



Report To: Manitoulin-Sudbury DSB  
From: Michael MacIsaac  
Chief of EMS  
Date: October 27, 2011  
Re: ZOLL Road Safety and Tach West AVL System - Issue Report

### RECOMMENDATION

That this report be taken as an update on the ZOLL Road Safety system. Furthermore, that the Board give approval to administration to enter into agreements that would allow this program to come to fruition. Lastly, that the Board give approval to utilize funds currently sitting in a Land Ambulance Working Funds Reserve for this purchase. This reserve was funded 50% by the Ministry of Health and Long Term Care and must be used for EMS equipment purchases.

### **Back Ground**

At the June DSB program committee meeting, the ZOLL Road Safety program was introduced in a PowerPoint presentation and a general briefing was delivered at the Board Meeting. Just days earlier staff were presented with a full review of the system by ZOLL representatives, included in which was the opportunity to take a look at the hardware associated with this system. This system is simplistic in its approach but technologically advanced in that there are no current competitors.

ZOLL is a company that we currently have a lot of business dealings within the EMS world. We utilize their semi-automatic external defibrillators on all of our ambulances, we use their Automatic External Defibrillators (AED) for our Public Access Defibrillators (PAD) program, we utilize their mechanical CPR machines in a select few of our ambulances, and finally we utilize their electronic patient charting program to document patient care. In short, we have a good working relationship with ZOLL and they provide the DSB with very competitive pricing. We believe that they are a solid company who has always maintained a professional approach while being responsive to our needs. They believe that we are a good model of an EMS service in rural and remote Northern Ontario who provides an excellent trial ground for their new programs. We have been on the progressive with them in the past by being the first EMS in Ontario to adopt the AutoPulse and by being the first EMS in the world to operate their EPCR program in a "hosted" environment.

## History

Road Safety is a program that has been around for many years. They have over 200 customers in the USA, including one of the 2 largest EMS providers. In Canada, the province of British Columbia has widespread use of this system in their EMS system and EMS in the Maritimes of Canada are starting to use it. Road Safety is an on board driver behavior modification system. Four years ago EMS staff were at a Health & Safety conference where this concept of immediate driver feedback was first brought to their attention. The foremost expert in EMS safety, Dr. Nadine Levick spoke passionately about EMS safety. She extolled the virtues of systems that provide immediate feedback when errors are occurring. It is a known fact that correcting an error is most successful if it can be done while the error is occurring. After the fact notification usually via discussions with a supervisor, is nowhere near as effective as immediate notification. Dr. Levick has reviewed these types of systems and after conducting a study in Pennsylvania she concluded that her study:

*shows further evidence of a dramatic and sustained improvement in driver performance and vehicle safety in every measured area with this onboard computer monitoring and feedback system. Implementation of this system demonstrated to be a highly effective and sustainable approach to enhancing safety in ambulance transport, requiring minimal in-service training time and optimal safety outcome in addition to a cost savings in maintenance. Use of an on board computer system with real time monitoring and feedback should be encouraged for widespread implementation throughout the EMS system to optimize safety.*

Theoretically, this program could be the most prominent augmentation to driver safety that the Ontario Ambulance system has ever seen. There is a very detailed system that according to the ZOLL website:

*monitors and records unsafe vehicle operating parameters such as speeding and high vehicle g-forces caused by rapid accelerations, hard decelerations, and high speed turns. The system provides an audible warning as the driver approaches an unsafe condition, allowing sufficient time to take corrective action before a crash might occur. The system also creates database reporting, ranking driver performance and identifying areas for improvement.*

One final item to note is an added benefit of potential cost savings in vehicle repairs and fuel. ZOLL suggests a return on investment (ROI) of anywhere from 8 to 24 months. While our ROI has not been ascertained we can state that we should see a decrease in brake and suspension repair with the addition of this program. While the potential for cost savings cannot be overlooked the true impact of this program is on the Health & Safety side of things.

## Current Issues

Currently there is no means by which to transmit the Road Safety data from our ambulances to a computer server for use by our managers. While the system would still function within the ambulance and provide the immediate feedback, we would not have the reporting structure in place to be able to ascertain personal driving habits, and data for future training initiatives. This back end information is essential in managing the system as a whole. There are solutions to this problem but each of them will require a secondary service. In reality we need a modem on board each ambulance that is capable of transmitting the data. Currently we do have modems from our Automatic Vehicle Location (AVL) service provider but they do not have the capability to transmit this data. There is the option to upgrade, however our current provider has been somewhat unwilling to work with ZOLL to integrate the systems. We could buy a separate modem for each ambulance but that would be costly as not only would we need to purchase the hardware but we would need to purchase a separate cellular data plan for each ambulance as well. The preferred option is to look at another AVL provider in the province that is willing to and apparently able to integrate their system with Road Safety. Tach West has recently introduced an AVL solution (DataTrans) to rival our current provider. Benefits of their system include; high quality fully functioning mapping, integrated automated vehicle maintenance program/notification, integrated fuel log tracking system, and less costly monthly maintenance and cellular data fees.

Understanding that our current system will not integrate with Road safety and that they are less than willing to explore integration with ZOLL, we would need to look at an alternative provider. Knowing that an alternate provider is available with an approximate 35%-40% reduction in monthly costs, we should consider a change, but with this change comes an initial outlay of money required to purchase the hardware.

## Funding Parameters

Before we look at additional savings associated with purchase of this program, below is a table of total upfront costs with corresponding funding sources to be utilized.

Funding Source	Zoll Road Safety	Data Trans	Totals
Land Ambulance Working Funds Reserve	\$ 32,313	\$ 44,737	\$ 77,050
100% Provincial Wikwemikong Station	\$ 5,948	\$ 4,261	\$ 10,209
DSB Equipment Reserve	\$ 28,157		\$ 28,157
2011 Operating Budget	\$ 1,983		\$ 1,983
<b>TOTAL</b>	<b>\$ 68,401</b>	<b>\$ 48,998</b>	<b>\$ 117,399</b>

Despite the above table, it is important to note that being the first to implement a system has its advantages. As ZOLL would really like to see a fully functioning market in Ontario, they have been somewhat aggressive in trying to get our business. Below is an additional table of costs, discounts and donations. First, you will note a 15%

discount on the Road Safety program. ZOLL was unable to discount Road Safety any further as they have been successfully selling it in the USA at full price without any problem. They indicate this to be the case as they have no competition in this market. The only way that ZOLL was able to create a great enough discount to make it palatable to us was to create a package with other ZOLL products. We are scheduled to buy 3 AED's next year as part of our replacement plan. With that purchase ZOLL has agreed to add on (donate) 2 refurbished AED's with extended warranties, 12 smart batteries, and a case of defibrillator pads.

Item	Qty	Unit Price	Disc Price	Ext. Price (tax inc.)	ZOLL Donations
Road Safety Package	1	\$ 76,448	\$ 67,218	\$ 68,401	\$ -
Smart Batteries	12	\$ 200	\$ -	\$ -	\$ 2,400
Refurb E Series AED	2	\$ 16,431	\$ 11,900	\$ -	\$ 23,800
6 Month Ext Warr	2	\$ 787	\$ -	\$ -	\$ 1,574
Defib Pads	1	\$ 383	\$ -	\$ -	\$ 383
<b>TOTAL</b>				<b>\$ 68,401</b>	<b>\$ 28,157</b>

The price of the Road Safety program as \$68,401 tax included. The donations listed in the final column have a value of \$28,157. The donated amount of \$28,157 will be removed from our Equipment Reserve as it would have been spent in future years according to our replacement plan. In essence once the discounted price and value of the donated equipment is factored in, the Road Safety Program will cost \$40,243 (appropriate taxes and tax rebate applied).

Additionally, as previously mentioned we would need to alter our AVL equipment. The cost to upgrade to the Tach West Technologies Data Trans Tracker system would be \$48,998 (appropriate taxes and tax rebate applied).

One last item to note is that the above costs include the upgrading of the Wikwemikong vehicles as well. Since Wikwemikong is funded 100% by the Province, we need to reduce Road Safety by \$5,948 and DataTrans by \$4,261, for a total of a \$10,208.70 further reduction.

In total we would to allocate \$34,296 (Road Safety) and \$44,737 (DataTrans) for a total of \$79,033.40 to adopt this full program. As previously mentioned there is a Land Ambulance Working Funds Reserve set aside since 2009 which was intended for the purchase of EMS equipment. Understanding that we would intend on using the aforementioned equipment reserve of \$77,050.00, we would need to absorb \$1,983 from our current operating budget to make up the remaining difference.

### What Our Neighbours are Doing

In June, when ZOLL had the Road Safety representative from California presenting this technology, they visited 5 EMS in the province. While all are interested in this program some are cautious about being the first ones on a new system. We have experience with ZOLL in being the first ones on the EPCR hosted solution.

Regarding the AVL provider it is important to note that over the past couple of years there has been a change in the market. The original provider was the only one on the market when the provincial government introduced funding for such a system. Since then, others have come into the market and are now taking over business. The original provider was bought out by a larger company. Since then many services in the province have left the original provider as their service and support has drastically declined over the years.

## **Advantages**

The advantages of this wholesale change are numerous. They include:

- Knowledge that we have the best type of driver safety technology at our disposal
- A safe driving system that has been studied and proven to affect change
- Ability to direct driver training in the appropriate manner
- Ability to effectively monitor the driving habits of all employees but most importantly the new inexperienced driver
- Possibility of cost savings in vehicle maintenance and fuel
- A fully functioning AVL system
- Integrated electronic fuel logging
- Integrated vehicle maintenance program
- 30%-40% monthly savings in AVL maintenance/cellular costs

## **Conclusion**

Staff is recommending that the Manitoulin-Sudbury DSB Board approve the purchase of the Zoll Road Safety system and the Tach West AVL system. The Board approves the expenditure of \$77, 050 from the Land Ambulance Working Funds Reserve.