DIGITAL TRANSFORMATION REPORT 2022

Supporting Material for Municipal Modernization Intake

PREPARED FOR:
Township of Plummer Additional
Bruce Mines, ON

PREPARED BY:
The Managed Municipality Consulting Group
Sudbury, ON

January 24th, 2022

Township of Plummer Additional
38 Railway Crescent
Bruce Mines, ON
P0R 1C0

As you are aware, the Province is moving toward a 'digital by default' standard for municipal data and, like many other rural municipalities, Plummer Additional needs an action plan to consider transition. Implementing a digital record system will improve staff efficiency, bring consistency to processes, increase security and backup capabilities, make appropriate data available to the public easily, and will save significantly on space.

Enclosed please find our final review of the municipal office's existing IT structures, provided as a step toward the implementation of a full digital record management system. The changes proposed in the following include – where possible – a conservative calculation of savings generated, and a rough budget figure for planning purposes along with a timeline typical for implementation projects of this nature.

We would anticipate that staff and/or Council may have questions regarding the enclosures or may wish assistance with preparing a funding application through the current Municipal Modernization Program. We would be pleased to participate in any discussion where our assistance is deemed appropriate.

The Township of Plummer Additional was approved for a full report funded entirely by the Province under MMP's "Intake 2" Assuming all our recommendations are implemented, the budgeted share of cost for Plummer Additional would come to $ 38,595.00 – the Province provides the balance necessary to complete the work. That shared investment would yield an efficiency and security benefit of just over $ 400,000 in the next five year span; a greater than 10:1 return on funds invested.

We appreciate the opportunity to work with the Township on this important transition and look forward to speaking with you further at your convenience.

Regards,

Mark Anderson
MMP Project Lead
(705) 562-5477 Direct

The **Managed Municipality**
1894 Lasalle Blvd.
Sudbury, ON, P3A-2A4

[705] **222-4TMM**
info@**TheManagedMunicipality**.com
www.**TheManagedMunicipality**.com

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Executive Summary

Background

Rural and northern municipal governments in Ontario are increasingly challenged to meet the expectations of their citizens and the requirements of the upper tiers of government. The provincial government of Ontario has recognized the pressing need for additional resources by providing the *Municipal Modernization Program.* Under this program, rural and northern municipal governments can pursue funding to improve efficiencies and/or reduce costs; this report provides recommendations that, if adopted under the *MMP*, will do both.

The main body of this report is organized on a recommendation-by-recommendation basis – each section including rationale, anticipated budget needed, expected savings / productivity outcomes and additional related reference materials for those who wish a deeper understanding of the issues involved.

An executive summary is included to provide a brief non-technical overview of the municipality's current technology status and goals and to summarize the anticipated budget required to fully implement the recommendations listed. The intention of all proposed items is to position the municipal office to function securely at peak IT efficiency over the next five years. Costing and anticipated savings are structured over a five year window.

Also included are suggested technical requirements for any eventual RFP to be issued for services or products proposed in the following. Additional questions may be addressed to the study's authors; Council presentations are available as desired to further clarify the findings and recommendations presented.

General Recommendations

- Municipal office status – main office
- Replace existing dated server
- Add new record management solution
- Replace and/or upgrade existing PCs
- Upgrade existing router to a corporate-grade firewall appliance
- Install desktop scanners for primary users
- Replace / identify / test all network cabling / rackmount
- Upgrade security software
- Automate standard processes to match bylaw / policy
- Create policy / structure for remote work
- Add digital tools for Council(s)
- Complete security and record management training

Costing Details

This summary is predicated on a five year window of time (including subscription licensing) after which additional upgrades / licensing / other changes should be considered. All costs and savings shown are based on five years:

Description	Budget	Savings
Municipal office (new server)	$17,260.00	
Record Management (opt for 1 of 3):		
Basic	($ 43,000.00)	
Including Backlog Scans	($ 92,500.00)	
Including Backlog & Custom Programming	$ 98,500.00	$354,812.50
New PCs (5 PCs / 1 Emergency Notebook)	$13,675.00	$15,000.00
Firewall Appliance	$ 1,920.00	$ 5,000.00
Desk Scanners	$ 3,425.00	$ 7,000.00
Cable Cleanup / Rackmount	$ 3,600.00	
Security Software Suite (5 Years)	$ 5,000.00	$ 5,000.00
Standard Templating of All Provided Forms	$ 6,000.00	$ 17,500.00
Council Tools (Meeting Owl, Screen, Projector)	$ 5,000.00	
Total Outlay (assumes full record management option)	**$154,380.00**	**$ 404,312.50**

We anticipate a net savings in time and material over the five year lifespan of the solutions proposed totalling $249,932.00

Timeline

Record Management MMP ...

Pre-Installation Discussions / Remo...
Identify and pack backlog documents
Ship backlog to vendor
Identify and order server components
Identify and order scanners / other ...
Identify quantity and order software l...

Installation at Site
Prepare Network Configuration
Install server hardware
Program and install firewall / securi...
Deploy new PCs/Upgrades & Migra...
Wiring Clean up at site
Install additional hardware (Owl etc)

Software Setup
Install Security Clients / Migrate Da...
Install SQL Server Licenses
Install Document Locator Server
Install Document Locator Clients
Install Demo Data

Document Backlog
Receive Completed PDF Conversio...
Prepare Repository Layout (TOMR...
Upload PDF Conversions

Training
Identify and Schedule Staff for Basi...
Identify and Schedule Senior Staff ...
Discussions with Partner Municipali...

"Go Live" for Staff
Web Server / Public Access
Obtain Domain Name
Obtain SSL Certificate
Configure IIS for Web Services
Configure Firewall for Public Access
Identify Read-Only Documents for ...
Publish Folders and Test
Final Testing

Substantial Completion
"Go Live" for all Public Functions / ...

Closeout
Final approval by CAO / Council
Closeout documents

Recommendations

Municipal Office Status

The network currently in place at the municipality's office is configured as a domain-based network and runs on a central 'server' computer that is responsible for security, backup and other core functions of the network. The current server dates to early 2014 and is running "Windows Server 2012" edition. Both server hardware and server operating system need replacement; the operating system is no longer supported by Microsoft and is highly vulnerable. The hardware itself does not lend itself to quick repair as parts availability is poor – performance is also substantially lower than modern standards.

The municipality's current network server needs to reliably provide:

- Centralized management of connected network endpoints – typically PCs and printers.
- Component redundancy allowing users to continue working through common hardware failures.
- Persistent and common drive 'mapping' across all connected PCs.
- 'Group policy' to ensure all PCs / devices comply with corporate policies and security rules.
- Granular security over files and folders to ensure users only see data to which they are entitled.
- Print queuing to enhance local PC performance and print speed.
- High performance access to common applications and data.
- Full-time availability of all data files – even if users power down their individual PCs/devices.
- A stable platform for deployment of advanced applications – records management etcetera.
- Reasonably large file storage capability – far beyond a single local PCs storage ability.
- Ability to host multiple "virtual" servers if the need arises for additional office functions.

RFP Proposed Hardware Specifications
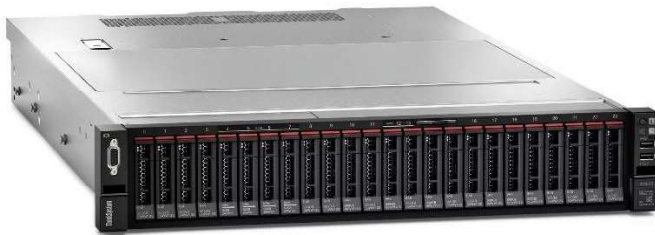
Lenovo SR650 Rack Server with:
Intel Xeon Processor capable of 8 Cores / 16 Threads
64 Gigabytes of DDR4 Error Correcting Memory
4 x Hot Swappable "SAS" 10K RPM 1.2 Terabyte Hard Disk Drives
Hardware SAS RAID Controller with Intelligent 2Gb Cache
Dual Hot Swappable Power Supply Units
3 Year Lenovo Hardware Warranty Coverage
Windows Server Standard Edition (2019 / 2022) with 2 VM Licenses

10 User Client License Pack
Small floor rack enclosure with Rackmount UPS

All technical services listed in the report including but not limited to:
Domain migration, backup configuration, integration, data transfers

RFP Technical Services Needed

- Install server hardware
- Migrate existing operating systems to new hardware
- Upgrade existing server operating systems to current standard

RFP Estimated Budget Allocation

Expected new server cost $13,760.00
Expected new operating system cost .... $ 1,500.00
Expected services cost $2,000.00
Total server project anticipated budget $17,260.00

Add New Record Management Software

The municipal office is currently driven by paper-based processes. Even in cases where digital files have replaced paper, the lack of a central repository for data results in wasted time daily searching for the current version of documents. The existing distribution of municipal data and the reliance on paper files creates multiple challenges / vulnerabilities and will increasingly hamper growth and efficiency efforts if left unaddressed.

AMO reports that the Province of Ontario is pursuing a 'digital by default' as rapidly as possible[1]. The expectation is that even smaller municipal governments will be able to provide virtually any detailed data in digital format responsively – absent record management, this is an unrealistic hope. Despite this, future funding opportunities for all municipalities will depend on the provision and availability of municipal data to both the public and the province with a flexibility and speed that are impossible with paper-based systems.

Moving to 'digital by default' where possible will reduce storage costs, improve efficiency, increase transparency, collaboration, and responsiveness for residents; a record management system also has the 'green' benefit of reducing waste along with paper and toner consumption and cost.

Identified document-related issues at the office include the following:

- Significant time lost searching for the location of current versions of documents.
- Significant space dedicated to archival file storage.
- No 'backup' copies exist of many physical documents – single copies are vulnerable to loss in multiple ways – fire, theft, accidental destruction, misfiling.
- Difficulty fully sharing public-access documentation – something that is increasingly desirable/demanded via website access.
- Inconsistency of processes with little or no audit-trail.
- Inability to rapidly respond to MFIPPA requests or subpoena/discovery demands – especially as regards email communication.
- Inability to work remotely with broad access to paper files stored at the municipal office – increasingly an issue in the Covid / remote-work era.
- Inability to quickly search both title and full-text content of broad document types.
- Inability to centrally secure confidential documentation with audit trail for all access, alterations and attempted deletions.
- Limited ability to collaborate effectively on project documentation across all municipal departments and sites.
- Inability to rapidly assemble, approve and distribute meeting packages for Council members – this is a significant consumer of staff time monthly given the need for regular and special meetings / agendas / reference documents.
- No enforced consistency in document naming, storage location or file type.

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[1] https://www.amo.on.ca/AMO-PDFs/Reports/2017/OnMuni-Online-Towards-Digital-Transformation-2017.aspx

RFP Record Management Software Specifications

Given the limited speed of internet access at the municipal offices and no immediate prospect of upgraded speeds, we are recommending an on-site solution rather than a cloud-based solution. The ideal on-site solution for the municipal office would have the following minimum capabilities and features:

- Rapidly search document titles, full text contents and other metadata of common municipal document types including but not limited to: Word, Excel, PowerPoint, Adobe Acrobat / PDF, Rich Text, Plain Text.
- Store and search all inbound and outbound municipal email.
- Securely publish documents to a website including Agendas, Minutes, Council Packages, Bylaws and other common municipal data types.
- Conform fully with all existing and pending Canadian regulations for data storage and privacy.
- Support for the adoption of the "TOMRMS" (The Ontario Municipal Record Management System) filing structure
- Integrate with an existing 'Active Directory' network.
- Common controls accessible directly through existing Windows tools – Word, Excel, PowerPoint, Outlook and File Explorer.
- Support for customized automated workflows for common municipal functions – applications, complaints, permits, purchases etcetera, including approval steps and publication steps.
- Associate customized metadata with documents stored.
- Retention and destruction rules by folder or individual document.
- Versioning of common documents.
- Simply reported audit trail for all stored documents.
- Internet accessibility for public documents with anonymous login / no login.
- Optional internet accessibility for non-public documents with secured login by user.
- Store large backlog of searchable pdf documents (100,000 +).
- Bulk uploads of existing paper-based documents.
- Custom integration with other municipal software tools is desirable.

RFP Estimated Budget Allocation

There is a broad range of software tools exist that satisfy the above requirements, making highly precise budget allocation difficult. We have opted to cost out a solution satisfying the above feature and function requirements from a common record-management vendor, Columbiasoft, who provide their products to a number of similarly sized municipal governments across Canada and the US. We believe most record management vendors who satisfy the above requirements will be similarly priced over a five year amortization period:

6 x Annual subscription cost per user @ $ 440.00 .... $ 2,640.00
3 x Annual subscription cost *per server* (main, web, email) @ $ 440.00 .... $ 1,320.00
1 x Annual Email archive licensing @ $ 580.00 .... $ 580.00
5 x Annual Webview licenses (for public access) @ $ 140.00 .... $ 700.00
5 x Annual Webview licenses (for Council / Mayor use) @ 140.00 .... $ 700.00
2 x Annual WebTools licenses (Remote Sites / Remote Work) @ $ 330.00 .... $ 660.00
Annual cost for software licenses .... $ 6,600.00

Total licensing costs extended over 5 year amortization period .... $ 33,000.00[2]

Any solution implemented will require significant time to install and configure along with the ongoing need for employee training and long-term support:

On-site server configuration including client software install .... $ 3,500.00
Basic user training (1 day / 6 users) .... $ 3,000.00
Advanced user training – delivered via Zoom / VPN (1 to 2 users) .... $ 3,500.00

Total training and deployment cost .... $ 10,000.00

Optionally, there will also be – regardless of the solution implemented – a cost associated with scanning and uploading the existing backlog of documents. We have allocated budget to those anticipated costs as follows:

Document Backlog – Approximately 2,500 pages per box / filing drawer.
Cost per box for scan-to-pdf services[3] – $ 450.00
Box equivalents currently on site – 110 (total pages – 275,000)

Backlog scanning cost (prior to shipment charges) $ 49,500.00

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[2] Quoted total includes direct support from vendor for the full five year term for all user support, software upgrades and fixes / new versions.
[3] Estimate provided by Blue Pencil assuming clean unstapled cost per standard banker's box of documents, not including shipment to scanning facility in Oakville, ON.

The training provided during the "advanced" session shown above is sufficient to enable a municipal employee to create customized workflows that will automate many of the existing municipal paper-based processes and, in so doing, to add additional ROI savings beyond those listed below. Optionally, the municipality may elect to have their workflows modeled for them by the vendor at a cost of $ 150 per hour for developer time.

Record Management System Basic..$ 43,000.00
Includes all licenses, training and support for a 5 year term

Record Management System Enhanced..$ 92,500.00
Includes all licenses, training, support and backlog scanning for a 5 year term

Record Management System Complete ....$ 98,500.00
Includes all licenses, training, support, backlog scanning and workflows[4] for a 5 year term

ROI Savings

There are multiple ROI calculators available from a variety of sources. We have used the simplified calculator available here and the following estimates to calculate basic raw ROI for the municipal office:

- Number of staff who routinely file/retrieve documents: 6
- Average number of files retrieved or returned per employee each day: 15
- Number of file cabinets or equivalent spaces: 24
- Approximate cost per square foot for office space: $ 10
- Average hourly salary[5]: $ 35.00

Total estimated annual ROI: $ 70,962.50

Total estimated ROI over the five (5) year projected period: $ 354,812.50[6]

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[4] Workflows completed in this cost include all custom workflows for all documents provided by the municipality that are attached to this proposal as addenda.

[5] Listed hourly salary is based on conservatively-averaged public municipal wage data from a variety of sites including www.neuvoo.ca, www.indeed.ca and www.amcto.com. Salary is an approximation and does not necessarily reflect actual costs at your municipality.

[6] Total listed does *not* include value derived from increased efficiency, reduced need for additional staff, paper/toner savings, workflow automation; it is solely the savings available from space and time reduction for existing staff.

Replace or upgrade existing PCs

There are multiple PCs in the network that are rapidly aging (Kelly, GM, Student, Wende, Vicky).[7] There are several reasons to strongly consider immediate replacement for these units:

- As systems age, components are increasingly prone to failure due to wear. On systems that are more than five years old, parts are unlikely to be readily available. So not only are system failures more likely and common on older computers, they will also take longer to repair given the likelihood that local technical support will not have parts in stock and may not be able to readily acquire parts on short notice.

- Older systems have often had multiple different software tools installed and then removed, many have experienced malware infestations, virus issues, failed patch installations and other unwanted events over the course of their daily use. Each of these events can leave unwanted digital residue that not only impedes a system's performance, but can also mean a system is less secure than a modern equivalent with a 'clean', modern and fully-patched operating system.

- System performance has improved dramatically over the last decade – processors have gained additional speed and the addition of reasonably-priced "SSD" drives has dramatically improved general computer operations. New computer systems with SSDs, modern processors and faster memory can start from an off condition and be fully operational for a user within fifteen seconds or so. The performance difference between a ten year old system and a modern computer yields an additional 12 hours of available productive time per year per employee in startup time alone.[8]

- Beyond the performance benefits, maintenance costs of older PCs are an often hidden cost. Intel's "How Much Old PCs Cost"[9] report states the following:

  "A global survey of 736 small businesses in six countries found that the cost to repair an older PC equals or even exceeds the cost of buying a new one. The study reveals that small businesses are spending an average of US$427 per PC that is 4 years or older on repair costs, which is 1.3 times the repair cost for a PC that is less than 4 years old. Similarly, the cost of upgrading an older PC is 1.6 times the cost of upgrading a PC that is less than 4 years old. This does not include the cost of lost productivity when employees are without their computers…"

  For this reason we are assessing a very conservative rough cost of $ 500 CDN per year that PCs older than 2016 are kept in use – those figures are reflected in the ROI calculations provided above.

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[7] Hardware specifications for each computer are attached as addenda.
[8] J.Gold Associates 2018 – https://www.intel.com/content/dam/www/public/us/en/documents/reports/sme-pc-study-report.pdf
[9] https://www.intel.com/content/dam/www/public/us/en/documents/articles/pc-upgrade-old-pc-costs-article.pdf

| Per PC repair & maintenance cost | Per PC lost productivity cost | Per PC total cost |
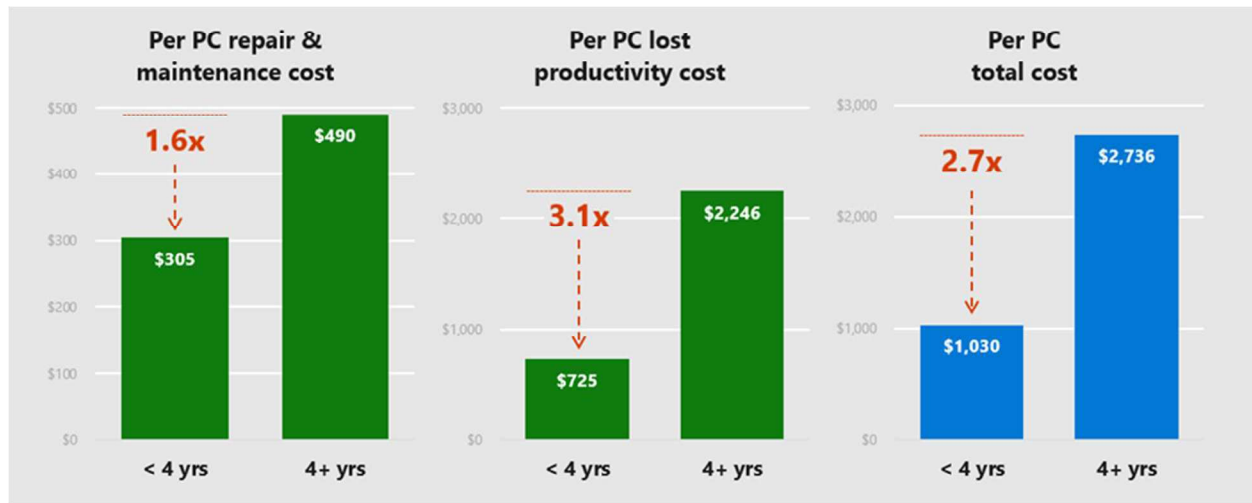
As a general rule, for the above reasons we recommend you strongly consider upgrading any desktop PC older than four years. With Windows 11 needs in view, you may want to consider upgrading even newer systems within that time window.

RFP Hardware Specifications

5 x Desktop Computers As Follows:

- Must ship with Windows 10 or 11 Professional Edition license
- Must feature Intel i5 or i7 Processors – preferred 10th or later generation models
- Minimum 16 Gb RAM with available (open) expansion slot(s)
- Must support dual monitor operation
- Must have 240 Gb or larger SSD drive – preferred "NVMe" format
- Must have 3 year or longer hardware warranty coverage
- Must be "Tier 1" equipment – Lenovo, HP, Dell.

Optional

- Cost for Microsoft Office 2019 Standard Edition
- Cost for 24" and 27" monitors (preference given to low eye-strain options)

1 x Notebook Computer As Follows:

- Must ship with Windows 10 Professional Edition license
- Must feature Intel i5 or i7 Processors – preferred 10th generation models
- Minimum 16 Gb RAM
- Must have 240 Gb or larger SSD drive – preferred "NVMe" format
- Must have 1 year or longer hardware warranty coverage
- Must have 14" or larger display
- Must have onboard Bluetooth capability
- Must include a USB-C port that can transmit power
- Must be "Tier 1" equipment – Lenovo, HP, Dell.

Optional

- Cost for Microsoft Office 2019 Standard Edition
- Cost for 24" and 27" monitors (preference given to low eye-strain options)
- Cost for USB-C Docking station capable of powering the notebook
- Cost for Bluetooth keyboard and mouse combination

RFP Technical Services Needed

- Deliver and setup PCs
- Migrate existing PCs' data and applications to new PC
- Install new Office version as needed

RFP Estimated Budget Allocation

As of this writing, multiple vendors are offering Tier 1 systems meeting the above specifications at the following costs. We have opted to cost out a standard desktop Lenovo system with 3 year warranty that meets the above specifications fully. We have also provided a budget estimate for a notebook system including dock as described above. We do not expect costs to increase prior to RFP issue in 2021 / early 2022:

Desktop Systems Cost Estimate

5 x Lenovo ThinkCentre M720q Model 10T700CLCA @ $ 1,250.00 = $ 6,250.00

5 x Microsoft Office 2019/2021 Standard Edition @ $ 300.00 = $ 1,500.00
10 x 24" Widescreen ThinkCentre Monitor @ 270.00 = $ 2,700.00
5 x Delivery and Setup (data migration / domain join) @ 155.00 = $ 775.00

Total for Desktop Upgrades As Described Including Listed Options .... $ 11,225.00

Notebook System Cost Estimate

1 x Lenovo ThinkBook 15-IIL Model 20SM009HCA @ $ 1,240.00
1 x Lenovo USB-C Docking Station @ $ 290.00
1 x Lenovo 24" Widescreen Monitor @ 270.00
1 x Microsoft Office Standard @ $ 300.00
1 x Lenovo Bluetooth Keyboard and Mouse Combo @ $ 145.00
1 x Delivery and Setup (data migration / domain join) @ $ 155.00
1 x Basic Travel Case @ $ 50.00

Total for Notebook As Described Including Listed Options .... $ 2,450.00

Grand Total Suggested RFP Budget **$13,675.00**

Upgrade Existing Router to Firewall Appliance

A router is a device that sits at the border between your municipal network and the rest of the world's internet activities; that outer activity includes all manner of worthwhile material but also includes a growing number of hackers and an ever-more-sophisticated volume of ransomware, malware and spam.

A network's router examines packets of information that are allowed into your network – they must transit through the router's security settings before being allowed inside. Consequently your network's first and best line of defense is the router's ability to deeply inspect and analyze everything it is asked to allow in or out.

A commodity-priced router may be sufficient to connect your network to the outside world, but it is woefully insufficient to adequately protect your users and your corporate data after it has done so. We are therefore recommending a firewall appliance be purchased and implemented in place of a more conventional router.

Enterprise-grade firewalls are capable of 'deep packet inspection' (they do not merely look at the address the information packets are being delivered to and from, but they are capable of examining the contents of those packets as they move across the firewall and into / out of the network.) While no single layer of security can be said to be 100 % effective, an appropriate firewall will filter out a large percentage of malicious traffic that might otherwise cause serious downtime and expense for the office and will be vastly superior to the existing router.

RFP Specifications

- 1 x Enterprise-grade firewall appliance
- Preferred vendors: Sonicwall, Fortigate, Cisco
- Includes rackmount options if not standard with device
- Dual WAN capability (can support failover internet connection)
- Integrated wireless or include wireless accessory suitable for small office
- Extended support agreement for 3 years of updates / upgrades

RFP Suggested Budget Allocation

Fortinet is one of several enterprise-grade vendors who offer a small office firewall capable of managing the internet speeds likely available to your office in the next five years. We have provided estimated pricing for a suitable appliance – other vendors will have similar products at similar costs but this model should provide a good budget benchmark.

Fortigate 60F Model FWF-60E[10] with:
Dual WAN ports (for internet service failover)
Support for secure VPN (remote workers during Covid or other emergency situations)
Ability to support perpetual connection to remote sites (Public Works etcetera)

Appliance cost with annual support $1,560.00
Setup and configuration ....$ 400.00
Total firewall anticipated budget $ 1,960.00

According to a Varonis survey, the cost of even a single ransomware infestation is increasing rapidly – between 2018 the average ransom demand was $ 5,000. Currently, average demands have increased to more than $ 200,000.[11] Further, the same study shows that last year, more than one third of businesses experienced a ransomware attack.

While being exact about how much a security solution can save over a five year windows, our municipal experience here in Canada indicates that municipal governments in particular are targets of these attacks at an accelerated rate. We have therefore conservatively assessed a 'savings' of $ 5,000 per incident and conservatively assumed two (ideally thwarted!) attacks for your municipality in the next five years. Those savings are reflected in the ROI calculations above.

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[10] Technical product documentation for Fortigate FWF-60E attached as addenda
[11] https://www.varonis.com/blog/ransomware-statistics-2021/

Desktop Scanners

Implementing a digital record storage solution will significantly reduce the need for paper production within the office – especially large volume print jobs such as agenda packages.

However, many residents and supplier firms will continue to mail or otherwise deliver paper based documents. Moving to a digital system – as the Province mandates – will necessarily mean that staff will benefit from a rapid way to turn paper-based records into digital records quickly and efficiently.

A single large scanner/printer/copier at the office is shared by all office users and is critical to the preparation of agendas and other large / colour documents. While we expect the office to move toward electronic distribution of more and more digital documents – resulting in less need for shared copier services – other features of a shared unit will become more vital to office productivity in the coming years. The ability to scan documents quickly and reliably into electronic format for long-term storage / search or transmission to residents will become vital very quickly as the office migrates to digital transmission and storage of more material. A small purpose-specific scanner at selected desks will encourage rapid adoption of a digital standard and will increase overall office efficiency.

RFP Specifications

- 5 x Desktop Scanners
- Preferred Vendors: Fujitsu, Xerox, Kodak
- Support for multiple scan sizes up to legal
- Document feeder (30 pages or better)
- Scan speed of 60 IPM or better
- Programmable buttons / screen for direct input to network share
- Scan to text-readable PDF
- USB connection

Our experiences indicate that a small desk based scanner will encourage user adoption of a digital standard for several reasons:

It will make it extremely quick and simple to add paper documents to the record management system.

It will not require a user to interrupt their workflow to get to a shared copier/scanner.

It will not ever require waiting because the shared scanner was in use.

We have assumed a 2 minute saving per document from the availability of a desktop scanner. Given a volume of 3,000 paper documents over a five year term, that equates to 200 hours of staff time saved – an ROI of roughly $ 7,000.00 as indicated above.

RFP Suggested Budget Allocation

We have obtained cost on a Fujitsu Scansnap ix1500 model meeting or exceeding the above specifications[12]

5 x Fujitsu ScanSnap ix1500
60 IPM
50 Page Sheet Feeder
600 DPI Resolution
11.5" x 6.3" x 6.0" Size (desk suitable) @ $ 685.00 = $ 3,425.00

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[12] Detailed ScanSnap specifications attached as addenda.

Replace / identify / test all network cabling / rackmount

The existing network cabling at the office has been built up over a period of years and has been added and modified as needed. The existing cabling supports multiple PCs, printers and various devices and terminates in a small closet / under a desk.

- When problems arise, they are difficult to resolve quickly; significant time can be spent tracing back a single cable run to its source.
- Cable runs vary in cable-type and speed; the network is inconsistent in speed and reliability as a result.
- Cables that are not run cleanly and securely can be found under chair rollers, furniture legs and otherwise enduring damage that interrupts or breaks network connections and ultimately create downtime.
- Loose cables present tripping hazards to staff and visitors.

We recommend replacing the existing cable runs entirely, new cables to be run inside walls / above ceilings where possible and installed in raceways if necessary. All cables should be brought back to a single central point. All cables should be labeled clearly at both ends for ease of identification and, at the server end, cables should terminate in a patch panel.

RFP Hardware Specifications

- 2 x 1,000' Rolls of CAT6 Solid Core Cable (CMP / Plenum)
- 1 x 24 Port Patch Panel (rack / wall mountable)
- 6 x Dual Port Surface Mount CAT6 Wall Jacks
- 1 x 16-port Managed Gigabit Network Switch (Layer 2 preferred)
- 16 x 1' CAT6 patch cables (switch to patch panel connection)

RFP Technical Services Needed

- Remove former cable runs
- Mount patch panel and network switch (wall or rack mount)
- Install 12 runs of varying length in small office (max of 50')
- Install 6 dual outlet wall mount boxes
- Terminate cables at wall mount boxes and patch panel
- Label wall mount box and patch panel connections clearly
- Connect patch panel to switch with provided patch cables
- Test all cable runs for speed and connectivity

RFP Estimated Budget Allocation

We would expect each cable run to take no more than an hour of labour to install, terminate and test. In addition, the hardware components are all common and broadly available from multiple vendors and sources. We are suggesting a budget that should allow a competent contractor to complete the work appropriately:

2 rolls of CAT6 cable, 24 Port Patch Panel, Jacks, Patch Cables (estimated) .... $ 1,600.00
Managed Layer 2 16 Port Gigabit Switch (estimated) .... $ 600.00
On-site Labour (14 Man Hours Estimated) .... $ 1,400.00

Total Budget Suggested   **$ 3,600.00**

Upgrade security software

The municipal office currently runs on the default Windows security tools. These tools provide basic protection against common virus and malware infections but cannot be centrally controlled and monitored; in an ideal model, security software would be automatically applied to workstations on the network and would be managed by the file server.

Absent central control, it is possible for a single user to accidentally remove or disable protection and thereby introduce malware into the local network.

In light of the increasing prevalence of ransomware and the specific targeting of Canadian municipal governments[13], we strongly recommend a corporate-grade security software tool that will reduce the possibility of ransomware attack and will allow for remediation – in many cases even after a ransomware launch inside the network.

RFP Software Specifications
- Centrally managed security software for up to ten systems
- Preferred vendors: Sentinel One, Symantec, Kaspersky, Trend Micro
- Ransomware rollback or similar feature
- Renewable annual support and updates

RFP Estimate Budget Allocation

We would anticipate the annual cost for a security tool sufficient to provide coverage on all network connected devices to be available at an annual cost below $ 1,000.00. A five year window of coverage for all devices should amount to less than $ 5,000.00

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[13] https://www.datto.com/resource-downloads/Datto2018_StateOfTheChannel_RansomwareReport.pdf

Automate standard processes to match bylaw / policy

The municipal office uses multiple forms to manage annual operations. A partial list of common forms is shown below – amounting to more than thirty (30) individual documents that are used approximately 600 + times in the course of a single year – or a minimum of 3,000 documents filled out by various personnel in the course of a five year cycle at a typical municipal office of your size.

It is possible to create digital templates of these documents and to model standard document processes within record management software. These automated processes modeled inside a record management system (see recommendation 2 above) will enhance municipal operation in several ways:

- **Efficiency** – Given the large number of forms completed (3,000 +), significant time will be saved in finding, handwriting, processing and filing these forms. While there is a broad range of forms, given that each will need to be manually completed, processed and usually filed, we have assessed a very rough metric of 10 minutes per form. 600 forms annually yields a saving of 100 hours per year – $ 17,500 in savings over five years.

- **Consistency** – multiple different versions of the same form will no longer be possible. Forms and information collected will be completely consistent regardless of which employee completes the form. Forms can also be automatically routed to the appropriate municipal personnel for follow up / auditing.

- **Convenience** – Templated digital forms can be made available to the public without a visit to the office; all forms that the public need to complete can be distributed via the existing website, increasing convenience for residents or potential residents.

- **Cost** – Digital templates for common forms mean less paper consumption, less toner use, less wear on existing equipment.

- **Connectivity** – Digital forms, and the data those forms contain, can be rapidly shared with Provincial or Federal levels of government. Since future funding will increasingly depend on the municipality's ability to provide data of all sorts quickly, the ability to accurately and quickly extract data is becoming vital.

Document	Responsibility	Qty/Yr	Time Needed	Other Parties
Complaint Form		10		
Building Permit		3		
Septic / Sewage		3		
Cemetery Sign Off		2		
Time Sheet – Public Works		26		
Time Sheet – Rec Hall		26		
Time Sheet – Landfill		26		
Time Sheet – Administration		26		
Fax Cover Sheet				
Change of Address		6		
Travel Expense		20		
Membership Applications		100		
Renewal Forms		100		
Gaming Application		2		
Facilities Rental		3		
Water Turn On/Off Request		10		
Zoning Amendment Application		1		
Council Delegation		6		
Other Agreement		30		
Tax Certificate Cover Letter		6		
Declaration of Interest		1		
		407		

Processes

Document	Responsibility	Qty/Yr	Time Needed	Other Parties
Tax Bills		2		
Agendas		12		
Minutes		12		
Bylaws				
Resolutions				
		26		

Public Works

Document	Responsibility	Qty/Yr	Time Needed	Other Parties
Purchase Order Book		180		
Water On / Off – needs sign off (non Covid)		10		
Stock Consumption? No Form		-		
Insurance CVOR Forms		1		
		191		

Building Inspector

RFP Requirements

(Requires record management system selection as outlined in Section 2 above)

- Create digital templates of provided forms (see list above)
- Install templates within record management system and add basic routing functionality

RFP Estimated Budget Allocation

In a modern record management system, tools exist to speed the creation of even complicated forms. We would therefore expect most forms to require roughly two hours of developer time to complete.

ROI Savings

60 hours of developer time @ $ 100/hr .... $ 6,000.00
ROI anticipated .... $ 17,500.00 over five years

Net ROI   **$ 11,500.00**

Create policy / structure for remote work

It is possible to secure the municipal office network in such a way that hacks and intrusions are limited and – ideally – entirely prevented. However, when access to the network is extended beyond the physical office location and remote work is necessary, security measures can become inconsistent and create risks.

Given the current pandemic being experienced across the globe, the need to enable work remotely has been wisely emphasized. This current crisis may pass in time, but others – both local and global – are certain to arise. We would therefore recommend the creation of a policy and technical framework around the remote work that will inevitably be necessary at points. This would consist of two aspects: Council policy and technical infrastructure.

Council may want to consider implementing at least the following:

- No remote access to the corporate network allowed outside the use of an approved VPN.
- No use of USB flash drives or other media to move files from home to the municipal office.
- Only corporate notebooks allowed to connect remotely; no use of home machines or other devices not owned and managed by the municipality.

Technical staff or subcontractors should implement the following:

- Emergency notebook (Recommendation 3 above) to be configured with VPN solution suitable to connect to corporate firewall securely (Recommendation 4 above).
- Emergency notebook to be configured with corporate anti-virus / anti-ransomware / monitoring solution (Recommendation 7 above)

Add Digital Tools for Council(s)

Council is currently well positioned to receive agenda packages and other materials digitally through a fleet of current notebook systems. However, should current remote work trends continue, the ability to host a 'hybrid' meeting at Plummer would be a significant enhancement to the existing tools available to Council.

We recommend the purchase of a "Meeting Owl Pro" device (shown to the left). "Meeting Owl"s are already in use at many of your neighboring municipalities and are providing measurable benefits. These devices contain a 360 degree camera and an array of microphones capable of capturing spoken voice from more than 16' away. These units also integrate a powerful speaker system.

In addition to the "Meeting Owl" suggested above, we would also want to implement an economical screen and projector combination suitable to display remote meeting attendees in a way that all other in-person participants can see clearly.

Technical Services Needed

Screen Installation at Site
Meeting Owl Configuration at Site
Projector Setup and Test at Site

Council Tools Budget Suggestion

Meeting Owl[14] - speaker / camera for centre of board room table .... $ 1,400.00
100" 16:9 screen suitable for ceiling or wall mounting (manual)............................... $ 200.00
3,000 + Lumens Ceiling Mounted Projector .... $ 2,800.00
Installation Services at Site (Screen, Projector, Owl Setup) .... $ 600.00

Total Budget Suggested	**$ 5,000.00**

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[14] https://ca-shop.owllabs.com/products/meeting-owl-pro

File Server

```
Host name: PLUMMERDC
IP-address: 192.168.46.10
User name: PLUMMER\Administrator
Description:
Operating system: Microsoft Windows Server 2012 R2 Standard (version
6.3.9600; build 9600)
  Name: Microsoft Windows Server 2012 R2 Standard
  Version: 6.3.9600
  Build: 9600
  Install date: 2014-07-03 9:47:17 PM
Windows product ID: 00252-40201-99934-AAOEM
Windows product key: NW7TF-22YQ6-3TFYM-JPXMX-BKKCG
Internet Explorer version: 11.0.9600.17207
Model: Virtual Machine
System type: x64-based PC
BIOS: American Megatrends Inc. (version: 090006; date: 2012-05-23)
  Manufacturer: American Megatrends Inc.
  Version: 090006
  Date: 2012-05-23
Serial number: 6948-7023-3468-1805-0829-4759-83
Motherboard: Microsoft Corporation (Virtual Machine; version: 7.0)
  Manufacturer: Microsoft Corporation
  Product: Virtual Machine
  Version: 7.0
Chassis: Desktop
Processor: Intel(R) Xeon(R) CPU E3-1230 v3 @ 3.30GHz (architecture: x64;
3292 MHz)
  Name: Intel(R) Xeon(R) CPU E3-1230 v3 @ 3.30GHz
  Manufacturer: GenuineIntel
  Max clock speed: 3292 MHz
  Architecture: x64
  Level 2 cache size:
  Socket type: None
  Version:
Physical memory: 5.0 GB
Memory slot: 3.9 GB (None; form factor: Unknown; memory type: Other)
  Capacity: 3.9 GB
  Device locator: M0
  Bank label: None
  Form factor: Unknown
  Memory type: Other
  Manufacturer: Microsoft
  Speed:
  Max capacity: 0.0 Bytes
Memory slot: 1.1 GB (None; form factor: Unknown; memory type: Other)
  Capacity: 1.1 GB
  Device locator: M1
  Bank label: None
```