



Information Technology

2019-2022 Business Plan
& 2019 Budget

Foreword

Our Vision for the Future

Mississauga will inspire the world as a dynamic and beautiful global city for creativity and innovation, with vibrant, safe and connected communities; where we celebrate the rich diversity of our cultures, historic villages, Lake Ontario and the Credit River Valley. A place where people choose to be.

Mississauga City Council approved **Our Future Mississauga**; a Strategic Plan to achieve this vision over a forty year timeframe. The City engaged over 100,000 people to develop this Vision Statement. To achieve this vision the City has identified five Strategic Pillars for Change: **move**, **belong**, **connect**, **prosper** and **green**. Each year the City proposes various initiatives that are aligned with the Strategic Pillars and are intended to bring us closer to fulfilling our vision for the future. The City has over 300 lines of business which are consolidated into the 17 Services Areas (including the Stormwater Program) that are outlined in this Plan. The 2019-2022 Business Plan and 2019 Budget detail how and where the City plans to allocate resources to deliver programs and services.

The City is committed to providing programs and services cost-effectively. In this Plan we have outlined measures that will help us assess the quality, efficiency and customer satisfaction that our services achieve. The results help inform decisions on resource allocation and direct program offerings, and improve service delivery to ensure our vision is efficiently realized.

Table of Contents

Executive Summary of Information Technology	3
Core Services	4
Vision, Mission, Goals of Service and Service Delivery Model.....	4
Current Service Levels and Trends.....	5
Performance Measures and Results.....	6
Balanced Scorecard.....	8
Awards and Achievements.....	9
The 2019-2022 Business Plan Outlook	11
Planning for the Future.....	11
Finding Efficiencies	12
Advancing the City's Strategic Plan	13
Transforming our Business with Technology	14
Maintaining Our Infrastructure.....	15
Managing Our Human Resources.....	16
Proposed Operating Budget	18
Operating Budget Details	19
Proposed Budget by Program.....	19
Summary of Proposed Budget.....	20
Proposed Cost Increase Required to Maintain Current Service Levels.....	21
Proposed New Initiatives and New Revenues	22
Proposed Capital Budget	29
Proposed 2019-2028 Capital Budget by Program	29
Proposed 2019-2028 Capital Budget by Funding Source	30
Proposed 2019 Capital Budget Detail	31
Proposed 2020-2022 Capital Budget by Sub-Program	33



Executive Summary of Information Technology

Mission: We are committed to providing our clients with innovative, reliable, responsive and secure solutions that align business, process and technology.

Services we provide:

The Information Technology (IT) Service Area has six sections that focus on technology planning, service delivery, support, and operations to enable City services and drive efficiencies.

Interesting facts about this service:

- The City provides online services and information including 3-1-1 online service requests and items for purchase, with over 18.5 million digital visits and \$21.2 million in online transactions in 2017 (an increase of four per cent from 2016)
- “Wireless Mississauga” is free public access to high speed Wi-Fi available at 95 City facilities including libraries, community centres, marinas, and arenas. In 2017, the total number of hours of free City Wi-Fi used by the public would translate into 455 years worth of service
- The City’s unique network is a state-of-the-art fibre network. The Public Sector Network (PSN) is a fibre network co-owned by Peel, Mississauga, Brampton and Caledon with over 850 kilometres of high-speed fibre connecting 870 partner and 18 subscriber facilities, for a total of 888 facilities
- Our mobile workforce has over 3,300 field-based workers and smart vehicles (e.g. buses, fire trucks, snow plows)
- IT operates seven days a week, 365 days a year

Highlights of the Business Plan include:

- Create a Smart City Master Plan that provides a three to five year vision for the City to provide key objectives and initiatives that improve people’s lives
- Continue to strengthen our Cybersecurity Operations Centre (CSOC)
- Develop a solution for capacity planning to address dynamic business requirements and reduce reliance on costly external resources
- Continue with implementation of the Digital Strategy in partnership with Communications including the phased rollout of the new City website (mississauga.ca)
- Continue to expand the availability of free public Wi-Fi throughout the city, in our small business districts, the downtown and in public spaces and parks
- Expand the City’s use of broadband technology to support the “Internet of Things” (IoT); expand the Public Sector Network; and develop a proof-of-concept for a secure private cellular network for Public Safety & First Responders
- Implement key initiatives of the Geospatial Master Plan including a new geographic information system (GIS) platform, visualization tools and analytics

Net Investment (\$000's)	2019	2020	2021	2022
Operating	29,714	30,872	31,476	32,143
Capital	16,703	17,413	11,135	11,510
Full Time Equivalents	208.1	209.1	207.1	206.1

Core Services

Vision, Mission, Goals of Service and Service Delivery Model

Vision

To support the City's overall strategic pillars of move, connect, prosper, belong and green through the strategies and action items defined in the IT Master Plan to create a connected and engaged City.

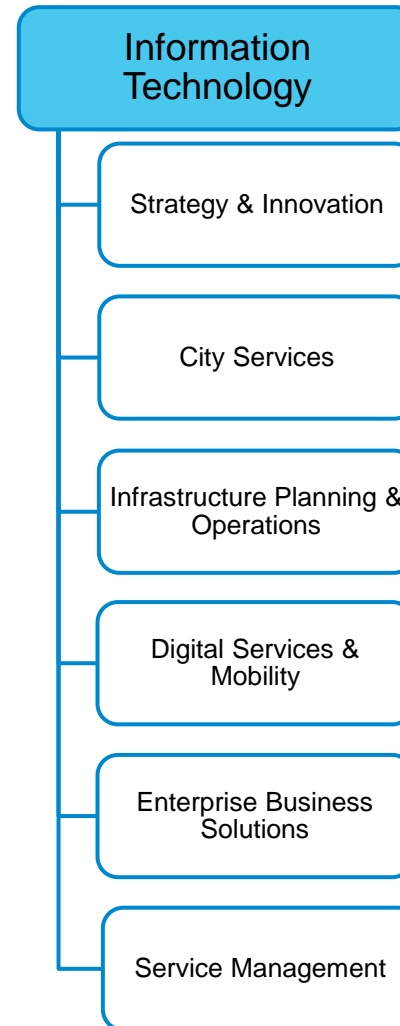
Mission

We are committed to providing our clients with innovative, reliable, responsive and secure solutions that align business, process, and technology.

Goals of Service

- Foster open and accessible government
- Enable decisions through research and analytics
- Create a connected and engaged workplace
- Improve services through innovation and partnerships
- Building a connected and engaged City; a Smart City for everyone

Service Delivery Model



Current Service Levels and Trends

The Information Technology (IT) Service Area operates within the Corporate Services Department and is responsible for the planning, development, maintenance and overall management of the City of Mississauga's technology infrastructure, business solutions and digital public services.

IT provides and supports the systems, applications, computers, networks, data, internet access, security and policies critical to the delivery of City services seven days a week, 365 days a year.

Partnerships have been established to improve service, efficiency and cost effectiveness. The Public Sector Network, Wireless Mississauga for Sheridan, and Voice Communication (VCOM) Radio are examples.

Smart City and Internet of Things initiatives are in demand through public transit initiatives, Wi-Fi expansion and other direct public services through Open Data and sensor technology. There are emerging pressures to deliver service using augmented reality and artificial intelligence in our public spaces where citizens, visitors, and businesses are more likely to access our services and interact with the City.

IT Services are provided 24/7/365 and support the following:

- Mississauga.ca for information and online services
- Business Solutions for public (e.g., Transit, Library, Recreation, Culture and Economic Development)
- Financial, Human Capital and City Asset Systems
- Primary and Secondary Data Centres
- Fibre Network for all Voice and Data Communications
- Business Continuity and Disaster Recovery Services
- Intranet, Staff Productivity Tools and Software

- Secure Connect Anywhere Virtual Private Network (VPN) Services
- Public, Staff and Call Centre Voice Communications
- Secure Staff Wireless and Internet Access
- Free Public Wi-Fi "Wireless Mississauga" and Virtual Campus (Eduroam)

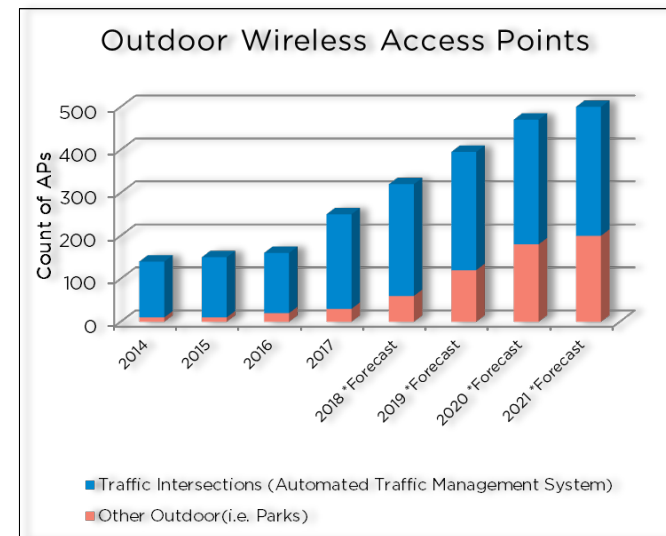


Chart showing growth of Outdoor Wireless Access Points



Performance Measures and Results

The City of Mississauga is committed to delivering services economically and efficiently. The City's performance measures are used to help assess how well we are doing at achieving our goals and where we need to improve operations. The results also inform decision making and strengthen accountability.

Balanced Scorecard

A Balanced Scorecard groups measures in four key areas of an organization's performance: Financial, Customer, Employee, and Business Process. By paying attention to all four areas, an organization can retain balance in its performance and ensure that it is moving toward the attainment of its goals.

Below are descriptions of the measures this service area's Balanced Scorecard takes into account. The Balanced Scorecard that follows shows trends since 2015 and expected outcomes up to 2022.

Financial Measures

Capital Spend Rate (Spending Efficiency) shows the rate at which IT is spending its capital funding. IT is attempting to increase this rate (deliver on project objectives) by utilizing project management best practices and agile resource models. A two year turn around is targeted for capital spending (spend rate of approximately 40 per cent).

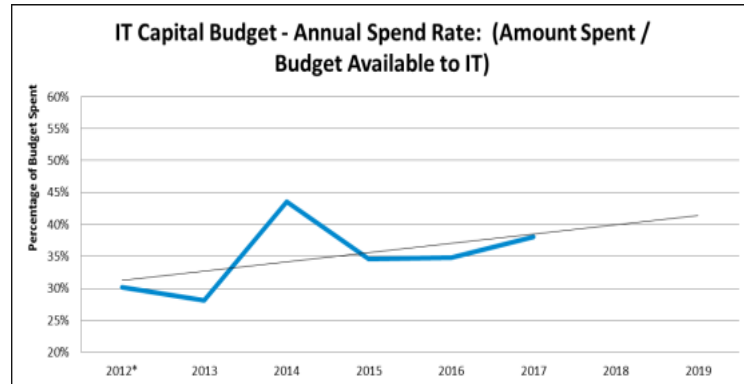


Chart depicting the annual IT capital spend rate

Optimization of Voice & Data Communications measures the percentage of employees that are using a software phone versus a traditional phone. The City expects to increase this percentage as more office staff adopt mobile workforce strategies.

Customer Measures

Wi-Fi Service Hours per Access Point demonstrates the public and overall demand for Wi-Fi services. Expectations are for continuous growth as the City adds Smart City initiatives. This means hours per point will increase (unless more points added).

Number of Open Datasets provides the number of publicly available datasets that can be used for application development or reports. The City was recognized as most improved in this area this year by The Public Sector Digest. In 2016, a new portal was created and some old datasets were retired.

Number of Self-Serve Web Applications counts the number of City web applications. Efficiencies in processes and costs of service are usually made when a service is available online. The City targets to add two self-service applications per year. Last year the new applications were for Tax Personal Identification Number (PIN) requests and free tax receipts.

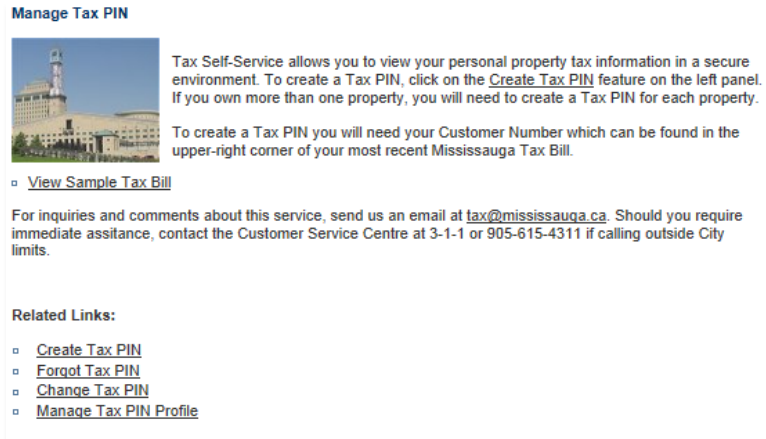


Image of the Manage Tax PIN self-service online application



Image of the Simplified Tax Year Receipt self-service online application

Employee Measures

Percentage of Mobile Workers shows how the City's modernization strategy is working as it is an indicator of the mobility of the City's workforce. Mobile work is contemporary and cost-effective, and potentially enticing to new talent.

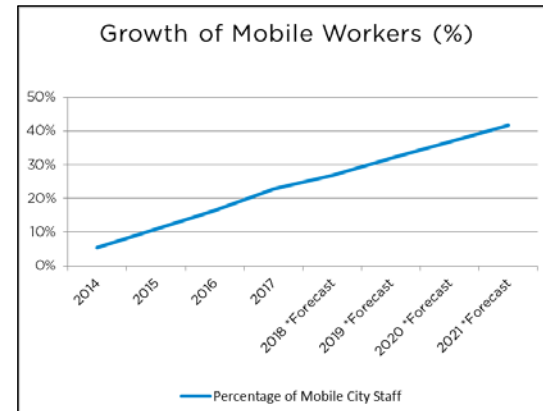


Chart showing trend of increasing number of mobile workers

Number of Connected Things exhibits the growing infrastructure requirements and how progressively Mississauga is becoming more of a Smart City.

Internal Business Process Measures

City Website Unique Visits measures the volume of use by citizens and businesses on the City's website.

IT Help Desk First Call Resolution Rate is the percentage of calls that are resolved in one phone call. Strategies to improve includes enhancing the IT knowledgebase management process, expanding the IT Service Desk staff training and continuous learning program, and by live transferring calls to "Service Management-Hardware Support Services".

Balanced Scorecard

Measures for Information Technology	2015 (Actual)	2016 (Actual)	2017 (Actual)	2018 (Plan)	2019 (Plan)	2020 (Plan)	2021 (Plan)	2022 (Plan)
Financial:								
Capital Spend Rate (Spending Efficiency)	34.6%	34.8%	38.1%	40%	40%	40%	40%	40%
Operating Maintenance Budget Growth	1.7%	8.9%	17.4%	25.8%	20%	15%	13%	12%
Optimization Of Voice & Data Communications	0 %	3%	6%	10%	13%	17%	21%	25%
Customer:								
Wi-Fi Service Hours per Access Point	8,070	8,435	8,900	9,400	9,900	10,300	11,000	11,700
# of Open Datasets	75	31	101	125	150	175	200	225
# of Self-Serve Web Applications	66	68	70	72	74	76	78	80
Employee:								
Percentage of Mobile Workers	11%	16%	43%	47%	52%	57%	62%	66%
# of Connected Things	N/A	11,315	11,723	63,350	63,700	64,050	64,450	65,800
# of Real-Time Dashboard Measures	25	41	99	135	160	180	215	245
Internal Business Process:								
City Website Unique Visits (millions)	13.9	20.3	18.5	20	22	24	26	28
IT Help Desk First Call Resolution Rate	70.3%	84.3%	91.6%	94.6%	95%	95%	95%	95%

Awards and Achievements

2018 MISA Ontario Excellence in Municipal Systems Award was presented to IT by the Municipal Information Systems Association (MISA) for the implementation of a Virtual Campus Eduroam (international roaming service). This internet portal allows post-secondary students around the world to access university resources at City Hall, Celebration Square, libraries, community centres, transit terminals and parks. Mississauga was also the first city in Canada to have a “virtual campus”!



MISA award presentation

2017 Excellence in Project Management Award was presented by our Project Management Support Office for the effort to modernize the IT workplace to support a future based on teamwork, collaboration and communication.



Core Project Team for “Our Future Corporation”

The **2017 Corporate Award for Excellence in Customer Service** was presented to the Tech Hub Team. The program focuses on providing City staff with essential troubleshooting, laptop/tablet and audio video loans all in one convenient location.



The IT Tech Hub Team

The **2017 Award for Innovative Business Solutions** was presented to the SAP Concur Expense Management Implementation Team. IT worked in partnership with Finance to complete this project.



The SAP Concur Expense Management Implementation Team

A **2017 Excellence in Project Management – Honourable Mention Award** was presented by our Project Management Support Office to the Agile collaborative workforce project team for an initiative providing adoption for staff to use web/video conferencing right from their desk or facility and eliminate the need for travel.



The “Agile Collaborative Workforce” project team receiving the award

Participation in the Smart Cities Challenge that encouraged communities to adopt a Smart Cities approach to improve the lives of their residents through innovation, data and connected technology. Although unsuccessful in the competition, the report will serve as a key input into a Smart City Master Plan (to be completed in 2019).



The Smart City logo created by Creative Services

The IT Helpdesk average time to resolve issues has been improving due to the IT leadership and extended leadership team reviewing customer service level reports on a regular basis, and directing all IT staff to resolve outstanding Help Desk tickets in a timely manner.

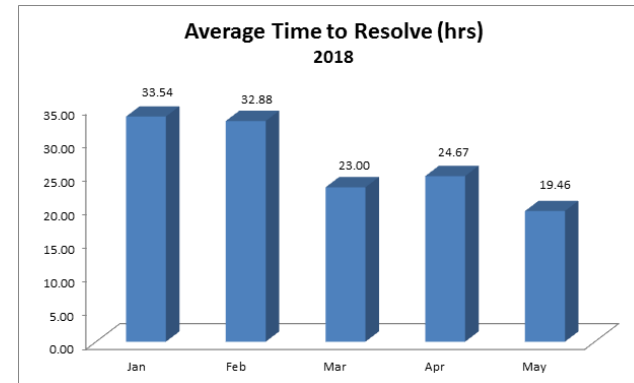


Chart showing how the average time to resolve issues is decreasing

Other achievements include:

- Implementing a Proof of Concept from the Geospatial Master Plan (a new GIS platform, visualization tools and analytics)
- The Public Sector Digest identified Mississauga in their Open Cities Index as remaining in the top twenty cities across Canada. This is the second year for being in the top 20 and the City has plans to improve in 2019

The 2019-2022 Business Plan

Outlook

Planning for the Future

IT is looking to expand many programs in the future including:

- Developing a Smart City Master Plan that will create a Smart City vision for the next three to five years
- Adding more Open Data data sets, continuing to support HackerNest Mississauga and the coding community, and committing to deliver another Tech and the City Hackathon
- Modernizing the technologies, platforms, and infrastructure that support Mississauga.ca
- Improving data and information to provide better situational and operational awareness through analytics, business intelligence and decision support
- Continuing to implement online services, introduce innovative uses of augmented reality and artificial intelligence to provide City services in our public spaces where people need access
- Supporting citizen engagement by providing technology and tools that integrate with City planning processes, communications and public consultation on important issues such as the City Budget
- Engaging youth and post-secondary students to drive innovation, community-developed apps with the startup community and Code for Canada
- Ongoing deployment of new technology that supports staff mobility and a mobile strategy for office staff
- Continuing to develop the City's Cyber security program to provide steadfast protection against an increasing level of cyber threats globally

The future will also mean network expansion PSN to support the growth of the outdoor infrastructure such as:

- Advanced Traffic Management System (ATMS) will introduce new capabilities that require real time sensor data and advanced sensor communications
- Continuing to implement District Wi-Fi in the downtown and four business improvement areas
- Private cellular network proof-of-concept in partnership with the Region of Peel, Peel Police and Mississauga, Brampton and Caledon Fire
- Continuing to implement iParks, introducing sensor based technology to measure environmental indicators, participation in the parks and also provide Wi-Fi for public access, staff, and parks operations



A futuristic outdoor space to Work, Live, Play

Finding Efficiencies

Lean Program

The Lean program focuses on maximizing customer value and minimizing waste along with empowering staff at all levels to problem-solve on a daily basis.

In Information Technology over 168 staff have received introductory White Belt training; two staff are in progress to become Yellow Belt certified, two staff are Green Belt certified, and there are two staff that are in progress to become Green Belt certified. The Division is planning to have 100 per cent staff White Belt certified by year end.

Some highlights of the many projects and small improvements completed include:

- IT Storefront team improved the control and management of all computer and mobile inventory
- New IT helpdesk process that reduced 14.5 per cent of helpdesk calls (433 hours per year), resolution lead time by 20.3 per cent, and statistics calculations by 300 hours
- Partial floor replacement in the data centre to improve air flow
- IT Service Desk agents received an upgraded VPN software solution, reduced the two step phone login process to one, and updated to dual monitors (to view multiple applications at once)

Completed Initiatives					Total Benefits	
Improvement Type	2014-2016	2017	September 2018	Total	Type	Total
Small Improvement	0	36	75	111	Cost Savings and Avoidance	\$493,293
Rapid Improvement	0	0	0	0	Customer Service Improvements	32
Project	0	1	1	2	Safety Improvements	13
Total	0	37	76	113	Environmental Improvements	12
In-Progress Initiative	Goals of the Initiative					
SharePoint Provisioning and Access	To improve the IT Work Requests process (each are completed within 1 to 15 business days) and address these issues: <ul style="list-style-type: none"> • Statement of work and scope not defined properly and result in re-work • Reduced work-in-progress and multi-tasking of Work Requests • Formal closure of Work Request and service desk calls without resolution • SharePoint team constantly pausing Work Requests to take support calls 					

Advancing the City's Strategic Plan

move - developing a transit oriented city

- IT is providing the technology services for the Light Rail Transit and Advanced Traffic Management System (ATMS)
- IT supports transit initiatives including MiWay technology, real-time bus tracking and advanced analytics

belong - ensuring youth, older adults and new immigrants thrive

- The City's second Hackathon was held in partnership with UTM, Sheridan and Soti Inc. (hosted by UTM in October 2017)
- Virtual Campus allows post-secondary students around the world to access university resources at City Hall, Celebration Square, libraries, community centres, transit terminals and parks, making Mississauga the first city in Canada to have a "virtual campus". Over 30,000 students from 170 post-secondary institutions from around the world accessed the service in the first three months available
- Attendance at the Canadian Youth Science, Technology, Engineering, and Math (STEM) 2018 Conference in November (held to encourage and expose students to the educational and career pathways in the STEM fields)

connect - completing our neighbourhoods

Smart City District Wi-Fi implementation in the City of Mississauga 2017 through to 2019 in the areas defined by the Business Improvement Areas and Downtown Mississauga:

- Modernizing Mississauga.ca to meet the needs of users by redesigning existing services to meet new people-centred digital standards, starting with Mississauga.ca information and transactional services

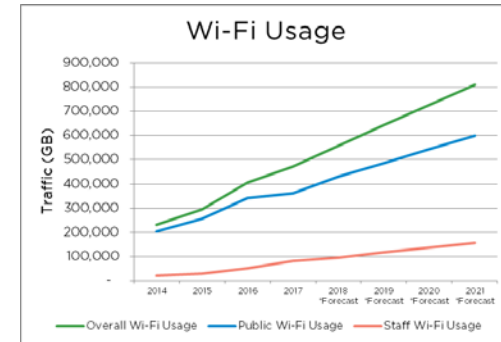


Chart showing how Wi-Fi usage is increasing

prosper - cultivating creative and innovative businesses

Smart City District Wi-Fi will provide:

- Free access to Wi-Fi and Smart City sensor technology tailored to meet the needs of each local community
- Opportunity for local business, innovation and learning while ensuring free access to broadband for those that may not have reliable access at home or elsewhere

green - living green

- IT's data centre has reduced energy consumption and expenses by leveraging modern technology, environmental sensors, and using Cloud based services to grow our data and computing requirements in a smart way

Transforming our Business with Technology

The IT Master Plan dated October 2015, established a three to five year outlook with strategies and actions for investment in technologies that are innovative and continue to improve how City services are provided. The IT Master Plan will be refreshed in 2019 and aligns with corporate priorities and the objectives of the City of Mississauga's Strategic Plan. IT will work directly with all departments across the City to update their technology roadmaps aligning them with the City's strategic plans.

Five key strategies have been developed as part of the IT Master Plan. These inspire the City to be innovative in how technology is used to enhance and deliver City services and to transform the City of Mississauga into an engaged and connected city:

- Foster Open and Accessible Government
- Enable Decisions through Research and Analytics
- Create a Connected and Engaged Workplace
- Improve Services through Innovation and Partnerships
- Building a connected and engaged City

There are 21 key actions within the IT Master Plan which provide specific direction on technologies and innovations that will support the overall objectives and transformation of the City through the adoption of technology.

The technology landscape is rapidly changing and the City has developed and grown significantly. Therefore, it is prudent to continually renew the City's IT strategy to ensure alignment with the business and technology trends.

The plan reflects these key technology trends:

- Broadband and free Wi-Fi is expected
- Services driven by consumers (mobile apps and sites)

- Everything and everyone is connected
 - Traffic signals, streetlights, sensors
 - City fleet and mobile workforce
- Fibre, Wi-Fi, cellular
 - Open data, big data, hackathons
- Cloud computing and software as a service
- Social media, online engagement and digital inclusion
- Innovation and partnerships
- Disruptive technologies
- Technology drives the economy and city building
- Business continuity and disaster preparedness
- Cybersecurity and threat intelligence
- Digital transformation in libraries include Makerspace, streaming content for ebooks, music and video.
- City building/Smart City



*City Centre Transit Terminal, Rathburn Rd – LRT
Early Works- Alectra, PSN, Rogers Joint Use
Trench (JUT)*

Maintaining Our Infrastructure

A critical component of the IT capital budget is to ensure that technology is renewed in line with both industry and operational standards. IT security is also vital, so with growing infrastructure and diverse requirements, the City will require one IT Security Analyst to detect, analyse, respond to, report on, and prevent Cybersecurity incidents. This also aligns with the new implementation of the NIST IT Security standard and three-year IT Security work plan.

The technology required to provide City services is supported by a primary data centre and backup data centre located off-site. All supporting technology including network devices, servers and databases are updated based on a lifecycle program as follows:

- Servers and storage area network - five years
- Desktop computers and laptops - four years
- Minor software upgrades for all City business systems and software - three years, and major - seven to 10 years
- IT standards are reviewed annually and reported to Council for standard software and hardware

Provincial and federal funding programs are also leveraged wherever possible to help fund these programs.

A fundamental aspect of the City's infrastructure is the Public Sector Network. Key facts about this network:

- A partnership between Mississauga, Peel, Brampton and Caledon (Mississauga owns about 22 per cent)
- 800 kilometres of high speed fibre connect 291 City sites and nodes (distribution points to connect things like intersections or extend Wi-Fi) and is the largest privately owned fibre network in Canada
- The total capital cost of the network pays for itself over a two year period through cost avoidance of leased

telecommunication lines. Operational costs are fully funded through subscriber fees where the City leases fibre to partner agencies

As of December 31, 2017 the estimated replacement value of the City's hardware and software assets was \$130 million and annual replacement was \$13 million.

2019 - \$1.7 million Operating Budget Pressure:

- SAP solutions - \$555,000 pressure includes:
 - Accounts Invoicing (\$255,000)
 - SuccessFactors & Concur (\$155,000)
 - Travel & Expense subscription (\$100,000)
 - Enterprise Resource Planning Central Component (ECC) software (\$45,000)
- Infrastructure - security software & tools, voice, wireless access switches, core switches, firewalls, routers, ATMS switches, server capacity & backups - \$510,000
- Corporate Services IT portfolio - \$235,000 pressure includes:
 - Cybersecurity solutions (\$75,000)
 - Procurement e-Bidding (\$60,000)
 - Customer relationship management (CRM) software (\$55,000)
 - Work intake, time tracking, contact and energy management pressures (\$45,000)
- Digital Services & Mobility and GIS portfolio - \$145,000
- ePlans/ePermitting - \$120,000
- Region of Peel Radio/VCOM - \$60,000
- Miscellaneous subscription and added licensing pressures - \$50,000

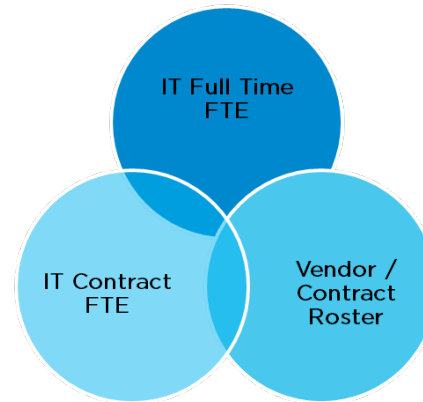
Managing Our Human Resources

Sixteen employees are enrolled in the leadership succession planning program and seven leaders are eligible for retirement within the next four years, so IT is providing development experiences to those that can move into key roles.

Our Structure

The IT Service was re-organized in January 2014 to better align resources with providing service to the public, enhancing

enterprise business solutions and ensuring that effective IT strategies and innovations enhance City services and operations. Partnerships have been established to improve service, efficiency and cost effectiveness. The Public Sector Network (PSN), VCOM Radio and Wireless Mississauga for Sheridan are examples.



The IT Resource Model

Our Talent

The Information Technology Division is comprised of:

- Section and Program Managers
- Business Analysts
- Project Managers
- Information Technology Technicians & Specialists
- Database Administrators
- Application Specialists (e.g. SAP, GIS, SharePoint)
- Helpdesk Specialists
- Application Developers
- Communication Specialists
- Audio Video Specialists
- Security Specialists
- System and Network Architects
- Students, Sheridan Co-Op Program

Critical Roles/Functions to Achieve Business Goals

Current staffing issues are focused around Information Technology's ability to assign the right resources to priority initiatives while maintaining a level of capacity to deliver projects and maintain day to day operations. A combination of permanent, part-time and contract staff is utilized so that resources to deliver on key projects can grow with demand and be directly funded by the initiative. In 2018 project portfolio consists of 132 projects, this is driving investment in resources and technology, and currently there are 109 projects planned in 2019.

Talent Needs

To keep up with today's ever changing needs of Information Technology, a pre-qualified IT Roster for Professional Services was implemented so that unique skill sets can be acquired on an as-needed basis. IT will also be creating a roster of staffing agencies to provide staff augmentation for both project and operational activities. This will provide more agility to respond to times of increased workloads. Immediate talent needs for 2019 are: one IT Security Analyst to detect, analyse, respond to, report on, and prevent cybersecurity incidents, one IT Application Developer dedicated to the Corporate Services and City Manager's Office Portfolio to address growing business requirements, and a project manager and technical specialist for the modernizing project/portfolio management pilot.

Proposed Full Time Equivalent (FTE) Staffing Distribution by Program

Program	2018	2019	2020	2021	2022
IT Admin Strategy & Innovation	16.0	16.8	16.8	16.8	15.8
IT City Services	50.0	51.0	51.0	51.0	51.0
IT Digital Services & Mobility	54.0	55.0	55.0	55.0	55.0
IT Enterprise Business Solutions	24.5	26.4	26.4	24.4	24.4
IT Infrastructure Planning & Operations	36.0	37.0	38.0	38.0	38.0
IT Service Management	21.3	22.0	22.0	22.0	22.0
Total Service Distribution	201.8	208.1	209.1	207.1	206.1

Note: Numbers may not balance due to rounding.

Proposed Operating Budget

This part of the Business Plan sets out the financial resources required to deliver the proposed 2019-2022 Business Plan. Information is provided by major expenditure and revenue category as well as by program. The costs to maintain existing service levels and operationalize prior decisions are identified separately from proposed changes. The IT budget for 2018 was \$27.8 million and the proposed budget for 2019 is \$29.7 million.

Total Changes to Maintain Current Service Levels

Total amount to maintain current service levels is \$2.03 million.

Labour and benefits are projected to increase by \$399,000. Reflected in this are labour/other fringe benefit changes totaling \$343,000 and \$57,000 for annualization of an IT Security Specialist. Maintenance and Licensing is being increased by \$1.7 million due to inflationary/contractual obligations and the significant shift to cloud based subscription solutions. The “Financial Transactions” section has allocated \$120,000 for payment card transaction fees. The Access Point Name (APN) network capacity increased by \$60,000. Professional services transfers totaling \$46,000 from Economic Development and Legislative Services is being added. Lease payments increase \$28,000 for space at 201 City Centre Drive. Miscellaneous minor increases total \$48,000.

IT Support Cost allocations increase by \$278,000 and revenue is increased by \$143,000 as a result of increased revenues from the TXM system. These items reduce total IT cost pressures by \$421,000.

Efficiencies and Cost Savings

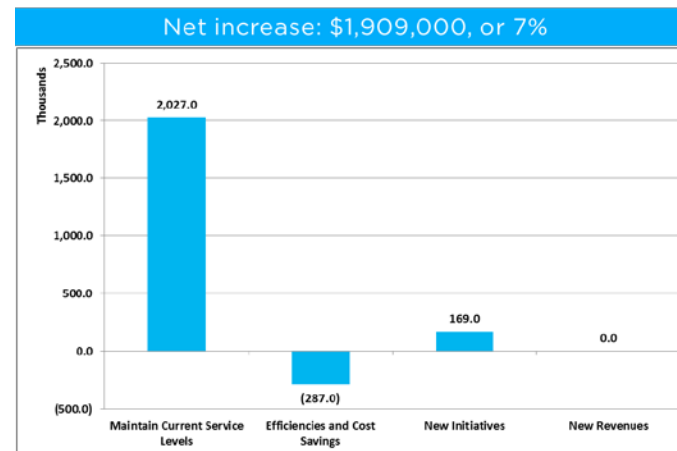
Total IT cost savings is \$287,000.

Contract renewals/re negotiations has resulted in a reduction of \$180,000 in cellular voice/data plans and \$45,000 in the copier contract (year one of three). Maintenance and Licensing fees are reduced \$47,000 due to rationalization. Registry searches (\$10,000) and office supplies (\$5,000) have also been reduced.

New Initiatives

IT has three new initiatives impacting the 2019 budget – BR# 5468 (Cybersecurity Operations Centre); BR# 5469 (IT Application Developer); and BR# 5530 (Modernizing Project/Portfolio Management Pilot). Total operating impact of these budget requests is \$169,000.

Proposed Changes to 2019 Net Operating Budget by Category (\$000's)



Operating Budget Details

The following table identifies the budgeted and forecasted operating expenditures and revenues for 2019-2022, as well as the 2018 Budget and 2017 Actuals by major program within the service area.

Proposed Budget by Program

Description	2017 Actuals (\$000's)	2018 Budget (\$000's)	2019 Proposed Budget (\$000's)	2020 Forecast (\$000's)	2021 Forecast (\$000's)	2022 Forecast (\$000's)
Expenditures to Deliver Current Services						
IT Admin, Strategy & Innovation	1,071	594	643	608	573	583
IT City Services	6,492	7,196	7,632	7,772	7,905	8,039
IT Digital Services & Mobility	4,027	7,647	8,182	8,369	8,482	8,597
IT Enterprise Business Solutions	3,767	3,686	4,293	4,543	4,769	5,002
IT Infrastructure Planning & Operations	6,815	7,515	7,830	8,005	8,126	8,248
IT Service Management	2,361	1,979	1,920	1,970	2,006	2,048
Total Expenditures	24,533	28,617	30,500	31,267	31,860	32,517
Revenues	(737)	(812)	(955)	(955)	(955)	(955)
Transfers From Reserves and Reserve Funds	0	0	0	0	0	0
New Initiatives and New Revenues			169	559	570	581
Proposed Net Budget Including New Initiatives & New Revenues	23,796	27,805	29,714	30,872	31,476	32,143
Expenditures Budget - Changes by Year			7%	3%	2%	2%
Proposed Net Budget - Changes by Year			7%	4%	2%	2%

Note: Numbers may not balance due to rounding.

Summary of Proposed Budget

The following table shows the proposed budget changes by description and category. Costs (labour, operational costs and facility IT and support) and revenues are shown by category with the approved 2018 budget for comparison. The three columns to the far right of the table show the totals proposed for 2019 and their dollar and percentage changes over 2018.

Summary of Proposed 2019 Budget

Description	2018 Approved Budget (\$000's)	Maintain Current Service Levels	Efficiencies and Cost Savings	Annualized Prior Years Budget Decisions	Operating Impact of New Capital Projects	Proposed New Initiatives Revenues	Special Purpose Levies	2019 Proposed Budget (\$000's)	\$ Change Over 2018	% Change Over 2018
Labour and Benefits	22,467	343	0	57	0	169	0	23,035	568	3%
Operational Costs	7,656	2,048	(287)	0	0	0	0	9,417	1,761	23%
Facility, IT and Support	(1,506)	(278)	0	0	0	0	0	(1,783)	(278)	18%
Total Gross	28,617	2,113	(287)	57	0	169	0	30,669	2,052	7%
Total Revenues	(812)	(143)	0	0	0	0	0	(955)	(143)	18%
Total Net Expenditure	27,805	1,970	(287)	57	0	169	0	29,714	1,909	7%

Summary of Proposed 2019 Budget and 2020-2022 Forecast

Description	2017 Actuals (\$000's)	2018 Approved Budget (\$000's)	2019 Proposed Budget (\$000's)	2020 Forecast (\$000's)	2021 Forecast (\$000's)	2022 Forecast (\$000's)
Labour and Benefits	18,807	22,467	23,035	23,606	24,013	24,426
Operational Costs	7,013	7,656	9,417	10,023	10,236	10,505
Facility, IT and Support	(1,287)	(1,506)	(1,783)	(1,802)	(1,818)	(1,833)
Total Gross	24,533	28,617	30,669	31,827	32,431	33,098
Total Revenues	(737)	(812)	(955)	(955)	(955)	(955)
Total Net Expenditure	23,796	27,805	29,714	30,872	31,476	32,143

Note: Numbers may not balance due to rounding.

Proposed Cost Increase Required to Maintain Current Service Levels

The following table provides detailed highlights of budget changes by major cost and revenue category. It identifies the net changes to maintain existing service levels, taking into account efficiencies, cost savings, and cost increases arising from prior year decisions.

Description	2018 Budget (\$000's)	2019 Proposed Budget (\$000's)	Change (\$000's)	Details (\$000's)
Labour and Benefits	22,467	22,866	399	Increase/Decrease Reflects Labour Adjustments and Other Fringe Benefit Changes - Also Includes \$57,000 Annualization
Administration and Support Costs	(1,506)	(1,783)	(278)	(\$90) From F&PM (Lucid, VFA, AMAG, SIMS, etc) (\$87) T&W: Virtual Communications (\$46), Chameleon (\$32), Giro (\$8) (\$60) e-Bidding (\$28) CMS: Infor (\$10), Fire Incident System (\$10), Class (\$8) (\$13) Other Minor Increases
Communication Costs	422	305	(117)	(\$180) Cellular Voice/Data Savings - Efficiency \$60 Access Point Name (APN) Increase
Contractor & Professional Services	49	95	46	\$40 Transfer from Economic Development
Equipment Costs & Maintenance Agreements	6,686	8,353	1,667	\$1,740 Maintenance/Licensing (\$47) Maintenance/Licensing Rationalization (\$32) Copier Contract Reduction
Finance Other	45	165	120	Costs associated with the collection of revenues through the use of payment cards are allocated to respective business areas from Financial Transactions
Materials, Supplies & Other Services	101	96	(5)	Efficiencies and Cost Savings (Geomatics)
Occupancy & City Costs	264	292	28	201 City Centre Lease
Staff Development	61	71	10	From T&W to Complete Geomatics Transfer to IT
Transportation Costs	29	41	12	\$5 Staff Parking \$5 Vehicle Maintenance on Van #598 (from Parks) \$2 From T&W to Complete Geomatics Transfer to IT
Subtotal - Other Operating	6,150	7,634	1,484	
Total Revenues	(812)	(955)	(143)	TXM Recovery Increase
Subtotal - Revenues	(812)	(955)	(143)	
Total	27,805	29,545	1,740	

Note: Numbers may not balance due to rounding.

Proposed New Initiatives and New Revenues

This table presents the costs by Budget Request (BR) for proposed new initiatives. Each BR is numbered. Detailed descriptions of each Request can be found in the pages following the table.

Description	BR #	2019 FTE Impact	2019 Proposed Budget (\$000's)	2020 Forecast (\$000's)	2021 Forecast (\$000's)	2022 Forecast (\$000's)	2019 to 2022 FTE Impact	2019 to 2022 Capital (\$000's)
New Initiative								
Cybersecurity Operations Centre	5468	1.0	85	416	425	434	2.0	325
IT Application Developer	5469	1.0	85	116	117	119	1.0	0
Modernizing Project/Portfolio Management Pilot	5530	2.0	(0)	28	28	28	0.0	882
Total New Initiatives		4.0	169	559	570	581	3.0	1,207
Total New Initiatives and New Revenues		4.0	169	559	570	581	3.0	1,207

Note: Numbers may not balance due to rounding.
Amounts are net.

Proposed Initiative	Department	Service Area
Cybersecurity Operations Centre	Corporate Services Department	Information Technology

Description of Budget Request

The Cybersecurity Operations Centre (CSOC) objective is to protect the City’s digital assets and systems. The CSOC will comprise of people, processes and technologies all of which strengthen the City’s security posture in the wake of increasing cyber incidents. CSOC staff is comprised primarily of security analysts who work together to detect, analyse, respond, report, and prevent Cyber security incidents. This request is for two analysts (Apr/19, Jan/20) and 3rd party professional services.

Required Annual Operating Investment

Impacts (\$000s)	2019	2020	2021	2022
Gross Expenditures	84.5	415.9	424.9	433.9
Reserves & Reserve Funds	0.0	0.0	0.0	0.0
User Fees & Other Revenues	0.0	0.0	0.0	0.0
Tax Levy Requirements	84.5	415.9	424.9	433.9
* Net Change in \$		331.4	8.9	9.0
FTEs	1.0	2.0	2.0	2.0

**In each year, all values are cumulative, not incremental.*

Required Capital Investment

Total Capital (\$000s)	2018 & Prior	2019	2020	2021	2022 & Beyond
Expenditures	0.0	325.0	0.0	0.0	0.0

Why Staff Recommend this Initiative

Cyber attacks/crime continue to grow. In 2015, cyber crime was estimated at \$24 million globally; in 2017, \$200 billion. In 2019 it is expected to be \$2 trillion. We estimate the City’s digital assets generate 7,000 security events/second. The City’s email system receives approximately 90,000 external emails daily; 60,000 are classified as threats. Cyber threats are becoming more frequent, increasing in complexity and sophistication. The City needs to invest in improving protective measures.

Details of Service Change

Resourcing the CSOC will be a hybrid approach. Internal resources will handle Tier 2 (analysis, remediation) and Tier 3 (impact analysis, process improvement) activities; Tier 1 (monitoring, alerting, maintenance) activities will be handled by a third party. This ensures the City has continuous monitoring of the alert queue; triaging of security alerts; active monitoring of sensors and endpoint security and ensures data is collected and reviewed prior to escalating threats to Tier 2 staff.

Service Impact

The CSOC team is responsible for the ongoing, operational component of the City's enterprise information security. CSOC staff is comprised primarily of security analysts who work together to detect, analyse, respond to, report on, and prevent Cyber security incidents.

Proposed Initiative

IT Application Developer

Department

Corporate Services Department

Service Area

Information Technology

Description of Budget Request

As a result of having an Application Developer, the IT Project Portfolio and Development team for CPS/CMO will have capacity for priority application development activities; provision of maintenance and support for systems in production (including .NET, SharePoint, web, and mobile); implementing and maintaining new applications; upgrading and supporting existing applications; and performing application, server and database upgrades.

Required Annual Operating Investment

Impacts (\$000s)	2019	2020	2021	2022
Gross Expenditures	84.5	115.6	117.5	119.4
Reserves & Reserve Funds	0.0	0.0	0.0	0.0
User Fees & Other Revenues	0.0	0.0	0.0	0.0
Tax Levy Requirements	84.5	115.6	117.5	119.4
* Net Change in \$		31.0	1.9	1.9
FTEs	1.0	1.0	1.0	1.0

**In each year, all values are cumulative, not incremental.*

Required Capital Investment

Total Capital (\$000s)	2018 & Prior	2019	2020	2021	2022 & Beyond
Expenditures	0.0	0.0	0.0	0.0	0.0

Why Staff Recommend this Initiative

The IT Project Portfolio & Development team for CPS/CMO supports over 30 applications for Corporate Services and the City Manager's Office. These applications include commercial off-the-shelf (COTS) products such as Agenda.NET, Building Automation Systems (BAS) and RiskMaster, as well as custom in-house developed applications for Marriage Licences, Prosecution Disclosure and Summons Requests and Realty Services.

Details of Service Change

With the increasing requests for development support and the increasing risks associated with outdated in-house developed application this request provides the CPS/CMO IT team the opportunity to:

- Redevelop the six custom developed application that are currently using a non-support version of Microsoft Access
- Allow CPS/CMO IT staff to be able to respond in a timely manner to requests from Corporate Services clients related to development support including reporting, system integration, minor SharePoint development opportunities, etc.
- Allow CPS to respond to feature enhancements, bug fixes and legislative requirements as part of the Software Development Lifecycle for the custom developed applications.

Service Impact

The City could sub-contract to a professional services company for onsite staffing for two years and the lowest cost would be at \$125/hr. One year expense would be \$227,500 assuming 35 hours per week for 52 weeks. Same onboarding learning time still applies for outsourced staff. However, to compare, the cost for a two year non-complement staff is \$251,000 while the cost of a two year consultant is \$455,000.

A professional services engagement with the addition of an Application Developer to the team will be reduced should the additional staff be trained in using specific toolsets. There will be “ramp-up” time for the new Application Developer to gain the knowledge and expertise in using specific tools (e.g. City standard application development tools, City application development environments, database tools, processes, and procedures). The new staff will be fully trained after six-nine weeks on the job.

Budget Request #: 5530

Proposed Initiative

Modernizing Project /Portfolio Management Pilot

Department

Corporate Services Department

Service Area

Information Technology

Description of Budget Request

To fund a pilot in designated business units of automated project and portfolio management tools. This pilot will lay the foundation for modernizing the selection, planning, financing, monitoring, and reporting on projects across the corporation.

Required Annual Operating Investment

Impacts (\$000s)	2019	2020	2021	2022
Gross Expenditures	0.0	28.0	28.0	28.0
Reserves & Reserve Funds	0.0	0.0	0.0	0.0
User Fees & Other Revenues	0.0	0.0	0.0	0.0
Tax Levy Requirements	0.0	28.0	28.0	28.0
* Net Change in \$		28.0	0.0	0.0
FTEs	2.0	2.0	0.0	0.0

**In each year, all values are cumulative, not incremental.*

Required Capital Investment

Total Capital (\$000s)	2018 & Prior	2019	2020	2021	2022 & Beyond
Expenditures	0.0	758.5	123.5	0.0	0.0

Why Staff Recommend this Initiative

The primary tools used to manage projects/project portfolios are Word, Excel, and SharePoint.

By implementation the following can be achieved:

- Improve efficiency/effectiveness of project delivery by standardizing processes
- Provide transparent accurate analytics about projects to support fact based decisions
- Remove barriers to hiring qualified project leads who use automated tools
- Position the organization for future enhancements in budgeting/cash flow management/work force planning

Details of Service Change

The city has 860+ capital funded projects plus a number of staff run projects funded within the divisional operating budgets. Business units with large volumes of project work are developing their own automated solutions to deal with the pressures of monitoring large groups of projects. Automated solutions exist that potentially could be used corporately to automate processes at both the project and portfolio management level.

1. Project Management Support Office (PMSO) staff will work with the appropriate business units during the remainder of 2018 to refine requirements, evaluate software options and develop a roadmap.
2. Based on the roadmap the selected software will be implemented for the pilot group. An SAP solution for an IT pilot has been assumed as the basis for establishing the proposed budget.
3. In 2019, the pilot will commence. Two dedicated full-time staff will be needed to manage implementation. The first is a Project Lead from PMSO (Grade H) to manage all aspects of the project ensuring business needs are met. The second is an IT Technical Lead (Grade H) to manage the installation and configuration of the chosen software solution. Professional services will be engaged to provide expertise in configuration/best practices. The expected results will be an increase in maturity and best practice usage across all client groups and to position the solution for future roll out across the organization.
4. A BR will be prepared in 2019 to fund implementation of the remaining approved roadmap.

Service Impact

Automating and streamlining project delivery processes will free up staff capacity both within the project teams and within the shared support services (Material Management, IT, Legal, Communications).

Project Portfolio software facilitates decision-making on project selection, resourcing, launching, troubleshooting and closing.

This will aid in the success rate of projects as it establishes and automates processes for identifying, prioritizing, authorizing, managing, and controlling projects, programs, and other related work, to achieve specific strategic business objectives.

Portfolio Management will also benefit the City by increasing organizational maturity in the following areas:

1. Consistency of project prioritization/selection
2. Strategic alignment and balance
3. Governance and decision making
4. Organizational risk management
5. Transparency, agility
6. Resource management
7. Standardized project performance tracking

Proposed Capital Budget

This section summarizes the forecast 10-year capital requirements for this service. The following table presents the forecast by major program. The next table summarizes the sources of financing for the capital forecast.

Proposed 2019-2028 Capital Budget by Program

Program Expenditures	2019 Proposed Budget (\$000's)	2020 Forecast (\$000's)	2021 Forecast (\$000's)	2022 Forecast (\$000's)	2023-2028 Forecast (\$000's)	Total 2019-2028 (\$000's)
Applications	8,843	8,703	4,515	2,190	40,805	65,057
Geomatics	175	95	195	150	725	1,340
Infrastructure	5,120	7,010	4,710	7,635	46,405	70,880
PC Replacement & Peripherals	2,564	1,605	1,715	1,535	14,162	21,581
Total	16,703	17,413	11,135	11,510	102,097	158,858

Note: Numbers may not balance due to rounding. Numbers are gross.

Proposed 2019-2028 Capital Forecast Highlights

- \$22.04 million - Server Storage Replacement and Applications
- \$15.72 million - PC/Notebook/Tablet Lifecycle Replacement
- \$10.29 million - Network Fiber
- \$10.2 million - TXM Platform Maintenance
- \$9.07 million – Network Security Infrastructure
- \$8.76 million – Switches and Routers
- \$6.91 million – Wireless Infrastructure
- \$6.87 million – SAP and SAP Related Services
- \$6.59 million – Security Program and Enhancements
- \$5.5 million – VOIP System and Phones
- \$4.15 million – CLASS System Replacement
- \$4.14 million – eCity Hosting and Online Services

Proposed 2019-2028 Capital Budget by Funding Source

The following table provides the funding sources proposed to fund the capital portion of the proposed 2019-2022 Business Plan and 2019 Budget and the consolidated forecast for 2023-2028.

Funding	2019 Proposed Budget (\$000's)	2020 Forecast (\$000's)	2021 Forecast (\$000's)	2022 Forecast (\$000's)	2023-2028 Forecast (\$000's)	Total 2019-2028 (\$000's)
Tax Capital	16,703	17,413	11,135	11,510	102,097	158,858
Total	16,703	17,413	11,135	11,510	102,097	158,858

Note: Numbers may not balance due to rounding. □

Proposed 2019 Capital Budget Detail

The following tables provide a detailed listing of proposed capital projects for 2019.

Program: Applications

Project Number	Project Name	Gross Cost (\$000's)	Recovery (\$000's)	Net Cost (\$000's)	Funding Source
CPIT005900	TXM Platform Maintenance	775	0	775	Tax Capital
CPIT006404	Desktop Operating System Upgrade	370	0	370	Tax Capital
CPIT006408	CLASS Replacement Project	200	0	200	Tax Capital
CPIT006424	Open Data Platform	145	0	145	Tax Capital
CPIT006768	Cyber Security Operations Centre	325	0	325	Tax Capital
CPIT006783	Work Management and Resource Capacity Planning Solutions	758	0	758	Tax Capital
CPIT007115	SAP Legislative Changes and Enhancements	200	0	200	Tax Capital
CPIT007116	SAP S4 HANA Upgrade (part of the SAP Roadmap)	100	0	100	Tax Capital
CPIT007118	TXM Workplan	350	0	350	Tax Capital
CPIT007120	SuccessFactors Sustainment Services	150	0	150	Tax Capital
CPIT007410	eCity Hosting and Online Services Hosting and Services	1,540	0	1,540	Tax Capital
CPIT007415	Desktop Office Suite Upgrade	640	0	640	Tax Capital
CPIT007417	IT Security Program	480	0	480	Tax Capital
CPIT007420	Server Applications	380	0	380	Tax Capital
CPIT007421	eCity Web and Mobile	500	0	500	Tax Capital
CPIT007422	MAX-Online Services	500	0	500	Tax Capital
CPIT007427	GeoSpatial Master Plan and Implementation	920	0	920	Tax Capital
CPIT007437	MAX-Beyond Oracle Forms Platform 2019	200	0	200	Tax Capital
CPIT007468	Pingstreet App Additional Features	10	0	10	Tax Capital
CPIT007521	Dashboard Security Framework	300	0	300	Tax Capital
Total		8,843	0	8,843	

Note: Numbers may not balance due to rounding.

Program: Geomatics

Project Number	Project Name	Gross Cost (\$000's)	Recovery (\$000's)	Net Cost (\$000's)	Funding Source
TWOE00476	Survey & Equipment Upgrade	80	0	80	Tax Capital
TWOE02480	Survey and Control Network	50	0	50	Tax Capital
TWOE02481	Topographical Updating	45	0	45	Tax Capital
Total		175	0	175	

Note: Numbers may not balance due to rounding.

Program: PC Replacement & Peripherals

Project Number	Project Name	Gross Cost (\$000's)	Recovery (\$000's)	Net Cost (\$000's)	Funding Source
CPIT006409	Library Public PC Replacement	500	0	500	Tax Capital
CPIT007411	PC/Notebook/Tablet Lifecycle and Staff Adds	1,425	0	1,425	Tax Capital
CPIT007434	Network Services UPS Business Continuity	210	0	210	Tax Capital
CPIT007493	2019 IT Hardware/Software-New Staffing	429	0	429	Tax Capital
Total		2,564	0	2,564	

Program: Infrastructure

Project Number	Project Name	Gross Cost (\$000's)	Recovery (\$000's)	Net Cost (\$000's)	Funding Source
CPIT007412	VCOM Mobile Radio	70	0	70	Tax Capital
CPIT007416	Wireless Infrastructure	550	0	550	Tax Capital
CPIT007418	Network Security Infrastructure	400	0	400	Tax Capital
CPIT007419	Server and Storage Replacement & Expansion	1,710	0	1,710	Tax Capital
CPIT007424	Network Fibre	980	0	980	Tax Capital
CPIT007429	Switches and Routers	590	0	590	Tax Capital
CPIT007442	VoIP Systems & Phones 2019	560	0	560	Tax Capital
CPIT007443	Special IT Equip-Includes Public	260	0	260	Tax Capital
Total		5,120	0	5,120	

Note: Numbers may not balance due to rounding.

Proposed 2020-2022 Capital Budget by Sub-Program

The following tables provide a listing of capital forecast by sub-program for 2020-2022.

Sub-Program	2020 Forecast (\$000's)	2021 Forecast (\$000's)	2022 Forecast (\$000's)
Applications			
IT Applications-New	993	660	680
IT Applications-Replacement/Enhancements	6,060	3,455	1,310
IT Portal	1,650	400	200
Subtotal	8,703	4,515	2,190

Sub-Program	2020 Forecast (\$000's)	2021 Forecast (\$000's)	2022 Forecast (\$000's)
Geomatics			
IT Topographical Updating	45	145	100
IT Survey Ctrl/Equip, Rd Bylaw Svcs	50	50	50
Subtotal	95	195	150

Sub-Program	2020 Forecast (\$000's)	2021 Forecast (\$000's)	2022 Forecast (\$000's)
Infrastructure			
IT Network Infrastructure	4,630	3,360	5,535
IT Server Replacement/Maintenance	2,130	1,100	1,850
IT Service Management	250	250	250
Subtotal	7,010	4,710	7,635

Sub-Program	2020 Forecast (\$000's)	2021 Forecast (\$000's)	2022 Forecast (\$000's)
PC Replacement & Peripherals			
IT PC/Notebook-Replacement/Maintenance	1,605	1,505	1,475
IT Peripherals	0	160	10
IT Specialized Equipment	0	50	50
Subtotal	1,605	1,715	1,535
Total Expenditures	17,413	11,135	11,510

Note: Numbers may not balance due to rounding.
Numbers are net.