

1. Executive Summary

The Municipality of Chatham-Kent Information Technology Strategic Plan (ITSP) was commissioned by Corporate Services to develop the first technology roadmap for the Municipality since amalgamation. The report's structure was deliberately selected to explore a number of critical themes:

1. An "As Is" review of the existing IT infrastructure
2. A "To Be" Target Architecture for technology within the Municipality
3. The "How to", a roadmap to allow the Municipality of Chatham-Kent to get from the "As Is" to the "To Be"

This report presents a five year vision for Information Technology within the Municipality, including areas supported through technology service level agreements with outside or arms length organizations (i.e. CK PUC and CK Energy), which reviews the technological and informational services provided to all business areas of the municipal government as well as both the organization and governance of these services. The overall theme of the ITSP is **Survival through Simplification, Stability and Sustainability**.

MGCG's Approach

The approach taken by MGCG to develop Municipality of Chatham-Kent's IT Strategic Plan was as follows:

1. Review and document Current Situation ('As Is')
2. Identify Requirements based on:
 - a. Business Needs
 - b. Resources (Staff, Funding, Infrastructure)
3. Define Gap between 'As Is' and Requirements
4. Develop Action plan (Roadmap) with priorities clearly stated
5. Assign Timelines and Resources
6. Quantify Financial Implications

The necessary information was compiled by:

- Interviewing identified stakeholders¹ including ITS staff, critical business stakeholders and political representatives to review level of client service:
 - Current concerns and issues
 - General level of satisfaction with Information Technology and the ITS department
 - Priorities for technology within the Municipality – an analysis of the relative importance of Availability, Enablement and Affordability

¹ Over 90 individuals were interviewed from all significant business areas, including every member of the ITS staff and Members of Council.



- Requirements for current technology
- Requirements for future technology
- Reviewing in detail (i) the existing infrastructure and (ii) support for Information Technology Services within the Municipality including:
 - Network and server infrastructure
 - Businesses processes
 - Design Rationale
 - Licensing
 - Backups and recovery
 - Staffing levels and organizational structure
 - Maintenance costs of existing infrastructure
 - Current applications including those used by ITS and the various business areas of the Municipality
 - Comparing the “As Is” with industry standards and best practices, i.e., comparing the technology currently deployed within Chatham-Kent to current and emerging industry trends

Based on the findings, requirements were determined (or formalized²), and categorized as follows:

- Quality of Client Service
- Applications and data to support Chatham-Kent's business goals
- Appropriate infrastructure, technology, operational models, business processes, ITS organizational structure and IT Governance to support and deliver IT within the Municipality

Subsequently, a roadmap was developed indicating what needs to be done and when, again based on business priorities.

Finally, estimated costs and resources were assigned.

This roadmap, complete with activities, timelines, resources and costs, constitutes Chatham-Kent's IT Strategic Plan for the next 5 years.

Current Situation (“As Is”)

As the project progressed, the following overall theme for the IT Strategic Plan developed: “Survival through simplification, stability and sustainability”.

A detailed description of the Municipality's current situation (“As Is”) is shown later in the report. In summary, the strengths and weaknesses, as they relate to IT throughout the Municipality, are shown below.

² Key to this process was the establishment of vision, mission, goals and objectives for IT within Chatham-Kent. These are described later.



Strengths

1. Client Service
 - a. Current services are being delivered in a consistent manner
 - b. Service requests are being carried out in a timely manner
 - c. User problems are being dealt with in a timely manner

2. Applications and Data
 - a. Current applications are being supported
 - b. Current applications enable the Municipality to fulfill its basic business objectives
 - c. Users are generally accepting of the use of technology

3. Infrastructure
 - a. The Infrastructure is supportable
 - b. Members of the ITS Staff are generally well liked by users in the business areas
 - c. The ITS Staff are dedicated to "Keeping the Lights On"
 - d. ITS Staff are technically competent with the "As Is" environment
 - e. ITS Staff are extremely cost-conscious and are advocates for responsible spending
 - f. ITS is skilled at forming partnerships with outside organizations and accessing funding opportunities
 - g. Some corporate IT policies are documented and operational
 - h. Physical Security is in place
 - i. A life-cycle program is in place for some hardware

4. Business Areas
 - a. Services are available
 - b. Some corporate policies are documented and in place
 - c. Users are generally accepting of the use of technology
 - d. Adequate physical security (locks on doors, alarm systems, etc), appears to be in place
 - e. Business specific technological infrastructure operates

Weaknesses/Opportunities

All organizations have weaknesses and opportunities for improvement. It is important to identify and address them as, through that process, the weaknesses are minimized or eliminated.

1. Client Service
 - a. Communication between business units and ITS is weak. Business units often make decisions relating to IT internally and without soliciting input from ITS, and ITS sometimes does not effectively communicate the impact

to the business units of decisions made by ITS³. Technical communications to the users are often complex and not fully comprehended by less technically qualified staff

- b. The web is perceived by users as difficult to navigate and inflexible to modify
 - c. The Help desk process for issue escalation is sometimes inconsistent without a clear mechanism for solution identification and issue resolution
 - d. Within the business areas there appears to be a lack of understanding of the role of ITS
2. Applications and Data
- a. Applications are typically standalone and integration is limited. While there are areas where technology could greatly improve municipal performance, the standalone or fragmented nature of the deployed infrastructure does not allow for integration or a central data repository
 - b. There are many standalone databases satisfying the single needs of specific departments. This generates duplicate instances of the same data introducing errors, duplicate data entry and excessive support requirements
 - c. There is no formal technology roadmap
 - d. The architecture approach of the Municipality to date has been technology-focused rather than service-focused
 - e. Different versions of the same application are in use within different business areas
 - f. The web application is 5 years old and its functionality and contents need upgrading
3. Infrastructure
- a. The current user authentication procedure is complex and does not provide some of the advanced security and features offered by modern directory service environments. Further the current solutions are costly to maintain and not sustainable in the long term
 - b. There are several hundred computers older than maximum acceptable age according to municipal and council approved policy
 - c. Some of the tools that support the infrastructure are outdated and should be upgraded
 - d. The current replacement policy for desktop computers is excessively labour-intensive and the effort necessary to make it work is often greater than the cost of replacement
 - e. The base communications Infrastructure is outdated and cumbersome to support
 - i. Data Network

³ An example is when a recent password synchronization policy was introduced, some users did not understand details of its implementation resulting in delays in logging in and consequent delays in their day to day activities



- ii. Email System
 - iii. Telephone System
 - f. The standards defined for physical IT security are not universally applied across all Municipality sites
 - g. While some policies are in place, a full set of IT policies has not been developed
 - h. The ITS organization, while well managed at the senior level, is lacking in skills and/or experience in middle-management, and is understaffed compared to other similarly sized municipalities, given the infrastructure and applications they must maintain. Further, this group is structured in such a manner that is more reflective of the amalgamation legacy than of the effective delivery of technology and information services
 - i. There are some key gaps in the skill levels of front line IT personnel as they relate to the "To Be" requirements
 - j. There is a perception among non-ITS staff and political representatives that the infrastructure is a "Cadillac" solution. This perception is not correct.
 - k. Different Municipality sites often apply different standards. There is no common 'across-the-board' set of standards
 - l. There is no life-cycle management replacement strategy in place for the telephony systems
- 4. Business Areas
 - a. Lack of understanding of the role of ITS within internal department projects and initiatives
 - b. Preference for stand alone or silo applications to fill an immediate need
 - c. IT policies, such as technology lifecycle of hardware, often lacking or not adhered to
 - d. User skills gaps
 - e. Lack of support for common technological standards
 - f. There is a possibility that CK Energy might develop its own IT support organization (although it will require additional GIS support from ITS). Some of the supported organizations do not adhere to IT corporate standards for technology selection, purchasing or management
- 5. Corporate Governance
 - a. The assignment of strategic direction relating to IT assets and resources, is not clearly defined or formalized
 - b. Communication between the ITS group and business areas is not effective and no one authority source is in place with ownership for the technology roadmap of the Municipality

Comparison with Other Municipalities



There is no clear consistency between different municipalities with respect to technology selection or organizational structures. Many appear to have somewhat fragmented infrastructures that result from amalgamations, and they are faced with similar issues to those of the Municipality of Chatham-Kent.

With respect to future strategic direction, however, a number of common initiatives are underway, although the emphasis varies according to each municipality:

1. Electronic Service Delivery to provide equitable and affordable access by the community to a wide range of services and content. Attributes of this capability include:
 - a. High degree of responsiveness
 - b. Anytime, anywhere, anyhow services
 - c. A high degree of system responsiveness
 - d. Increased use of both web and voice services
 - e. New channels for citizen engagement
 - f. Recognition and adherence to privacy and security requirements

2. Streamlining of Internal Operations
 - a. Industry-standard and current operating infrastructure
 - b. Drive to increase business effectiveness utilizing IT
 - c. Increased network and data security
 - d. Standardized and integrated central applications
 - e. Minimization (with the goal of eventual elimination) of ad-hoc departmental, single purpose databases
 - f. A formal project management and system life-cycle approach to the development and support of new services

3. Reform in the Operational Practices of Municipalities
 - a. The development of practices that improve the physical safety of personnel and create a healthy working environment
 - b. Procedural changes i.e. the critical review of existing procedures that may be being carried out solely because of an outdated legacy requirement
 - c. Increased effectiveness and transparency
 - d. Collaboration with other municipalities or other organizations to share expertise and resources

Municipality of Chatham-Kent's Business Requirements

Vision and Mission Statement for IT within the Municipality

The focus for the "To Be" vision is one of service orientation. The ITS group should be the sole provider of technology and information services across the entire municipal organization but those services must be aligned with business area requirements. The information technology architecture should be reflective of this service orientation.



Vision Statement: Information Technology Services will provide the citizens of the Municipality of Chatham-Kent with the information and communications services, relating to the Municipality, to support them in achieving their goals and to enhance their quality of life.

Mission Statement: To improve the performance of the staff of the Municipality of Chatham-Kent and provide access to information and services to its citizens through the use of appropriate technology.

Goals and Objectives to Meet Business Requirements

1. The current infrastructure is unnecessarily complex and should be simplified to (i) reduce costs and (ii) assist the sustainability of IT operations
2. IT is somewhat fragmented, with silos of technology, multiple databases, stand alone applications and stand alone technology projects. The organization should move to a more integrated approach
3. IT governance within the Municipality should be centralized, and empowered to enforce policy
4. The ITS organization should be restructured to support partnership with business areas
5. IT does not have a formal technology roadmap describing acceptable technology, integration objectives, retirement strategies etc. This document represents the first technology roadmap since amalgamation and should be maintained, administered by an IT Steering Committee, and communicated across the organization
6. The Municipality of Chatham-Kent must review technology options for a consolidated Service-Oriented Architecture with the following key elements
 - a. Common Data Architecture with common standards for database
 - b. Web based systems, particularly those developed in house, to support all business areas
 - c. A municipality wide Enterprise Resource Planning system particularly with respect to the suitability of CMiC or Hansen as an ERP and replacement of tax system, the selection of a replacement or alternatively, the development of an Enterprise Integration Architecture to integrate formerly stand-alone systems
 - d. Common standards for all Geo-Spatial data with an emphasis on GIS as a core technology for the Municipality

Target Technology Architecture

The target architecture for the Municipality of Chatham-Kent should be developed with 2 main objectives:

- It should be service-oriented, i.e., developed and evolved as an architecture that provides a high level of customer service, and be robust, highly available, secure, responsive, integrated, and flexible



- It should be simple, i.e. easy to maintain, easy to grow, easy to use, current and industry-standard

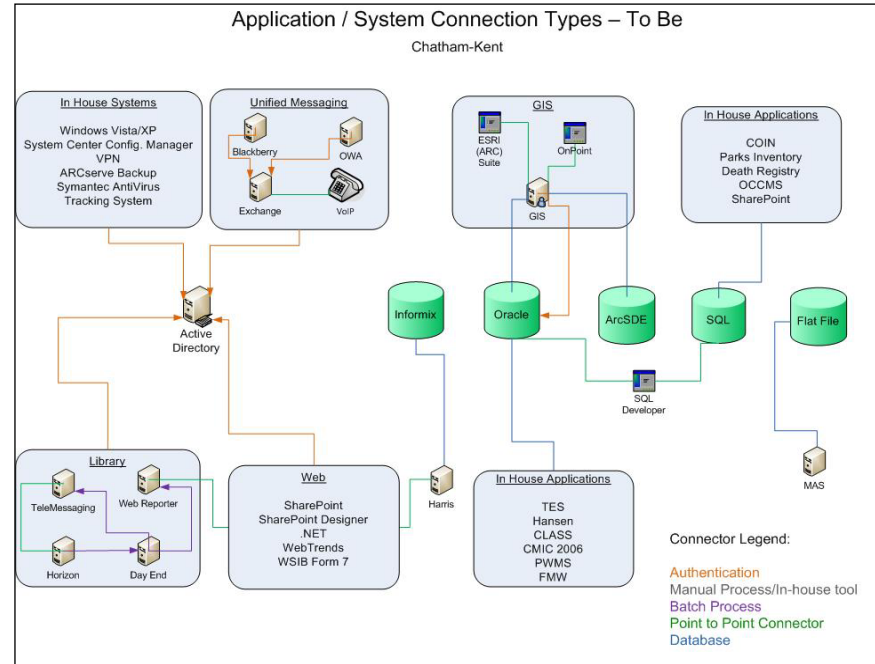
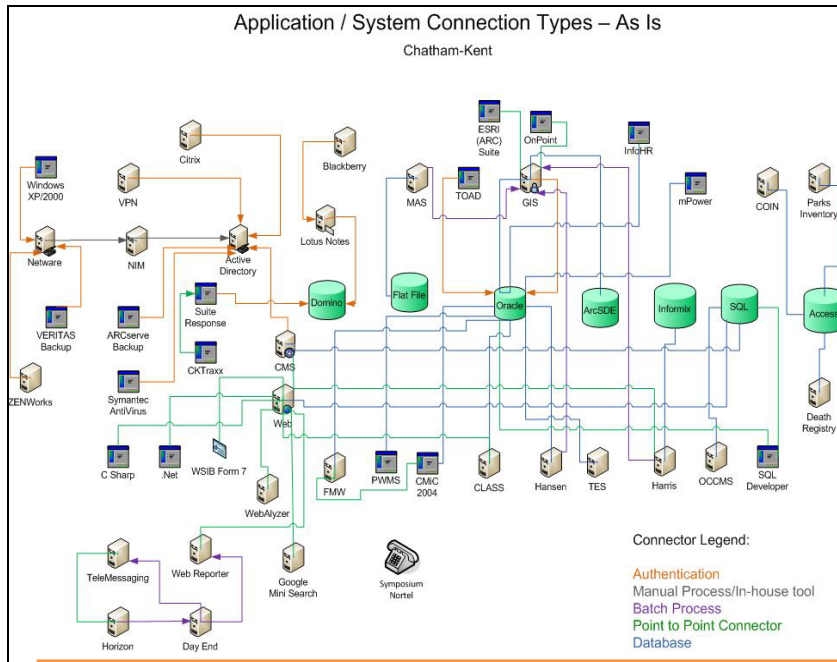
The proposed architecture shown in the main body of this plan incorporates the following:

1. Authentication is simplified
2. Standalone and Isolated Databases are rationalized into a central database
3. Technology is integrated
4. Industry-standard technologies are deployed

The following Figure shows the proposed simplification of the infrastructure.



Figure 1– Migration of Architecture from “As Is” to “To Be”



Action Plan

To realize this vision, a 5-year plan has been developed, comprising 3 tactical cycles, preceded by the implementation of some 'Quick Wins':

Tactical Cycle	Duration	From/To
• Tactical Cycle 1	18 months	Mar 2008 – Aug 2009
• Tactical Cycle 2	18 months	Sept 2009 – Feb 2011
• Tactical Cycle 3	24 months	Mar 2011 – Feb 2013

Note: this is a high level roadmap and is contingent upon development of appropriate work plans as well as allocation of budget and resources

Quick Wins

The following immediate steps will go some way to improving day to day operations within the ITS group and position it well for delivering the contents of the strategic plan:

1. Realign the currently vacant Local Systems Support position as a Network and Security Analyst and fill that role
2. Ensure the Database staff roles have both SQL Server and Oracle skills
3. Work with the Municipality's computer supplier to develop a base image for all new PC orders. This image will be further enhanced as part of Tactical Cycle 1
4. The IT Strategic Plan Steering Committee should be temporarily recast as the acting IT Steering Committee pending the formation of a permanent committee
5. ITS and the acting IT Steering Committee should immediately adopt the technology purchase and technology development standards policies, publish them and review all ongoing projects and initiatives for adherence to those policies
6. Stop all computer rerolls, the practice of issuing new computers to power users and cascading older machines to other users

Tactical Cycle One (Mar'08 – Aug'09)

Tactical Cycle One prepares the base infrastructure to support many of the initiatives required as the Strategic Plan unfolds. It is important to note that, with the exception of the departmental restructuring and the governance initiatives, (which were part of the specific mandate of this plan), all other initiatives relating to Tactical Cycle One have



been recommendations by existing ITS management, or subject to policy by the existing technology life cycle. Implementation of these recommendations are (correctly), recognized by present ITS management as foundation initiatives that will allow the municipality to move forward technologically. This plan confirms and endorses this view.

Tasks

Initially in Tactical Cycle One, effort should be put into place in a number of basic areas:

1. The ITS department will be reorganized:
 - Structure will be based on two functional areas, rather than the current four, reflecting a focus on Information Services and Technology Services
 - Several roles will be modified to align with the restructuring of the department
 - Two new Business Analysts roles will be added to provide business units' technology representation within ITS. These Business Analysts⁴ will have responsibility for GIS and Business Applications

2. An IT Steering Committee will be created to be the owner of the IT Strategic Plan, and the Chair will report to the CAO. It may be that the municipality will choose some mechanism for reporting and or advisory involvement by the office of the Mayor, although this is not a common municipal IT practice

3. Existing computer and network communications infrastructure will be updated. This will:
 - Simplify the authentication infrastructure for the Municipality
 - Update and simplify the email system
 - Refresh desktop technology to provide access to the new infrastructure and tools and ensure adherence to the technology policies already in place in the Municipality
 - Provide enhanced functionality – and therefore user effectiveness through the Office 2007 upgrade
 - Provide training of all users in Office 2007, and the new email system

It is estimated that operational costs of \$140,000.00 per year can be redeployed to the proactive management of the currently underfunded technology life-cycle starting in 2009

4. A streamlined process for managing desktop 'images'⁵ will be introduced

5. The website will be redesigned and a web advisory group created

⁴ The role of the business analysts is further described in the Appendix

⁵ This refers to the standard package of operating and application software that is installed on the computers of all Chatham-Kent users

6. Standards for network infrastructure will be developed and a redesigned data network across the entire municipality will be created
7. A disaster recovery simulation will be carried out to understand the data and operational vulnerabilities. (This will take place after the technology refresh has been completed)

Financial Implications

There are limited new costs for ITS in the plan for 2008, as most of the planned projects are covered by existing lifecycle or reserve dollars. New costs will however be incurred in 2009 to fulfill the addition of two business analyst roles in the ITS reorganization⁶.

Project costs are estimated as follows:

Project	Cost	Comments
ITS Re-Organization	Realignments: TBD New Roles: \$175,895	Addition of 2 Business Analyst roles, to be considered in 2009
Novell/Lotus Retirement	\$270,000	Existing ITS reserve funds. Savings will be \$140,000 per year to be directed to lifecycle
Technology Refresh	\$1,309,000	Existing reserve funds. As of this project, rerolls will cease and imaging will be simplified
SharePoint/Web Redesign	\$300,000	Existing ITS reserve dollars to launch basic SharePoint infrastructure and strike web redesign committee
Network technology standards developed and network redesign	\$127,000	Consulting services to establish appropriate standards for network technology and network upgrade equipment. (Budget will be requested for 2009)
Disaster Recovery Simulation	\$20,000	Consulting Services and internal resources (2009 Budget)
Other known business area projects	TBD	<ul style="list-style-type: none"> • PSAB (Asset Management) • CKTraax • Public Works Work Management • Immigration Portal • Project Management Office Support Software • Cultural Mapping

Tactical Cycle Two (Sept'09 – Feb'11)

Tasks

Tactical Cycle Two will continue the process of infrastructure improvement and will ensure that efficiency and survivability are key elements of the systems in place at the Municipality. The projects include:

1. Infrastructure upgrades
2. Development of a network security architecture
3. Expansion of Web to include an Intranet for knowledge and document management
4. Development of a business systems architecture or replacement technology, based around (i) Financial System (CMiC) and (ii) the Tax System (MAS)
5. Development of an IT Disaster Recovery Plan

Financial Implications

The 2009 and 2010 budgets will require new dollars to fund infrastructure changes in the latter part of Tactical Cycle #2, namely:

Project	Cost	Comments
Infrastructure Hardening - planning	Planning: \$25,000 Implementation: \$150,000	Consulting funds to specify project for switch replacement, server consolidation and backup rationalization. Initial Blade systems and SAN purchase, followed by Life Cycle dollars for ongoing growth
Development and deployment of Network Security Architecture	\$50,000	External consulting supplementing internal resources
Development and Testing of an IT Disaster Recovery Plan	\$150,000	External Consultants
Network Security Audit	\$30,000	External Audit
Expansion of SharePoint Portal for corporate Intranet	\$50,000	Mostly internal resources with some additional hardware and consulting services
Review of CMiC, Hansen and Tax Applications	\$100,000	Majority internal resources, supported by vendors and

		consultants
Replacement of CMiC or instantiation of EAI and replacement of tax application	Price Range: \$500K - \$2M	Cost variable depending on solution selected. Minimal CMiC expansion, or EAI deployment would be low end, total CMiC replacement would be high end

Tactical Cycle Three (Mar'11 – Feb'13)

Tasks

The third tactical cycle, beginning in 2011, will require some more significant projects that cannot be undertaken until the base infrastructure is upgraded (2008 – 2010). The major projects for Tactical Cycle Three include:

1. New phone system. The current phone systems are obsolete and require replacement. Upgrades are not an advisable option as the parts for the phone systems in place are no longer manufactured and can only be procured on the "Grey Market". A new, municipal wide phone system, based on Voice over Internet Protocol technology, should be implemented within the life cycle of this strategic plan
2. Critical to migrating the current infrastructure to a service-oriented architecture is the development of a rational data architecture based on Microsoft and Oracle standards which are currently in place and need to be enforced. This project will also lead to the development of an integrated data warehouse comprising data systems, GIS, corporate applications and the web
3. The development of a corporate knowledge portal on the web which leverages both the data warehouse and documented business processes

Financial Implications

The costs for the new phone system are significant and represent the largest ticket item that can be currently planned with any certainty. Operational costs can be recovered by the simplification of the phone system but the choice of not replacing it is not an option.

Project	Cost	Comments
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New phone system	\$2.6 to \$3.9M	Existing phone system is past end of life and kept alive through concerted effort and spare parts purchase on grey market. Estimate based on \$2000-\$3000 per telset including associated infrastructure and possible re-wiring
Implementation of Data Architecture and Data Warehouse	Planning: \$85K, Cost: \$1,500,000	This major corporate initiative will require internal resources and business area supported by consultants. Business case will be contingent on quality of data and ease of migration and cleansing
Corporate Knowledge Portal	\$50,000	Majority internal resources supported by consulting
Document Management	\$100,000	Based on current technology standards and costs for SharePoint extensions

Summary

The work that needs to be done within the IT Strategic plan is substantial, but its purpose is simple – “Survival through simplification, stability and sustainability”.

The IT infrastructure should be migrated from a “keep it working approach” to a “how can we be more efficient, improve the effectiveness of our staff, and enhance the services we provide to our citizens” (as described in the initiatives being developed by other municipalities) approach. The three tactical cycles address the following major areas:

- Improving service to staff and the citizen of the Municipality of Chatham-Kent
- Integrating applications and rationalizing data
- Creating a network, hardware and software infrastructure that is integrated, robust, secure, easy to maintain and upgrade, current, and feature-rich
- Through formal, and regular IT governance, maintaining an organization structure that is aligned with the Municipality's business goals, is skilled in the deployment of the installed technology, operates to defined policies and standards and has formal communications channels with the business areas throughout the organization

Initial funding requirements for the plan are modest and the Year One proposals should be adopted immediately. With the formation of the IT Steering Committee, the roadmap will have an owner who is empowered to ensure its implementation.



In summary the total known investment over the 5 year strategic plan is estimated at \$7.6M to \$10.4M.

The authors of the report will review the plan annually with the IT Steering Committee. This body will also be responsible for ensuring that the plan becomes a living document, i.e., is reviewed regularly and is updated to reflect changes in the Municipality of Chatham-Kent's business and operating environment.

This plan affects all business units and has a considerable impact across the entire Municipality, with particular emphasis on ITS. However, the goals of the plan are achievable, and necessary. The timelines outlined in the initial roadmap are aggressive and are contingent on budgets, staffing and the completion of a detailed work plan. Council is recommended to adopt it and, through the IT Steering Committee, empower all municipal staff to commit to it, and deliver on it.