R E P O R T

IT Strategy
Final Report

June 2017

Prior & Prior
Associates Ltd.

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Executive Summary

Current State

The Town's mission states *"public service excellence"* as its goal.

Technology is central to delivering efficient and effective public services. Those not directly involved might be surprised at the extent to which technologies are involved in powering municipal services ranging from traffic management and fire dispatch, to permitting and the delivery of safe drinking water.

Public service excellence in 2017 means using technology to support service delivery, having fully digitized processes, using data based insights to inform service optimization, and delivering simple and easy to use services to customers, that are available online, 24/7, on any device.

While technology underpins many of the services offered by the Town today, in many cases that technology is dated and inflexible. As a result, the Town has fallen behind other municipalities in its ability to deliver seamless online services.

Town Council and staff have recognized this gap and in the last two years have made significant investments in technology with a major program of business solutions renewal. This is a real positive step forward, but it is important that this progress be sustained.

Strategic Vision

Looking to the future this Strategy introduces a 10-year vision for technology that reflects the Town's vision for future service delivery:

> "A leading smart community transforming
> municipal services and citizen engagement
> through innovative use of technology."

This Strategy sets out recommendations for the first five years: for the 10-year vision from 2017 - 2022. A second IT Strategy which will need to be developed in 2021 will address 2022 - 2027.

The underlying theme of this first Strategy is that the organization must be patient, disciplined and focused if it is to meet its vision for IT service delivery. The Strategy presents a logical order for implementation of technology solutions that will deliver effective outcomes and create a technology environment that is carefully planned and built to be sustainable for the future. The Strategy recognizes that there is limited financial and staffing capacity to deliver technology improvements, and limited corporate capacity to absorb change - thus the Town must carefully select where it invests its effort.

The Strategy recommends three main phases of work to provide a framework to establish the required focus:

1. Building Technology Foundations (2017 - 2020)
2. Evolving systems and processes to deliver service excellence (2019 - ongoing)
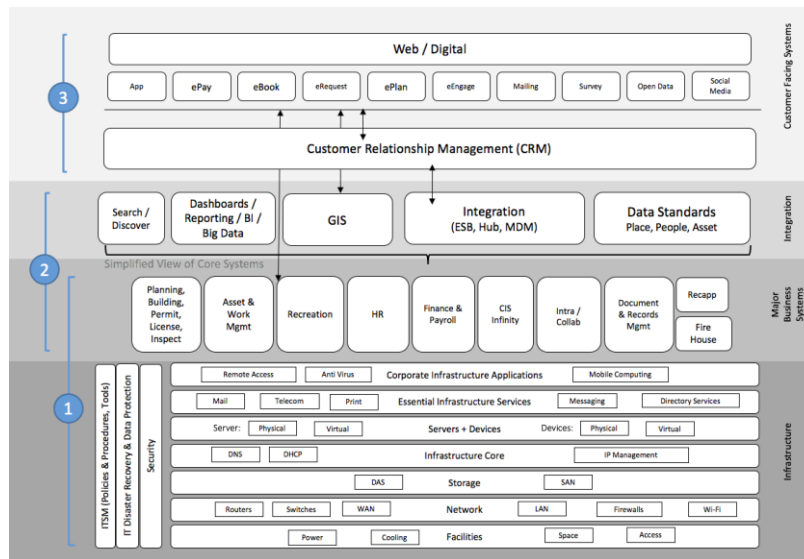3. Becoming a digital, smart and innovative Town (2020 - ongoing)

Figure 1: Municipal Technology Architecture

These phases are based on the Municipal Technology Architecture (MTA), which has been used to both assess the Town's current environment (see colour coded chart on page 11), and underpin the Town's IT Strategy. The MTA (discussed further in section 2.1 on page 9) presents a single view of the complete technology environment, and encapsulates several core concepts chief of which is the need to build upon solid foundations – suggesting the need to build upwards layer by layer from infrastructure, to business solutions, to integration and then customer facing services.

To use a baseball analogy, the Town is currently on first. It will have to round 2nd and 3rd before reaching home (i.e. realizing the vision of fully digitized, seamless, online services). Skipping bases is simply not an option.

Strategic Areas of Focus

So, what work is to be done? Strategic areas of focus for the Strategy include:

- The implementation and evolution of several large, contemporary business solution platforms to build the digitized process foundations for the future of the Town. Key projects include:

    o Enterprise Resource Planning (ERP) for financial, Human Resources (HR) and business planning processes

    o Planning and Regulatory Management (RPM) system for planning, permitting, licensing, bylaw and other regulatory business processes

    o Maximo for work management processes, and the development of an integrated Asset Management solutions architecture

    o Customer Relationship Management (CRM) system for customer request processing and case management

    o Enterprise Content Management (ECM) for content, document, records management requirements

- The rollout of mobile computing to field staff, connected to back office business solution platforms

- The development of a cloud strategy and adoption of cloud computing

- Implementation of Improved collaboration tools (online meetings, new telephony, instant messaging, document sharing and collaboration, new devices and updated Virtual Private Network (VPN)) to support improved collaboration and flexible working

- The development and implementation of a corporate Geographic Information System (GIS) strategy

- The development of a corporate digital strategy and the subsequent implementation of a range of online services, including payments and billing, service requests, online chat, online permits and licensing, and online forms

- Pursuit of open government initiatives, including an open data program

- Improved citizen engagement through digital channels

- Pursuit of several smart city projects yet to be defined

The delivery of these initiatives will be supported by a range of IT governance and service delivery improvements, alongside a program to increase the overall tech-savviness of the leadership group, and change-readiness of the whole corporation.

What will it take to be successful?

Building the IT Strategy is straightforward, implementation will be the challenge. What will it take for the Town to be successful?

Key to the Town's success will be buy-in, commitment and support for the Strategy and the phased approach that it presents. Support at every level in the organization – Council, Executive Leadership Team (ELT) and the Director group – will be critical. New and exciting technology opportunities will continually present themselves, but chasing the new and flashy in this case will distract from the main goal. The Town must keep its focus and discipline.

Beyond focus, sustained investment in technology over the next five years will be required. The Strategy envisions the implementation of a range of significant new technologies and major business solutions platforms, each of which require major upfront capital investments, as well as ongoing funding and resourcing from both the business and IT side.

As these new technology and major business solutions are implemented, there will be a need to increase staffing resources in the IT Division. Internal staffing resources should be augmented as part of a hybrid IT service delivery model that draws more on vendors, contractors, existing vendor-of-record arrangements and the private sector to deliver IT services.

The Imperative

Although we have focused on the customer service aspect, the Town (like all municipalities) faces major challenges in meeting public expectations while balancing service delivery costs. The pressure to do more with less is a constant in local government.

The Strategy positions technology as being central to the Town's ability to scale services as it grows, to improve staff efficiency and productivity, to better understand and optimize service

delivery, and to tackle major challenges that face the community such as asset management and traffic management.

The projects recommended in this Strategy over the course of the next five years should establish the foundations for *modern and effective public service excellence* for decades to come.

1. Introduction & Background

1.1 The Importance of Technology for Municipalities

Technology is increasingly central to the Town's ability to deliver services. Services as diverse as collecting taxes, dispatching fire trucks, managing traffic flows, handling customer enquiries, and managing recreation program registration all rely on technology to operate effectively and safely.

While email and smartphones keep every part of the organization connected and communicating, it is the back-office systems that allow managers and staff to track permit and planning applications, manage customer requests, or monitor budgets. These are the tools that will enable the Town to maximize its operational efficiency.

In the future, technology will only continue to grow in importance. More customers will expect to use their computers and smartphones to make an inquiry, report a problem or apply for permissions. Increasingly sensors will be used to monitor critical infrastructure throughout the Town and notify staff where problems are anticipated, or have occurred.

1.2 The Importance of IT Strategy

Given the importance of technology and its role in delivering Town services, and particularly given the many competing demands of the municipal setting, an IT Strategy is important. Crucially it allows the Town to determine its strategic priorities and identify the key initiatives and activities that will support the Town's business goals and objectives.

The Strategy should address questions that are fundamental to the Town's future success:

- Are we doing the right things with technology?
- Are we making the right technology investments?
- Is our Information Technology environment properly managed, maintained, secured, and able to support the clients?
- Is it cost effective?
- What are our future business needs?
- Is our technology environment equipped to meet current and future business needs?

1.3 The Approach to Developing this Strategy

Prior & Prior Associates, an expert in municipal technology strategy was engaged in early 2017 to assist the town in the development of this IT Strategy. The Strategy was developed in two phases.

The first phase focused on conducting a current state assessment and setting the future directions. The assessment was informed by a range of inputs including: a detailed background document review, interviews with the IT management team, workshops with IT staff, a corporate-wide staff survey regarding IT services and needs, meetings and roundtable sessions with representatives from all departments, one-on-one meetings with Executive Leadership Team members. One on one sessions were also held with members of Council. Following a series of working sessions with the project sponsors (the Chief Information Officer (CIO) and Director of Strategic initiatives) and sessions with the IT Management Team, a "Findings and Future Directions" report was prepared, circulated and reviewed with all key stakeholders.

In the second phase the consulting team worked with ELT, Directors, the IT Management team, the IT Steering Committee (ITSC) to develop the vision for the Strategy, rationalize strategic directions, and identify priorities timelines and the organizational requirements needed to support the Strategy. This final document therefore represents the strategic vision and priorities of the Town as a whole – a true corporate technology plan.

2. Key Findings

In developing this Strategy, Prior & Prior Associates first conducted a current state assessment of the Town's Information Technology landscape. The consulting team reviewed the Town's current Technology environment and its IT Management practices. This assessment, summarized over the next few pages, forms the basis for the recommendations outlined in this Strategy.

2.1 Technology Environment Review

Prior & Prior's technology environment review involves assessing the Town's existing technology system against our standardized municipal technology architecture.

INTRODUCTION TO THE MUNICIPAL TECHNOLOGY ARCHITECTURE

Prior & Prior's standardized municipal technology architecture is shown in Figure 2 below.
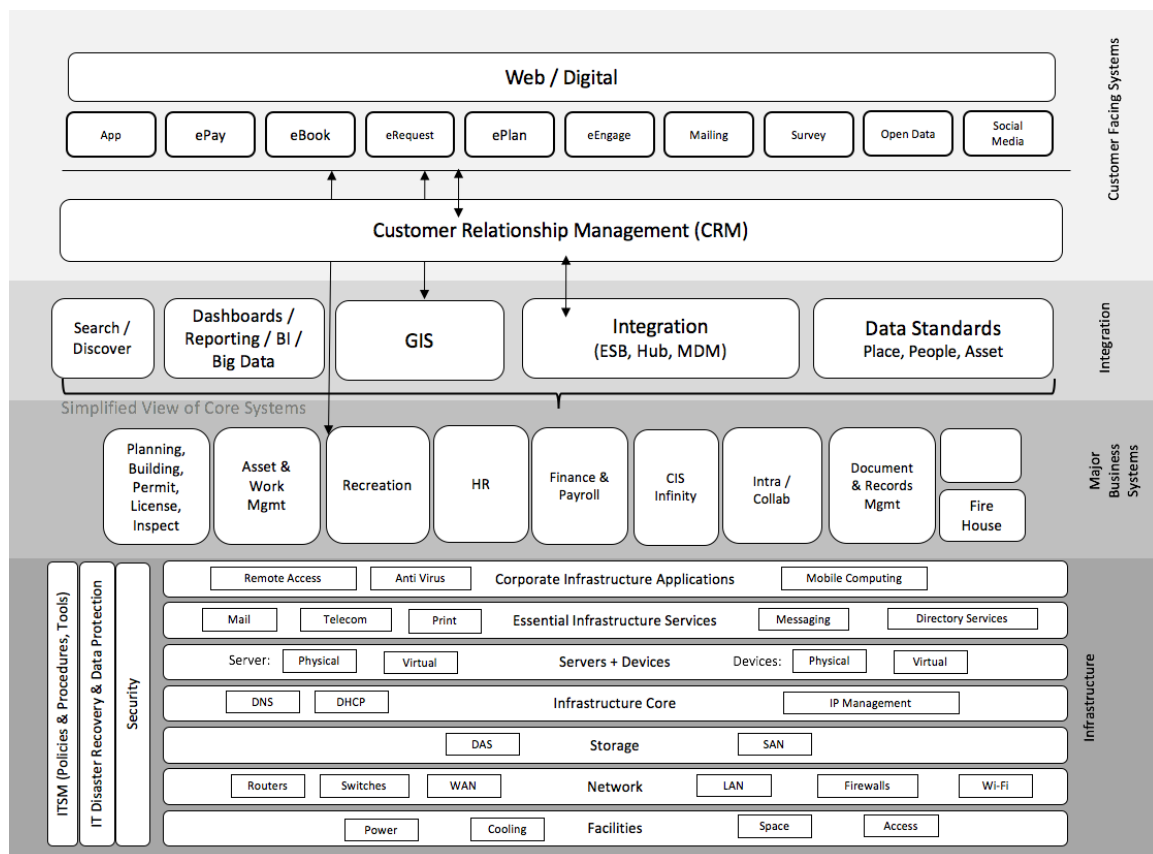
Figure 2: Municipal Technology Architecture

This is a generalized and conceptual **municipal** IT model that has been developed and refined by Prior & Prior in consultation with many municipalities over the past 10 years. The MTA introduces several key concepts that are important for the Town at this time, including that:

- There are 4 main technology layers (labeled in Figure 1 as: infrastructure, business systems, integration, customer facing). Each requires discrete IT skill sets to be managed effectively. For instance, while technology infrastructure management is deeply

technical, project management business systems projects require project experience, change management and soft skills. An IT organization needs a breadth of skills, across various domains to effectively manage the complete environment.

- The Infrastructure layer is the foundation for the entire technology environment. Infrastructure must be robust and reliable because it provides the basis for all other layers. Unreliable infrastructure undermines all the technology that sits above it.
- Appropriate policies, security, data protection and disaster recovery provisions should be in place. Ideally, the IT team will be provided with the tools needed to help manage the environment. These include a helpdesk request tracking system, systems management solutions, and automation tools (e.g. remote support, patch management, mobile device management) to simplify IT management tasks, increase IT staff productivity and enable employee self-service (e.g. password resets)
- A municipality should limit the number of corporate business system platforms it runs to minimise process and information silos. These business systems provide the foundations for automated and streamlined business processes. They will gather data to drive analytics capabilities and underpin the effective delivery of online services.
- Business systems should be integrated allowing for data to be automatically passed between systems (using integration technologies), thus reducing data duplication and errors, and ensuring auditability.
- The IT architecture should build from the bottom up – Infrastructure first, then business systems and so on.

These are some of the basic tenets that underpin a well-designed technology environment. The MTA corroborates and reaffirms the IT Division's own work in the architecture domain, which has been steering decision making recently.

MUNICIPAL TECHNOLOGY ARCHITECTURE ASSESSMENT

Figure 3 (on page 11) provides the results of the assessment and color codes the MTA to illustrate the results. A description of the results is outlined below.

Infrastructure Layer
Many of the infrastructure domains are rated green, which is positive and indicates a generally well managed technical environment.

Key risks are flagged in IT security, Business Continuity and Disaster Recovery – all of which will require dedicated attention and resources

Key areas for future work include the following:

- Establishing a storage management strategy in concert with the ECM project to ensure that a data lifecycle plan can be implemented, with long term archiving and record retention to minimize storage costs
- Performing a data classification assessment to identify the current state of both structured and unstructured data (this will help define technology needs)
- Improvements to the Town's device (tablet, laptop, Personal Computer (PC), smartphone) provisioning and management strategy to broaden and modernize the offerings
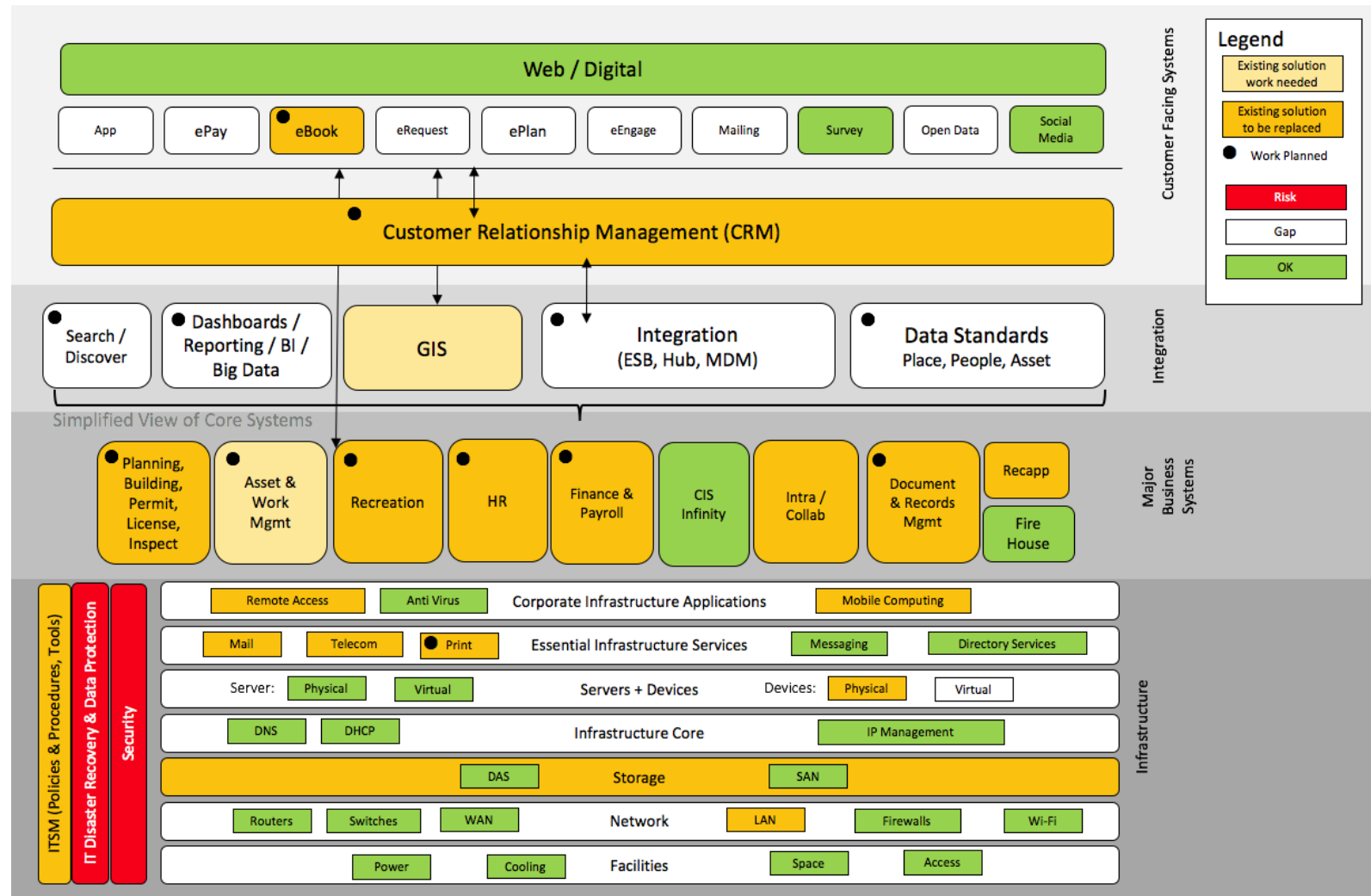
Figure 3: Municipal IT Architecture Assessment Results

- A print strategy is currently in development to rationalize and reduce overall printing costs
- The Town's dated telephony systems must be replaced to support Customer service initiatives and to facilitate improved collaboration
- The Town's email system must be upgraded in due course with consideration given to whether a move to cloud based Office 365 is appropriate
- A replacement VPN solution, purchased in 2015, must now be implemented
- An effective mobile computing strategy must be defined to support key mobile initiatives in PRM and Maximo areas
- Continued work in the HEAT system (IT helpdesk and inventory management software) to implement improved service management practices is required
- Documentation and standardization of IT service management processes is required and planned
- A full review and update of the corporate policy framework and associated policies is necessary
- The Town requires a more formalized cyber security strategy and resourcing plan
- The Town lacks a formal business continuity and disaster recovery plan, which must be addressed to determine effective technology provisioning

Major Business Systems Layer

The assessment clearly illustrates the currently challenging situation in the Major Business Systems layer, with almost all key platforms in need of replacement or significant upgrade (most of which are projects that are in progress or for which planning is underway).

- The Planning, Building, Permitting and Licensing area is being tackled by the PRM project
- Work on Asset and Work Management is currently underway with the Maximo Optimization project – a broader strategy around Asset Management systems and the replacement of Recapp is required
- Recreation is being addressed through the replacement of CLASS with ActiveNet
- HR and Finance are covered by the ERP project
- Document and Records Management will be addressed by the ECM work program currently being led by Clerks

A corporate Intranet replacement is also required, and the future strategy in this area should be addressed as part of the ECM strategy project.

Integration Layer

The integration layer has not been a major area of focus for the Town to date as indicated by the gaps in the MTA assessment.

Some work in this area is already underway: several new proof-of-concept initiatives are planned, specifically around integration, and data analytics. Integration between the core business systems platforms will be a key deliverable of new business systems projects – and implementing an integration toolkit (FME) will assist the Town in implementing the integrations efficiently and effectively.

GIS has been correctly identified by the Chief Administrative Officer (CAO) as an area requiring attention. The GIS program needs to be more clearly defined, governance and leadership must

be established and a GIS strategy developed. With some refreshment, the underlying GIS technology is suitable.

Customer Facing Layer

The Town has recently launched a new, responsive website. However, the range of available online services is significantly less than that of comparable municipalities – again highlighted by the gaps in the MTA. The current CRM system is reaching end of life and must be replaced.

2.2 Strengths, Weaknesses and Threats

The following provides a summary of the Strengths, Weaknesses and Threats identified through the review.

Strengths

- The CIO was building strong credibility and was addressing the appropriate areas of focus
- ELT (and Council to a lesser degree) demonstrate a good understanding of the current situation and are backing up that understanding with significant investment
- The Town is investing significantly in a major application renewal program (funded and resourced) to address historical technical deficit – e.g. Website, ERP, PRM, Maximo, CRM, ECM
- ITSC is effectively leading capital budget priority setting and some strategic decision-making around technology
- The introduction of the IT Project Management Office (IT PMO), improved project management processes and skill sets, improved IT contract management and procurement practices, are best practices that appear to be fostering better positioning (and improved future outcomes) for the initiatives that the Town undertakes
- The Vendor of Record (VOR) model for supplying IT resources is working well, adding capacity and expertise to key projects, and is being used to support Architecture and Planning activities, areas in which the Town has limited internal capacity
- Management and staff are generally satisfied with the IT service
- IT service quality and engagement is seen to have significantly improved in recent years.
- There is evidence of progressive adoption of appropriate IT best practices (e.g. Information Technology Infrastructure Library (ITIL), Project Management Institute (PMI)) within the IT team
- Most core systems (network, devices, email) appear to be functioning satisfactorily (though there are some complaints of dated hardware)

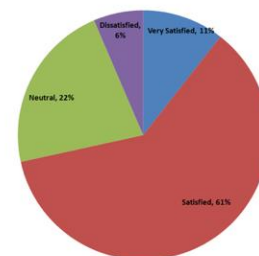72% of respondents are "satisfied" or "very satisfied" overall with IT

Figure 4: Results from staff survey

78% of respondents said that they were "satisfied" or "very satisfied" with the reliability of the technology that they use.
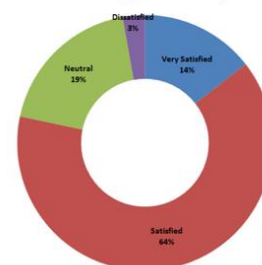
Figure 5: Results from staff survey

Weaknesses

- Staff have better technology at home than they do at work. The Town needs to modernize its approach to devices, collaboration capabilities, telephony and unified communications
- Although ITSC is a useful forum for Senior level communications, a lack of ongoing IT communications at the staff level causes unnecessary frustration with staff who aren't aware of initiatives and plans to address their pain points.
- Over the last decade, the IT Management Team has experienced significant change. Continuity should be a priority moving forward.
- There is a significant training gap in the organization and no leadership or resourcing around technology training (beyond the basic IT training program which is coordinated by HR)

64% of Supervisors and 46% of Managers feel they are not adequately trained.

Figure 6: Results from staff survey

- The technology infrastructure (TI and Client Services) domain needs attention. A more defined process for effectively identifying business requirements, selecting and implementing supporting technology is required. Additional project delivery support is required from the IT PMO to support the delivery of infrastructure projects according to the standard project management methodology
- IT service hours don't formally match the support needs of all parts of the organization (extended hours – before 8.30 and after 4.30; plus, formalized support for evenings and weekends).
- There is a lack of key internal IT resources in areas which will be ongoing requirements. These roles are currently being fulfilled by VOR resources (e.g. Architect, Integration)
- IT skills need to be upgraded to deal with rapidly changing technology - e.g. cloud, mobility, new device types
- Historically, asset, licensing and solutions lifecycle management practices have been lacking, and require improvement
- IT processes (and documentation) require further formalization
- Concern that Departmental applications are sidelined due to the current focus on core platforms
- The Town lags comparable municipalities in delivery of services online

Threats

- CIO leadership has been a strength, but continuity in IT leadership is a key problem at the Town. The Town must urgently recruit, and then work to retain for the long term, a new CIO to accept and lead the implementation of this strategy
- The lack of business unit Subject Matter Experts (SME's) available to dedicate time to projects results in project delays on some of the major projects (e.g. ERP)
- Although suitable for the current resource crunch, the ongoing sustainability of the VOR model will be problematic in the long-term.
- Council and Management may be underestimating the complexity, size and ongoing commitment associated with new business process platforms (e.g. ERP, PRM, Maximo). Organizationally there is a need to recognize that the implementation of business systems platforms is a continuing process. Platforms require permanent, ongoing

programs of improvement and evolution. Digitization of processes mean that process change is typically implemented through system change.

- The absence of a current change management program could undermine major projects
- The ability to transition major projects (which are supported by the VOR) to a sustainable, ongoing operations mode is challenged due to resourcing limitations in IT – this has the potential to undermine the Town's significant investments in new systems
- The Town has not adopted a comprehensive IT risk management strategy, creating exposure for the Town in some areas
    o The Town lacks an appropriate security program, policy framework and the resources needed to maintain a security program
    o The Town lacks business continuity and disaster recovery readiness
    o The Town lacks the resources needed to effectively handle asset, contract and license management activities
- The transition to a more mobile-user based model for certain staff such as buiding inspectors and public works operations staff, which effectively introduces more than a hundred inexperienced users to the technology environment, will put significant strain on the support resources. It is expected that additional IT support resources will be required.

3. A Vision for the Future

3.1 The Town's Vision for Technology

Looking at the findings, evidently the Town has much work to do to address its historic technical deficit. The Town's leadership team acknowledges this as the top priority – and work has begun on it.

Nonetheless, the Town's leadership team is forward thinking. It has set a vision for the future; a stretch goal that will serve as a north star for where the Town is headed and which can guide the planning and design of new solutions.

The **10-year vision** for technology encapsulates these longer-term aspirations for the Town and aims to position the Town as:

> A leading smart community transforming municipal services and citizen engagement through innovative use of technology.

This Strategy addresses the first five-year term (2017 – 2022). A subsequent IT Strategy to be prepared in 2021 should establish the next five-year plan for the period (2022 – 2027).

3.2 Technology's Role in Municipal Service Delivery

The Town's mission states that: *"The Town of Richmond Hill Council and staff are committed to providing exceptional public service to our community."* Which begs the question: What does exceptional public service look like in 2017?

For the citizens of Richmond Hill, interacting with the Town should be no less simple and straightforward than dealing with their bank or their airline. And that means interacting online. Access to services and information should be available online and on any device, anywhere and at any time.

Currently people can bank online 24 hours a day or purchase products from anywhere in the world using their smartphones, but they must line up in person at a Town building to obtain a permit, or apply for a license.

Simply put, technology is central to delivering the level of customer service and the modes of community engagement that today's customers have come to expect.

The examples below illustrate scenarios implemented by other jurisdictions which demonstrate the potential of technology-enabled services designed around customer needs.

Darlene has just moved into a new home in the Town. She calls 311 to enquire about setting up her tax payments via direct deposit. The customer service agent directs Darlene to the sign up available on the Town's website, and asks "Is there anything else I can help you with?" Darlene proceeds to book her youngest child Rachel into swimming lessons, find out where the nearest splash pad is, and signs up to the windrow removal program all in the one call with the Town.

While out on a summer evening walk, Peter notices a new development approval sign on a vacant lot near his house. He pulls out his smartphone and scans the QR code on the sign. This opens a Town website that shows the details of the planning application, its status and planned timelines, drawings and renderings. The website allows Peter to setup alerts to be notified of future activity on this planning application, submit his comments on the proposed development online, and review comments that his neighbors have submitted. He also notices that the Town will be holding an online town hall meeting / videoconference to talk about the plans next Tuesday evening and he adds it to his calendar. As he continues his walk he remembers that his wife asked him to book a community gym for their daughters 8th birthday party. He reviews the options on the Town's website, checks their availability and reserves the gym all on his smartphone.

Ahmed, a hockey coach, wants to book ice for early practices for his new minor peewee team. He goes online on the Town's website and checks availability of ice at all the Town's arenas for available times. He finds what he's looking for and books a slot on Sunday nights for the next 6 weeks

Kourtney, a developer and home renovator, is planning a renovation on an older property in the Town. She requires a building permit to proceed. Kourtney heads to the Town's website where she can complete her application for the permit, attach her electronic drawings and make her payment. The building team receives the application, reviews the plans, identifies some required changes, and mark up the plans electronically with required changes. Kourtney is notified via email, makes the required changes to the plans, and resubmits the revised drawings online. Permission is granted for the building work to commence. In due course Dave, Kourtney's contractor, completes the plumbing and electrical work and goes online to book an inspection time. The inspector visits the site, and uses her handheld device to record the results of the inspection. Dave knows when he is targeting to complete the build so the inspector books a future inspection on her device for the final inspection.

each interaction the Town will learn more about each individual customer. Interactions should leave a lasting impression of the Town's efficiency and effectiveness.

Of course, customers will continue to have the option to carry out transactions via the phone or in person, but the staff they deal with will use the same tools offered online to complete the transaction on the customer's behalf.

Customer-centric, technology-enabled processes will be key to realizing the Town's vision of delivering exceptional public services.

3.3 Service Excellence relies on Process Digitization

However, enabling the types of integrated service offerings experienced by Darlene, Peter, Ahmed and Kourtney relies on *process digitization*.

Digitization means that all key Town processes have been digitized (computerized) and are now managed electronically – not in a spreadsheet or word document, but in a robust, formal, workflow-based, case management **business solution platform**.

All processing, workflows, notifications, process checks, file reviews and validations can be carried out electronically. This means these steps can happen anywhere (in the office, in the

field, in a coffee shop, at home). Offline steps (manual interventions) are eliminated so that the status of any given process is clearly visible to all staff who need access to the information throughout the organization. Business processes are streamlined and documented allowing the systems to manage the process, including escalating an item to senior staff when exceptions are encountered or when performance falls below defined levels of service.

Digitization of processes allows the Town to track data about each step in the process. It produces performance data for both internal and public consumption and creates full transparency about the effectiveness of each process. It also provides the raw data that will inform future decision-making. Big Data and Business Intelligence initiatives will help Town staff to analyse and better understand its services: Which neighbourhoods are playing soccer more than hockey? Where is demand rising and falling? Where are accidents happening? Where are roads congested? How is the quality of the Town's roads changing over time?

This level of transparency allows the organization to set service levels, hold staff accountable, identify opportunities for improvement, and provides feedback on the success of process changes. Digitization also makes it simpler to add new services and facilitate new or changed processes, because changes can be introduced quickly through changes to the business systems.

To do this the Town uses its **business solution platforms**. The Town's business solutions platforms should be designed and built according to an agreed architecture in an interconnected way to simplify services and automate business processes.

The **business solutions platforms** are the central mechanism that drives the operation of the organization, which in turn facilitates collaboration across the organization.

Business solutions are common and shared across departments so that tasks initiated by one department can be allocated to another. For example, a change in a permit application status can trigger a review in the assessment department, or for a transaction to be processed by finance.
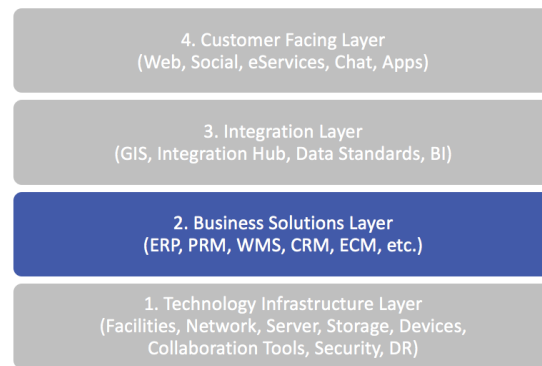
Figure 7: Business Solutions Layer is Critical

3.4 Richmond Hill's Readiness

Linking the findings presented in section 2 to the vision for the future described in the sections above, it is in the Business Solutions Layer (e.g. ERP, PRM, Maximo) that Richmond Hill has the most significant technical deficit and major work required.

Simply put, the Town cannot achieve its mission of delivering *exceptional public services* in the modern era **until** it addresses the digitization of its core processes. This requires strong commitment and partnership from the business and IT to deliver this work. Once this is achieved, the Town's focus can shift to delivering exceptional, technology-enabled services of the type envisaged in section 3.2.

4. Strategic Directions

4.1 Strategic Directions and Goals

While the previous section described the vision for the Strategy, this section introduces in more detail **what** the Town needs to do.

Five new strategic directions are introduced with this Strategy. The Town will

1. Establish contemporary technology infrastructure
2. Establish contemporary business solution platforms
3. Deliver IT service excellence
4. Build a tech savvy, change ready corporate culture
5. Get Smart and Go Digital

Each of the strategic directions is supported by a set of goals. A summary work plan can be found in Section 7 and a more detailed work plan and timeline for the implementation of the recommended actions has been provided separately to the Town.

Strategic Direction 1: Provide Contemporary Technology Infrastructure

Technology is constantly evolving, though the pace of change has notably accelerated in recent years. Due to under-investment over the years, some of the Town's technology infrastructure has fallen behind technologies that staff use daily in their personal lives – for instance their personal devices are better than those offered at work. The communications tools and technologies don't reflect modern approaches. Tools that can make collaboration easier are not broadly available.

By implementing contemporary, modernized technology infrastructure, alongside communications, collaborations and mobile technologies the Town will enhance overall productivity for the Town, and provide a foundation for more collaborative working within and across the Town, with other agencies and partners and with customers.

Furthermore, by adopting modern technology industry paradigms such as cloud computing, the Town will be well positioned for the future to increase its agility, reduce capital investments and to offset internal resource demands.

The Town's IT Division should take a more structured approach to developing technology infrastructure requirements and infrastructure project delivery – applying the same due diligence practices that have been adopted for Business Solutions projects through the IT PMO to Infrastructure projects.

Key goals in this area include:

Goal # 1: Embrace Cloud Computing
The computing industry is going through a paradigm shift as vendors shift from selling software and hardware that is installed in a customer's data centre, to selling services run from their own data centres and which customers consume via a web browser. This general concept has been marketed as Cloud computing.

Some of the benefits of cloud computing include:

- Reduces the diversion of IT resources away from higher value initiatives due to faster implementation of solutions and reduced impact on IT resources

- Obviates investment in upfront software or hardware purchases thus reducing capital costs

- Leverages extensive vendor expertise and support resources, rather than building smaller scale in-house teams

- Upgrades are incremental resulting in fewer large, costly and time intensive upgrades; in addition, continuous software updates reduce security risks

- Vendor takes ownership of business continuity responsibility thus improving the Town's business continuity preparedness

- Solutions can be accessed anywhere, anytime and from a range of devices, reducing the need for powerful and expensive end user devices as simpler clients can access services via the browser

Because more and more vendors are embracing this model it is important that the Town be ready to implement, operate and support cloud solutions. This is also a paradigm shift for the IT Division and for the Town more broadly. There are a range of new considerations for the Town when implementing cloud solutions. Examples include;

- A need to effectively secure Town information assets stored in the cloud by conducting due diligence assessments

- A need to establish appropriate contractual provisions to allow for data portability (ability to extract data from systems),

- A funding shift: from high upfront capital costs associated with on-premise implementations, to an ongoing monthly / yearly subscription model, typically funded from operating budgets.

- Impacts on staff roles and responsibilities

To support this transition, the Town will develop a new Cloud Computing strategy and policy, which will identify the process by which new cloud solutions are commissioned. This will formalize a cloud checklist already in use by the IT Division to evaluate cloud solutions. A formal working group of staff from IT, Clerks, Legal, Risk and Purchasing will be involved in developing the strategy and policy.

The IT Division will proactively seek to move some of the Town's technology infrastructure to the Cloud where it makes sense and there is a supporting business case (examples include backup, Disaster Recovery (DR) and Microsoft Office 365). It is expected that the technology infrastructure will need to support a hybrid environment in which some business systems reside in the cloud and some on premise.

On a case by case basis the Town will evaluate business applications for cloud hosting. It is expected that solutions proposals from the industry will be increasingly available as Cloud only solutions, triggering a concomitant decline in on-premise solutions.

Goal # 2: Enable field working

A broad range of Town staff including inspectors, fire fighters, road and parks maintenance crews, and bylaw officers work in the field on a regular basis. Many other staff such as planners and engineers, occasionally work in the field or off-site. For these staff, full access to systems that connect them to the back office (e.g. to case management tools, drawings, maps) and directly to customers, will speed up end-to-end service delivery, reduce duplicate paper work and data entry, and improve data accuracy.

The Town will implement a range of solutions that combine suitable devices (e.g. ruggedized laptops), reliable connectivity (mobile VPN, in vehicle boosters) and business solutions (e.g. PRM, Maximo, CRM, GIS) to enable effective, reliable solutions for mobile staff.

Goal # 3: Provide contemporary communications and collaboration capabilities to improve staff productivity

In modernizing the devices and tools offered by the Town, the IT Division is reflecting the increasing consumerization of business technology – and the need to stay relevant.

Specific initiatives include the introduction of a broader range of modern device choices (tablets, convertibles, laptops and desktops, smartphones), and a move towards increased use of laptops over desktops.

The Strategy recommends that the Town plan for the implementation of an Enterprise Content Management system to improve collaboration processes, as well as for the adoption of Office 365, which will further contribute to improved internal and external collaboration.

The rollout of Skype for Business as the Town's unified communications solution will introduce Instant Messaging and presence, so that staff can tell if someone is in a meeting or available to chat. The same system will also facilitate online meetings and screen sharing, reducing travel time and providing greater flexiblity for working from home or alternate locations. Meeting rooms will be equipped with improved technologies to allow staff to collaborate in more dynamic ways.

Goal # 4: Enable contemporary modes of working anytime, anywhere with technology

In combination, the technologies implemented in support of Goals 1, 2 and 3 will support more flexible modes of working, such as flexible or permanent home working. Given the Town's space pressures and the increasing challenges of recruiting and retaining staff, broader adoption of flexible working may be an option. Of course, this may only be an option for some staff, as face to face services depend on staff being present.

The feasibility and implications of staff working from home will need to first be considered by ELT. Depending on the direction, IT provisioning and service management changes may need to be planned to support this approach.

Goal # 5: Implement an IT R&D program to facilitate quicker adoption of new technologies.

Reflecting the rapid pace of change, a portion of IT resources both human and financial, should be devoted to research and development (R&D) activities. The R&D program should be managed through the portfolio, as any other project would be – with a defined scope, timelines and deliverable. ITSC should be involved in annually identifying the areas that the R&D program should target.

Strategic Direction 2: Implement and Evolve Contemporary Business Solution Platforms

As noted elsewhere, the Town's Business Solutions Platforms are the linchpin of the architecture that digitizes business processes. The Town requires a set of consolidated business solution platforms to manage its business processes: case management, work management, and financials for example. A major program of business systems renewal is already underway. This is a once in a generation opportunity for the Town to firmly establish the right ways of doing things.

Ensuring the success of the major business solutions projects over the next 3-5 years is critical.

Key goals in this area include:

Goal # 1: Pursue a rationalized Commercial off the Shelf (COTS) business solutions platform strategy
Following the existing approach (supported by the MTA and the Town's Application Architecture developed in partnership with Deloitte), the Town should continue to seek to minimize the number of large business solutions it operates. The Town should continue to avoid building core systems in-house, seeking to purchase proven systems from the market instead.

This approach will help the Town to break down organizational silos, reduce operating cost and reduce the need for users to master multiple systems. The Town is implementing a handful of core modern business solutions platforms (ERP, CRM, PRM).

With these systems in place and over time, the Town will seek to rationalize business processes (decommissioning smaller systems) into the business solutions platforms, leveraging the functionalities of the core platforms (e.g. mobile working and online capabilities), while reducing the overhead of maintaining separate applications and databases.

The Town will follow a formalized technology lifecycle to ensure that business solution platforms are well maintained and don't get out of date, or slip into obsolesence.

Goal # 2: Ensure existing inflight projects are set up for success.
Given the scale of the Town's current investment in IT solutions and systems, the success of the inflight projects is critical to maintaining Council and Executive confidence in their IT investment strategy.

ELT, IT Management and ITSC **must** do all they can to ensure that these projects are successful. This means that:
- Experienced VOR resources will be assigned to lead projects
- Each project will be run according to the Town's project management methodology, with appropriate documentation and project stage gating
- ELT, ITSC, Project Steering Committees and the IT Management Team will closely monitor every aspect of key project progress, reviewing deliverables, monitoring timelines and the quality of deliverables (using a standard project portfolio reporting dashboard)

- ELT will ensure that sufficient resources (both in the business and in IT) are assigned as appropriate to support project delivery
- CAO and ELT will update Council with regard to the lowered service delivery expectations in business areas whilst projects are inflight
- Project sponsors and project teams will be empowered to lead change and to apply business process design to rethink existing business processes
- A change management framework will be prepared and deployed to support project implementation

Goal # 3: Fully exploit the Business Solutions platforms (e.g. PRM, ERP, CRM)
Organizations frequently use only a small proportion (less than 25%) of the capabilities of the business solutions they're paying for, thus missing opportunities to digitize and optimize processes.

The Town should not view the initial implementation of these solutions as an end-point. Just as the build out of the Town's road network is never 'finished' - large business solutions platforms are never 'done'. Once core functions are implemented opportunities to improve them will be identified as will areas of ancillary process digitization and optimization. The Town will need to plan for iterative enhancement and evolution of these platforms to fully exploit each of its core business solution platforms. Accordingly the Strategy recommends several phases of 'evolution' for each of the platforms to ensure that they are fully exploited.

Goal # 4: Develop an Asset Management system strategy and fully exploit platform to streamline and optimize the efficiency of Work and Asset Management processes
The Town should conduct a broad review of its Asset Management systems requirements, and determine the future solution architecture. The Town will remain committed to Maximo for work management activities for linear assets for the foreseeable future, but should evaluate broader requirements for facilities and other asset types, along with asset planning and forecasting and maintaining the fixed capital assets register. Ultimately the overall Asset Management solution will comprise a combination of Maximo, ERP, GIS and a variety of additional tools.

Goal # 5: Implement an Electronic Content Management system and supporting processes to ensure effective content management, search-ability, retention and compliance
Clerks and IT Divisions should partner to develop a corporate ECM strategy that defines the scope and strategic approach to developing, deploying and integrating a corporate ECM solution. This is a large project with significant impacts across the organization given the potential for moving away from file shares and folder structures, to a more structured environment that attaches important metadata to files at the point of creation.

The scope of the ECM strategy should be broad, examining collaboration capabilities, document, drawing management (submission, markup) digital assets and records management. Intranet requirements should also be considered as part of the ECM strategy.

The ECM strategy should define an implementation plan and phasing approach that would allow the build out and integration of the ECM with other core systems, whilst implementing appropriate records retention plans to allow the Town to effectively manage its long-term storage needs.

Goal # 6: Develop a GIS strategy to set out how the Town will fully leverage Corporate GIS platform

The Town's GIS management approach must be modernized and data quality improved. The development of this IT Strategy didn't permit sufficient time to detail the future GIS strategy. It is recommended that the Town's Strategic Initiatives Division lead the development of a corporate GIS strategy to define future leadership, governance, roles and responsibilities and the technology directions for GIS in partnership with current key stakeholders and potential beneficiaries of an improved service (IT, Planning, Asset Management, and others).

Goal # 7: Integrate core systems and processes where there is clear business value and a business case can be demonstrated.

Integration between business solutions reduces errors, reduces staff time wasted retyping information into systems, and speeds business processes.

Many systems integrations could be pursued, but the Town should focus on those that deliver the highest value, and support other initiatives such as Master Data Management. The Town should develop a prioritized integration strategy that identifies the most valuable integrations.

In most cases integrations will be built as part of the implementation projects (e.g. Maximo Work Orders -- ERP Orders), however integrations are frequently de-scoped to meet project deadlines. It is important that the Town ensures that it addresses high priority integrations.

The Town should implement a range of integration technologies to simplify systems integration. Integration technologies offer pre-built connectors for some systems, and tools that speed the implementation of systems integrations.

Strategic Direction 3: Deliver IT Service Excellence

Significant advancements in the IT Division's service delivery have been seen and appreciated by Management and staff across the Town over the last few years. The IT team will continue to work on refining and making service delivery practices more efficient and easier to access.

Key actions in this area include:

Goal # 1: Ongoing and Continuous IT Governance improvements

The Town will continue to enhance its IT governance framework in order to sharpen the Town's focus on defined priorities. ELT will play an important role in maintaining commitment to priority initiatives. All IT project activity (including technology infrastructure project work) will be overseen and monitored by IT governance groups. Furthermore, the Town will work to ensure that selected initiatives are delivered successfully – using industry best practices around project management, business process design, and change management frameworks. This general topic is discussed in further detail in Section 7.

Goal # 2: Pursue a Planned, Architecture-Driven Approach

Historically the Town's IT environment has evolved into a patchwork of systems with little regard to how each of the systems and solutions fit together. The MTA and supporting architectures have featured heavily throughout the IT Strategy – and just as the Official Plan, Secondary Plans and Zoning Bylaws guide how the Town develops, Architecture will guide the development of the technology environment.

It is proposed that an IT Architecture Review Board be established as part of the revised governance model. It will be responsible for defining corporate technology architectures and reviewing concepts and project proposals to ensure that proposals fit with the overall design and standards defined by the Town's architecture.

Goal # 3: Build strong IT-business partnerships

Strong partnerships between the IT Division and business units are critical for successful and transformative business-technology outcomes. IT needs to be involved earlier in business-technology projects, and business units need to be involved in IT planning. Both partners must proactively work on building strong relationships and open communications channels to ensure that opportunities can be fully explored together, advice can be provided and expected outcomes realized. This topic is further discussed in Section 8.1

Goal # 4: Build a Contemporary IT team

This topic is discussed in more detail in Section 8. At a high level, the IT Division as currently configured and staffed lacks adequate resources (for example, there are gaps in the applications team, and in network administration) or skills (for example, in data and application architecture, systems integration, and cloud systems implementation and management) to support the program of work that is underway and planned.

Moving forward the Town will adopt a Hybrid IT Service Delivery model. The hybrid model will involve the creation of several new IT positions combined with a training program to equip existing staff with new skills required. The internal resources will be augmented with contract and consulting staff, with some out-tasking of services to third party service providers.

Goal # 5: Pursue IT Operations Excellence

Through the formalization of IT Service Management processes and practices the Town's IT Division will continue to adopt best practice standards (e.g. ITIL) to deliver improvements to service delivery. Specifically, the team will focus on setting service expectations, improving incident, problem and change management processes, expanding the use of self service, and automating repetitive IT tasks.

Goal # 6: Improve IT Risk Management practices to proactively reduce the Town's risk exposure

The Town should direct more attention to IT risk management with the development of an IT Risk Management framework – this would allow the Town to formally establish transparency around the IT risks to the organization, and a program to mitigate those risks. The organization should develop a clear cyber security strategy and ensure that it is well positioned to mitigate

emerging threats. Furthermore, the Town must develop a corporate business continuity management plan and associated disaster recovery provisions.

Strategic Direction 4: Build a Tech Savvy, Change Ready Corporate Culture

Growing citizen and council expectations, infrastructure debt and pressure on budgets and services are impacting municipal government heavily. Innovation, the use of technology and change is the new imperative – and perhaps the only way that municipal government will be able to keep up with evolving needs and expectations, whilst maintaining reasonable tax rates.

Thus, we believe that building a tech savvy, change-ready organizational culture will be central to the future success of the Town.

Goal # 1: Improve the overall Tech Savvy and Digital Skills throughout the Organization

The Town needs to think big and think "digital first" as services are designed. This transformative level of business and service change cannot be lead from the IT Division. Business vision and leadership is critical to transformation. Digital transformation is not just about technology – it is about people, process and culture change.

To effectively and consistently take advantage of technology across the Town, business leaders and those involved in service design need to fully understand the potential of technology and digital. The Town should proactively develop the technological literacy of those in leadership positions so that they can lead technology driven business transformation. This will mean partnering to deliver education and training programs that can expose leaders to the potential and opportunity that technology and a digital approach can bring.

Goal # 2: Use Business-technology projects as agents of business transformation.

Technology projects represent a golden opportunity to rethink the way that services or the business processes underpinning the service, work.

Sponsors need to recognize the opportunity to think big, project teams need to be empowered to think outside the box, and be provided with tools and techniques to assist in delivering projects that make a difference – this includes playbooks that can guide teams in the areas of service design, business process design and change management.

Goal # 3: Speed up the Process of Business Change.

The speed with which an idea for a process change can be acted on is currently a frustration within the organization. Due to a combination of factors including technical deficit, over-commitment of resources, limited tool chains, and limited internal skill sets, quickly responding to a small but innovative idea is a significant challenge.

The immediate priority is, as we've noted, on the major initiatives. But in future a more agile approach should be developed that would see a revised intake process for smaller initiatives, and the development of tools and technologies that allow for the rapid development and deployment of smaller solutions.

Strategic Direction 5: Get Smart, Go Digital

In pursuit of its mission to deliver *exceptional public services* the Town should embrace digital technologies and tactics to deliver better customer experiences online and off. Similar techniques and approaches should also be used to improve community engagement, and to ensure that the Town is open, transparent and inclusive.

Key goals include:

Goal # 1: Coordinate Potential Smart and Digital Opportunities

Although smart and digital initiatives are to be tackled in the latter phase of the IT Strategy, it is expected that opportunities will arise before that time. Coordination of smart opportunities particularly, for example, to use common network and communications protocols across smart solutions, will be important to ensure effort and investment is not duplicated.

It is suggested that the CIO and the Director of Strategic Initiatives develop their knowledge around Smart City opportunities and, in conjunction with the Director of Communications and representatives from the Environment and Infrastructure and Community Services groups, take responsibility for ensuring that potential smart city initiatives are coordinated.

Goal # 2: Develop a Digital strategy and action plan

Because of the range of opportunities in the digital realm, it is recommended that the Town develop a Digital Strategy and action plan. Many municipalities have tackled similar initiatives, including Oakville and Burlington. Most recently the City of Kitchener has published their #digitalkitchener strategy, which addresses digital and smart city initiatives.

Municipalities have differing definitions of digital based on their local situations. For the Town, the focus should be around:
- Identifying customer needs and prioritizing digital / online service provision
- Building a digital service delivery program (standards, resources)
- Establishing an open government program
- Determining how to stimulate the digital economy and community within the Town
- Establishing which priority smart city initiatives to pursue

Goal # 3: Deliver a range of Online (Digital) Services

With the Digital strategy and priorities defined, the Town should proceed to implement a range of online services. It should be expected that these initiatives would address the following areas:
- A MyAccount feature for customers to manage information, requests and personalization
- Online Billing and payments (tax and utility billing)
- Report – online service requests (via App and Web)
- Apply – for approvals, permits, licenses
- Register – marriages, pets, plots
- Book – inspections, facilities, programs, first resolutions
- Submit – forms, drawings, revisions
- Search – find out about roadworks, planning and permit applications, council and committee decisions, bylaws

- Online chat for service requests
- Localized information – where's my nearest park, splash pad, recreation centre

Goal # 4: Use digital capabilities to improve engagement with the community

The Town should use digital capabilities to engage with the community in new ways, reaching new sections of the community who don't typically participate in civic discourse. Methods to achieve this include:

- Improved web content, with simpler, clearer language targeted to the audience
- Continued refinement of online communications strategy (e.g. social media, newsletters, notification strategy)
- Building an engagement hub that collects all the Town's current engagements in one place on the web e.g. engage.richmondhill.ca
- Using ideation platforms to seek ideas from the community during strategy development
- Creating an online 'citizen panel' capability – like Calgary's citizen panel
- Providing online tools to publish planning proposals and encourage discourse
- Building the capability to host digital town halls and open houses

Goal # 5: Pursue an "Open Government" agenda

As part of its digital strategy the Town should build on its openness and transparency in several areas. Again, the digital strategy will define these areas more specifically, but opportunities pursued by other municipalities include:

- Implement Agenda Management system to increase transparency, search-ability
- Enhanced web streaming
- Institute an Open Data program, publishing data openly and issuing challenges for the community to help the Town on key areas (Guelph for example held two open data community challenges around waste management and transit)
- Pursuing a public municipal performance dashboard to keep the community abreast of progress made against baseline targets (City of Edmonton has built a strong Citizen Dashboard)

Note: others have gone further in this area. For example, the City of Montreal publishes all its contract awards and its books (all financial transactions) online for the community to query, visualize, download and analyze. The Town should determine what its priorities will be.

Goal # 6: Explore and deliver a range of integrated smart City initiatives

Smart City initiatives typically involve connecting devices to the network that haven't previously been connected in real time. This means embracing sensors and technologies that will enable the Town to be more effectively and efficiently run.

The Town should explore a range of integrated smart City initiatives to be determined in future. Other municipalities' initiatives in this area include:

- Streetlight program and narrow band network
- 'Smart' traffic light system
- 'Smart' irrigation systems
- Water leak detection and flow monitoring

4.2 Strategic Directions Summary

Section 7 provides a high-level overview of the proposed implementation plan that aligns activities with the three-phase implementation plan. Before getting to that, it is important to recognize that to support this implementation plan, the Strategy also recommends that the Town implement a range of Technology Governance and Technology Management changes. These are discussed in the next two sections.

5. Technology Governance

5.1 What is IT governance?

IT governance is defined as the processes and structures which inform, direct, manage, and monitor how the organization makes the best and most effective use of technology.

Governance is designed to ensure that the right people are making the right decisions, at the right time, with the right information to support decision making.

In some cases, IT decision making means collective decisions on corporate priorities, in other areas it will involve technical decision-making on the best data storage technology or networking protocol. Thus, different groups with different skill sets will need to be involved.

Organizations often view decisions about technology as complicated, technical and "best left to the experts in IT". However, decisions about technology often have ramifications well beyond the technology itself:

- How do we want to use technology in our business?
- What technology do we want our people to use, and how do we want them to use it?
- How much should we spend on technology?
- Which of our business processes should we direct our IT dollars towards?
- What do we need to tackle first?
- Should we do this now, or later?
- How secure do we want to be?
- What should be available first in the event of a data centre outage or a disaster event?

These are not decisions for technologists alone, they are important business decisions that the leaders of the organization must address.

There will always be purely technical decisions to be made, when the right IT staff with appropriate expertise will need to be involved; but in most cases, IT experts should be advising business leaders.

IT governance models should facilitate collaborative working, bringing together the appropriate mix of leadership and staff from various departments and disciplines. IT governance is a combination of the following four elements:

- Decision making groups and individuals (e.g. membership, inter-relationships)
- Policies & standards (e.g. architecture, software procurement policy)
- Processes & methods (e.g. prioritization, project execution)
- Measurement and monitoring (e.g. Key Performance Indicator (KPI) reporting)

5.2 Current Town IT Governance Model

The Town has already made good progress in this area, by establishing a set of technology decision-making groups that involve many of the right players in IT decision making. The current arrangement involves the following groups and supporting processes:

Table 1: Current IT Governance

Group	Role
ELT	The CIO briefs ELT monthly on the IT portfolio status, including project updates. The CIO brings key decisions (changes to strategy or policy that have previously been reviewed by ITSC) to the group for final decision making. ELT reviews and recommends forward the annual capital budget prepared by ITSC. Policy changes are approved by ELT.
IT Steering Committee (ITSC)	According to its terms of reference: "The IT Steering Committee (ITSC) has been established within the Town's governance Framework as an Advisory Committee to: provide oversight to the Town's Information Technology strategy; provide IT project governance; and provide IT strategy and capital project recommendations to the Town's Executive Leadership Team (ELT)."
	The group involves 2 ELT members, multiple Directors and the IT Management team.
	The ITSC is supported by a capital budgeting process that includes an intake process for new initiatives, a ranking scheme for selecting projects and portfolio reporting so that ITSC can monitor overall project progress.
Project Steering Committees	Each major initiative (such as ERP, PRM or CRM) is overseen by a Project Steering Committee which involves sponsors and stakeholders at a Director and Manager level and project leads.
Project Management Office	A Project Management Office has been established to ensure that projects are effectively run according to a standardized project methodology with a gating process to check on project quality throughout the process.
Project Teams	Project Teams are consistently formed to deliver projects and initiatives and are wound down at the close of the project.

The current arrangements are basically sound, and provide a solid foundation for corporate technology governance. Nonetheless, several opportunities to improve the Town's governance of technology could be implemented, including:

- More clearly defined roles and responsibilities of each group
- Improved attendance and participation at ITSC
- Corporate IT policies must be updated
- Augmentation of current groups including an Architecture Review Board and standing Steering Committees Groups
- A review of the formal annual intake process to allow more agile responses to mid-year projects
- More comprehensive portfolio reporting on operational and technical infrastructure projects should be shared with ITSC

- Improved transparency around IT and business resource utilization on operations and projects to support decision making

5.3 Recommended Technology Governance Model Enhancements

This Strategy recommends a handful of small revisions to the existing governance model and that the Town formalize, through documentation, the complete IT governance framework, thus clarifying how all technology decision-making is to be handled.

5.3.1 DECISION MAKING GROUPS

Based on evolving the current technology governance model, the following adjustments are recommended:

Formalize ELT's Role

The role of ELT regarding IT decision-making should be formalized in a documented Terms of Reference. The focus for ELT should be on providing oversight for the technology program, ensuring that discipline is being maintained and the Strategy is being adhered to. ELT owns the success of the technology program in terms of prioritizing funding and resourcing and it must work with the program to address funding and resourcing bottlenecks.

Add an Architecture Review Board

The Architecture Review Board should be responsible for coordinating the development of architectural standards. The Board should also review all technology and business initiatives to monitor compliance with the standardized architecture. The Board will make recommendations to project teams, sponsors, the IT Management Team, ITSC and ELT based on its observations.

Plan to Incorporate Standing Steering Committees into the Governance Model

The Town already has a model for defining Project Steering Committees to oversee projects. These Committees are typically a temporary endeavor to achieve a goal – the implementation of project X – and are decommissioned once the project is completed.

However, most of the business solutions platforms once initial implementation is complete become ongoing programs of work (the evolution discussed in earlier sections), where priorities must be set, decisions made and upgrades planned for. For these situations, a "Standing" Steering Committee is recommended - this is a Steering Committee that oversees a core platform.

The Town's website, for example, is an ongoing (and ever changing) core business solution that requires co-ordination across all departments. Business solutions platforms that are used across departmental boundaries such as ERP, CRM, Maximo, Web, Work Management, ECM and GIS, the Town are similar, and the Town may consider establishing Standing Steering Committees for these areas.

It is proposed that a Standing Steering Committee may be established with approval of ELT, and would be staffed with departmental and IT Division representation. Groups would typically meet 4 to 6 times a year to strategize regarding the platform, to discuss current and new initiatives, and to identify and agree future priorities. These groups will make recommendations to ITSC as required – providing updates on strategies, roadmaps and major decisions, but will also be responsible for recommending capital budget requests and priorities.

Note these are not user groups. They are intended to strategically steer how the core business system platforms are managed and evolved.

This results in the following groups forming the decision-making groups for technology.
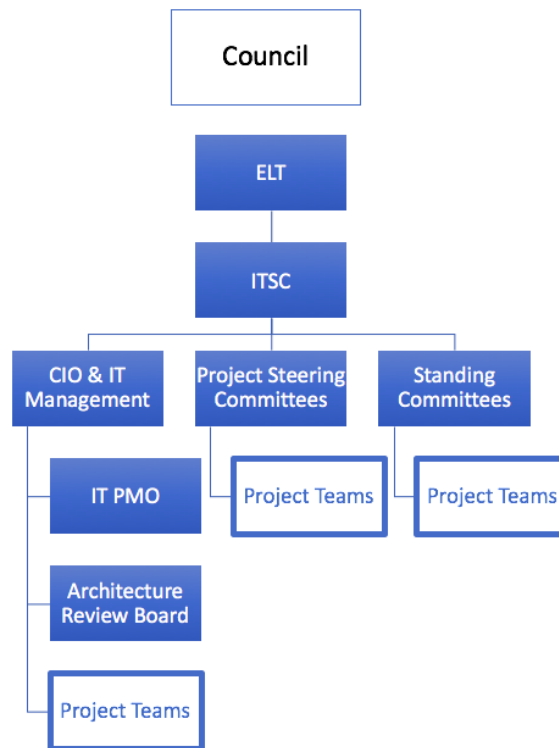
Each group will have roles and responsibilities as described in Table 2 below.

Table 2: Proposed IT Governance Groups

Group	Roles and Responsibilities
Council	• Approves IT Strategy • Approves annual and 10 year IT capital budgets as part of the annual budget process. • Receives annual report on IT Strategy progress
ELT	• Involved in leading the development of IT Strategy, endorses and recommends IT Strategy to Council • Monitors delivery of IT Strategy • Oversees the IT project portfolio, resolving issues and keeping focus on priorities • Approves IT policy and IT strategic direction changes • Reviews staffing requests and VOR/contract staffing commitments • Reviews and endorses annual IT capital budget

Group	Roles and Responsibilities
	• Monitors other IT performance metrics
ITSC	• Receives and reviews policy, standards and techology strategies • Develops annual IT capital budget and proposes to ELT • Monitors the IT project portfolio • Monitors other IT performance metrics
CIO & IT Management	• Responsible for IT operations • Monitors and reports on capital and operating budget performance • Monitors and reports on IT KPI's • Makes proposals and recommendations regarding IT policy, IT Strategy and initiatives to ITSC • Prepares and provides performance metrics to allow ITSC and ELT clear insight into the performance of the IT service
IT PMO	• Oversees the IT project portfolio and provides regular reporting to ITSC, ELT and IT Management on project portfolio status • Supports the project intake and evaluation process in support of the ITSC evaluation process • Tracks resource availability and utilization to support project decision making
ARB	• Develop and propose recommended architectures and other supporting technology standards to IT Management, ITSC and ELT • Review all technology proposals for fit with formally agreed architectures • Make recommendations (or escalate) to IT Management, ITSC and ELT to resolve issues or exceptions
Steering Committees	• Provide direction, decision making authority and oversight of major projects and / or major business systems • Collaboratively defines priorities
Project Teams	• Execute projects according to the defined project management methodology • Escalate to Project Steering Committee's as required for project decision making and direction setting • Report on status of projects through the IT PMO to Steering Committee, IT Management, ITSC and ELT

5.3.2 IT POLICIES AND STANDARDS

IT Policies

Policies and standards should establish the parameters within which the Town uses technology, creating clear expectations for those that use and manage technology. Consistent with the commentary throughout this section, many of the decisions related to technology are business or management decisions. These are not decisions to be made by IT alone on behalf of the corporation. For example;

- Which employees get smartphones
- Who is authorized to register a web domain for the Town
- Which websites staff can access, and whether that activity should be tracked
- What content is saved when an employee retires
- How much space does an employee have in email

For each of these decisions several factors need to be weighed, including business impacts, employee impacts and importantly, cost impacts. Typically IT recommendations and policy should flow from IT, through ITSC and to ELT for final approval.

A standard IT policy framework typically addresses the following areas.

- Acceptable use
- IT Security
- Backup, recovery, BC and DR
- Asset lifecycle management
- Hosted and cloud solutions
- Data management (lifecycle, privacy)
- IT procurement processes
- Email & voicemail standards (including archiving)

While the Town has some of these policies in place, most require updating. IT Management, with the input of staff, stakeholders and ITSC should review, revise and augment the corporate IT policy framework in the context of this Strategy, to ensure that it accurately reflects how the Town wishes to use and manage technology. ELT will continue to be responsible for reviewing and approving policies recommended by IT Management/ITSC.

IT Architecture

IT Architecture is one of the most important standards for the Town. At a high level the MTA represents the core concepts underpinning this Strategy. The MTA represents a macro level blueprint, the Official Plan if you will, for how the IT environment is to be developed and built out.

More detailed current and to-be architectures (the equivalent of secondary and community master plans, to extend the analogy) have been, or will be,

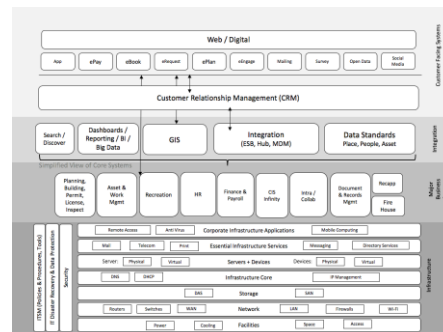developed by the Town's IT team for the Infrastructure, Application, Integration, Data and

Figure 8: HIgh Level Architecture

Business Process layers of the architecture. These plans, through the work of the Architecture Review Board will ensure that new solutions are designed and implemented in a way that appropriately integrates with existing solutions.

Solutions, Network and Technology Architect roles will be established within the IT Division and will be part of the Architecture Review Board (ARB) with delegated authority from the IT Management team to review solutions for architectural fit. Where fit is not met, escalation processes to IT Management, ITSC and ELT will be defined to resolve disagreements and determine exceptions.

IT Standards, Guidelines and Playbooks

In addition to the IT Architecture the IT Management team will lead the development of guidelines and playbooks to simplify and delegate IT decision making to project teams and staff. Examples of playbooks and guidelines include:

- Project initiation playbook (currently in development by IT Division)
- Change management playbook (recently completed by IT Division, socialization in process)
- Business process design playbook
- Device guidelines, and associated requests / approval processes
- Cloud playbook
- Security assessment process
- IT service catalog

Documentation of IT technical standards and SOP's (Standard Operating Procedures) are important internal documents and tools to help the IT team deliver its mandate and comply with policy directives. IT documentation, though currently adequate where it exists, should be improved by the IT Team. The team should determine where the knowledgebase will be managed. At minimum, SOP's for the following areas should be in place:

- Incident management
- Change control process management
- Backup and recovery,
- Problem management
- Security management,
- Configuration management of critical systems

5.3.3 PROCESSES AND METHODS

Project Intake / Selection

The Town has established an effective means of selecting projects, applying a clear intake process for major capital projects, and a Town-specific ranking mechanism to identify high priority corporate initiatives. Note that it is recommended that the ranking scheme be updated to prioritize initiatives identified in this IT Strategy. ITSC oversees this process and is responsible for collaboratively developing an annual corporate IT capital work plan proposal which is brought forward by the CIO to ELT. This will continue to provide appropriate structure and controls in the formative part of this Strategy.

In the latter phase of the Strategy, opportunities to improve this process include developing methods of handling small capital projects in a more agile way, and a more frequent intake process allowing mid-year projects to be initiated.

Resource Management (Capacity Management)

As obvious as it may seem, for the Town to take on new projects it needs sufficient resources to deliver them. Funding for the purchase of a product is one thing, but if there are insufficient staff to implement it, the benefits of that investment will not be realized.

By implementing time tracking (as part of the Project Portfolio Management (PPM) solution implementation) the IT team should develop a clearer picture of the time available to allocate to projects. Note that in most cases IT Divisions allocate between 70 – 80% of their time to operational tasks. Which means that with 34 IT staff, at best 24 will be fully occupied with operational work, leaving 10 available for project work.

As part of the project intake process then, the Town will consider resource availability, and use this to assist in the selection of a reasonable number of projects to put forward into the annual capital budget. Where additional VOR and contract resources are required to support project delivery, these should be built into the capital funding requests.

Note also that throughout the year unexpected work must also be accommodated; systems problems, and unanticipated projects caused by legislative change for example. The Town should apply the 80:20 rule, leaving some IT capacity unallocated to provide flexibility to deal with unanticipated workloads.

Project Execution

Projects are demonstrably more successful when standard project management practices are followed. The IT PMO has developed and applied a standardized approach to project management, which features a standard process, templates and checklists for project teams to use, and a stage-gate process that creates multiple checkpoints throughout a project to ensure a healthy project.
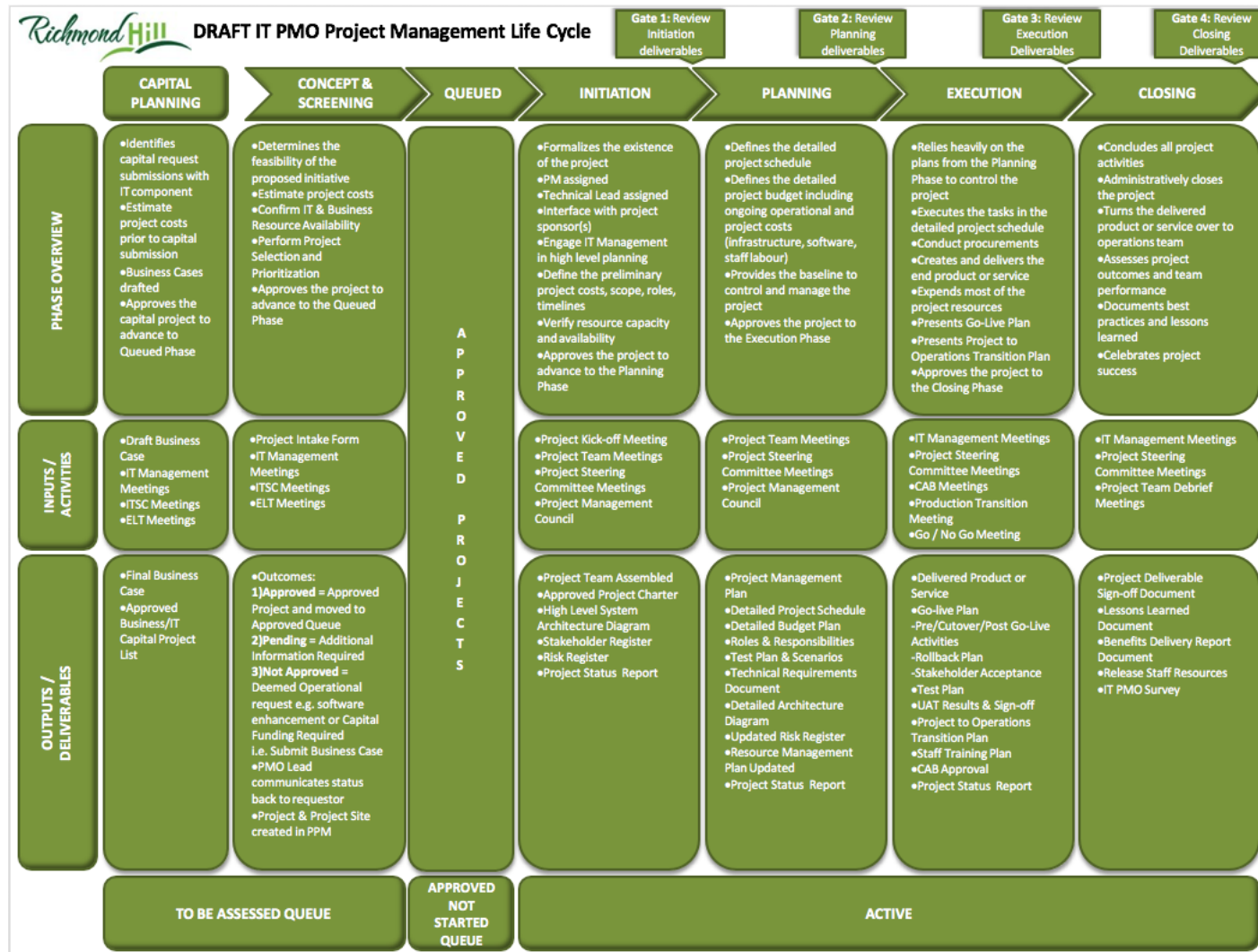
Figure 9: Current IT PMO Project Management Methodology

The IT PMO is currently evolving this methodology so that it can scale to large and small initiatives, requiring less detail and rigor for smaller, low risk projects.

As has been noted earlier, it is important to note the methodology should be applied to all technology projects the Town undertakes, specifically this should include technical infrastructure and other IT projects currently considered as 'operational'. Furthermore, using a technology evaluation framework (see sample in Volume 2) would help to ensure that IT infrastructure projects effectively identify business requirements before selecting technologies.

5.3.4 MEASUREMENT & REPORTING

Project Portfolio Reporting

With the importance of inflight initiatives, detailed reporting on the status of the project portfolio helps IT Management, ITSC and ELT monitor both overall portfolio performance and the progress of individual initiatives. ITSC and ELT should regularly (monthly) receive a status report on the Approved Project List (like that illustrated below). The IT PMO will be responsible for maintaining the portfolio status report. A PPM solution is planned to be implemented to support the work of the IT PMO.

Project Name	% Completion	Target Finish	Priority	Overall Status	Project Key Performance Indicators			
					Budget	Resources	Schedule	Scope
PRM Phase 1	100%	30/06/2018	High	●	On Track	Sufficient	On Track	On Track
Maximo evolution phase 1	50%	30/12/2017	High	●	On Track	Sufficient	On Track	On Track
ActiveNet implementation	90%	30/09/2017	Medium	○	On Track	Sufficient	On Track	Off Track
eScribe Implementation	20%	14/11/2017	High	●	On Track	Insufficient	At Risk	On Track
Develop a GIS strategy	80%	21/03/2018	High	●	On Track	Sufficient	On Track	On Track
Primary systems integrations	80%	21/12/2019	Low	●	On Track	Sufficient	On Track	On Track
Establish Master Data Management strategy	60%	03/03/2018	Low	●	On Track	Sufficient	On Track	On Track
Develop IT Risk Management Framework	20%	25/05/2018	Medium	●	On Track	Sufficient	On Track	On Track
POS strategy & systems replacement	10%	30/10/2017	Low	○	At Risk	Sufficient	On Track	On Track
Future Asset Management systems strategy	10%	30/03/2018	High	○	Over Budget	Sufficient	On Track	On Track
Primary systems integrations	0%	21/12/2019	Low	●	On Track	Sufficient	On Track	On Track
Establish Master Data Management strategy	100%	03/03/2018	Low	●	On Track	Sufficient	On Track	On Track
Develop IT Risk Management Framework	20%	25/05/2018	Medium	●	On Track	Sufficient	On Track	On Track
POS strategy & systems replacement	10%	30/10/2017	Low	○	At Risk	Sufficient	On Track	On Track
Future Asset Management systems strategy	10%	30/03/2018	High	○	Over budget	Sufficient	On Track	On Track
Enterprise Content Management (ECM) Strategy	0%	01/05/2018	High	●	On Track	Sufficient	On Track	On Track

Figure 10: Sample Project Portfolio Report

As part of the regular review of the IT portfolio ITSC and ELT should focus its review upon:

- Prioritization changes
- Review red and yellow status projects
- Projects due for completion
- Projects due for startup
- Any new unplanned proposals

Strategy Success Measures

To monitor the execution of this Strategy a range of success measures / metrics should be tracked and regularly reported to ITSC, ELT and Council:

- Overall IT satisfaction rating (an annual IT survey should be conducted). Current satisfaction rating is below the 80% target, the Town should set 85% satisfaction as an initial target

- Alongside project reporting discussed above a key measure for the Town to monitor is the number of business-technology project completions. The goal is to increase the throughput of projects year over year.
- The number of business processes that have been digitized (and BPR processes applied) will be a key measure of progress for the strategy (and the implementation of the major business solution platforms). This will involve identifying an inventory of processes that the Town operates (the Municipal Reference Model is a good source for this), tracking and reporting on the digitization status of each process.
- Training is a key focus area for the Strategy, therefore tracking and reporting upon training hours received by IT and business staff will be important to monitor the anticipated upswing in training hours.
- With the focus on online services, later in the Strategy, the Town should develop online service delivery metrics, including website visits, website satisfaction, online service availability, online transaction volumes, online and offline transaction ratios
- The IT risk management program should report on risks identified, type, status, mitigations, and incidents
- Given the levels of investment in IT, monitoring the IT investment situation is important, an annual calculation of the total cost of IT per employee is a good measure, that will allow ongoing comparison with other organizations
- Over the next few years, the Town should develop processes and measures to capture and report upon the business value being driven by technology projects (e.g. cost avoidance, customer service improvements, etc.)

IT Management Measures and Metrics

In addition, a range of IT Management metrics should also be tracked within IT to ensure that the IT service is functioning effectively. Measures would include:
- Service Requests (volumes, performance against defined targets)
- Change Requests (volumes, performance against defined targets)
- Asset status should be tracked, including
  - Age
  - Status,
  - investment by category
  - Resource use by asset
- IT resources (availability, utilization, allocation)

A combination of this information can be presented in various dashboards depending upon audience as illustrated in the Figure 12 on page 42.

Annual Reporting to the Organization and Council

Building upon these base metrics, the IT Division can also develop a simple annual report format that quickly and visually communicates to Town staff what has been achieved in the previous year.

It is important that Council and staff better understand how Information Technology is linked to the effectiveness of the organization. Council must be kept better informed about the overall roadmap, and better educated on how specific initiatives will contribute to improved outcomes for customers and for departments.

The CIO should provide an annual report to Council, highlighting cost savings and avoidances, new capabilities, capacities, and new service offerings that have been facilitated by technology.
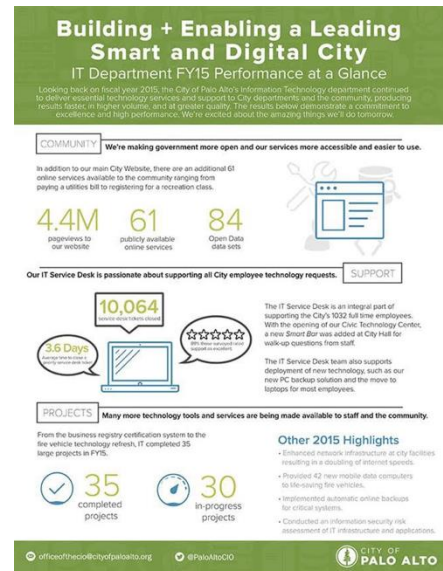

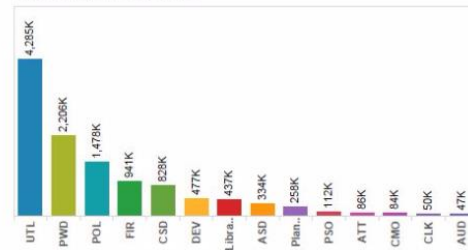**Figure 11: Sample 1 Page Annual Report**

Figure 12: IT Value Report

6. Technology Management

6.1 The Importance of Business-Technology Partnership

The IT industry has long concluded that technology success comes from business and technology partnership. In fact, some in the IT industry argue that there is no such thing as an IT project, only a business project enabled by technology – a business-technology project.

To facilitate successful partnership, IT should not be viewed by departments as a utility or supplier. The department has more to offer than that. With its deep experience of business-technology projects and project management, they can help business units identify opportunities, can help them be more successful with their initiative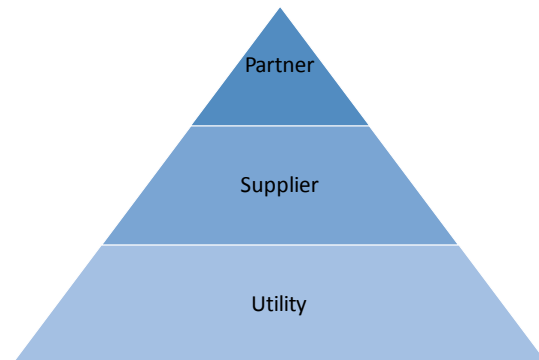s, and can play a coordination role – ensuring that common business needs across business units can be effectively addressed.

When business units and IT are partners, lines of communication are open, teams are actively involved and consulted, and better outcomes result. Strong partnerships between IT and business units, built on mutual trust should be the goal for the organization. These types of relationships won't be built overnight. They will be the result of a history of successful collaboration.

The CIO and IT Management team should work to build strong relationships with Directors and departments, meeting regularly to conduct service reviews, communicate plans and directions, and discuss business strategies and goals, and how technology can support those goals.

6.2 Hybrid IT Delivery Model

Demand for technology solutions continues to grow exponentially and it has been challenging for most municipal IT teams, including the team at the Town, to keep up with demand.

The reality of modern IT, particularly with small municipal teams, is that maintaining the necessary skills and capacity to manage all the Town's increasingly complex technical environment and burgeoning project demands in-house is impractical. To do so would mean hiring an unfeasible number of additional IT staff.
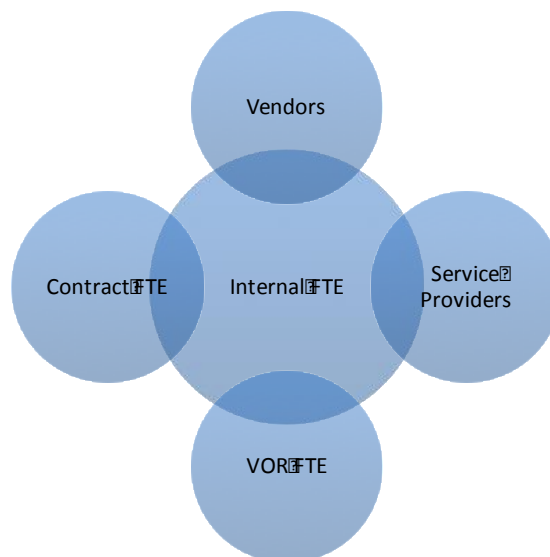
Figure 13: Hybrid IT Delivery Model

Smart IT organizations approach this challenge by relying on a team of in-house IT staff with strong internal connections and understanding of the organization's business needs, who in turn work with a network of trusted partners, vendors and solution providers to deliver the required services. The emphasis is on "getting it done", or "throughput" rather than on IT staff necessarily doing it themselves.

This is a *hybrid model* of IT service delivery, that combines internal IT and business skills with market based expertise and services. Ultimately it means that the IT team, the CIO and IT Managers act more as coordinators or orchestrators of IT service delivery – executed by a combination of internal and external providers.

Moving forward, the Town's goal is to increase speed, agility and project throughput by using the right mix of resources and skills for the job at hand. Several areas of opportunity exist for the Town, including:

VENDOR OF RECORD (VOR) – IT RESOURCES ON-DEMAND

The Town has embraced this model with its VOR partnership with Deloitte. This Vendor of Record arrangement supplies Project Manager, Business Analysts and other technical resources to the Town, on-demand at pre-set rates.

Funding for VOR resources are included as part of a project capital request and this has enabled the Town to quickly ramp up resources to lead major projects such as PRM, ERP and Maximo. Going forward it is anticipated that the Town will continue to use the VOR model, albeit at a slightly reduced level once the major business solutions platforms are in place. However, the Town may in future consider establishing multiple VOR arrangements for the supply of resources with various specialized skill sets (e.g. GIS).

CAPITAL FUNDING CONTRACTING STAFF POSITIONS

An alternative to VOR resourcing is the contracting of short term staff (1 – 2 year contracts) directly to the Town. Again, these resources are capitally funded, but typically funds are used for contract staff to take over both IT and departmental operational duties, freeing up internal staff to work on projects – providing backfill. This also allows the Town to retain the accrued project learning and expertise, and to offer development opportunities to internal staff.

Current HR parameters mean that these types of positions must be paid at current full time salary rates – which undermines the ability to recruit knowledgeable and experienced senior staff. Continuing to explore the suitability and options for using this model could be valuable to the Town.

SERVICE PROVIDERS: OUT-TASK SOME IT SERVICES

Some of the Town's IT systems are tailored to a specific municipal line of business. However, many technologies run by the Town (such as networks, servers, file storage and email) are more generic. As hospitals, construction firms, banks and other organizations have come to use the same systems, these areas of IT have become more commoditized making direct services available on the open market. Private sector firms can be used to manage, operate and support some or part of these services on behalf of municipalities.

As an example, specialized security, firewall management, network monitoring services, which are often required but not necessarily on a fulltime basis can be accessed on an "as needed" basis from outside firms. These services augment the existing IT resource base, and can also be

used to manage and implement technologies that current IT staff don't have detailed domain expertise in. Success in this area depends upon effective selection and management of providers, ensuring that contracts are well structured to protect the interests of the Town. This is one area, for example, in which the Town must develop new skills.

USE CONSULTING SERVICES TO SET STRATEGIES

Setting strategies before tackling projects is critically important to successful outcomes – fully exploring possibilities before diving in is essential. In this area, there is clear value in engaging experts in the right measure, at the right time. Consultants with deep domain experience, and with experience in developing strategy and implementing solutions can help to guide the Town in developing plans that properly leverage systems' capabilities to address business challenges. The Strategy recommends several budget allocations to engage consulting resources to do just this.

PARTNERSHIPS WITH OTHER MUNICIPALITIES AND AGENCIES

Municipalities have many challenges in common and there will undoubtedly be opportunities to share resources and solutions with other local municipalities (Vaughan, Markham, York Region). The Town's CIO already participates in the Regional CIO's forum, in the York Info Partnership and in other collaborative groups around technology. Continued ongoing exploration of these opportunities may prove productive for the Town in the long term.

6.3 IT Service Improvements

The IT Management team has been presiding over the implementation of a range of industry best practice-based service management improvements – to which Town management and staff have responded positively. Continually pursuing IT Service Excellence has become a maxim for the team. There remain many more opportunities for continuous service improvement which the IT Management Team should continue to drive. This will require a focus upon several areas:

- Making it simpler and easier to understand how to access IT services and resources
- Establishing clear service expectations for IT service delivery (e.g. how quickly will my helpdesk ticket get resolved?)
- Formalizing internal IT processes and documentation

While the Strategy recommends the addition of several new staff, the IT Management team must work on building additional capacity within the team through efficiencies. Several opportunities exist, including:

- Building self-service options where possible (e.g. resetting passwords, installing software from a corporate app store, provisioning new devices)
- Implementing automation of internal IT processes (e.g. software updates, patching)

Another important change relates to IT service hours. The intent is to expand the hours of IT service, providing earlier coverage, as well as evening and some weekend coverage – the details of which are still to be determined. This will affect IT staff working hours and may require the introduction of some shift work.

Finally, the IT Management team should work on improving corporate communication to staff about IT plans and initiatives. Currently communications to the Executive and Directors appears to be effective, but staff are less well informed about IT plans and initiatives. For instance, some

staff were frustrated by the current state of specific technologies, such as the telephone system. A project to replace the telephone system is underway, but few staff know of its existence. Improved communications should help to reduce staff frustration.

6.4 IT Division Capability and Capacity

Due to its relative size the Town will continue to operate a largely centralized management approach to IT resourcing – as this is the most efficient model given the Town's current state. Where and if there is an 'argument' for technology centric staff to be based in a department, ELT must approve, and the CIO or delegate must be involved in the recruitment of, and ongoing technical oversight and guidance, of those staff.

Several broad IT industry paradigm shifts will have a substantial impact on the skill requirements of IT staff, placing new demands on existing roles:

- **Cloud**: new roles, responsibilities and skills are needed to manage cloud based solutions, the role mix between IT staff and departmental staff may alter, techniques used to integrate, extract and report on data in systems may change completely
- **Mobile**: new and different demands emerge with an increasingly mobile workforce that uses technology in locations with limited bandwidth and remote accessibility
- **Integration**: new skills are needed to build, manage and monitor real-time integrations between core business systems using API's
- **Data Architecture, Business Intelligence and Analytics**: new skills are needed to design the Town's overall data architecture, to design and support Business Intelligence and data analytics solutions

It is important that the Town recognizes how fast the IT industry is changing.

Given the changes in play, IT roles cannot remain static. The Town will need to evolve its roles rapidly to keep up with industry changes and as new solutions are implemented. For instance, as the Town moves into digital and online service delivery – new skills in these areas will be required. In some cases, Application Analysts with some training and development may be well positioned to fill these requirements, and will evolve into those areas and a redefined role. In other cases, new skills may be required, and an existing job role may be repurposed as vacancies naturally arise to address the need.

Thus, the IT Management Team must continually work with HR to regularly update job descriptions, to adjust job roles and move staff between teams as needed.

In other areas, the skills and capacity do not currently exist and new staff resources will be needed.

It is recommended that the Town significantly invest in an IT staff skills development program to grow their knowledge and prepare them to implement and support solutions in these areas.

With the high demand for technologists across industry, all municipal IT Divisions face challenges in recruiting high quality staff. This problem can be exacerbated where there are significant technology employment opportunities, particularly in areas such as in the GTA and Richmond Hill / Markham. This has proven to be a challenge at the Town. So, alongside the development strategy to build talent from within, the Strategy also recommends that the CIO works with ELT and HR to develop a recruitment and retention program.

6.5 Tech Savvy Departmental Staff

As has been discussed elsewhere, leadership of technology driven change is core to the organization's ability to transform and respond to emerging pressures. While the partnership between IT and business units is critical, technology cannot be driven by IT alone. IT will need willing, informed and engaged partners.

Thus, building a reservoir of tech savvy skillsets within the Town's senior staff will be important. The Strategy recommends a few approaches be used:

1) Through the governance process and groups, senior staff will be exposed to good practices and the lessons learned from initiatives, all of which can be applied to their own areas of practice.

2) When recruiting staff throughout the organization, the CIO should work with ELT and HR to define the appropriate technology experience and competencies. When recruiting senior staff, experience in leading tech-enabled change should be a key hiring criterion.

3) The CIO should work with HR, ELT and an external partner to develop a development program for senior staff to develop their technology and digital awareness

7. Implementation Plan

The previous sections identified what the Town should do. The following section provides information about the sequencing and timing of the recommended initiatives.

7.1 Phased Implementation Approach

Using the MTA illustrated below as a guide, it is recommended that the Town should build from the foundations upwards in a three-stage approach.
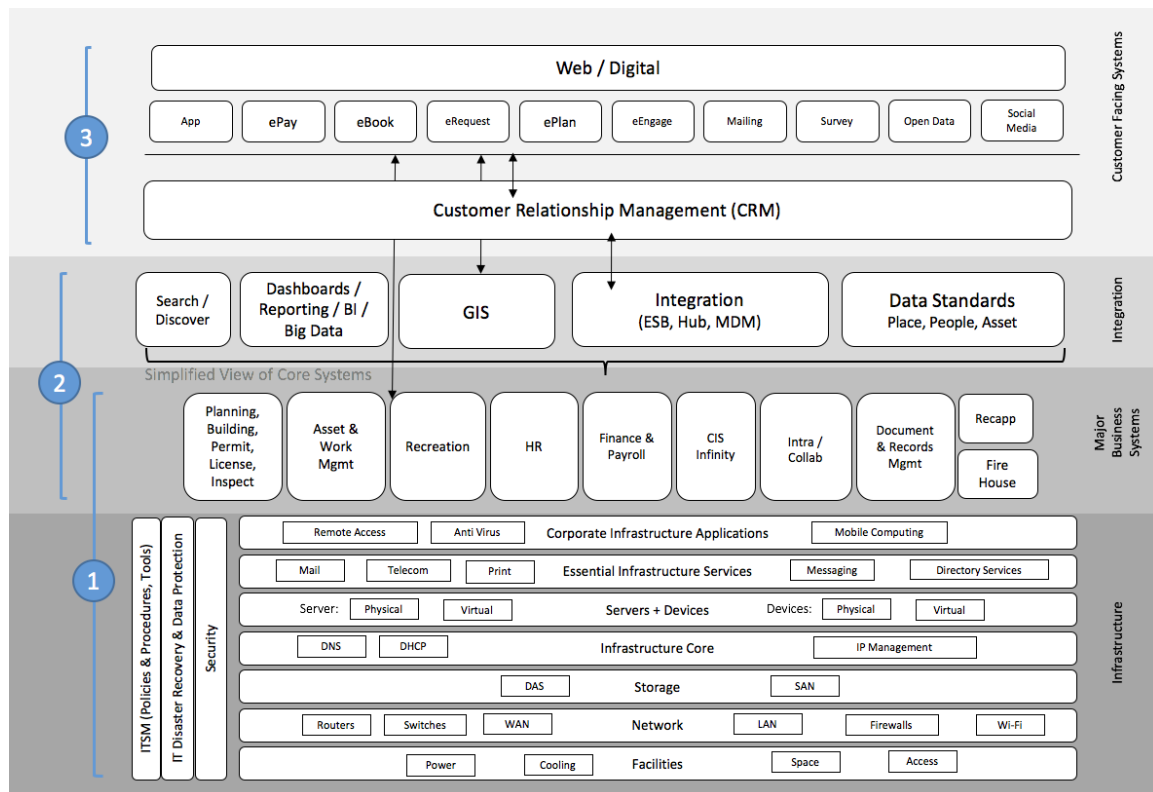
Figure 14: Areas of Focus by Phase

Phase 1 – Building Technology Platforms

In phase 1, building from the bottom of the architecture, the Town will work on establishing solid foundations on which subsequent stages can be built. The Town's infrastructure is relatively well positioned, but some work is required to prepare the infrastructure to be more modern and flexible. Of course, as discussed earlier, the Town must redesign and **digitize** its core business processes into the **business solutions platforms**, such as ERP, CRM, PRM. This is where most of the Town's focus needs to be over the next 3 to 4 years.

Phase 2 – Evolving Systems and Processes to Deliver Service Excellence

In phase 2, data collected and managed through its digitized platforms will, as discussed in the previous section, allow for data integration, analysis, predictive modelling and the generation of insights for service optimization.

Phase 3 – Becoming a Digital, Smart and Innovative Town

In phase 3 the Town will be positioned to build on its digitized and integrated back office systems to deliver simple, easy to use and intuitive customer facing online services.

Each of the three phases is focused on advancing the Town in a particular area. It is proposed that each of the phases be addressed in the timeframes identified in Figure 15.

Figure 15: Phased Implementation
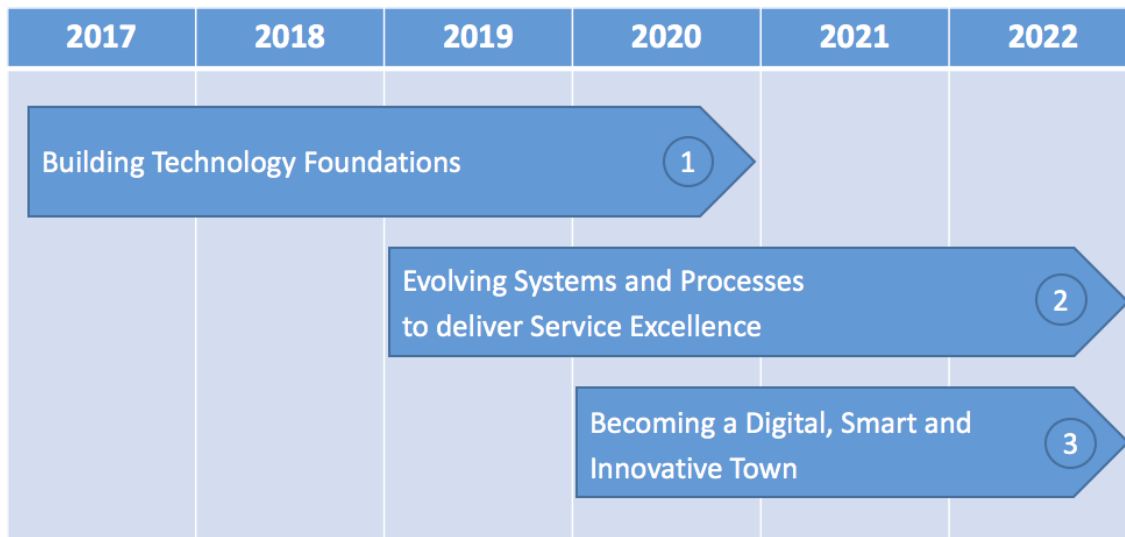
The Strategy recommends that the Town use these three phases as a way of prioritizing areas of focus over the next five years. All actions identified in the rest of this Strategy are linked to one of these phases – suggesting when each should be tackled.

While the three phases predominantly tackle work in the areas numbered in the MTA (Figure 14), it will not be entirely clear cut and there will be some exceptions. For example, some projects occurring in phase 1 that have been previously planned and scoped (e.g. PRM and CRM projects) will deliver some online services – such as online service requests (CRM) and electronic plan submission (PRM).

Thus, the phasing provides a framework for remaining disciplined and focused, but the Town will also need to be somewhat pragmatic about future decision making.

7.2 Summary Implementation Plan

The implementation plan identifies the main initiatives and the suggested timing of those initiatives. It is necessarily a snapshot in time. Of course, the Town should also expect new initiatives and ideas to emerge over the course of the next five years, which may affect priorities and timelines. The intent is that this broad plan should identify the major activities and provide a yardstick against which to measure success over the coming years.

The 5-year technology work plan, alongside the annual capital plan is to be owned by ELT, ITSC and the CIO. The CIO, ITSC and ELT collectively have the responsibility for managing intake, prioritizing and green-lighting major initiatives. It is to be expected that some of the priorities and timelines identified will need to change. Importantly, the CIO, ITSC and ELT must be

prepared to say no to some initiatives to allow the major initiatives – the corporate game-changers – to go ahead.

The following table presents the planned activities over the next 5 years.

2017: Phase 1: Building Technology Foundations			
Business Solutions	**Technologies**	**Strategies**	**Processes**
• Upgrades[1] • CLASS replacement with ActiveNet • Maximo optimization • eScribe • GPS / AVL expansion • Interim Point of Sale (POS) system (due to CLASS replacement project) • CRM Phase 1	• Upgrades[1] • Single sign on infrastructure • New telephony system • New VPN • Mobile computing technology • Integration technologies • Data lake proof of concept to enable data analytics	• Security review • Cloud strategy • Print strategy • CRM Architecture • POS strategy • Integration strategy • Technology Architecture	• IT Governance changes • Transition to operations • Change management playbook • Enhanced Project portfolio reporting • Cloud playbook
2018: Phase 1: Building Technology Foundations			
Business Solutions	**Technologies**	**Strategies**	**Processes**
• Upgrades[1] • CRM Implementation Phase 2 • PRM system • Project Portfolio Management solution	• Upgrades[1] • New telephony system • New devices types / move to laptop • Complete MDM deployment • Data classification tools • Security technologies	• Security plan • Business continuity planning • Device management strategy • Asset Management systems strategy • ECM strategy • Storage / data classification strategy • GIS strategy • Master Data Strategy	• Establish ARB • IT Governance (cont.) • Business process design playbook • IT policy updates • Expansion of the IT metrics program • Formalize IT service level expectations • IT service reviews • IT staff development plan and training
2019: Phase 1: Building Technology Foundations + Phase 2: Evolving Systems and Processes			
Business Solutions	**Technologies**	**Strategies**	**Processes**
• Upgrades[1] • ERP system (Finance / HR) • ECM Phase 1 • ActiveNet evolution	• Upgrades[1] • New telephony system • Full unified communications deployment • Office 365 migration • Remote / flexible working support • Windows 10 / Office 2016 upgrades • Lotus Notes	• Disaster Recovery Plan • ECM planning • Data Architecture • IT employee attraction and retention plan • BI / data analytics strategy • IT strategy review • IT communications strategy	• IT Governance (cont.) • IT Risk Management framework • License management practice • Extended IT service hours • SOP development • Corporate technology training program • IT R&D program • Service catalog

	decommissioning • Cloud infrastructure adoption for some services (e.g. backup, sand boxing, etc)		• IT staff development plan and training

2020: Phase 1: Building Technology Foundations + Phase 2: Evolving Systems and Processes + Phase 3: Becoming a Digital, Smart and Innovative Town

Business Solutions	Technologies	Strategies	Processes
• Systems Upgrades[1] • Intranet • Business Intelligence / data analytics platform • CRM evolution • PRM evolution • Capital projects system • Asset management systems evolution • New online services (e.g. payments, billing)	• Upgrades[1] • DR solutions • Ongoing cloud infrastructure adoption	• Digital strategy and action plan • IT out-tasking and automation strategy • Business process architecture	• Ongoing IT service improvements • IT Governance (cont.) • Enhanced IT intake process • IT knowledgebase • Standard Operating Procedure (SOP) development • IT staff development plan and training

2021: Phase 2: Evolving Systems and Processes + Phase 3: Becoming a Digital, Smart and Innovative Town

Business Solutions	Technologies	Strategies	Processes
• Upgrades[1] • ERP evolution • ECM evolution • CRM evolution • PRM evolution • Asset management evolution • Election management Database • Collections management (heritage) • New online services (e.g. forms, engagement, etc.) • Open data • Smart City solutions	• Upgrades[1] • DR solutions • Ongoing cloud infrastructure migration • Smart City technologies TBD	• Application and technology lifecycle reviews • IT Strategy 2022 - 2027	• Ongoing IT service improvements • IT staff development plan and training

2022: Phase 2: Evolving Systems and Processes + Phase 3: Becoming a Digital, Smart and Innovative Town

Business Systems	Technologies	Strategies	Processes
• Upgrades[1] • Lobbyist register	• Upgrades[1] • Smart City	• Application and technology lifecycle	• Ongoing IT service improvements

• ECM evolution • Digital engagement • Smart City solutions	technologies TBD	reviews	• IT staff development plan and training

Figure 16: IT Strategy Implementation Highlights

[1] A range of departmental and corporate business systems and technology infrastructure upgrades are required annually. The IT Division should develop a lifecycle management plan for all the Town's technology and business systems to assist the ITSC in overseeing the work plan.

7.3 Anticipated Budget Impacts

The following section introduces the financial implications of the strategy's recommendations.

7.3.1 CAPITAL COSTS OF IMPLEMENTATION

The following table summarizes anticipated costs resulting from the strategic recommendations. These costs include software and hardware purchases, implementation and consulting services, training and other one-off implementation costs.

Table 3: Capital Implementation Costs

Year	Estimated Services and Products	Estimated Additional Vendor of Record Resource Requirements	Total
2018	$815,000	$1,380,000	$2,195,000
2019	$3,110,000	$1,560,000	$4,670,000
2020	$2,620,000	$2,760,000	$5,380,000
2021	$1,860,000	$630,000	$2,490,000
2022	$1,000,000	$360,000	$1,360,000

Note that this does not include funds already budgeted in 2017 for multi-year projects. Note also that VOR resources are in addition to proposed staffing additions discussed in section 7.3.1.

These totals do not include existing budgets for funded projects that are currently inflight (e.g. ERP, PRM, Maximo, ActiveNet). In addition, the totals do not include the annual technology replacement program budget that is required to sustain existing technology infrastructure and solutions (e.g. replace hardware (servers, network equipment, printers, PC's) that have reached end of life).

The table clearly indicates a need for ongoing significant investment in technology through to at least 2021.

The Town should be aware that as technology becomes the business engine, sustained investment becomes an ongoing reality. Although the projected budget requirements appear to fall in 2021 and 2022, this is because it is expected that the development of the Digital Strategy will identify new initiatives (which have not been included in these implementation cost estimates). Thus, it is anticipated that new projects with new costs will be identified for the latter stages of this Strategy.

Full details of recommended budgets on a project-by-project basis are available in the work plan spreadsheet that has been supplied separately to the Town.

7.3.1 OPERATING COSTS

Additional Operating Costs

With the implementation of new technologies, the Town will incur additional operating costs for necessary maintenance and support. In addition, the purchase of managed services (such as the security and A/V services recommended to address current gaps in service) in place of hiring new staff, will also incur new operating costs, albeit lower than hiring staff directly. Table 4 provides a high-level estimate of those operating impacts.

As discussed in the Strategy, new software is moving to a lease model and the Town should expect to pay subscriptions for software rather than purchase from capital up front. It is difficult to model these costs at this time, but as the Town adopts more solutions that use the subscription model (e.g. Cloud services) operating costs will be impacted.

Table 4: Operating Costs

Year	Estimated Services and Products
2018	$297,000
2019	$522,000
2020	$1,426,000
2021	$1,881,000
2022	$1,984,000

Note that these represent cumulative operating cost increases year over year. Note also that this table does not include additional operating costs incurred due to proposed IT Division staffing increases.

Staffing Costs

Staffing costs in IT are also anticipated to rise due to the need to add IT resources to deliver the work program and sustain the systems once implemented. Without the addition of these resources, the projects identified within the Strategy will not be effectively delivered, but more importantly the sustainment of the projects implemented will become impossible.

At this time there are a large number of vacancies within IT (8 permanent positions, 2 contract positions) that must be filled as a priority. However, in total an additional 8 permanent FTE's are recommended to be added to the IT Division over the next 5 years. This includes Application Analysts who will be involved in supporting and evolving the business solution platforms, a mobile specialist to support the increased use of mobile technology by field staff, and a training coordinator to address the significant technology training gap.

Table 5: Estimated Staffing Costs

Project Phase	New Positions	Estimated Increased in Staff Costs
2017 – 2019	2	$190,000
2019 – 2022	6	$765,000

Note that this table presents estimated cumulative operating cost increases.

7.4 Keys to Success

Developing the Strategy is, relatively speaking, a simple exercise. Implementing the plan is where the real challenges lie. This section identifies some of the key elements needed for the Town to be successful and for this plan to be realized.

7.4.1 SECURE BUY-IN AND SUPPORT TO THE PHASED-APPROACH

Everyone at the Town, including Council, ELT, Directors, ITSC and staff must support the focus and priorities set out in this Strategy. Adherence to the sequence of initiatives outlined is critically important. Undermining this sequencing will undermine the ability of the Town to achieve its vision.

Recognizing limited capacity in both IT and in business units, the Town can only reasonably tackle a moderate number of initiatives each year. Indeed, the organization's ability to accept change is finite. Thus Council, the organization, management and staff **must exercise patience**.

While there is clearly desire at all levels for the Town to deliver new online services that simplify processes for citizens and staff alike, it cannot do this until pre-requisite work has been completed. The infrastructure must be solid, and the Town's core processes digitized into the business solution platforms before more sophisticated capabilities can be delivered.

7.4.2 ACHIEVING THE VISION IS DEPENDENT UPON FUNDING AND RESOURCING

The Town has already committed significant investment to major technology projects such as PRM and ERP. The plan, as presented, is predicated on continuing support for ongoing investment in technology from Council. This investment will be required to support the implementation projects, for operationalizing the support of solutions, and for ongoing evolution and enhancement of systems and processes.

The Town is already undertaking major projects to implement six enterprise systems and a range of operational solutions including providing mobile technology to over 100 new staff in the field who will likely need extra support given their limited current exposure to technology. These initiatives **will** ultimately drive significant efficiencies and improved services in departments, but they should be expected to add costs and resource needs to the IT Division.

Additionally, it is recommended that the IT service significantly extend its hours of service and client support to include early mornings, evenings and weekends – creating further demands on IT resources.

If the vision articulated in this Strategy is supported by Council, then requisite funding will be required to support its achievement.

7.4.3 STAYING FOCUSED AND DISCIPLINED

As Stephen Covey has said about the importance of adhering to established priorities, *"Keeping the main thing, the main thing, is the main thing"*. Sticking to the plan and resisting the allure of new and emerging opportunities that would interfere with foundational work, will be critical.

It will be the Executive Leadership Team's role, with the support of the CIO and ITSC, to ensure that the Town remains focused on its defined priorities – and to maintain control of project priorities, and changing priorities. Practically speaking, a one-in, one-out approach should be adopted. If the Executive Team decides that a project must move up in the schedule, it must also decide which project will be deferred to accommodate the change.

7.4.4 ACCEPTING SERVICE DELIVERY REDUCTIONS DURING SYSTEMS IMPLEMENTATION

Organizations get precious few opportunities to comprehensively redesign services and processes to be more effective. The implementation of new business solutions represents a once in a decade or more opportunity to do just that.

Who should the Town involve in the design of those new processes to ensure that they meet the needs of the organization? Typically, it is your most experienced and strongest business leaders who should be involved in implementation projects. For example, your financial planning lead should probably be heavily involved as a Subject Matter Expert (SME) on the budget module design for the ERP project.

Realistically, large, complex projects that involve rethinking and redesigning services and processes need full attention – they cannot be done off the side of the desk. SME's need to be seconded to work on projects. Project outcomes can be significantly undone and delivery delayed if the right resources are not made available.

This is challenging because that key person often has critical operational responsibilities. However, given the importance and long term benefits for implementation outcomes, a standard practice is to second the Subject Matter Expert to work on the project and backfill with an external contract resource for the duration of the project. This will necessarily result in, some loss of day-to-day expertise and experience on the operational side of the business. This reduction in service level needs to be understood, planned for and clearly communicated in the context of the project.

7.4.5 MOVING FROM PROJECT TO OPERATIONS MODE

Implementing large business solutions platforms relies on significant up-front investment. But the investment does not stop with implementation. Operating efforts to support these solutions will be required on an ongoing basis, and costs will increase. It is important that the Town allocates sufficient staffing and funding for long term support and maintenance of these major platforms.

As the Town develops new technology solution ideas and business cases, it is important to realistically consider the full effects of each implementation. Operating impacts, including staffing (often forgotten) must be included with the project proposals, so that the Total Cost of Ownership can be fully understood and evaluated.

7.4.6 NEW IT FUNDING MODELS

Several factors are influencing IT budget planning across the industry and in other municipalities. The Town must plan for these changes to impact their IT budgets;

1. The computing software industry is moving away from a purchase model towards a lease model. In the past major systems projects involved the purchasing of software that would be owned by the Town – these purchases were one off purchases typically using capital funds. The new models are based on recurring subscriptions (per user, per month), which lowers the need for upfront capital investment, but shifts the funding source to an operating funding source.
2. Many cloud based, subscription services are US based and charged in US dollars, thus fluctuations in currency can have a significant impact on costs

3. An increasingly mobile workforce, combined with broader availability of devices is increasing the ratio of devices to users. In the past the Town may have only issued one device per user, going forward staff may have more than one Town issued devices (a smartphone and a tablet, a laptop and a smartphone) for various purposes.

The Town must plan for and adjust its IT budgeting accordingly as it transitions to subscription models in various areas of technology.

7.4.7 ENABLE AND EMPOWER THE IT TEAM

Unsurprisingly, the IT Division is central to all the initiatives identified within the Strategy. Several important factors are key to enabling and empowering the IT Division.

1. The historical churn within the IT Division over the last decade has hampered the achievement of strategic goals and IT staff development. Moving forward it is important that the Town's leadership ensures that it invests in filling current vacancies and developing the skills and capabilities of the IT leadership team. IT leadership consistency and continuity will be critical to the achievement of the plan.
2. Recently the IT Division has faced challenges in recruiting and retaining the talent necessary to staff up to full complement. IT will need to work quickly to fill vacant positions and work with ELT and HR to develop a plan to attract and retain IT talent.
3. With the pace of change in the IT industry roles and skills are constantly changing and evolving. Roles must be expected to change, and the organizational structure of IT will need to be more fluid than traditional organizational units. IT must, with the assistance of HR and ELT, be flexible and evolve its organizational structure over the next five years to reflect the changing needs of the organization and the IT industry.

8. Conclusions, Key Recommendations and Next Steps

8.1 Conclusions

The Strategy concludes with these final observations:

- With the revitalization of the IT service and major investments that are underway and planned, the Town has a golden opportunity to build foundations for the future delivery of Digital and smart city government.

- The Town needs to stay disciplined if it is to achieve the vision of becoming *a leading smart community transforming municipal services and citizen engagement through innovative use of technology*.

- Staying focused on the logical progression laid out by the phasing (rounding the bases from 1st to home if you will) is important if the Town is to progressively build out the technology needed to support its long term aspirations.

- As the foundation for the Town's future success, the success of current inflight business solution platform initiatives (such as the ERP, CRM, PRM, Maximo and ECM, GIS) is paramount – these initiatives must be given the space and time, resources and funding necessary to ensure complete success. Adding other projects that departments may consider important will only dilute the resources and effort that can be applied to these critical corporate projects.

- Furthermore, the Town must recognize that the initial implementation of these systems is the starting point for a long-term evolution of business solution platforms to digitize and optimize the Town's business processes.

- Building capabilities around data analytics represents a significant opportunity for the Town to develop insights into its customers and its service delivery in order to create a virtuous cycle of service optimization and improvement.

- Modernizing technology infrastructure, implementing modern communications and collaboration technologies, taking advantage of cloud and mobile technology will all improve staff productivity along with the Town's agility and flexibility.

- There is significant opportunity for the Town to deliver services digitally, and many opportunities to take advantage of smart city technologies. Identifying a roadmap that prioritizes initiatives should be a priority for the Town in the latter part of this Strategy.

- Technology driven change is expected to play such an important role in the effectiveness of the organization and in the Town's ability to scale and meet challenges that not just the IT Division, but the entire leadership and staff, must become tech savvy and change ready

8.2 Key Recommendations

The Strategy makes over 100 recommendations throughout this document. To summarize, the major recommendations made by this Strategy include:

1. The Town should build on its existing IT governance arrangements by formalizing roles and responsibilities, adding new decision making checkpoints, updating corporate IT

policies and providing clearer reporting and communications around technology decision-making and value delivery.

2. The Town should address gaps in its IT risk management approach, with the development of an IT risk management framework and a focus on enhancing security and Disaster Recovery provisioning.

3. In several areas, the Town must establish solutions or management strategies and architectures, including in Enterprise Content Management, CRM, Assets management, GIS <u>before</u> pursuing new solutions or approaches.

4. The Town should focus on a rationalized COTS business solution platform strategy to form the foundations for the Town's business process digitization program. This includes investments in and consolidation of processes into ERP, PRM, Maximo, ECM and CRM

5. Where possible and practical, standalone processes and business solutions should be consolidated into the main business solutions platforms.

6. The Town should modernize its technology and tools for staff, offering contemporary device choices, improved collaboration technologies, and supporting mobile and remote/flexible working

7. The Town should adopt cloud computing, primarily in the Software as a Service area in the near term. Office 365 and other infrastructure based cloud solutions should be anticipated and planned for. The Town's technology infrastructure should begin to be oriented to support a predominantly cloud environment in future.

8. The Town should address several important IT resourcing areas, including

    a. The Town should adopt a hybrid IT service delivery model, whereby the IT Management team orchestrates the delivery of IT services using a mix of internal (permanent and contract staff) and external resources (VOR, vendors, service providers)

    b. The Town should invest in training and developing internal staff with the new skill sets required

    c. The Town should add several new staff to the IT team to support the resource demands created by the implementation of major enterprise systems such as ERP, PRM, CRM, ECM

9. The IT Division should continue to focus on IT service delivery improvements, through

    a. The formalization of service expectations and service levels, and the formalization of service delivery processes

    b. The introduction of extended IT service hours

    c. The introduction, where possible, of self-service

    d. The introduction of departmental IT service reviews

10. The Town should develop a Digital Strategy that identifies a digital and smart city roadmap. The strategy should identify smart city and online service delivery priorities and resources to deliver the program. A range of new digital services including improved

digital engagement, online payments and billing, online permitting and planning, and end-to-end online service requests should be anticipated.

8.3 Next Steps, Next Six Months

The Town is already well into its application renewal program, with a focus around delivering the inflight PRM and Maximo projects, and beginning the major implementations of ERP and CRM. It is critical that these initiatives see success, and as such, the immediate short term actions for the Town focus in this area. Thus, it is recommended that the Town:

- Rapidly fill all existing IT leadership, management and staff vacancies

- Fill approved contract Application Analyst positions to provide support and continuity to key business solution platform projects

- Provide detailed project portfolio reporting to ITSC and ELT to allow visibility into project status from a scope, schedule, risk and resource perspective.

- Ensure reduced service levels in key business areas (Finance and HR) are identified and accepted at ELT and Council, and that backfill for critical business side project roles on major projects is actioned

- Continue to utilize the VOR arrangement to augment internal business and IT resources

- Secure external resources to address immediate gaps, including security and A/V requirements

- Develop and train project leaders, project teams and project sponsors upon an agreed change management methodology

- Implement suitable mobile technology and mobile support provisions to enable the rollout of mobile technologies as part of PRM and Maximo projects

Glossary and Acronyms

Term	Meaning
ActiveNet	The replacement for CLASS that the Town is currently implementing to for recreation program management and facilities rentals.
Agile	A method of project management, used especially for software development, that is characterized by the division of tasks into short phases of work and frequent reassessment and adaptation of plans.
ARB	Architecture Review Board. A group within IT that is responsible for developing and proposing IT architecture and standards. The group will also review proposals to ensure that they fit within the standards.
BCM	Business Continuity Management. This is a is a management process that identifies risk, threats, and vulnerabilities that could impact continued operations. Business continuity provides a framework for building organizational resilience and the capability for an effective response. In the context of technology this identifies the technology requirements to support business continuity.
BI	Business Intelligence – a corporate platform for reporting and data analysis
BPM	Business Process Management. a systematic approach to making an organization's workflow more effective, more efficient and more capable of adapting to an ever-changing environment.
BPR	Business Process Re-engineering is the analysis and redesign of workflows within and between enterprises to optimize end-to-end processes and automate non-value-added tasks.
BRM	Business Relationship Manager
BYOD	Bring Your Own Device – the practice of allowing the employees of an organization to use their own computers, smartphones, or other devices for work purposes.
Cellular	Service provided wireless telecom and data services
CIO	Chief Information Officer
CLASS	Current system used by the Town to manage recreation programs and facility bookings.
Cloud	The practice of using remote servers (and services) hosted on the Internet to store, manage, and process data, rather than the Town's data centre.
Consumerization	Consumerization is the specific impact that consumer-originated technologies can have on enterprises. It reflects how enterprises will be affected by, and can take advantage of, new technologies and models that originate and develop in the consumer space, rather than in the enterprise IT sector

Term	Meaning
CRM	Customer Relationship Management system
CYOD	Choose Your Own Device is defined as a policy which enables users to choose from a small number of corporately approved devices (laptops, tablets and smartphones) for business (and personal use), with the SIM card owned by the company.
DR	Disaster Recovery. This is an area of technology planning that aims to protect an organization from the effects of significant negative events. DR allows an organization to maintain or quickly resume mission-critical functions following a disaster.
ECM	Enterprise Content Management. A system for managing unstructured content and handling documents, records and digital assets.
EDRMS	Electronic Document and Records Management system. Now more commonly known in the IT industry as ECM. See ECM.
eForms	Online forms that allow customers to fill and submit forms online. Typically linked to an account management feature so that the forms can pre-fill known information about a customer (e.g. name, address, etc).
EMM	Enterprise Mobility Management – a suite of software and processes designed to simplify the management of mobile devices in the enterprise
ERP	Enterprise Resource Planning system. An integrated business process management system that is used to automate back office processes, typically including Finance and HR processes.
Firewall	A part of a computer system or network that is designed to block unauthorized access while permitting outward communication.
FME	Feature Manipulation Engine. An integration technology tool designed to simplify the development of integrations between business solutions and data systems
GIS	Geographic Information Systems
HEAT	The Town's helpdesk management system
IaaS	Infrastructure as a Service. A form of Cloud computing that provides hosted network, server, storage services.
ITIL	An acronym for Information Technology Infrastructure Library, is a set of practices for IT service management (ITSM) that focuses on aligning IT services with the needs of business.
ITSC	Information Technology Steering Committee
Maximo	Maximo is the town's linear work management system provided by IBM
MDM	Master Data Management (MDM) is a technology-enabled discipline in which business and IT work together to ensure the uniformity, accuracy,

Term	Meaning
	stewardship, semantic consistency and accountability of the enterprise's official shared master data assets.
MDM	Mobile Device Management – software used to enable IT to manage mobile devices.
Middleware	Software that acts as a bridge between a database and applications, which simplifies integration and interface building.
MTA	Municipal Technology Architecture. Prior & Prior's municipal architecture framework.
Office365	Office 365 is a Web-based version of Microsoft's Office suite of enterprise-grade productivity applications.
Out-task	Out-Tasking is an outsourcing business model that refers to a supplier performing tactical or project-oriented tasks or processes. Out-Tasking includes contracting engagements, which are less complex than Business Process Outsourcing (BPO) engagements.
PaaS	Platform as a Service is a category of Cloud computing services that provides a platform allowing customers to develop, run, and manage applications without the complexity of building and maintaining the infrastructure typically associated with developing and launching an app.
PMI	Project Management Institute. A standards body that has defined project management best practices and methodologies.
PPM	Project Portfolio Management system. A system designed for managing and reporting upon large project portfolio's.
PRM	Planning and Regulatory Management system. This refers to the Energov system currently being implemented by the Town.
Remote Access	Remote access is the ability to get access to a computer or a network from a remote distance. In corporations, people at branch offices, telecommuters, and people who are travelling may need access to the corporation's network
ROI	Return on Investment – a formula with which to measure the financial benefits of an investment.
SaaS	Software as a service (or SaaS) is a way of delivering applications over the Internet—as a service. Instead of installing and maintaining software, you simply access it via the Internet, freeing yourself from complex software and hardware management.
SME	Subject Matter Expert. Typically used to refer to a member of staff from a department that is a lead on a project that has expertise in the business process being digitized or automated.
TCO	Total cost of ownership (TCO) is a financial estimate intended to help

Term	Meaning
	buyers and owners determine the direct and indirect costs of a product or system.
Teleworking telecommuting, remote, mobile, virtual or home working	A variety of terms used to describe the process of working from a location other than the traditional office.
Unified Communications	A term to describe the integration of real-time, enterprise, communication services such as instant messaging (chat), presence information, voice (including IP telephony), mobility features (including extension mobility and single number reach), audio, web & video conferencing, fixed mobile convergence, desktop sharing.
VDI	Virtual desktop infrastructure (VDI) is the practice of hosting a desktop operating system within a virtual machine (VM) running on a centralized server. VDI is a variation on the client/server computing model, sometimes referred to as server-based computing.
VOR	Vendor of Record. In the Town's context this refers to the arrangement with Deloitte to provide IT resources on demand at pre-arranged rates.
VPN	A virtual private network (VPN) extends a private network (the Town's network) across a public network, such as the Internet. This provides secure access to Town technology resources when outside of the Town's network
Wi-Fi	A facility allowing computers, smartphones, or other devices to connect to the Internet or communicate with one another wirelessly within a particular area.