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CITY OF **VANCOUVER**

ADMINISTRATIVE REPORT

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TO: Vancouver City Council

FROM: General Manager of Corporate Services

SUBJECT: Information Technology Infrastructure – 2007 Expansion and Replacement Program

RECOMMENDATION

THAT Council approve the 2007 Information Technology Infrastructure Expansion and Replacement Program, as described in this report, at a cost of $9,798,000; source of funding to be the Information Technology Long Term Financing Plan.

CITY MANAGER'S COMMENTS

The City's delivery of its services is increasingly dependent on its information systems and supporting information technology infrastructure. This funding request supports an ongoing program established in 1997 to ensure that this infrastructure is adequately managed to meet the City's business requirements. The scope of this program includes the managed replacement of information technology, both hardware and supporting software, used by all City departments and associated boards, including the Park Board, Vancouver Police Department (VPD) and Vancouver Public Library (VPL). The recommendations in this report have been approved by the Technical Advisory Committee (TAC) and Business Advisory Committee (BAC) which represent all City staff and major Boards.

The City Manager therefore RECOMMENDS approval of the foregoing.

COUNCIL POLICY

It has been Council policy since 1994 that information technology infrastructure be actively managed on a long term basis that reflects a life-cycle replacement strategy to ensure that the business needs of the City in providing public service can be met. Funding for this program is provided as part of the annual Operating Budget and is allocated to specific projects by Council in periodic program reports.

Since 1997, Council has approved six major and two minor "Information Technology Infrastructure Expansion and Replacement" programs, the last of which was approved in November 2005.

PURPOSE

This report seeks approval for the life-cycle replacement of obsolete information technology infrastructure and for several expansions of existing infrastructure needed to maintain or improve service levels in a number of areas throughout the City organization.

BACKGROUND

The City's information assets and communications resources are managed and made accessible through a complex IT infrastructure that consists broadly of:

- "Front-end" devices - desktop and laptop computers, handheld devices like Personal Digital Assistants (PDAs), and telephones;
- "Back-end" systems – data storage, application servers and telephone switches, and
- A communications network that connects the two and permits information retrieval by, and communication between, both staff and public.

These infrastructure components have limited lives, typically of 3-5 years, after which they become either physically or functionally obsolete.

In 1997, Council created the Information Technology Long Term Financing Plan to ensure that this basic infrastructure could be maintained and replaced on a life-cycle basis. This plan is funded from an annual allocation in the Operating Budget.

Typically, through advances in technology, obsolete equipment is replaced with equipment that has a higher capacity and increased functionality - hence the description "expansion and replacement". This process also serves to accommodate the increasing demands that the City, like other comparable organizations, places on its IT infrastructure.

DISCUSSION

The 2007 program presented in this report consists of 10 sub-programs:

	Sub-Program	**Description**	**Capital Cost** (000's)
1	PC Replacement and Application review for Vista	Replace 4,540 obsolete desktop and laptop computers and 2,310 monitors; Prepare for the Vista operating system.	$7,125
2	Data Centre Upgrades	Create additional data centre space at E-Comm, and upgrade the City Hall data centre	$450
3	Server Replacement	Replace obsolete servers at the City and VPL	$500
4	Backup Servers	Provide backup servers for vital VPD systems at E-Comm	$310
5	Upgrade Backup Systems	Replace obsolete tape libraries and accommodate growth in managed data	$695
6	SQL Database Upgrade	Upgrade the City's SQL database servers and add reporting tools	$298
7	Website Renewal Project	Implement web publishing tools and procedures	$200
8	Application Security Improvements	Application security framework assessment for web development	$70
9	Disk storage expansion	Expand storage for shared file system	$150
	TOTAL		**$9.798**

There are no new operating costs associated with this program.

A brief description of each of these programs, identifying the business drivers and presenting an overview of the proposed technology implementation and the anticipated benefits, follows:

1. PC Replacement ($7,125,000)

The City has a policy of replacing desktop computers and laptops on a four year lifecycle basis. Monitors have a longer useful life of six years. The recommended program provides funding for the replacement of 4,540 desktop computers and laptops that were acquired in 2002, 2003 and 2004, and the replacement of 2,310 monitors acquired in 2000, 2001 and 2002.

After removing all data from the hard drives the replaced computer equipment will be donated to programs that provide computers to low income groups in the City of Vancouver. The City has been providing computers to the Computers2Go program run out of the Ray-Cam Community Centre. Through this program the computers are tested, cleaned and refurbished. They are then sold for a nominal cost ($45) that covers program expenses to registered non-profit organizations or charities, who can take advantage of the remaining useful life. These organizations can either use the computers to support their own operation or distribute them to low income individuals. This leads to several desirable outcomes:

- It brings computer technology to low-income and disadvantaged children, youth, families, adults/seniors in a manner that enhances their quality of life.
- It contributes to a more sustainable community by reducing the volume of computers destined for the local landfill.
- It complements educational programs offered by the community associations that aim to teach basic computer literacy skills.
- It has the potential to create employment opportunities.

Computers2Go require recipients of computers to agree to return them to Computers2Go for disposal at the end of their life so they can be disposed of following e-waste guidelines. The City collects any e-waste from Computers2Go and sends it to Teck Cominco for recycling.

In the past the City has often rolled out new versions of Microsoft operating systems in conjunction with new hardware rollouts. For example, with the last rollout the City upgraded from a number of Windows operating systems to Windows XP on a corporate-wide basis. For this rollout staff looked at the option of rolling out Microsoft's latest operating system, Vista, but determined that many applications used at the City are not yet compatible with Vista. All software applications will need to be tested with Vista, and some applications will need to be rewritten by City IT staff to make them compatible with Vista.

The City will need to migrate to Vista in the future. It will take a significant time to test, and if required rewrite, software applications used at the City to ensure they are compatible with Vista. In order to prepare for a future migration funding of $155,000 is included in this plan to perform this work.

2. Data Centre Upgrades ($450,000)

In order to meet the upcoming demands on data centre resources, IT has amended the plan for upgrading and expanding the City's data centres. The original plan was to relocate Corporate Services IT server room within the E-Comm facility for additional floor space to accommodate system expansion and mid-term enterprise system needs. The plan included upgrades to the fire suppression system, heating, ventilating and air conditioning (HVAC) system, and uninterruptible power supplies (UPS); as well as installation of additional server racking systems and re-configuration of the audio visual (AV) systems that are currently in the room. The cost estimates were $859,000, of which $450,000 was provided for in the 2006 Basic Capital Budget.

Recent study has indicated that retrofitting and upgrading existing data centres at E-Comm and City Hall will provide a better value to the City and will accomplish the same objectives. The new plan has the following elements:

- Replacement and realignment of the current server racks in the current E-Comm data centre with upgrades to the air conditioning and power;
- The conversion of an adjacent meeting room in E-Comm into a server room including racks, UPS, and air conditioning;
- Upgrading the current City Hall data centre to accommodate test and development servers, including additional racks and a second UPS.

On March 13, 2007 Council approved $120,000 for the purchase of the second UPS for the City Hall data centre with funding from the $450,000 that was provided for in the 2006 Basic Capital Budget. This request for $450,000 will allow for the completion of the other plan elements.

This plan will meet the data centre needs for three to five years. Staff are working on a long term solution that can accommodate future growth and allow for the retirement of the City Hall data centre. IT staff are working with the Corporate Services Facilities department to see if opportunities exist for incorporating data centre space in new City facilities that are in the planning stage.

3. Server Replacements ($500,000):

The City manages around 250 servers, about 150 of which fall into the category of infrastructure servers. With a lifecycle that is not standardised but is between 3 and 5 years, depending on function, 30 - 40 need replacing annually, with associated costs including data centre upgrades that are almost exclusively hardware-related. $260,000 of this funding will be allocated for City server replacements.

The servers that host the Vancouver Public Library public and staff websites and the email system are over 7 years old. $240,000 of this funding will be allocated for replacing these servers and supporting infrastructure (firewalls, spam filters, etc).

The City (including VPL and VPD) is implementing server virtualization technology which allows multiple servers to run on one physical server. In addition to saving costs this technology reduces server power and cooling requirements which helps the City meet its sustainability goals.

4. Backup Servers ($310,000):

The VPD backup procedure ensures that email, data files, databases, and other information is securely backed up and stored offsite. However the resumption of business following a business interruption would be dependent on the time to acquire and set up new computer servers, and restore data from backup tapes which could be days or even weeks. This funding will allow VPD to establish backup e-mail, database, web, file, and other servers at E-Comm and duplicate departmental data to this site. This will allow VPD to restore critical business systems within minutes.

5. Upgrade Backup Systems ($695,000):

Currently the City's data is backed up to a robotic tape library at the E-Comm data centre and then replicated to a second robotic tape library at the Chess Street data centre. Both of these tape libraries have reached the end of their three year warranty. Maintenance could be extended, but the maintenance costs are high and the Chess Street tape library has reached maximum capacity.

This funding will be to purchase a disk based backup system to replace both robotic tape libraries. Disk backup systems are faster and more reliable than tape based systems and take up less data centre space. In the past disk based backup systems were much more expensive than tape systems, however improvements in disk compression technologies and lower disk drive prices have now made them a viable option for the City.

6. SQL Database Upgrade ($298,000):

Corporate IT currently supports about 130 applications on its SQL Server database server. Many of these applications are directly used by the public through the City's website and/or are critical to the various ongoing operations within the City.

Currently the Corporate IT SQL Server database uses an older version of the Microsoft database software - SQL Server 2000. The mainstream support for this version of the database is due to end in April 2008. For continued vendor support of these databases it is necessary that we upgrade all the databases on the Corporate IT SQL Server from SQL Server 2000 to the SQL Server 2005 version of the database software.

This project will also include the implementation of SQL Server 2005 Reporting Module. The Reporting Module will replace the existing Mainframe report generation process. The migration of reporting capability from the Mainframe forms an integral part of the Mainframe decommissioning process.

7. Website Renewal Project ($200,000):

The City of Vancouver's website is one of the key portals for delivering information and services: in 2006, the site received over 12.5 million visits - roughly 35,000 visits per day. From its inception in 1995, the City's website has grown significantly and now houses over 40,000 pages, hundreds of streaming video files, dozens of online surveys, and handles millions of dollars in online transactions and payments. The award-winning web site has evolved from simply a purely informational tool, into a critical communications, service and commerce channel for citizens, business, and visitors. It is expected that use of the website will only continue to grow. With this success has come several challenges: the ever-increasing amount of information on the site has made it difficult to find information and keep it current. The site continues to grow, but little is done to remove information no longer relevant. As well, over 130 City staff members currently contribute to the web publishing effort as part of their other job duties. This highly decentralized model as well as the lack of dedicated staff to web content management, has resulted in some of the challenges the City faces today.

This $200,000 funding will focus on updating key pieces of information on the site, and also implementing web publishing tools and procedures, as well as training, in order to improve the quality of information on the site, and the quality of future information on the website.

To continue to deliver quality information and services in a timely manner, staff is reviewing further enhancements to the website including re-organizing content, implementing new search tools and implementing a corporate Content Management System. A business case and funding requirements for these enhancements will be developed and reported to Council.

The goal is to provide an enhanced website that will work in concert with the Access Vancouver 311 and Electronic Records Document Management System (ERDMS) programs.

8. Application Security Improvements ($70,000):

An external security review of the City's web development practices recommended several changes to ensure our website remains secure. This funding will pay for the implementation of these recommendations through staff training, secure programming tool acquisition, and development of secure coding practices.

9. Disk Storage Expansion ($150,000):

Corporate IT maintains the file storage space that is used to store shared files for all City departments (except VPD or VPL). With the growth of managed data the current space will be exhausted before the end of the year. This funding will allow for expansion of the disk storage to accommodate this growth.

FINANCIAL IMPLICATIONS

Funding for the initiatives described in this report totals $9.798 million. Funding for this program is available in the Information Technology Long Term Financing Plan. There are no new operating costs associated with this program.

CONCLUSION

The City is increasingly dependent on its electronically-stored information and associated delivery systems. These systems demand a technology infrastructure that extends to all parts of the organization, is fast, dependable and robust. The City must also protect itself and the public it represents against loss of data and interruptions in service, both of which risks can be mitigated. Finally, it has a duty to make reasonable efforts to ensure that in the event of a disaster, it is equipped with the information and communication resources that would be needed to quickly adopt the leadership and supportiveness that its public would expect of it.

The recommendations of this report attempt to address these goals.

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