TO:	CHAIR AND MEMBERS COMMUNITY & PROTECTIVE SERVICES COMMITTEE MEETING ON TUESDAY, JULY 19, 2016
FROM:	JOHN KOBARDA FIRE CHIEF LONDON FIRE DEPARTMENT
SUBJECT	DRIVER TRAINING PROGRAM

RECOMMENDATION

That, on the recommendation of the Fire Chief and with the concurrence Managing Director, Neighbourhood, Children and Fire Services, this report relating to the London Fire Department Driver Training **BE RECEIVED** for information.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

- Request for Proposal 15-03 Driver Simulator, submitted to CPSC July 21 2015.
- Request for proposal 15-03 Driver Simulator Request – follow up report, submitted to CPSC October 20 2015.

BACKGROUND

This report is in response to the Council Resolution from the October 27th, 2015 meeting:

> "*The Civic Administration **BE DIRECTED** to provide a further report to the Community and Protective Services Committee with respect to the information related to the comprehensive training program, including the simulator, as well as any accident mitigation and reduction information. (2015-F18) (AS AMENDED) (13/11/CPSC)".*

In 2015, following a gap analysis of its Driver Training Program, the London Fire Department (LFD) submitted a proposal for the purchase of a driving simulator. Council subsequently approved the purchase. As part of the approval, Council through its Resolution directed Civic Administration to provide a further report as per the direction above.

Project Update

Following Council's approval, the following actions have occurred to date:

Date of Action	Action Taken
November 2015	Driver simulator ordered
December 2015	Drivewise analyzed the types of LFD motor vehicle collisions to identify issues and create customized scenarios
Late December 2015	Driver simulator received
Mid-January 2016	LFD and Human Resources Instructors received Train-the-Trainer training, as well as London Police. Middlesex-London EMS was unable to attend but interested.
March - April 2016	LFD new driver training program completed.
May 2016	Defensive driving refresher course taught to 1/3 of LFD's 88 FFAO's

Actions yet to be undertaken in 2016:

Planned Date of Action	Action to be Taken
August – October 2016	LFD training for new drivers delivered
July – September 2016	Engage ESSD and determine usage requirements
November 2016 – March 2017	Solicit potential interest from other agencies

LFD Driver Training Program

Over the last ten to twelve years, the LFD has looked for ways to minimize motor vehicle collisions and risks. Toward this goal, the LFD has made changes to its driver training program several times. Nevertheless, the most recent review that has been undertaken is the most comprehensive yet.

The following details the framework that has been used to review and revise the driver program.

1) Review collision history to identify training needs as precisely as possible and establish the performance and evaluation criteria for desired competency levels.

2) Analyze which media (i.e. classroom theory, driving simulators, in-vehicle training) is best suited for addressing each of the identified training needs.

3) Design simulator scenarios to meet the training goals.

4) Consider learner characteristics (e.g. demographics, prior knowledge, and experience, motivation) when designing simulator scenarios.

5) Develop appropriate short - and long - term performance measurements and feedback.

6) Support Instructors with instruction on the optimal use of the driving simulator and courseware and monitor their performance (e.g. provide trainers with feedback).

7) Develop and implement a post-learning environment feedback loop for supervisors to evaluate new drivers.

8) Review and, as necessary, revise the motor vehicle collision investigation process.

9) Conduct a review of driving related procedures.

10) Plan periodic reviews of collision data to assess the effectiveness of the revised program.

Emergency vehicle operators are generally more highly trained than other drivers. However, in carrying out their duties in an emergency driving can occur under infinitely more stressful and demanding conditions, and can occasionally involve unavoidable travel at a high rate of speed. The challenges facing emergency crews are often exacerbated by a variety of physical and environmental factors beyond their control, and may include adverse road and weather conditions, traffic volume, and unforeseen events.

There is a public expectation that emergency vehicles (EVs) are driven in a safe and lawful manner, and that operators meet or exceed industry driving standards and abide by operational guidelines, the law, and related statutes. Nevertheless, the very act of responding to emergency calls contains inherent risks, and while every reasonable measure is taken to avoid collisions, it is impossible to guarantee zero risk. As a result, motor vehicle collisions can occur. Understanding the historical frequency and severity

of motor vehicle collisions within the Department was an essential first step in addressing the underlying risks and developing the necessary procedures and training to minimize the potential of motor vehicle collisions and to enhance road safety in the future.

In the review, a “motor vehicle collision” was defined as any reportable adverse incident that caused vehicular property damage and/or injury to the crew or civilians. The review included motor vehicle incidents that occurred while fire crews were travelling to a dispatched address, staging assets and/or working at the scene of an emergency event, and returning to their fire station. Also, the review included collisions while at a fire station or while on training exercises. These could involve relatively minor traffic mishaps while manoeuvring the vehicle in parking lots or alleyways, which accounts for the majority of insurance claims, or more complex events with privately owned vehicles on roadways or intersections.

The most important part of the review was the assessment of the behaviour or cause of the incidents. These include aspects such as space management, emergency manoeuvres, speed management, intersection management, and safe reversing.

This analysis has allowed the Department to enhance the initial and ongoing driver training in a way that seeks to address the key issues and prepare its future Fire Fighter/Apparatus Operators (FFAO) more comprehensively.

Traditionally driver training has focused on vehicle/cab/apparatus handling and been perceived as a technical handling skill. The Canadian Council of Motor Transportation Association published a study in 2011 that researched 1,650 commercial motor vehicle incidents and assigned main causal factors. According to this research, incidents are not caused by a lack of vehicle handling skills, 97% of incidents are either decision or recognition issues, and 3% are vehicle-related problems.

Driver improvement programs that focus on technical vehicle handling primarily focus on vehicle/cab/apparatus reactive response to risk situations. They address little to none of the causes of the risk being present. The intent of the revised LFD driver-training program is to have the student, and existing FFAOs focus far more on decision making and recognition.

Simulation training is the only safe method for Fire Fighters to experience certain situations, understand the stressors and practice adopting the cognitive skills and behaviours to avoid such incidents.

With the previous live in vehicle/cab/apparatus training, the Instructor had little control of the stimulus. Any risky situations were confined to what could be offered in a parking lot or track. It, however, had limited real life stressors such as traffic, pedestrians, and unpredictable behaviour by other road users or complex decision making. Training was kept within a cone of safety to the point of minimal training value being obtained. It became a reactive vehicle handling exercise. There is value in the student becoming comfortable with the handling of larger vehicles; however, the recognition and decision making required to create a well-rounded and suitably prepared driver was lacking.

New and existing FFAOs must consider the following to adjust driving to conditions:

- Traffic (other road users such as vehicles, pedestrians, cyclists, etc.)
- Weather
- Vehicle condition
- Urgency of call
- Physical and mental preparedness of the driver.

In some traditional training programs, new and existing FFAOs experience the vehicle’s physical limitations during situations, which do not take into consideration the varying driving conditions they may encounter. Accordingly, the FFAO may get a false sense of security and over drive the vehicle in real driving conditions. The revised program emphasises driving behaviours such as speed control well within the physical limitations

of the vehicle, given the most common driving conditions encountered. Use of the driving simulator allows the student to practise driving in more realistic driving conditions and places emphasis on the necessary safe driving behaviours. The simulator closely replicates the dynamics of actual LFD vehicles so that if the FFAO should over drive the vehicle dynamics in a given situation, the adverse result (rollover, skid, unable to stop etc.) is realistic. Experiencing such consequences is a vital learning experience for the student.

In the safety of virtual reality (VR), our Instructor's do not need to intervene or stop the exercise if he/she feels that a high-risk situation or collision is approaching. In a VR environment, the Instructor can allow the situation to play out. The consequences of the student's decision-making and recognition during that simulation are experienced first-hand and result in a far more intense learning event.

In a VR environment, the Instructor can replay the exercise for the participants (and observers in group training) for reflective debrief and lessons learnt, and best practice discussion. This experiential education first immerses learners in an experience and then encourages reflection to develop new skills, new attitudes, or new ways of thinking. The VR environment captures all learning styles ensuring a more thorough knowledge transfer. The practical experience of the learning objective ensures a higher rate of retention.

The revised training program is based on the stress exposure training design. It provides for skill practice with stressors incorporated into the experience. It leads to the development of metacognitive skills, reduced anxiety, increased efficacy, and successful application of skills while exposed to stressors and improved cognitive and psychomotor performance under stress.

In circling back to the understanding that poor decision-making and recognition are the primary causes of our collisions, it is the belief that the revised training program will more suitably prepare our new and existing FFAOs.

In addition to the revisions and enhancements to the driver-training program, the simulator will also be used to address another gap. The current program will be enhanced with ongoing refresher training and an assessment component. A new four-hour course will be provided to all permanently classified and qualified FFAOs on a three-year rotational basis. The focus of this particular course will be threefold. Firstly, it will incorporate the results of the analysis of collision data. Secondly, the simulator will provide FFAOs with an opportunity to practice skills not previously taught. Finally, it will serve as a general revision of best practices and departmental procedures.

Enhanced control of the learning process

The simulator-based training will now allow LFD Instructors and learners to exercise more control over the learning process. The record keeping within the program allows LFD staff to monitor the progress of each learner and group of learners, direct training at low - performing FFAOs, or revise the program to address common or growing issues.

Reinforcement in the post-learning environment

In addition to the revised driver training program, the LFD will be implementing a program aimed at its Officers. They are the supervisors responsible for the performance of their crew and are ultimately in charge of the vehicles in which crews respond. An evaluation process for new FFAOs is in the process of being implemented. It will allow the Department to get feedback on FFAO performance and create an opportunity to assess the training program's effectiveness in a way that has not existed previously.

LFD Collision Investigation

The LFD procedure for investigating Departmental motor vehicle collisions was modified recently. Previously, only the Division Head was required to attend the scene to investigate a collision. There were limitations with this process as the Division Heads

lack the specialized training to assess properly the actions of the individuals driving and the resultant collision.

Fire Administration believed that a more comprehensive assessment of the collision was necessary. Therefore, the investigation procedure was amended to include the dispatch of a Corporate Driver Training Instructor. They are specifically trained in collision investigation. Their analysis results in a conclusion being provided as to whether the collision was preventable or non-preventable. These findings will feed into the review process to identify if and where things are improving and what needs to be addressed.

Operating Procedures

For several decades, the LFD has had driving policies and procedures in place. Training consisted of simply reading and reviewing the same followed by written test questions to confirm understanding. The driver simulator provides for a more robust and consistent assessment. Training Instructors are now able to assess the FFAO's driving practices against the requirements of policy and procedure requirements and ensure comprehension and adherence. This is possible because those requirements can be embedded into the driving simulation scenarios.

A review of the standard operating procedures relating to the driving of fire apparatus and other departmental vehicles is also being undertaken. In consultation with Drivewise, and as a result of their experience and knowledge of best practices, and our observations during the initial training a gap analysis is currently being conducted. The results of this project will likely identify opportunities for enhancement and revision. The current policies and procedures will be amended, where necessary, and rolled into future simulations.

Periodic Review

An annual review of driver training, collision statistics, and associated data is being implemented to assess the effectiveness of the revised approach. Further amendments to the driving program will be dictated by the findings of the review.

FINANCIAL IMPACT

There are no new financial impacts arising from this report.

SUMMARY

In summary, the acquisition of the driver training simulator, coupled with a comprehensive review of the entire driving program enables the London Fire Department to continuously improve its approach to driver training and subsequent performance. Introducing realistic, hands-on experiences will result in more knowledgeable, competent, capable and confident FFAOs. They will be better prepared to operate the LFD's emergency vehicles in a wide array of weather and traffic conditions, as well as be prepared to react quickly and appropriately when unpredictable situations arise. The driver training program is also supported by robust procedures, thorough collision investigation's and enhanced supervisory oversight that will benefit citizens and visitors through quick, safe and efficient responses to emergencies, fewer collisions, as well as enhancing the safety of responding Fire Fighters.

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