TORONTO

REPORT FOR ACTION

Affordable Internet Connectivity for All - ConnectTO

Date: January 13, 2021
To: Executive Committee
From: Chief Technology Officer
Wards: All

SUMMARY

In the recent years, it has become apparent that access to high-speed internet is necessary for residents to equitably participate in day to day life. Geographically, almost all of Toronto can connect to home internet, but not everyone has sufficient service. The COVID-19 pandemic has highlighted gaps, vulnerabilities and the need for adequate internet services to be more accessible and affordable for everyone.

Some Torontonians are being left behind in the digital divide because there are gaps to high-speed internet, leaving some areas underserved. Even in areas where there is high-speed connectivity, high prices effectively result in vulnerable Torontonians being left without adequate access. The City needs to advance socio-economic opportunities for vulnerable populations, which is essential to ensuring greater prosperity for all.

Digital equity and bridging the digital divide is a key principle of the City's Poverty Reduction Strategy. Access to affordable high-speed internet will address barriers faced by residents participating in the labour force by improving access to economic opportunities. Lower internet prices will decrease barriers, aid financial stability, and improve access to City services for equity-seeking groups. A digitally connected Toronto means people can prosper and enjoy a better quality of life.

Increasing the penetration of affordable high-speed internet services will help address these equity issues, and empower the City to bridge the digital divide. In addition, it will nurture innovation, drive job creation, encourage economic growth, and realize long term benefits to the COVID-19 recovery plan. The City is uniquely positioned to leverage public assets for the public good – locating a fibre optic network (commonly referred to as fibre) where it is needed most and enabling high-speed internet service at more affordable prices.

Technology Services is seeking City Council's support to lead "ConnectTO", a collaborative program that aims to centralize stewardship of municipal resources and assets to deliver the City's goals on equity and connectivity, including creation of a City of Toronto broadband network. Broadband refers to internet service that is always on and available at higher speeds than traditional dial-up Internet services.

This City of Toronto fibre-enabled broadband network is envisioned to:

- Leverage and connect City assets (i.e. fibre, buildings, Right of Way, etc) as the City's contribution to the program to unlock public asset value;
- Create collaboration between the City, or a City entity, and the private sector to connect underserved areas with fibre to create a City-wide high-speed broadband network, where the private sector partner will deliver the internet to homes and businesses;
- Offer open access to this network to any qualified companies, at a fair price, to generate revenue; and
- Ensure revenue is re-invested in our communities, such as enabling internet costs for vulnerable Torontonians at a lower rate.

The proposed program is not positioning the City as an Internet Service Provider competitor. ConnectTO is meant to complement, not compete with the current landscape, by filling gaps in fibre connectivity to underserved areas.

The goal of the program is to provide the City with a direct voice where broadband internet is delivered and reduce internet costs for vulnerable residents. The program also aims to streamline and update existing City processes to ensure internet connectivity (public Wi-Fi, laying fibre conduits in existing construction work, etc) is embedded in planning and execution of various City activities. Staff are proposing a phased approach to program delivery to ensure lessons are learned at each step to build the proper foundation for the City-wide deployment.

City staff have been engaging in discussions with staff at the Provincial and Federal levels to seek alignment and understanding of priorities on broadband. In addition, staff have engaged in similar conversations with other municipalities and regions in the Greater Toronto and Hamilton Area. These dialogues are intended to develop a regional approach to digital infrastructure over the long-term.

Aligned with the Council approved Digital Infrastructure Plan principles, and with recommendations from the Toronto Office of Recovery and Rebuild, the proposed pillars of this program are:

- **Increase digital equity and bridge the digital divide** in Toronto by bringing access and affordable high-speed internet to underserved Toronto residents
- Stimulate Toronto's **economic recovery and growth** by enabling the digital economy and connecting businesses and workers with high-speed internet
- Support the City of Toronto's **long-term fiscal health** by creating and leveraging City assets to unlock value
- Solidify Toronto's position as an **innovation and technology leader**, by enabling future and emerging technologies in the tech ecosystem

Social Development, Finance and Administration, People and Equity, Economic Development and Culture, City Planning, Transportation Services, Corporate Real Estate Management, Legal Services, and the City Manager's Office were consulted in the preparation of this report. In addition, Toronto Transit Commission, Toronto Public Library, and CreateTO were consulted on this report.

RECOMMENDATIONS

The Chief Technology Officer, Technology Services Division, recommends that:

1. City Council direct the Chief Technology Officer, supported by the General Manager of Economic Development and Culture, Executive Director of Social Development, Finance and Administration, Chief Planner and Executive Director, City Planning, General Manager of Transportation Services, Executive Director of Corporate Real Estate Management, as well as request support from the heads of the Toronto Transit Commission, Toronto Public Library, and CreateTO, to develop a strategic framework, workplan, and implement Phase 1 of ConnectTO, including, where applicable, to negotiate, enter into and execute any agreements with other public entities that may be necessary to implement Phase 1 of ConnectTO upon which terms and conditions satisfactory to the Chief Technology Officer, and in a form acceptable to the City Solicitor, to leverage municipal broadband to bring access to affordable high-speed internet for all Toronto residents and businesses, especially those who are vulnerable and underserved by digital infrastructure.

2. City Council direct the Chief Technology Officer, Chief People Officer, and Executive Director of Social Development, Finance and Administration, to develop a digital equity policy as part of the Digital Infrastructure Plan, building on the Data for Equity Strategy, in consultation with residents and stakeholders, that outlines a vision for an equitable and resilient Toronto through inclusive access to technology and internet.

3. City Council direct the Deputy City Manager, Corporate Services, Chief Financial Officer and Treasurer, and the City Solicitor to review the desirability, feasibility and sustainability of business models of municipal broadband delivery, including but not limited to joint ventures and public-private partnerships, and issue any solicitations as desired.

4. City Council request the Chief Technology Officer to report back to Executive Committee by end of 2021 to provide an update on digital equity, digital access, and municipal broadband.

FINANCIAL IMPACT

Required funding of $350,000 for the tasks planned for 2021 has been included in Technology Services' 2021 Capital Budget submission. Any additional resources required for additional phases will be included in future Capital and/or Operating Budget submissions for approval.

The Chief Financial Officer and Treasurer has been provided the financial impacts associated with this program for review as part of the 2021 budget process.

EQUITY IMPACT STATEMENT

Access to affordable and reliable high-speed internet service is necessary for residents to equitably participate in day to day life. The COVID-19 pandemic has made this even

more important as everyday interactions have moved online in response to critical public health measures. Unfortunately, access to affordable adequate internet remains an issue for many Torontonians. Prices for reliable service are high, creating a significant barrier for Toronto's most vulnerable and marginalized in accessing vital services and supports. This "digital divide," moreover, tends to be geographically concentrated in parts of city that are historically racialized.

ConnectTO, therefore, has significant positive equity implications for Torontonians by facilitating the delivery of better and more affordable internet access for Toronto's most vulnerable residents. Importantly, this approach is a scalable solution that addresses underlying systemic causes of the digital divide that will contribute to long-term sustainable connectivity for all residents, while also encouraging economic recovery and growth across Toronto.

DECISION HISTORY

On November 26, 2020, City Council approved the Data for Equity Strategy, including authorizing the collection, use, sharing, analysis, and reporting of socio-demographic and disaggregated data in accordance with the Data for Equity Strategy, as well as alignment between the Data for Equity Strategy and the Digital Infrastructure Plan.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.EX18.6

On October 27, 2020, the City Manager's Office submitted Attachment 3 to the report, Towards Recovery and Building a Renewed Toronto, which referred recommendations #36 and #58 to the Chief Technology Officer for review. Both recommendations speak to digital access as a part of Toronto's recovery and rebuild.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.EX17.1

On January 29, 2020, City Council adopted a guiding framework, including five Working Principles, for the City's Digital Infrastructure Plan. One of these principles – Equity and Inclusion – states that Digital Infrastructure will be used to create and sustain equity, inclusion, accessibility, and human rights in its operations and outcomes. In adopting this report, City Council directed the City Manager to ensure that any digital infrastructure proposal submitted to the City is in compliance with all five principles.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.EX12.2

On July 6, 2020, Toronto Transit Commission requested that the City of Toronto Office of Recovery and Restart advocate for provincial and federal funding for accessible and affordable Wi-Fi to create resilient communities.
www.ttc.ca/About_the_TTC/Commission_reports_and_information/Commission_meetings/2020/July_14/Reports/13_Notice_of_Motion_Providing_Free_WiFi_Access_to_TTCs_Surfa.pdf

On November 25, 2019, Toronto Public Library (TPL) board approved the TPL 2020-2024 Strategic Plan. It includes five priorities and a commitment to focus on equity to understand and break down barriers to access and increase inclusion across each:

- Opening up Toronto Public Library's public space
- Broadening Toronto’s digital access and inclusion
- Building pathways for workforce development

- Providing the vital ingredients for a democratic society
- Investing in staff and an innovative service culture

https://www.torontopubliclibrary.ca/content/about-the-library/pdfs/board/meetings/2019/oct30/07-strat-plan-2020-2024-combined-revised.pdf

On June 18, 2019, City Council authorized the City Manager to engage in the necessary arrangements for the City of Toronto to sign on to the declaration of Cities Coalition for Digital Rights; and to evaluate City divisional policies on ethical digital standards, create a code of technological practices to be implemented across City divisions and included directive to create new, public and free programming in partnership with the Toronto Public Library to further digital safety and literacy.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.MM8.4

On March 6, 2019, the Economic and Community Development Committee directed the General Manager, Parks, Forestry and Recreation and the Chief Information Officer to include in any connectivity plans and strategies for improvements to affordable, high-speed internet that are currently underway, the feasibility of implementing Public Wi-Fi in Community Recreation facilities including community centres and arenas.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.EC2.11

On July 12, 2018, Parks and Environment Committee recommended that the Chief Information Officer, as part of their review on improvements to access to affordable high-speed internet for all Toronto residents and businesses, give consideration to increasing cellular access to major parks, and determine viability of installing Wi-Fi in large parks.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2018.PE29.6

On December 5, 2017, City Council directed the Chief Information Officer and the General Manager, Economic Development and Culture, in consultation with other City Divisions, Agencies and Corporations, to establish an interdivisional Internet Connectivity governance structure, comprised of a Working Group and Steering Committee; this governance structure will coordinate efforts, identify options and seek City Council direction as required to improve access to affordable high-speed internet for all Toronto residents and businesses, and to ensure that City infrastructure and regulation evolves and aligns with improving technology standards.

On December 5, 2017, City Council also directed the Chief Information Officer and General Manager, Economic Development and Culture to further analyze the digital divide by comparing socio-economic data, including from the 2016 Census, and available geographic broadband penetration data to help support the digital access goals of the City's Poverty Reduction Strategy.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.ED25.4

COMMENTS

Background

Former Minister Jordan writes in Innovation, Science and Economic Development Canada's "High-Speed Access for All: Canada's Connectivity Strategy": "Simply put, the Internet is no longer a luxury – it is a necessity."[1]

Adequate access to the internet is increasingly recognized by countries and organizations[2] around the world as an essential tool for participation in modern democratic society. In Canada, the Canadian Radio-television and Telecommunications Commission (CRTC) has acknowledged that "broadband internet access services are vital to Canada's economic, social, democratic, and cultural fabric.[3]" In 2019, the Federal Government indicated that "internet connectivity is essential for personal and professional communications, to grow a business, to apply to jobs, to do homework and to access government services"[4].

Canadians spend tremendous amounts of time online. Even before the pandemic, nearly 3-in-4 Canadians spent at least 3 to 4 hours online each day, and only 15% reported being off the grid for a week or more in the last year. 87% of Canadian internet users made an online purchase last year, and most people (68%) would prefer to access government services online[5].

Well-developed broadband infrastructure is essential for residents to participate in the digital economy, learn online, and to access government services. The CRTC has set minimum service levels of at least 50 megabits per second (Mbps) download speed and 10 Mbps upload speed and access to unlimited data for high-speed broadband. However, research from late 2020 indicates that 39% of Torontonians surveyed did not have internet speeds that met the CRTC minimum service level. The same research indicates a majority of the 62 countries in one study offer 100 Mbps as the most frequent internet speed. More recently, there are concerns that 50 Mbps download speed and 10 Mbps upload speed is not sufficient for the more data intensive ways which Canadians are now using the internet, such as online learning, electronic business transactions, etc., especially with multiple simultaneous devices being used in the same household.

City of Toronto and Broadband

Over the years, City Council has given staff a number of directives to advance broadband infrastructure and internet connectivity. Council has previously directed staff to tackle issues of basic access and affordability of broadband internet, alignment with

[1] https://www.ic.gc.ca/eic/site/139.nsf/eng/h_00002.html
[2] https://documents-dds-ny.un.org/doc/UNDOC/GEN/G17/077/46/PDF/G1707746.pdf?OpenElement
[3] https://crtc.gc.ca/eng/publications/reports/rp161221/rp161221.htm
[4] https://www.ic.gc.ca/eic/site/139.nsf/eng/h_00002.html#d
[5] https://www.cira.ca/resources/corporate/factbook/canadas-internet-factbook-2019

other levels of government, as well as direction on creating public Wi-Fi and enabling digital access as part of the Poverty Reduction Strategy.

For example, in the 2017 City of Toronto Broadband Study, key recommendations for the City to take action on were:

- Leverage assets to help introduce and expand new infrastructure competitors to the marketplace;
- Improving access to broadband for low-income residents by strengthening the “Connected for Success” program;
- Facilitate collaboration and partnerships between non-profit broadband entities and major broadband infrastructure providers; and
- Include In-Building Wireless Systems in requirements for new construction.

Following direction from City Council in 2017 on advancing broadband infrastructure and internet connectivity, staff have formed an interdivisional working group centered on Internet Connectivity. Group members have also conducted preliminary research into the availability and affordability of internet service in Toronto. In 2019, Technology Services secured resources and began work on a capital project to deliver free Wi-Fi to sites such as Community Centres and Long Term Care homes. Connectivity activities in 2020 are described in the following section of this report.

In January 2020, Toronto City Council unanimously approved working principles and a work plan to develop the City's Digital Infrastructure Plan. Planning for and building broadband infrastructure is consistent with those principles, and will be foundational to positioning the City toward economic recovery, increased prosperity and providing equitable social benefits.

The proposed pillars, goals and outcomes of ConnectTO as a City of Toronto municipal broadband network are aligned with many City policies and strategies, which can be found in Attachment 1.

The proposed pillars of this program are:

- **Increase digital equity and bridge the digital divide** in Toronto by bringing access and affordable high-speed internet to underserved Toronto residents
- Stimulate Toronto's **economic recovery and growth** by enabling the digital economy and connecting businesses and workers with high-speed internet
- Support the City of Toronto's **long-term fiscal health** by creating and leveraging City assets to unlock value
- Solidify Toronto's position as an **innovation and technology leader**, by enabling future and emerging technologies in the tech ecosystem

Experience in Improving Connectivity in 2020

The COVID-19 pandemic has posed many challenges and some opportunities for municipalities and countries globally, and has highlighted broadband access as being

critical for resiliency. The City of Toronto will be significantly hindered as a global city – and technology engine of Canada – if steps are not taken to enable critical digital infrastructure to support the city's prosperity. Digital equity cannot be achieved and the digital divide cannot be bridged without affordable City-wide high-speed internet.
Over the last 8 months, through engagements such as outreach from the Toronto Office of Recovery and Rebuild, staff heard from residents, businesses, community groups and other stakeholders about the critical importance of adequate internet access. The lack of availability of high-speed internet in some employment zones (no fibre connection) is prohibiting local businesses in fully participating in the digital economy. Lack of access to high-speed internet is also compromising the ability of some employees to work remotely from home. Staff heard from many community groups that low-cost or free access to internet at home is a critical need among vulnerable Torontonians during the period of prolonged self-isolation, virtual schooling, and stay at home directives.

The City has undertaken several initiatives working with private sector partners to quickly respond to such needs, some through voluntary donations from the private sector, and other actions that were added on top of existing, already strained, City operations and resources. While helpful, these urgent responses do not have scalable or sustainable models for growth in their current formats because the donations are limited and there is no budget allocated for future years. Some of these accomplishments are:

Digital Canopy in Tower Neighbourhoods:

- Through a large donation, this project will extend free Wi-Fi to low-income neighbourhoods by connecting 25 large residential apartment buildings with internet access for up to 1 year
- The project will provide digital access to over 6,600 units and roughly 13,000 Torontonians in our Tower Neighbourhood buildings
- A project outcome will be support for Black, Indigenous and racialized youth with a workforce development program and skills training (in development, in partnership with Toronto Public Library)

Public Wi-Fi and Internet Connection in Shelter Sites:

- Wi-Fi was enabled and expanded to ensure coverage throughout four permanent shelters and five temporary shelters
- Free high-speed internet was provided in four temporary accommodation Regent Park buildings for refugee/asylum seekers

Public Wi-Fi in Long-term Care Homes:

- Technology Services deployed free 24/7 Wi-Fi access throughout all 10 City-operated long-term care homes
- Previously, free Wi-Fi was limited to the common areas of long-term care homes

Distribution of Wi-Fi Hotspots and Connectivity Kits:

- Over 400 connectivity kits (each with a laptop, an access point and accessories) and 1000 Wi-Fi hotspots were provided by the Toronto Public Library
- Community Coordination Plan distributed kits through non-profit participants

Donation of Smartphones to Indigenous Community Members in Need:

- 500 smart phones were donated to the City, and distributed to Indigenous communities through the Toronto Aboriginal Support Services Council
- Each phone included 6 months of free data and Canada-wide text/talk

Wi-Fi on Wheels:

- City of Toronto and Toronto Public Library offered free outdoor Wi-Fi access in two parks in North West Toronto for 5 days in August 2020
- Free Wi-Fi was enabled through Toronto Public Library's BookMobile, with 5 anchored iPads, and staff support

Free Public Wi-Fi in Recreation Centres:

- For the Fall 2020 recreation program registration, Civic Centres were closed to the public to reduce the spread of COVID-19
- Free public Wi-Fi was provided at 5 free recreation centres to support access to online registration for the public

A long-term, sustainable program is required to make impactful change in connecting underserved Torontonians for years to come to ensure the city's continued prosperity.

Inequities through Access and Affordability

Canadians have good overall access to internet options, particularly Canadians living in urban areas. However, 'access' in this sense refers only to the necessary infrastructure being in place. In practice, access – as it relates to how many people are connected to internet infrastructure – also depends on affordability.

The high cost of living in large urban areas makes this internet expense fundamentally unaffordable to many low-income residents. The Statistics Canada Survey of Household Spending, as summarized by the CRTC in 2019, indicates that Canadians in the first income quintile (household income is less than $32,914) spend 9.1% of their annual income on communications[6]. The CRTC's 2016 Communications Monitoring Report (CMR) shows that lower-income households are spending three times more on broadband expenditures, as a percentage of their annual income, than the average Canadian household[7].

Many low-income Canadians have indicated they can afford to pay for broadband service only if they sacrifice other necessities, such as food, clothing, and healthcare[8]. When asked how much, if at all, they worry about being able to pay for their home internet bill over the next few months, one-third (34%) of households in a recent Toronto survey indicated they worry a lot or some. This is concentrated among lower-income households, where a majority (51%) of households with incomes under $30,000 are worried. Those not employed or unable to work had a similar rate of worry (51%).

[6] https://crtc.gc.ca/eng/publications/reports/policymonitoring/2019/cmr1.htm
[7] https://crtc.gc.ca/eng/publications/reports/rp161221/rp161221.pdf
[8] https://crtc.gc.ca/eng/publications/reports/rp161221/rp161221.pdf

There are significant differences in worry about ability to pay by race/ethnicity. Latin American (53%), South Asian (46%), Black (42%) and Southeast Asian (40%) respondents were all significantly more likely to indicate they were worried; whereas white (29%) and East Asian (28%) respondents were less likely to be worried.

While many residents struggle with these financial pressures, there are others who are unable to afford any internet access. Fifty one percent (51%) of respondents to a 2019 survey conducted by the Toronto Public Library indicated that the library was their only point of access to technology. Of those respondents, 59% identified as low income. This survey had a sample size of 7720 respondents and the findings are supported by the overall usage of the library network: in 2019, there were nearly 4,000,000 sessions where people accessed the internet at a library workstation.

There are many studies that attempt to perform international comparisons on broadband pricing. These studies generally support the conclusion that broadband speed internet in Canada is expensive. Canada ranked in the bottom quartile for pricing compared to our OECD peers[9]. ISED reports that for broadband speeds, "Canada's average monthly price of $72.01 is lower than the US and Australia but higher than the UK, Italy, Germany and Japan. The lowest average monthly price is found in Italy at $42.27."[10]

According to a recent study, out of 62 countries surveyed, Canada ranks fifth most expensive for 100 Mbps of internet speed, costing on average $79 CAD per month. In contrast, Ukraine and Russia are among the cheapest for the same internet speed, costing $8 and $10 CAD per month, respectively.

In a separate study, for home broadband in Toronto in 2017, the average price of the service offered in the market was $81.47. According to the Open Technology Institute, this is in the middle range of North American peers, but well above the average price of European peer cities, which is $48.26.

Where is the need? (Research with Higher Education Institutions)

In March, the Mayor's Economic Support and Recovery Task Force identified an opportunity to collaboratively undertake research to address urgent COVID-19 needs with Toronto's Higher Education Institutions (HEIs).

Technology Services staff has examined various data sets on the digital divide since the start of the pandemic for a high level view. Specifically, staff looked at:

1. Heat map of qualified beneficiaries in 2018 and 2019 of the Government of Canada's Connecting Families initiative who responded "No, I do not" to the question "Do you have internet service already install at this address now?"

[9] FCC 2018 https://www.fcc.gov/reports-research/reports/international-broadband-data-reports/international-broadband-data-report-4
[10] https://www.ic.gc.ca/eic/site/693.nsf/eng/00182.html#4.1

2. Response data from the Toronto Catholic District School Board (TCDSB) from families who indicated a student need for access to internet-enabled devices

3. Data from the Toronto Catholic District School Board (TCDSB) from families who had indicated they had no internet connectivity as part of TCDSB's outreach

4. Data on where the Toronto Public Library distributed its Wi-Fi hotspot lending program.

These maps are attached as Attachment 2 of this report.

With the goal of a deeper understanding of Toronto's digital divide, especially from a geographic perspective, Technology Services Division put forward a research proposal: "Digital access and better understanding of who is underserved and why" to the HEIs. Through a combination of in-kind and paid arrangements, this research project is being conducted by five HEIs in formal and informal capacities: Ryerson University, University of Toronto, Seneca College, Humber College, and York University.

This work has already produced valuable insights, which have contributed the concepts in this staff report. Specifically, two HEI reports have been completed:

1. "Mapping Toronto's Digital Divide" from Ryerson's Leadership Lab and Brookfield Institute. (Attachment 3A)

2. "SDG Digital Inclusion Framework" from University of Toronto's St. Michael's College's Media Ethics Lab. (Attachment 3B)

Research descriptions, initial findings from all other HEI research work, and biographies and qualifications of principal investigators from each HEI can be found in Attachment 3C.

ConnectTO – City of Toronto Broadband Network

Cities are at the forefront of technology innovation and the closest democratic institutions to the people. Local governments deliver services that impact residents on a daily basis, and there is an expectation that cities provide residents with immediate support. The City of Toronto is uniquely positioned to leverage public assets to provide this support.

Technology Services Division is seeking Council support to spearhead ConnectTO, a program that, through a collaboration with the private sector, aims to centralize stewardship of municipal resources and assets to deliver the City's goals on equity, prosperity, and connectivity. This is envisioned to be achieved by unlocking public asset value by leveraging City assets (i.e. fibre, buildings, Right of Way, etc) as the City's contribution to a City of Toronto Broadband Network. It is also envisioned that the City can collaborate with the private sector to create a City-wide high-speed internet network, where the private sector partner will deliver the internet to homes and businesses. Access to this network may be open to any qualified company, at a fair price, to generate revenue. This program would then ensure revenue is invested in our communities by expanding service to underserved areas, and lowering internet costs for

vulnerable Torontonians. Connecting the City's fibre also offers an opportunity for cost avoidance in telecom costs over the long run.

The proposed program is not positioning the City as an Internet Service Provider competitor. ConnectTO is meant to complement, not compete with, the current landscape by filling gaps in fibre connectivity to underserved areas. The goals of the program are to provide the City with a direct voice in where broadband internet is delivered and reduce internet costs for vulnerable residents. The City needs to advance socio-economic opportunities for vulnerable populations, which is essential to ensure greater prosperity for all.

Other municipalities and regions have engaged in municipal fibre infrastructure endeavours. A jurisdictional scan, including City of Calgary, City of Montreal, New York City, YorkNet, Eastern Ontario Municipalities, City of Chattanooga, City of Amsterdam, and others, is appended as Attachment 4.

Phased Approach

As a part of Phase 1 of this work, three sites are being considered as the first target areas for ConnectTO. Sites were chosen based on location needs and ease of implementation, leveraging on-going City initiatives in the areas. The incremental approach ensures lessons are learned to build the proper foundation for the longer-term City-wide deployment. The three site locations being considered are:

1. Jane and Finch (Wards 7)
2. Golden Mile (Ward 21)
3. Malvern Community (Ward 23)

As part of due diligence, staff have engaged Met-Scan for 3rd party advice on this approach. Met-Scan conducted a discovery exercise, using City of Toronto, Toronto Public Library, and Toronto Transit Commission fibre assets. An executive summary with high-level designs by Met-Scan to deploy fibre to the three Phase 1 sites from City assets has been attached as Attachment 5. Met-Scan's report indicates that minimal additional fibre is required when leveraging existing stranded assets to create a municipal broadband network in Toronto, by leveraging municipal fibre assets.

Digital Equity Policy

The need for a comprehensive City of Toronto Digital Equity Policy has been identified as a policy gap. This policy should be developed as part of the overall Digital Infrastructure Plan to develop a fulsome understanding of digital inclusion issues and the digital divide.

Staff recommend part of the Digital Infrastructure Plan consultation planned for the first half of 2021 be focused on digital equity to develop this policy with robust public input. Proposed partners for this initiative are People and Equity, Social Development Finance and Administration Division, and the Toronto Public Library.

Preliminary areas of focus for a Digital Equity Policy could include:

- Research and assessment
- Device access
- Internet access
- Adaptive technologies
- Digital literacy training
- Web Content Accessibility Guidelines
- Safety

An update on this work will be included in the report back at the end of 2021.

Update on Intergovernmental Actions

Toronto is not unique in the work on digital equity, access and affordability and broadband connectivity.

Federal and Provincial initiatives

In 2019, the Canadian government released its Digital Charter which guides the federal government's work to harness the power of digital and data transformation. On November 17, 2020, the Digital Charter Implementation Act was introduced which would modernize the framework for the protection of personal information in the private sector. The Government has also launched consultations on updating the Privacy Act which governs federal public sector institutions' collection, use, disclosure, retention, and disposal of personal information.

Canada has recently announced an expanded Universal Broadband Fund, which now commits $1.75 billion over six years to support underserved communities (i.e. rural and northern) which lack access to broadband internet (50 Mbps download/10 Mbps upload speeds). In addition, the Canada Infrastructure Bank (CIB) has announced $2 billion available in financing for large scale broadband initiatives which serve underserved communities.

The Fall 2020 Provincial Budget initiated the next phase in Ontario's Up to Speed Plan[11] to expand broadband and cellular access to rural, remote and northern communities. The Budget included over $680 million over the next four years for broadband and cellular investments, including an additional $150 million to double the Province's commitment to the Improving Connectivity in Ontario (ICON) program which is focused on improving connectivity in underserved and unserved communities.
Both the Federal and Provincial governments have recognized that broadband is essential. However, the significant investments in broadband connectivity announced so far have been focused on rural and northern areas. Since almost all of Toronto meets the basic broadband speed threshold used by the Federal and Provincial Governments (50 Mbps download/10 Mbps upload), Toronto does not appear to be eligible for these

[11] https://www.ontario.ca/page/speed-ontarios-broadband-and-cellular-action-plan

investments. A complimentary urban approach, such as ConnectTO, is needed to connect Torontonians who lack access and affordability.

Regional View

In the recent Toronto Regional Board of Trade report, "Shaping Our Future", the board noted a key action to be building a high-capacity broadband network across the Toronto-Waterloo Innovation Corridor (a high growth economic zone in Southern Ontario defined by a dense cluster of advanced manufacturing and technology firms). The report notes: "The federal government's current commitment of a $6 billion Universal Broadband Fund to connect all Canadian households to the minimum 50 megabits per second (mbps) of broadband by 2030 can be sped up by at least five years to 2025. Some have called for a revisiting of the minimum standard for broadband, given the Corridor's importance to the Canadian economy. An ultra-high speed service at 1 GB would maintain Canada's competitive edge." The report notes the patchwork quilt of programs currently delivered by various provider models and that municipalities have begun to play a key role in developing fibre-optic broadband. The City Manager has continued dialogue with regional officials and the Toronto Regional Board of Trade on this report.

Over the last 6 months, City staff have been engaging in discussions with staff at the Provincial and Federal levels to seek alignment and understanding of priorities on broadband. In addition, staff have engaged in many conversations with other municipalities and regions in the Greater Toronto and Hamilton Area. These dialogues are intended to develop a regional approach to digital infrastructure over the long-term.

Six Big Cities

The City Manager has continued to deepen intergovernmental relations including among city managers of Canada's six big cities. The six cities are identifying priority areas for collaboration amongst themselves and with the federal government, including an initiative led by Toronto to discuss digital government/broadband recognizing a common interest in improving access and affordability for vulnerable communities.

In addition to the original six cities (Vancouver, Calgary, Edmonton, Toronto, Ottawa, Montreal), Winnipeg and Halifax have also been invited to the digital discussions. Within the range of issues being discussed, Toronto is specifically leading dialogue on municipal digital infrastructure needs and recommendations on which to collaborate with other governments. This engagement is an opportunity to highlight the growing need to leverage, integrate, and expand physical municipal assets for digital infrastructure, with both private and public access. This can open opportunities for the City, such as how to further support the growth of 5G networks.

Conclusion and Next Steps

Staff is proposing ConnectTO be developed in a phased approach. This report describes preliminary work conducted, included forming an Interdivisional Internet Connectivity Working Group, research, engagement with HEIs, stakeholder engagement, development of high-level fibre deployment plan for Phase 1 sites, and intergovernmental dialogues.

With Council approval, Phase 1 would include creation of a municipal broadband strategic framework and work plan, legal review, inter-divisional and Agency, Boards and Commissions alignment, completion of research, initiation of three Phase 1 sites, development of a digital equity policy, issuance of Phase-1-related proposal solicitation, and continued regional, provincial and federal collaboration and consultation in 2021. Details on the Phase 1 work plan can be found in Attachment 6.

Toronto needs strong digital infrastructure for a resilient, equitable and prosperous future. The City has an opportunity to build a fibre-optic municipal broadband network that will connect underserved Torontonians and support community resilience for the long-term. Toronto needs to advance socio-economic opportunities for vulnerable populations, which is essential to ensure greater prosperity for all. High-speed internet affordability can become the new catalyst to bridge the growing digital divide in Toronto. As part of Toronto's recovery and rebuild, ConnectTO can also drive the economy, create valuable City assets, and contribute to long-term fiscal sustainability.

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ATTACHMENTS

Attachment 1: Alignment with Policies and Strategies
Attachment 2: Select Maps Based on Data on Digital Access Needs
Attachment 3A: Mapping Toronto's Digital Divide report
Attachment 3B: SDG Digital Inclusion Framework report
Attachment 3C: Research Descriptions, Initial Findings, and Biographies/Qualifications of Principal Investigators From Ryerson University, University of Toronto, Seneca College, Humber College, and York University
Attachment 4: Jurisdictional Scan of Municipal Fibre Infrastructures
Attachment 5: MetScan Report Executive Summary
Attachment 6: Phase 1 Work Plan

GLOSSARY

Bandwidth: in computer networks, bandwidth is used to describe the rate of data that can be carried from one point to another in a given period of time.

Broadband: generally refers to internet service that is always on and available at higher speeds than traditional dial-up Internet services. There are several forms of broadband Internet service including Digital Subscriber Line, Cable, Satellite and Fibre-optic.

Download and upload speed: download speed is the rate at which data is transferred from the internet to the user's device. Upload speed is the rate at which data is transferred from the user's device to the internet. Download speeds are typically higher than upload speeds, as most users download more data than they upload. A common measurement of download and upload speeds is megabits per second (Mbps).

Fibre-optic: A flexible hair-thin glass or plastic strand that can transmit large amounts of data at high transfer rates as pulses or waves of light.

Internet Service Provider (ISP): a company that provides users (individuals or businesses) with access (a connection) to the internet and related services.

Megabits per second (Mbps): a common measurement of internet speed. One Mbps is equivalent to the transfer of one million bits of data per second (bits are the smallest unit of digital information).

Wi-Fi: an abbreviation for wireless fidelity, meaning you can access or connect to a network using radio waves, without needing to use a wired connection.