA 1710 Standard. Should current funding levels remain unchanged or be further reduced; significant slippage in terms of recommended guidelines, performance benchmarks and ultimately public safety, can be expected.

## **Conclusions**

Despite capital (fleet) and operating funding shortfalls over the past five years, the majority of the recommendations contained in the current Toronto Fire Services Master Plan, 2007 have been initiated or completed. TFS has also successfully implemented and/or is currently implementing recommendations contained in the Auditor General's 2006 Operational Review and the 2009 Quality Assurance Review.

Capital funding for a number of new station builds and rehabilitation projects has been secured in the 10 year Capital Plan and the completion of the Business Intelligence Project will establish a process that will facilitate the extraction of a variety of operational data that will enable the benchmarking of current performance and create the analysis tools required for continuous improvement in context with TFS' goal of achieving the NFPA 1710 Standard.

Fire Services Master Plan 2012 will carry-forward a number of the current initiatives, but will be grounded with a greater emphasis placed on the identification, assessment and prioritization of risk. Faced with under-funded capital and operating resources, TFS will be hard pressed to maintain or improve current service levels in context with achieving the NFPA 1710 Standard. The implementation strategy will ultimately depend on the funding approvals for the required resources that are identified in the 2012 and future budget submissions.

## CONTACTS

Colin Booth  
Division Chief,  
Special Projects & Emergency Planning  
Phone: 416-338-9070, Fax: 416-338-9060  
Email: [cbooth@toronto.ca](mailto:cbooth@toronto.ca)

Les Hamilton  
Senior Budget Analyst  
Phone: 416-338-9190, Fax: 416-392-0954  
Email: [lhamilto@toronto.ca](mailto:lhamilto@toronto.ca)



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William A. Stewart,  
Fire Chief and General Manager, Fire Services

## ATTACHMENTS

Appendix "A": Provincial Legislation Affecting Toronto Fire Services  
Appendix "B": 2007-2011 Master Plan Recommendations Status  
Appendix "C": 2011 Fire Services Approved Capital Plan