

Inspiring Possibilities



Foster Open
and
Accessible
Government



Enable
Decisions
through
Research &
Analytics



Create a
Connected
and Engaged
Workplace



Improve
Services
through
Innovation &
Partnerships

IT Master Plan - 2015

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Executive Summary



Technology plays a significant role in the delivery of City Services for the City of Mississauga. The City has used Technology Strategic Plans for many years to

ensure alignment with the broader objectives of the Corporation. This ensures that emerging technology and trends are assessed and adopted in a way that compliments the delivery of City Services and drives efficiencies in City Operations.

The City has established itself as a leader in the use of technology to engage citizens and deliver services through innovation and partnerships. Through the IT Master Plan process a whole new set of Inspiring Possibilities has been established forming a new and exciting vision for the future.

The technology landscape is rapidly changing and the City has developed and grown significantly. With these factors it is prudent to renew the strategy to ensure that investments in technology continue to align with overall City objectives.

Several key industry leaders were engaged in Thought Leader Sessions with staff from various City service areas to consider

what leading technology industry experts were planning in the one to three year range. The sessions focused in on what their plans were to address the ever changing demands of consumer driven technology, rapid changes in technology and a highly engaged and mobile customer. The following are key insights from these sessions:

- Open Data, Hackathons, Mobile Apps and easy Citizen Access to Information and Services anywhere.
- Smart City initiatives that enable services, engage the community and drive economic benefits.
- Big Data and Analytics that provides new insights and better decisions.
- A connected and mobile workforce that can easily work from anywhere.
- Fast and Agile Technology Adoption.
- Digital engagement and inclusion.

Visioning, engagement and creativity are the foundation for the development of an IT Master Plan and Service Area Technology Plans. Having key stakeholders and technology ambassadors who are at the front line with Customers directly providing service is an important perspective that has been captured through this process.

The IT Master Plan has four key strategies that provide areas of focus. Each has an action plan for the next three to five years with an objective to ***enable the transformation of the City of Mississauga into an engaged and connected City.***

Foster Open and Accessible Government



The City of Mississauga provides services that citizens, businesses and visitors directly access and engage in.

Using technology to make this more convenient and efficient is an important aspect of the Open and Accessible Government strategy. Actions that support this strategy include:

- Implement a **Digital Strategy** in partnership with Communications that will drive the modernization of the City's online presence. Involve citizens in the transformation through digital inclusion, proof of concepts and direct citizen feedback.
- Launch an **Open Data Hackathon** to create awareness and to promote the use of Open Data and creation of community sourced Apps. A Hackathon format will be followed that includes partnerships with educational institutions, the community and key technology partners.
- Establish an **Online Engagement Tool Set** that will improve interaction with the public and key stakeholders seeking input on City plans, initiatives or events with the ability to scale from small to large engagements.
- Develop **Mobile Apps** with a new mandate and way of thinking that positions the City to be responsive to how customers want to access services.

Enable Decisions through Research and Analytics



Information and data are growing at an exponential rate. The industry term BIG DATA represents the significant volumes of data available in structured and

unstructured formats that can be mined and analysed to create information that was not possible before and be used for making decisions in a more scientific way. Key actions that support Research and Analytics include:

- Develop a **BIG DATA framework** and inventory that enables advanced analytics, research, responsive trend analysis, GIS, data visualization and decision making.
- Build a broader awareness of tools and capabilities of **Analytics that help improve City Services** and inform key metrics for initiatives like Lean, City Services key performance indicators, research and innovation.
- Establish **Situational Dashboards** that display key indicators, trends, map and other related data that support real time management of City operations, an emergency or significant event.

Create a Connected and Engaged Workplace



Technology has become essential to the delivery of City Services with the worker and the workplace being heavily influenced by mobile technology. IT Infrastructure has

also become essential to how City services are connected and operate. Fibre optic networks, Wi-Fi and cellular networks connect these services and enable the collection of data and the ability to manage these services in real time. The connection of assets and services is known in industry as the Internet of Things and is an important opportunity for the City as it continues to develop as a **Smart City leader**. Actions to advance this strategy include:

- Design and **build a Smart City framework** ensuring that technology initiatives are coordinated and maximizes investments to improve services through efficiencies and better customer service within the context of Smart City initiatives.
- Design and **build a Wi-Fi Corridor** as a proof of concept that demonstrates how local business, the community and City services can be integrated in a way that drives engagement and economic spinoff. The proof of concept would include field testing of Smart City technologies such as public Wi-Fi, parking sensors, digital signage, beacons and advance traffic management.

- Create **seamless and secure connection anywhere**, anytime on any device for all staff whether they are in the office, field or half way around the world. Improved access for staff in the field will translate into better customer service and more efficient City operations.

The City of Mississauga has participated as Keynote Presenters at global Smart City Conferences held in Brazil in late 2013 and recently in China where the City was recognized as a global leader presenting along with 14 other major cities from around the world.



The City was recognized for its implementation of Smart City initiatives such as Public Wi-Fi, Traffic, Transit, Open Data and the Public Sector Fibre Network.

Improve Services through Innovation & Partnerships



The City of Mississauga has benefited from technology partnerships including the Public Sector Network (PSN), Sheridan College Wi-Fi and VCOM Radio where synergies, economies of scale and areas of expertise drive savings, collaboration and opportunities to try new and innovative ideas. There are also many other opportunities that have been implemented as part of special programs and services such as the Library or Recreation who use technology to enhance learning, engagement and where possible address the digital divide by ensuring access to technology for those who would not otherwise have such an opportunity. Actions that support Innovation & Partnerships include:

- Instill an **Innovation and Partnership mandate** in the development of Service Area Technology Road Maps ensuring that new initiatives assess Partnership opportunities that foster shared responsibility and commitment to provide value and benefits to the community.
- Seek out **innovative Proof of Concept opportunities** that create synergies between the City of Mississauga, the community, educational institutions, local industry, small business and other Idea or Innovation incubators.

A Vision for the future

These four key strategies will guide our planning and decisions on investment in technology. Alignment will be achieved through the development of Service Area Technology Road Maps for key services and active participation in the business plan and budget process. The City of Mississauga has established its reputation in the Public Sector as a leader in the use of technology to provide City services.



The IT Master Plan has established a fresh and modern vision for the future through the engagement of key industry leaders, benchmarking and engagement with key staff involved in planning and delivering services. These Inspiring Possibilities have generated a great deal of excitement within the organization and with key industry leaders.

The IT Master Plan is a well-informed vision for the adoption of technology that will enable the transformation of the City of Mississauga into an engaged and connected City.

Introduction

The City of Mississauga is a bright and vibrant community that is enhanced by the services and amenities provided by the City. Services such as 311, Transit, Recreation, Culture, Library, Roads and Fire are foundational to the success of the community. Investments fostered through Economic Development ensure that Mississauga's business sector is competitive globally providing strong economic growth, and employment opportunities.



The success of the City can be attributed to a world class Strategic Plan that sets the priorities of the annual Business Plans and ensures

that the right investments in the community are being made with good governance, transparency and accountability.

Technology plays a significant role in the delivery of City Services. The City has used Technology Strategic Plans for many years to ensure alignment with the broader objectives of the Corporation and to ensure that emerging technology and trends are assessed and adopted in a way that compliments the delivery of City Services and drives efficiencies in City Operations.

In 2012 the IT Plan 2.0 was approved focusing on **Connecting with our Citizens** and **Enabling our Workforce**. The objectives

of the plan were based on four areas of influence with project portfolios established and monitored for each.

- **Government 2.0** – the portfolio focused on web self-serve, open data, mobile access and social media to deliver City Services.
- **Workplace 2.0** – the portfolio focused on collaboration, electronic records management and office automation to improve internal communications and productivity.
- **Business 2.0** - the portfolio focused on decision support, business intelligence, enterprise applications and key business systems to support City Operations.
- **Infrastructure 2.0** - the portfolio focused on wireless networks, critical network infrastructure, workforce mobility and cloud computing to enable Services and Operations in a complex connected environment.

Having an IT Strategic plan that aligns with the overall objectives of the Corporation ensures that the right investments are made and the overall portfolio of projects improves City Services and drives efficiencies in City Operations. The IT Plan 2.0 was a 5 year plan that saw the implementation of many significant improvements in City Services and Operations as well as improvements in IT governance and project portfolio best practices.

The technology landscape is rapidly changing and the City has developed and grown significantly. With these factors it is

prudent to renew the IT strategy to ensure continued alignment.

This **IT Master Plan** establishes a three to five year outlook with strategies and actions for the investment in technologies that are innovative and continue to improve how City Services are provided. It is essential that the IT Master Plan aligns with corporate priorities and the objectives of the City of Mississauga’s Strategic Plan.

The IT Master Plan process includes the development of Technology Road Maps for key Service Areas which will focus on specific opportunities and initiatives over the next three to five years. The process to create a technology road map was established through a proof of concept using the Library Service. The Library was selected given it’s a significant public facing service and had just completed a Library Master Plan.

The IT Master Plan establishes broad corporate strategies and strategic objectives that form the vision and direction for the next three to five years while each Service Area Technology Road Map will define the specific initiatives that will enhance the delivery of City Services through the adoption of technology.

This process is integrated into the annual Business Planning and Budget process to ensure transparency and alignment across the City. Service Area Technology Road Maps will inform the business planning process on the types of



investments in technology that will be proposed and the benefits that will improve Customer Service and drive efficiencies.

The Information Technology Service Area is leading the IT Master Plan process and is committed to delivering IT strategies that are forward looking and inspires the City to be innovative in how technology is used to enhance and deliver City Services. The IT Master Plan and Service Area Technology Road Maps will enable the **transformation of the City of Mississauga into an engaged and connected City.**

<u>10 things you didn't know about the City of Mississauga</u>	
<i>First municipality in North America to implement full electronic plans submission and review portal</i>	<i>First municipality in Canada to implement SAP mobile time and labour App</i>
<i>One of the first Cities in Canada to publish Open Data in 2010</i>	<i>The City is regarded as a leader in Smart City Technology presenting in Brazil and China at global Smart City Conferences</i>
<i>Online transactions valued at \$17 million annually with 13.5 million visitors in 2015; many of the City Services are available on line</i>	<i>m.miway mobile site processes over 2 million customer requests annually</i>
<i>World class fibre Public Sector Network recognized as a best practice in Canada</i>	<i>The City is a leader in providing free public Wi-Fi in all City facilities; 6,000 + customers daily</i>
<i>The City website has been hosted on the Cloud for over 10 years</i>	<i>One of the first Cities in North America to implement Voice Over IP</i>

Assessment

The City of Mississauga developed a research approach which focused on the trends, technologies and consumer norms that best represents our future customer expectations and to form strategies to meet those expectations.

Several key industry leaders were engaged in Thought Leader Sessions with staff from various City service areas to consider what leading technology industry experts were planning in the one to three year range. The sessions focused in on what their plans were to address the ever changing demands of consumer driven technology, rapid changes in technology and a highly engaged and mobile customer.

In addition, several Internal Workshops were held including a workshop with senior staff from the City held at Microsoft headquarters in Mississauga.

Through this process it was identified that the City of Mississauga is already a leading technology municipality in many ways and through this research process there is a renewed awareness of new possibilities through the continued adoption of technology.

It was worth noting that there has been a shift in where technology for business is being derived with a significant

amount of innovation coming through the consumer market which then filters through to the business side. This introduces a few issues as the consumer market sees a greater rate of technology churn which puts pressure on business to adopt technology at a much more rapid pace. Consumer derived technology can also be a challenge to manage and secure in a business environment where data, privacy and security are already under heavy pressure.

Technology Industry Thought Leader Sessions

The following **Key Insights** have informed the IT Master Plan and have been instrumental to the development of key strategies and action plans.



Analytics and Big Data was a key theme that emerged early in conversations about business intelligence and decision support as well as Open Data. The City of Mississauga has Open Data available on the City website that can be used to produce dynamic scenarios from those Open Data sets. Making more data available internally and externally for analysis can help derive information that was not previously known and can be used to inform innovation and continuous improvement. Presentation and visualization of data in different planes and context is another more scientific way in which Big Data is being utilized.

A key insight was the idea that **analytics could produce answers to questions that “we did not think to ask”**. This type

of analytics is the foundation of BIG DATA where a more scientific approach to information and data can lead to significant improvements in service or operations.

The use of data related to bus acceleration and breaking to produce a heat map was an excellent example of how Big Data could produce interesting results. The sample analysis showed a location where the most breaking and accelerating of buses occurred. Further analysis identified the cause to be a pothole that resulted in every bus slowing down. This simple example shows how analytics can help answer the questions that are not being asked.



Smart City initiatives have evolved through the proliferation of public and private networks making it practical and affordable to

connect devices and sensors that manage and monitor many key aspects of services. This is a significant technology trend and key enabler to the **Smart City** movement.

Examples of Smart City implementations and early adopters of the Internet of Things were discussed including the City of Barcelona who boasts being the 1st Smart City in the world. Some of the Smart City initiatives implemented include Barcelona Wi-Fi, Open Data, Smart Traffic Lights, Barcelona Growth, Barcelona Open Government and Smart City Campus. All of these initiatives are a collaboration of community,

business and government enabled through connecting technologies. This has had long lasting and positive impact on the City as a global leader and competitor for investment from abroad while ensuring that local interests of the community are realized through engagement and communication.

A key insight was the recognition of the City of Mississauga as a Smart City leader with several Smart City initiatives in place or under way such as the Advance Traffic Management System and Smart Bus Technologies for Transit. Foundational technologies such as the Public Sector Network (PSN) and the CISCO wireless network enables the connection of *things* that support services such as Traffic Lights but also provides free Public Wi-Fi and secure wireless access for staff. With this foundational technology in place there are many more opportunities to explore that **advance the City of Mississauga as a connected and engaged City and a world leader in Smart City Initiatives.**



Business Transformation was another key learning which highlighted the importance of a **connected and mobile workforce with a culture of collaboration.**

The City is well aligned and positioned to enhance our mobile workforce capabilities with the proliferation of mobile devices, the City's secure wireless network and significant investment in field mobility initiatives.

There are significant benefits in advancing efforts to mobilize the workforce with work anywhere/anytime technologies such as Cloud, Office 365 and tablet based technology.

The notion that the use of tablets and mobile apps can enable a mobile workforce and drive productivity improvements drives home the need to adopt technology at a more rapid pace. The vendor community discussed options for the rapid adoption of technology within a framework to deliver apps in 6 to 8 weeks by keeping feature and functionality small in scope.

A transformational model was reviewed within the context of adopting technology and business process improvement. The key components of the model move from Substitution, Augmentation and Modification through to full Redefinition of a process (the SAMR model) which considers the significant benefits of **moving an organizations practice of using technology from Enhancement to one of Transformation.** When an organization adopts a philosophy of technology to transform, it will introduce new ideas, complete redesign of processes and introduce ideas not previously thought of. This aligns well with the City's Lean initiative which focuses on continuous improvement and improved customer service.

Several examples of transformational technology changes were shared and discussed. One example included Engineering or Inspection staff **using a tablet on a construction site to virtually overlay design drawings in the**

field with the ability to show progress, non-compliance or areas of deficiency.



User experience and customer service must work with the mobile worker in mind. This was another example of

transformation as a result of a mobile workforce and consumer driven devices.

The City is an extensive user of mobile functionality in the field with an opportunity identified to better **link the collaboration by staff on work orders and service requests to the communication with the public.**

The introduction of Social Media style features available or being developed for software applications has the potential to enhance the information about City Assets and also how the public interacts with staff or accesses information about City Services. The ability for City staff to “follow” a certain work order or service request and use that as a trigger to connect with a resident about status could improve customer service and service outcomes. With mobile technology, field staff and office staff could collaborate in real time about a Park amenity, streetlight or pothole. **A timely “tweet” from City staff about fixing a pothole** that several residents have complained about could improve engagement and public perception. It is these types of features that will enable the transformation of how City Staff manage work through

collaboration and also how residents and staff connect on the status of requests. The introduction of Social Media type features and collaboration between field staff, office staff and our residents could **transform the City from one of “service upon request” to one of “service collaboration”**.



The City of Mississauga’s presence on social network employment forums is important to maintain so that potential employees and employers see Mississauga as an attractive place to

work or set up business. There is an opportunity for the City of Mississauga to continue to improve its **City profile on employment social networks that captures our reputation and brand and to better position the City to attract businesses, residents and talent to Mississauga.**

As a City and an employer it is important to consider that potential employees will be looking at the online company profile and leaders. The City’s online story is already strong and is an important investment in our City of Mississauga brand. To remain competitive in attracting employees and companies the City needs to continue to enhance online professional profiles and City profiles. This ensures that it inspires and aligns with the City’s strategic plan, HR’s People Strategy and the City Brand including information about the Community, local Employment and Economic Development.



Demand for bandwidth to support the consumption of video, cloud storage and the consumerization of technology have become a common set of issues that challenge the

security and business of all organizations. The convenience provided by technology has become the norm and the expectation for mobility, anywhere and anytime on any device is a level of service expectation. The transformation of storage and Cloud computing is heavily competing with the traditional way that software and information are accessed and managed putting pressure on IT organizations to manage through a complex transition.

With these trends, Security has become a more significant requirement ensuring that access to information and data can be enabled in a very complex and mobile framework and also ensuring that it is protected. One of the key aspects of an evolving Security Program is Situational Awareness. Cyber-attacks are more intense, sophisticated and mobile with hacktivist activity on the rise. **A strong Security Program needs to consider the issues and trends related to Cloud and Mobile and also include continuous monitoring, situational awareness, cyber threat intelligence and an effective response plan.**

Internal Engagement Staff Workshops



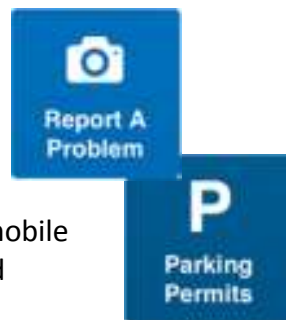
Workshops were held with senior staff starting with an overview of the key insights from the Thought Leader sessions completed. A session on mobility was also

held in the Microsoft Head Office Experience Centre mimicking collaboration and work scenarios that spanned the globe, took place at a bus stop or from the kitchen table. The purpose of the session was to inform key stakeholders of what is possible with today's technology and what would be achievable in the next three to five years.

Through a series of focused conversations a set of nine key themes emerged that represented the City's Extended Leadership Teams vision for the use of technology to enable City Services:

- **Easy Citizen Access to Services & Information Anywhere**

- Citizen access to experts such as 311, field experts and office experts
- 311 available (24*7) online and chat
- Fully interactive, integrated mobile website with social media and Mobile Apps
- Access to Council, video streaming and engagement
- Digital Innovation in Public Spaces



The level of engagement and discussion about Citizen Access and use of technology was very high and thought provoking. Having stretch ideas is a healthy and productive way to introduce meaningful changes that are innovative and have lasting impact on the community.

- **Easy Access to Data**

- Open Data and Apps.
- Accurate and accessible data for analytics and business intelligence.
- Big Data including sensor information, traffic data, transit data and other key information to enable effective Decision Making.

It is very clear that data and information have become a significant factor in providing services, managing performance and using analytics to support decisions. There is a focus on the City's ability to utilize higher level analytics to learn and improve City Services.

- **The Right Work Space for a Mobile Workforce**

- Office space that works for a mobile workforce.
- Innovation and collaboration touch down. spaces with integrated technology for staff
- Ability to set up temporary work teams anywhere in City for special projects.

The focus on space is a direct relationship to the significant shift to mobile technology and in recognition of a different way of work that is more agile and nimble. An investment in

how space and technology are provided to a modern workforce will increase productivity and be better suited to a new generation and workforce that thrive on a new way of work.

- **Easily Work from Anywhere Driving Productivity and Effectiveness**

- Seamless Connectivity and Access from Anywhere.
- Easy access to City Applications.
- Flexibility to work varying hours, where and how an employee is most productive.



Being connected and having access to everything that would be available in the office is essential to the evolving workforce. This type of seamless access supports a workforce that has

options of where and when to work. Creating secure connections that provide full access to a mobile and collaborative workforce will be essential to the evolution of a new culture and an engaged and connected workforce.

- **Drone Technology for Remote Automated Operations**

- Drones to collect data at an incident supporting emergency operation or to perform simple tasks
- Connected equipment, automation and sensors that interface with City operations.

It is understandable that drone technology is being considered given the recent popularity for recreational purposes, national defense uses and more recently for the delivery of goods and emergency response surveillance. It is likely that regulations, privacy and other related issues will complicate the effective use of drone technology in the Public Service in the interim with some limited applications for Emergency Services and First Responders.



There is no doubt that drones are in use in our community and in our public spaces. Videos of events captured by drones held at Celebration Square can be easily be found online for events such as the World Cup in 2014 and Canada Day in 2015. They are definitely in use in public spaces and a technology that we cannot afford to ignore from many aspects of governance and City services.

- **Electronic Records Management for Easy Access to Information**

- No more printing and signing forms supporting a paperless office.
- Robust Document Management System, Agenda Management System and Digital Engineering System.
- My Docs & My Shared Docs available everywhere.

Like many organizations the City of Mississauga is in transition from paper based systems to electronic records management systems. With the consumerization of technology and mobility there is significant pressure to make the full transition to digital records only. To complicate this, the significant growth of information and data is putting pressure on traditional storage solutions. The transition from paper to digital will require a coordinated effort to redesign processes around a mobile workforce with a significant demand for access to and creation of data and information at a pace that can only be sustained through the adoption of flexible and mobile solutions.

- **Partnerships that Drive Digital Learning and Innovation**

- Digital Media Hub and Innovation Spaces with Partners from IT, Communications + Media.

- Partnerships, grants, environmental, proof of concepts that advance learning and innovation.



The concept of Innovation, Learning and Proof of Concepts through Partnerships is not new to Mississauga. Strong partnerships will continue to be developed and technology is a great platform to build upon to show how services can be delivered more effectively, to enhance programs and learning by bringing partners and industry experts in to innovate, learn and build community.

- **Fast and Agile Technology Adoption**

- Proof of Concepts, Innovation and Partnerships to try new technology.
- Innovation and Learning through partnerships with post-secondary institutions.

The rate at which the consumer adopts technology has a direct impact on the expectations of how City Services are delivered. A balanced approach to the adoption of technology must be found to ensure continued alignment with overall City objectives and that the use of technology provides value in how City Services are delivered.

The redefinition of a modern worker in a modern workplace will be essential to the transformation of the workforce and effective use of technology in the office, in the field and anywhere else an employee chooses to work.

- **Enabling Workplace Productivity through Technology**
 - Tablets and mobile devices for staff.
 - Mobile Apps that provide required functions designed for the users not the enterprise.
 - Touch Screen Technology and Voice to Text.
 - Field Automation for Site Plans.

This highlights the need to make access easy and seamless for staff to perform their jobs regardless of where they are. Mobile technologies have advanced significantly and there are greater capabilities that can be adapted to a modern mobile worker.



“Mobility is here and City Staff are very active in the field. Of the 870 users of the City’s Asset Management System 480 of these are full mobile users

updating records and service requests in real time in the field. Forestry, Facility Maintenance, Parks Operations and Transportation & Works are all using field based technology to drive efficiencies and better customer service with plans to add

another 215 mobile users in 2016 to manage Community Centre assets”.

The themes and ideas generated through engagement provide great insight into the level of creativity and desire for change. This is the type of leadership and vision necessary to move the City of Mississauga forward through the adoption of technology that is innovative and drives results. **The information gathered through the IT Master Planning process is the foundation of the strategies that have been formed.**

Strategies

Through a series of conversations with Technology Industry Thought Leaders and key stakeholders in the City, a framework for a new IT Master Plan has been established. The conversations were broad and deep focusing on the future and how we can better align our technology investments to ensure that City Services and Operations continue to improve and innovate through the use of technology.

The conversations generated internal ideation and engagement of technology ambassadors directly involved in delivering City Services across the City. The City's senior leadership team paused to think strategically about technology where innovation and creative use of technology was debated with many new ideas identified to help form the strategies of the IT Master Plan. One forward looking statement was developed that captures the vision for the adoption of technology:

The IT Master Plan will enable the transformation of the City of Mississauga into an engaged & connected City.

This is an important and transformational statement that has strong alignment with the City of Mississauga's Strategic Plan

through the engagement of staff at all levels and very relevant and informed context from key leaders in the Technology sector. We are well informed and positioned to make sound technology investments in how we deliver City Services.

The IT Master Plan has four key strategies that provide areas of focus and action plans for the next three to five years.



Foster Open and Accessible Government



The City of Mississauga uses technology to enable easy and convenient access to services and information. This is an important aspect of the Open and

Accessible Government Strategy. The technology and trends that have emerged through the Consumerization of IT has enabled a whole new set of opportunities for Government to better engage and be more transparent and open.

The City of Mississauga has many successes to date providing on line services through the City's website and many other service specific websites such as Transit, Library and Recreation.



Having a robust **Communications Master Plan** has driven many successes for the City in its use of Social

Media and some early success with online public engagement such as Inspiration Lakeview which included an online engagement tool. The recent formation of a Digital Framework focussed on modernizing the digital experience for customers is a great foundation for ensuring an open and accessible government.

The City was also an early adopter of Social Media utilizing Facebook, Twitter, YouTube and LinkedIn in a way that integrates well with the online experience.

The City has been proactive in publishing information about City Services as well as detailed information about budgets, financial statements, Freedom of Information processes and other mechanisms for the public to access information in an open and transparent way.



The use of Video Streaming for Committee and Council meetings has been very effective and further supports the use of technology to be more inclusive and accessible. The use of Social

Media has also been used to encourage citizen engagement for public meetings such as City Budget presentations.

Another important aspect of Open and Accessible Government is Open Data and the City of Mississauga was an early adopter here as well with our first set of Open Data being published in 2010. The City was recognized as one of the few across Canada at the time promoting and providing free and open access to data.



The City of Mississauga has a strong commitment to being a leader in providing services online and driving engagement through social media in an open and transparent way. Finding new and creative ways to use technology to be customer

focused and more efficient in how we provide City Services is aligned with our renewed strategy to **Foster Open and Accessible Government**.

This strategy will ensure citizens have easy access to information and services anywhere, anytime on any device and that the City of Mississauga continues to be a leader in fostering a transparent and open government.

Action Plans – Foster Open and Accessible Government

- Develop a digital framework that moves the City’s web presence to **Mobile First** for all City Services:
 - **Implement a Digital Strategy** in partnership with Communications that will drive the modernization of the City’s online presence. Involve citizens and key stakeholders in the transformation through digital inclusion, proof of concepts and direct citizen feedback.
 - **Implement a new Content Management System** to support the objectives of the Digital Strategy, deliver on Mobile First and improve Customer Service and Citizen Engagement.
 - **Develop Mobile Apps**; a new mandate and way of thinking. A concerted effort must be made to drive this agenda through awareness, technology

ambassadors and an agile Mobile App development team.

- Expand the City of Mississauga’s use of **Open Data** to increase public participation, engagement through the use of data and information.
 - **Develop an Open Data Policy** that will provide clear direction to staff and City Services on the use and benefits of Open Data.
 - **Implement a new Open Data portal** aligned with current standards being employed by other public entities.
 - **Launch Open Data Hackathon** to create awareness and to promote the use of Open Data and creation of community sourced Apps. A Hackathon format will be followed that includes partnerships with educational institutions, the community and key technology partners.



- Develop Online Engagement tools that leverage Social Media to enhance our capabilities for **citizen engagement**, transparency and participation in City Services, public information sessions and key decisions.

- **Establish an Online Engagement Tool Set** that will improve interaction with the public and key stakeholders seeking input on City plans, initiatives or events with the ability to scale from small to large events with a menu of capabilities and tools.



- Continue to **drive services online** improving access to information and self-service with a mandate to review all City Services with the mandate of online self-serve as the channel of choice.
- Develop an **Online Service Inventory** through a simple process and review that can be consistently applied to each City Service creating an inventory of new opportunities to be prioritized and implemented based on appropriate approval processes. The inventory will be used in conjunction with the Mobile Apps mandate for establishing priority and benefits.

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SERVICES BY TOPIC

Popular Requests

- ▶ Active Mississauga
- ▶ Search Library
- ▶ Planning & Building
- ▶ Tax Self Service
- ▶ Forms
- ▶ Pay Tickets/Penalty

Mobile Apps

- ▶ Pingstreet
- ▶ Mississauga Roads

Online Apps

- ▶ Maps
- ▶ MiWay Trip Planner
- ▶ Culture Map

PAY TICKETS/PENALTY
Parking tickets
Traffic tickets & court fines

PERMITS & LICENCES
Parking permits
Dog & cat pet licences
Building permits
Portable sign permits
Film and TV permit

PROPERTY CONCERNS
Driveway too wide
Home auto repair business
Neglected properties

TREES
Tree pruning
Report dead / unhealthy tree
Damaged trees
Tree debris cleanup

TAXES & PROPERTY
Tax self-service
Purchase tax certificate
Purchase compliance report
Property information

ROADS & SIDEWALKS
Pot holes or road damage
Dead or damaged sod
Report curb damage
Report sidewalk damage

SERVICE VEHICLE COMPLAINT
Limousine complaint
Taxi complaint
Tow truck complaint

LIBRARY
Search, hold, renew
Reserve computer time

RECREATION
Register for programs
Book a tee-time
Rent ice time

PARKING
Parking permits
Parking complaints
Pay tickets

NOISE
Report excessive noise

LITTER & GRAFFITI
Report graffiti
Report litter or dumping
Abandoned shopping carts

CIVIC SERVICES
Birthday certificate
Anniversary certificate
Civil marriage ceremony

DRAINAGE
Ditch problems
Catch basin problems
Culvert or headwall problems

Enable Decisions through Research and Analytics



The City of Mississauga has some experience developing data models, GIS visualizations and dashboards providing timely and relevant management information to enable

decisions. Data and analytics have significant value internally in how services are planned and managed and in how information is provided to customers.

A few examples internal dashboards include:

- Transit Fare Media Conversion Rate dashboard that shows the transition to Presto from the traditional sale of Tickets.
- Recreation Participation Dashboard that shows the utilization of recreation programs at the program and facility level.

The City will have a greater need to have data and information about City Services that inform decisions, drive business process improvements to perform predictive analytics, data visualizations, maps and real time scenarios.



This will be beneficial to other key City programs such as Lean where continuous improvement

and measures are a key component to improving customer service and driving efficiencies. The development of measures through the Performance Measures Blueprint process established through the Corporate Performance and Innovation division will also benefit from better data and information supported by tools and systems that enable higher level analytics.

This strategy provides a focus that continues the journey to **Enable Decisions through Research and Analytics** that will deliver on the following objectives:

- Ensure that staff has access to the data and information to improve City Services focusing on Customer Service and driving efficiencies.
- Ensure that BIG DATA is used to support performance measures, analytics, GIS, data visualization and real time scenarios such as Incident or Emergency Management.

Action Plans – Enable Decisions through Research & Analytics

1. Develop a **BIG DATA framework and inventory** that enables higher analytics, research, responsive trend analysis, GIS, data visualization and decision making:

- **Develop a BIG DATA Inventory** based on current industry standards and a framework which includes data assessment of privacy, risk and quality.
 - **Implement Analytics and Research systems** that enable all City staff access to BIG DATA to derive information to support decisions ranging from very specific local issues to supporting broad strategic opportunities.
2. Build a broader **awareness and competencies for Analytics** that improve City Services and inform key metrics for Lean, City Services, research and innovation:

- **Develop an Analytics and Research tool kit** with information, tools, supports and training that all staff can access online, in class or through partnerships with internal and external experts.

3. Establish **Situational Dashboards** that integrate key indicators, trends, maps, visualizations and other related data such as video and images that support real time management of City operations, an emergency or significant event:

- Develop a **Situational Dashboard Proof of Concept** that brings key data from a broad set of internal and external sources to inform daily operations, incidents and response to non-emergency situations.



Create a Connected and Engaged Workplace



The ability to connect services and collect information through sensors and connected devices will allow the City to better manage services and assets with visibility on how they are

performing and the ability to affect changes on services in real time. The connection of assets and services is known in Industry as the Internet of Things and is an important opportunity for the City as it develops and grows as a Smart City leader.

Enabling the workforce through mobile technology is aligned with the Human Resources People Strategy where keeping employees engaged and growing or attracting talent requires technology. The workplace must also adapt and deliver on a redefined office space connecting services through the **Internet of Things and providing significant opportunities for the City to improve Services** through technology, building on the investments already made.



Action Plans - Create a Connected and Engaged Workplace

1. Continue to build out the fibre, wireless and cellular networks to **connect People, Services and Infrastructure** providing real time information and services creating synergies and efficiencies that improve City operations and Customer Service.



- **Design and build a Smart City framework** ensuring that technology initiatives are coordinated and maximizes investments to improve services within the context of Smart City initiatives.
- **Design and build a Wi-Fi Corridor** as a proof of concept that demonstrates how local business, the community and City services can be integrated in a way that drives engagement and economic spinoff. The proof of concept would include field testing of Smart City technologies such as Wi-Fi, parking sensors, digital signage, beacons and advance traffic management.
- **Create seamless and secure connection anywhere, anytime** on any device for all staff whether they are in the office, field or half way around the world. Improved access for staff in the field will translate into better customer service and more efficient operations.

2. Provide staff with mobile technology and mobile applications that maximize their productivity and align with a modern workforce and corporation where space, technology and people work seamlessly anywhere, anytime.



- **Implement Office 365 for all staff** creating greater flexibility for all staff to access e-mail, files and office productivity tools on multiple devices from anywhere.
- **Implement a Corporate Apps Store** providing a secure and central way to deploy mobile apps that are relevant to all staff targeting Apps that assist and automate daily and routine tasks as well as accessing critical information in a mobile setting.
- **Implement Employee Self Service Mobile** through SAP and other enterprise mobile apps expanding access to employee benefits, time & labour and paystubs on any device anywhere and driving new efficiencies by automating manual processes.

3. Enhance, develop and deploy enterprise and line of business systems to derive greater efficiencies and service outcomes as well as achieving the broader objectives of the Corporate Services Shared Services Model:

- **Implement Enterprise Business Solutions** that address strategic objectives and actions of the People Strategy including Talent Management, Workforce Planning, Succession Planning and Leadership Development. Ensure alignment with existing use and investment in Human Capital and Financial systems.



Improve Services through Innovation & Partnerships



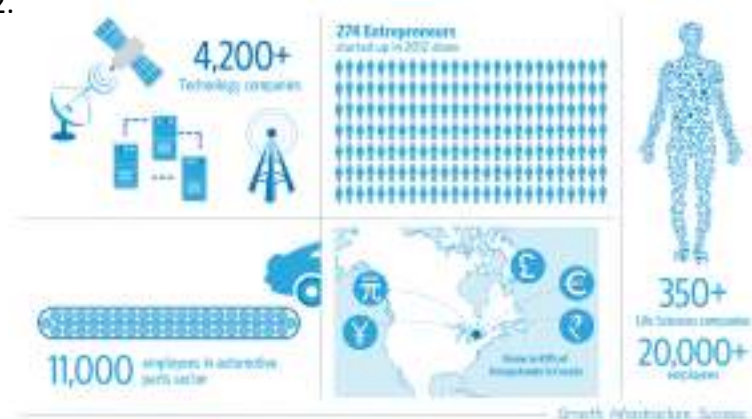
Innovation and Partnerships are a significant opportunity with a higher level of engagement from the community, the business sector and educational

institutions. There is a genuine desire by the technology sector to seek partnerships that drive innovation and provide opportunity and access to technology in the community. As a local government the City of Mississauga is well positioned to leverage these partnership opportunities and **improve the quality of life for residents, anchor Mississauga as a centre of Innovation and improve the Economic outlook** for both small and large business.

1. Developing partnerships with the Technology Industry that will focus on co-innovation and opportunity for learning and engagement with the community and business can be achieved through collaboration and coordination.
 - **Instill an Innovation and Partnership mandate** in the development of Service Area Technology Road Maps ensuring that new initiatives assess Partnership opportunities that foster shared responsibility and commitment to provide value and benefits to the community.

- **Seek out Innovation and Proof of Concept opportunities** that create synergies between the City of Mississauga, the community, educational institutions, local industry, small business and other Idea or Innovation incubators.

2.



Conclusion

Technology plays a significant role in the delivery of City Services. The IT Master Plan establishes a three to five year outlook with strategies and actions for the investment in technologies that are innovative and continue to improve how City Services are provided.

Several key industry leaders were engaged in Thought Leader Sessions with staff from various City service areas to consider what leading technology industry experts were planning in the one to three year range with the following key insights established:

- Open Data, Mobile Apps and easy Citizen Access to Information and Services anywhere.
- Smart City framework and initiatives that enable services, engage the community and drive economic benefits.
- Big Data and Analytics that provides new insights and better decisions.
- A connected and mobile workforce that can easily work from anywhere.
- Fast and Agile Technology Adoption.
- Digital engagement and inclusion.

The IT Master Plan has four key strategies that provide areas of focus and actionable objectives for the next three to five years with an objective to ***enable the transformation of the City of Mississauga into an engaged and connected City.***



These Inspiring Possibilities have generated a great deal of excitement within the organization and with key stakeholders in the IT industry as well.

The City of Mississauga will **Foster Open and Accessible Government** by providing services that citizens, businesses and visitors directly access and engage in. The City will continue to use technology to make City Services more convenient and efficient while increasing awareness and participation through effective communication and implementation of a digital framework.

We will learn and **Enable Decisions through Research and Analytics** striving to improve City Services through the use and analysis of data in ways not thought of before supporting Business Planning, Lean and other continuous improvement initiatives.

Our IT infrastructure will continue to enable and **Create a Connected and Engaged Workplace**. The connection of City assets, staff and the public and the proliferation of mobile technology will significantly change how City Services are delivered and consumed well into the future. Through the adoption of technology and sound Business Planning, City Services will continue to evolve around an engaged and connected community as the City continues its journey as a Smart City leader.

The City of Mississauga has benefited from technology partnerships and will continue to **Improve Services through Innovation & Partnerships** where collaboration and opportunities drive innovative ideas that have the potential to improve City Services. We will look for opportunities that enhance learning, engagement and where possible address the digital divide by ensuring access to technology for those who would not otherwise have such an opportunity.

A Vision for the future

These four key strategies will guide our planning and decisions on investment in technology. Alignment will be achieved

through the development of Service Area Technology Road Maps for key services and active participation in the Business Plan and Budget process.

The City of Mississauga has established its reputation in the Public Sector as a leader in the use of technology to provide City services. The IT Master Plan has established a fresh and modern vision for the future through the engagement of key industry leaders, benchmarking and engagement with key staff involved in planning and delivering services.

The IT Master Plan is a well-informed vision for the adoption of technology that will **enable the transformation of the City of Mississauga into an engaged and connected City**.

Hit the Ground Running

There are many great initiatives already planned and underway that will deliver results and advance the strategies of the IT Master Plan.

The following are just a few highlights of what you can expect to see implemented through the year in 2016:

- **The Modernization of the City of Mississauga Website** (www.mississauga.ca) going fully mobile, new content management system, implementation of a new digital framework, public engagement and involvement in an effort to crowd source design and feedback - 1st Quarter 2016
- **The City of Mississauga's first Open Data Hackathon** taking place March 2016 on National Open Data Day. Launching a new Open Data Portal and adding a series of new Open Data Sets. The Hackathon will take place over the weekend and engage the community in an effort to collaborate and build Apps based on the City of Mississauga Open Data Sets – March 4-6, 2016
- **Internet of Things Network** designed and built to support the Advance Traffic Management System, completion of the Transitway stations, connection of

Pylons signs and introduction of the District Wi-Fi Proof of Concept that will integrate the use of Public Wi-Fi with local business, the public and City Services.
– 2016/2017

- **Work Anywhere Anytime Seamlessly on any City mobile device** whether it is a laptop, tablet or smart phone. Through Wi-Fi, cellular and in any public space. The ability to simply connect and access all City Apps and Files will be Secure and Seamless providing greater efficiencies to over 800 staff on a daily basis that connect using a mobile device. – February 2016
- **Office 365 and a Corporate App Store** to continue the mandate to modernize our workplace space, technology and capabilities of our staff as a mobile workforce. Office 365 will provide secure access to files but also office automation and productivity tools where-ever and when-ever they are needed. - 2016
- **Online Engagement Tools to support public input, collaboration and inclusion** for City initiatives, special meetings, planning processes and to support the objectives of the Communications Master Plan for greater public engagement and inclusion – June 2016

In addition to these there are many other great initiatives planned or under way in each Service Area focused on improving Customer Services and finding new ways to drive efficiencies in delivering City Services as part of Lean or other Continuous Improvement initiatives.

Measures and Indicators

Having measures and indicators in place to monitor and communicate progress of the action plans is an important aspect of the IT Master Plan and key Service Area Technology Road Maps.

Two key measures will be monitored centrally on all IT initiatives as a measure of overall portfolio performance.

Drive Value for Money

- % of spend of the IT Portfolio in “run the business”.
- % of spend of the IT Portfolio in “grow the business”.
- % of spend of the IT Portfolio in “innovate the business”.

This measure identifies distribution of investment ensuring that there is a good balance of investment made to keep the existing technology infrastructure in a good state of repair while continuing to invest in growing and innovating City Services through initiatives identified through the Business Planning and Budget Process, Lean and other continuous improvement programs.

Manage for Success

- % of the IT Portfolio that is on track (green)
- % of the IT Portfolio that has minor issues (yellow)
- % of the IT Portfolio that is off track (red)

This measure is a best practice in industry and the standard reporting format adopted by the Project Management Support Office at the City of Mississauga. The measure is used to manage the overall portfolio ensuring that each initiative performs to an expected level of standards and that governance and oversight is in place to mitigate any issues that may arise during the life cycle of any project.

Each individual project will carry specific measures that are defined through business cases which will identify any customer service, continuous improvements or additional revenues that will result from the specific project. The Service Area accountable for the project will manage progress against any identified measures.

Indicators

In addition to the Portfolio Measures and individual project measures, the IT Service publishes Key Performance Indicators through the annual Business Planning process. The following are key indicators that measure the effectiveness of technology adoption that drive Customer Service and Continuous Improvement.

Web Self Service Total Cost Avoidance – a measure of the cost avoidance realized as the result of citizen and business online self-service (www.mississauga.ca).



The measure compares the cost of delivering the volume of online service requests and self-service compared to the cost in more traditional channels such as phone and counter services.

Year	2012	2013	2014
Web Self Service Total Cost Avoidance	\$3.08M	\$3.83M	\$5.08M

This measure is a calculation of real volumes of transactions and access to online City Services and includes the offsetting costs of hosting and managing the City’s website. This is a measure of the effectiveness of providing services online and also an investment in Customer Service by improving and growing the options available online.

City Website Unique Visits – a measure of the use of the City of Mississauga website by residents, businesses and visitors.



This is an important measure of the effectiveness and utilization of the City Website for Communication about City Services, Programs, Projects and Planning Initiatives.

Year	2012	2013	2014
City Website Unique Visits	9.4M	10.9M	12.4M

Acknowledgements

The IT Master Plan was a collaborative effort through a series of internal workshops, Thought Leader Sessions and external benchmarking.

As part of the process, a panel of staff from all service areas across the City formed as a new Community of Practice as IT Ambassadors. This group will continue to be involved in the development of Technology Road Maps for key service areas and also participate in the adoption of new technology. This will ensure that a high level of engagement and input into the adoption of technology is maintained throughout the corporation.

The Leadership Team and Extended Leadership Team also participated throughout the process. They provided context, experiences and expertise from each of the service areas of the City and ensured that the strategies formed aligned with the overall objectives of the City of Mississauga.

The Technology Industry was very engaged in this process and took the time to describe their future plans for adopting and deploying technology. These sessions were focused on Public Sector Best Practices as well as the drivers behind the Consumer Market and Private Sector Best Practices. In recognition for their contributions to the process, we acknowledge their input:

- Apple Canada
- Bell Canada
- CISCO Canada
- Infor Public Sector
- LinkedIn
- Microsoft Canada
- SAP Canada

Other great conversations and benchmarking with other vendors and public sector organizations was carried out as well on an informal basis and those interactions and inputs are also valued. This process will continue through the development of Service Area Technology Road Maps.

We thank all those that have contributed internally and externally and we look forward to continuing the journey to build an engaged and connected City.

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2. Information Technology 2015 Business Plan and Budget (<http://www7.mississauga.ca/eCity/Budget/img/serviceareas/business-plans/it-summary.pdf>)
3. City Facebook Page (<http://www.facebook.com/citymississauga>)
4. City Twitter Page (<http://twitter.com/citymississauga>)
5. City Youtube Channel (<http://www.youtube.com/user/cityofmississauga>)
6. Internet of Everything Promotional Video (<http://video.cisco.com/detail/videos/inside-cisco/video/4261246199001/city-of-mississauga:-transforming-with-ioe?autoStart=true>)
7. Internet of Everything Case Study (<http://www.cisco.com/web/about/docs/mississauga-city.pdf>)
8. Civic Centre's C Café Rated Top 5 Wi-Fi Spot in Mississauga (<http://www.insauga.com/top-5-unique-wifi-spots-in-mississauga>)
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