September 1, 2011

Clayton Harris
City Manager
City Of Vaughan
2141 Major Mackenzie Drive
Vaughan, Ontario
Canada L6A 1T1

Dear Clayton Harris,

## Re: Internal Audit of Computer Hardware and Software Purchase, Replacement and Disposal.

I have completed the internal audit of Computer Hardware and Software Purchase, Replacement and Disposal. This audit was included in the three year audit work plan.

A follow-up letter will be sent to the auditee, 30 days from the issue date of this Internal Audit Report, requesting the status of Corrective Actions with Timeline as noted in this report. Subsequent follow-up letters will be sent until all Corrective Actions have been satisfactorily implemented.

I would like to thank Chief Information Officer Dimitri Yampolsky, Director Jack Dhaliwal and Manager Paris Metropoulos for accommodating me and providing me with unrestricted access to all staff and information during the audit.

I have exercised independence, objectivity and due professional care in accordance with the Standards for the Professional Practice of Internal Auditing of the Institute of Internal Auditors.

The Internal Audit Department is committed to adding value, providing continuous improvement recommendations and professional service to the whole organization.

Sincerely,


Michael Tupchong CA, CIA, CPA, CFE
City Auditor

cc:      B. Cribbett   D.Yampolsky   J. Dhaliwal      P. Metropoulos          M.Kallideen

# INTERNAL AUDIT REPORT
# COMPUTER HARDWARE AND SOFTWARE
# PURCHASE, REPLACEMENT AND DISPOSAL

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## EXECUTIVE SUMMARY


### Background:

This audit was a capital project which was included in the audit work plan.

The department replaces City computers approximately every 4 years at a cost of approximately $1.7 million. Old computers are stored in the MNR building until they are disposed up to one year later.


### Objectives and Scope:

o To evaluate whether Purchasing policies and procedures were adhered to in obtaining Vendors of Record.
o To evaluate if the record keeping is satisfactory and adequate for Public Sector Accounting Board (PSAB) 3150 requirement.
o To evaluate if assets are safeguarded throughout the process.
o To evaluate the purchase, sale and disposal process and ensure that there are adequate controls in place..
o To evaluate if information in the computer hard drives are protected and properly erased before disposal and that City information is not exposed.
o To evaluate whether the department is obtaining the best value for the computer specifications selected through the bid process.
o To evaluate whether the department is getting the "best price" for the computers sold.
o To evaluate the integrity of Financial information.
o To address any risks which are observed during this audit


The Scope period was for 2005 to 2009.


### Methodology:

o Reviewed and analyzed selected expenditures with their supporting documentation. This included reviewing RFPs(Request for Proposals), Vendors of Record.
o Interviewed and discussed with management and staff of the department and from other related departments throughout the audit.
o Reviewed and analyzed various reports and documents.
o Observed operational procedures.
o Physically visited disposal location where computers are kept until "sanitized" and disposed.

**Observations**

The summary of observations are stated below and are not in any particular order. More detailed information with *auditor's recommendations* and *corrective actions* are in the body of the report.

1. The Information Technology Management(ITM) department replaces computers approximately every 4 years which is considered the useful life of the computer. The process of collecting old computers and storing them at the warehouse for disposal, needs improvement and stronger controls.

2. There is no reconciliation of the quantity of computers purchased for replacement and old computers collected and disposed. Over a 5 year analysis, 127 more computers were disposed than purchased and replaced.

3. ITM also purchases computers for Vaughan Public Library when requested. Vaughan Public Library replaces computers every 4, 5 or more years depending on the use of the computers. This is not the same 4 year standard as used by the City. Vaughan Public Library are also responsible for co-ordinating with the Building and Facilities department the transfer of their own computers to the warehouse, independent of ITM. There is questionable control over these old computers once they are picked up and stored.

4. A physical visit to the MNR warehouse where old computers are stored before their disposal, showed no orderly storage. Computers, printers, telephones, printers and any other computer equipment are all piled together in one huge big heap. A final inventory of these equipment is done when the equipment is ready to be sold.

5. Computers with information still on the hard drives, are not refreshed until the time they are to be disposed  which could be up to 1 year away. City information on the C drives are therefore at risk of being exposed should a computer be mislaid or stolen before they are refreshed. The information is refreshed once. Refreshed computers are put to one side and are not labelled. Other un-refreshed computers could be inadvertently placed with refreshed ones and be sold with the information in them.

6. PSAB (Public Sector Accounting Board) requires municipalities to maintain Tangible Capital Asset Registers to accurately record information of Tangible Capital Assets purchased and disposed. Information maintained by the ITM department need to include additional information in the Tangible Capital Asset Register.

## DEFINITION, OBJECTIVE AND SCOPE

1. **Definition**: Internal Auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes.

2. The **objective** of Internal Auditing is to assist members of the organization in the effective discharge of their responsibilities. To this end, Internal Auditing furnishes them with analyses, recommendations, counsel, and information concerning the activities reviewed. The internal audit objective includes promoting effective control at reasonable cost. In the end, Internal Audit is focussed on continuous improvement of the organization.

3. The **scope** of Internal Auditing encompasses the examination and evaluation of the adequacy and effectiveness of the organization's system of control and the quality of performance in carrying out assigned responsibilities. The Internal Auditors have authority to review any phase of City activity. The scope of this audit may include one or more of the following:-

   - Reviewing the reliability and integrity of financial and operating information and the means used to identify, measure, classify, and report such information.

   - Reviewing the systems established to ensure compliance with those policies, plans, procedures, laws, and regulations, which could have a significant impact on operations and reports, and should determine whether the organization is in compliance.

   - Reviewing the means of safeguarding assets and, as appropriate, verifying the existence of such assets.

   - Appraising the economy and efficiency with which resources are employed.

   - Reviewing operations or programs to ascertain whether results are consistent with established objectives and goals and whether the operations or programs are being carried out as planned.

- Reviewing the identification of risk exposures and use of effective strategies to control them.

- Reviewing specific operations at the request of the Audit Committee or City Manager, as appropriate.

## RATING OF AUDIT FINDINGS (R1-R9)

The severity rating of the audit findings is between R1 and R9, with R1-R3=Low; R4-R6=Medium; and R7-R9=High. It is intended to provide the reader with the auditor's rating of the audit findings from the observations of the audit. Factors taken into consideration include internal control, risk management, corporate governance, materiality, frequency, impact, likelihood, compliance, economy, efficiency, objectives, and operations. The rating is not mathematically calculated, and is a general guide. It is more important to focus on the recommendations and corrective actions than the rating. The higher the rating, the more urgent it is to implement the corrective actions. Irrespective of the ratings, all findings should be addressed.

## FOLLOW-UP ON CORRECTIVE ACTIONS AND TIMELINE

1. It is extremely important that all Corrective Actions and Timeline as stated in this Internal Audit Report are implemented as soon as possible.

2. The Internal Audit Department will perform regular follow-ups, the first being 30 days after the issue date of the Internal Audit Report, followed by subsequent 30 days until all Corrective Actions and Timeline have been satisfactorily implemented. Follow-up audits may be done to verify the reported implementation.

3. The Corrective Actions and Timeline will ensure that the audit findings as raised by the Auditor will be addressed. After all Corrective Actions and Timeline have been implemented, there will be improvement in the effectiveness of risk management, control, and governance processes. The department will operate more efficiently and effectively. Members of the organization will also have discharged their responsibilities.

4. At the discretion of the Chief Information Officer or Director, this report may be distributed to the appropriate staff members under their jurisdiction. Audit findings which could be common across the organization should be globally addressed. Further consideration should be given to revise/update current policies and procedures, as deemed necessary.

## INTENDED PURPOSE OF REPORT

This report is presented purely to add value and to improve the operation in terms of the scope of the audit for effectiveness, efficiency , controls, risk management and corporate governance going forward. The report is not intended to criticize/discredit any individual or management of the department. Internal Audit assists members of the organization in the effective discharge of their responsibilities. The recommendations are suggestions of the auditor to assist in addressing the audit findings. Alternative corrections may be acceptable.

**Auditor(s**): Michael Tupchong        **Approved**:_____

Areas reviewed were considered to be operating satisfactorily, except where specifically noted as observations in this section.

# Audit Findings

## Rollout of Computers (R6)

## Observations

1. The department maintains computer information (acquisition and replacement) on a database called Magic and on some spreadsheets.

2. Information recorded include as follows:

- New asset tag number
- Old asset tag number
- Description of the computer
- Name of employee owner and department
- Year computer replaced
- Type of software installed.

3. Computers are replaced approximately every 4 years. In year 1, approximately 25% are replaced, year 2 approximately another 25% and so on. Therefore every year, approximately 25% of computers are replaced.

4. Computers are rolled out by quarter. Computer technology improves rapidly and prices decrease with time, so it is prudent to purchase computers each quarter.

5. Computers are purchased from successful bidders through the bid process. Request For Proposals (RFPs) are issued to Vendors of Record for each quarter.

6. When new computers are rolled out, there is currently no immediate physical collection of the old computers. The collection of old computers are co-ordinated by the ITM department with the Building and Facilities department as they have the appropriate vehicles for collection. The Buildings and Facilities staff  pick up old computers from various offices at a later scheduled date usually up to one month since the installation of the new replaced computers. This is the transition period to ensure that any data which has not been transferred to the new computer from the old computer, can still be done. The collected computers are taken to the MNR building for storage until sold.

7. The computers could stay in the MNR warehouse from 6 months up to one year before they are refreshed and sold. The information stored on the hard drives of all computers are refreshed just before the disposal date. Computers are refreshed once only in preparation for their disposal as per the ITM staff person who performs the refreshment.

8. Computers are not marked as to which ones have been refreshed but are put aside once they are refreshed. In the meantime, computers may be added to the

warehouse from the Vaughan Public Library, from Building and Facilities as they collect old computers and deliver them to the warehouse. These unfreshed computers may inadvertently be placed with the refreshed ones and no one would know.

9. The auditor and an ITM staff member visited the MNR site where all types of computer equipment, monitors, printers, telephones etc are stored. The storage location is an existing garage with a few windows which can be smashed and used to gain physical access to the computers. The MNR building has an alarm system and cameras but does not have a security guard.

10. It was observed that all equipment were dumped together in one mismatch in a pile at one section of the warehouse.

11. There is no current inventory list of these equipment. The inventory of computer equipment at MNR is counted months later when it is required information in preparing the bid document for their disposal.

12. From the beginning of 2005 up to and including 2009, 984 computers were replaced at a cost of approximately $1.7 million dollars. During the same timeframe, 1,111 computers were disposed and sold, resulting in 127 more computers disposed than replaced. In each of the 5 years reviewed, the quantity of computers replaced and disposed, showed differences ranging from +32 to -110, where +32 being more computers replaced than disposed, and -110 being more computers disposed than replaced. This suggests that not all computers replaced were picked up in the year of replacement. In some years there were less computers picked up and in other years there were more computers picked up.

## Implications

1. For all 5 years reviewed, there were differences between computers replaced and disposed. The net difference over 5 years was that 127 more computers were disposed than purchased. There is no reconciliation done on an annual basis.

2. Controls over  computers purchased for replacement, their collection, storage and disposal can be improved.

3. Without prompt refreshment, the information in the hard drives of these computers at the warehouse, are at risk from the time they are picked up until the time they are refreshed. Should there be a break-in and computers are stolen, the City's information can be potentially available and exposed.

4. Computers are not marked as refreshed. Unrefreshed computers may be placed with refreshed ones in error. Unrefreshed computers with City information in the hard drives could therefore be sold. It is critical that all computers sold are refreshed so that no City information is exposed.

5. The storage of old computer equipment is not in an orderly fashion at the warehouse. They are in a heaped pile with other computer peripherals and equipment.

## Recommendations

It is recommended that the following points should be given due consideration:

The **process** could be as follows :

1) After new computers are installed on a Saturday, the department's supervisor should confirm the receipt of the number of computers through an e-mail to the Client Support Services Manager. Approximately 1 week after the installation of the new replacement computer, , ITM staff should refresh the old computers of departments with sensitive information ( Directors, Commissioners, City Manager, Council Members, Legal, Human Resources) at their offices. Senior Staff and Council Members should sign the list to acknowledge that the ITM staff was present to refresh the computers. A sticker with a written date should now be placed on each computer to indicate that they were refreshed.

2) The ITM department should co-ordinate the collection of old computers with the Building and Facilities department at a date approximately one week from the installation date of the new computers, after the refreshment of computers as mentioned above, have been done. A copy of the list of old computers to be picked up should be given to the Building and Facilities staff on the day it is arranged for them to pick up the old computers. When Building and Facilities staff pick up the old computers, each office employee giving up the old computer should sign the list.

3) the old computers collected, are then taken to MNR warehouse for storage.

4) The list of computers is then signed and dated by the Buildings and Facilities staff and given to the ITM staff.

5) The  ITM staff should then check the MNR warehouse as soon as possible and confirm the total computers to the list.

6) The list is now given to ITM administrative staff for record keeping and updating the spreadsheet and database  information.

7) With this list, ITM staff should now refresh the remaining computers at MNR ( which were not previously refreshed)  at a convenient time before the disposal of computers and *sign* the list with the *refresh date*. Stickers should be placed on the refreshed computers. The list is now given to ITM administrative staff.

8) The number of new computers replacing old computers should be <u>reconciled</u> with the number of old computers collected and taken to MNR e.g., if 50 computers are replacing old computers, 50 old computers should be collected <u>less</u> old

computers held back by departments for additional staff use and taken to MNR for storage.


9) There should be some orderly storage of equipment such that computers, monitors, printers, telephones etc are kept in separate piles and not in one mismatch heaped pile.

In the end, there should be a **control list** which shows

- All the old computers ( with their tag numbers) replaced with the employee's name and department.
- All the new computers installed (with their tag numbers).
- The signature of the employee on surrendering the old computer at the time of pick-up by Building and Facilities staff.
- The signature of the Building & Facility's staff to confirm the list of computers delivered to the warehouse.
- The refreshment date of the computers of Senior Staff ( Directors, Commissioners, City Manager, Council Members, Legal, Human Resources) at their offices with their signatures and the signature of the ITM staff performing the refreshment at the offices and at MNR.
- The e-mail of the department's supervisor confirming receipt of the quantity of new computers installed in the department.


**Corrective Actions and Timeline (Chief Information Officer Dimitri Yampolsky Response)**

Current practice is to leave the old computer with the user for approximately two (2) weeks before the old computer is picked up and moved to the MNR building storage facility.  During the two (2) weeks, the user transfers needed files to the new computer and deletes unneeded files from the old computer.  By the time the old computer is transferred to the MNR storage facility, it has no sensitive data on it and has no tangible book value.  The old computers are auctioned off in bulk twice a year.  Prior to the auction, each computer is aesthetically reconditioned to maximise its value and the hard drives are permanently purged of all content as a precaution.

In response to the auditor's comments, the following improvements to current practices will be implemented immediately upon auditor's concurrence:

1. As part of the delivery and installation of a new computer, ITM staff will assist users with the transfer of needed files to the new computer and deletion of unneeded files from the old computer;

2. Upon completion of the installation of the new computer, the old computer will be taken by ITM staff to a secured storage facility at the ITM department for a period of one (1) week.  This is a precautionary step to enable potential system or data recovery;

3.  At the end of the one (1) week period, the old computer's hard drive will be permanently purged in accordance with accepted IT industry practices, appropriately labelled, and transported to the MNR storage facility;

4.  A control log will be kept with appropriate sign-off's to document delivery of new equipment, transfer and erasure of data, removal of old computers, purging of hard drives, and transportation to the MNR storage facility.  The control log will be reviewed by the Manager of Client Support Services on a regular basis.

5.  A physical inventory of all personal computer assets will be conducted every two (2) years.  The physical inventory will be reconciled with total number of computers purchased and deployed each year and the total number of computers decommissioned and sold each year as part of the auction process.

    *It should be noted that the number of computers purchased each year has no correlation to the number of computers decommissioned in the same year.  Departments may temporarily retain older computers for seasonal staff, use equipment without support, or use equipment for special projects.*

**Auditor's Response To Corrective Actions and Timeline**

1.  The corrective actions will improve the current process and will safeguard that City information in the computers are purged promptly.

2.  The control log and the reconciliation of physical inventory will improve the control over computer assets.

3.  Building Facilities department will no longer be involved in the collection of old computers and the transfer to the MNR. This will be handled entirely by ITM.

**Vaughan Public Library (R4)**

**Observations:**

1. The ITM department purchases computers for the Vaughan Public Library(VPL) as and when directed to do so. VPL does not have a standard practice of replacing computers every 4 years as is done by the City.

2. VPL directs the purchase and replacement of computers at intervals of 4 years, 5 years and sometimes 6 years. The disposal is also done at their discretion. VPL co-ordinates the removal of old library computers to the warehouse with the Building and Facilities department. independent of the ITM department which is not involved in this. However the ITM department does include all VPL computers with City computers for sale.

3. The City Auditor has met with the Chief Executive Officer and Director of Operations of VPL. They have agreed to adopt the standards as recommended by ITM and will co-operate with the ITM department in their co-ordination and initiatives.

**Implication:**

By not working more closely with the ITM department, makes the process less efficient and more difficult to co-ordinate and control for the ITM staff. This could also involve duplication of some efforts on ITM staff.

**Recommendation:**

It is recommended that

1. The ITM department and Vaughan Public Library (VPL) should discuss and agree on a replacement standard for administrative and public computers.

2. The ITM department should also co-ordinate the purchase, replacement, and collection of computers for VPL. This will facilitate the whole process for the ITM department, eliminate any duplication of effort and be more efficient and effective.

3. The Vaughan Public Library should do annual inventory counts of all their computers and reconcile the quantities with records maintained by ITM department.

**Corrective Actions and Timeline (Chief Information Officer Dimitri Yampolsky Response)**

The City of Vaughan Chief Information Officer (CIO) met with the VPL Chief Executive Officer (CEO) to discuss this item.  It was confirmed that computer usage at VPL is somewhat different than it is at the City.  VPL users utilize personal computers primarily for administrative and basic accounting functions.  Such functions do not require extensive computing capability.  The City's usage of personal computers is more demanding as it involves functions ranging from administrative/accounting to complex engineering and data modeling applications.  Therefore it is a prudent business practice to replace personal computers in line with users' functional needs and the computers' state of reliable working condition.  Accordingly, the reasonable lifecycle for personal computers for VPL is slightly longer than the City's and should remain unchanged.

In response to the auditor's comments, the following improvements to current practices will be implemented immediately upon auditor's concurrence:

1. VPL computer support staff will follow the City's personal computer procurement and replacement practices;

2. VPL computer support staff will follow the City's personal computer inventory tracking practices.

**Auditor's Response To Corrective Actions and Timeline**

The corrective actions will improve the co-ordination between VPL and ITM in the replacement, removal and disposal of computers and improve efficiency, effectiveness and reduce any duplication of work.

**Tangible Capital Asset Register (R3)**

**Observations**

Public Sector Accounting Board (PSAB) 3150 requires municipalities to disclose Tangible Capital Asset in the City's financial statements commencing 2009. and to maintain accurate fixed asset registers to support the financial numbers.

Currently the register being maintained by the department include the following information:-

- Asset Number
- Type and Model
- Department
- Name of designated owner
- GL Account number
- Install Month
- Average Cost

**Implications**

The Tangible Capital Asset (TCA) Register currently maintained is not complete and requires more information to be more effective in providing useful information.

**Recommendations**

It is recommended that

1) The following headings be added to and be maintained in the Tangible Capital Asset Register:

- Date Received
- Vendor Name
- Invoice Number
- Invoice Date
- Purchase Order Number
- Actual Cost before tax
- PST(8%) until June 30, 2010
- HST Portion(1.76%) from July 1, 2010

The average cost would be replaced by the actual cost.

2) ITM should perform physical counts of all City computers at least every two years and reconcile these numbers with the Tangible Capital Assets Register.

**Corrective Actions and Timeline (Chief Information Officer Dimitri Yampolsky Response)**

Auditor's recommendations will be implemented commencing January 1, 2011.

**Auditor's Response To Corrective Actions and Timeline:**

The implementation of recommendations will improve details in the Tangible Capital Asset register. The reconciliation between the TCA Register and the physical inventory will ensure the TCA Register is kept up-to-date.

**Operating Budget vs Capital Budget (R3)**

**Observations**

1. New first time purchases of computers are currently charged to the Operating Budget of the department purchasing new additional computers. Replacement of existing computers are charged to the Capital Budget.

2. In the past, Tangible Capital Asset were not required to be shown separately in the Balance Sheet of a municipality, and were  fully expensed in the year of purchase. This was considered appropriate at the time.

3. Now with the requirement of PSAB 3150, Tangible Capital Asset are required to be capitalized, amortized and shown separately in the Balance Sheet. This has resulted in the  Reserves and Investments department reviewing Operating Budget accounts like furniture & fixtures, computer systems, machinery & equipment etc of all departments at the end of each year to identify tangible capital assets with values above the threshold values for single and pooled items.

**Implications**

New additional computers and equipment are charged to Operating Budget instead of the Capital Budget. This requires  Reserves and Investments  staff  to  annually  review Operating Budget accounts of all departments to extract Tangible Capital Assets  with the potential risk of error.

**Recommendations**

It is recommended that:

For now, the ITM computer assets co-ordinator should continue to record the Operating Budget account numbers of departments to which new additional computers have been charged. This is currently  included in the Tangible Capital Assets Register which she maintains. At year end, the information should be forwarded to the Reserves and Investment department. This will assist in directing which accounts to review to extract the Tangible Capital Assets with values above the threshold values for single and pooled items and include with Tangible Capital Assets.

**Corrective Actions and Timeline (Chief Information Officer Dimitri Yampolsky Response)**

Auditor's recommendations will be implemented commencing January 1, 2011.

**<u>Auditor's Response To Corrective Actions and Timeline:</u>**

The implementation of recommendations will assist the Reserves and Investment department in directing which accounts to review to extract the Tangible Capital Assets with values above the threshold values for single and pooled items and include with Tangible Capital Assets.

## CONCLUSION

1. Based on the scope of audit work mentioned in the beginning of the audit report, areas reviewed were considered to be operating satisfactorily, except for the noted observations for which the auditor made recommendations for improvement.

2. Internal Audit is satisfied that  the Corrective Actions will address the audit observations in the report.

3. When all corrective Actions and Timeline are implemented, (1) internal controls will be improved, (2) the quality of performance in carrying out assigned responsibilities will be enhanced, (3) the department/operation will operate more effectively and efficiently and (4) the Internal Audit department will have added value to the organization and assisted members of the organization in the effective discharge of their responsibilities.