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MITIGATION MEASURES TO REDUCE SOFTWARE COSTS

The Finance and Administration Committee recommends the adoption of the recommendation contained in the following report, September 15, 2005, from the Commissioner of Finance:

1. RECOMMENDATION

It is recommended that:

1. The Finance and Administration Committee and Council receive this report for information.

2. PURPOSE

This report is in response to the e-Government Sub-Committee's direction of March 16, 2005 for "possible mitigation measures to reduce software costs for 2006 and beyond, and in doing so compare the Region's software cost per user to other public sector entities and to any private industry data which is available."

3. BACKGROUND

On March 16, 2005, the e-Government Sub-Committee directed staff to submit a report on possible mitigation measures to reduce software costs for 2006 and beyond. As part of this request, staff were to analyze the Region's software cost per user to other public sector entities and to any private industry data which is available.

Four sets of data were used to perform the requested analysis. The first was a York Region commissioned assessment by Compugen, Inc., providing a detailed Total Cost of Ownership (TCO) assessment and comparative analysis to other Canadian municipalities and a peer group, made up of public and private sector organizations. Secondly, the MISA (Municipal Information Systems Association) Technology Directory was used to perform a comparative analysis of the distributed computing environments of various Ontario municipalities including the York Region. Thirdly, a municipal Information Technology (IT) study, conducted by Public Sector Research in 2004 in which 38 municipalities participated in contributing their detailed IT data. Fourthly, the OMBI (Ontario Municipal Benchmarking Initiative) data was reviewed for comparative insight into the costs associated with providing York Region staff with end user devices.

OMBI (Ontario Municipal Benchmarking Initiative) data was also reviewed for use in this report, however, the OMBI data does not provide any software specific information, but rather focuses on web site traffic and the total costs associated with delivering end user devices.

Section 4 of this report provides further details on these four sets of analyses.

3.1 Current Software Environment

Software is an essential component of the technology deployed by the operating departments to deliver their services. Regional government, like most government agencies, has become dependent upon software applications to deliver services.

Currently, the 2005 operating budget of the Information Technology Services (ITS) Branch includes software expenditures totalling $2.6 million dollars, which represents approximately 24% of the overall ITS Branch operating budget. In turn, these software costs represent 0.6% of the net regional operating budget of $417.4 million dollars.

The Region's current software infrastructure environment is comprised of over 200 applications which can be summarized into three types: Operating Systems, Enterprise Solutions / Applications and Desktop Solutions. A brief description of each type is provided below.

Operating Systems: The current operating system (OS) standard at the Region is Microsoft Windows 2000 SP3. The transition to Microsoft Windows 2003 is currently underway.

Enterprise Solutions and Applications: These are applications that span departments in their functionality. Examples include PeopleSoft and eDOCS.

Desktop Solutions: These are applications or suites that are currently installed on PCs or are served centrally through the thin client solution. Examples include Microsoft Office and Adobe Acrobat.

For ease of illustration, York Region's software inventory has been grouped into four categories as shown below. Exhibit 1 provides an overview of how software expenditure is distributed at York Region.

EXHIBIT 1
York Region Distribution of Software Expenditure – 2005 ITS Software Budget

Software Description	% of Software Budget	Software Expense
ERP (e.g. PeopleSoft)	33.8 %	$881,430
Data Centre (e.g. CA Unicenter)	30.2 %	785,078
PC Software (e.g. Microsoft Office)	29.8 %	775,060
Data Management (e.g. Oracle)	6.2 %	159,600
Total 2005 ITS Branch Software Budget		$2.6 M

Software investment should be made as part of an overall total value of ownership assessment which considers the impact of the investment on the daily operations and delivery of the Region’s services and programs, in addition to the software acquisition costs.

The reliance on software continues to increase with the growth of the Region, resulting in increasing demands on the Region’s computing environment. As a result, software costs are likely to continue to rise. Exhibit 2 provides a historical overview of growth statistics for the Region.

EXHIBIT 2
Overview of Historical Growth Statistics 1998, 2003 and 2005

Description	1998	2003	2005 *
Personal Computers	632	1827	2438
Telephones	850	2086	3307
Support Calls	n/a	22272	25350
Application/Data Servers	11	90	106
Software Applications	20	160	209
Network Devices	29	122	148
Telephone Switches	3	13	25
Voice Mail Servers	3	9	11

* Projected based on current ITS Branch data.

In addition to above indicators of growth, there are several factors which also contribute to increased software expenditures, such as:

- changes in vendor offerings and pricing structures
- extent of technology adoption among users
- rapidly changing technology / version control

3.2 Software Licensing and Maintenance

York Region, like other municipalities and the private sector, enters into standard licensing agreements with vendors. Acquiring software from vendors has traditionally been product focused. In recent years the Region has followed industry best practices and now places greater emphasis on the license agreement and managing software as an asset from a total lifecycle perspective.

Exhibit 3, below, provides a breakdown of the Region's software expenditures by license costs and maintenance costs over the last four years.

EXHIBIT 3
Software License and Maintenance Costs, Fiscal 2002-2005*

Fiscal Year	License Costs	Maintenance Costs
2002	$1,138,486	$1,832,065
2003	1,256,165	2,617,576
2004	2,140,847	2,625,845
2005	1,176,000	2,421,000

* Projected based on current ITS Branch data.

There are primarily four different types of software licenses granting organizations the right to run or access software. Nearly all software applications are licensed and not sold.

Enterprise License Model: Generally, this model is priced to include the requirements of the entire organization, i.e. the Regional Municipality of York would be seen as one single enterprise.

Per Seat Model: Also referred to as the "desktop" or "individual user," this model requires a unique license on an individual machine or user basis.

Per Processor Model: Most common in distributed computing environments and usually applied to middle-ware, the Per Processor Model licenses software by the number of processors or CPUs of a server or desktop.

Concurrent Use Model: The Concurrent License Model permits simultaneous (or "concurrent") use of the software by one or more users, up to the maximum number of users stated at the time of purchase.

Software maintenance, pays for ongoing product development that provides new product versions and features, regulatory updates and bug fixes. In addition, software maintenance fees provide for phone and web-based support when customers require assistance.

3.3 Re-Negotiated License and Maintenance for Selected Software

According to the Gartner Group (an internationally recognized IT think tank and consulting company) organizations must move towards best practices in managing software assets or risk over spending. Renegotiating licenses can save organizations significant amounts reducing their total costs.

York Region has recently aggressively renegotiated both licensing and maintenance on data centre software as well as desktop software, as outlined below. It is estimated that the York Region has saved $341,380 through software license and maintenance re-negotiation in 2005 alone. Details of each of these negotiations are presented in the five subsections below.

EXHIBIT 4
Software License and Maintenance Savings for 2005

Software	2005 License and Maintenance Savings
Microsoft	$115,400
Citrix	$146,680
Hummingbird	$79,300
PeopleSoft / Oracle	Currently being re-negotiated
Computer Associates	Currently being re-negotiated
Total 2005 Savings through Software Re-Negotiation: $341,380	

3.3.1 Microsoft Licensing and Maintenance

Staff reported on Microsoft Software Licenses at the Finance and Administration Committee meeting of March 3, 2005. Staff compared the cumulative cost of Microsoft software assurance versus purchasing new licenses when a new version is required. Staff also considered the anticipated release schedule of new Microsoft products, support requirements and the actual value York Region would realize from the new features incorporated in the new versions.

Due to significant upgrade, maintenance and recurring support requirements, Software Assurance was renewed on the following group of products:

- Microsoft Advanced and Standard Server 2000
- Microsoft SQL Server Standard 2000
- Windows Client Access License
- Exchange Server Access License
- Commerce Server Standard Edition

However, it was determined that significant savings could be realized by discontinuing Software Assurance on the Microsoft Office suite of products and purchasing new licenses, when required, with minimal or no risks. The cumulative SA (Software Assurance) payments for York Region’s Microsoft Office Suite that are avoided by this approach amount to approximately $833,000. Staff calculated the cost of purchasing the

Microsoft Office Suite in 2008 at $717, 600 based on the same discount and volume assumptions. By discontinuing Software Assurance and deferring the purchase of the new Office Suite licenses until 2008, York Region will realize savings of approximately $115, 400.

3.3.2 Citrix Licensing and Maintenance

Through discussions with Citrix on various licensing and maintenance options, it was determined that by moving York Region to a volume based licensing structure premised upon future roll-out projections and based on the Region's needs, a total savings of $134,880 was achieved on licensing costs and an additional $12,000 was saved on maintenance costs. This represents an approximate 35% saving on licensing and 25% on maintenance fees. Savings are based upon 960 Citrix Licenses. These negotiated prices are extended to local Region of York municipalities, should they move to thin client "Citrix" environments in the future.

Standard Pricing		Negotiated Pricing		Negotiated Savings	
License	Maintenance	License	Maintenance	License	Maintenance
$400	$50/Lic./year	$259.50	$37.50/Lic/year	$134,880	$12,000
Sub-Totals:					
$384,000	$48,000	$249,120	$36,000	$134,880	$12,000

3.3.3 Hummingbird Licensing and Maintenance

After a comprehensive analysis of a number of different options on licensing and maintenance of the Hummingbird document management product, staff negotiated a pricing reduction from $725/seat to $389/seat under a bulk purchase agreement. This was based on acquiring the number of licensees needed in accordance with the planned rollout. The agreement allowed the Region to dramatically reduce the acquisition costs for the additional seat licenses. The pricing reduction delivers a savings of $218,900.50 in total license investment, $79,300 of which will be realized in 2005.

In addition, Hummingbird has agreed to allow the Region to activate licenses as needed. Annual maintenance costs will be further managed through a gradual phase-in of new licenses that would see smaller units of seats being activated as users are rolled out on the system. Based on the planned rollout schedule, this new agreement will deliver maintenance savings of $217,805.94 over the next five years.

3.3.4 Computer Associates Licensing and Maintenance

Negotiations are currently underway with Computer Associates to renew the maintenance agreement for their suite of software at a lower rate.

3.3.5 PeopleSoft / Oracle Licensing and Maintenance

Negotiations are currently underway with PeopleSoft and Oracle to reduce both license and maintenance costs on the Regions existing portfolio of products. Oracle is now the owner of the two products – PeopleSoft ERP Applications and Oracle databases. As a result of the vendor announcing changes in their pricing policies and the expected rollout of GIS software over the World Wide Web, negotiation opportunities are being leveraged. Staff has successfully negotiated the "employee count" definition, with respect to PeopleSoft, which will help to mitigate increased license costs due to the growth in staff of the Region.

4. ANALYSIS AND OPTIONS

4.1 Compugen Total Cost of Ownership Baseline Assessment

York Region engaged Compugen Inc. to provide a baseline assessment of the Region's distributed computing environment. Compugen utilized Gartner Group's methodology and software tools to conduct this analysis.

The Compugen analysis revealed that the general state of distributed computing at York Region is average in comparison to both the government peer group of the Gartner methodology as well as the Compugen municipal peer group. The complexity of the York Region distributed computing environment contributes to a slightly higher total cost of ownership related to the desktop. IT complexity is measured by a number of factors primarily influenced by the business and its needs. The hardware and software expenditures, however, are consistent with spending of organizations utilizing best practices.

Compugen stated that York Region will see increased costs to maintain and support this more complex IT environment and that it is important that York region look at the parameters affecting complexity to determine whether changes can be made which will positively influence its TCO (Total Cost of Ownership).

The following table identifies the recommendations by Compugen to help improve the best practices currently employed by York Region, which relate to the Region's software portfolio.

Exhibit 5
Compugen Recommendations
From the TCO Baseline Assessment of 2005

	Best Practice	**Recommendation**
1.	Software Management	**Treat software like hardware.** The cost of not reusing software licenses can be enormous. Develop a strong process around the lifecycle of software so oversubscriptions are kept to a minimum and a constant auditing process is in effect.
2.	Standards Compliance	**Lock down the desktop (software).** Locking down the desktop will greatly reduce the number of calls per workstation and therefore reduce the cost of support. Although York Region has a

		high proportion of their systems already locked down, following the same lead with the software as with the hardware would be very cost effective.
3.	Procurement Process	**Create a documented policy for non-standard purchases.** Non-standard purchases usually have higher purchase costs and require more user time to process. Developing a policy to handle these should reduce costs further.
4.	Procurement Process	**Integration.** It is important for multiple applications in various departments and business units to communicate with one another through some integration process. For example linking purchasing to asset management and IT help desk eliminates duplicate keystrokes and reduces repetitive tasks. This in turn helps reduce overall costs.

4.2 MISA Analysis

Data from the Municipal Information Systems Association (MISA), of which the Region of York is a member, was used for comparative analysis purposes. MISA is an established Canadian Association of municipal government representatives and others interested in the effective use of information technology to provide better and more cost effective services to municipal taxpayers and clients.

The software information collected from the MISA Technology Directory was used to conclude that the distributed computing environments among the municipalities, including York Region, were very similar in their use of software from a functional, platform and operating system level.

4.3 Public Sector Research Study

In July of 2004, Public Sector Research Inc., conducted a national municipal IT study in which senior IT managers of 38 municipalities participated, including York Region. The study compared a number of measures including, the services supported by IT, Operating and Capital budget analysis, staff complement and computing environments.

This study, much like the MISA analysis above, pinpointed common software applications in use by various municipalities. The top five software application categories identified by the 38 municipalities that they foresaw requiring new software were:

- Citizen facing e-Government
- Asset Management
- CRM
- Financial /HR upgrades and enhancements
- Document and Records Management

It is interesting to compare this list of new software requirements and note their similarity to the Region of York's top 10 software applications:

- Symposium/ICE (Call Centres)
- ERP (PeopleSoft) – Financials, HR, Reporting
- Maximo (Asset and Work Order Management)
- Trapez and Transview (Transit)
- YARDI (Housing)
- GIS (Geographical Information Systems)
- Oracle (Relational Database)
- eDOCS (Hummingbird) Document Management
- CA (Computer Associates) Systems Management Suite
- Microsoft Office

4.4 Ontario Municipal Benchmarking Initiative (OMBI)

The OMBI data below provides a detailed look at three areas where York Region is positioned among its peers. The three areas are the number of visits to the municipal web sites per capita, the number of devices per total municipal staff and the cost of IT per device supported. The data shown in the three tables below is the current OMBI data from 2004. However, due to definitional and organizational differences, caution must be exercised in interpreting this data.

Number of Visits to Municipal Web Site Per Capita		**Number of Devices Per Total Municipal Staff**		**Cost of IT Services Per Device Supported**	
London	39.93	Muskoka	1.25	Peel	$5,542
Ottawa	10.34	York	1.03	Windsor	$5,518
Toronto	7.59	Halton	0.87	York	$5,174
Thunder Bay	7.10	Peel	0.85	Ottawa	$5,030
Sudbury	5.90	Waterloo	0.80	London	$4,996
Windsor	5.77	Sudbury	0.78	Durham	$4,179
Hamilton	5.28	Brant	0.75	Niagara	$4,144
Halton	3.50	Ottawa	0.75	Halton	$3,741
Waterloo	3.32	Hamilton	0.71	Thunder Bay	$3,590
Brant	3.18	Windsor	0.70	Toronto	$3,028
York	2.17	Niagara	0.68	Hamilton	$2,984
Peel	1.61	Durham	0.65	Sudbury	$2,620
Niagara	1.42	London	0.61	Waterloo	$2,449
Durham	1.02	Toronto	0.59	Brant	$2,237
Muskoka	na	Thunder Bay	0.53	Muskoka	$2,091

4.5 Software Asset Management Best Practice

The ability to effectively manage software across the Regional Municipality of York has become increasingly challenging. Software, as with most other disciplines, if not tightly controlled and monitored tends to have higher costs and risks than when effectively managed. Gartner analysts strongly advise enterprises' information technology organizations to embrace Software Asset Management (SAM) as a discipline to mitigating licensing risk, ensuring compliance and control software expenditures.

York Region staff employ best practices in software asset management to mitigate software related risk and reduce costs. The following ten best practices are integral components of York Region's software asset management. Significant effort is being expended to pursue these best practices.

1. Anti-Piracy Policy
By bolstering the Employee Code of Conduct regarding acceptable use of the Region's assets and resources with an anti-piracy policy, a corporate culture with a zero tolerance towards software piracy is created.

2. Educate Employees
Employees need to be reminded periodically that they have responsibilities under the Region's Code of Conduct regarding anti-piracy and copyright legislation. A consistent and regular communication is delivered to employees at least once a year.

3. Record of All Software Purchases
This practice involves tighter, more centralized control of software purchase records, licensing agreements and maintenance records. The Region can further mitigate licensing risk with accurate records of licenses purchased and maintenance agreements in accordance with software deployed.

4. Develop a Software Repository
A central software repository to document the installed software on the desktops and servers throughout the Region is near completion. The Region currently has licensed a software asset management tool to facilitate the management of the Region's software portfolio. This tool is also used to identify software compliance issues to mitigate risk.

5. Controlled Access to Copyright-Protected Media
Both physical and network security controls exist to prevent unauthorized access to software and documentation provided by vendors. A lack of control over the physical media often results in deployments which exceed the licensed amounts. Media is stored centrally.

6. Indemnify the Region in Service Contracts
The legal and audit team periodically will review the Region's professional services contracts and include a clause requiring contractors to abide by copyright laws to indemnify the Region in the event of any violations of such laws on their part.

7. Conduct Periodic Software Audits
Through periodic software audits the Region determines whether or not employees are complying with the organization's software policies. These are conducted using the

Region's current toolset. The objective of the periodic audits is to match the number of software products installed versus the number of licenses purchased from the vendors.

8. Tightly Control Software Purchases and Installations
This practice involves the establishment of processes for purchasing and installing software. Best practices to ensure compliance include:

- Centralizing software purchasing through ITS Branch or in conjunction with ITS.
- Ensuring that software requested by employees and departments is on the ITS Branch list of supported products. ITS continually examines and evaluates software standards and installation standards to avoid technical conflicts and obsolescence.
- Evaluating licensing and maintenance options with vendors to best meet the needs of the Region.

9. Revisit Software Maintenance Fees
This practice involves continuous assessment of the maintenance options of existing software. Staff has reviewed and cancelled maintenance on modules of software that are not utilized or not expected to be used in the short term. The use of third party to provide maintenance at a lower cost, is also an alternative to direct vendor maintenance and support.

10. Timely Acquisition of Software
York Region staff is prudent in not acquiring software that is of limited value or cannot be easily implemented, even if the vendor offers a very attractive discount or bundles on additional modules.

4.6 Relationship to Vision 2026

The ten best practices described above assist the Region in mitigating risk and reducing software expenditures and also address a number of trends identified in Vision 2026 through software technology:

- **Technology will be increasingly significant in York Region, as elsewhere.** Rapid changes in technology will transform communications, service delivery methods and how people will live and work in the future. Software plays a critical role in this transformation.
- **Citizens will continue to expect more and better services at the same or less cost.** York Region continues to assume responsibility for new services, including Ontario Works, social housing, child care, emergency medical services and rapid transit. With the adoption of new services comes the adoption of additional applications and their respective software.
- **York Region will continue to identify new ways to show taxpayers that they are responsive and effective.** York Region is a large corporation as well as a community. Its government has developed sophisticated multi-year planning processes to manage its complex range of programs and services. A cohesive

software strategy assists in continuing to provide strong leadership with the flexibility and responsiveness for continual improvement.

5. FINANCIAL IMPLICATIONS

Through renegotiating better terms and conditions in software licenses and reducing the number of licenses, the York Region has realized savings of $341,380 in 2005. By continuing this practice and by further implementing best practices, the Region can anticipate further savings in the future.

6. LOCAL MUNICIPAL IMPACT

There are no local municipal impacts associated with this report. However, re-negotiated prices for software license and maintenance are available to local municipalities. These are communicated during the regular quarterly meetings of the IT directors and managers of the local municipalities and the Region.

7. CONCLUSION

Staff will continue to manage the Region's software portfolio and recommend cost effective approaches to manage the growing size and complexity of the Region's software assets.

The Senior Management Group has reviewed this report.