Hamilton

CITY OF HAMILTON

CORPORATE SERVICES DEPARTMENT
Information Services Division

TO: Chair and Members Audit, Finance and Administration Committee	**WARD(S) AFFECTED:** CITY WIDE
COMMITTEE DATE: December 7, 2011	
SUBJECT/REPORT NO: Desktop and Mobile Computer Contract Award and Management Policies (FCS11022(a)) (City Wide)	
SUBMITTED BY: Roberto Rossini General Manager, Finance & Corporate Services Department	**PREPARED BY:** Filipe Janicas 905-546-2424 ext 5705 Fred Snelling 905-546-2424 ext 6059
SIGNATURE:	

RECOMMENDATION:

(a) That the corporate contract for desktop computer, mobile computers, monitors and peripheral devices be awarded to Dell Canada Inc. for a period of 4 years with the option to extend for 2 additional years;

(b) That the General Manager of Finance and Corporate Services be authorized to execute a contract and any other documents necessary to give effect thereto, in a form acceptable to legal counsel with Dell Canada for desktop computers, mobile computer devices, computer monitors and peripheral devices;

(c) That the Corporate Desktop and Mobile Computer Management Policy (CORP-CDMCM-00), and subsidiary computer lifecycle policy (CORP-CDMCM-02), attached as Appendix A to report FCS11022(a), be approved which includes a 4 year replacement cycle for standard computer devices; a 3 year replacement

cycle for high capacity computer devices; and an indefinite lifecycle for monitors, docking stations and peripherals;

(d)   That the lifecycle for ruggedized mobile computers be established at 4 years for a 12 month trial period, during which time data will be captured to determine an appropriate lifecycle for ruggedized mobile computer devices

(e)   That the employee discount offered by Dell for personal computer purchases be extended to staff.

EXECUTIVE SUMMARY

In August 2010, as a result of a recommendation in June, Council Report FCS09068(b), the City formed a collaborative partnership with McMaster University and Mohawk College to issue a Request for Proposal (RFP) to procure desktop computers, mobile computers, network servers and storage equipment.

In August 2010, McMaster University issued RFP #AD 07-10/260 on behalf of the collaborative partners. The RFP was open to Tier 1 manufacturers, leaders in the market place. This RFP closed on September 22, 2010.

Vendors were allowed to bid on any or all categories and it was possible that multiple vendors would be selected in order to procure all categories.

Responses were received from all Tier 1 manufacturers. Proposals were evaluated by all 3 organizations and the evaluation resulted in Dell Canada Inc. being the recommended vendor for desktop computers, mobile computers, monitors and peripherals. Dell was the only response that was successful during the evaluation of responses; all other responses were disqualified. Mohawk College and McMaster University have contracts with Dell Canada Inc. in place for these products as a result of the collaborative process.

There was a no award for tablets, thin client or servers and storage technology through this process. These categories will be procured through separate processes.

A contract has been awarded for Network Servers and Storage equipment based on the Provincial Agreement made available to the Broader Public Sector. This contract has been awarded to Compugen Inc. through a Policy 12 – Cooperative Purchasing Agreement approved by the Manager of Procurement.

The June 2010 Council Report FCS09068(b) indicated staff would report back to Council with an award report including a replacement lifecycle analysis and proposed lifecycle for the replacement of both desktop and mobile computing devices. Staff was asked to investigate a 3 year, 4 year, 5 year and indefinite lifecycle option for corporate computing equipment. The current replacement lifecycle is 3 years for both desktop and mobile computers. Monitors are replaced when necessary.

The financial analysis used to propose a replacement lifecycle is based strictly on hard costs for the City's 4,000 (approximate) computers (2,850 desktop computers and 1,150 mobile computers). It is recommended that "soft" costs also be considered when determining an appropriate lifecycle for devices. Soft cost refers mainly to lost staff productivity and technical support staff costs.

As a result of this analysis, staff is proposing a 4 year lifecycle for standard computers (96% of the total fleet of computers) and a 3 year lifecycle for high capacity devices. High capacity machines are used by staff requiring additional processing power in their computer, such as road design, and mapping technicians. All peripherals will be kept indefinitely. This will allow us to reduce technology costs while maintaining an effective operation. Although this lifecycle choice does not have the largest budget impact, it does provide a balance between hard and soft costs. This lifecycle will result in a budget reduction of $663,000, over 5 years, without having a significant impact on the productivity of staff or increasing soft costs.

The RFP that was issued for this contract also asked the vendors if they would make available discounted pricing for employee purchase purposes. The City currently has an employee computer purchase plan offering interest free loans to staff. Dell Canada Inc. did include a staff discount in their response and it is being recommended that this offer be extended to staff as part of the Employee Computer Purchase Plan.

FINANCIAL / STAFFING / LEGAL IMPLICATIONS (for Recommendation(s) only)

Financial: The Dell proposal offers significant discounts off the published Provincial Public Sector Price. This price is updated regularly and the City will take advantage of any reduction in prices immediately.

Table #1 on the following page shows the total Budget impact of the 4 lifecycle scenarios which are detailed in the Analysis section of the report. The costs are broken down into two components, hardware costs and soft costs. The hard cost savings for the machines are strictly a function of the replacement term and cost of the machine. The soft costs represent the marginal costs of maintaining older out of warranty machines.

It should be noted that these cost savings will accrue over a three, four or five year period respectively. The cost savings for 2012 would be as follows:

3 Year Cycle – $377,000
4 Year Cycle – $421,000
5 Year Cycle – $323,000
Hybrid (4/3 year split) – $407,000
Hybrid (5/4 year split) - $316,000

TABLE #1 – BUDGET IMPACT SUMMARY

DESCRIPTION	3 YEAR	4 YEAR	5 YEAR	HYBRID (4/3)	HYBRID (5/4)
Annualized Desktop Budget Total Savings (at end of Cycle)	($501,000)	($677,000)	($783,000)	($663,000)	($774,000)
Associated soft costs (maintenance and lost productivity)	$ 0	$ 79,409	$270,834	$75,915	$270,834
Net Savings	$501,000	$597,591	$512,166	$587,085	$503,166

Associated soft costs are detailed in the analysis section of the report (refer to pages 9–12). These costs include staff time in lost productivity, increased IS support costs and hardware (parts) costs, as well as, increased vendor charges.

An investigation of thin client solutions will be complete by the end of the 1st quarter of 2012, prior to the roll out of devices. The benefits of thin client are an extended lifecycle of at least 5 years, and reduced energy costs along with increased security as no or minimal data resides on the thin client device. This investigation will determine if savings can be realized by implementing a thin client solution for specific users.

Should Council wish to proceed with a different lifecycle policy than the 4/3 year hybrid recommendation by staff, the 4 other viable options are presented for Council's consideration.

Staffing:

N/A

Legal: The contract has been reviewed and agreed to by the Legal Services Division.

HISTORICAL BACKGROUND (Chronology of events)

In January 2010, the City issued a Request for Proposals (RFP C12-02-10) for the supply, delivery, service and removal of desktop and mobile computing devices. The RFP closed March 18, 2010. Four bids, involving equipment from three manufacturers, were received. The four proposals were evaluated against the technical specifications resulting in only two of the four proposals passing the technical evaluation. The next step in the process was to open the pricing envelopes and complete a financial analysis of the cost proposals and award the contract.

Prior to opening the pricing envelopes for City RFP C12-02-10, the City was approached by McMaster University and Mohawk College, who were jointly developing an RFP to meet their desktop, mobile and related computer needs, to participate in their collaborative purchasing initiative, rather than proceeding with our own.

In June 2010, Council approved staff's recommendations to cancel RFP C12-02-10 and participate in the collaborative RFP with McMaster University and Mohawk College in order to take advantage of the potential benefits of the collaborative purchasing initiative.

In August 2010, as a result of the approved recommendation by Council to report FCS09068(b), the City partnered with McMaster University and Mohawk College to issue an RFP to procure the goods and services for the following categories of technology:

- Group A –Desktop and high capacity computers
- Group B – Notebook and Mobile High Capacity computers
- Group C – Tablet computers
- Group D - Thin Client Computers
- Group E – Monitors
- Group F – Network Servers
- Group G – Storage Area Network

In August 2010, McMaster University issued RFP # AD 07-10/260 on behalf of the collaborative partners. The RFP was open to Tier 1 manufacturers, leaders in the market place. This RFP closed on September 22, 2010.

Vendors were allowed to bid on any or all categories and each category was to be evaluated separately. It was possible that multiple vendors would be selected in order to allow for the procurement of all products.

Responses were received from all Tier 1 manufacturers. The following evaluation took place:

- Technical Evaluation – All minimum technical evaluation criteria must be met in order to proceed to the next stage of evaluation
- Service Evaluation – All minimum service evaluation criteria must be met in order to proceed to the next stage of evaluation
- Final analysis was a combination of the scores in the previous two categories taking acquisition cost into consideration

This evaluation resulted in Dell Canada being recommended for desktop and High Capacity computers (Group A), notebook and mobile workstations (Group B), monitors (Group E) and peripherals. Dell was the only response that was successful in meeting the hardware requirements and the RFP's Terms and Conditions, all others were disqualified.

There is no award issued for Tablet Computers (Group C), Thin Client Computers (Group D), Network Servers (Group F) or Storage Area Networks (Group G). These products were not awarded due to inability to meet either the technical specifications or the Terms and Conditions of the RFP. Tablets and Thin Client devices will be procured through a separate process pending technical evaluation currently underway.

A Policy 12 was processed and approved by the Manager of Procurement to take advantage of a Cooperative Purchasing arrangement, in this case, made available through the Province to the Broader Public Sector. A contract has been awarded through this process for Network Servers and Storage equipment based on the Provincial Agreement. This contract has been awarded to Compugen Inc..

This report is intended to fulfil staffs' commitment from the June 2010 Council Report FCS09068(b) which indicated staff would report back to Council with an award report along with lifecycle analysis and a proposed replacement cycle for both desktop and mobile computing devices. Staff was asked to investigate a 3 year, 4 year, 5 year and indefinite lifecycle for corporate computing equipment.

POLICY IMPLICATIONS

End User Computer Management policies, procedures and guidelines have been reviewed and approved by the Information Services Working Committee and SMT with the intent of implementation to coincide with the implementation of the contract for

desktop and mobile computing devices. Policy CORP-CDMCM-00 along with the subsidiary procedures and guidelines were established to:

- govern the purchase, maintenance, administration and invoicing of desktop and mobile personal computing devices
- ensure appropriate equipment is allocated in a fiscally responsible manner
- provide allocation criteria for computer technology
- govern the establishment of lifecycle timeframes
- govern the establishment of corporate standard technology
- outline procurement procedures
- outline end of life procedures

Dell included in their response an employee discount offering which may be incorporated into the Corporate Employee Computer Purchase Program.

RELEVANT CONSULTATION

Information Services Working Committee
Senior Management Team
City Treasurer
Legal Services Division
Financial Services Division

ANALYSIS / RATIONALE FOR RECOMMENDATION
(include Performance Measurement/Benchmarking Data, if applicable)

Lifecycle analysis (Hard Costs)

The City currently replaces all computer equipment once every 3 years. Computer devices are purchased through a reserve account and costs are recovered from the operating departments through an internal chargeback process.

The lifecycle review looked at the financial impact of maintaining the existing 3 year replacement lifecycle or moving to a 4 year lifecycle, a 5 year lifecycle or an indefinite lifecycle where equipment is replaced when (a) broken and repair costs aren't justifiable or (b) when the equipment is no longer compatible with software required to perform staff functions.

Table #2 is a summary of the detailed financial analysis conducted to determine impact of the various lifecycles. This table compares the budget for a 3 year, 4 year and 5 year lifecycle to the 2011 budgeted amount. It also includes a proposed hybrid lifecycle

which replaces standard equipment every 4 years and high capacity equipment every 3 years.

It is difficult to conduct a financial analysis on an indefinite lifecycle as there is no predetermined date when the equipment will be replaced, although it should be noted that soft cost would be extremely high as each and every machine will require IS intervention at least once during their life.

Staff believes that an "End of Life" replacement model would essentially mirror or be similar to the 5 Year Life Cycle option.

Table #2 below is strictly hard costs. Soft costs must also be considered when making the lifecycle decision. It is also recommended that if an indefinite replacement is selected, that the budgets be based on the 5 year replacement. This will ensure we have sufficient funds in the budget to cover the costs of the equipment. If the equipment lasts beyond five years, the budget will show a savings.

TABLE #2 - NET OPERATING BUDGET IMPACTS in thousands (EXCLUDING SOFT COSTS)

Description	2011	2012	2013	2014	2015	2016	TOTAL
3 Year Replacement(Status Quo)							
-Units to be replaced		3,613	279	0			3,892
- Annual Net Budget Cost	1,205	828	718	704			
- Annual Net Budget Impact Increase / (Decrease)		(377)	(110)	(14)	0	0	(501)
4 Year Replacement							
-Units to be replaced		2,901	712	279	0		3,892
- Annual Net Budget Cost	1,205	784	612	548	528		
- Annual Net Budget Impact Increase / (Decrease)		(421)	(172)	(64)	(20)	0	(677)
5 Year Replacement							
-Units to be replaced		1,718*	1,183	712	279		3,892
- Annual Net Budget Cost	1,205	882	680	521	446	422	
- Annual Net Budget Impact Increase / (Decrease)		(323)	(202)	(159)	(75)	(24)	(783)

Description	2011	2012	2013	2014	2015	2016	TOTAL
Hybrid Option (4/3 year split)							
-Units to be replaced		2,901	712	279	0		3,892
- Annual Net Budget Cost	1,205	798	612	548	542		
- Annual Net Budget Impact							
Increase / (Decrease)		**(407)**	**(186)**	**(64)**	**(6)**	**0**	**(663)**
Hybrid Option (5/4 year split)							
-Units to be replaced		1,718	1,183	712	279		3892
- Annual Net Budget Cost	1,205	889	688	529	454	431	
- Annual Net Budget Impact		**(316)**	**(201)**	**(159)**	**(75)**	**(23)**	**(774)**
Increase / (Decrease)							

*The actual number of units will be higher as there is a major software upgrade planned for 2012.

As outlined in Table 2 above, an additional alternative replacement cycle has been investigated by staff which would provide for a 5 year lifecycle for standard computers and 4 years for a high capacity computer. This would reduce the savings in 2012 from $407,000 to $316,000 when compared to the recommended lifecycle model. Over a 5 year period, this lifecycle model would increase the savings from $663,000 to $774,000 based strictly on hard costs.

Soft Costs Life Cycle Analysis (External Analysis)

When considering the lifecycle, it is important to consider the soft costs that will be incurred. Soft costs increase with the age of the computer device. Soft costs include some of the following:

Soft Cost Table Per Device by Age of Machine

	Year 1	Year 2	3 Year	4 Year
Help Desk Support	$100	$127	$165	$204
On-site support	$75	$114	$152	$210
Software upgrades	$50	$86	$120	$140
Patch deployment	$114	$131	$153	$191
Total cost per machine	$339	$458	$590	$745

Source: Robert Frances Group

Gartner, an industry leader in IT consulting and research, provides the following key findings:

- Keeping PC's longer can reduce capital expenditures, but support costs will rise and end-user productivity will decrease with PC age.
- Although the average annual total cost of ownership (TCO) is nearly the same for a desktop PC kept for 4 years, compared with one kept for six years, for a PC kept six years, the absolute cost is 10% higher than the cost in year four, because support cost rise as PCs get older.
- Extending the life of a mobile device to 4 years results in more than a 14% TCO increase in year four over year 3.
- Notebook replacements are largely driven by the high failure rate
- When calculating TCO, companies also have to be sure to factor in soft costs. For instance, "for every tech support person on your staff, there are three or four [end users] in the business units who are helping with support" and those costs – plus self support costs should be calculated into the lifecycle decision.
- Gartner believes that indirect costs account for up to 60% of an organizations total outlay on Information Technology.

The recommendations from Gartner are:

- Understand the trade-offs between keeping PCs longer and spending money to replace them more often, so that the balance of overall costs can be optimized.
- Significant money should not be spent on parts or labour to repair a desktop PC after its three year warranty is over.
- Buy notebooks with a three year standard warranty and retain a three-year life cycle for notebook PCs. This is due to cost of high capacity devices with a life expectation of 4 years and battery life.
- Overall, Gartner analysts recommend a four-year desktop life cycle for mainstream knowledge workers and a desktop life cycle of three years or less for high-performance users. Five years is possible in some cases, but Gartner analysts advise trying to extend the life cycle to five years for fixed-function systems only, where the application load is limited and does not change.

Soft Costs Life Cycle Analysis (Internal Analysis)

The City has had a general freeze in place and has not replaced machines based on the 3 year evergreen cycle since July 2009. In spite of the trend to go to a longer lifecycle, our internal analysis of machines in operation longer than 3 years, indicates the importance of not basing the lifecycle decision purely on hard costs. Below is a table illustrating the City's experience with machines, in place, beyond 3 years. The freeze was implemented in July 2009; therefore the analysis for machines beyond 3 years began in August 2009. A second analysis was done during the second year of the freeze for machines either into their 4th or 5th year of operation.

This data, captured in the table below indicates that maintaining machines beyond 3 years has cost the corporation $350,000 during the two year freeze in hard and soft costs. This is a conservative figure which takes into account lost productivity, IS support costs, hardware and vendor support costs for out of warranty equipment. These costs do not include the impact on productivity with slower machines which take a few minutes longer each morning to boot up and process data during the day. Information Services have received calls regarding customers walking away from the City Hall Information Desk because the public would not wait the extended period of time required for the computer to process their request. This machine was reimaged in order to allow staff to service the public effectively.

The total 'User Time Lost' of $229,860 represents 20,432 man hours. Based on an average of 35 hours per work week, this represents over 11 full person years lost due to equipment beyond 3 years old and out of warranty. On top of the lost time captured by the IS Service Desk tracking software there is also a significant amount of lost time not reported to IS Service Desk where staff simply reboot their machine to resolve performance issues. In some cases older computers can take as long as 15 minutes to 'boot up' in the morning.

Maintenance and Lost Productivity Cost Table

	IS Time Required	Hardware Cost	Vendor Charge	Total Cost (excluding lost productivity)		Number of Calls	Average Cost per Call		Lost Productivity Cost*
4 Year old units	$19,495	$8,231	$6,885	$34,611		160	$546		$44,798
5 Year old units	$61,505	$19,421	$4,845	$85,771		256	$,1298		$185,063

*The median Salary Grade for the City is a Salary Grade of 'I' which would be a rate of $30.00 per hour. For this analysis it was assumed a person would work at 75% capacity without their computer therefore a conservative rate of $7.50 per hour was used. This rate is 25% of the actual salary and does not include the overhead for benefits. Lost time is based on information from the IS Service Desk log capturing the time the call was placed for service, on a machine beyond 3 years of age or more, until the time the call was resolved.

Feedback from staff includes:

- *"I would estimate our technologist level staff are losing between a half hour to an hour of efficiency on a daily basis". – Public Works, Asset Management*

- *"... the boot up times on the older PC's are affecting all staff – about 10 – 15 minutes of real time on a daily basis for those staff with PC's three year or older." – Corporate Services, Procurement*

- *"experiencing slow start up times, frequent crashes and blue screen 3-4 times a week and sluggish performance when using Geomedia and Microsoft Access." – Public Works, Surveying*

- *"my computer struggles to open documents or emails and I often get a window pop up ..."*

- *"regular start up is 15 minutes, I actually select restart instead of shut down at the end of the day so when I start work in the morning my computer is ready for log in." – Corporate Services, Information Services*

- *"processes that take 45 minutes on a 2 year old machine take 55 minutes on a 4 year old machine and 70 minutes on my 5 year old machine" – Public Works, Infrastructure Management*

The actual hardware and vendor costs may be minimal but lost productivity is a very clear and relevant factor.

With moving to a 4 year lifecycle, it is expected that each standard desktop and mobile computer, between year 2 and 3, may need to be re-imaged to maintain system performance. If this expectation is realized and the entire fleet of desktops requires this service, the soft costs will be in the neighbourhood of $164,000 every 4 years. This is based on 1 hour of user time and 1 hour of Service Desk staff time.

Life Cycle Municipal Practices

In surveying other municipalities, it was discovered that a number of municipalities have recently moved to a 4 year lifecycle for desktops and mobile devices. Since this lifecycle change took place in the last few years, it is too soon to tell if this decision will indeed save money when taking into account the total cost of ownership.

The following Table outlines some of the comparator municipalities surveyed for lifecycle:

Municipality	Desktop Lifecycle	Notebook Lifecycle
Greater Sudbury	4 years	3 years
Windsor	4 years	4 years
Halton Region	4 years	4 years
Vaughan	3 years	3 years
London	4 years	4 years
Waterloo	4 years	4 years
York Region	4 years	3 years
Waterloo Region	4 years	4 years
Toronto	5 years	4 years
Niagara Region	4 years	4 years
Peel Region	4 years	4 years

The California State University refresh plan illustrated that when their refresh plan was temporarily halted due to lack of funding, service requests spiked significantly showing that delaying hardware refresh will result in increased support and maintenance costs.

Based on the financial analysis, our own experience during the replacement freeze, the municipal survey and Gartner research staff is proposing a hybrid which would increase the replacement cycle of all standard desktops and standard mobile computers to once every 4 years and maintain all high capacity devices at every 3 years. The table below outlines the proposed lifecycle for all computer devices as per the Corporate Desktop and Mobile Computer Lifecycle Policy CDMCDM-02:

Proposed Desktop and Mobile Computer Lifecycle

Device Type	Number of devices	Lifecycle for Replacement	Notes
Standard Desktop Computer	2, 850	4 years	
High Capacity Desktop	120	3 years	
Standard Mobile Computer	1,150	4 years	
High Capacity Mobile Computer	57	3 years	
Ruggedized Mobile Computer	85	4 years	
Monitor		Indefinite**	
Docking Station		Indefinite**	
Mouse		Indefinite**	
Keyboard		Indefinite**	
Miscellaneous Peripherals		Indefinite**	ex: Cords, headphones, headsets, speakers
Carrying Case / Laptop Bag		Indefinite**	
Laptop Stands		Indefinite**	
Computer Locks		Indefinite**	

**indefinite indicates this equipment will be replaced when necessary. Necessity for replacement could be due to broken equipment or equipment that is no longer compatible with current standard hardware and/or software.

Additional Information

Ruggedized Mobile computers

For a trial period, Ruggedized Mobile computers will be purchased with a 4 year lifecycle and 4 year warranty. Historical data indicates of the 85 machines in place 13% had to be sent in for repair in the past year. Staff have been keeping approximately 40 of the 85 devices beyond the 3 year lifecycle. Of those 40 machines, 9 were replaced at full cost last year because they were out of warranty and it was cost prohibitive to have them repaired. The devices that are on a 3 year lifecycle are installed in Emergency Services vehicle where their ability to do their job depends on computer access in the vehicle.

A ruggedized mobile device costs triple the cost of a regular mobile computer and to purchase a mobile device with the capacity to perform at a satisfactory level for 4 years with the additional year warranty will increase this cost even further. The additional year will also increase the cost by having to purchase an additional year warranty. The cost of extending the lifecycle of ruggedized mobile computers will be monitored over the next 12 months to determine if this extended lifecycle has a positive financial impact.

Thin client environment

What is a thin-client?

A thin client is a computing device that's connected to a network. Unlike a typical computer or "fat client," that has the memory, storage and computing power to run applications and perform computing tasks on its own, a thin client functions as a virtual desktop, using the computing power residing on networked servers to do most of the processing work.

Background

To enable the fast and reliable delivery of applications and permit the upgrade of the operating system and Office Suite, a refresh of the computing environment is required. This presents a unique opportunity to review the computing environment to ensure a "best fit" for computing equipment.

There are currently pockets of thin clients in use throughout the City. IS intends to complete an assessment starting in Q1 2012, which will provide data to determine whether it is feasible to move forward with an expansion of the thin client environment.

The assessment will provide the business units with the "best fit" computing device matching their requirements. This will include thin-client hardware. The thin-client "best

fit" is anticipated for users who run single or limited applications and have a static computing environment.

As a result, this assessment will determine the number of thin-clients to be deployed throughout the City. Once the number of units has been finalized, IS will develop a plan for implementation of the thin-client environment. This will include identification of the front and back-end operating costs. Please note, moving to a higher percentage of thin clients in the organization would require the supporting infrastructure to be put in place.

It is anticipated that not all of the 2,900 desktop computers identified for replacement will be replaced with a standard desktop computer. Through the assessment IS will work with the business units to identify desktop computers which are candidates for replacement with thin-clients.

Expanding the City's thin-clients fleet will require investments in not only user desk top thin-client hardware, but also;

- Networked servers

- Networked storage

- Software licensing (for connectivity and presentation)

- Technical training

- Limited network Infrastructure

Existing Thin-client Deployments

Emergency Operations Centre:

For single use environments, thin clients are already considered as an alternative within the City today. Twenty six (26) thin-client units have been deployed at the new Emergency Operations Centre (EOC).

EMS:

In addition, the City has deployed thin-client units at area hospitals. This allows paramedics to upload patient data to centralized databases providing efficiencies to EMS.

Hamilton Public Library:

Hamilton Public Library (HPL) have implemented thin client technology for their public access units, these units primarily provide access to the Internet through web browsers.

The requirements of the Library for a limited access unit for public use, fits well into a thin client environment.

Summary of rationale for recommendations

(a)   That the corporate contract for desktop computer, mobile computers, monitors and peripheral devices be awarded to Dell Canada Inc. for a period of 4 years with the option to extend for 2 additional years.

This recommendation is based on the result of a competitive bid process conducted through a collaborative partnership with Mohawk College and McMaster University.   Both McMaster University and Mohawk College have signed agreements with Dell as a result of the cooperative RFP issued in August 2010 as #AD-07-10/260.

(b)   That the General Manager of Finance and Corporate Services be authorized to execute a contract and any other documents necessary to give effect thereto, in a form acceptable to legal counsel with Dell Canada for desktop computers, mobile computer devices, computer monitors and peripheral devices.

Staff have prepared these documents, reviewed them with the vendor and with City legal staff.   The City's legal counsel has approved the final contract format for signature.

(c)   That the Corporate Desktop and Mobile Computer Management Policy (CORP-CDMCM-00), and subsidiary computer lifecycle policy (CORP-CDMCM-02), attached as Appendix A to report FCS11022(a), be approved which includes a 4 year replacement cycle for standard computer devices; a 3 year replacement cycle for high capacity computer devices; and an indefinite lifecycle for monitors, docking stations and peripherals.

This is recommending that 96% of the computer fleet will be moved to a 4 year replacement cycle, with the high capacity computers using more demanding software applications remaining on a 3 year lifecycle. A lifecycle beyond 4 years would have larger impacts on productivity and would increase the soft costs as indicated in the "Maintenance and Lost Productivity Table" on page 11 of report FCS11022(a).

The reason for leaving 4% of the fleet (high capacity computers) on a 3 year cycle is a financial decision based on hard and soft costs. These machines perform complex calculation and utilize high end software that requires additional processing power. They are used for tasks such as road and sewer design work or intensive mapping applications.

It should be noted that the report provides 5 viable options for Council to choose should Council wish to proceed in a different manner.

The cost to purchase a high capacity computer that would provide a satisfactory level of performance for 4 years would be more expensive over the long term than purchasing equipment suitable for 3 years with a 3 year replacement cycle. The table below indicates that over the five years, due to the increased cost of purchasing a machine with a 4 year life expectancy, over a 3 year life expectancy, we would incur a cost of $1,700 while the 4 year life expectancy would be $2,000 plus any soft costs that may be incurred during year 4.

High Capacity Desktop		
Year	Expenditure on 3 year cycle	Expenditure on 4 year cycle
1	$850	$1000
2	-	-
3	-	-
4	$850	-
5	-	$1000
Total expense after 5 years	$1,700	$2,000

(d) That the lifecycle for ruggedized mobile computers be established at 4 years for a 12 month trial period, during which time data will be captured to determine an appropriate lifecycle for ruggedized mobile computer devices.

This will allow staff to monitor the number of repairs and do a comparison between hard costs and softs cost to make a final recommendation for the lifecycle of ruggedized computers. Current history indicates out of 40 machines kept beyond 3 years, 9 of these machines required replacement at full cost due to the cost of repairs when they were beyond the warranty period.

Ruggedized computers are not part of the contract with Dell. These machines are purchased directly from Panasonic as approved by Council through report FCS09119 in 2009.

(e)   That the employee discount offered by Dell for personal computer purchases be extended to staff.

Dell has offered an incentive program allowing employees to purchase from Dell. This would be a direct purchase from Dell with no involvement of City Staff.

ALTERNATIVES FOR CONSIDERATION:

(include Financial, Staffing, Legal and Policy Implications and pros and cons for each alternative)

One alternative for consideration would be to maintain the existing lifecycle of 3 years for all computer devices. Over the 5 year life of the contract, this would increase the budget by $105,245 when compared to the proposed hybrid model.

A second alternative would be a 4 year lifecycle for all computer devices. This is not recommended due to the impact on productivity for staff doing computer intense operations on a daily basis.

A third alternative would allow for a 5 year replacement lifecycle for standard computers and a 4 year lifecycle for high capacity machines. This would reduce the savings in 2012 by $91,000 and would increase the savings over 5 years by $110,000 over 5 years when compared to the recommended model. This is based solely on hard costs. This alternative is not recommended due to the impact on productivity and the fact the impact of the soft costs would eliminate most if not all of the expected savings.

A fourth alternative would be an indefinite lifecycle. This would require the City to have machines in operation that are not covered by warranty. Out of warranty machines are not covered by the Service Level Agreement with the vendor and therefore lost productivity will be significantly increased. Gartner recommends that it is more beneficial to replace a machine than repair it if the repair is more than 60% of the purchase price of a replacement device. Based simply on the labour costs, all machines that are out of warranty should be replaced if they require an external service resource.

Staff believe that an "Indefinite Lifecycle" model would be similar in cost to the 5 Year Lifecycle option. The 5 Year Lifecycle option is more expensive to maintain when hard and soft costs are considered (refer to Table #1 on page 4 of report FCS11022(a).

CORPORATE STRATEGIC PLAN (Linkage to Desired End Results)

Focus Areas: 1. Skilled, Innovative and Respectful Organization, 2. Financial Sustainability,
3. Intergovernmental Relationships, 4. Growing Our Economy, 5. Social Development,
6. Environmental Stewardship, 7. Healthy Community

- Skilled, Innovative and Respectful Organization
- Financially Sustainability
- Environment Stewardship

APPENDICES / SCHEDULES

Appendix A to Report FCS11022(a) – Corporate Desktop and Mobile Computer Policies and Guidelines.

CITY OF HAMILTON
Corporate Desktop and Mobile Computer Management Policy

DEVELOPED BY: Information Services   **APPROVED BY:** Senior Management Team

DATE: September 2011   **POLICY # CORP-CDMCM -00**

Purpose

The purpose of this policy/procedure/guideline series is:
- to govern the purchase, maintenance, administration and invoicing of desktop and mobile personal computing devices
- to ensure appropriate equipment is allocated in a fiscally responsible manner
- to provide Allocation criteria for desktop computer technology
- to govern the establishment of lifecycle timeframes
- to govern the establishment of Corporate Standard technology
- to outline procurement procedures
- to outline end of life procedures
- to report on budget, system life spans and replacement cycles to user departments

Background

The personal computer has become an indispensable tool for carrying out the City's multitude of services and for the administrative operation of the corporation. As of the writing of this policy there are approximately 3,600 computers administered by this policy.

Scope

This policy must be adhered to by all City of Hamilton staff and elected officials when purchasing computer equipment*.

This policy governs the use of all Corporate Standard desktop and mobile computing devices procured by the City including:
- Desktop Computers
- Mobile Computers
- Tablets
- Thin Client Devices
- Monitors
- Computer Peripherals – i.e. Keyboard, Mouse, Docking Station etc.

City Strategic Commitment

Various types of computer devices are provided and maintained by the Information Services Division as required in the normal course of conducting business. The computer hardware across the corporation represents a significant investment for the City and must be managed with the intent of maximizing the value of that investment and ensuring the proper equipment is allocated to maximize efficiency and minimize cost.

This policy will support the City's Strategic Plan by providing effective and sustainable growth management of the corporate computer technology environment.

Definitions

Desktop Computer	A desktop computer is a personal computer (PC) in a form intended for regular use at single location. Desktop computers are attached to the corporate network via a cable.
High Capacity Desktop	This is a high-end personal desktop computer designed for technical or scientific applications intended for regular use at a single location. High Capacity computers are

	attached to the corporate network via an ethernet cable and has storage built into the unit. Generally, High Capacity computers offer higher performance than desktop computers, especially with respect to processing power and graphics, memory capacity and multitasking capability. They are optimized for the visualization and manipulation of different types of complex data such as 3D mechanical design, engineering simulation, animation and rendering of images.
Mobile Computer	Mobile computer is a portable computer device that allows a user to perform computer related tasks when away from their desk. Portability is the main aspect of mobile computing. Mobile computing has three aspects: mobile communication, mobile hardware and mobile software. A mobile computer is the mobile hardware. A Mobile Computer can be used as a standalone unit or it can be connected to the network via a wireless air card or in a wireless hotspot.
High Capacity Mobile Computer	This is a higher end mobile computer designed for technical or scientific applications that allows a user to perform computer related tasks when away from their desk.
Tablet	A tablet computer, or simply tablet, is a medium-sized mobile computer integrated generally into a flat touch screen and primarily using stylus, digital pen or fingertip input along with a virtual onscreen keyboard in lieu of a physical keyboard.
Thin Client Device	A thin client, sometimes called a lean client, is a low-cost, centrally-managed computer devoid of CD-ROM players, diskette drives, and expansion slots. Since the idea is to limit the capabilities of these computers to only essential applications, they tend to be purchased and remain "thin" in terms of the client applications they include. It is expected that thin clients will replace desktop PCs in many work environments. In general, they are not as vulnerable to malware attacks, have a longer life cycle, use less power and are less expensive to purchase. Thin client is also used to describe software applications that use the client-server model where the server performs all the processing.
Monitor	The monitor displays the video and graphics information generated by the computer through the video card in the computer. Monitors are very similar to televisions but display information at a much higher quality. The monitor is also known as the screen, display, video display, video screen.
Server	Managed by Network Services, servers contain all the databases used by City staff, all documents stored on the network and a number of software applications used by staff. Servers play a major role in a thin client environment as all applications are loaded on the server as opposed to the end user computing device.
Peripherals	This includes hardware that connects to a computing device such as a mouse, a keyboard, a USB storage device, a battery or a docking station (for a mobile device).
I.S. Service Desk	This was formerly referred to as the Help desk and can be reached by calling 4357 or servicedesk@hamilton.ca The IS Service Desk is the first point of contact for all computer hardware and software related issues.

Administration

The Information Services Division will implement appropriate management and administrative processes to ensure compliance with this policy. IS will procure and maintain all computer hardware covered by this policy. Finance will administer the internal lease with the business units and payment to the vendor.

Responsibilities

Management Responsibilities:
- In consultation with Information Services as required, determine the appropriate Corporate Standard computing device to be allocated based on the Corporate Desktop and Mobile Computing Device Allocation Guideline CORP-CDMCDM-01.
- When a Corporate Standard does not meet the business need, contact the I.S. Service Desk to work in consultation with Information Services to determine the appropriate specifications of a computing device to be allocated as per the Corporate Desktop and Mobile Computing

Device Allocation Guideline CORP-CDMCDM-01. The specifications created from this process will become the standard configuration for others with similar needs.

- Authorize the order request for the computing device to be allocated.
- Budget for all costs related to their department/division/section computer lease or peripheral purchase.
- Ensure that staff adhere to the "Corporate Computer and Technology Acceptable Use Policy" and that staff are responsible for exercising good judgment regarding the reasonableness of personal use
- Ensure that the I.S. Service Desk is notified when the User assigned to a device changes.

User Responsibilities:
- Occasional or incidental personal use of corporate resources is permitted within reasonable limits, providing it does not conflict with business use of time, impact negatively on other staff, or on technology resources or adversely affect an individual's performance of work duties and responsibilities. Staff is responsible for exercising good judgment regarding the reasonableness of personal use.
- All staff using a corporate computing device must follow the Corporate Computer and Technology Acceptable Use Policy approved by Council February 2009 through Report FCS09016.
- Ensure the primary purpose of Corporate Computing Devices is for City business.
- Ensure that all requests for service and acquisition are to be processed through the Information Services Division, Service Desk.
- Authorize the packing slip when new or replacement machine is received
- Ensure Corporate Computing Devices are physically secured and transported appropriately

Information Services Responsibilities:
- Work with Business Units to develop Corporate Standards for each device category and update the standard when appropriate
- Work with Business Units when the Corporate Standard does not meet user needs
- Provide ongoing hardware support to all users with a corporate computer
- Provide ongoing software support for corporate applications
- Confirm negotiated contract prices are honored
- Manage contracts and agreements in place with Tier 1 vendor and reseller.
- Ensure all invoices are electronically received and processed.
- Report unacceptable use when detected to the Director of Information Services
- Maintain a web page on eNet for ordering replacement and/or new computing devices and facilitate electronic approval by Directors
- Administer End of Life procedures – to be developed once vendor has been selected

Finance and Administration Responsibilities (may vary by department)
- Process orders and approve payment – ordering procedure to be developed with the selected vendor. This procedure will be added to this series of Policies, Procedures and Guidelines.
- Develop reports on budgets allocations for departments and Business Units for device and support lease costs.

*the Information Services Division in cooperation with the Business Units will establish the Corporate Standard solution. If a specific need cannot be met by one of the Corporate Standard devices a new Corporate Standard solution will be implemented that will be used to meet that specific need and any other similar needs in the organization.

CITY OF HAMILTON
CORPORATE DESKTOP AND MOBILE COMPUTER LIFECYCLE POLICY

DEVELOPED BY: Information Services   **APPROVED BY:** Senior Management Team

DATE: September 2011   **POLICY # CORP-CDMCDM -02**

I.   PURPOSE
- The purpose of this policy is to govern the lifecycle of all computer equipment
- Life-cycle replacement of corporate computing equipment is intended to ensure that staff's primary computing resources are technologically current and powerful enough to allow staff to fulfill their functions in an efficient and effective manner
- Ensure all equipment is covered by a manufacturer's warranty equal to the equipment's lifecycle.
- Properly manage departmental funding through accurate reporting and usage of budget allocations
- Minimize cost and maximize investment

II.   SCOPE:

This policy applies to all City of Hamilton staff and elected officials that are directed to participate in the centralized procurement, use and administration of Corporate Computing Devices and services.

This policy applies to all Agencies, Boards and Commissions that are directed or choose to participate in the Corporate Computing Device Contract.

This policy governs the lifecycle/replacement cycle of desktop and mobile computing devices procured by the City including; but not limited to:
- Desktop Computers
- Mobile Computers
- Tablets
- Thin Client Devices
- Monitors
- Computer Peripherals – i.e. Keyboard, Mouse, Docking Station etc.
- Additional devices maybe added

III.   RESPONSIBILITY:

User Responsibility
- Users are to adhere to the "Computer and Technology Acceptable Use Policy"
- User must replace their computer equipment as per the Computer Lifecycle Policy.
- Users must contact Information Services Service Desk if their computer is not performing as required and is impacting their productivity
- User must make their Manager aware before a machine is re-imaged by Information Services

Information Services Responsibility
- Assist Business Unit staff when computer performance issues are reported
- Develop standard specifications for each device type suitable for the lifecycle in consultation with the Business Unit staff to better understand their needs.

- Provide ongoing service and support during the computing devices lifecycle to maintain optimal performance for all machines for corporate applications, and consult with the Business Unit on vendor supported applications
- Monitor and update Standard Configuration as necessary and post on eNet

Finance and Administration Responsibility
- Inform staff when their equipment is due for replacement
- Ensure staff order equipment based on lifecycle policy
- Administer and report on Business Unit budgeting for desktop computing environment

III.   LIFECYCLE

Principles:
- Exceptions to this policy require General Manager level approval
- All equipment with a predetermined lifecycle, with the exception of thin client devices, will be covered by an on-site manufacturer's warranty for the life of the equipment
- Equipment must be replaced according to the lifecycle policy, with exceptions to be recognized when Business Units have changes in platform software products that require hardware upgrades to meet production goals.

Desktop and Mobile Computer Lifecycle

Device Type	Lifecycle for Replacement	Notes
Thin Client Device	5- 7 years *	Compatibility with software applications may impact the lifecycle
Standard Desktop Computer	4 years	
High Capacity Desktop Computer	3 years	
Standard Mobile Computer	4 years	
High Capacity Mobile Computer	3 years	
Ruggedized Mobile Computer	4 years	
Monitor	Indefinite**	
Docking Station	Indefinite**	
Mouse	Indefinite**	
Keyboard	Indefinite**	
Miscellaneous Peripherals	Indefinite**	ex: Cords, headphones, headsets, speakers
Carrying Case / Laptop Bag	Indefinite**	
Laptop Stands	Indefinite**	
Computer Locks	Indefinite**	

*Thin Client assessment being undertaken in 2011 will include a review of the appropriate life-cycle

**Indefinite indicates this equipment will be replaced when necessary. Necessity for replacement could be due to broken equipment or equipment that is no longer compatible with current standard hardware and/or software.