SMRTCTY

A Smart City for Everybody

MISSISSAUGA

Solving for Social and Economic Resilience

What is a Smart City?

"The effective integration of physical, digital and human systems in the built environment to deliver a sustainable, prosperous and inclusive future —"

British Standards Institute

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Challenge Statement

We envision a future where Mississauga has solved for Social and Economic Resilience; where everyone has equal opportunity and feels empowered; where communities are vibrant; a place where people connect, adapt, and succeed; supported by a robust digital ecosystem; measured by a social resilience index.
A Smart City for Everyone.

A Smart City for Everybody

The City of Mississauga has demonstrated a strong commitment to the Smart Cities Challenge with a bold idea that addresses real community needs. We will Solve for Social and Economic Resilience by creating a city-wide digital ecosystem.

Our goals are ambitious - to enable a sustainable and desirable city to live work and play; to enable equal access and opportunity; to enable choice for a mobile economy. At the core, Mississauga's Smart Cities initiatives are about transformational city building and will focus on creating vibrant, inclusive communities with a high quality of life.

Digital ecosystem:

- 50 co-working hubs, anchored in the City's 23 neighborhoods, where people can work remotely, and connect to a wide range of services
- 100 indoor/outdoor accessible Connection kiosks where citizens can easily find information, power up and work
- 5,000 digital Kits to bridge the digital divide for citizens unable to afford system access
- adaptive transportation that helps people stay connected and move easily between communities
- open, transparent and connected data

We believe that Social and Economic Resilience are the key features for a bright future and a benefit to all Canadian communities. We are creating a Smart City for Everybody.

We are a new city (40 years old). We are a young city (39 on average). We are a diverse city (over 200 languages spoken). We are a city of immigrants (53%). We are a city of entrepreneurs and business owners (1/4 local labour force). We are a city preparing for our future. We believe that Social and Economic Resilience are the key features for a bright future for all Mississaugans.

We are creating a Smart City for Everybody.

The world is always changing with new technologies, new ways of doing things, changes in social and cultural activities. Being resilient - the ability to connect, adapt and succeed - will ensure that individuals, communities, our city and our country can thrive in an uncertain future.

The outcomes we are looking to achieve are ambitious - to enable a sustainable and desirable city to live work and play; to enable equal access and opportunity; to enable choice for a mobile economy. At the core, Mississauga's Smart Cities initiatives are about transformational city building and will focus on creating vibrant, inclusive communities with a high quality of life. Collaboration and community engagement are not only vital to our success but the key to achieving our goals. We know that our city is poised and ready to take on a project of this scale. We believe that when everyone wins we all win.

Overview of Project

The creation of a digital ecosystem that will support Social and Economic Resilience in Mississauga.
The digital ecosystem is a comprehensive system that will cover all 23 communities across Mississauga and is intended to support the work of our community and industry partners, bridge the digital divide and provide equitable and customized access for the entire city. Community Partnerships will be key to delivering services and supports to our community as they hold the expertise, connections and history with their communities.

Ecosystem Features

The Kit - A digital Kit for individuals to help bridge the digital divide; enable mobile work

The Connection - Accessible digital stations located throughout the city to help connect citizens to services; enable mobile work

The Hub - Digital hubs that will provide opportunities for networking; connections to services, training and tools; mobile work space

The Community - Digital services that provide support at a community level such as free Wi-Fi, connected parks and main streets

The Ride - Connected intermodal transportation options such as bike and car sharing; electric vehicle plug ins; Wi-Fi on city buses; automated traffic management system to ensure efficient routes for transit to and from hub locations

The Data – A portal that connects the digital ecosystem providing easy access to services and information including the Kits, Connections, Hubs and community amenities that offer choice to live, work, and play as well as support and opportunity to succeed. The use of Open Data, GIS and other Smart City technologies will be central to the success of the portal.

Project Goals

Mississauga's Smart City proposal has three goals: to enable equal access and opportunity; to enable choice for a mobile economy; and to enable a sustainable and desirable city to live work and play. We believe that by developing Social and Economic Resilience in individuals, organizations and communities we will future proof our city and its citizens.

GOAL 1: To enable equal access and opportunity

Prospects for opportunity in Mississauga are not equal. We heard clearly from residents that they need more help to find and access information, services offered by the city and others, and that they generally need more support to be successful in Mississauga. This support includes opportunities for better and more stable employment, better access to housing, health care, transit and recreation. We also heard from many residents that some members of the community (including low-income residents, youth, new immigrants, seniors) are at a disadvantage in terms of being able to access digital tools and services, training opportunities, services and supports and, therefore, face more barriers to success.

Income inequality is growing in Canada. While Mississauga is a thriving and successful city with unique opportunities, the challenge that Mississaugans have identified is being experienced all over Ontario and Canada. The United Way has found a relative increase in inequality in Peel Region of 49% from 1970 to 2015*. This increase is consistent with other regional municipalities in the GTA and with municipalities of Toronto, Calgary, Montreal and Vancouver. Income polarization also experienced a relative increase of 39% in Peel Region over the same period.

Changes in neighbourhood income distribution in Peel Region are also startling. The number of middle income census tracts has decreased by 41%, while low income census tracts have increased by 52% between 1970 and 2015*. According to the United Way, "low-income neighbourhoods face lower educational attainment, higher unemployment rates and greater poverty. They also lack access to community services and programs—supports people need to thrive."

We believe that by providing access to digital tools, working spaces, networking opportunities and training we

* Stats: The United Way. "The Opportunity Equation in the Greater Toronto Area", 2017

can help to bridge this gap and provide resilience through education and support.

Desired Outcome: A city that has removed barriers for vulnerable populations such as new immigrants, people who have low and very low incomes, youth, racialized communities, and people with disabilities by providing access to digital services and tools, as well as through the strength of our collaborative approach with our external community partners.

GOAL 2: To enable choice for a mobile economy

The economy is shifting and the workforce is changing. The pace of change in recent years is accelerated, largely due to digital technologies. **45% of Canadians are predicted to be self-employed by 2020** (Intuit Canada) and **75% of the Canadian workforce will be mobile by 2018** (IDC). By providing high quality workspaces throughout the city people can choose to work close to home; at locations that have the specific amenities they need; close to their clients; near their children's schools; or wherever is convenient each day. From our business communities we have heard concerns about lack of opportunities for networking and B to B support. These hubs will provide both organized and happenstance opportunities to connect. These features will create vibrant communities that will help retain talent in our city and provide a great place to live, work and play.

Desired Outcome: A city that provides opportunities for mobile workers to have choice about where and how they work; a city that is neighbourhood focussed with a high quality of life; a city that draws people to it's vibrant and connected communities; a city that retains and attracts a modern workforce

Goal 3: To enable a sustainable and desirable city to live work and play

As they say, change is the only constant. The world will continue to grow and evolve, globalization, the effects of technology, shifts in our economy will continue to occur. We believe that resiliency - an ability to recover from or adjust easily to misfortune or change - is the key to creating a great city for the future. By creating strong communities; providing infrastructure that adapts to changing needs and technologies; and helping grow resiliency throughout Mississauga we will be able to provide a strong base for whatever the future may be. The creation of this Smart City digital ecosystem is about place making and positions the City of Mississauga as a destination that is known for live, work and play.

Desired Outcome: A city that people seek out; that finds strength in its ability to connect, adapt and change

Meaningful and Measurable - a Social and Economic Resilience Index

There is no one indicator that can measure social resilience. Resilience is the ability to recover quickly after changes. Some of the changes the city and its residents face are predictable – such as population growth, an aging population, and increased mobility of the workforce. Many are unforeseen challenges that may emerge as technology develops and the world continues to evolve. For this reason, resilience needs to address a range of possibilities and help residents be prepared to respond to the unknown.

The city's best strategy is to develop a Social and Economic Resilience Index. The Index will include a suite of indicators which work together to assess the ability of residents to connect, adapt and succeed. These metrics will assess whether people can make a timely recovery from economic or social disruption. They also assess whether Mississauga, as a community, is socially resilient.

While ambitious, many of these are clearly achievable through a more robust digital ecosystem such as internet access, access to information, connection points in the community, access for everyone and daily connection rate. Qualitative indicators that assess sense of belonging, diversity as a strength, social cohesion/community trust, optimism for the future and quality of life will be developed alongside our community and educational partners.

The Social Resilience Index assesses the overall outcome of improved economic and social resilience for all residents using the three pillars of **connect, adapt** and **succeed,** which form the framework needed to assess our goals.

Connect: Goals And Measures

To enable equal access and opportunity

Bridge the digital divide by providing easy and accessible access to services, supports and technology
measure(s): Internet access – Percentage of lowest income quartile Mississaugans with internet access

Easy, free and accessible information and services
measure(s): percentage of buses with free Wi-Fi (currently 0 buses); number of public access Wi-Fi hotspots; number of Kit loans; number of Kits lent out; Access to information - Number of online services, tools and activities

Improve access for everyone regardless of ability, culture or language
measure(s): Connection points in the community - Number of Kits (currently 5), Connections, Hubs; distribution of Kits, Connections, Hubs across the city; users on transit and active transit access; Access for everyone - Number of free voice first connection points;

Service Design to make public services as effective and accessible as possible - participatory, human-centered based on research and evidence.
measure(s): quality of service based on surveys; usage and direct feedback

To enable choice for a mobile economy

Connect youth, newcomers, entrepreneurs, mobile workers and start-ups in the community
measure(s): Business Connections - Number of networking activities; new business connections

Improve digital connectivity options throughout the city
measure(s): Daily connection rate – number of people who connect to kits, connections, hubs on a daily basis (25,000 times per month in 2016; over 6000 customers daily).

Enable continuity of connectivity while residents are mobile
measure(s): Measurement of routes across facilities and multimodal transport (transit, walking, biking)

To enable a sustainable and desirable city to live work and play

Enable place making and connection to the community around community hubs
measure(s): Social cohesion/community trust – Current study is being undertaken by United way which will establish baseline

Create vibrant communities
measure(s): Diversity as a strength – Percentage of Mississauga residents who rate diversity as a strength (2017 Citizen Satisfaction Survey - 45% strongly agree)

Encourage participation and engagement in community life
measure(s): Sense of belonging – Percentage of Mississauga residents who feel a strong sense of belonging (2017 Citizen Satisfaction Survey– 41% strongly agree); Optimism for the future – Current study is being undertaken by United way which will establish baseline; Voter participation

Create a city-wide digital ecosystem
measure(s): Implementation of Ecosystem - Kits, Connections, Hubs, Communities, Ride, and Data

Adapt: Goals And Measures

To enable equal access and opportunity

Be a conduit to services and support offered by agency partners (e.g. United Way), Peel Region and schools
measure(s): Access to life-long training – number of re-

skilling, up-skilling programs offered through hubs

Increase integration of newcomers into communities
measure(s): Access to City services in any language

To enable choice for a mobile economy

Enable innovation, entrepreneurs, start-ups and students to thrive
measure(s): Continuous Usage - number of people and length of time they use the workspaces on an ongoing basis

Provide choice for residents in terms of where to work
measure(s): Opportunity for work mobility; Number of free workspaces

To enable a sustainable and desirable city to live work and play

Enable career resiliency
measure(s): Access to business /commercialization supports; number of support services offered for businesses through hubs

Be ready for the changing nature of work – mobile and connected
measure(s): Number of people working remotely in Mississauga; Number of companies that endorse employees to work at Hubs

Clear, easy to access open data and analytics
measure(s): Open Data Sets (143 sets currently); Increase in Community Innovation (civic innovation groups, use of Open Data); Increase in Public Awareness and Understanding of Open Data

Succeed: Goals And Measures

To enable equal access and opportunity

Newcomers to Mississauga will immediately have access to the supports they require to be successful
measure(s): Newcomer integration and employment numbers; Social connectivity

Vulnerable populations will have improved economic prospects and social connections
measure(s): Unemployment Numbers; Social Activity

Newcomers' work will match their education and skills levels
measure(s): New Canadians working in an occupation that corresponds to their field of study (24% newcomers vs 64% Canadian-born. Stats Can)

To enable choice for a mobile economy

Hubs will be highly utilized and be accepted by local and

regional industry as acceptable workspaces *measure(s):* number of companies that choose to let their employees work at hubs

Mobile workers, Entrepreneurs, small businesses and youth will feel supported and successful
measure(s): Unemployment rate (currently 8.7%); Youth employment rate (Peel region 17.6%) Number of successful and growing businesses based in hubs

Networking and B to B activities will be integrated into everyday practice
measure(s): Number of activities and business connections; number of businesses, activities and services that are created within Hub communities

To enable a sustainable and desirable city to live work and play

Demonstrate to the world that Mississauga is investing and growing ICT as a key part of the Tech Corridor
measure(s): Number of connections across tech corridor

Excellent quality of life
measure(s): Quality of life (89% rated the overall quality of life as excellent or good)

Complete and vibrant communities that will attract and retain residents, employers and businesses
measure(s): Employment Attraction and Retention – Number of students trained in Mississauga staying for work; Net importer of jobs number

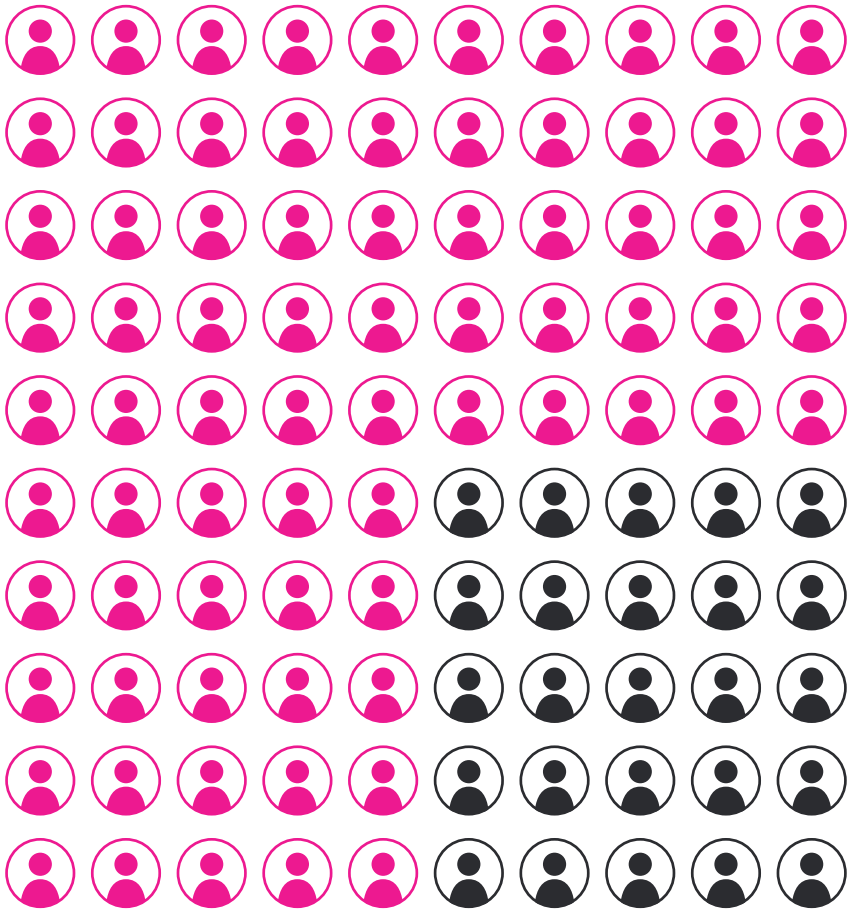
Smart City Rationale

Rationale for applying a Smart City approach to achieving the identified outcome(s)

A Smart City approach of leveraging connectivity and digital technologies, along with strong community collaborators, is the best way to keep up with the rapid pace of change and tackle challenges that are to come, both foreseen and unforeseen. For our desired outcomes the creation of a civic digital ecosystem will help support the community by:

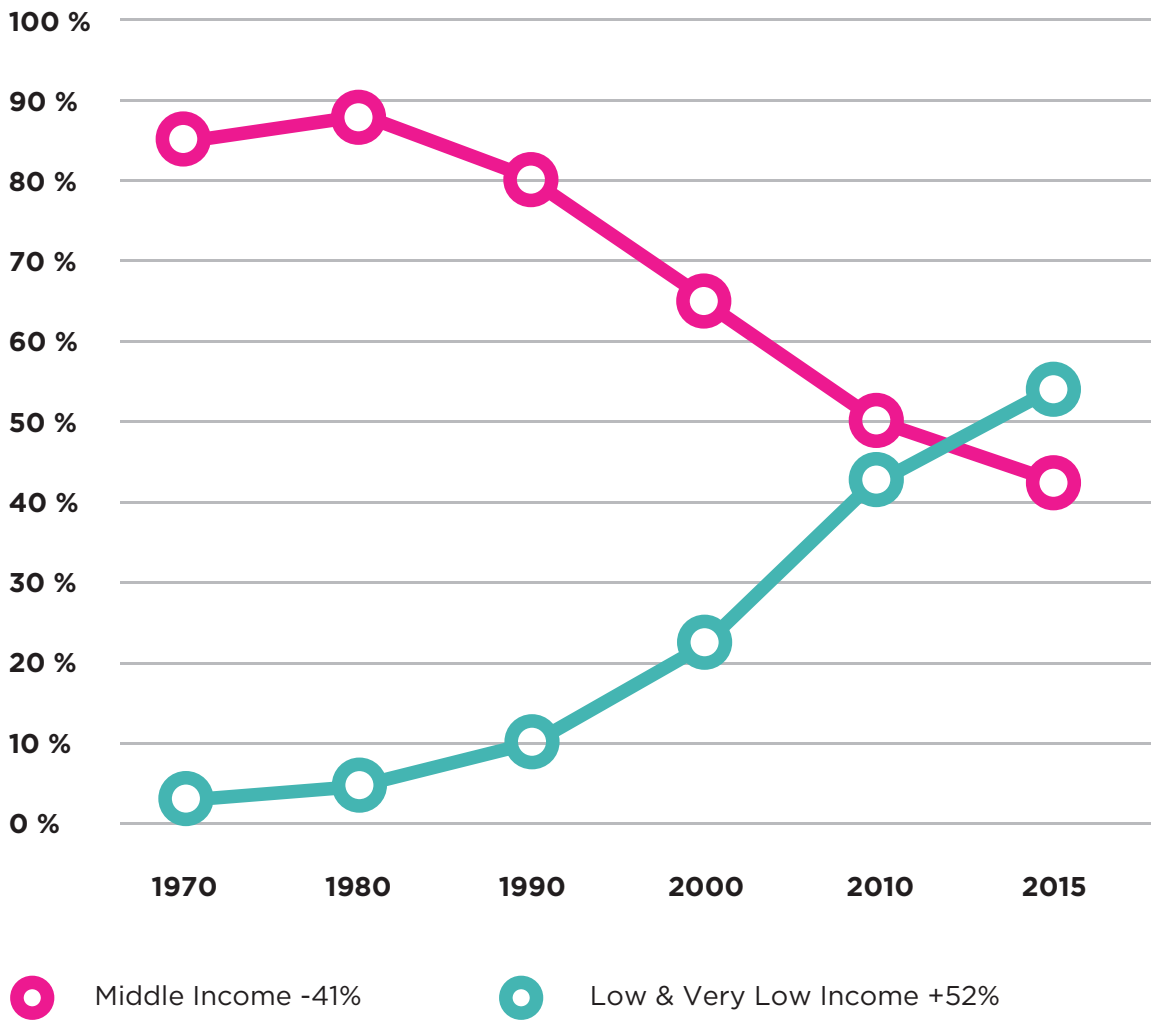
- supporting a modern workforce that will been seen as a feature for working in Mississauga
- bridging the digital divide and providing opportunities for access to emerging technologies
- leveraging a citywide network of existing and new technologies

75% **of the workforce will be mobile by 2020**



The economy is shifting. Changing demographics, a mobile workforce, steady immigration and growing income inequality are creating an uneven playing field for opportunity across Canada – and Mississauga is no exception.

Neighbourhood Income Distribution 1970 – 2015, Peel Region (United Way)



Digital Ecosystem

We will improve the Social and Economic Resilience for all residents. We will achieve this ambitious goal by creating a strong digital ecosystem that will enable people in all of Mississauga's 23 communities to connect, adapt and succeed.

A digital ecosystem consisting of Kits, Connections, Hubs, Communities, Rides and Data will be developed with local social agencies and industrial partners to ensure sustainability and access to appropriate services and programs. Connecting all Mississaugans to information, services and supports will improve equity and help bridge the digital divide by providing opportunities for all residents to succeed now and in the future.

Mississauga will implement Smart City strategies to address the needs of each community. These strategies were inspired by everyday Mississaugans, and designed to help solve the specific challenges each is facing. They work to benefit residents on a personal level by making them more prepared for changing circumstances, and also prepare Mississauga to be a more resilient community in an ever changing future.

The Kit

The Kit is a set of basic digital tools that will help to bridge the digital divide by addressing the barrier of inequitable access by providing equal access to digital technology regardless of economic status, and empower residents with easy access to information / services . Each Kit will include, at minimum, a tablet and Wi-Fi hotspot.

5000 Kits will be made available in the first phase of the project through programs and services already delivered in the community - public libraries, community centres and other agencies. As Mississauga's Smart City initiatives are developed and implemented, and additional partners are engaged, the City will continuously increase the number of Kits available, as well as the digital tools offered.

The Kit was inspired by Steve, a single dad living in Meadowvale. He currently works at Pearson Airport but is re-training in project management so he can get a job with more flexibility so he is more available for his growing family. Time and money are in short supply, buying a computer and paying for internet is difficult. Signing out a kit that includes a computer and a Wi-Fi hotspot will help him to do his courses online and access a variety of services that help him and his kids.

The Kit

Not everyone has access to the same digital tools. The Kit is a set of tools that will help to bridge the digital divide by providing a basic digital tools to Mississaugans. These will be made available throughout the City and integrated into programs and services already delivered in the community such as Libraries and other agencies.

Case Study 1

This is Steve.

Steve is a single dad living in Meadowvale. He currently works at Pearson Airport but is re-training in project management so he can get a job with more flexibility so he is more available for his growing family. Time and money are in short supply for Steve. Buying a computer and paying for internet is difficult – if not impossible. Signing out a Kit that includes a computer and a wi-fi hotspot has helped him to do his courses online and access a variety of services that help him and his kids.

The Connection

The Connection is a mini-hub of activity, digital services and Wi-Fi that will connect Mississaugans to information, services and supports where they are, providing easy and equitable access.

500 Connections will be implemented throughout the city, including municipal facilities, parks and other public spaces. Each Connection will have voice first (AI) information services connecting to the City's 311 service and United Way's 211 service in multiple languages; interactive digital screens with local and city wide information; free Wi-Fi hotspots; device charging stations; and will be accessible without personal digital devices

Additional features:

- Smart Street Furniture
- Integration into existing infrastructure such as MiWay stops
- Solar power cells
- Digital Public Art
- Sensors to monitor traffic, usage, and the environment
- Security features such as lighting and security cameras
- Innovative technologies such as augmented reality (AR); GIS integration

As part of AODA compliance, the Connections will be responsive by physically adapting to the needs of the public around them. Based on a user submitting their preferences and needs through an app, the kiosk can respond appropriately. For example, playing audio messages, brightening the screen or adjusting street lighting.

The Connection was inspired by Agata, a mom and entrepreneur. She spends a lot of time driving her children around to soccer, swimming, dance class, and other programs. As an entrepreneur, she always needs to be on top of her business. With the Connection, she will always have a place to plug in, power up and connect as she watches her kids in their various activities. It will also be useful for her to find out about local workshops and networking events, as well as new business e-books available from the library.

The Connection

These mini hubs of activity, digital services and wi-fi will connect people to services where they are. They will be located throughout the city in facilities, parks and other public spaces. They provide easy and equitable access to services.

This is an example of what has been tested in Paris by JCDecaux with Mathieu Lehanneur

Case Study 2

This is Agata.

As a mom and a new entrepreneur, she spends a lot of time driving her children around to soccer, swimming and dance classes. Agata always needs to be on top of her business. She loves that she can always find a place to plug in, power up and connect as she watches her kids in their various activities. She has also found it handy to be able to find out about local workshops and networking events. The Smart Cities mapping tool has been very useful for figuring out where she can set up shop as she plans her busy days.

The Hubs

The Hubs are co-working facilities where people can learn, work, meet and succeed. Each of these workspaces can scale up or down to use the available space most effectively. Hubs will provide an open and inclusive space with access to community amenities, information and support. They will be a place to make connections, learn, access services, build confidence and find opportunity. The Hub is place that feels safe; a place in their local community. Newcomers, people with low and very low income, youth, entrepreneurs and mobile workers will find the support they need.

100+ Hubs will be part of the digital ecosystem. This will include 50 new hubs, approximately 2 for each of Mississauga's 23 neighbourhoods. Additionally, 50+ Hubs will be integrated into existing partner facilities.

Hubs Features:

- Shared workspaces (including digital office tools, Kits)
- Meetings rooms and private offices
- Networking and other social activities
- Access to digital Mississauga Library resources
- Digital and in person training opportunities
- Certification from regional companies and institutions as a Preferred Offsite Mobile Work Facility for their staff
- Connection point for regional agencies, social services, business services, and other related institutions
- Connections will be set up at these facilities to provide all of the services included in this component including Wi-Fi and charging station; AI services (311, 211); interactive screens
- Food and beverage options

The Hub was inspired by Akua, a recent immigrant from Ghana who has been struggling to find work, despite his wealth of experience. Leveraging the freely accessible workspace of a hub will connect him with a variety of United Way employment programs and other services that help him adapt to work in Canada. Along with employment activities, the Hub can also offer social activity that gives Akua the opportunity to meet with a variety of others in his community that are using the Hub as a mobile workspace, to start small businesses and up-skill, among other activities.

The Hub

The Hub Integrated into existing facilities, each Hub will provide workspace and amenities to enable learning, places to work, meet and succeed. They are a place for people to make connections, access services, build confidence and find opportunity. A place that feels safe in their local community. Hubs can be any size and be incorporated into a variety of spaces such as Libraries, malls and other private or public locations.

Case Study 3

This is Akua.

He recently emigrated from Ghana and has been struggling to find work, despite his wealth of experience. He has been working out of a Hub in his neighbourhood. There he finds connections to a variety of United Way employment programs and other services that are helping Akua to adapt to work in Canada. Along with employment activities, the Hub has also become a social activity giving Akua the opportunity to meet others in his community that are using the Hub as a mobile work space, to start small businesses and other activities.

The Community

The Community is at the core of this initiative with each Connection and Hub uniquely designed to respond to the true needs of the people it is serving.

All 23 Mississauga communities will be part of this network of connected and open spaces that will lead the transformation of the larger digital ecosystem, including initiatives such as citywide bike shares, electric vehicle parking and charging stations, smart furniture, and expanded free public Wi-Fi beyond the current 6000 daily customers, ensuring all people at home, work and play have equitable and easy access to multimodal services.

Connecting the Community is inspired by Amira, a computer programmer who recently graduated from the University of Toronto Mississauga. Her skills are highly in demand so she has a choice as to where she would like to take a job. She likes the work that local companies are doing but, like many people her age, she does not have a driver's license and has no interest in or budget for buying a car. She grew up in Port Credit and really likes the area. Amira and her friends enjoy biking, kayaking and other recreational activities in the area. She also likes the access to great culture such as food and music. Mississauga will partner with tech companies to develop programs that enable their employees to work out of any of the city's hubs. This will allow Amira to work out of the Port Credit Hub, connected to a cultural hub with frequent activities to participate in. By connecting the whole area, Amira will be able to work anywhere along the waterfront.

The Community

Each Kit, Connection and Hub will be developed in response to the needs of the local community. And, in turn, affect the larger ecosystem including initiatives such as bike sharing, public wi-fi and access to services. This is about helping in a meaningful way and providing equitable and easy access to services.

Case Study 4

This is Amira.

Amira recently graduated from UTM and is a computer programmer. Her skills are highly in demand so she has a choice as to where she would take a job. She liked the work that local companies were doing but, like many people her age, she didn't have a driver s license and had no interest in buying a car. She grew up in Port Credit and really liked the area. When she found out that a Mississauga Tech company offered employees the option to work out of any of the city's Hubs, she thought that sounded pretty great. She was excited to find out that the Port Credit Hub was connected to the Small Arms Building that had creative activities going on all the time. Amira also loved that the whole area was connected so she could work anywhere along the waterfront if she needed a change of scenery. The bike share program was also handy. She had her own bike but it was great when friends or colleagues came to visit because she could just get them to grab their bike and their laptops for lunch at a local restaurant.

The Ride

The Ride will ensure MiWay (public transit) will be planned as a reliable ride between Connections, Hubs and Communities. Transit routes will have priority through Mississauga's Advanced Traffic Management System. Buses will provide free Wi-Fi for those that need to stay connected, making mobile work an option on transit. The City will also develop a program to promote active transportation as a way of work, life and play with bike sharing, e-bikes and walking.

The Ride

The Ride MiWay will be the reliable Ride from your Community, to a Connection and to a local Hub. Transit Routes will have Priority through the Advanced Traffic Management System and provide wi-fi on the bus for those that need to stay connected. Active Transportation will be the way to work, live and play with bike sharing programs, e-bikes and programs for walking and tourism.

The Data

The Data A portal that connects the digital ecosystem providing easy access to services and information including the Kits, Connections, Hubs and community amenities that offer choice to live, work, and play as well as support and opportunity to succeed. The use of Open Data, GIS and other Smart City technologies will be central to the success of the portal.

The digital ecosystem of Kits, Connections, Hubs, Communities, Rides and Data will empower all residents, providing inclusive access to opportunities that develop Social and Economic Resilience by:

- Providing equitable & easy access to opportunities that help people succeed;
- Connecting and integrating youth, newcomers, entrepreneurs, mobile workers and startups in the community;
- Bridging the digital divide by providing access to services, supports, technology;
- Providing places through Mississauga that offers digital access, enable collaboration and opportunity;
- Ensuring Mississauga is ready for the changing nature of work – mobile and connected
- Creating complete communities that will attract and retain employees; increase quality of life;
- Helping to contribute to Mississauga's place in the Tech Corridor; and
- Testing and developing an innovative idea that can be repeated across Canada.

Social and Economic Resilience is not just a solution for Mississauga. Across Canada communities of all sizes are looking for opportunities to integrate newcomers, support vulnerable populations, provide a foundation for our youth, encourage entrepreneurs and support industries now and in the future. Communities across the country are facing the same uncertain future in terms of changes in the way we work. This solution is a scalable, multimodal framework that has elements that would serve communities of all sizes across the country.

The Data

Connecting, analyzing and sharing data in a way that is clear and effective is a key feature of Mississauga Smart Cities. This data will all be accessed through an online portal that will showcase all amenities within the digital ecosystem through mapping and the use of open and transparent data principles.

Digital Ecosystem Components

The Kit – including items such as a laptop, will be made available throughout the City and will be integrated into programs and services already delivered at libraries and other agencies.

The Community – The needs of the local community will drive the development of each Kit, Connection and Hub.

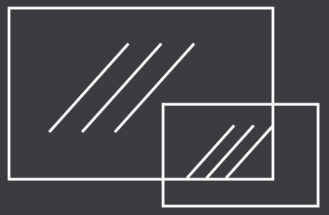
The Connection – Mini hubs of Wi-Fi and digital services located throughout the City providing easy and equitable access to services for people with or without a device through intelligent digital signs.

The Ride – Use of public and active transportation will be promoted as the ideal way to move throughout the community. MiWay will be "The Ride" connecting to "The Hubs" and "The Connections" with traffic signal priority and Wi-Fi.

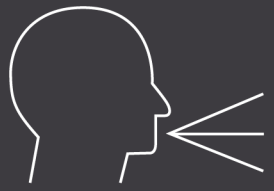
The Hub – Locations designed for remote working and learning that feature workspaces and digital amenities to enable residents to work and learn within their own community.

The Data – Leading-edge technologies including Intelligent Digital Signage, Artificial Intelligence, Voice First Services, Augmented Reality, Open Data and Mobility.

Technology and Innovation



Intelligent
Digital Signage

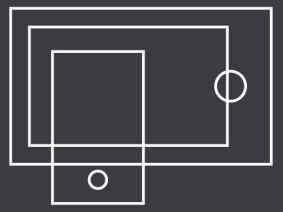


Voice First
Services

Artificial
Intelligence

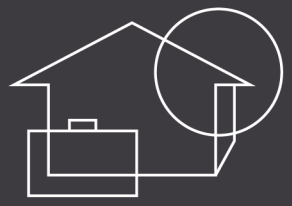
Augmented
Reality

Open Data



Mobility and
Broadband

Spaces that
inspire



Choice - live,
work and play

Digital Ecosystem

Community Engagement

The development of Mississauga's challenge statement began long before the Smart Cities Challenge. It is based on years of engagement with the community to develop numerous master plans and the City's Strategic Plan. The challenges that the statement addresses - concerns about economic prosperity, inclusion and empowerment - were identified in previous engagement and planning processes. They are issues that are critically important to the residents as evidenced in these plans and the City's ongoing initiatives. The Smart Cities Challenge has provided an opportunity for the City to revisit valuable engagement processes through a Smart City lens, and to connect the vital work that is already underway to emerging needs, innovative ideas and newly-forged partnerships in Mississauga.

Mississauga is a highly engaged community and becoming more so. On average, participation in consultations with Mississauga increased by 5% between 2015 and 2017, mostly through online engagement, but also at public meetings and open houses (City of Mississauga). 364, 400 people have been engaged in the development of local plans. The City's Strategic Plan - Our Future Mississauga was one of the most comprehensive conversations ever held in the city, connecting with over 100,000 people. People representing all interests, ages, geographic areas, socio-economic groups, cultural backgrounds, and ranges of experiences participated in the public engagement process. The Plan's resulting vision emphasizes the importance of meeting employment needs and attracting innovative businesses, ensuring youth, older adults and new immigrants thrive, and completing and connecting neighbourhoods.

Mississauga's Smart Cities Challenge engagement process focused on the community-led identification of the biggest problem facing Mississauga. A city-wide process was designed to allow residents to provide input into a tailored engagement process for this Challenge. Questions were designed to ensure that participants had meaningful input into the development of the challenge statement.

- What are the biggest challenges facing Mississauga?
- What specifically would you like to see improved?
- How will you know things have improved?
- What technology(ies) do you think could help achieve this outcome(s)?

Diversity, inclusion and accessibility were important considerations that were integrated throughout our engagement process.

- All engagement activities were in accessible facilities
- Plain language was used in all communications
- Digital resources, main website and engagement site

meet AODA standards

The following activities took place during the development of the Challenge Application:

- Shawn Slack, CIO and Director of IT, contacted over 50 community partners to engage in this initiative to ensure diversity and inclusion in Smart Cities. UTM, Sheridan, Region of Peel, BIAs, Mississauga Board of Trade, food banks, The Salvation Army, human service agencies, Ecosource, Peel Environmental Youth Alliance, Mississauga Youth Action Committee, Community Living Mississauga, Mississauga Sports Council, SELF, ONX, Microsoft, CISCO, the United Way, Glenforest STEM, Dixie Bloor Board District, Conservation Authorities, The Living Arts Centre, Partners in Green, Community Foundation of Mississauga and Mississauga Smart Commute, among others.

- 2000 visits, 243 contributions, 298 submissions Have Your Say Online Engagement Platform

- 105 participants at 4 Community Engagement Sessions

- 60 participants at 2 Industry Engagement Sessions

- 270 participants. Smart City pop ups were deployed at all 18 of Mississauga Libraries. This ensured a wide range of voices from a variety of economic and social backgrounds, ages and physical abilities.

- 258,656 Social Media points of contact providing opportunities to reach a broad audience; provided enhanced capability to online translation into multiple languages via Google Translate; provided the end user with the capability to manipulate the information into a more accessible format, depending on their needs such as the use of screen readers, high contrast visuals; and other tools that enable accessibility.

- 60 participants at 4 BIA Meetings

- 45 Industry Meetings

- 5000 staff engaged in City's Intranet

Widespread promotion of the project increased engagement activities across all platforms and at public meetings:

- Inclusion in the City's eNewsletter distributed in January to 35,000 subscribers.

- Information was distributed to all Councillors for inclusion in their ward newsletters

- Promotion included on digital screens across the City in civic facilities including Libraries and Community Centres

From past engagement processes that informed the development of the challenge statement, there were over

364 000 points of engagement, including more than 105,000 people engaged in the development of Strategic Plans.

The themes that emerged through engagement with the community in this process were Empowerment & Inclusion, Economic Opportunity and Mobility. The issue of equitable access, both to economic opportunities and empowerment and inclusion came across clearly in this engagement process as a key challenge facing the city's residents. This was mentioned as being particularly true for new Canadians, youth and vulnerable residents in Mississauga. Challenges accessing employment opportunities, learning about jobs and connecting to skills training were described as barriers for these groups. Access also emerged as a key issue related to empowerment and inclusion. The ability for people with different backgrounds, languages and skills to connect to their communities and to access information about the services offered by the City were clear challenges.

Feedback from this process was reviewed in combination with previous engagement processes viewed through a Smart City lens. Some big ideas that emerged supported the many plans in place and much of the ongoing work the City is already doing, and focused on priority areas for Mississauga, including:

- Providing local, sustainable economic opportunities for all members of the community and retaining local talent.
- Providing better access to employment, services and information housing, health, transit, food, recreation for Mississauga's vulnerable populations.
- Interest in incorporating new technologies such as Artificial Intelligence (AI), environmental sensors, blockchain, and AR / Mixed Reality, autonomous vehicles into city services.
- Making more data more easily accessible to the community to share information and facilitate opportunities to develop technological applications and tools.

Many of the technological solutions that emerged were also incorporated into the proposal.

A focus on social and economic resilience will positively impact the outcomes that residents wanted to see, which included both economic and social benefits for citizens. Specific outcomes that emerged from the engagement process include: reducing barriers and increasing access to opportunities, equitable access to technology, skills improvement opportunities for everyone, focus on marginalized communities, better access to information, security in terms of housing and jobs and more citizen participation.

Maintaining a strong connection to the needs of the community is vital to the implementation and the

ongoing sustainability of Mississauga's Smart Cities initiatives. Continued engagement is essential to build public trust, knowledge and to ensure that the Smart City initiatives achieve their intended outcomes.

- Engagement activities will take place throughout the development and implementation of the final proposal. These will involve working with key partners such:
- United Way and Peel Region to identify, connect with and maintain relationships with communities
- Key City of Mississauga departments including Economic Development, Planning & Building, Transportation & Works, Culture, Mississauga Library System, along with our newly developed Centre for Excellence in Community Engagement (CE2)
- Local organizations such as the BIAs, other community groups
- Local and regional civic tech groups such as Hackernest and Code for Canada to help to build and grow these vital community activities
- Local post-secondary institutions such as University of Toronto Mississauga, Sheridan, OCADU, Glenforest STEM, to build robust data and analytics research to ensure long term viability, accuracy and transparency of public data
- Ongoing use of digital tools such as social media, online engagement portal, and other digital engagement and communications tactics to ensure ongoing awareness, calls to action and opportunities for feedback

We will also use creative, educational and situational engagement activities to create awareness, spark innovation and engage the community:

- Tech and the City Hackathon 2018
- Public Art. Temporary Public Art will be used to create awareness and spark conversations. This could include AR / Mixed Reality, near future storytelling, physical interventions and installations, interactive artworks and experiences. Permanent Public Artworks will be used to connect residents to Smart City initiatives and could include projects that visualize wellbeing, economic and social activity and mobility throughout the city. They will allow for both engagement and awareness.
- Living Labs throughout the city. Like a Bookmobile but for creating awareness and conversation about Smart Cities initiatives. This will bring the engagement to the people in a fun and educational way.
- Working with ESRI and Open Data to develop a suite of online tools to engage and educate the public. This will include the creation of ESRI Story Maps, geo-locative activities that will engage people physically in their

communities, the integration of local storytellers, artists and community members in creating content and activities to advance the project and maintain strong connections with the community.

- Working with industry partners such as Bosch to demonstrate various aspects of the Smart City Initiative such as e-bikes and bike sharing options.

The Social and Economic Resilience Index

Success factors for building social and economic resilience are critical, complex and will require co-creating a Social and Economic Resilience Index with the community. We have developed a framework and proposed indicators and metrics as part of this proposal - Connect, Adapt, Succeed. These will be confirmed with the community to ensure that the Index is relevant and that it represents the outcomes that residents want to see.

A Smart City

MISSISSAUGA

200+
Network Connected Electronic Signs

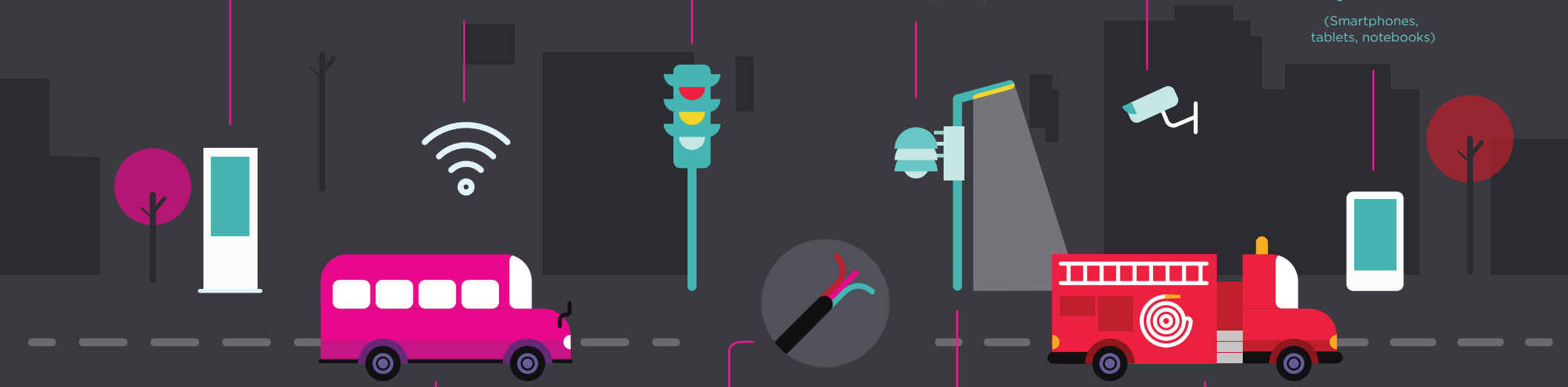
1100
Wifi Access Points

780
Connected Traffic Signals

50
Environmental Sensors (2019)

836
Security + Traffic Cameras

3600
Connected Mobile City Workers
(Smartphones, tablets, notebooks)



500
Connected Buses

850km
Fibre (Public Sector Network)

50,000+
Connected LED Streetlights

60+
Fire Vehicles

Goal Alignment

The City has developed a broad range of plans that describe the City's vision for the future and its strategies to achieve that vision. Almost all plans were developed through collaborative processes involving community and s takeholders, collectively engaging approximately 364,400 people. Through the process of developing this idea we worked cross departmentally to ensure it would align with the goals, strategies and plans for the community.

Mississauga's Strategic Plan (2009):

- A foundational plan for the City
- Based on engagement with over 100,000 people
- Defines the City's priorities, processes, short and long-term plans for the next 40 years
- Five strategic pillars for change: move, belong, connect, prosper, green.

Proposal alignment:

  - 'Belong' - importance of ensuring youth, older adults and new immigrants thrive.
  - 'Prosper' - a global hub of creative and innovative activity where talent and business thrive; infrastructure and services to support
  - 'Connect' - working with residents to create complete neighbourhoods.

Mississauga's Smart Cities Master Plan (2018/19):

- Currently being developed
- Will adopt the six criteria outlined by Infrastructure Canada as the framework to ensure continued alignment and benchmarking capability with other cities
- The City has been developing Smart Cities projects for several years

IT Master Plan (2015):

- Strategies and actions for the transformation of Mississauga into an engaged and connected City including: Foster Open and Accessible Government by ensuring citizens have easy access to information and services anywhere, anytime
- Supports Mississauga's submission by providing open data, more services available online and in more languages.
- As well, building on Mississauga's existing activities to forge new partnerships and to leverage opportunities for innovation helps fulfill the goal of Improving Services through Innovation and Partnerships.

IT Business Plan (2018-2021):

- To support the City's strategic pillars and action items in the IT Master Plan
- Specific actions include identifying the opportunity to improve services for citizens through technology such as Artificial Intelligence (AI) and Augmented Reality (AR)
- Mississauga's Smart Cities Challenge Proposal directly supports these aims.

Mississauga's **Economic Development Strategy Building on Success:**

goals relate directly to this submission including:

- Ensuring a Supportive Business Environment; Investment and Jobs; A Culture Of Innovation including the objectives: Develop Our Local Assets to Create a High Quality Urban Environment; Leverage Our Post-secondary Institutions, Centres of Excellence and Research Institutes to Drive Innovation and Economic Impact; Capitalize on Our Diversity of People and Cultures; Leverage Our International Workforce; Strengthen the Relationship Between Business and Education.

Master Plan for Library Services (2014)

- A framework to ensure the Mississauga Library System provides life-long enrichment, education and empowerment
- Several of the plan goals will be furthered by the City's Challenge proposal including an aim to continue the steady expansion of electronic products and services and to fast-track the development and implementation of a mobile strategy

Youth Plan (2009) and Older Adult Plan (2008)

- Emphasize the importance of empowerment, equity and inclusion of all citizens, in alignment with the Challenge Proposal
- Examples include: to provide online portals for youth to provide feedback on City services

Prepared for Success

Experience implementing complex projects

The City of Mississauga regularly implements complex, multi stakeholder projects and services. To ensure ongoing strategic alignment and accountability, these key initiatives and their successes are reported out to Council and the Public annually as part of the update to the strategic plan. Transparency and accountability in the planning process is also important in proposing and approving major initiatives starting with the City's Business Planning and Budget process where new initiatives are brought to Budget Committee in a public forum for consideration. Impact and benefits to the community and alignment to the strategic plan and master plans is a critical part of the decision process.

There are many examples of successful and transformative City projects. One such initiative is Celebration Square, which saw the revitalization of a major public space in the downtown in response to growth of residential population and need for better public space. Celebration Square introduced a community gathering place in downtown Mississauga that has exceeded all expectations, is continually at capacity and is open to everyone. Celebration Square has become a destination, a park, a place to enjoy all seasons, sports, cultures, watch movies or simply to enjoy the downtown. Transformation of this space has been something that is monitored and measured annually and the City of Mississauga is proud to say that it now has the 2nd largest Canada Day event held in Canada.

The City of Mississauga has had many successes implementing large scale projects with multi agency partnerships. The Healthy City Stewardship Centre initiative was an innovative approach to advancing strategic objectives around health with the support of multiple agency stakeholders. In recognition of the significance of this project to the community the City of Mississauga won the 2006 World Leadership Award for its Healthy City Stewardship Centre (HCSC) initiative in a ceremony held in the Royal Courts of Justice in London, England.

Structures, processes and practices in place for managing and implementing complex projects

At the City of Mississauga, project implementation and continuous improvement is a well-established process with a culture of inspiring possibilities and a can-do attitude. The City of Mississauga has a robust business planning and budget process for allocating funding and resources to projects as well as a mature Project Management practice across the organization. All City projects are centrally managed on a collaboration platform with standards for Project Management in place ensuring consistent processes, communication and expectations. The City has also endorsed and adopted Lean as a standard for Continuous Improvement, new employees being trained as White Belt as part of the onboarding process and

all services throughout the City having a mix of Yellow and Green Belts and a few Black Belts held centrally in the Lean office. The City of Mississauga takes Project Implementation and Continuous Improvement very seriously and has a track record of success in implementing many major projects.

The Smart Cities team is also an example of organization-wide innovation. Led by the City's CIO, as well as a Steering Committee consisting of Directors and Commissioners from across the organization, this team has members from IT, Planning & Building, Economic Development, Culture, Security, Library Services, Communications, and Works Operations & Maintenance. This team was brought together to facilitate and execute the Smart Cities Challenge proposal, as well as the Smart Cities Master Plan.

Organizational strengths and potential weaknesses

The City of Mississauga currently has a robust digital infrastructure. At 40 years old the city has grown up with technology and has integrated a wide range of smart city technologies as it has developed its built infrastructure. This includes: 836 Security + Traffic Cameras; 50,000+ Connected LED Streetlights; 60+ Fire Vehicles; 3600 Connected Mobile City Workers (Smartphones, tablets, notebooks); 200+ Network Connected Electronic Signs; 1100 Wifi Access Points; 780 Connected Traffic Signals; 850 km Fibre (Public Sector Network); 500 Connected Buses. Our city is already doing this work and fully prepared to take on new smart cities projects.

Organizational strength is demonstrated by the City of Mississauga's well-established planning process with a high level of public and key stakeholder engagement as well as regular reporting out of progress and outcomes. On average, participation in consultations with Mississauga increased by 5% between 2015 and 2017, mainly through online engagement, but also at public meetings and open houses (2017 Citizen Satisfaction Survey). Having public and key stakeholder input is an effective way to foster openness and drive engagement resulting in an inclusive and informed public planning process. The level of engagement to develop the Our Future Mississauga Strategic Plan was extensive starting with the creation of the Community Advisory Group, a panel of community leaders, who lead a series of workshops in the community that exceeded 100,000 in-person engagements. Our Council has recently adopted a Community Engagement Strategy and implemented a Centre for Excellence in Community Engagement (CE2) who will play a role in our community engagement activities.

A potential weakness as it pertains to the adoption of smart city technology is public trust with data and privacy. The issue of privacy has come to the forefront in recent smart city developments in North America resulting in

a need for greater consultation and communication. For example, Google Sidewalk Labs initiative in the City of Toronto has raised concerns and questions about the use of data and privacy. The City of Mississauga will need to anticipate and address the use of data and privacy for the Smart Cities Challenge recognizing that it may require additional measures and resources to address this inherent weakness as we engage the community.

Shortlist Plan

The City of Mississauga has led a comprehensive and inclusive process as part of the Smart Cities Challenge. We are well positioned to move onto the next phase of the process should we be shortlisted. We had developed a strong plan early in 2017 in preparation for the Smart Cities Challenge. The City's Senior Leadership Team and Council were engaged in the spring of 2017 with a defined approach, process, timeline and required resources to make this submission. We feel confident we can be very successful in the business case phase and are prepared to make good use of the $250,000 to build a strong case for investment in Mississauga.

Mississauga's challenge idea Solving for *Social and Economic Resilience* is an innovative, ambitious and achievable idea that provides direct benefit to all 23 communities in the City. The following are the specific activities that will be undertaken to develop the City of Mississauga's business case to win the Smart Cities Challenge:

Project Management – the City has a Project Management Support Office (PMSO) and standard project documents and processes for managing projects of this scale. Having strong leadership will be critical to the quality and success of the development of the business case.

Solution Definition – the business case will be developed with the assistance of our agency and private sector partners as well as bringing on professional services with expertise in the development of the models and components at the community scale and expertise in regards to costing of all aspects of the proposal.

Continued Community Engagement – the proposed Smart City strategies and the Social Resilience Index will be refined based on continued inclusive and widespread community engagement to ensure solutions are defined based on true needs with overall public support.

Technology – identify and implement innovative technologies that support the bold idea and demonstrates that Canada is a leader in employing Smart City technologies. Our technology partners will bring this expertise to the table.

Budget – define a plan that effectively uses the $50 million prize as well as defined contributions from our partners to maximize the investment demonstrating what can be achieved through strong partnerships.

Demonstrators – to be a Smart City there must be some proof of concepts and pilots that drive engagement amongst the partners as well as in the community.

The $250,000 will be allocated to four major areas of focus as follows:

Project Management for one dedicated City Staff to lead the business case process for 6 months - **$75,000**

Professional Services with expertise in building business cases with specific models and scenarios that clearly demonstrate what will be done, the value, measurement(SROI) and investment required including sustainment plans - **$75,000**

Demonstrators to test key Smart City strategies in the community and de-risk future implementation at a greater scale - **$50,000**

Communications & Engagement to keep the community engaged, create awareness and to fine tune the Social Resilience Index and ideas specific to each of the communities - **$50,000**

Partners

We have received overwhelming support from a wide range of technology, community and educational partners. Social and Economic Resilience is a vital and complex issue, which requires a broad range of partners to solve.

To add new partners:

Community & Educational Partnerships - We have strong relationships with many local agencies and organizations. If needed, we will reach out and engage required organizations in order to develop the program further.

Technology & Industry Partnerships - We have existing relationships and agreements with many vendors. For new partnerships we have two options:

- Follow the City's Procurement procedure
- As this project falls within an election cycle we have secured Delegation of Authority in order to ensure we are flexible during the government transition

Technology Partners

We will work with our technology partners to find solutions for each of the five strategies..

IoT, Artificial Intelligence (AI), Machine Learning (AR), Augmented Reality (AR), Analytics, Cloud:

Cisco; Amazon; Google; Microsoft; Hatch; Bosch; Rogers; SAP; OnX; Soti; Bell

Data, GIS, Analytics, Portal, Voice First, Security:

ESRI; Hitachi; Vantara; IMEX; Systems; wipro; Christoff Consulting; Avega Solutions; Escrypt

Hardware incl. Digital Screens, Laptops, Smart Furniture, Kiosks, Sensors:

Fujitsu; Lenovo; Renewed Computer Technology; Smartek Systems; Philips Lighting; A.U.G Signals Ltd.; Infranovate

Community Partners

Region of Peel

- Services for social care such as Ontario Works and Public Health
- key partner in reaching vulnerable populations, providing community programs and supports

United Way of Peel Region

- local social service organization that gives individuals and families living in Brampton, Caledon and Mississauga the opportunity to reach their potential and improve their quality of life
- key partner in reaching vulnerable populations, providing community programs and supports, as well as gathering data and key insights

Business Improvement Area (BIA) - Port Credit, Malton, Clarkson, Streetsville

- will provide a direct connection to neighbourhoods, their local businesses, amenities, services, and supports

Mississauga Board of Trade (MBOT)

- advocate on policy issues that impact local business at all levels of government, and are influential in helping to shape policy decisions

Salvation Army Community and Family Services

- social and community service programs focus on nurturing the capacities, skills and strengths of individuals rather than just meeting their needs

Dixie Bloor Neighbourhood Centre

- services including New to Canada, Employment Services, English Classes, Family Programs Youth Programs, Community Programs, Volunteer Opportunities, Accessibility

Local Food Banks

- Provide Food Bank and related services in their communities

Education Partners

University of Toronto Mississauga (UTM) - Institute for Management and Innovation (IMI)

- IMI will be a key partner in helping to develop the Social and Economic Resilience Index in order to be able to track success and adapt to community needs

OCADU

- We will work with a variety of departments including Strategic Foresight, Industrial Design and Inclusive Design

Glenforest STEM

- We will work with Glenforest STEM in order to reach youth in our communities in regards to employment and connecting youth with Smart Cities technologies

Sheridan

- We will work with Sheridan to connect with youth in regards to opportunity in Mississauga and the future of work

About The Smart Cities Challenge

Led by Infrastructure Canada, the Smart Cities Challenge is a pan-Canadian competition open to communities of all sizes, including municipalities, regional governments and Indigenous communities (First Nations, Métis and Inuit). The Challenge encourages communities to adopt a smart cities approach to improve the lives of their residents through innovation, data and connected technology.

- **One prize of up to $50 million open to all communities, regardless of population;**
- **Two prizes of up to $10 million open to all communities with populations under 500,000 people; and**
- **One prize of up to $5 million open to all communities with populations under 30,000 people.**

Infrastructure Canada is engaged Indigenous leaders, communities and organizations to finalize the design of a competition specific to Indigenous communities that will reflect their unique realities and issues. Indigenous communities are also eligible to compete for all the prizes in the current competition.

The Challenge is an open and transparent process. An independent Jury will be appointed to select finalists and winners.

http://www.infrastructure.gc.ca/plan/cities-villes-eng.html

Key Dates

2017
December
Smart City Challenge announced

2018
December
Application due

2018
Summer
Finalists selected

2018
Winter
Final proposal due

2019
February
Master Plan complete

2019
Spring
Winner announced

Mississauga Smart City Team Members

Steering Committee

Mickey Frost, Director, Works Operations and Maintenance

Lori Kelly, Director (Acting), Library Services

Shawn Slack, Director, IT and Chief Information Officer

Andrew Whittemore, Commissioner, Planning and Building

Bonnie Brown, Director, Economic Development

Core Team

Shawn Slack, Director, IT and Chief Information Officer, Project Controller

Nick Albenese, Senior Manager, Infrastructure Service

Ron Kremer, Program Manager, Internet of Things

Anthea Foyer, Smart Cities Project Lead, Curator Digital Public Art

Steve Czajka, Manager, Data and Visualization Studio

Audrey Holt, Communications Advisor, Communications

Carolyn Paton, Manager, Strategic Financial Initiatives

Sven Tretop, Senior Manager, IT Architecture and Innovation

Silvia Fraser, Manager, Security Services

John Imperiale, Senior Manager, Digital Services and Mobility

Glossary

Accessible

The ability for everyone, regardless of disability or special needs, to access, use and benefit from everything within their environment. Founded on the principles of Universal Design, the goal of accessibility is to create an inclusive society for people with physical, mobility, visual, auditory or cognitive disabilities. This means everyone has equal access to perceive, understand, engage, navigate and interact with all elements of the physical and digital world.

Analytics

The field of data analysis. Analytics often involves studying past historical data to research potential trends, to analyze the effects of certain decisions or events, or to evaluate the performance of a given tool or scenario. The goal of analytics is to improve the business by gaining knowledge which can be used to make improvements or changes.

Accessibility for Ontarians with Disabilities Act (AODA)

Ontario law that aims to identify, remove, and prevent barriers for people with disabilities. The AODA became law on June 13, 2005 and applies to all levels of government, nonprofits, and private sector businesses in Ontario that have one or more employees (full-time, part-time, seasonal, or contract).

Artificial intelligence (AI)

The ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience.

Augmented reality (AR)

A type of interactive, reality-based display environment that takes the capabilities of computer generated display, sound, text and effects to enhance the user's real-world experience.

Augmented reality combines real and computer-based scenes and images to deliver a unified but enhanced view of the world.

Advanced traffic management systems (ATMS)

Seek to reduce, or at least contain, traffic congestion in urban environments by improving the efficiency of utilization of existing infrastructures. These systems typically seek solutions to congestion problems occurring on urban freeways and surface streets through the deployment of state-of-the-art sensing, communications, and data-processing technologies.

Autonomous vehicles

A vehicle that can guide itself without human conduction.

BIA

A group formed of local business people and property owners who join together and, with the support of the municipality, organize, finance and carry out physical improvement and promote economic development in their district. The local municipality is the body that is responsible for approving the budget of the BIA.

Blockchain

A type of data structure that enables identifying and tracking transactions digitally and sharing this information across a distributed network of computers, creating in a sense a distributed trust network. The distributed ledger technology offered by blockchain provides a transparent and secure means for tracking the ownership and transfer of assets.

Cloud Computing or "The Cloud"

A means of storing and accessing data and programs over the Internet instead of on a computer's hard drive

Co-Working

A style of work that involves a shared

workplace, often an office, and independent activity. Unlike in a typical office, those coworking are usually not employed by the same organization.

Digital divide

Digital divide is a term that refers to the gap between demographics and regions that have access to modern information and communications technology, and those that don't or have restricted access. This technology can include the telephone, television, personal computers and the Internet.

Digital Ecosystem

An interdependent group of enterprises, people and/or things that share standardised digital platforms for a mutually beneficial purpose, such as commercial gain, innovation or common interest.

Digital Infrastructure

Foundational services that are necessary to the information technology capabilities of a nation, region, city or organization.

Geographic Information System (GIS)

A system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data. The key word to this technology is Geography – this means that some portion of the data is spatial.

ICT

Technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums.

Internet of Things (IoT)

The network of physical devices, vehicles, home appliances and other items embedded with electronics, software, sensors, actuators, and connectivity which enables these objects to connect and exchange data.

Machine Learning (ML)

An application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. Machine learning focuses on the development of computer programs that can access data and use it learn for themselves.

Mixed reality (MR)

The merging of real and virtual worlds to produce new environments and visualizations where physical and digital objects co-exist and interact in real time

Mobile Economy

A combination of the rise of mobile workers, and the shifts this causes both socially and economically.

Mobile Workspace

A user's portable working environment that gives them access to the applications, files and services they need to do their job no matter where they are.

Open data

The idea that some data should be freely available to everyone to use and republish as they wish, without restrictions from copyright, patents or other mechanisms of control.

Preferred Offsite Mobile Work Location

A Hub or workspace that has been approved by businesses as an official location for their staff to work from.

Sensors (Environmental, Traffic, Etc)

A device that detects and responds to some type of input from the physical environment. The specific input could be light, heat, motion, moisture, pressure, or any one of a great number of other environmental phenomena.

Smart Street Furniture

Digitally enhanced street furniture that is active, digital, networked. It can include: wifi, charging stations, data collection, lights, cameras, screens, and a variety of other digital capabilities.

Social Resilience Index

An index that will be developed in conjunction with the community that will set parameters for how to gauge success in social and economic resilience.

Tech Corridor or 'The Corridor'

A 100km corridor in Ontario stretching from Waterloo to Toronto that is the 2nd largest technology cluster in North America.

Voice First

Devices that employ voice as the primary input method point the way towards a more integrated and useful holistic user experience. It is generally considered to be part of an array of inclusive and accessible devices.

A Smart City for Everybody

MISSISSAUGA

2018