Chief Financial Officer's Report to
Audit Committee
2015 May 21

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ANNUAL UPDATE – INFORMATION TECHNOLOGY RISK MANAGEMENT

EXECUTIVE SUMMARY
Annual report of Information Technology (IT) Risk Management

ADMINISTRATIONS RECOMMENDATION(S)

1. That Audit Committee receives this report for information.

2. That Attachments 4 and 5 remain confidential pursuant to Sections 24(1)(a) and (b) of the Freedom of Information and Protection of Privacy Act until audit recommendations have been implemented for Attachment 4 and until the identified risks have been mitigated for Attachment 5.

BACKGROUND
The Information Technology (IT) Business Unit is responsible for providing IT infrastructure, services and solutions to The City's business units. To properly manage the risks associated with the provision of these services, IT uses the corporate Risk Management framework as mandated by the IRM policy.

Per direction received at the 2011 January 20 meeting of Audit Committee and in accordance with the Audit Committee Terms of Reference Bylaw Number 48M2012 IT is to provide an annual update on information technology risk management and controls. This report provides an overview of IT's risk management strategies, including the current risk register, and shows how risk management has been embedded in IT's Action Plan.

INVESTIGATION: ALTERNATIVES AND ANALYSIS
IT manages risk in an integrated business manner. IT looks at strategic risk through Action Plans and manages operational risk through the implementation of targeted programs. Given the integrated nature of risk management, IT finds the current level of risk is manageable and acceptable, with risk mitigations being integrated into current work plans, budgets and staffing resources.

Information and documentation provided within this IT risk report were obtained from the IT Management Team (ITMT) and references on-going IT practices. Attachment 1 provides an overview of IT's business and organization's information systems.   IT's Risk Register gap analysis, risk likelihoods and impact mitigations were priortized as part of IT's 2015-2018 Action Plan effort. Also, the IT Risk Register was a source for the Corporate Services' Action Plan Risk Register, which in turn provided input into the Administrative Leadership Team's (ALT) Risk Report presented to Audit Committee on February 19, 2015.

Stakeholder Engagement, Research and Communication
Every year, IT engages stakeholders from across the enterprise as part of its client satisfaction survey. Survey results indicate that businesses are mostly happy with the quality of the products and services offered by IT.

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City business units have expressed a desire for a greater understanding of their technology expenses. In response, IT provides monthly statements of IT expenditures and IT Account Managers can further elaborate on technology costs so that business management can find the right balance of benefit versus cost. For example staff's desire to use mobile technology is balanced with the cost of the equipment and monthly operating costs.

IT has a history of measuring and benchmarking its business, functions and associated costs. Over the past five years, IT has leveraged both the Ontario Municipal Benchmarking Initiatives (OMBI) and an industry benchmarking service to compare our costs with those of other jurisdictions in Canada, other government organizations and other enterprises of similar complexity. The benchmarking results are then used to identify areas for business improvement such as cost-reduction or service improvement

Strategic Alignment
As of Q4 2014, the IT, Customer Service & Communications (CS&C) and Human Resources (HR) business units transitioned to the Chief Financial Officer's Department. And, as of the beginning of 2015, the Directors of these business units have become members of the Administrative Leadership Team (ALT). This re-alignment provides IT with a platform to address corporate level technology risks and risk management strategies with senior management as issues arise.

Information Technology Business Unit: Work-plan driving key outcomes
IT's business is always changing as new technologies are constantly being introduced into the market and City businesses have a desire to adopt technology to improve their business practices. As a result, technology has become pervasive throughout The City. Attachment 2 outlines what IT believes to be driving trends for the foreseeable future. These trends were shared across The City as businesses were preparing plans for the 2015-2018 business cycle. IT has leveraged ongoing research and industry advisor services to move forward with four key work-plan strategic directions: enabling IT infrastructure self-reliance; managing information as a strategic business asset; empowering technology decision-making to support business agility while protecting the enterprise and enabling an IT agile workforce. These work-plan strategy areas are seen as being relevant to The City's lines of business and customers (businesses, customers and citizens).

Outcome 1: Enabling municipal IT infrastructure self-reliance
IT infrastructure self-reliance continues to be a focus for the IT business. IT's Action Plan outcomes will guide IT's efforts to provide infrastructure that meets The City's current and future needs. This includes continued support for business continuity and resilience within the technology environment as well as providing more connectivity between City of Calgary locations and reducing reliance on third party providers, resulting in greater efficiencies.

Outcome 2: Information as a strategic asset
Information is a strategic business asset for The Corporation. The volume of information The City is accumulating continues to grow exponentially. The volume of data and the wide variety of content types leads to challenges not only with discovery, storage and retention, but complicates the ability to transform this content into usable information for the business.

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To address this issue, The Corporation is expanding its enterprise document and electronic records management system. This initiative will also help reduce legal, financial and reputation risk, while maximizing the value of The City's information assets.

As documents are created and stored, the appropriate Information Security Classification (ISC) code is to be added to the document and electronic records management system. ISC codes align with the Freedom of Information and Protection of Privacy (FOIP) and determine where stepped-up security is required.

Outcome 3: Empowering technology decision-making to support agility, while protecting the enterprise

On January 20, 2015 ALT approved the Federated Technology Governance Model which recognizes that business staff are technology savvy and self-service technology is readily available in the market place, thereby making it easier for City businesses to provision their own technology solutions. Finding the right balance between business agility and corporate controls is needed. To address this shift during this business cycle, IT will be moving to a governance model with a revised business relationship management model. This approach shifts the accountability for business technology decision-making to the departmental level to support business agility, while protecting the enterprise overall.

Outcome 4: Agile IT workforce

To effectively execute the business outcomes noted above, IT's workforce will need to embrace new practices, knowledge, processes, and skills. IT is developing initiatives to support and enable staff making this shift within IT.

IT has been able to effectively implement new technology as part of the Tomorrow's Workplace program which enables staff to work effectively at the location convenient for the business and/or customer. Through early testing of the virtual desktop infrastructure, IT has been able to drive down costs and understand the impact to business and technology practices, policies, licensing and processes practices.

Attachment 3 provides an overview of the performance of IT's services to City business units.

Social, Environmental, Economic (External)
No implications to this report.

FINANCIAL CAPACITY
Information Technology's budget is developed and reported as part of The City's overall financial reporting practices.

Current and Future Operating Budget:
IT's operating budget can be considered essentially flat with no service and budget increases. The 2015-2018 operating budget reflects salary and wage adjustments for contracts that have been settled. Inflationary increases for materials, equipment, supplies, and, contractual and general services have been applied. IT is absorbing $2.790 million in efficiency gains by absorbing the operating costs associated with the implementation of capital initiatives. Further efficiencies anticipated include savings with vendors through contract negotiations and shift

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towards subscription-based software licensing agreements. Cost sharing opportunities have been identified to maximize technology investments though the provisioning of IT services such as data centre hosting to Civic Partners.

Current and Future Capital Budget:
IT's capital budget for 2015-2018 reflects funding infrastructure to run, maintain and grow technology infrastructure and associated licensing for The City to run its business and make service changes that enable citizens and businesses to interact with The City using current technologies. This includes upgrades to corporate-wide business applications that enable "*a well run city*" business decision support. The capital budget also provides growth for enterprise infrastructure and software licensing to ensure business continuity and resiliency that will minimize service interruptions to business critical systems.

RISK ASSESSMENT
IT has been the subject of several recent internal Audits and internal control reviews which have investigated operating procedures, policies and business practices. IT has addressed many audit recommendations and as outlined in Attachment 4, continues this work within existing work programs.

External Audit of Year-End Financial Statement
Every year, the external auditor performs an audit on the Corporation's financial statements which includes assessing processes and controls of the technology systems and the technology environment used to manage The City's finances. For Information Technology, this work is completed via interviews, observing operations, and testing documented procedures against actual practices. This is not intended to be a comprehensive audit of The City's entire technology environment. However, the external auditor may find opportunities for improvement for The City's financial technology systems. IT follows industry best-practices by documenting its services, operational accountabilities and responsibilities.

For the 2014 year-end financial statement audit, no improvement recommendations were received by IT from the external auditor regarding current policies, practices and procedures for The City's financial technology system or technology environment.

Integrated Risk Management
IT works within The Corporate Integrated Risk Management (IRM) program parameters to capture and monitor business and technology risk. Risks have been identified and are reported in IT's Risk Register report as shown in Attachment 5. IT's risk mitigation strategies are incorporated into IT's Action Plan and further outlined in the corporate risk reporting framework.

IT, in partnership with Law/Corporate Security and other City businesses, manages cyber-security risks by setting and monitoring corporate policies. As outlined in the Code of Conduct, all City of Calgary staff must take care to follow the policies and guidelines, and enter into the mindset of safeguarding The City's hardware, software and data assets. A review of the Acceptable Use Policy is underway. Staff communication of the policy changes are planned once the policy changes are approved.

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As outlined in the 2015 City Managers Annual Risk Report to Audit Committee, cyber-security has been and continues to be an area requiring continuous research and education by both IT and Law/ Corporate Security. In order to understand the changing nature of this risk exposure and potential likelihood and impacts to The City technology environment, IT and Law/Corporate Security work together to continually monitor and test The City's cyber-defences. Crisis management plans are in place, should an incident occur.

With the recently approved technology governance model, there is a shift coming for the accountability and responsibility for technology investments. This will require greater collaboration to ensure joint ownership of risk between IT and City business units. The federated governance model, as it is implemented during this business cycle, is envisioned to balance business needs and technology efficiencies. Departments will have to have a greater understanding of the service benefits and the business value created by their technology investments.

As demonstrated by the 2013 flood, City businesses are now fully aware that technology has become fundamental to the efficiency and effectiveness of running their business.   Attachment 6 provides an overview of information about existing business systems and applications. Within the federated governance model, the role of the Corporate Technology Committee is to balance unique business technology functional needs as proposed by portfolios of technology investment while leveraging the use of existing technology. As business technology strategies evolve they will be updated in The City's technology plan.

Traditionally, many City business units have not fully understood the costs and efforts involved with maintaining and sustaining technology to meet operational expectations. As the next business cycle progresses, portfolios of technology investment will be expected to work with IT to develop a greater understanding of the operational risks associated with the use of business technology. Portfolios will be expected to request funding for the lifecycle maintenance and sustainment of existing technologies along with requests to invest in new business technologies.

REASON(S) FOR RECOMMENDATION(S):
Audit Committee has internal control and risk management oversight responsibilities of Information Technology.

ATTACHMENT(S)
1. The Business of IT Information Systems
2. 2014 Technology Trends
3. Performance of Existing Business Systems
4. 2015 Audit Work Plan
5. IT's Risk Register
6. Understanding IT Risks Associated with Systems