



Hamilton

Unlocking Human and Economic Potential Through Digital Enablement

A Position Paper

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Contents

The Digital Economy.....	3
Hamilton and the Digital Economy	4
Bridging the Digital Divide	5
COVID Impacts on Accessibility	5
Principles of Digital Enablement.....	6
Considerations.....	7
Federal and Provincial Funding.....	7
Emerging Technology	7
Connectivity in the Greater Hamilton Area	7
The Art of the Possible	8
Solar Powered Wi-Fi at Terryberry Library	8
5G.....	8
Public Fibre	8
City Real Estate Assets	8

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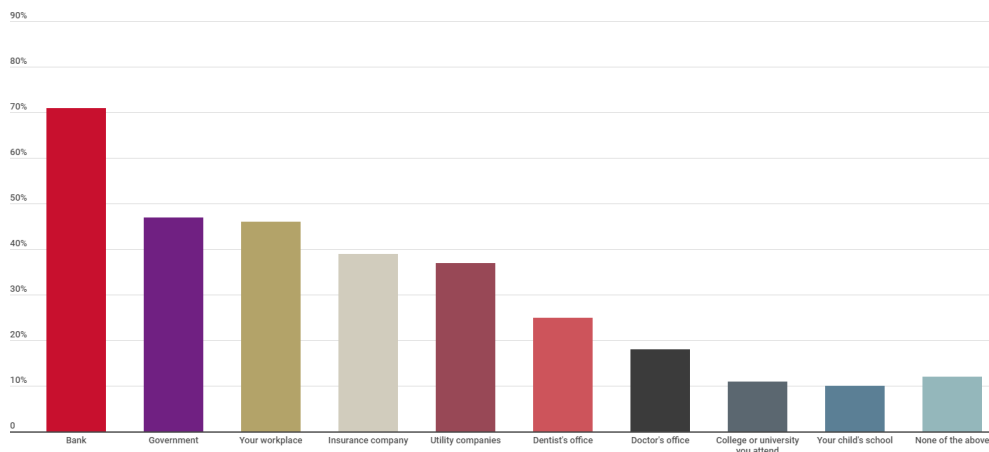
Unlocking Human and Economic Potential Through Digital Enablement

A Position Paper

The Digital Economy

- Technology is transforming the Canadian economy by opening markets and connecting the business world. To stay competitive, Hamilton must ensure people and businesses are connected
- Broadband deployment across Canada has promoted growth in aggregate employment and average wages¹
- Connectivity is creating new possibilities for communities – it enables economic development opportunities and access to key tools like telehealth and learning applications.²
- The Canadian Radio-television and Telecommunications Commission have set a target that all households have access to at least 50 Mbps for downloads and 10 Mbps for uploads
- 54% of Canadians say they are working at home specifically because of COVID-19
- 54% of Canadians feel they have achieved a better work-life balance³
- More and more, Canadians are engaging with organizations online, rather than in person.

Canadian Engagement in Online Communication With Organizations | Ontario



2020⁴

¹ Olena Ivus and Matthew Boland, "The Employment and Wage Impact of Broadband Deployment in Canada," Canadian Journal of Economics 48, no. 5 (December 2015): 1803–30, <https://doi.org/10.1111/caje.12180>, pages 1804 and 1805.

² https://www.ic.gc.ca/eic/site/139.nsf/eng/h_00002.html

³³ Canada's Internet Factbook 2020

⁴⁴ Canada's Internet Factbook 2020

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Unlocking Human and Economic Potential Through Digital Enablement

A Position Paper

Hamilton and the Digital Economy

- With a population of 530,000, Hamilton is Canada's **10th** largest city
- Computer systems, IT, and digital media grew by 53.8% from 2006 to 2016⁵
- CBRE ranked Hamilton as number **2** for North American tech cities of opportunity⁶
- Hamilton tech talent ranked fastest growing in Canadian mid-sized cities from 2012-2017, with a growth rate of 64.8%⁷
- McMaster University and Mohawk College have seen a dramatic increase in the number of students studying computer sciences⁸
- The Hamilton Code Clubs (HCC) is an initiative of the Industry Education Council (IEC) and Software Hamilton. HCC has 1,800 student participants aged 9 to 14 years old. The program teaches core programming fundamentals during lunch breaks or after school, as well as bringing youth from across the city together to create video games and websites and to program SPRK Sphero robots.

Internet Access vs Income

76% of people with household incomes below \$10,000 have home internet access

80% of people with household incomes of \$30,000 or less had internet at home

96% of people with incomes over \$60,000 had internet at home

- The City of Hamilton has introduced Digital Service Channels (Mobile App, Web) - Modernizing government's approach to e-service delivery by enabling citizens to interact with the City in a format that works for them.
- Hamilton's economic development now focuses on playing to its 21st Century strengths. In 2014, it established HCE Telecom as a wholly owned subsidiary of the city
 - Since 2015, HCE has deployed a 10-gigabit fibre network to serve city facilities, business, universities and hospitals
 - 160 Hamilton locations currently receive service from HCE, and HCE has extended connectivity to 600 locations across Canada.

⁵ <https://investinhamilton.ca/>

⁶ <https://investinhamilton.ca/industries/ict-and-digital-media/>

⁷ <https://investinhamilton.ca/industries/ict-and-digital-media/>

⁸ <https://investinhamilton.ca/industries/ict-and-digital-media/>

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Unlocking Human and Economic Potential Through Digital Enablement

A Position Paper

Bridging the Digital Divide

- The decline of industrial employment in Hamilton has stranded workers who do not possess the skills and access to technology to compete in the broadband economy⁹
- Faster internet will remove barriers to access to virtual healthcare services and education
- Hamilton, is actively supporting connectivity options and will continue to further research, explore and support connectivity opportunities that breakdown the digital divide, making the Internet and its applications and connectivity infrastructure more accessible across the community
- A Hamilton charity operates a digital equality program called GreenBYTE that collects end-of-life computers, refurbishes them, and provides them to low-income households at no cost
- GreenBYTE also provides computer certification training to low-income individuals.
 - Since 2001, GreenBYTE has donated 12,000 computers to households, helped 100 graduates receive computer certifications and upgraded an after-school computer lab for the city.
- The City of Hamilton has 100+ locations with high bandwidth services that could provide Wi-Fi for free
- The City is exploring ways to harness these Wi-Fi resources and optimize them for public use
- Hamilton's free wireless/wi-fi network (listed as "Hamilton_Guest") is open to all visitors free of charge. Getting online is quick and simple: all you need is a wireless/wi-fi-enabled laptop computer, tablet PC, or smart phone
 - In the six-week period between March 15 and April 25, 2020, Hamilton Public Library reported more than 10,000 Wi-Fi connections at its branches.

COVID Impacts on Accessibility

Due to the pandemic, many places with internet access are closed which means some low-income families are struggling to complete tasks online, including banking, ordering groceries and connecting to community groups, family and friends.

COVID-19 has had a significant impact on accessibility to public Wi-Fi – libraries are closed, and few public spaces have Wi-Fi capabilities

⁹ <http://investinhamilton.ca> (<http://investinhamilton.ca/>)

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Unlocking Human and Economic Potential Through Digital Enablement

A Position Paper

Though its buildings are closed, Hamilton Public Library (HPL) is helping people stay connected during the pandemic by allowing public access to Wi-Fi outside its 22 branches.

It is common to see people parked in their cars or sitting on a bench close to the library in order to access Wi-Fi. The winter months have no doubt severely impacted access for people seeking to use public Wi-Fi.

“It’s great there’s all this digital growth and we’re able to help people that way, but there’s a lot of vulnerable people that don’t have access to technology or bandwidth,”

Paul Takala, CEO and Chief Librarian at Hamilton Public Library¹⁰

Principles of Digital Enablement

This model is founded upon the New York Framework for Internet Access. In New York City, they have introduced an Internet Master Plan, a vision for affordable, high-speed, reliable broadband service across all five boroughs that offers seamless connectivity at home and on the go.¹¹

Equity	No one will face a barrier to internet access based on who they are or where they live.
\$	Cost should not be a barrier for anyone in Hamilton who wants to connect to the internet.
Performance	The internet should be fast and reliable, and the quality should improve over time as uses of the internet continue to evolve.
Privacy	The people of Hamilton must be able to determine how their data is or is not used.
Choice	There should be sufficient competition among providers and diversity of technological solutions to sustain the other principles

¹⁰ <https://www.caledonenterprise.com/news-story/10014747-hamilton-public-library-helps-bridge-digital-divide-with-free-wi-fi/>

¹¹ The New York City Internet Master Plan

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A Position Paper

Considerations

Federal and Provincial Funding

- The Province is investing \$315 million over five years to focus on expanded access for unserved and underserved communities. Hamilton does not fall into this category
- Hamilton has also been excluded from eligibility from Ontario's Rural Economic Development program because Hamilton exceeds the thresholds of 100,000 people and population density of 100 people per square kilometer or less, and therefore classified as "Urban" and not eligible under the RED Program
- \$1.75 billion Universal Broadband Fund will fund broadband infrastructure projects that will bring high-speed Internet at 50/10 Megabits per second (Mbps) to rural and remote communities,
 - Only 2 zones in the Hamilton region qualify for federal funding under the Universal Broadband Fund.

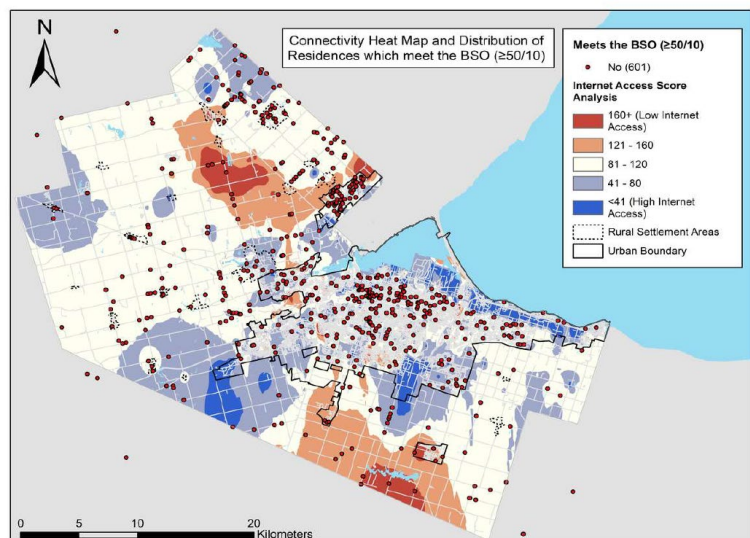
Emerging Technology

- StarLink – the Elon Musk satellite-based internet service is nascent, but it is too expensive, for now

Connectivity in the Greater Hamilton Area

BSO - Basic Service Objective

- Median download speeds have increased by 73% between 2017-2019
- Median upload speeds have increased by 97% between 2017-2019
- Cost of Broadband - A recent study suggests that Hamilton users have a higher average



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Unlocking Human and Economic Potential Through Digital Enablement

A Position Paper

cost of connectivity, compared to other regions.¹²

The Art of the Possible

Solar Powered Wi-Fi at Terryberry Library

- In collaboration with the City of Hamilton's Chief Digital Officer and HCE, Hamilton Public Library will pilot solar-powered Wi-Fi at the Terryberry Library Branch, with plans to also implement this technology at the new Parkdale branch.
- The solution from Mesh ⁺⁺ promises a 300-meter coverage (compared to 300 ft standard) and could connect multiple devices and create a mesh of devices to provide a large network coverage area where possible.

5G

- 5G is the 5th generation mobile network and is designed to connect everyone and everything together, including machines, objects, and devices. The promise of 5G is higher data speeds, low latency, more reliability, greater network capacity, increased availability, and a more uniform user experience to more users.

Public Fibre

- If the City owns fibre infrastructure in an area, it can define the conditions of its use. Fibre that is available for anyone to use is sometimes referred to as "open access fibre. Defining access points and constructing this access could create new points of access where community congregates.

City Real Estate Assets

- Akin to the Solar mesh concept, is the idea of using city assets to collocate multiple wireless technologies. New street furniture like lamp posts can accommodate alternative antenna designs to encourage collocation of wireless technologies. Another approach could involve modifications to existing street furniture designs, subject to City approval, to enable them to incorporate wireless and telecommunications equipment.

¹² 2020 Preliminary Analysis City Of Hamilton Rural Broadband Residential/Farm Survey Helen

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Unlocking Human and Economic Potential Through Digital Enablement

A Position Paper

- In addition, Hamilton has 100+ locations with high bandwidth services that could provide Wi-Fi for free, providing access in dedicated public access areas could significantly increase access across the city