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2012 OPERATING BUDGET BRIEFING NOTE
Toronto Fire Services' Response Times

Issue/Background:

- Toronto Fire Services (TFS) was requested to provide a briefing note to the December 13, 2011 meeting responding to information brought to the attention of the Budget Committee on December 8, 2011 relating to average elapsed time between:

  ➢ receipt of 911 call and initiation of Fire Station alarm bell; and

  ➢ initiation of Fire Station alarm bell and the time fire truck wheels begin to roll;

  and Toronto Fire's performance with respect to these measures in comparison to other North American Fire Departments.

- TFS does not utilize average time measurements; responses are measured to the 90th percentile as per National Fire Protection Association (NFPA) 1221 and 1710. For the purposes of this request, both average time measurements and 90th percentile responses are provided.

- TFS standard reporting terms are as follows:

  ➢ "receipt of 911 call" is the initial timestamp in the Computer Aided Dispatch System (CAD), following the transfer of a 9-1-1 caller from Toronto Police identified as **"alarm time"**

  ➢ **"alarm processing"** includes the time the call is answered until fire station notification is initiated (dispatch). Fire station notification includes fire station printing, public address system activation and announcement of the voice message.

  ➢ "initiation of Fire Station alarm bell" is the time stamp identified as **"dispatch"**

  ➢ "time fire truck wheels begin to roll" is the time stamp identified as **"en route"**

  ➢ **"turnout time"** is the time interval from "dispatch" to "en route"

  ➢ **"road response time"** is the time interval from "en route" to the arrival of the first emergency vehicle at the incident identified as "at scene"

  ➢ **"total response time"** is the time interval between "alarm time" and "at scene"

- It is difficult to compare TFS to other North American fire departments as most do not publish response statistics. However, 2010 statistics which have been made public for New York City, Chicago and Calgary are included in this briefing note.

Key Points:

- **NFPA 1221 / 1710 Standards**

  ➢ NFPA 1221, Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems as well as NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments, 2010 Edition, identifies the Alarm Handling standard as a total time of 6 minutes and 20 seconds, 90% of the time.

  ➢ NFPA 1221:

    ▪ The fire department shall establish a performance objective of having an alarm processing time of not more than sixty (60) seconds for at least 90 percent of the alarms and not more than ninety (90) seconds for at least 99 percent of the alarms.

  ➢ NFPA 1710:

    ▪ Eighty (80) seconds for turnout time for fire and special operations response and sixty (60) seconds for EMS, Tiered Response calls.

    ▪ Two hundred forty (240) seconds or less travel time for the arrival of the first arriving engine company at a fire suppression incident and four hundred eighty (480) seconds or less travel time for the deployment of an initial full alarm assignment at a fire suppression incident.

    ▪ Two hundred forty (240) seconds or less travel time for the arrival of a unit with first responder with automatic external defibrillator (AED) or higher level capability at an emergency incident.

- **TFS Average and 90th Percentile Statistics**

  ➢ (2008 – year of study; 2010 – last full year of data)

All Call Types	Average 2008	Average 2010	90th percentile* 2008	90th percentile* 2010
Alarm time to Dispatch	50 seconds	45 seconds	1:37 minutes (97 seconds)	1:27 minutes (87 seconds)
Dispatch to En Route	2:04 minutes (124 seconds)	1:57 minutes (117 seconds)	3:08 minutes (188 seconds)	2:57 minutes (177 seconds)
Road response time	2:56 minutes (176 seconds)	3:01 minutes (181 seconds)	4:49 minutes (289 seconds)	4:45 minutes (284 seconds)
Total response time	5:36 minutes (336 seconds)	5:31 minutes (331 seconds)	7:47 minutes (467 seconds)	7:37 minutes (457 seconds)

*90th percentile means that the response time occurs 9 out of 10 times. For example, if a response occurs in 97 seconds at the 90th percentile, this means that 90% of the time, the response occurs in 97 seconds **or less**.

- **Key Comparisons of other Major Cities**

  ➢ Comparisons were made with New York City, Chicago and Calgary. Time intervals may differ from department to department. Please refer to attachment 1 with reference to New York City, Chicago and Calgary.

  New York City (2010 Statistics based on average response times, not an NFPA measure.)

Specific Call Types	Structural Fires	Non-Structural Fires	Non-Fire Emergencies	Medical Emergencies
Average Response Times	4:01 minutes	4:26 minutes	5:00 minutes	4:19 minutes

  Chicago (2010 Mayor's Report)

Call Types	Structural Fires 2009	Structural Fires 2010
Average Response Times	3:10 minutes	3:11 minutes

  Calgary (as per Calgary Fire Department Annual Report, with 90th percentile measures similar to TFS.)

All Call Types	2008	2009	2010
90th Percentile Response Times	9:32 minutes	10:06 minutes	9:51 minutes
TFS 90th Percentile Response Times	**7:47 minutes**	**7:37 minutes**	**7:37 minutes**

- **General Information:**

  ➢ At the December 8, 2011 meeting of the Budget Committee, reference was made to the May 2010 final report by the Fire Protection Research Foundation, entitled "Quantitative Evaluation of Fire and EMS Mobilization Times." On December 9, 2011, a copy of the report was provided to the Mayor's Office, Chair of the Budget Committee, Deputy City Manager, and the City Manager's office.

➢ TFS participated in the study as a large metropolitan fire department. TFS agreed to participate in the study, which provided quantitative evaluation and statistical analysis of data collected across a diverse representative population of North American fire service organizations. Approximately 450 fire departments were invited to participate; data was collected from 14 departments.

➢ The study examined response data from all participating departments including 183,000 incidents (fire, medical, non-emergency and other calls) to which TFS responded in 2008 and provides a quantitative evaluation of mobilization times (NFPA 1221 and 1710 standards.) Response data also includes "extreme outliers" which essentially means that the data includes responses to non-emergency calls, which typically are considerably longer than emergency calls.

➢ Key Report References:

   ▪ The report does not detail findings related to individual participating municipalities. TFS participated in the study as benchmarking data is typically not readily available.

   ▪ The NFPA 1710 standard is currently 80 seconds; the NFPA standard is due to be reviewed again in 2014. Page 39 of the report indicates turnout time at the 90th percentile of the submitted data was 123 seconds. Preliminary review of TFS 2011 data indicates a turnout time of 161 seconds, a difference of 38 seconds.

   ▪ In the report conclusion, page 73, the time for alarm processing (call receiving and dispatching) is 92 seconds at the 90th percentile of the submitted data. TFS's alarm processing (call receiving and dispatching) was determined to be 87 seconds in 2010, a difference of 5 seconds.

   ▪ TFS continues to strive to improve current time benchmarking in both NFPA 1221 and NFPA 1710 standards. The NFPA standard for total response time is 6 minutes 20 seconds at the 90th percentile. In 2010, TFS total response time was 7 minutes 37 seconds to the 90th percentile, a difference of 1 minute 17 seconds.

➢ It is important to note that prior to, and since this study, the TFS Senior Management Team has been proactive in identifying and mitigating factors affecting performance. The Fire Chief and TFS Senior Management Team, along with the Quality Assurance Manager, continue to strive to meet NFPA standards. Initiatives undertaken by TFS include:

   1. NFPA 1221 adopted as the standard for emergency call management (requires a quality assurance program.) Staff are aware of the requirement to process emergency calls as quickly and accurately as possible.

   2. TFS Quality Assurance Manager was hired January 4, 2010. The Quality Assurance Manager is currently developing programs to evaluate staff performance and address development/training requirements. The TFS Senior Management team and the Quality Assurance Manager have met with TFS staff and provided written direction and verbal communication.

   3. The Computer Aided Dispatch (CAD) system was upgraded in September 2011 and implemented additional functionality to improve alarm processing (call receiving and dispatching.)

4. Technological enhancements currently under review include:

   a. Modifications to existing CAD to CAD Interface with Toronto Emergency Medical Services

   b. Implementation of Business Intelligence Software (a data warehousing product which uses historical data previously gathered by the computer aided dispatch system to map, analyze and report on trends over time.)

   c. Link from CAD to the Records Management System (RMS) to provide building and inspection information to emergency responders.

   d. Future fire station alerting upgrade to IP based alerting system

➢ Public safety is a top priority for Toronto Fire Services. TFS will continue to monitor, identify and implement improvements to allow for efficient, effective emergency call processing and dispatching of responding crews, and the reduction of overall response times.

Attachment: (Please refer to the next page)

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