



CITY OF HAMILTON
COMMUNITY AND EMERGENCY SERVICES DEPARTMENT
Hamilton Paramedic Service

TO:	Chair and Members Emergency & Community Services Committee
COMMITTEE DATE:	May 25, 2015
SUBJECT/REPORT NO:	Purchase of New Stretchers and Loading Systems (CS15026) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Mike Sanderson 905-546-2424 ext. 7741
SUBMITTED BY:	Joe-Anne Priel General Manager Community & Emergency Services Department
SIGNATURE:	

RECOMMENDATION

- (a) That the Stryker Power Cot/Power Load system be designated a “Standard” system pursuant to Procurement Policy #14 – Standardization, with this designation being subject to review at the end of the expected service life of the system (7 years);
- (b) That staff be authorized to negotiate a contract on a single-source basis with Rowland Emergency Vehicle Products Inc. for the purchase, installation and certification of Stryker power-assisted stretchers/accessories and stretcher loading systems to be installed in all current transport ambulances at an estimated cost of \$1,593,661 to be funded as follows;
 - (i) From existing capital project 7641451401-Stretcher Replacement Program in the amount of \$180,670; and
 - (ii) From borrowings from the Unallocated Capital Levy Reserve 108020 in the amount of \$1,412,991; and
- (c) That the reserve borrowings be repaid to the Unallocated Capital Levy Reserve 108020 from savings resulting from WSIB cost reductions and from Modified Duty/Duty to Accommodate cost reductions over a term of 6 years at the effective interest rate at the time of borrowing.

EXECUTIVE SUMMARY

The stretchers currently used by City of Hamilton paramedics require extensive physical effort to raise, lower, load, unload and manoeuvre. Paramedics repeatedly lift and move heavy weight throughout their shifts and this is contributing to injuries, worker’s

SUBJECT: Purchase of New Stretchers and Loading Systems (CS15026) (City Wide) - Page 2 of 15

compensation and accommodated work costs. Individual toll on paramedics is even more significant. Stretchers that put less strain on paramedics are now available. Using these innovative stretchers reduces the ergonomic hazards associated with our current equipment. Similar equipment has already been successfully introduced into other Ontario ambulance services including Niagara Region, Windsor-Essex, Thunder Bay, and York Region.

Hamilton paramedics have thoroughly tested the new stretchers in the field and are extremely positive about making them standard equipment in our ambulances. The upgrade in equipment will undoubtedly result in reduced injuries to our employees, improve quality of work life and home life, and reduced potential of injury to patients resulting from dropped stretchers.

As an employer that values our employees it is critical that we ensure we have done everything we can to return them home to their families at the end of their shift in the same condition that they started the shift – specifically with the same physical and mental health and well-being that they came to us with. This is a challenging objective given the nature of our emergency service and the potential risks they face each and every day.

The capital costs to equip all ambulances with the new stretcher and loading device is approximately \$1.59 M. The capital costs will be offset by redirection of an existing capital budget and cost savings in both worker's compensation (WSIB) and workplace accommodation costs of injured workers over a five year period.

The proposed stretcher system is a proprietary product of Stryker Canada, and can currently be purchased only directly from Stryker (product only) or from Stryker's sole affiliated dealer in Ontario, Rowland Emergency Vehicle Products Inc. The loading system by itself may be purchased from an ambulance manufacturer when installed on new vehicles. Purchase from Rowland has been found to be the least expensive option to refit the current fleet. The system has an expected service life of 6-7 years, and procurement standardization authorization has been proposed, as well as authorization to procure the system including installation from the lowest-cost authorized vendor or combination of vendors throughout the life-cycle period.

Alternatives for Consideration – See Page 14

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: Capital project #7641451401 has a balance of \$180,670 available to put towards this project, leaving an anticipated capital funding need of \$1,412,991. The capital investment of \$1,593,661 reflects equipping 31 ambulances with stretchers at an estimated cost of \$42,817 per vehicle plus two additional stretchers to replace those on loan. A provision is also made for 12 spare stretchers to ensure ongoing availability, cleaning, maintenance, and to facilitate offload turnaround at hospitals. Beginning in 2016, an annual provision for replacement will be included in the operating budget. The

SUBJECT: Purchase of New Stretchers and Loading Systems (CS15026) (City Wide) - Page 3 of 15

funds will be transferred to the EMS Equipment Reserves 100033 to be used for future stretcher replacement.

Summary of Savings

The savings are a result of the anticipated cost reductions in WSIB costs and Modified Duty / Duty to Accommodate (MD-D2A) costs. A detailed analysis of the cost savings is included in the Analysis and Rationale for Recommendation section.

Implementation 2015						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	2016	2017	2018	2019	2020	2021
	\$	\$	\$	\$	\$	\$
WSIB Savings	56,000	84,000	112,000	140,000	168,000	168,000
Modified Duty / Duty to Accommodate Savings	108,000	126,000	144,000	171,000	180,000	180,000
Total Savings	164,000	210,000	256,000	311,000	348,000	348,000

Repayment of Capital Borrowings from Reserve

The following repayment schedule provided by Finance and Administration is based on estimates in January 2015. In addition to the repayment schedule the balance of \$180,670 from capital project #7641451401 will be utilized. The actual repayment may differ based on the final costs and the interest rate at the time of borrowing:

PURPOSE:		Purchase of new Stretchers and Loading Systems			
SOURCE:		108020			
DATE:		08-May-15			
PRINCIPAL:		1,412,991.00			
INTEREST:		1.50%			
TERM (YEARS):		6			
MONTH	YEAR	PRINCIPAL PAYMENT	INTEREST PAYMENT	TOTAL ANNUAL PAYMENT	OUTSTANDING PRINCIPAL
December 31	2015				1,412,991.00
December 31	2016	142,805.13	21,194.87	164,000.00	1,270,185.87
December 31	2017	190,947.21	19,052.79	210,000.00	1,079,238.66
December 31	2018	239,811.42	16,188.58	256,000.00	839,427.24
December 31	2019	275,653.59	12,591.41	288,245.00	563,773.65
December 31	2020	279,788.40	8,456.60	288,245.00	283,985.25
December 31	2021	283,985.25	4,259.75	288,245.00	0.00
Total		1,412,991.00	81,744.00	1,494,735.00	

Staffing: There are no staffing implications associated with Report CES15026.

Legal: There are no staffing implications associated with Report CES15026.

HISTORICAL BACKGROUND

Ambulance services have been using many types and styles of stretchers over the years. When the Province of Ontario initiated funding and regulation of ambulance services in the late 1960s, stretcher types were standardized to those manufactured by Ferno-Washington (F-W). F-W models have changed over the years with the most significant advancement being the shift in the 1990s from a stretcher that was manually lifted into an ambulance by two paramedics using a “side straddle” positioning to a stretcher that is manually lifted with the assistance of a “roll in” mechanism.

Ambulances are normally staffed with two qualified paramedics, with each alternately functioning as driver and attendant during an ambulance call. The paramedics work together as a team to assess, treat, and transport patients to the hospital. In accordance with care standards, the use of a stretcher to transport a patient is required except where a patient refuses. While patient weights vary, it is not unusual to have patients weighing more than 300 pounds with the average patient weight in the 180 to 200 pound range. When the patient weight is added to the weight of the stretcher itself along with the required ancillary equipment also carried on the stretcher with the patient (cardiac monitor, oxygen and other equipment), total weight can be in excess of 300 pounds. Paramedics handle this weight four or more times on each of their multiple calls handled during a twelve hour shift. Lifts in excess of 400 pounds are not uncommon.

Following the lead of institutional health careⁱ, and in response to increasing costs of managing employee disability, there has been an increasing focus in ambulance services in Canada and abroad on the reduction and elimination of musculoskeletal injury (MSI) and repetitive strain injury (RSI) risk factors. In the UK, ambulance service providers are guided by minimal physical lift policies and a requirement to eliminate manual lifting and lowering of stretchers, and the manual loading and unloading of stretchers into and out of the ambulance.

The common solution for reducing the frequency and effort of lifting the stretcher, patient, and equipment, up and down during a call is the addition of power assistance to the stretcher and mechanisms to assist in loading and unloading the stretcher from an ambulance. These systems use either compressed air power or battery power. The most common new generation of stretchers are the Ferno-Washington Power Cot and the Stryker Power Cot. They are relatively identical in both function and cost. They both utilize their own fastening systems to safely secure the patient and stretcher in the ambulance.

There are three primary approaches to providing mechanical assistance with the loading and unloading of stretchers:

1. **Ramps and Winch:** The use of ramps and a winch to move the patient from ground level into the ambulance. We currently use this system in our bariatric unit designed

for patients in excess of 450 pounds. While the system works we have found it to be very cumbersome, slow, and labour intensive.

2. **Powered Lift Gate:** This process involves the installation of a platform and motor either under the chassis of the vehicle or folded up over the back doors of the vehicle. For comparison one can think of the powered lift gate in a moving truck. The mechanisms for these are exposed to the elements, and they tend to be relatively slow in operation. Given our winter climate and the potential for apparatus jamming and freezing, this solution has generally not been considered within the ambulance industry as a reasonable solution for Ontario paramedic services.
3. **Proprietary Power Loading systems:** These systems are unique in their approach and have become more common over the last five to seven years. The market leading system is the Stryker Power Load which works in combination with the Stryker Power Stretcher to safely perform the entire lifting of the patient, stretcher, and equipment into and out of the ambulance. Paramedic Services using this system have experienced reductions in both MSI and RSI injuries along with cost savings. This is the system that has been trialled by Hamilton Paramedics over the last three months, and is identical to the system introduced across Niagara Region in all of their ambulances in 2014.

Ferno-Washington has entered the market with the introduction of their iNX stretcher which combines their power stretcher with a partially modified loading and unloading system. This F-W iNX system is new and there are currently no Ontario users of the system. Unlike the Stryker system, it still requires paramedics to manually lift weight while the patient and stretcher are being placed into and out of the vehicle. We were not able to secure this stretcher for a full trial as it was not yet in general production. However, we did secure a sample stretcher for a very short time period allowing evaluation during training exercises. Paramedics that used the stretcher during the training exercise did not recommend using this stretcher.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

1. The Ontario Occupation Health and Safety Act, Section 25, Part 2(h) requires that the employer shall *“take every precaution reasonable in the circumstances for the protection of a worker”*;

Given the existence of musculoskeletal and repetitive strain hazards associated with the use of our current stretchers and recognizing the nature of work required to be performed by paramedics, it is expected that we should be diligent in reducing the frequency of manual lifting and the total weight to be lifted to protect the health and safety of workers.

2. Pursuant to the Ontario Ambulance Act, Section 4, Part 1(d), the Minister of Health has authority *“to establish standards for the management, operation and use of*

ambulance services and to ensure compliance with those standards”.

Pursuant to this authority the Ministry of Health publishes standards for vehicles and equipment. The proposed Stryker Power Stretcher and Power Load systems are certified as being in compliance with these standards.

3. City of Hamilton Reserve Policies allow for the borrowing of funds from reserves and repayment with interest from the operating budget.

RELEVANT CONSULTATION

- Hamilton Paramedic Services Joint Health and Safety Committee is in support of the proposal
- Hamilton Paramedics in general have been involved in the trial process and evaluation and there is very broad support for the proposal
- Peer paramedic ambulance services including Niagara Region, Windsor-Essex, Thunder Bay, and York Region have provided information regarding their implementation of similar systems and the results have been positive.
- City of Hamilton Human Resources Health, Safety and Wellness Section has indicated support for this proposal
- City of Hamilton Corporate Services (Financial Planning and Policy Division, and Procurement Division) has indicated support for the funding arrangements from capital based on a cost recovery, and subsequent savings projection, over a 5 to 6 year operating period.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

In 2014, The Defence Research Development Centre (DRDC) for Security Scienceⁱⁱ researchers reviewed current practice and the physical demands placed upon Canadian paramedics in a multi-centre evaluation which included sites utilizing the manual F-W Model 35 ProFlex stretcher (currently used by Hamilton), sites utilizing the Stryker PowerPro stretcher, and sites utilizing the Stryker PowerPro stretcher in combination with the Stryker Powerload system (our proposal).

The study found:

“Paramedics are exposed to intermittent high physically demanding tasks (i.e. lifting/lowering or loading/unloading the stretcher), interspersed with extended sedentary periods (driving, logging paperwork, on standby, etc.). However equipment and call volume directly affected the magnitude and frequency of these physically demanding tasks. Powered stretchers eliminated/reduced physically demanding components of the job, where higher call volumes increased the frequency of physically demanding activities.”

In a 2009 report presented at the XXIst Annual International Occupational Ergonomics and Safety Conferenceⁱⁱⁱ, the authors evaluated the financial impact of two different

ambulance stretcher (gurney) designs on EMS personnel utilizing an interventional study model over a four year period. For two years, the paramedics in the study used a manual stretcher that required full unassisted lifting of the patient and stretcher, including the loading and unloading from the ambulance. For the next two year period, they used the Stryker Power Pro stretcher (our proposal). Their study reported a 41% decrease in claims paid due to gurney related incidents along with a 68% decrease in lost days and a 42% decrease in restricted (modified) work days.

Similar results have been provided from York Region following their adoption of the Stryker Power Pro in combination with the Stryker Powerload system. York Region found:

“Since deployment of the Stryker Powercot and subsequently Powerload in January 2013, the following has been observed (calculations have been adjusted to account for 2013 YTD comparison to the entire year of 2012:

- *71% Reduction in reported stretcher related incidents causing injuries (38 in 2012, 7 in 2013)*
- *39% Reduction in repetitive task/motion incidents (18 in 2012, 7 in 2013)*
- *11% Reduction in overexertion/strain incidents (133 in 2012, 76 in 2013)*
- *49% Reduction in lost time hours (585 in 2012, 189 in 2013)*
- *Average lost days per lost time incident in 2012 1.8, in 2013 0.4”*

It is clear that the introduction of the Stryker PowerPro stretcher in combination with the Stryker Powerload system decreases both the frequency and the cost of MSI and RSI injuries related to lifting.

The Trial

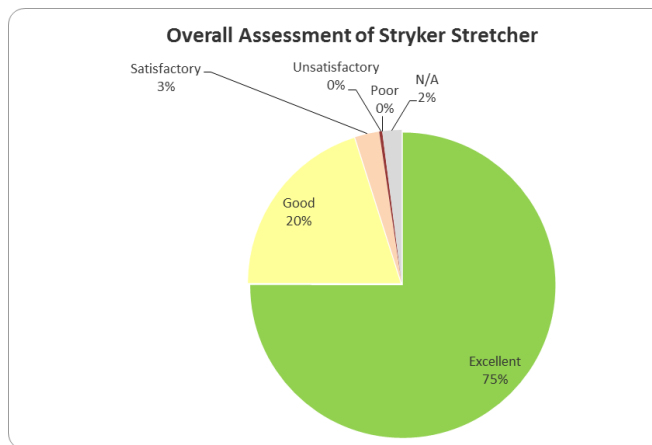
Based on discussion with other paramedic services, industry representatives, and the Paramedic Service internal Joint Health and Safety Committee, staff agreed to perform a full trial of the new F-W iNX stretcher and of the Stryker Powercot and Powerload combination. The intent of the trial was to have City paramedics participate in a direct comparison to determine which equipment was preferable from a front-line operations perspective, and to identify any operating issues. Evaluation of the existing manual F-W 35A stretcher was also collected.

Staff were able to secure free, independent use of the Stryker combination for a three month trial in ambulances operating at two stations. However, staff were only able to secure the F-W iNX stretcher for a limited classroom trial of a demonstrator model, provided under the supervision of the F-W representative. While the Stryker combination has been commercially available for more than five years now, the F-W iNX has just gone into production in January 2015 and comparative field results are not available.

Evaluation of the Stryker Powercot and Powerload combination was encouraging. Paramedics using the stretcher were ecstatic about the use and the positive impact it

SUBJECT: Purchase of New Stretchers and Loading Systems (CS15026) (City Wide) - Page 8 of 15

had on their work life. Paramedics provided daily reports during the trial period. In the end, 95% gave the stretcher/loader combination a good to excellent satisfaction rating and none rated it unsatisfactory or poor. The feedback included the comments, “Just buy them”, “the future of paramedicine”, and “patients love it, we love it, so impressed with this product”. Individual survey comments are attached as Appendix A to Report CES15026.



The vehicle mounted Stryker Powerload system with the Stryker Powercot is fully automated for loading into and out of the ambulance and features built-in safety and load security. These features greatly decrease the potential for patients to be dropped during transfer in and out of an ambulance.

Further, this system is rated for patients up to 500 pounds plus the weight of ancillary equipment. This sizeable load capacity allows for loading very heavy patients into and out of the ambulance without risk of paramedic injury or the requirement for special resources. Currently, this level of weight can only be managed by sending a bariatric ambulance to the call resulting in a delayed response.

Individual paramedics have also provided compelling stories about how using the new combination has benefited them personally and the anticipation it has generated across the workforce. Paramedics talk about how much this new tool has improved their daily work life. Employees with previous injuries talk about how this innovation will be able to lengthen their career without further injury. Young paramedics talk about being able to work through a career in paramedicine rather than having to think about alternatives in the event of a career altering injury.

There is a clear and genuine desire on the part of the workforce to move forward with the proposed combination.

Costing Analysis

The Stryker system is a proprietary product of Stryker Canada, and can currently be purchased from Stryker directly (which supplies the products only with no installation); from Stryker's only affiliated dealer in Ontario, Rowland Emergency Vehicle Products Inc. (which supplies the product and completes the installation and certification); or in the case of new vehicles, from an ambulance manufacturer which supplies and installs the loading system only. It is also feasible to purchase components from a combination of vendors: e.g. the Powerload system on a new ambulance from the ambulance manufacturer, the Powercot system directly from Stryker and accessories and final certification from Rowland.

New ambulances for the Hamilton Paramedic Service are procured only from Demers Ambulance Manufacturer as authorized by Standardization of Ambulance Fleet Purchases (Report HES12015). Demers pricing to supply and install the Stryker Powerload system has been found to be substantially higher than the other alternatives.

With the approval of the Director, Financial Services and the Procurement Manager, current pricing was obtained from both Stryker and Rowland Emergency Vehicle Products. Pricing from both vendors for purchase of the Powercot and Powerload system is identical, with Rowland adding additional costs for installation, certification to Ministry standards and provision of required accessories. The total cost to equip one Hamilton ambulance with the Stryker Powercot and the Stryker Powerload system is \$42,817 (supply, installation and certification), this price incorporating a substantial discount based on conversion of the entire fleet; the discount will be less if fewer systems are purchased.

Staff would need to equip all 31 front line ambulances, inclusive of spare vehicles. (The Service has purchased two loading systems which are installed in ambulances from the trial, with two cots having been loaned for use at no cost, to be replaced with new cots following approval). The total estimated capital cost for conversion of the entire fleet with spare equipment is \$1,593,661.

The capital and equipment costs for the five ambulances approved by Council as an enhancement to be implemented over the 2015-16 calendar years already includes a cost allocation to cover these stretchers.

If approved, adoption of the Stryker Powerload/Powercot system will involve a substantial investment, both in terms of direct capital investment in the equipment and indirect investment in training and intangibles such as the development and refinement of operational procedures and techniques through continuous learning and improvement. The equipment service life is +/- 7 years, with training and intangibles lasting even longer. There is no similar system currently available or in development, so it's proposed that the Stryker Power Cot/Power Load system be designated a

SUBJECT: Purchase of New Stretchers and Loading Systems (CS15026) (City Wide) - Page 10 of 15

“Standard” system pursuant to Procurement Policy #14 – Standardization to facilitate longer-term maintenance and procurement planning.

As Rowland Emergency Vehicle Products supplies the products at the same price as Stryker, and Rowland is the only vendor currently authorized by Stryker to perform refit installations in the Province of Ontario, there is no competitive procurement option and single-source procurement from Rowland is the only practical alternative for conversion of the existing fleet.

The service has intentionally held off on the purchase of any replacement manually operated F-W 35A stretchers pending the outcome of the trial and capital funding request. Capital project #7641451401 has a balance of \$180,670 available to put towards this project, leaving an anticipated capital funding need of \$1,412,991.

Following implementation, staff realistically anticipate combined cumulative operating budget savings over a six year period from reduced WSIB and reduced requirements for workplace accommodation in the area of \$1,637,000. This provides for a six year payback on the additional capital requirements, and actual budget savings in the sixth year. Suggested replacement life cycle of the new equipment is as yet undetermined but is projected at a minimum of 6 years and a maximum of 10 years for the equipment dependent on maintenance and operation cycles.

Workplace Safety Insurance Board (WSIB) Data

Applying the experience of other jurisdictions to the Hamilton Paramedic Service, we have reviewed our own data and history for RSI and MSI claims which, apart from the personal impact of an injury, presents itself as either a WSIB cost or a modified work cost.

With respect to WSIB the Paramedic Service budget allocation for 2015 is \$1,022,900. This is inclusive of current and prior year costs.

Current year costs for the number of lost time injuries, the number of days lost, as provided by our corporate health, safety, and wellness section are reflected below:

	Total WSIB Days	Total Lost time injuries	Total WSIB Cost
2013	698	73	\$387,684
2012	944	64	\$352,963
2011	1,053	34	\$306,839
2010	912	32	\$220,975
2009	733	43	\$216,493
2008	590	51	\$196,904

Records indicate that, dependent on year, 33% to 50% of current year WSIB costs and presumably future year costs are related to MSI and RSI injuries involving lifting,

SUBJECT: Purchase of New Stretchers and Loading Systems (CS15026) (City Wide) - Page 11 of 15

moving, and the use or lack of use of the stretcher, an average cost of approximately \$140,000 per year.

Savings 1 – WSIB Current Year: We believe that based upon the experience of other jurisdictions, and the available literature, that there will be a direct WSIB Cost savings of approximately 40% of the current year MSI costs, a direct cost savings of \$56,000.

Savings 2 – We believe that based upon the experience of other jurisdictions, and the available literature, there will be a compounding future year direct WSIB cost savings. We conservatively estimate this to be in the area of half of the current year savings compounding each year in years two through five of the project, and then stable at the reduced amount in the sixth and following years.

Implementation 2015	Year 1 2016	Year 2 2017	Year 3 2018	Year 4 2019	Year 5 2020	Year 6 2021
Current Year Savings	\$56,000	\$56,000	\$56,000	\$56,000	\$56,000	\$56,000
Future Year Savings		\$28,000	\$56,000	\$84,000	\$112,000	\$112,000
Total In Year Savings	\$56,000	\$84,000	\$112,000	\$140,000	\$168,000	\$168,000
Cumulative Savings	\$56,000	\$140,000	\$252,000	\$392,000	\$560,000	\$728,000

This projection would see a gross reduction in WSIB costs over the 6 year period following implementation of \$728,000, and the WSIB cost allocation for Paramedic Services progressively reduced over the next 5 years.

Modified Duty / Duty to Accommodate (MD-D2A)

Records indicate that Hamilton Paramedic Service routinely has between 16 and 22 paramedics on restricted duties as a result of medical limitation. In December 2014, there were a total of 19 employees on D2A. Of these, 12 were as result of various MSI/RSI issues either directly or indirectly related to work. The time duration of the modified activities ranged from a few weeks up to four years. While staff work with the Return to Work specialists to manage the individual needs of these paramedics in getting them back to normal duties, the corporate practices and overarching human rights obligations result in a very active modified work program.

In the absence of D2A activities, which are a direct service operating budget cost, the involved paramedics would be off duty on WSIB, short term disability, or long term disability, each of which would also result in additional cost to the City as employer. Conservatively projecting an average of 18 paramedics on D2A on an ongoing basis, and using the Primary Care Paramedic wage rate of \$37.38 plus an allocation of 25% for other employee related costs, we anticipate that we are spending up to \$1.8 M annually for paramedics to work at activities other than paramedic duties.

SUBJECT: Purchase of New Stretchers and Loading Systems (CS15026) (City Wide) - Page 12 of 15

The adoption of the new stretcher/loader combination should result not only in fewer paramedics on modified duties, but it will allow injured paramedics to return to regular duties earlier by eliminating a lot of the lifting barriers that may be keeping them on modified duties. We are comfortable in projecting a 10% reduction in D2A wage and employee related costs as result of implementation of the reduced lift stretcher program, this is the equivalent of moving from an average of 18 D2A staff to 16 D2A staff. We do not believe that we will realize the full savings immediately, and that it will be a progressive improvement in costs similar to the projections for WSIB savings. As with the projected WSIB reductions we are projecting that after the fifth year the savings will be stabilized for the future years.

Without adjustments for wage rate increases or other factors our projected savings for wage and employee related costs as result of decreased D2A requirements caused by MSI and/or RSI, is as follows:

Implementation 2015	Year 1 – 60% 2016	Year 2 – 70% 2017	Year 3 – 80% 2018	Year 4 – 90% 2019	Year 5 2020	Year 6 2021
Current Year Savings	\$108,000	\$126,000	\$144,000	\$171,000	\$180,000	\$180,000
Cumulative Savings	\$108,000	\$234,000	\$378,000	\$549,000	\$729,000	\$909,000

In summary, the total anticipated cost of the stretcher system, and the repayment of cost through 2021, is as follows:

Total System Cost	\$1,593,661
Plus Interest	\$ 81,744
Minus Existing Available Capital	-\$ 180,670
Minus Cumulative WSIB (to 2021)	-\$ 728,000
Minus Cumulative Modified Work (to 2021)	-\$ 909,000
Net Savings	\$ 142,265

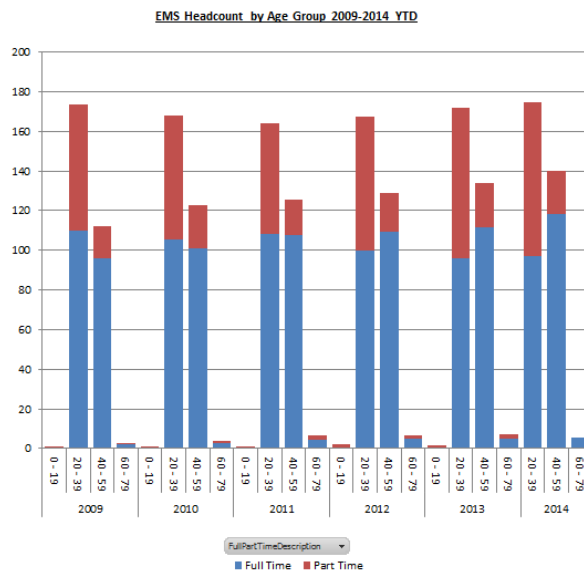
Without accounting for any further exchange rate fluctuations or variances in the current equipment costing we are projecting a net savings after interest of approximately \$142,265 by the end of the sixth operating year with the new system.

Other Information

Like many other ambulance services across the Province, we have also identified that our existing workforce is aging, with more of our full time employees in the 40 to 60 age group (see Figure 1 below). While the City has only directly operated the service for the last 14 years, many of our paramedics have extensive histories in the system, with 25 or more years of exposure to repetitive lifting and strains utilizing the manual equipment.

SUBJECT: Purchase of New Stretchers and Loading Systems (CS15026) (City Wide) - Page 13 of 15

Figure 1 - Employee Age Distribution - Source Hamilton Human Resources



Evidence indicates that once a paramedic has sustained an MSI or RSI as result of lifting the potential for a subsequent MSI or RSI is increased. The obvious challenge that this creates is that without taking action now to improve the tools and equipment available to our paramedics for the performance of their daily duties the frequency of both WSIB and D2A would be increased rather than decreased.

Further, staff anticipate that with fractured pension histories from the eclectic ambulance delivery systems prior to consolidation and the introduction of OMERS that most paramedics in the 40 to 50 year age group will not be in a financial position to retire until they at least reach the age of 65.

If changes aren't made to reduce the amount of lifting performed by our paramedics, staff project that the MSI and RSI related costs in future years will continue to increase rather than remain at the current level as our employees get older.

Current Stretchers

We currently have an inventory of 62 F-W stretchers, with an average age between 7 and 12 years. While most busy ambulance services have been utilizing a planned life cycle for the F-W 35A stretcher of 7 or 8 years in Hamilton the recapitalization of these stretchers has not occurred historically. Instead, there has been ad-hoc purchases when the stretcher is beyond reasonable repair. We are averaging ongoing inspection and repair costs for the current stretchers in the area of \$46,500 per year.

If we continue to perform patient lifting and movement with the same stretchers we have been using in the past the service will expend the already reserved \$180,000 to purchase approximately 36 replacement stretchers. We would project an ongoing need

for replacements in the area of 10 stretchers per year at a capital cost of approximately \$50,000 per year.

The current stretchers will have some value on the market, likely in the area of \$300 to \$500 per stretcher which provides potential cost offsetting revenue of \$18,000 to \$31,000. There would be a potential donor value for these used stretchers in third world or developing countries and staff would recommend that in the absence of a significant real market value consideration be given to donating this used equipment.

The manual F-W 35A stretcher currently in use was only rated as good to excellent rating by 16% of paramedics and a 29% gave it a poor or unsatisfactory rating. Use of this equipment exposes paramedics to ergonomic hazards and contributes to the number of lost-time injuries and costs

ALTERNATIVES FOR CONSIDERATION

F-W iNX Stretcher System

Classroom evaluation of the F-W iNX by participating staff was not favourable. While there were some advantages to the stretcher such as the ability to individually sense front or rear leg lowering, the overall feedback from staff was that it was awkward, heavier than the Stryker, less user-friendly and had many more moving parts. More significantly, the F-W iNX still required the paramedic to maintain some manual lifting control to manipulate the stretcher and patient into and out of the vehicle. When unloading from the vehicle, securing a manual catch on the ground hook was required to ensure the stretcher and patient did not fall to the ground. Comments from our staff following their limited exposure to the iNX included that it required more manual manipulation and muscular activity than the Stryker system, leading us to believe that cost savings would not be the same.

Paramedics involved in the initial testing recommended that we not perform any further trial of the iNX and further recommended that we not move forward with that system.

Pros:

- the overall cost of the F-W iNX system would likely be lower than for the Stryker system

Cons:

- Paramedics who have been exposed to use of the F-W iNX system in the classroom recommend that we not purchase that system
- Capital cost recovery for the F-W iNX system is not as certain as for the Stryker Power Cot and Powerload solution
- Staff would require training in use of the F-W iNX system.

Financial Implications: While the cost of the iNX is not publicly listed we understand from presentations at various trade shows that the intent is to market the device in the price range of \$18,000 to \$22,000 per unit. Staff have been unable to confirm actual

SUBJECT: Purchase of New Stretchers and Loading Systems (CS15026) (City Wide) - Page 15 of 15

pricing with any ambulance service that has purchased the device as none of our peer services have done so. If the pricing assumption is correct the overall system cost for Hamilton is estimated at \$1,021,000 (\$946,000 to equip 31 ambulances plus 12 spare stretchers, and approximately \$75,000 for staff training). The cost recovery offset from reduced WSIB and reduced modified work costs for this device is unclear as there is no known track record or research evidence to rely on.

Staffing: There are no staffing implications associated with this alternative.

Legal: There are no staffing implications associated with this alternative.

Based upon our staff exposure to the two systems, and the available research and experiential literature, staff do not support the F-W iNX option as a suitable alternative.

ALIGNMENT TO THE 2012 – 2015 STRATEGIC PLAN

Strategic Priority #2

Valued & Sustainable Services

WE deliver high quality services that meet citizen needs and expectations, in a cost effective and responsible manner.

Strategic Objective

2.1 Implement processes to improve services, leverage technology and validate cost effectiveness and efficiencies across the Corporation.

APPENDICES AND SCHEDULES ATTACHED

Appendix A to Report CES15026: Staff Survey Comments

ⁱ Analysis of the Causes and Costs of Manual Handling Incidents in the Health Sector: Report submitted to the Health and Safety Authority. September 2007

ⁱⁱ Paramedic Physical Demands Analysis. DRDC Centre for Security Science, Contract Number CSSP-2013-CD-1088. July 2014

ⁱⁱⁱ The Impact of Gurney Design on EMS Personnel. Fredericks, T; Butt, S; and Hovenkamp, A.: Human Performance Institute, Department of Industrial and Manufacturing Engineering, College of Engineering and Applied Sciences, Western Michigan University. June 2009.