



Business Process and IT Organizational Review

Final Report

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A note to the reader: We have tried to use plain language where possible, but some technical jargon and abbreviations are used in this report. Please refer to the [Glossary](#) for explanation of any unrecognized terms.

1.0 Executive Summary

1.1. Introduction

Perry Group was hired by Haldimand County to conduct a Business Process Optimization (BPO) review and a review of the Information Systems (IS) Division.

In summary, the BPO review looked closely at 15 of the County's hundreds of processes, which resulted in the identification of many opportunities for streamlining, efficiencies and improved customer experiences via digitization.

Most of these improvements are dependent upon the implementation of technologies to enable streamlined processes and, in fact, can mostly be implemented as part of existing or new software projects underway or planned. However, the IS Review identified that there is a lack of capability and capacity within the IS Division to help business units capitalize on these opportunities.

Changes are recommended to the IS Division so that the County can successfully capitalize on the efficiency and customer service improvement opportunities identified.

1.2. BPO Review

The BPO team from Perry Group trained County staff on our BPO methodology and how to conduct BPO, and then the consulting and County teams jointly reviewed the following 15 processes:

- Burn Permits
- Community Guide Process
- Customer Request Management workflow
- Fire Inspections
- Invoice Request Form workflow
- Library Fines and Returns
- Marriage License Issuance
- New Bulk Water Account
- Parking Ticket Tracking
- Road Damage Deposits
- Road Occupancy, Entrance, Excavation and Oversized Load Permits
- Selling a Burial Plot
- Tax Bill Distribution
- Taxi License Application/Issuance
- Water Connections for New Homes/Permit

The following key observations were made:

- Most customer-facing services are designed for over-the-counter service delivery. There is limited customer self-service.
- Where online forms are available (in some cases in response to COVID), the customer often needs to visit a County office to make payments and/or produce forms with original signatures.
- Business processes are largely paper based and managed manually, with a heavy dependency on administrative staff support.
- Where Business Solutions are in place, they are used to track data after-the-fact, not to automate business processes. So, process activities are performed on paper or email, approvals are received on paper and data is then entered in systems to track the activities.
- There is a lack of end-to-end automation, in most cases Business Solutions automate some parts of the processes, but not all.
- Duplication of information is common, with many examples of parallel data entry into Excel, generating letters by repeatedly re-typing the same information in Word, creating documents digitally then printing to collect signatures and then scanning the signed document.
- Field staff are not connected to office systems. So, field staff write information on paper that is later transferred into systems by administrative staff.
- There is a high use of postal mail to deliver notices, which is an expensive mode of information exchange.

Across the 15 processes reviewed, we identified that, in one year of service delivery:

- Customers drive a conservatively estimated 25,000km to visit County offices to use the services.
- Close to 100,000 printed notices are mailed out annually.
- Over 1.5 million sheets of paper are used.

Across the 15 processes, optimizations jointly identified by the BPO team and subject matter experts who deliver the services, identified between 5 minutes to 1 3/4 hours of potential staff time saved per transaction through digitization. In many cases, the County processes tens of thousands of these transactions a year.

Assuming a take up rate of digitized services between 50-75%, the County could:

- Save 10,750 to 16,200 hours of staff time per year.
- Reduce unnecessary travel in the County by up to 2000 trips, reducing travel in the County by 12,500-18,500km, resulting in an environmental reduction of up to 5000 CO².
- Reduce paper use by 750,000-1,250,000 sheets.

Of the processes we reviewed, the highest value can be achieved from implementing the BPO recommendations and digitizing processes and services in the following areas:

- Customer Request Management workflow
- Invoice Request Form workflow (Misc. Invoicing)
- Parking Ticket Tracking (issuance to plate denial)
- Community Guide Process (design, print and distribution)
- Tax Bill Distribution
- Road Damage Deposits
- Library Fines and Returns

A series of initiatives are recommended for the County's consideration and future planning, most of which will leverage existing systems and solutions, or solutions that are currently being implemented (BAS, CityView, Alfresco).

Bear in mind that the BPO review only looked at 15 of the many hundreds of County processes. So, the opportunities identified here are just the tip of the iceberg.

However, achievement of these and any future potential optimization benefits is largely dependent upon the digitation of business processes, and the introduction of online services so customers can self-serve. This, in turn, is dependent upon the County's technology capabilities.

1.3. IS Review

Given the importance of technology to achieving the optimizations identified, the IS Review workstream looked at how well the County is positioned to respond to the opportunities identified in the BPO review.

Undoubtedly, the County has made a major commitment to technology, investing in the BAS project, CityView, Alfresco, ActiveNet, introducing 2 in 1 laptop/tablet devices, enabling mobile working, implementing new technologies to equip the new building, and taking steps to improve internet access in the community. These are very positive steps and signs of a progressive organization.

But, while our review of the technology environment identified positives, it also identified some risks and a lack of investment and focus on cyber security, risk management, and disaster preparedness.

It also highlighted that the Business Solutions area is the critical area for the County over the coming years. There are many business systems projects in flight at this time – successfully landing these projects, products and services is the first step. Sustaining and then evolving the products (BAS, CityView) going forward is going to be critical to delivering efficient, effective and modern government services that meet the expectations of customers and staff.

In reviewing the IS Division services and the IS Division specifically, the consulting team found:

- An under-resourced, overwhelmed team, with a heavy focus on technology infrastructure and back-office support that operates in a reactive mode.
- A flat organization structure, with limited progression and growth potential for staff, and out-of-date job descriptions causing problems for recruitment and retention of IS staff.
- Limited business solutions skills and capacity, with specific concerns about the ability of the Division to effectively drive the implementation and support of Business Solutions products (such as BAS and CityView) once they have been implemented.
- No project management or business analysis capability resulting in challenges successfully implementing business technology projects.

These challenges inhibit the ability of the County to modernize and deliver efficient and effective services. As a result, it is recommended that the County:

- Rethink and reposition the IS Division as a strategic partner with business units and as an engine of modernization.
- Create an IT organization structure that promotes internal growth and development to support recruitment and retention.
- Establish an IT team with clearly defined roles and responsibilities, capacity and capabilities to implement operational efficiency and effectiveness improvements.
- Make sustained investment in experienced business solutions, analyst and project management staff to assist business units in digitization / process modernization.

Working with the County's internal team, the consulting team designed a new IS Division structure that:

- Establishes stronger IS leadership.
- Establishes clear functional groups and clarity of roles and skills needed in IS.
- Sets out logical career progression paths within the IS Division to assist with recruitment, retention and succession planning.
- Reduces operational interruptions for project teams by aiming to resolve issues at first point of contact – Client Services.
- Establishes business solutions capability and leadership, including GIS technology, and readiness to support BAS, CityView, Alfresco, etc.
- Is designed to be future ready, anticipating future needs around Cloud, security and data responsibilities.
- Establishes robust Business Analyst and Project Management capacity / capability to help business units evaluate ideas and opportunities and plan and execute projects successfully.

The result is a new, targeted IT organization that the County can gradually build toward over the next 5 years.

1.4. Recommendations

While the target is the ideal state, we recognize that due to funding constraints, the current COVID situation, and competing priorities, building out the IT organization must happen incrementally. As a result, we recommend that the County:

1. Reposition the IS Division to become a strategic partner and rename the Division to signify the change.
2. Establish stronger leadership for the Division by converting the IT Manager to a CIO, a role that provides strategic advice to Council, SMT and GMs.
3. Establish 3 teams within ITS focused on:
 - Client Services
 - Infrastructure, Cloud and Security
 - Business Solutions, GIS and Data
4. Reorganize existing roles, with new job descriptions and reporting relationships.
5. Add up to 3 new permanent positions in the immediate term into the ITS team to establish the Business Solutions, GIS and Data team and to support in-flight projects.
6. Add contract project management positions to support Broadband and BAS project delivery.
7. Progressively add additional staff over coming years to build out capacity and capabilities of ITS and to address emergent priorities.
8. Create project teams to implement recommended BPO digitization initiatives.
9. Develop a multi-year Digital, Innovation and Technology Strategy to set the future roadmap, and to integrate the various technology aspirations, projects and opportunities into a comprehensive and achievable plan.

1.5. Conclusion

In the age of the Internet and the smartphone, having the internal capacity to provide effective and enabling technology services to staff, to defend against cyber threats, to innovate and optimize business processes, and to enable the delivery of services in a modern, digital way should be a core competency for the County.

Investment in this competency as outlined in this review, will:

- Benefit all County services and staff.
- Allow the County to capitalize on optimization opportunities identified through the BPO review.
- Drive significant benefits to customers.
- Result in cost efficiencies for the County.

2.0 Introduction and Background

2.1. Introduction

Perry Group is a firm that specializes in technology in municipalities. Our mission is *building better municipalities*, and we have worked with over 120 municipalities across Canada on technology strategy and planning work, business process optimization and solutions implementation.

Perry Group was hired by Haldimand County, through an RFP process, to conduct two streams of work:

1. A business process review of up to 15 business processes, including training and mentoring County staff to conduct BPO work in future.
2. A review of the County's IS Division.

The project, which began in August 2020, was sponsored and run by the County's GM, Finance and Data.

The consulting team worked directly with service owners and subject matter experts from each business unit to conduct the BPO work.

The consulting team spent a considerable amount of time meeting with IS Division staff, and with representatives from all departments to conduct the IT assessment and to understand the current situation.

We worked closely with the GM, Finance and Data, IS Manager and the Executive Assistant to the CAO as we developed recommendations.

This is a summary report designed to be shared with Leadership and Council. Other artifacts and deliverables, including all business process documentation and new job descriptions for the ITS Division have been separately provided.

The next two sections (3 and 4, 5 and 6) separately cover the observations and recommendations of the two respective workstreams. The subsequent sections (7 and 8) bring both streams back together into a common set of considerations and recommendations.

2.2. Acknowledgements

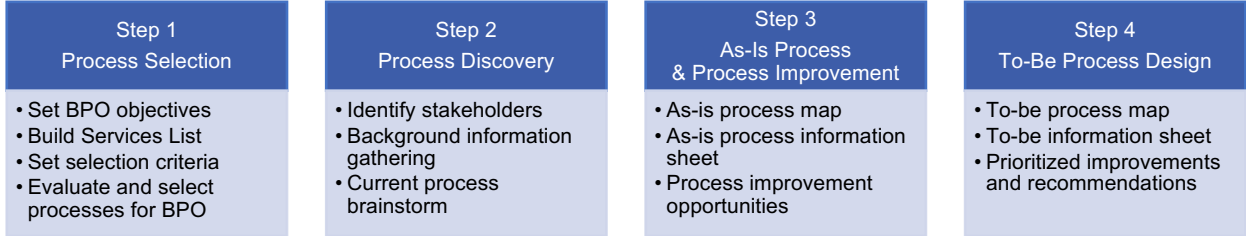
Perry Group would like to acknowledge the active involvement, cooperation and support of County staff and stakeholders throughout this project.

BPO Review

3.0 BPO Review

3.1. Our BPO Methodology

Perry Group uses a simplified BPO methodology informed by Lean Six Sigma and Business Process Re-Engineering (BPR) best practices. Our four-step process is illustrated in the diagram below.



The team of Perry Group consultants and Haldimand staff were engaged over three months in the execution of the following activities:

3.1.1. Step 1 – Process Selection

The first step of selecting the business processes for review, requires the definition of selection criteria. Starting from the Perry Group standard process selection criteria, the project team finalized a common set of criteria to be applied to all key County processes to identify the Top 15 business processes to be reviewed.

The following list identifies the process selection criteria used:

1. Annual transaction numbers.
2. Most requested online services by citizens.
3. Most requested internal services by staff.
4. Benefit to customer/staff.
5. Success rating.
6. Readiness.
7. Number of departments benefitted.
8. Estimated hard \$ savings.
9. Priority for County Council/SMT.

Each attribute had a rating range of 1 to 3, with 1 being low and 3 being high. A detailed explanation of how to apply these ratings was defined collaboratively and is explained below.

Criteria	Description	Rating Scale
Annual transaction numbers	Gives a quantifiable measure of the number of times a process is executed, e.g., # of parking tickets issued, # of building permits issued.	3 (over 500 annual transactions) 2 (500-100) 1 (less than 100)
Most requested online services by citizens	Based on staff knowledge, citizen surveys and what other municipalities have provided, what are citizens looking for online?	3 (high customer demand) 2 (medium demand) 1 (low demand)
Most requested internal digital services by staff	Based on staff requests, internal surveys and your personal knowledge, what services have the staff asked to be digitized?	3 (high staff demand) 2 (medium demand) 1 (low demand)
Benefit to customer/staff	Would the changes improve the customer/staff experience (e.g., currently require a visit vs. online self-service anytime, manual workflow vs. digital)?	3 (visits vs. online) 2 (semi-automated) 1 (no change)
Success rating	How successful would the implementation be? A high risk, high complex process will have a low success rate compared to a low risk and low complex process.	3 (low risk, low complex) 2 (medium risk, medium complex) 1 (high risk, high complex)

Criteria	Description	Rating Scale
Readiness	Readiness depends on two factors – availability of budget and staff resources.	3 (budget approved and staff ready) 2 (either budget <i>or</i> the staff is available) 1 (no budget and staff is not ready)
Number of departments benefitted	Would the improvements impact all internal staff (e.g., payroll) or multiple departments or a single division?	3 (corporate-wide) 2 (multiple departments) 1 (single department/division).
Estimated hard \$ savings	What are the estimated hard \$ cost savings from optimizing a particular business process?	3 (> \$20,000) 2 (\$10,000 - \$20,000) 1 (<\$10,000)
Priority for County Council/SMT	Based on any priorities set by various levels of leadership for any specific business areas for improvements.	3 (Council/Corp.) 2 (multi-departmental) 1 (divisional)

After finalizing the priority criteria and using the Municipal Reference Model (MRM) as the source service and process list, the County and the consulting teams worked together to select 15 processes to be reviewed.

The following Top 15 business processes were selected:

1. Burn Permits.
2. Community Guide process (design, print and distribution).
3. Customer Request Management workflow.
4. Fire Inspections.
5. Invoice Request Form workflow (Misc. Accounts Receivable (AR) Invoicing).
6. Library Fines and Returns.
7. Marriage License Issuance.
8. New Bulk Water Account.
9. Parking Ticket Tracking (issuance to plate denial).
10. Road Damage Deposits.
11. Road Occupancy, Entrance, Excavation and Oversized Load Permits.
12. Selling a Burial Plot.
13. Tax Bill Distribution.
14. Taxi License Application/Issuance.
15. Water Connections for New Homes/Permit.

3.1.2. Step 2 – Process Discovery

The next step involves a review of existing (as-is) processes. An as-is workshop (one for each process) was conducted for each of the 15 processes to understand and document the current (as-is) business processes and practices. The consultants used the Miro online process mapping tool (illustrated below) to capture, organize and share the steps in the process flow in real-time with the participants.

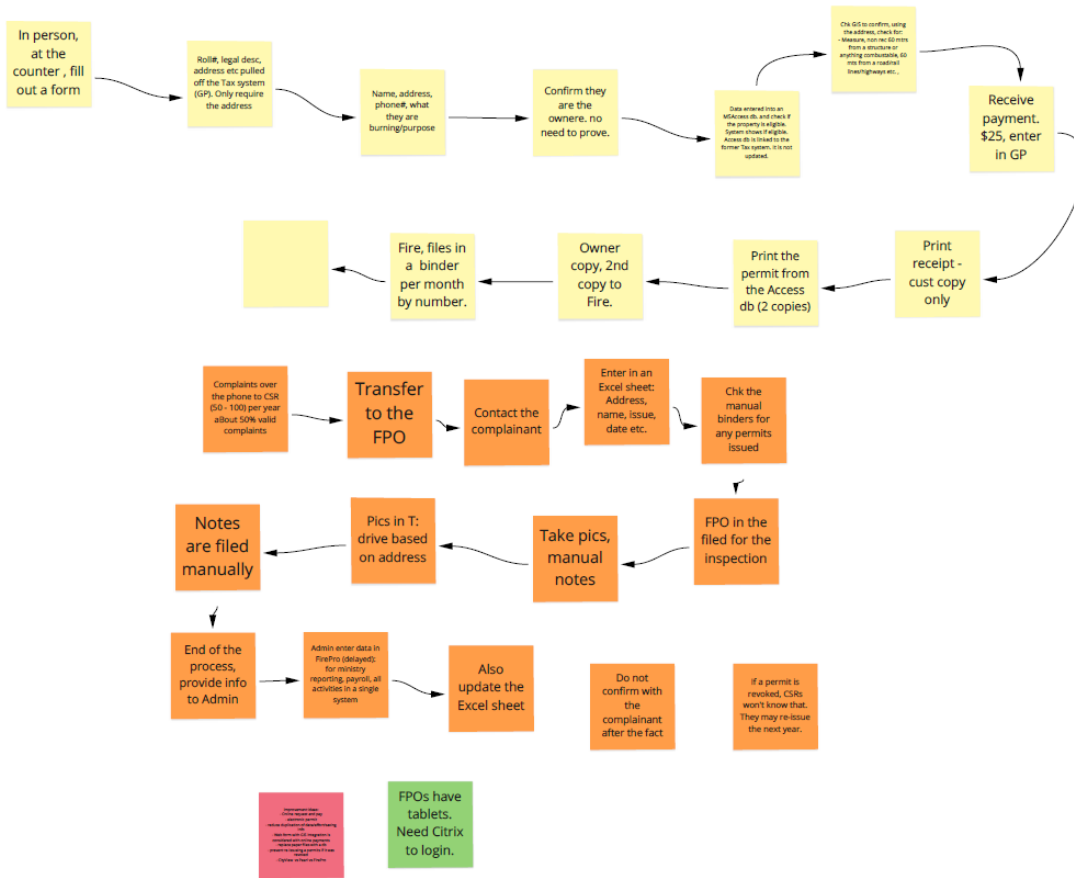


Figure 1: Sample Process Capture Using the Miro Tool During an As-Is Process Workshop

The challenges within the current process as well as high-level improvement ideas were identified and discussed during the as-is workshop.

3.1.3. Step 3 – As-Is Documentation and Improvement Identification

Following the workshops, the BPO team documented the as-is business processes, and sought clarification where necessary.

Use of paper forms within the process and the administrative activities with high potential for improvements and/or elimination were identified.

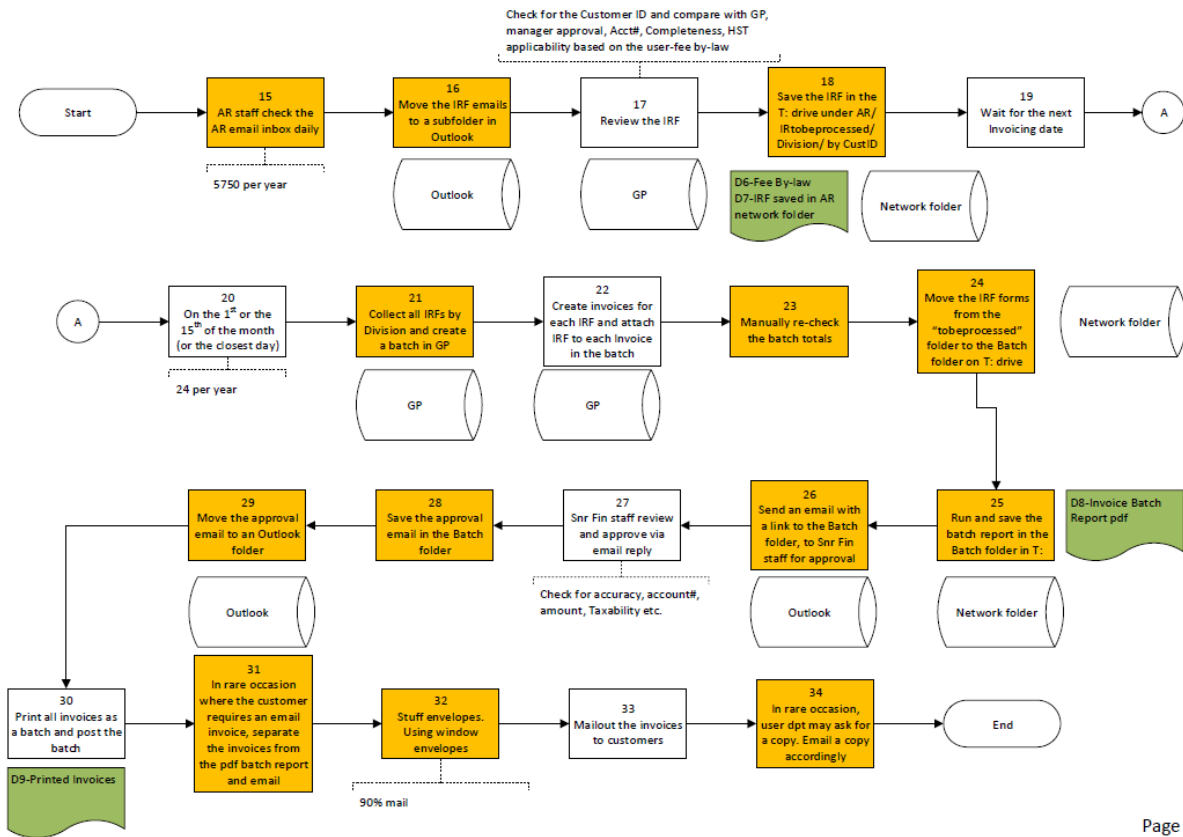


Figure 2: Sample As-Is Process Map

An as-is process Information Sheet was prepared outlining core details of the process. Sample artifacts such as system screenshots, documents, receipts, etc. were also collected.

The resultant process map and information sheets were shared with the subject matter experts and teams for their review and any feedback was used to update the as-is documents to accurately reflect the current processes.

3.1.4. Step 4 – To-Be Process Design

Next, the consultants generated ideas for optimization for each process based on past experience, knowledge of municipal business processes, current as-is process, participant inputs, objectives of the project and knowledge of business solution capabilities in the industry.

Process optimization workshops were then held with County staff for each process. During the workshops, the consultants shared potential and proposed changes to the process, explained the potential benefits and discussed the viability of proposed improvements.

Participant inputs were gathered to improve the proposed optimizations and to identify potential challenges that must be addressed for implementation to be successful.

The consultants documented the to-be process flows including preparing a to-be process information sheet.

The as-is business process maps were updated to identify specific tasks that could be eliminated (indicated in red in the figure below) as a result of the optimization.

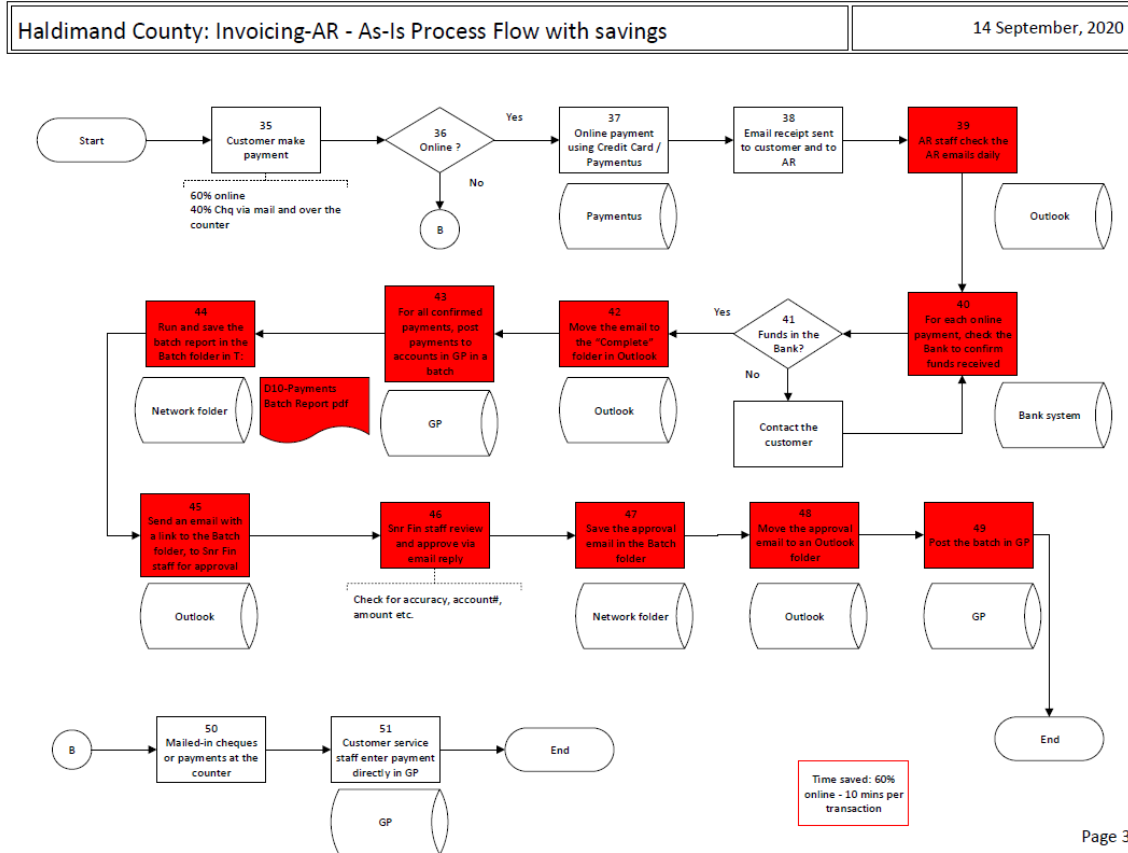


Figure 3: Sample As-Is Process Map with Eliminated Activities

Potential improvements to customer experience, potential staff time savings and the number of hardcopy documents that could be eliminated were identified.

A standard blended hourly rate for staff of \$40 per hour was used to calculate the potential cost avoidance.

Potential time saved through the identified process improvements was converted into a potential cost avoidance value, using the blended rate.

Optimization benefits:

	Customer Experience (Cx.)	Cx. Rating	Elapsed time	Time saved from the eliminated activities	Paper use (hardcopy documents eliminated)
Current	Email and over the counter	Low	1 weeks – 6 weeks	34 activities out of 73 are eliminated saving 2 Hrs. and 20 minutes	11 hardcopy documents are eliminated
Future	Online self-service	High			
Improvement		High		2 Hrs. 20 minutes	11

Figure 4: Sample Optimization Benefits Quantified in the Information Sheet

- For each of the 15 processes, a process optimization package was created and shared with each team for feedback.
- The feedback from each team was assessed and optimization packages were updated accordingly.
- The benefits from each process optimization were consolidated to establish the overall benefits of the BPO review.

3.2. Knowledge Transfer to County Staff

The County requested that the BPO knowledge be transferred to the internal staff during the project. The following steps were taken to successfully transfer the knowledge:

- Two staff members were identified by the County to receive the BPO knowledge transfer.
- BPO templates were shared with staff, and the process used by our consulting team was demonstrated through a workshop.
 - Information Sheets, Miro online mapping tool, Microsoft Visio templates for the as-is and to-be process flows were shared with the County team.
- BPO sessions were co-hosted by Perry Group consultants and County staff.
 - County staff attended all BPO as-is and to-be sessions.
 - County staff hosted some workshops and prepared the documentation
- Continuous knowledge transfer and mentoring was provided by the Perry Group team through collaboration and Q&A throughout the project.

3.3. Observations and Findings

The summarization of findings shows that the County is heavily dependent on paper-based processes. Paper-based processes require the customers to visit County offices to receive services.

The following indicators are based on the actual transaction numbers from the 15 processes that were reviewed (based on the 15 processes reviewed, according to the current as-is process, annually):

- Customers would drive over 25,000 km to a County office to receive a service.
- Close to 100,000 printed notices would be mailed out.
- Over 1.5 million sheets of paper would be used.

These are some general observations across all 15 processes:

- Business processes are mostly managed manually.
 - Even when a system is present, the process is tracked manually, and data would be entered in the system as a separate activity.
- Business systems are used to track data, and not necessarily to automate business processes.
 - Multiple business processes use systems to enter data for reporting purposes and not to automate the process.
 - The process activities are performed on paper or using other tools such as email.
 - Approvals are received on paper and data is entered in systems to track the activities after the fact.
- Duplication of information.
 - The same information would be duplicated many times over and over through the same business process.
 - Data entry into Excel, generating letters by re-typing the same information in MSWord, printing documents for signatures and then scanning the signed document are common practices throughout the organization.
- Paper-based.
 - Business processes are heavily paper-based (information is transferred from one activity to another through printed paper, scanned documents attached to emails, etc.).
- Most customer-facing services are over-the-counter.
 - Some services were converted to online during Covid-19 but require manual intervention due to lack of integration.
- Lack of integration.
 - Cross-departmental processes lack integration, e.g., finance data between CityView/Pearl with Great Plains.

- Lack of end-to-end automation of processes.
 - Business systems are used to automate some parts of the processes but not all activities.
 - Most often, business processes are seen as a set of activities within a single department.
 - Information in systems would be printed on hardcopy for field staff to continue with the process.
- Heavy dependency on administrative support.
 - In most situations, technical staff rely on administrative staff to do the data entry and tracking of business processes.
- Lack of customer self-service.
 - Most processes are designed for over-the-counter interactions.
 - Even where online forms are available, the customer needs to visit a County office to make payments and/or produce forms with original signatures.
- Field staff are not connected.
 - In most instances, business systems are not used in the field.
 - Staff write information on paper that is later transferred to the system by administrative staff.
- Mostly using postal mail to deliver notices.
 - Almost all processes are using mailing of printed notices to residents.
 - 22,000 community guides are mailed out twice/year to all residents.
 - 25,000 tax bills are printed and mailed out twice/year.
 - Over 5000 invoices are mailed out each year.

3.4. Identified Potential Benefits

3.4.1. Quantifiable Benefits

The BPO exercise identified three key areas where quantifiable benefits could be realized through process optimization.

Most of these benefits could be achieved through the digitization of business processes. Detailed information about process improvements for each business process have been shared with the County staff through the to-be process documentation package. The package includes the to-be process flow, to-be Information Sheet and the as-is process flow with the eliminated activities identified.

Process Efficiencies

Efficiencies within a business process could be realized through various means.

Key recommendations for the County are:

- Elimination of manual activities.
- Elimination of unnecessary or duplicate tasks.
- Automation of repetitive administrative tasks.
- Moving to self-service for internal staff and external customers.
- Transitioning County residents from mailing to emailing or other digital communication channel.

As noted earlier, current processes are predominantly designed for over-the-counter customer interactions. This creates a set of administrative activities for staff, as well as customer inconveniences. By designing processes to be self-serve in nature, many administrative tasks can be eliminated.

Implementing or completing the implementation of business solutions that use digital, real-time workflows will be central to achieving these efficiencies.

The table below shows the results of the assessment of each of the 15 business processes, identifying the potential time and savings that could be achieved for each business process by eliminating administrative steps through digitization.

Business Process (Sorted A-Z)	# of Transactions	Time Saved per Transaction	Time Saved Annually (in hrs.)
Burn Permits	900	20 minutes per permit 30 minutes per complaint	325
Community Guide Process (design, print and distribution)	44,000	25 days per publication	350
Customer Request Management workflow	52,000	5 minutes per call 1 hr per Workorder	12,148
Fire Inspections	150	1 hr and 45 minutes	263

Business Process (Sorted A-Z)	# of Transactions	Time Saved per Transaction	Time Saved Annually (in hrs.)
Invoice Request Form workflow (Misc. AR Invoicing)	5,750	5500 transactions annually 60% online pay 1200->30 overdue 900->60 overdue 300 to collection agency 20 adjustments	3,500
Library Fines and Returns	25,000	Saves 20 mins per item and 5 mins per day	1,792
Marriage License Issuance	175	15 minutes	44
New Bulk Water Account	400	400 active accounts 80 new accounts annually	88
Parking Ticket Tracking (issuance to plate denial)	1,100	1.5 hrs	1,650
Road Damage Deposits	950	1 hr	950
Road Occupancy, Entrance, Excavation and Oversized Load Permits	250	1.25 hrs	313
Selling a Burial Plot	200	10 minutes	33

Business Process (Sorted A-Z)	# of Transactions	Time Saved per Transaction	Time Saved Annually (in hrs.)
Tax Bill Distribution	50,000	30 hrs. per cycle	60
Taxi License Application/Issuance	100	30 minutes	50
Water Connections for New Homes/Permit	200	35 minutes	117
Total for the year			21,681
Total Hours Based on 75% Digitization			16,261

The above table shows the potential time savings based on 100% digitization of each process. At a 50% rate of digitization, this would amount to 10,840 hours, if the County reaches 75% digitization, the time saved annually would equate to 16,200 hours which is equivalent to 9 full time staff.

Cost Avoidance

The time saved through the eliminated activities could be equated to cost avoidance. The consultants used a blended rate of \$40 per hour to calculate the cost of staff time. The following table shows the cost avoidance for each process.

Business Process (Sorted A-Z)	Annual # of Transactions	Time Saved Annually (in hrs.)	Cost Avoidance
Burn Permits	900	325	\$13,000
Community Guide Process (design, print and distribution)	44,000	350	\$63,000*
Customer Request Management workflow	52,000	12,148	\$485,917
Fire Inspections	150	263	\$10,500

Business Process (Sorted A-Z)	Annual # of Transactions	Time Saved Annually (in hrs.)	Cost Avoidance
Invoice Request Form workflow (Misc. AR Invoicing)	5,750	3,500	\$140,000
Library Fines and Returns	25,000	1,792	\$37,433
Marriage License Issuance	175	44	\$1,750
New Bulk Water Account	400	88	\$4,896**
Parking Ticket Tracking (issuance to plate denial)	1,100	1,650	\$66,000
Road Damage Deposits	950	950	\$38,000
Road Occupancy, Entrance, Excavation and Oversized Load Permits	250	313	\$12,500
Selling a Burial Plot	200	33	\$1,333
Tax Bill Distribution	50,000	60	\$50,000***
Taxi License Application/Issuance	100	50	\$2,000
Water Connections for New Homes/Permit	200	117	\$4,667
Total Annual Cost Avoidance			\$930,996

*The Community Guide process could avoid hard costs of \$49,000 (included in the cost avoidance) related to printing and mailing of the guide.

**The Bulk water invoicing could avoid hard costs of \$3,840 related to monthly mail out of invoices.

***The Tax Billing process could avoid hard costs of \$47,600 (already included in the cost avoidance) related to printing and mailing of the tax bills.

Assuming a 50% digitization success rate the cost-avoidance could be \$465,000. At a 75% rate, the cost avoidance could be \$700,000 annually.

The saving achieved is typically manifested as creating new capacity within individual business processes, as well as with individual staff.

This may mean that the County can repurpose some roles to take on additional responsibilities, or that activities that staff previously had little time to complete can now be dealt with, or that the transaction volumes handled by the existing staff can increase, which may mean the County can delay or reduce future hiring in those business units.

Environmental Savings

By providing online self-services to the residents, the County could improve customer service and save the need to drive to a County office to receive services. The consultants calculated the number of trips that could be avoided, and the amount of driving based on an average of 10km per round trip. The results are shown below.

Business Process (Sorted A-Z)	Annual # of Transactions	Trips Eliminated per Transaction	Total annual KMs Driven @ 10km per Trip
Burn Permits	900	1	9000
Community Guide Process (design, print and distribution)	44,000	0	0
Customer Request Management workflow	52,000	0	0
Fire Inspections	150	0	0
Invoice Request Form workflow (Misc. AR Invoicing)	5,750	0	0
Library Fines and Returns	25,000	0	0
Marriage License Issuance	175	0	0

Business Process (Sorted A-Z)	Annual # of Transactions	Trips Eliminated per Transaction	Total annual KMs Driven @ 10km per Trip
New Bulk Water Account	80	1	800
Parking Ticket Tracking (issuance to plate denial)	1,100	0	0
Road Damage Deposits	950	1	9,500
Road Occupancy, Entrance, Excavation and Oversized Load Permits	250	1	2,500
Selling a Burial Plot	200	1	2,000
Tax Bill Distribution	50,000	0	0
Taxi License Application/Issuance	100	1	1,000
Water Connections for New Homes/Permit	200	1	2,000
Total Kms Avoided			26,800

At 50% digitization, 13,400 kms will be eliminated. Assuming a 75% digitization success rate, the residents could be saving close to 2000 trips annually equating to 20,000kms of driving. This is equivalent of 5,000Kg of CO² emissions.

The County business processes are paper heavy. Digitization can help avoid the need for paper. The following table indicates the amount of paper that could be avoided to support the environment.

Business Process (Sorted A-Z)	# of Transactions	# of Hardcopy Documents Eliminated	# of Sheets of Paper Eliminated
Burn Permits	900	7	6,300
Community Guide Process (design, print and distribution)	44,000	44,000	1,320,000
Customer Request Management workflow	52,000	3	25,575
Fire Inspections	150	3	450
Invoice Request Form workflow (Misc. AR Invoicing)	5,750	15	82,500
Library Fines and Returns	25,000	2	20,000
Marriage License Issuance	175	4	700
New Bulk Water Account	400	3	4,960
Parking Ticket Tracking (issuance to plate denial)	1,100	6	20,000
Road Damage Deposits	950	6	5,700
Road Occupancy, Entrance, Excavation and Oversized Load Permits	250	12	3,000
Selling a Burial Plot	200	3	600
Tax Bill Distribution	50,000	50,000	50,000

Business Process (Sorted A-Z)	# of Transactions	# of Hardcopy Documents Eliminated	# of Sheets of Paper Eliminated
Taxi License Application/Issuance	100	15	1,500
Water Connections for New Homes/Permit	200	7	1,400
Total Sheets of Paper Eliminated			1,542,685

The annual paper savings could be equated to over 1.1 million sheets based on a 75% digitization of the 15 business processes.

3.4.2. Unquantifiable Benefits

Enhanced Customer Service

The digital transformations provide other benefits to the County and its customers.

It is difficult to quantify the rate of increased customer satisfaction but by digitizing and providing online services, customers would be able to request and receive their services 7 days a week, 24 hours a day. They could interact with the County from anywhere and at any time. While this improved customer convenience and experience could be measured through surveys, it is difficult to quantify.

Data Analytics

Process automation also allows the County to collect near-real-time data in a structured way. This data could provide valuable insights to the organization. The decision-making capabilities and the use of data for decision support could increase due to the data analytics capabilities.

Quality of Service

By eliminating administrative tasks, staff would have more capacity. This would allow the staff to provide a higher quality of service. The time spent on administrative tasks could now be used to spend more time with helping customers and improving their experience interacting with the County.

3.5. Recommended Optimization Focus Areas

It is important to prioritize the optimization efforts so that the County receives the maximum value for the effort. The following table shows that the Top 7 business processes could provide the most cost avoidance to the County.

It is recommended that the County target the optimization of the Top 7 processes as a priority.

Business Process	# of Transactions	Cost avoidance (Sorted High -Low)
Customer Request Management workflow	52,000	\$485,917
Invoice Request Form workflow (Misc. AR Invoicing)	5,750	\$140,000
Parking Ticket Tracking (issuance to plate denial)	1,100	\$66,000
Community Guide process (design, print and distribution)	44,000	\$63,000
Tax Bill Distribution	50,000	\$50,000
Road Damage Deposits	950	\$38,000
Library Fines and Returns	25,000	\$37,433
Burn Permits	900	\$13,000
Road Occupancy, Entrance, Excavation and Oversized Load Permits	250	\$12,500
Fire Inspections	150	\$10,500
New Bulk Water Account	400	\$4,896
Water Connections for New Homes/Permit	200	\$4,667
Taxi License Application/Issuance	100	\$2,000

Business Process	# of Transactions	Cost avoidance (Sorted High -Low)
Marriage License Issuance	175	\$1,750
Selling a Burial Plot	200	\$1,333

The total annual potential cost avoidance from the Top 7 processes equates to \$880,000, whereas the bottom 8 processes could achieve \$50,646.

This is the value of BPO work. It helps organizations identify quickly and at relatively low cost which areas would benefit most from streamlining and digitization – and where to make investments to achieve the biggest bang for the buck.

3.6. What’s Required to Achieve Identified Optimizations

In order to achieve the optimizations identified in this report, the County should focus on the following key areas:

1. Project Governance
2. Resourcing
3. Business Systems Architecture
4. Digitization of Business Processes
5. Integrated Online Services

3.6.1. Project Governance

Governance is an important aspect for successful delivery of projects. This is a pre-requisite to embarking on any of the proposed changes.

Project governance should define the responsibilities of each stakeholder, setup a decision-making structure (typically a stakeholder steering committee), decide on a decision-making process, conflict resolution process, reporting and escalation process, set the expectations and the deliverables, project change management process, etc.

3.6.2. Resourcing

As will be discussed further in the [IS Review](#) section of the report, to be successful, these major projects should have dedicated staff and the necessary funding to support resourcing from business units.

The following are typical project roles that are required to implement the changes proposed through the BPO exercise:

Project Manager (PM): The PM will ensure that the projects are implemented as per the budget, scope and schedule. A dedicated PM for the BPO projects is proposed (and we believe) necessary based on the number and complexity of these projects. The PM will also play the role of a change manager.

Business Analyst (BA): The BPO project has identified multiple business process changes. The BA will: work with the PM in the digitization of the optimized business processes; understand the functionalities of business systems and match the business processes accordingly; identify alternative process steps in line with the functionalities of the systems; work with the business to interpret the business needs into system functions. It is recommended that a dedicated BA be made available to the BPO implementation project team.

Further discussion of these roles can be found in the next section. Note also that it is possible to have a combined **PM/BA** role played by the same person – and several of these roles are recommended as an outcome of the IS Review.

Subject Matter Expert (SME): County department users are busy with their day-to-day work. It is not practical to pull existing staff into a project and expect them to be able to do project work as well as operate effectively in day-to-day business. It is vital that dedicated SMEs are available as part of the project team for successful implementation, e.g., a Tax Billing SME should be made available when the Tax Billing business process is digitized. The recommendation is to reserve funds to hire backfill staff to do the day-to-day activities while a seasoned SME from the business unit is assigned to a project.

3.6.3. Business Systems Architecture

The MTMM recommends that municipalities implement a handful of core systems and re-uses those systems as broadly as possible. This has the benefit of helping staff grow familiar with the tools, reducing the number of systems that must be supported by IT staff, reducing the number of interfaces that are needed, and reducing the overall complexity of the environment. Adopting this approach also ensures that organizations get the highest value that they can from their investments.

The BPO project identified three key business systems that will play a central role in optimizing the bulk of the processes – reinforcing again the importance of business solutions.

In each case, the County has already committed to and is in the process of implementing systems in these areas.

Planning, Permitting and Licensing System (PPLS) – CityView

The PPLS should be considered as the core business system that automates all property-based business processes. These include Development Planning Applications, Building Permits, Licensing, By-law Complaints and Enforcement, Fire Inspections, etc. A property-based ecosystem should be built around the PPLS.

Currently, the County is implementing the CityView system for some parts of this eco-system. All internal departments should have access to the data stored in PPLS to perform their day-to-day activities. For example, Fire Inspectors should have access to By-law complaints and Building Permits issued to a property, and vice-versa.

Asset and Work Management System (WMS) – Pearl

All activities and data related to asset management should be consolidated into a single AMS. Service requests, work orders, asset condition tracking, asset maintenance, asset inspections, etc., are included within a single AMS. The Pearl/WorkTech system is currently used to automate some parts of the AMS today.

Enterprise Resource Planning (ERP) System – Great Plains and Paramount

This includes the financial and human resources management functions. The County has implemented the Great Plains (GP) system for this purpose and is continuing to expand the use of GP through the BAS project.

3.6.4. Digitization of Business Processes

When processes are digitized and managed electronically, all transaction processing, workflows, notifications, quality checks and validations can be carried out online, so they can happen anywhere (in the office, at a worksite, in a truck at the side of the road, or at home).

Offline steps (manual interventions such as checking a paper file or getting a physical signature) are reduced or eliminated when all of the processing is handled online. The online chain provides complete visibility of the process throughout the organization.

Systems manage the routing and workflow of the processes, including escalating items to senior staff when exceptions are encountered, or performance falls below defined levels of service.

Digitization allows the County to track its own processes, to share information between staff, to track important management metrics that contribute to improved process effectiveness.

Digitization also makes it easy to add new services, such as the introduction of a tree bylaw, because changes can be introduced through already established business systems that already support the online applications process, back office administrative tracking (such as processing payments) and providing data to field crews.

The County can transform internal workflows using digital technologies. When implementing new systems or upgrading old systems, a “digital first” strategy should be applied to the internal approval activities.

In order to implement this change, it is important that the paper-based information be digitized and made available through business systems, e.g., property files, parking tickets. Use of eSignatures and/or eApprovals is a key component of digital workflows. It is recommended that the County embrace and promote eApprovals over manually signed paper documents.

When designing digital workflows, it is important to eliminate the option for parallel manual systems. The users that participate in the process must depend on the information in the system. County management should rely on the reports coming out of the system. The digital workflow should be the authority over any other secondary or parallel tracking mechanisms, e.g., approval for an application should be made within the system using the digital approval process rather than using an email outside the system for the approval.

3.6.5. Integrated Online Services

After implementing the business systems architecture and achieving a stable, functioning Business Solutions Layer, the County can turn its attention to building the Customer-Facing Layer to be its primary customer service channel. This requires a holistic view and a collaborative effort by all customer-facing departments: the Library, Finance, Building, Fire, Recreation, etc.

There should be a County-wide communication strategy to get the public involved in the transition from over-the-counter to online services for the citizen-facing services.

All citizen-facing business processes in the BPO project were identified as potential candidates for online services. The County can maximize the use of the current external web platform to enable online services. The design of online services should be customer-friendly, modern and must focus on improving the customer experience. A “digital first” approach should be followed when designing new services.

Some important features of online service design are noted below:

- Online fillable forms with the ability to attach supporting documents.
- Online payments integrated with online forms.
- Mobile enabled online forms.
- Ability for customers to submit as well as check the status of their submissions.
- Secure ID to create and maintain a user profile and to track ongoing status of applications.
- Consideration should be given to making certain services 100% online, especially where the customer is a company/organization/business that is likely to see greater uptake, e.g., developers requesting permits.
- Data captured online should be integrated directly with the County’s business solutions. A property standards complaint received online should be available in the complaints tracking system without having to manually enter the complaint information in the system.
- A service request entered online should automatically flow to the Asset Management System.
- Customers should have the ability to choose to be notified via email, portal, text, etc.
- eBilling should be the primary channel to distribute utility and tax bills to residents.

3.7. Investment and ROI

The County is already in the middle of implementing multiple core business systems. The BAS project includes the implementation of an Asset Management System (AMS) using Pearl/WorkTech, a Planning Permitting and Licensing System (PPLS) using CityView and online billing and ePayments through the Virtual City Hall system (VCH).

The BPO recommendations are in complete alignment with these current initiatives.

The consultants recommend that the proposed changes be funded and resourced sufficiently to ensure successful completion in a timely manner.

The consulting team provides here a timeline for the County's consideration. This must be integrated into an overarching IT Strategy and corporate business plan.

The following table indicates the resources and related costs associated with the Top 7 BPO initiatives.

Year	Business Process	One Time Cost	Annual Maintenance Cost	Project Staff Cost
Year 1	Customer Request Management workflow	\$50,000		\$120,000
Year 2	Invoice Request Form workflow (Misc. AR Invoicing)	\$70,000	\$5,000	\$80,000
	Parking Ticket Tracking (issuance to plate denial)	\$100,000	\$20,000	\$80,000
Year 3	Community Guide Process (design, print and distribution)	\$50,000	\$10,000	\$120,000
	Tax Bill Distribution	\$50,000		\$80,000
Year 4	Road Damage Deposits	\$10,000		\$120,000
	Library Fines and Returns	\$20,000	\$5,000	\$120,000

Year 1

The recommendation is to implement the customer request management process improvements in the first year. This is closely related to the CityView and Pearl/WorkTech activities that are happening currently under the BAS project.

The software modules required for the implementation of the BPO changes are already in place through the current BAS investment. The consultants estimate that the work could be completed within one year.

The cost breakdown is:

- Vendor professional services: \$50,000
- Project Manager/Business Analyst (1 FTE): \$80,000¹
- Subject Matter Expert (0.5 FTE): \$40,000

¹ Note that all the PM/BA requirements identified in this section are the same as the PM/BA roles identified in the IS Review section – not in addition. The costs are included here to account for the ROI calculations but are not additional resource requirements.

Year 2

Two projects are suggested for the second year.

The Invoicing process improvements require that the invoice be prepared and presented to the customer at the beginning of the process, e.g., 60% of the Invoice Request Forms (IRF) are from the water and sewer services. Field staff who are providing this service should be able to prepare the invoice, present it to the customer and receive payments in the field. The majority of the rest of the payments should be collected when the customer applies for the service, e.g., payments for water meter installations should be part of the water connection request.

The payment process for AR should allow online payments through VCH (already underway in the County).

The cost breakdown for these optimizations is:

- Vendor professional services: \$50,000
- Field staff mobile devices: \$20,000
- Project Manager/Business Analyst (0.5 FTE): \$40,000
- Subject Matter Expert (0.5 FTE): \$40,000

In Year 2, the consultants are also proposing that the Parking Ticket System also be implemented. This should be a commercially available off-the-shelf (COTS) product.

The estimated costs are:

- Product and vendor professional services, field devices: \$100,000
- Project Manager/Business Analyst (0.5 FTE): \$40,000
- Subject Matter Expert (0.5 FTE): \$40,000

Year 3

Two projects could be planned for Year 3.

The Community Guide print and distribution should be implemented in phases. The project requires a community survey and County-wide communication plan.

The County website should be enhanced as an overall strategy, and the printed community guide moved to a digital tool. The phasing should be decided by the County.

The cost of implementation is:

- Vendor professional services, printing of limited number of guides/newspaper inserts: \$50,000
- Project Manager/Business Analyst (1 FTE): \$80,000
- Subject Matter Expert (0.5 FTE): \$40,000

The second project for Year 3 is the Tax Bill Distribution enhancements initiative. The recommendation is to move the existing manual bills to eBills. This project is an extension of the Virtual City Hall (VCH) implementation that is currently underway. The necessary modules are already purchased as part of the BAS project.

The implementation cost estimates are:

- Vendor professional services: \$50,000
- Project Manager/Business Analyst (0.5 FTE): \$40,000
- Subject Matter Expert (0.5 FTE): \$40,000

Year 4

Road Damage Deposits process optimization could be implemented in Year 4.

This project requires a process change where the deposits should be collected as part of the Building Permits process. The Deposit Return process requires an integration between CityView and Pearl as well as with GP. In case the integration is not feasible, a backup process is proposed in the detailed to-be documentation.

The cost of the project is estimated as:

- Vendor professional services: \$10,000
- Project Manager/Business Analyst (1 FTE): \$80,000
- Subject Matter Expert (0.5 FTE): \$40,000

The Library Fines and Returns project is also included in this same year. This project requires a major policy change to move from the current fines system to a fine-free system. The proposed changes require digital communications to the customers, replacing the current print and mail process.

Associated costs are estimated as:

- Professional services to update the Symphony database with customer emails and phone numbers: \$20,000
- Project Manager/Business Analyst (1 FTE): \$80,000

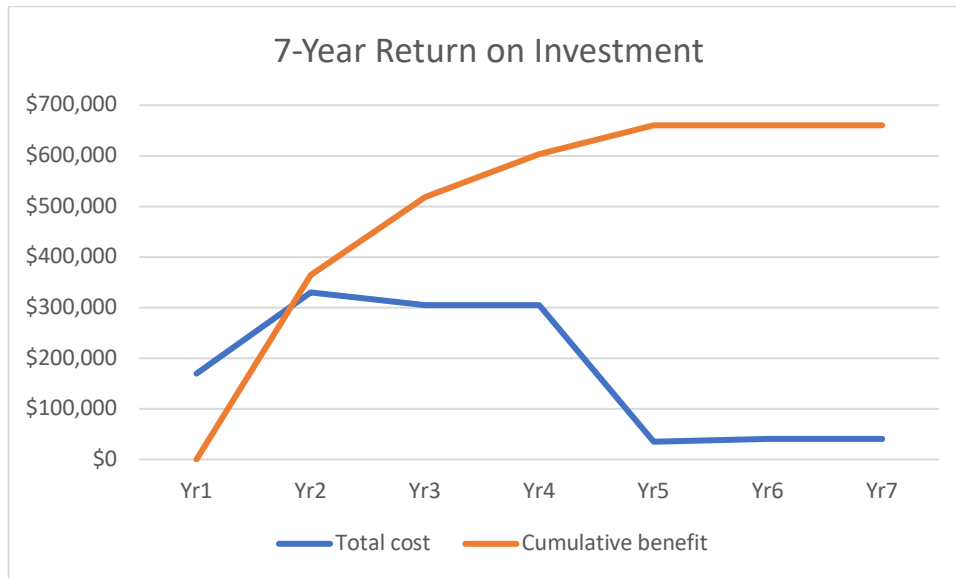
The following chart shows the ROI for the 7 years based on the cost estimates and the annual cost avoidance realized through the process optimizations.

The cost avoidance is calculated based on the assumption of digitization of 75% of each process. The benefits are calculated a year after the implementation.

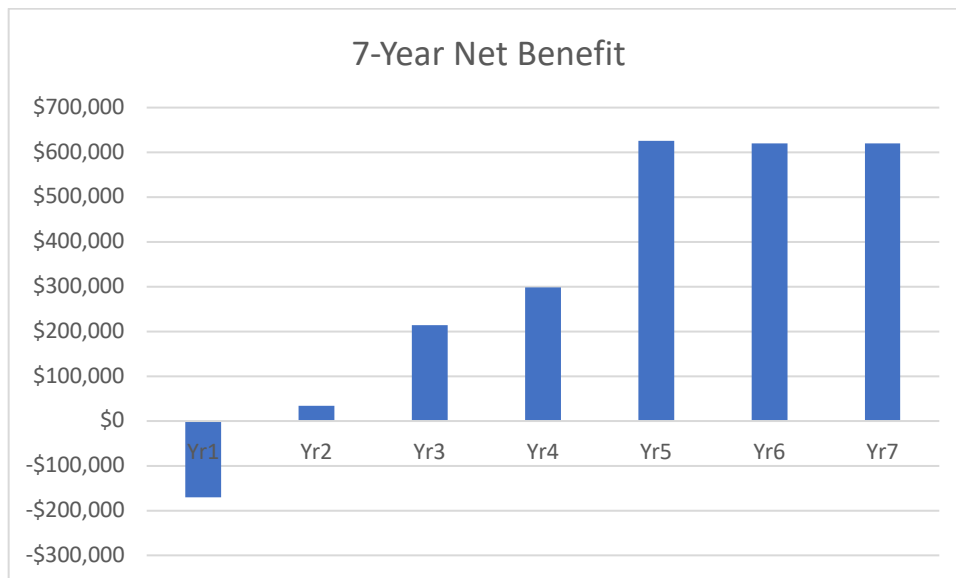
Year	Business Process	Cumulative Cost	Cumulative Benefit	Net Benefit
Year 1	Customer Request Management workflow	\$170,000	\$0	(\$170,000)
Year 2	Invoice Request Form workflow (Misc. AR Invoicing) Parking Ticket Tracking (issuance to plate denial)	\$330,000	\$364,438	\$34,438
Year 3	Community Guide Process (design, print and distribution) Tax Bill Distribution	\$305,000	\$518,938	\$213,938
Year 4	Road Damage Deposits Library Fines and Returns	\$305,000	\$603,688	\$298,688
Year 5	Cumulative Maintenance cost	\$35,000	\$660,263	\$625,263
Year 6	Cumulative Maintenance cost	\$40,000	\$660,263	\$620,263
Year 7	Cumulative Maintenance cost	\$40,000	\$660,263	\$620,263

Cumulative Costs vs. Cumulative Benefits

The following graph indicates the cumulative costs vs. cumulative benefits.



The cost avoidance achieved by process optimizations will continue each year after the project is implemented. The following graph shows the net benefits the County could receive based on the estimates.



In conclusion, the analysis shows that the implementation of the BPO recommendations could yield long-term sustainable benefits to the County.

3.8. Summary

The review of 15 business processes identified seven (7) high value opportunities that should be pursued by the County. Each is dependent upon the successful implementation and ongoing operation of new technologies, some of which are already underway. This serves to highlight the central importance of the County's technology

capacity and capability in delivering customer experience improvements to customers and efficiencies for taxpayers.

IS Review

4.0 IS Review: Current State

The BPO work identified many opportunities to use technology to drive process improvements.

This second stream of work focused on the IS Division and how well the County is positioned overall to address the opportunities identified, and to take advantage of potential process optimizations.

4.1. IS Division Review Methodology

To conduct the review, the consulting team began by assessing the current state of technology and technology management at the County.

To do this, an IT survey was distributed to all management and staff to seek feedback on existing services. In parallel, a detailed assessment of the current technology environment, a review of the County's management practices, and an assessment of the current IS organization was conducted.

What follows is a summary of the consulting teams' key findings.

4.2. Survey Results Summary

The feedback from the management and staff survey was clear and consistent with other findings from the consulting team. The key messages were:

- A good level of satisfaction with the availability and reliability of core technologies – PCs, laptops, smartphones, network, email, etc.
- A high rating for the services provided by IS Division staff, for their knowledge and expertise, but an indication that accessing support can take too long, and that IS division staff are over-taxed.
- A significantly lower level of satisfaction with the state of the business systems that the County uses to operate its business process, and the support that the IS Division provides for those systems.
- An identified need for additional training and support, specifically around business solutions.
- A frustration with the slow pace of change / modernization of business processes.

4.3. Technology Assessment

4.3.1. Municipal Technology Model

Perry Group’s standardized Municipal Technology Maturity Model (MTMM), a summary of which is shown below, was the basis for conducting the evaluation of the County’s technology environment.

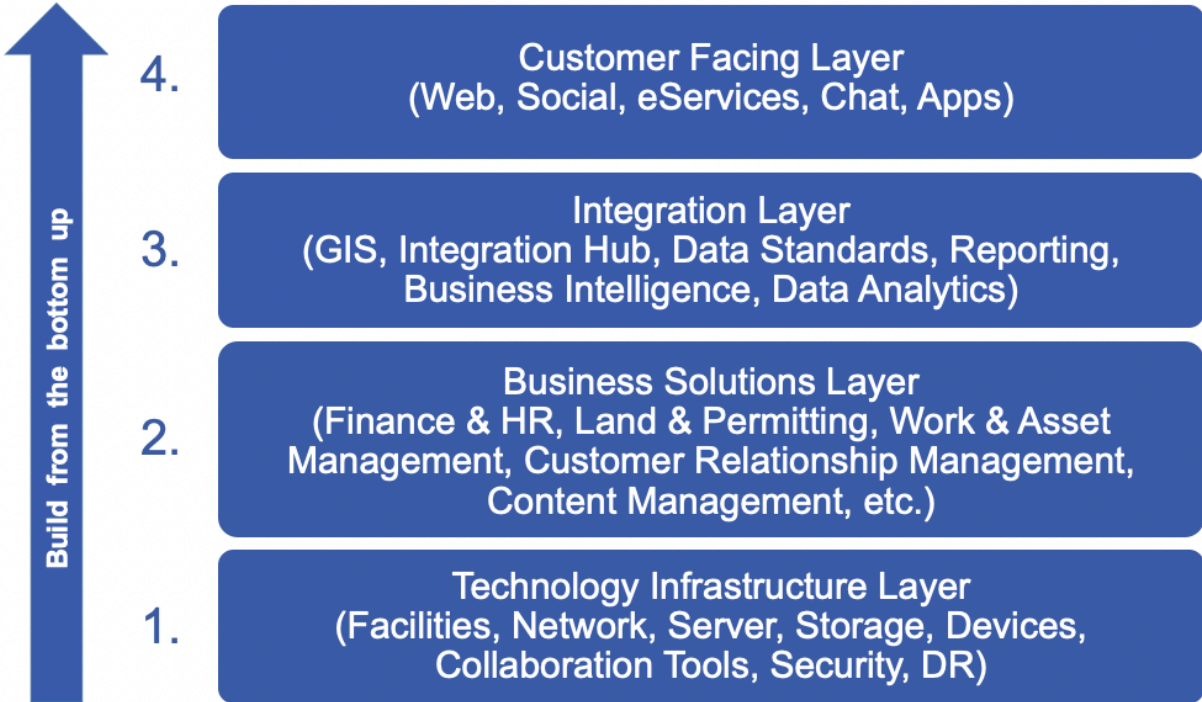


Figure 5: Municipal Technology Maturity Model

The Municipal Technology Maturity Model (MTMM) is a model developed by Perry Group Consulting Ltd., based on our work with over 120 municipalities over the past 10 years.

It identifies all the technologies typically required by municipalities to operate a fully digitized operation.

The MTMM introduces several key concepts that are currently important for the County, most notably:

- There are 4 main technology layers: Infrastructure, Business Solutions, Integration and, Customer-Facing. Each requires discrete IT skill sets to be managed effectively.
- For instance, while technology infrastructure management is deeply technical, project management around business solutions projects requires project experience, change management and soft skills. An IT organization needs a breadth of skills in 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.
 - In an ideal situation, the IT team will also need appropriate tools to help manage the environment including: a helpdesk request tracking system, a set of systems management solutions and automation tools (e.g., remote support, patch management, mobile device management) to simplify IT management tasks, increase productivity of IT staff, and to enable employee self-service (e.g., password resets).
- Next up is the Business Solutions Layer.
 - A municipality should limit the number of corporate business solutions platforms it runs to reduce process and information silos.
 - These business solutions 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.
- The third layer is the Integration Layer.
 - Business solutions should be integrated allowing for data to be automatically passed between solutions (using integration technologies), thus reducing data duplication and errors, and ensuring auditability.
- Finally, the Customer-Facing Layer.
 - This layer delivers web content, apps, online services and social media communication with customers. It is central to providing the modern customer experience, allowing customer to login to the County's website and conduct transactions with the organization.

The IT architecture should build from the bottom up – Infrastructure first, then Business Solutions, and so on.

These are some of the basic tenets under which a well-designed and complete municipal technology should operate.

The MTMM provides a framework for the consulting team to assess a municipality's technology environment, but also a guideline to assist municipalities in targeting their needs and priority work areas, as well as tracking progress.

4.3.2. Assessment Results & Key Takeaways

The results of our detailed assessment have been separately provided to the County, but the following rolled up scorecard shows a summary of the results of our assessment.

	Good	Improve	Weak	Risk
Layer	Comments			Grade
Customer Facing	<ul style="list-style-type: none"> In-house managed website – right strategy? Some online forms. Opportunities for new digital services – e.g. customer portal, forms, payments, bookings, service requests No CRM / Customer Service strategy 			C
Integration	<ul style="list-style-type: none"> Limited work in this area to date Good work in GIS, but lack of corporate GIS strategy / plan + lack of IT team understanding of GIS Limited to no data dashboarding, analytics 			Not Graded
Business Solutions	<ul style="list-style-type: none"> Some key projects completed – <u>ActiveNet</u>, SIN → FUNK BAS systems – good solutions/grand vision not yet realized – work still ahead <u>CityView</u> and <u>Alfresco</u> projects underway – good solutions – implementation challenges Worked needed on almost all corporate business systems 			D
Infrastructure	<ul style="list-style-type: none"> Some solid, largely reliable solutions – new data centre, <u>fibre</u> connectivity, modernized boardroom technology Need for modern collaboration solutions & remote working enhancements, Falling behind on modernization of some key systems – resourcing issue <p style="background-color: #FF0000; color: white; margin: 0;">Security, DR & Business Continuity are corporate wide risks to be mitigated</p>			B

The key takeaways from the MTMM assessment are that:

- The County’s technology infrastructure is in reasonably good shape. It is solid, reliable and in several areas, newly implemented.
- Infrastructure solutions, however, are often scoped to be manageable by the available resources in the IS Division and not always to be the best solution for the County. Limited resources in the IS Division inhibits the ability of the team to keep up with maintenance on key systems.
- In some areas, there are some key risks in the management of infrastructure that must be mitigated, for example, the County’s approach to security needs to be elevated, robust business continuity and disaster recovery plans are needed.
- However unmistakably, the real challenge and risk is in the business solutions area – where the County has so many major changes in flight, it is difficult to manage effectively. The BAS project is a huge project with a large scope that covers many of the County’s core business functions (HR, Finance, Work Management, Budget) and which is consuming a significant amount of attention. CityView and Alfresco are other major projects that also cut across large parts of the organization and are underway at the same time. The fact is, everything is changing – and there are few components that make up the Business Solutions layer that are in place and operating well, yet.
- Data and integration are significant areas of opportunity for the County which are largely untapped at this time. GIS, despite some great uses in pockets of the organization, is under-utilized and must become one of the County’s core platforms.

- There are many opportunities to implement new online and digital services, as identified through the BPO and our MOSA assessment.

Given the need to build from the bottom up, as recommended by the MTMM, the evaluation suggests that the County’s priorities should be on addressing risk in the infrastructure area, (security, updates, disaster preparedness) and in successfully implementing and solidifying its business solutions platforms.

4.4. IT Management Practices

The consulting team next looked at the current state of IT services and the IT management approach at the County. The practices were compared against a set of IT Service Management and IT governance best practices (e.g., ITIL, COBIT) but scaled to be suitable for an organization the size of Haldimand.

The graphic below provides a summary of where the County’s current IT services are presently assessed.

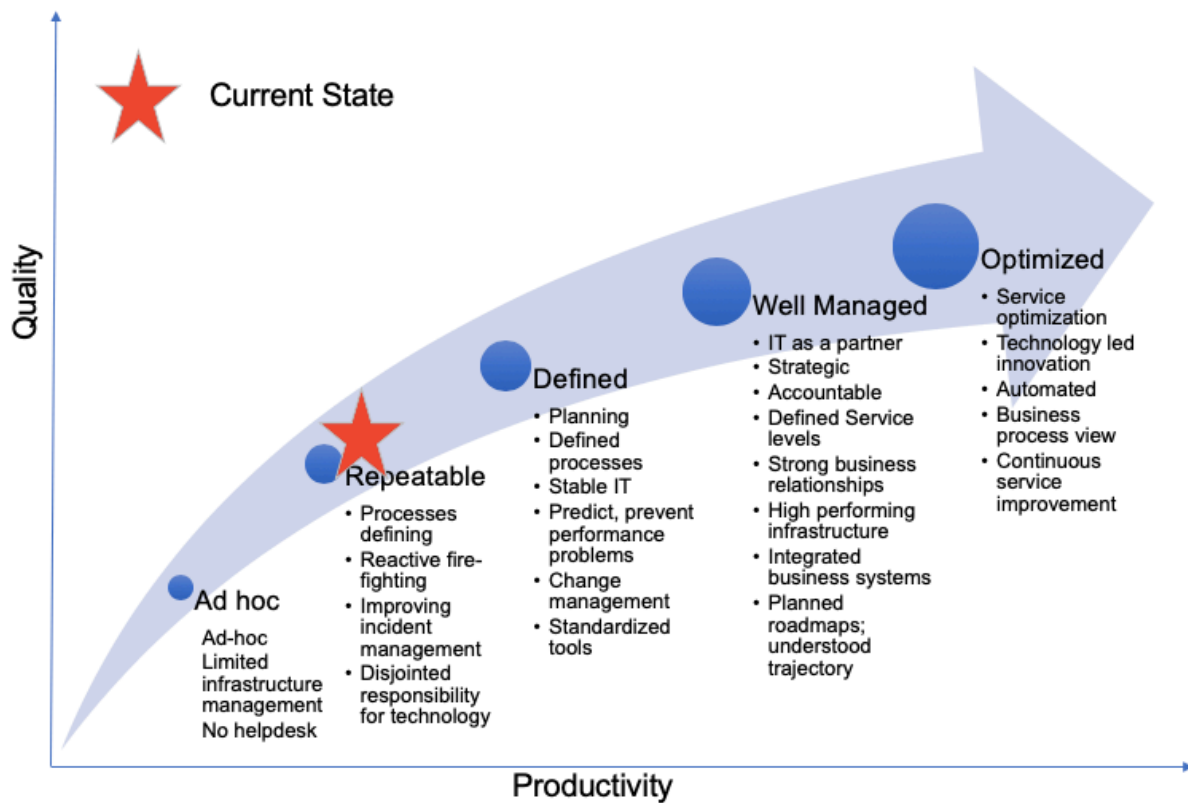


Figure 6: Current IT Service Level

The expectation for a modern IT service is that IT works as a partner with business unit leaders to help them identify, design and implement technology solutions to clearly-defined business problems. The role of IT leadership is to act as a strategic advisor to leadership and to help business units and the organization understand what is possible with technology and how to successfully implement technologies that improve service quality, efficiency and productivity of staff.

Because of a lack of structure along with limited IS resources (more on this later), we found that the IS Division is too often reactive and frequently forced into firefighting mode. Because of this, the IS Division cannot operate as a strategic partner.

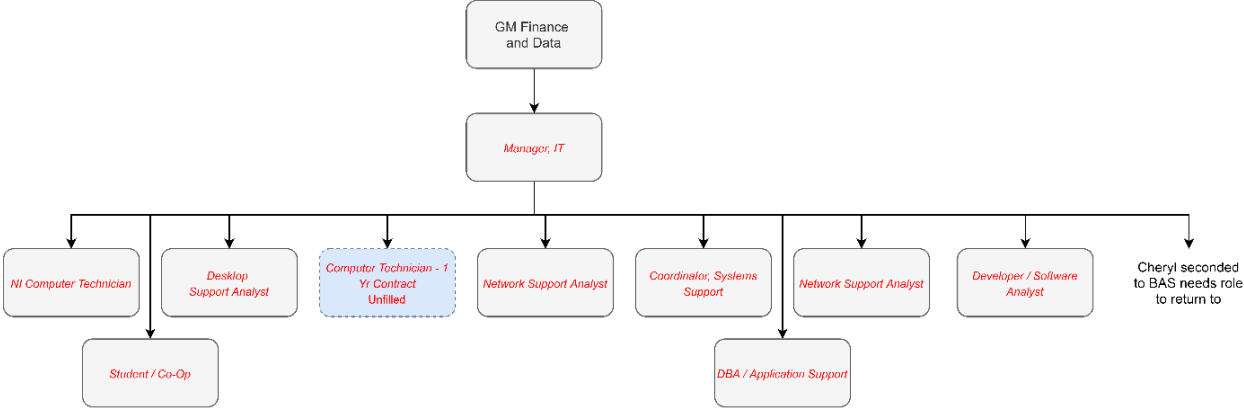
While there is a single point of contact helpdesk, it is insufficiently resourced and best practice ITSM processes that should be in place, are not. This means that staff across the IS Division are frequently pulled away from project work to respond to operational needs. There is a lack of clear long-term plans for technology infrastructure and solutions, and some maintenance is falling off the table.

In its current mode of operation, IT is largely viewed by business units as a supplier – a support service – not a strategic partner. The IS Division is stuck in an “operate not innovate” loop.

4.5. IT Organization and Staffing

In reviewing the IT organization, the consulting team examined the organizational structure, reviewed job descriptions and learned more about roles and responsibilities in practice.

As shown below, Haldimand’s current IS Division organizational structure is flat with all staff reporting directly to the Manager of IS.



Current IT Team

Legend	
New Role	Proposed Title
Existing Role	Existing Title where role exists
Contract Role Not Required at This Time	Temporary Contract Position Capital Funded
** = Business Relationship Managers	

While there are strengths and some strong positive feedback from County staff and management about the current IS Division, its staff and the work that they do, some of the key challenges identified by the consulting team include:

- The organization structure is flat with most of the team reporting directly to the IT Manager. This keeps the IS Manager role focused more on operational, not strategic, activities and means there is no effective “IT Management Team”.

- IS roles are not well defined, with out-of-date job descriptions and staff somewhat self-defining their workloads. Flat organizations tend to produce generalists not specialists – this is likely a contributing factor in the lack of clarity regarding individuals’ specific job functions.
- Existing employees have little opportunity for advancement due to a lack of organizational structure. The lack of advancement opportunities is causing challenges around recruitment, retention, and succession planning.
- The majority of staff in the team are focused on the management of the technology infrastructure.
- There are few true business solutions specialists in the IS Division, meaning that there is no one with specific responsibility for helping business units implement and evolve business solutions capabilities. This is a critical gap.
- There are no business analyst roles to assist business units in exploring and understanding business problems and opportunities, to scope out projects and build business cases.
- There is little to no capacity within the IS Division for data management or analytics, including addressing the demand for reports and outputs and integration of key data.
- The IS Division lacks knowledge, skills and capacity to effectively support GIS work in the County.
- There is limited capacity to provide support to the specialized needs of the Fire Department or the Library.
- Roles and responsibilities regarding the County's website are mixed and distributed; improved clarity would be helpful.

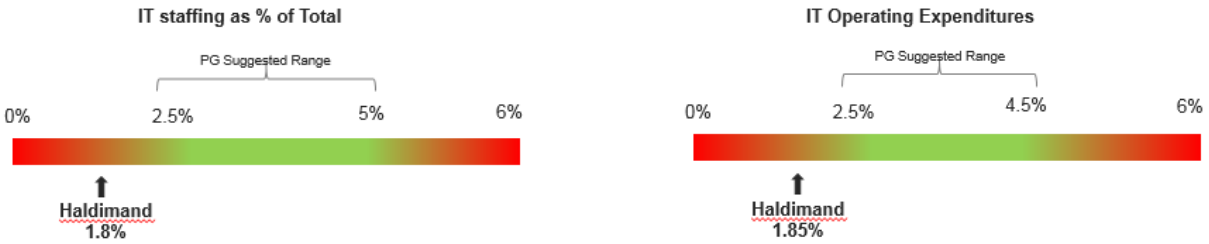
4.5.1. Staffing Levels

A consistent message that the consulting team heard in survey responses, in discussion with IS staff and with the consultation across the organization, was that the IS Division has insufficient resources. We agree with this observation.

Typically, in Ontario municipalities, IT staff make up between 1-4% of total staffing.

Those that invest more in technology tend to be more advanced in their utilization of technology – thus municipalities such as Newmarket, Burlington and Kitchener (and Calgary as a much larger example) that devote a higher proportion of resourcing, staffing and budget to technology are further ahead with their technology efforts.

The County currently allocates 1.8% of total staffing to IT.



This is below the Perry Group recommended range which is between 2.5 and 5.0% and confirms that the County’s IS Division is currently understaffed.

Many of the issues that have been identified in the earlier parts of the Current State Assessment are a direct result of under-resourcing.

A reasonable target for the County for the future should be between 3-3.5%.

4.6. What Does the Current State Assessment Tell Us?

A clear message is evident from all aspects of the assessment.

The current approach to technology is sub-optimal. It is neither delivering the required outcomes for today, nor is it positioned to support the anticipated outcomes for the future.

- The IS Division is currently under-resourced.
- The IS Division is not structured to be effective.
- The IS Division is lacking key roles, particularly with business solutions, project management and business analysis expertise – which has the potential to undermine major investments that the County is making in business solutions.

Given the importance of technology to municipal efficiency and effectiveness, and the wealth of opportunities identified in the BPO stream, the County needs to make a major shift in how IT services are structured and delivered.

5.0 IS Review: Future Technology Directions

The current state assessment and BPO work establish an imperative for change.

In re-thinking the County's approach to technology and designing a new IT organization, we need to think not just about today, but also what the future holds.

What technologies will the County be implementing and leveraging in the coming years? What will this mean for the requirements and expectations of the IS Division?

5.1. Strategic Technology Directions

Looking forward, we anticipate the County's workforce and community should be fully empowered by modern technology, digital solutions, and capabilities. This means work in the following core areas.

5.1.1. Digital Services for Customers

In 2020, we are firmly in the Internet and smartphone era. In this context, it's worth thinking about how technology has disrupted many of the service industries:

- Travel – Airbnb, online airline bookings
- Transportation – Uber, Lyft
- Media – Netflix, YouTube
- Finance – online banking, trading online
- Insurance – report a claim online
- Retail – Amazon, Indigo
- Food – Skip The Dishes, Uber Eats
- Exercise – Peleton, online classes, live streaming/video sessions
- Education – online school, tutoring
- Health – Telehealth, online therapy

These changes are influencing customer expectations which, in turn, are influencing how government services are delivered.

Think about how experiences have changed with, for example, ServiceOntario to renew a health card or driver's license, to get a vehicle sticker or fishing license, or with Service Canada to get a passport. In each case you can use a smartphone, tablet or laptop to access these services anywhere and anytime.

The County is also in the customer service business and its goal as a service provider is to provide easy-to-use, simple services. In today's world, residents accustomed to banking and buying products and services online, also expect to be able to access government services from their smartphones or their tablets, any time and from anywhere.

We expect that, increasingly, the community will use digital services as the best and preferred way to interact with the County.

This doesn't take away from face-to-face and telephone-based services that are offered. The County will continue to offer choices to customers to interact using their channel of choice. But many in the County simply prefer to interact using a smartphone or the web.

Already today, 62% of recreation registrations are done online, the County is actively supporting the growth of broadband throughout the community, 76% of Canadians have a smartphone, and the senior's population is the fastest growing segment of internet users.

5.1.2. Digitized End-to-End Business Processes Supported by Fully Utilized Business Solutions

Before the County can deliver truly great end-to-end digital services, back-office processes must be digitized so that staff manage workflows digitally.

Today, many of the County's processes run using paper and pen and Excel spreadsheets – not in digitized systems (e.g., timesheets are filled on paper, permit applicants come in to the County Administration Building with reams of paper, other licenses and permits require applicants bring a completed form into the County).

End-to-end digitized business process work is needed in numerous areas, and work is underway in many of these including:

- Workforce management, timesheets and staff scheduling (Pearl / Paramount).
- Managing a planning application from end-to-end (CityView).
- Managing a building permit from end-to-end (CityView).
- Managing a business license from end-to-end (CityView).
- Customer complaints / request management end-to-end (Dynamics).
- Plan and manage asset lifecycle (including reactive and planned maintenance events) (Pearl).
- Expense management, digital invoicing (Dynamics).
- Document and Records Management (Alfresco).

5.1.3. Mobile Tools for the Mobile Workforce

Just as a FedEx ® or UPS ® driver uses a mobile device to track delivery of your parcel and get your signature, County staff who work out of the office should have access to similar technologies to collect data, track work orders, complete inspections, access asset history, view drawings and conduct surveys.

Mobile and field staff will be connected into the digitized business processes detailed above. Using mobile technologies (including connectivity and security, devices, and business solutions) to access the County's information while mobile will allow a customer request (about a downed sign, for instance) to be directed to a field crew and its completion can be tracked by back- and front-office staff.

Adoption of new mobile technologies means additional staff who must be supported by IS staff, and different patterns and times of use of IS services.

5.1.4. Modern Workplace

To be a more modern, digital organization, the County should make available simple and easy collaboration capabilities for staff – enabling staff to do their best work by using the tools best suited to the job.

This will include:

- Increased use of mobile-friendly devices – laptops, tablets – providing individuals and teams with choices of devices that best meet their needs.
- Digital meetings – real-time meeting notes, improved and broader adoption of web meetings, screen sharing.
- Shared project collaboration spaces helping internal teams work together, track projects, assign tasks and share documents and also enabling improved collaboration with partners, vendors, and the community.
- Team messaging and chat – helping co-workers connect and interact in real-time.
- Improved document collaboration, versioning, co-editing.
- Easier presentations in County meeting and boardrooms.
- Simpler solutions for, and increased adoption of, remote and flexible working – enabling staff to work from the office, from a partner’s office space, from the side of the road, from a coffee shop or from home.

5.1.5. Data Driven

As the County increasingly digitizes its processes and uses business solutions to manage workflows and work assignments, it will collect more data about the services it provides, the way staff work, and the impact of policy decisions.

Thus, Council and the County’s leadership, management and staff will use data to make decisions that help optimize resource use and reduce service delivery costs and complexity.

Moving forward, the County should expect to:

- Use data, analytics and dashboards to inform decision-making and to help optimize its application of resources.
- Embed GIS / spatial understanding into all of the County’s processes.

5.2. Moving from the Current to Future State

The following table represents the move from the current to future state, and the anticipated value that will be gained from that move.

Current State	Future State	Value
<p>Too many of the County’s services require customers to travel to a County facility during working hours to conduct the transaction.</p>	<p>Customers can conduct the majority of business with the County digitally at their convenience, anywhere, any time.</p>	<ul style="list-style-type: none"> • Increased customer satisfaction. • Reduced travel (time, cost, CO²). • Reduced service delivery costs to the County.
<p>Too many of the County’s business processes rely on paper and the maintenance of paper-based files, e.g., Excel tracks important tasks, activities and inspections.</p> <p>Data is entered into systems multiple times.</p> <p>Accessing a complete view of information is challenging because of a mixture of systems and offline processing.</p>	<p>All of the County’s core business processes are managed digitally as part of streamlined, customer-centred workflows.</p>	<ul style="list-style-type: none"> • Increased process efficiency and reduced redundant effort. • Reduced paper use and storage costs. • Processes can be managed from anywhere at any time. • Real time performance management. • Foundation for increased process automation and optimization.
<p>Field staff rely on hard copy Work Orders and timecards to track work and time and must return to the office frequently to access information.</p>	<p>Field staff (inspectors, crews) use mobile technology to stay connected, record work, resolve customer problems and inquiries, access drawings, and records stored in office systems.</p>	<ul style="list-style-type: none"> • Increased speed of resolution of complaints with real-time work allocation. • Increased staff productivity leading to increased number of work order completions. • Reduced travel waste.

Current State	Future State	Value
<p>Staff are somewhat restricted by the technology that they have access to.</p> <p>Meetings are mostly in person.</p> <p>Collaboration is largely via email.</p>	<p>Staff can work flexibly, remotely, and digitally – digital meetings and technology make collaboration simpler and easier.</p>	<ul style="list-style-type: none"> • Increased staff productivity. • Increased ability to collaborate internally and externally. • Fewer barriers and less friction = less stress for staff. • Good for employee recruitment and retention.
<p>Decisions are often made without detailed, real-time up-to-date information that would make decision-making simpler.</p>	<p>Data and analytics are used by management and staff to optimize performance in real-time and to anticipate, scenario-plan, and predict.</p>	<ul style="list-style-type: none"> • Workforce productivity can be optimized. • Insights inform operational and strategic decision-making. • Policy effectiveness can be assessed.

Anticipating that technology is going to play a larger role in the organization and become a core part of the County’s ability to deliver effective and efficient services, the ability to leverage technology must become a core competency.

6.0 IS Review: Organizing for the Future

To build the core competency that it needs, the County’s approach to managing technology should be markedly different.

6.1. An Effective Technology Delivery Model

This starts with a clear picture of what the leadership team needs and expects from technology services and the model that will be adopted to achieve it.

6.2. The Vision – “A Well-Managed Partnership”

We recommend that a strong IT team that operates IT services at the “Well-Managed” level (see the figure below) is the target that the County should be aiming for.

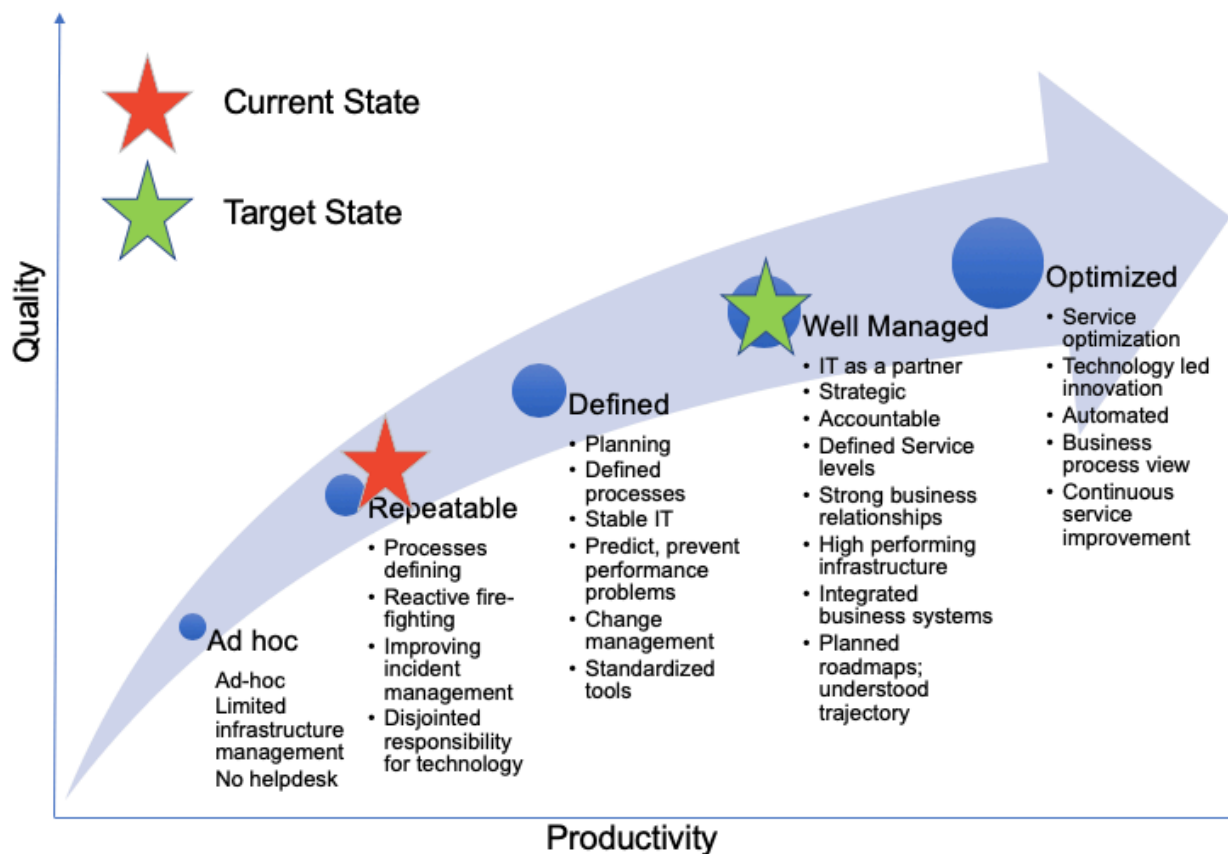


Figure 7: Target IT Service Level

Establishing an IT team that has the resources and capability to meet this mandate is foundational – and this is discussed further in the next section. This level will establish the required competency, positioning the County to continuously improve, leveraging new and emerging technology on an ongoing basis.

But it is not only about investing in a strong IT team that will make the County successful with technology.

Strong business leadership and partnership between SMT, IT, General Managers and Managers and experts in the business units will be the true key to success. Building an environment in which business units and IT actively cooperate and collaborate on business improvement initiatives and continuous improvement activities will be central to the County's ability to change its future.

In this envisioned future, the IT team operates as a true strategic partner and advisor to business units, where strong business relationships between IT and business units have been established and nurtured. These relationships are built on a foundation of trust and confidence between business units and the IT team.

To build that foundation, a high-performing, flexible, secure infrastructure that meets the organization's needs, is in place. The technology and County's policy environment and working practices support the modern, mobile and friction-free collaboration environment envisioned, while maintaining the balance of security and risk mitigation.

Business leaders have a solid understanding of the importance of technology and how to leverage digital technologies to improve their business operations. Business leaders are responsible for leading technology, assisting or driving business change and transformation within their business units, with responsibility and clear ownership of their own business processes – and do so in active partnership with the IT team.

There is a clear understanding about roles and responsibilities and service expectations – who does what, and how it is done; but there is also a flexibility and willingness to work together – a confident way of operating that is less concerned about lines between teams and more focused on achieving the best outcomes.

There is a collaborative spirit – working on technology, working to common goals – that underpins the way teams work together. There is an excitement about the potential that technology offers, and a confidence borne out of experience and past successes, in the County's ability to achieve those results.

This is the vision that we have for how the County will view and leverage technology in the future.

6.3. New Role and Mandate for the IS Division

To start its journey toward this vision, the County needs to develop a mandate that will lead to the establishment of an IT function that can perform at a well-managed level.

This means that the IS Division must transition from its current role – at the periphery, as a supporting service, focused on IT infrastructure – to one that is a strong Partner Player (as illustrated below).

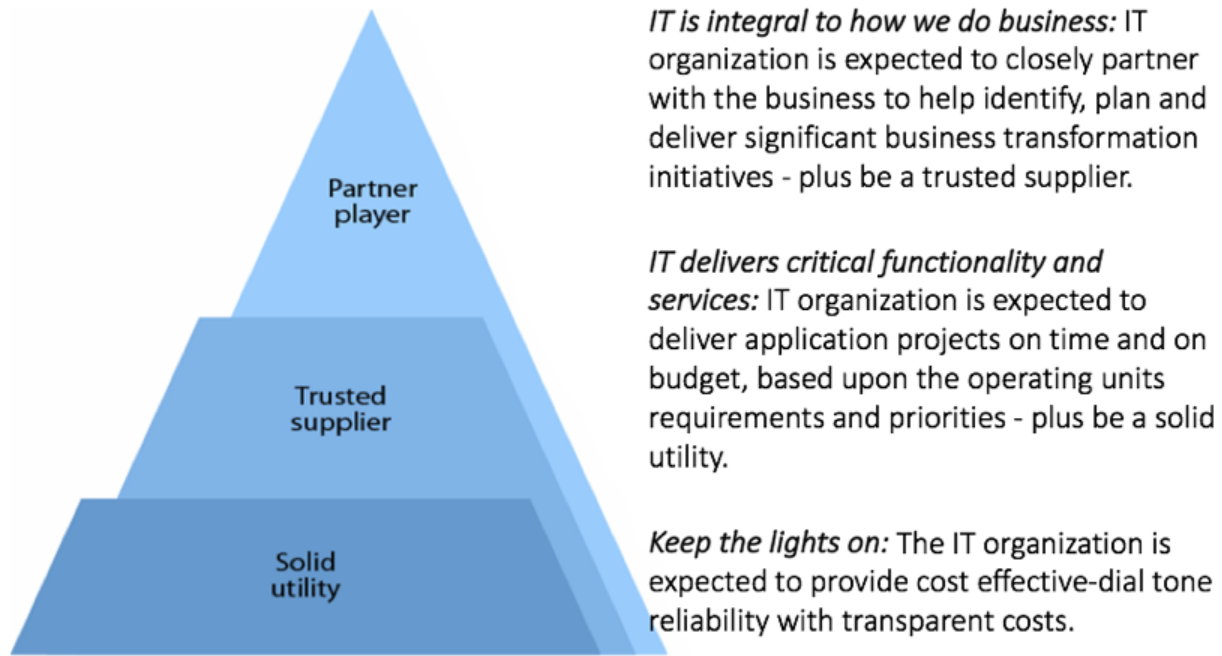


Figure 8: IT Transition From Supporter to Player

6.4. A New Name

The Information Systems (IS) Division is a somewhat old-fashioned title for a team that is intended to help drive innovation, modernization, and digitization of County services.

As a result, we recommend that the Division be renamed. A myriad of options could be considered, including:

- Information and Technology Services.
- Innovation and Technology Services.
- Technology and Business Transformation Services.

While a name change is minor in the larger scheme of the changes recommended here, a new name is recommended as a way of signifying change to the organization and as a way of representing and articulating a new mandate for the Division.

Going forward in this document, we will refer to the team as the ITS Division, but the County can make a final determination on the chosen name.

6.5. Strong IT Leadership

To support the new mandate, the ITS Division needs to play a larger, more prominent role in the organization.

6.5.1. Active Contributor

First, it is recommended that the ITS Leadership position, while continuing to report to the General Manager of Finance and Data Services, become an active contributor to SMT through an IT Governance body. This will ensure that technology and digital

service is continuously well represented and an active part of the ongoing conversation with the leadership team about all strategic matters at the County.

A future consideration would be to include the ITS Manager on SMT as a regular member to provide greater opportunities for this collaboration.

6.5.2. Technology Strategist

Second, the ITS Manager needs to shift focus onto strategic technology matters and enable and drive business transformation. A definition of roles and responsibilities that emphasizes the strategic nature of the IT Manager role has been identified.

6.5.3. Roles and Responsibilities

The scope of the new ITS Manager role includes the following functions:

- IT strategy and planning.
- IT service management.
- IT financial management.
- IT Business Relationship Management (following a consistent framework, the Manager/CIO, the Supervisors, Business Analysts and Project Managers shall be specifically assigned as partners with all divisions).
- IT performance metrics.
- IT policy and standards.
- Risk and compliance management.
- Vendor and contract management.
- Architecture.
- Project portfolio management.
- Organization-wide digital literacy.
- Strategic communications.
- Corporate technology training and education program.

The expectation is for the County's IT leader to begin to operate as a strategic advisor to Council, the CAO and the County's leadership in matters of technology, acting in a CIO-like role, proactively identifying opportunities to use technology to improve the operation, efficiency and effectiveness of the County, and helping business leaders successfully implement technology-enabled change.

The role must also provide strategic leadership and direction to the IT team, setting the strategic direction and priorities, challenging and mentoring staff to achieve key objectives, and building a collaborative and partnership approach to getting things done.

6.6. A Reorganized ITS Division

Next, the ITS Division must be reorganized.

In developing the new organization structure, the consulting team identified specific goals. The new organization structure must:

- Establish clear functional groups, with a clarity of roles and skills needed in IT and in business units.
- Allow for logical career progression opportunities to assist with recruitment, retention and succession planning.
- Reduce operational interruptions for project teams, by establishing a stronger Helpdesk team to resolve issues at first point of contact.
- Create much needed business solutions leadership, capability and capacity, with specific focus around supporting BAS, CityView, Alfresco, and GIS technology.
- Create capacity and assign accountability to deal with known future needs around Cloud, security and data responsibilities.
- Establish robust Business Analyst and Project Management capacity / capability to help business units evaluate ideas and opportunities and plan and execute projects successfully.
- Establish a practice and methods for contracting for project expertise when needed.

6.6.1. Three Teams in the ITS Division

We recommend the County establish a three-team structure. This will offload some of the daily operations and allow the ITS Manager to become more strategic and act as a support resource to Team Supervisors and Senior Service Desk Analysts, when and where needed.

This will also allow the County to build an ITS Leadership Team to support the ITS Manager, allow for career development for staff and for succession planning across all three teams and management levels.

The proposed teams were structured to align complementary functions together and to address some of the skills and capacity gaps within ITS.

The recommended teams are:

- Business Solutions, GIS and Data
 - Focused on evolving and leveraging business solutions (e.g., CityView, Pearl, Alfresco, Great Plains), GIS and data services in an integrated way to improve service delivery and drive business efficiencies
- Infrastructure, Cloud and Security
 - Focused technology infrastructure management (e.g., network, storage, devices), Cloud services and enterprise security

- Client Services
 - Focused on helpdesk / support services for staff

The following tables identify in more detail the recommended functions for which each team would be responsible, and the proposed roles within each team.

Team / Role	Functions		
<p>Business Solutions, GIS, Data</p> <p>Roles:</p> <ul style="list-style-type: none"> • Manager • Supervisor • Solutions Analyst • PM/BA (Project Manager / Business Analyst) • DBA (Database Administrator / Analyst) 	<p><u>Business Solutions</u></p> <ul style="list-style-type: none"> • 2nd and 3rd level technical support • Solutions planning and evolution • Systems implementation • Systems configuration • Systems administration • Systems support • Applications security • Enterprise applications (including O365 Business Solutions) • SaaS solutions • Solutions development • Project Management 	<p><u>GIS</u></p> <ul style="list-style-type: none"> • GIS technology architecture • GIS technology design and management • GIS support • GIS solutions implementation and configuration <p><u>Web</u></p> <ul style="list-style-type: none"> • Web/digital/app architecture • Web and digital solution development • Web and digital integration 	<p><u>Data</u></p> <ul style="list-style-type: none"> • Database management • Data governance • Data standards • Data quality • Business Intelligence framework • Business Intelligence solutions delivery • Data warehouse management • Master data management • Data reporting program leadership • Data architecture

Team / Role	Functions		
<p>Infrastructure, Security and Cloud</p> <p>Roles:</p> <ul style="list-style-type: none"> • Manager • Supervisor • Senior Network & Technology Analyst • Network & Technology Analyst 	<p><u>Infrastructure</u></p> <ul style="list-style-type: none"> • 2nd and 3rd level technical support • Network (WAN, LAN, Wi-Fi) planning, maintenance and support • Telephony, mail, messaging, unified communications • File and print infrastructure • Computing services, remote access • Data centre and infrastructure management, including patch management • Infrastructure lifecycle and capacity planning • Info security operations (firewall, IPS, a/v, malware, spam) • Backup and restore management • Disaster recovery operation • Service / performance monitoring • Windows Deployment Service (packaging for deployment) 	<p><u>Cloud</u></p> <ul style="list-style-type: none"> • Cloud management • SLA management • Monitoring and reporting • O365 infrastructure management 	<p><u>Security / Risk</u></p> <ul style="list-style-type: none"> • Risk management program (execution) • Security program (execution) • Disaster recovery and business continuity program

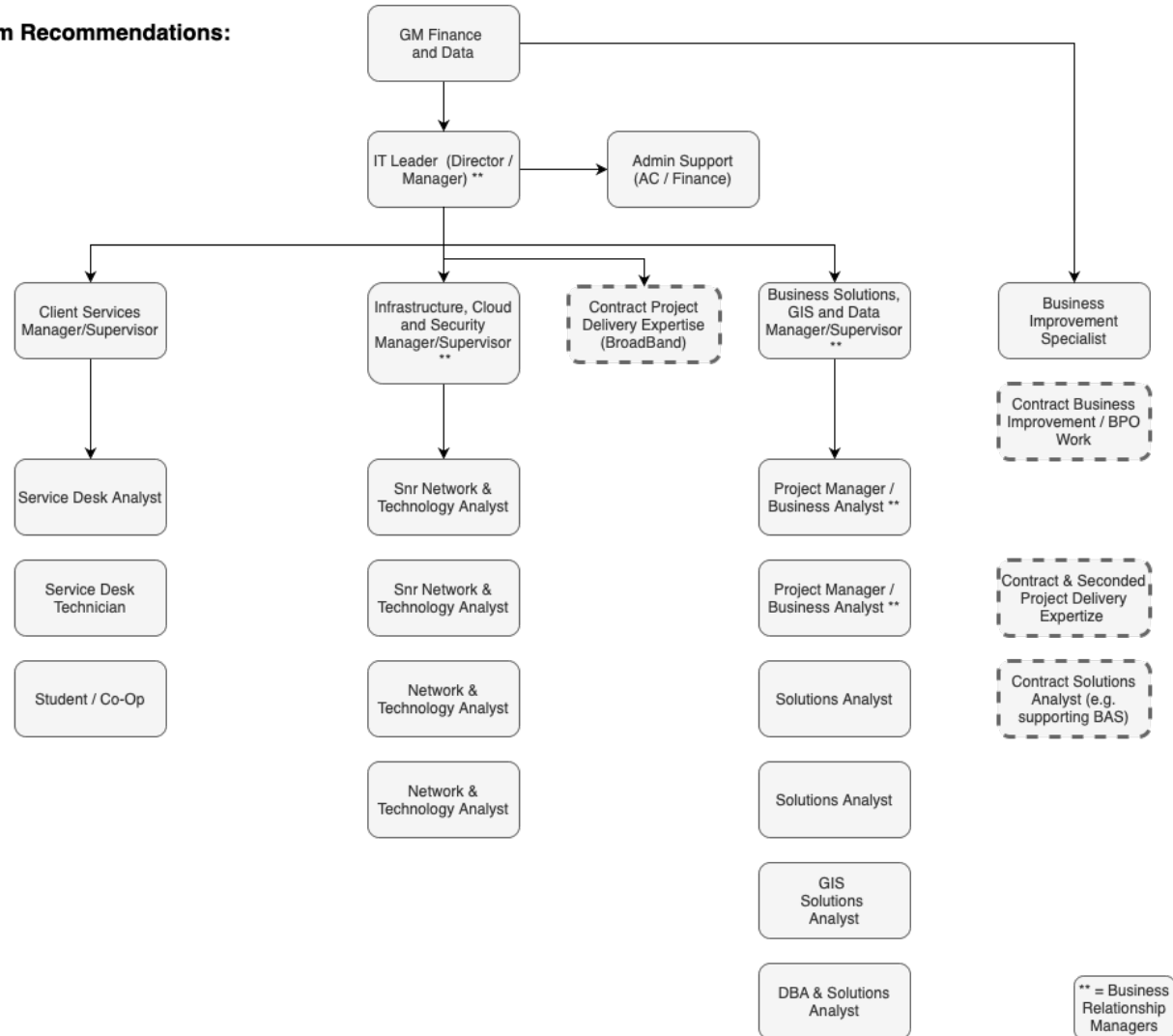
Team / Role	Functions		
<p>Client Services</p> <p>Roles:</p> <ul style="list-style-type: none"> • Manager • Supervisor • Senior Service Desk Analyst • Service Desk Analyst • Service Desk Technician 	<p><u>Client Services</u></p> <p>1st level technical support</p> <ul style="list-style-type: none"> • Knowledge base management • User account management (Active Directory, group membership, systems access) • Productivity software support • Device management and support 	<ul style="list-style-type: none"> • Software access provision • Software license management • Software package development • Mobility support • Inventory • Procurement • Audio visual support 	<ul style="list-style-type: none"> • Service catalogue • Operational communications provision • Software package • Development • Mobility support • IT asset management (all assets – hardware and software)

6.8. Recommended IT Divisional Structure

The functional model, presented in the previous section, translates into the following organizational model.

Consulting Team Recommendations:

Ideal State



It addresses each of the goals established, tackles key capacity and capability gaps, and sets the right levels of staffing across each of the teams.

It represents an ideal and long-term view of what the consulting team recommends as the right IT model for the County.

6.9. Pragmatic County Implementation

We recognize that this ideal state cannot be achieved immediately, and the recommended IT organization will have to be incrementally built out.

The consulting team worked with the County team to prioritize additional new positions based on the needs of the County.

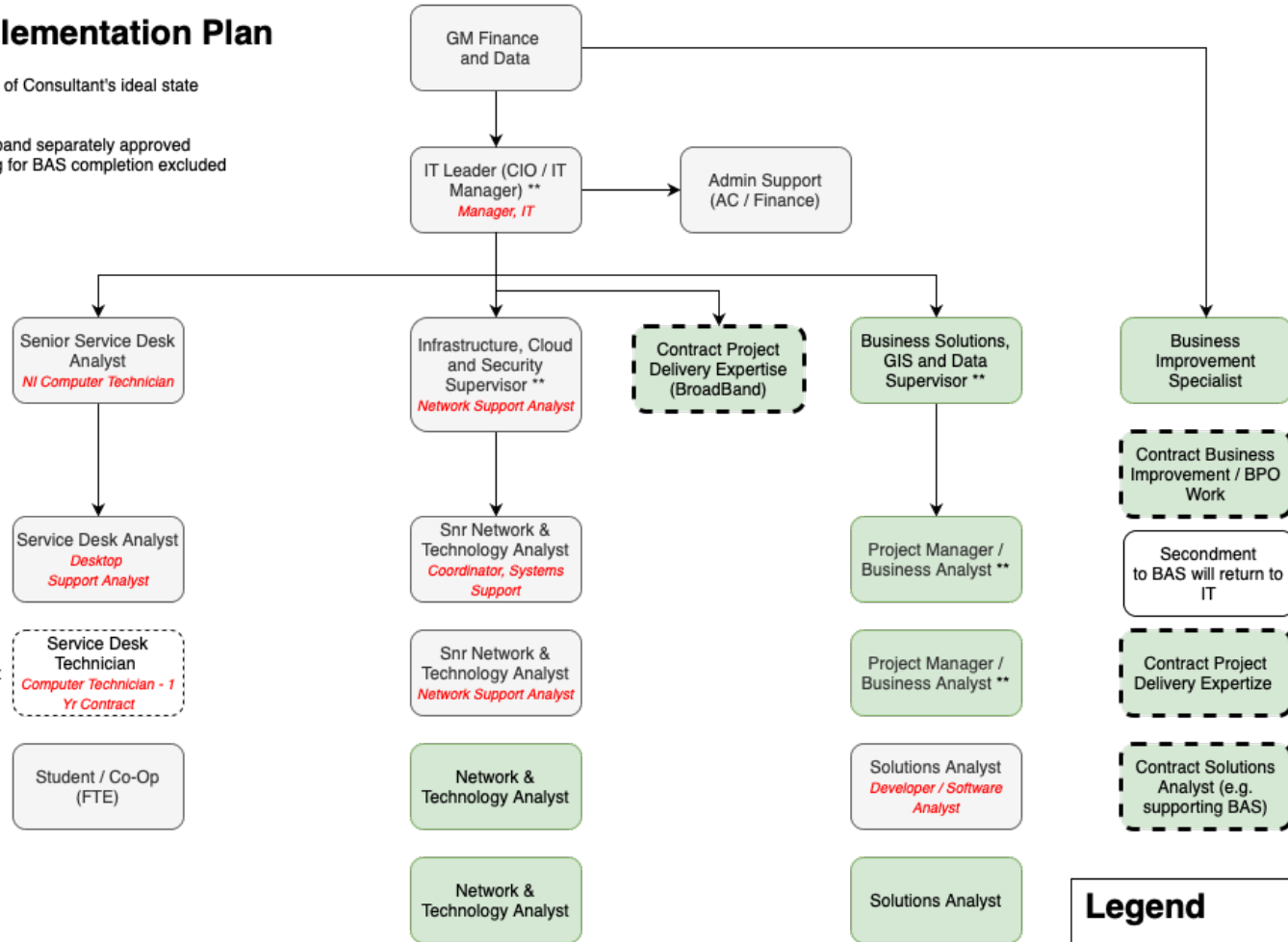
County Implementation Plan

Practical implementation of Consultant's ideal state

Assumptions:

- Contract PM for Broadband separately approved
- Funding and resourcing for BAS completion excluded

We have determined this contract role is not a priority requirement



Legend

- New Role
- Existing Role
- Contract Role Not Required at This Time
- ** = Business Relationship Managers
- Proposed Title
- Existing Title where role exists*
- Temporary Contract Position Capital Funded

The leadership role in each of the service areas will be classified as a Supervisor or Senior. Recognizing the importance of technology to the County – not only in supporting its business needs but also to achieve the goals of Council and the executive team – the IT leadership position will be that of a CIO / IT Manager.

By creating a blended leadership position, the County not only recognizes the importance of efficiently managing the operational IT eco-system but, more importantly, the need to be strategic about future IT investments, the need to work across the organization to understand business needs and challenges, and to capitalize on the existing technology investments made.

6.10. Proposed New IT Resources

Several new positions are an immediate priority for the County, and the consulting team recommends that these positions be prioritized and filled as soon as the County can practically do so.

	Proposed Year	Role	Priority	Description
Immediate Needs – Phase 1	2021	Business Solution, GIS and Data Supervisor	1	<ul style="list-style-type: none"> Oversee the development, implementation, maintenance and support of business solutions, on-premise and Cloud. Provide leadership for business solutions planning and evolution. Oversee the maintenance and support of all corporate data and databases and ensure the availability, integrity and security of business solutions and data. Oversee project management activities (including developing standards and methodologies) and provide leadership in the areas of business analysis, data design and analytics.
	2021	Project Manager / Business Analyst	2	<ul style="list-style-type: none"> Build strong relationships with business units. Support departments in identifying business requirements for technology-related projects and lead the implementation of projects.

				<ul style="list-style-type: none"> Apply the principles of business analysis in the requirements gathering, planning and re-engineering of business processes and practices and convert these requirements into technology requirements. Implement new project governance processes that will increase the successes of IT projects.
	2021	Solutions Analyst	3	<ul style="list-style-type: none"> Maintain and support the County's business solutions.

Figure 9: Near-Term Proposed New IT Resources

Additionally, Council has already approved the creation of a contract Broadband Project Manager position.

Immediate	2021	Broadband Project Manager	1	<ul style="list-style-type: none"> Oversee the implementation of the broadband project, contract and funding Oversee and support the implementation of additional County technology projects
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Additional positions are recommended to be phased in over several years, based on emergent and prevailing priorities.

	Proposed Year	Role	Priority	Description
Staffing Needs – Phase 2	TBD	GIS Solutions Analyst	4 / 5	<ul style="list-style-type: none"> Manage the enterprise geospatial environment. Maintain and support the County's GIS and integrated business solutions.
	TBD	Network and Technology Analyst	4 / 5	<ul style="list-style-type: none"> Responsible for the network and network assets of the County, along with network design and maintenance. Investigate and resolve network and security issues.

	TBD	Project Manager / Business Analyst	6 / 7	<ul style="list-style-type: none"> • Build strong relationships with business units. • Support departments in identifying business requirements for technology-related projects and lead the implementation of projects. • Apply the principles of business analysis in the requirements gathering, planning and re-engineering of business processes and practices and convert these requirements into technology requirements. • Implement new project governance processes that will increase the successes of IT projects.
	TBD	Network and Technology Analyst	6 / 7	<ul style="list-style-type: none"> • Responsible for the network and network assets of the County along with network design and maintenance. • Investigate and resolve network and security issues.

Figure 10: Future Proposed New IT Resources

6.11. Position Changes

In addition to new positions, all existing roles and job descriptions are recommended to be changed, as follows. As noted earlier, the consulting team has provided revised job descriptions for all positions.

Current	Proposed	Intent
Manager, IT	CIO / IT Manager	<ul style="list-style-type: none"> • Raise profile of IT and redefine scope of responsibility. • Provide IT strategic leadership to SMT, Council and staff. • Ensure that the information technology needs of the County are addressed.

Network Infrastructure Computer Technician	Senior Service Desk Analyst	<ul style="list-style-type: none"> Formally lead the client services function. Manage the continuous improvement and optimization of the delivery of the helpdesk service. Streamline and standardize device procurement and deployment and IT asset management. Act as the first point of contact for internal staff and work with staff to address their service needs and concerns and escalate where appropriate.
Desktop Support Analyst	Service Desk Analyst	<ul style="list-style-type: none"> Provide technical assistance to staff. Respond to inquiries. Evaluate and resolve technology and application issues, escalating where appropriate.
Network Supervisor Analyst	Infrastructure, Cloud and Security Supervisor	<ul style="list-style-type: none"> In addition to overseeing network management, this role is being expanded to include the Cloud and Security.
Coordinator Systems Support	Senior Network and Technology Analyst	<ul style="list-style-type: none"> Responsible for the network and network assets of the County along with network design and maintenance. Investigate and resolve network and security issues.
Network Support Analyst	Senior Network and Technology Analyst	<ul style="list-style-type: none"> Responsible for the network and network assets of the County along with network design and maintenance. Investigate and resolve network and security issues.
Developer / Software Analyst	Solutions Analyst	<ul style="list-style-type: none"> The Solutions Analyst's primary role is to effectively support business systems and the integrations that the County plans to implement.

		<ul style="list-style-type: none"> • Responsibilities include implementing new business solutions or enhancing existing business solutions to meet business objectives. • The Solutions Analyst maintains all existing business solutions while providing primary support for the major applications. • The Solutions Analyst is responsible for investigating and resolving business solutions issues and problems, implementing upgrades and resolving conflicts and errors in the business applications.
Database Administration / Application Support	Database Administration and Solutions Analyst	<ul style="list-style-type: none"> • To provide oversight and management of all database activities and to support future work on reporting, data standards and integration. • For the additional Solutions Analyst responsibilities see the above details of the Solutions Analyst position.

Figure 11: IT Organization Position Changes

6.12. Business Unit Roles

As we have noted earlier, success with technology is not all about the IT team. Business units have a key part to play and building capacity in departments to implement and operate technology-driven business processes will be key.

The following chart outlines some of the various roles and functions for departments / divisions that partner with IT on projects.

Team / Role	Functions	
Departments/Divisions		
Roles:		
<ul style="list-style-type: none"> • Sponsor • System Matter Experts (SME) • Systems / Coordinator • Data Analyst • Business Improvement / Business Process Optimization Specialist 	<ul style="list-style-type: none"> • System power users and SME's • Understanding of systems capabilities (and developing capabilities) • Aligning solutions to business needs • Business process ownership, design and re-design • Data stewardship, data management, data editing capabilities – including data collection and input • Simple solution configuration and end user workflow configuration 	<ul style="list-style-type: none"> • Data Analysis, analytics, and reporting • GIS exploitation / utilization • Participation in vendor relationship management • Active project accountability, leadership and resourcing • Coding & software development, IT infrastructure procurement and management should not as a rule occur in departments, excluding formally agreed exceptions (e.g. SCADA)

Considerations and Recommendations

7.0 Considerations

While the consulting team have made observations and recommendations around specific projects and the IS Division, there are several other areas that the County should consider going forward.

7.1. Set IT Strategy

The leadership team and Council should have a clear view of what the next 3 years holds from a technology perspective.

While the County is working on many initiatives taking the organization forward, there is no formally agreed IT Strategy to create agreement around priorities and focus areas.

It is recommended that the County plan to develop a multi-year IT strategy. SMT and other stakeholders should be involved in developing the plan, which should be agreed by SMT before receiving Council endorsement.

In addition, several tactical strategies to support the overall IT Strategy are also required, including security, disaster recovery, GIS, Digital and CRM.

7.2. Establish Effective IT Governance

Given how important technology is, and how central technology will become to the County, more attention to it should be paid by Senior Management.

We have found that those organizations that are most successful with technology have clearly assigned decision rights, roles, and responsibilities. Also, those organizations where Senior Management acts as a driving force around technology are more effective at being successful in driving change throughout their organizations.

We suggest that the following decisions should not be made by IT alone. Leadership should be actively involved in these decisions:

- How should our people work?
- How much should we spend on IT?
- Which business processes should receive our IT dollars?
- Which IT capabilities need to be companywide?
- How good do our IT services really need to be?
- What security and privacy risks will we accept?
- Whom do we blame if an IT initiative fails?

Establishing a formalized IT governance process (the way in which IT decisions are made) is a proven way of aligning and improving IT decision making. Typical actions in establishing a formalized IT governance model, include:

- Implement groups and bodies (steering committees, advisory teams) that engage leadership, management, and IT in steering the technology program, setting investment priorities, and monitoring the delivery of the program.

- Implement policies and processes to improve the rigor by which technology ideas are conceptualized, planned, funded, and executed.
- Improve project delivery outcomes through the adoption of project management best practices.
- Improve project portfolio reporting to monitor the delivery of projects more effectively within the technology program.
- Implement key performance indicators (KPIs) to monitor the quality and performance of IT service delivery.

At minimum, a regular IT briefing and review at SMT, at minimum 6-8 times a year, is a good way to begin to channel IT decisions to the right place, educate SMT about what's going on in the IT program, to help set priorities and to seek input on IT Strategic Priorities.

7.3. Prepare for Cyber Security and other Risks

Cyber security is an ever-present challenge for municipalities who are increasingly targeted by hackers.

Some communities such as Wasaga or Woodstock that have been hacked have seen significant harm to their credibility, have faced massive service disruption, and have spent hundreds of thousands, and in some cases, millions recovering from security incidents.

Even if you have cyber insurance - you must put in place reasonable measures to protect yourself.

The County should (and we understand plans to in 2021) conduct an external security review and then plan to do one at least annually.

The security review will identify actions that the County will need to take. We anticipate that this will mean staff education and training, incident plans and policy updates, alongside investments in technology to secure your environment and services to constantly monitor for attacks.

In addition, the County should have business continuity plans and associated disaster recovery plans that identify how the County would respond to a major incident or interruption in technology services (if, as happened in Goderich, a Tornado hit the County building).

7.4. Grow Digital Literacy

A tech savvy and capable organization will not be led by people that are uncomfortable with technology.

Leaders don't need to be *good with computers*, or *a whizz with systems*, but it is important that municipal leaders know what's possible, so that you can be better informed commissioners of technology solutions and services.

The ITS Division has a role to play in providing education and learning opportunities, but as individuals within the leadership and management teams, we recommend that

people work on learning more about technology, getting more comfortable with it, be more curious, ask the *silly* questions and find out what leaders in the municipal and non-municipal space are doing.

7.5. Set Resourcing Strategies

The reality of modern IT, particularly with municipal teams, is that it is simply impractical to maintain in-house the skills and capacity needed to plan, implement, and manage the County's increasingly complex technical environment and burgeoning project demands.

To do so would be unaffordable, or in the case of a short-term need, a bad business decision.

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. This team, in turn, works with a network of trusted partners, vendors and solution and service providers to deliver the required services.

Just as the County approaches road building and road maintenance – contracting engineering and construction firms with road design and building expertise – in some situations, IT can adopt the same approach, with the emphasis on "getting projects done", or "project throughput" rather than on IT staff necessarily implementing the technology themselves.

Some key strategies include:

- Assigning capital funding to short-term contract staffing to support project delivery. This means increasing project budgets to cover internal and external staffing to successfully implement and is a widely used method to capitalize project costs and bring in specific expertise to support project delivery.
- Use managed service providers to manage aspects of your technology (e.g., Security Operations, Network Services).
- Use consulting services and external expertise to help set strategy and direction.
- Leverage strategic partnerships where possible (e.g., other local municipalities).

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 Division, the CIO / IT Manager and IT Supervisors act as coordinators or orchestrators of IT service delivery – executed by a combination of internal and external providers.

7.6. Implement IT Service Improvements

One of the central ideas of the IT organization structure is to streamline the intake and resolution of staff IT problems and service requests.

The self-service concepts introduced throughout the BPO review for customers should also apply internally to staff. Making it easier for staff to self-serve, either by re-setting passwords, accessing files and folders, or requesting a new device, or by accessing a

knowledgebase of common questions and answers should be a primary goal. A second important objective is to, where possible, resolve questions, issues and requests at the first point of contact – the helpdesk.

8.0 Recommendations

This report outlines recommendations designed to respond to an imperative to create a more conducive environment in which the County can ensure the investments it makes in new technology can be successfully implemented and adopted and that the investments achieve the expected returns on investment in reasonable timeframes.

As a result, implementation of these recommendations requires active engagement and sponsorship from SMT, support from Council, and active involvement of leaders and staff across the County.

The ITS management team will also own and drive many improvements within the ITS Division.

The key recommendations are outlined below.

1. The County should reset and establish a new technology delivery model, built around partnership, and founded on collaboration, cooperation, and coordination. This means:
 - a. Repositioning the IS Division to become a strategic partner, and renaming the Division to signify the change
 - b. Re-conceptualizing the IT Manager to a more strategic role, similar to a Chief Information Officer (CIO).
 - c. Implementing functional organization changes within IT to establish a stronger IT management team, and well-defined teams with clear responsibilities and accountabilities. The IT Division will contain three teams, 2 teams each managed by a Supervisor while the third team is led by the Senior Service Desk Analyst.
 - d. Reorganize existing roles, with new job descriptions and reporting relationships.
 - e. Hiring new IT resources (as previously outlined) with a preliminary focus on building a high-performing Business Solutions, GIS and Data team and starting to build stronger business relationships between IT and business units, helping to translate ideas into realistic and achievable projects.
 - f. Augmenting internal IT and business resources by including contract and backfill staffing costs in capital project requests and adding contract project management positions to support Broadband and BAS project delivery.
 - g. Progressively adding new resources to the IT Division over the next 3 years to address gaps in capacity and capability in Project Management / Business Analyst, Solutions Analyst, GIS Solutions Analyst and Network and Technology Analyst roles.
 - h. Increasingly using 3rd party experts to assist the County in planning and implementing technologies.

2. In the absence of several key strategies, plans and/or roadmaps, it is recommended that the County embark on creating the following strategies and plans:
 - Corporate Digital, Innovation and Technology Strategic Plan
 - GIS Strategy
 - CRM Strategy
3. The County should continue with implementation of the major technology projects underway – BAS and CityView for example – ensuring that the correct project governance, and project resources are available to each of the projects to implement successfully.
4. In light of the many examples of cyber-attacks as well as the Municipal Emergency Planning requirements, the County needs to develop a formal Security Plan and Business Continuity/Disaster Recovery strategy.

The IT Manager should coordinate the development of a plan and work with those responsible for Emergency Planning to ensure IT testing is part of the corporate program. This process will start with corporate-wide business impact analyses, risk assessments that identify threats and vulnerabilities, and a Crisis Management Strategy. The outputs from these activities will include recovery time objectives for all business services and the technology upon which they depend.

5. The County should improve its oversight, coordination and focus on the technology program, ensuring that resources (funds, people) are allocated to those activities that will have the highest value impact, and that the initiatives that are undertaken deliver on expected outcomes. The County should:
 - a. Implement a new governance model that engages leadership, management, and IT in steering the technology program, setting investment priorities, and monitoring the delivery of the program.
 - b. Implement policies and processes to improve the rigor by which technology ideas are conceptualized, planned, funded, and executed.
 - c. Improve project delivery outcomes through the adoption of project management best practices.
 - d. Improve project portfolio reporting to monitor the delivery of projects more effectively within the technology program.
 - e. Implement key performance indicators (KPIs) to monitor the quality and performance of IT service delivery.

Appendices

Appendix 1 – Glossary of Terms

While this report is written in as plain a language as possible, a handful of technical terms and acronyms are used. This glossary is provided to help the reader understand the terms used.

Active Directory (AD): Is a directory service that the County uses to authenticate and authorize all users and computers (e.g., manage logins)

Agile: Agile is an iterative approach to project management and solution development.

Alfresco: System used for records and document management, currently being implemented by the County.

AV (Anti-Virus): Software to protect from virus infection.

AVL (Automated Vehicle Location): GPS-based tracking of vehicles.

Back-Office: An office or department where work is carried out to support the business of an organization, rather than being customer-facing.

BA (Business Analyst): Role in IT responsible for analyzing business problems and determining suitable solutions and assisting in selected solutions implementation.

BAS (Business Application System): Corporate ERP system encompassing Finance, HR, Work and Asset Management functions, built on Great Plains, Paramount, Questica, Pearl products from Central Square.

BI (Business Intelligence): This refers to technologies, applications and practices for the collection, integration, analysis and reporting of business information, and is designed to support better business decision-making.

BIA (Business Impact Assessment): An assessment that considers the potential impact of a disaster situation or loss of service on business operations.

BPO (Business Process Optimization): A process for reviewing and re-designing business processes to identify and eliminate waste and to improve customer experiences.

CityView: The County's Permits, Planning and Licensing solution.

CIO: Chief Information Officer.

Cloud: A general term for systems and data that are not located on the organization's premises; access to Cloud systems and data is achieved through the Internet.

COP: Community of Practice.

CRM (Customer Relationship Management): A system for case management that can be used for handling customer enquiries.

Digital: This term refers to a mindset, mode of operating, and delivery of services that takes advantage of modern technologies (web, app, social, mobile, and data) and delivers improved experiences, business efficiencies and insights.

Digitized: This term means the automation of manual and paper-based processes, enabled by the digitization of information and workflows, moving from an analog (often paper-based) process to a computerized process.

DR/BC (Disaster Recovery/Business Continuity): A set of policies, procedures and practices that are designed to assist an organization recover from a significant IT failure or interruption.

DRI (Directly Responsible Individual): The person ultimately accountable for a service, a product or a project.

ECM (Enterprise Content Management): A system designed to provide enterprise-wide document and record management capabilities.

ERP (Enterprise Resource Planning): A system that is designed to address business requirements across the whole organization (Great Plains, for example).

GIS (Geographical Information Systems): Systems designed to capture and report on all types of geographical data, including spatial data.

HCM (Human Capital Management): A corporate-wide system for managing the workforce and workforce management processes such as employee records, payroll, etc.

Infrastructure Architecture: The hardware, software and other systems that comprise an organization's technology assets used to deliver IT services.

ITIL (Information Technology Infrastructure Library): A set of detailed practices for delivering IT services.

IS (Information Systems): Division responsible for delivering IT services at the County (note this term is used interchangeably with IT).

IT (Information Technology): Information and Technology solutions and services, or the Division responsible for delivering those services.

ITSM (Information Technology Service Management): The standards and processes used to define how IT delivers services.

LAN (Local Area Network): Internal private connectivity between County facilities and devices.

Land Management System (LM): The County's land, planning, permitting and licensing system (CityView).

MTMM (Municipal Technology Maturity Model): Perry Group's generalized maturity model used for assessing municipal technology environments

NG-911 (Next Generation 911): Modernized networks and capabilities for Canada's 911 systems

Great Plains: The County's Finance and HR system

PM (Project Manager): Person that leads the implementation of projects.

PMO (Project Management Office): A group that defines and maintains project management standards for an organization (PMO-Lite is a less onerous version that still allows standards but is not as formal)

PPM (Project Portfolio Management): The centralized management of all projects, potential and existing, to facilitate resource management, project delivery and status reporting

PPLS (Permits, Planning, Licensing System): The County's land, planning, permitting and licensing system (CityView).

RPO (Recovery Point Objective): Refers to the amount of data at risk (that could be lost).

RTO (Recovery Time Objective): The maximum tolerable length of time that a computer, system, network, or application can be down after a failure or disaster occurs.

SAN (Storage Area Network): A dedicated high-speed device that interconnects and presents shared pools of storage devices to multiple servers.

SCADA (Supervisory Control and Data Acquisition) is a control system used in managing industrial processes, and that is used to manage water and wastewater operations.

SLA (Service Level Agreement): Documented target levels of service (e.g., response and resolution timelines for incidents).

SME (Subject Matter Expert): Staff member from business unit assigned to a project to bring their expertise and experience in the business function and business processes.

VOIP (Voice Over Internet Protocol): Modern telephony systems sharing computer networks.

WAN (Wide Area Network): Connectivity to the Internet

WMS (Work Management System): The County's Work Management System (Pearl).