



## STAFF REPORT ACTION REQUIRED

### Review of Internet Connectivity and Advancing Toronto as a Smart City

<b>Date:</b>	October 7, 2016
<b>To:</b>	Economic Development Committee
<b>From:</b>	General Manager, Economic Development and Culture and Chief Information Officer
<b>Wards:</b>	All
<b>Reference Number:</b>	AFS 22261

#### **SUMMARY**

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Several recent Council decisions have directed staff to study how the City can help ensure that residents, businesses and tourists have access to high-speed internet connectivity and Wi-Fi. The purpose of this report is to provide an update on work to date and seek Committee direction to complete a review of connectivity and broadband infrastructure issues and opportunities. Council has also asked staff to look at examples of cities incorporating "smart" technology to help deliver services. The report recommends that the Committee direct staff to continue to work with partners on the Smart City Working Group to support the potential commercialization of smart city technology by local firms and the adoption of smart solutions by the City.

Improved internet connectivity and adequate broadband infrastructure are increasingly necessary to access information and job opportunities, to support innovation-based economic development and to deliver City services. Several of Toronto's peer cities have recently developed digital and/or smart city master plans to comprehensively address these issues. In order to effectively plan for broader access to internet connectivity and adoption of digital technology in Toronto, the City will benefit from collaboration with partners and a detailed infrastructure review. The review will establish a knowledge base that can help determine priorities that are specific to Toronto, along with appropriate partnerships and processes to develop future strategies.

## **RECOMMENDATIONS**

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### **The General Manager of Economic Development and Culture and the Chief Information Officer recommend that:**

1. The Economic Development Committee request the General Manager of Economic Development and Culture and the Chief Information Officer to report back to the Economic Development Committee in the first half of 2017 with a completed internet connectivity and broadband capacity review including an assessment of the factors that influence internet speed, access, reliability and affordability for Toronto residents, businesses and visitors.
2. The Economic Development Committee request the General Manager of Economic Development and Culture and the Chief Information Officer to continue to work with the recently established Smart City Working Group to engage industry partners to support the commercialization of smart city technology and potential technology uptake by the City.
3. The Economic Development Committee request the General Manager of Economic Development and Culture and the Chief Information Officer to coordinate with the Smart City Working Group to incorporate the topic of preparing for technological change at the municipal government level in upcoming existing conferences and forums including the City's own Technicity conference to be held in late 2016.

### **Financial Impact**

There is no direct additional financial impact associated with adoption of the recommendations in the report. One component of the recommended connectivity and broadband review that will involve an external consultant is provided for within the Information and Technology Division's 2016 Approved Operating Budget. The staff time required on the Smart City Working Group and sponsorship of the 2016 Technicity conference are also provided for within I&T and EDC 2016 Approved Operating Budgets. The components of the review being conducted internally will require only staff time that has been approved by the General Manager of EDC and the Chief Information Officer.

The Deputy City Manager & Chief Financial Officer has reviewed this report and agrees with the financial impact information.

### **DECISION HISTORY**

The recommendations in this report respond to several requests from Committee and Council asking staff to report back on various issues related to internet connectivity, broadband infrastructure and the adoption of technology by municipal governments:

- At its meeting on September 18, 2015 the Economic Development Committee considered a Member Motion from Councillor Matlow titled Making Toronto a Tech-Friendly City and Bridging the Digital Divide. The Committee requested staff to report back by spring 2016 on actions Council could take to “provide free wireless internet in TCHC locations, parks, civic squares, privately-owned public spaces and interested Business Improvement Areas.”  
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.ED6.15>
- At the meeting of City Council on November 3-4 2015, a Member Motion from Councillor Fragedakis asked staff to evaluate the possibility of establishing a Connectivity Advisory Group. Council directed staff to conduct a study “on the status of Toronto's internet connectivity and broadband capacity especially as it relates to key City and regional economic development objectives and the City's Poverty Reduction Strategy with regards to the Digital Divide.”  
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.ED6.14>
- At its meeting on June 22, 2016 the Economic Development Committee received a Member Motion from Councillor Holland on the Introduction and Use of Smart Technology in the City of Toronto, requesting the City Manager to "review the project underway in Santander, Spain ... with respect to potential partnerships with all levels of government, residents and the private sector to initiate a similar program of incorporating smart technology." The Committee referred the item to EDC staff “to incorporate into current studies and a future report on issues of connectivity and smart technology in Toronto” to be considered at the Committee's October 24, 2016 meeting.  
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2016.ED13.11>
- A second Member Motion from Councillor Holland at the June 22, 2016 Economic Development Committee meeting directed "the General Manager EDC, in collaboration with other relevant City Divisions, to plan a conference in the City of Toronto in 2017 on the subject of preparing for technological change at the municipal government level" and "to review options for private sector support with respect to the costs of hosting."  
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2016.ED13.13>

Although there was no directive for staff, in February 2016 Council endorsed a Member Motion from Councillor Layton related to a CRTC decision to require companies to make capacity on their fibre-optic networks available to other retailers at wholesale prices. Bell Canada appealed this decision to the federal government. Council voted to support the CRTC's decision and, more generally, "competitive and affordable internet prices for [Toronto] residents."

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2016.MM12.4>

Given the high degree of interaction between the subject matters of each motion, staff have elected to treat all as part of a consolidated process.

## ISSUE BACKGROUND

The various motions and directives coming from Council reflect a growing awareness that improved electronic communications is necessary to advance multiple City goals. From a resident perspective, access to products and services, education and employment opportunities, and other critical information is increasingly only available on-line. For the regional economy to thrive, innovation will need to be driven by a strong Information and Communications Technology (ICT) sector, and the adoption of digital technology and strategies will be a basic requirement across all industries. Finally, the City's own service delivery requires a resilient telecommunications infrastructure. Reliable and extensive internet connectivity is also fundamental for any smart city technology, including potential networks of sensors that could improve the function of municipal services in the social, environmental and economic realms including, but not limited to, water, solid waste, transportation, public health, facilities and the City's fleet.

Recognizing these same connectivity requirements and technology opportunities, several cities have recently developed some form of digital and/or smart city master plan. As summarized in a recent comparison study, these plans vary significantly in what they cover and how they will be implemented.<sup>1</sup> However, they each describe a vision where the municipal government and residents make greater use of Information Technology and IT innovation helps drive local economic development. Places that have recently adopted such plans include peer global cities like New York, Chicago, London and Barcelona. Toronto is in the process of developing an updated digital strategy.

In order to plan for broader access to internet and adoption of digital technology, Toronto will benefit from an initial detailed review that will establish a knowledge base within the City. The review will include a basic assessment of the state of internet connectivity across the City (broadband, cellular and Wi-Fi) and will consider what influence, if any, the City has as relates to the variety of private sector service providers and regulations at different levels of government. Knowledge gained will help guide future infrastructure investments and/or the development of future digital strategies.

The Council directives listed above have been addressed to the General Manager of Economic Development and Culture (EDC). EDC staff have been working closely with the Chief Information Officer and the Information and Technology (I&T) Division which has a variety of initiatives underway to address connectivity issues and the application of information technology to support City programs and processes. The review will be co- led by the two Divisions and will help establish clear responsibilities moving forward.

Staff from both Divisions have also been working with public and private sector partners, including the Toronto Region Board of Trade, on a recently established Smart City Working Group (SCWG). Formed under a 2016 Memorandum of Understanding, the

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<sup>1</sup> *Digital Master Planning: An Emerging Strategic Practice in Global Cities*. NYU Marron Institute of Urban Management Working Paper #25, June 2015.

group is intended to be a public/private collaboration focussed on both sides of the local market for "smart city" technologies, supporting the City as a potential purchaser of technology as well as local ICT firms that are developing and marketing "smart" products and applications. The group can also generate discussion about policy issues, including open government data and broadband infrastructure, which could impact this market.

The term "smart city" has been used elsewhere in two distinct respects. First, "smart city" refers specifically to the use of sensors, apps and data capture/analysis methods. Some cities have made significant investment in this type of technology including Santander, Spain as referenced in the Councillor motion above. In a second, broader sense "smart city" has been used as an umbrella term to refer to all the ways that a city and its residents and businesses can use ICT more effectively.

This staff report recommends that the Committee direct staff to continue to work with the SCWG to identify opportunities to grow the market for smart city technology, and to identify any barriers to its adoption. It also recommends that staff lead a connectivity and broadband infrastructure review that, when completed, will help clarify how to make Toronto a smarter city in the broader sense.

## **COMMENTS**

In approaching the many aspects and dimensions of the Councillor motions listed above, staff are approaching the topics from three perspectives:

1. The state of the 'physical' enabling infrastructure for "smart" technology connectivity (internet, Wi-Fi, fibre-optic cable etc.)
2. The ability of the City of Toronto to help develop as well as to deploy "smart" technologies to improve services and to lower costs per unit of service.
3. The "smart city" business sector that supplies physical and application systems as well as business/operating models to users (government, business, institutional) of smart technology. This supply could be to local markets as well as to markets outside the City and country.

In the first steps, this review will focus on the first element listed above: the connectivity aspects of "smart" technology.

Recent broadband strategies developed by other Canadian municipalities or regions have focussed on areas within their boundaries that do not have high speed internet service. Staff have not commonly heard that this is an issue in Toronto, but adequate coverage across the City needs to be confirmed. The I&T Division is responsible for telecommunications at City buildings/facilities and has agreed to fund one component of the review, to be conducted by an external consultant, that will map out the fibre/cable

and wireless network coverage of telecommunications providers serving Toronto including any known future installations and plans.

Network coverage maps will also be overlaid with maps of City neighbourhoods and a variety of socio-economic indicators to identify whether poor coverage in certain areas is contributing to a 'digital divide'. Other map layers will indicate economic development opportunities, such as in employment areas that could accommodate or cater to high-tech firms with advanced broadband requirements.

EDC and I&T staff are currently conducting other components of the review internally, in consultation with experts and stakeholders. Areas of particular interest are listed below with some preliminary findings and outstanding questions:

### **Subscription Rates**

- The review will address the cost of internet access in Toronto, comparing prices and transfer speeds to other jurisdictions.
- Current price comparisons, including a survey by the CRTC, indicate that Toronto prices and speeds are comparable to other North American cities, but also that they represent large monthly expenditures for low-income households.
- Staff are consulting with ACORN Canada about their 'Internet for All' campaign to advocate for internet access and affordability for low-income Canadians.
- Rogers has implemented a pilot program to offer internet for \$9.99/month in Toronto Community Housing Corporation (TCHC) buildings and has recently announced plans to expand the program.
- The Toronto Public Library has recently launched its Wi-Fi hotspot program to lend out hotspot hardware that will provide internet access in a user's home.
- Staff will consult with these organizations to learn more about future plans and will also look for any similar initiatives being planned by other providers.

### **Public Wi-Fi zones**

- The review will include an assessment of opportunities to expand free public Wi-Fi coverage including, for example, in civic squares, TCHC buildings and Business Improvement Areas (BIAs).
- Staff are consulting with representatives of relevant agencies including colleagues in the BIA office.
- The review will include a scan of other locations that offer large free Wi-Fi zones.
- The review will confirm Toronto Public Health's previous position statement that there is no health reason to avoid the use of Wi-Fi.

### **Specialized Networks**

- Associations of firms and institutions in certain industry sectors have built their own ultra-high capacity networks to transfer very large amounts of data quickly.

- The review will look at the role of these networks in the City's ongoing competitiveness including, for example, GTAnet and ORION in the research and education sector, and SirtNet for the screen industries.
- Staff will try to assess what would be required, in terms of infrastructure and coordination with the private sector, to establish new high-tech zones in Toronto with superior broadband capacity.

## **Waterfront Toronto**

- While connectivity issues have not yet been fully addressed city-wide, Waterfront Toronto (WT) provides a very accessible 'test case' for many of these issues as they have been built into the organization's planning from the outset. WT is a model Intelligent Community or Smart City initiative that ensures access to high-speed internet connectivity for all residents and businesses as part of this very large urban redevelopment. The review may be able to draw useful lessons and staff will continue to consult with WT representatives.

## **Smart City Initiatives**

The SCWG has been established to support the local market for smart city technology and it held its inaugural Smart City Summit in May of this year to discuss what a "smarter" Toronto would look like. Among other issues identified, a lack of affordable and accessible broadband was seen as a key impediment to the city's competitiveness. The connectivity and broadband review discussed in this staff report can more generally establish how broadband infrastructure underpins the function and effectiveness of smart city technology.

Staff can also work with public and private sector partners on the SCWG to incorporate discussion of technological adoption by the City in upcoming forums and conferences, including any future Smart City Summits and the City's own Technicity conference to be held in November/December 2016. Technicity is a well-established conference held annually since 2010 that brings together business, community and city leaders to discuss emerging ICT issues and opportunities to drive economic growth and meet City challenges. It is an ideal venue for the City to learn and share how to prepare for technological change.

## Other Divisions and Agencies Consulted

The Economic Development and Culture Division and the Office of the Chief Information Officer have collaborated closely on the development of this staff report and the scope of review that is proposed. Staff have also spoken with representatives of various City agencies including the Toronto Public Library and Waterfront Toronto. Moving forward staff will consult with Toronto Public Health and the Toronto Community Housing Corporation as described in this report. Finally, The Social Development, Finance and Administration Division can provide input related to the digital access goals of the Poverty Reduction Strategy.

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## SIGNATURES

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