Subject: Update on Connectivity Directions

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Report to Information Technology Sub-Committee on 31 May 2022

Submitted on May 19, 2022 by Natalie Kahalé, Director, Service Transformation, Innovative Client Services

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Rapport au Sous-comité de la technologie de l'information

le 31 mai 2022

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Quartier : À l'échelle de la ville

REPORT RECOMMENDATION(S)

That Information Technology Sub-Committee receive this report for information.

RECOMMANDATION(S) DU RAPPORT

Que le Sous-comité de la technologie de l'information reçoive ce rapport, à titre d'information.

EXECUTIVE SUMMARY

In December 2017, Ottawa City Council approved Ottawa's Smart City Strategy, entitled Smart City 2.0. The strategy is centred on three pillars: 1) A Connected City, 2) The Smart Economy, and 3) An Innovative Government. The purpose of this report is to provide an overview of recent activities that have been undertaken to support the ongoing advancement of the Connected City pillar of this strategy and to close out directions to staff related to this work.

Recent Accomplishments:

Additional public Wi-Fi locations. With the support of City Council, the City was successful in two federal funding applications in 2021, totaling nearly $180,000 to expand the City's Public Wi-Fi Program focused on priority locations. The expansion of this service is expected to continue with an additional capital investment of $40,000 funding to increase the number of public Wi-Fi locations in the rural areas of Ottawa.

Increased Wi-Fi access for post-secondary institutions. The City's partnership with eduroam, a secure Wi-Fi service that provides Wi-Fi connectivity to local and visiting students, researchers, and faculty from participating higher-education institutions, will mean access to connectivity in all City buildings that offer free Wi-Fi by the end of 2023.

An assessment of the public utility model. Based on findings from the work with external consultants, none of the existing models are "plug and play" for Ottawa and an important next step for the City may be to develop its own approach with respect to connectivity. Additionally, staff will keep abreast of Hydro Ottawa Holding Incorporated's plans around its recently launched Hiboo Networks.

Advocating for improved connectivity. The City as an organization can and does advocate to other levels of government on behalf of its residents in this area. Importantly, advocacy is not the only activity currently underway that is expected to have a local impact, as there are current federal and provincial funding programs that are expected to extend connectivity reach within the region.

As part of the strategic planning process for the next Term of Council, ICS – in partnership with Planning, Real Estate and Economic Development (PRED) and other City departments with a role in connectivity – will continue to examine the City's role in supporting connectivity needs of residents.

RÉSUMÉ

En décembre 2017, le Conseil municipal a approuvé, sous le titre Ville intelligente 2.0, la stratégie d'Ottawa pour une ville intelligente. Cette stratégie est fondée sur

trois piliers : 1) la ville connectée; 2) l'économie intelligente; et 3) l'administration innovante. L'objectif de ce rapport consiste à donner un aperçu des activités récentes menées pour assurer la promotion continue du pilier de la ville connectée de cette stratégie et à finaliser les directives à donner au personnel relativement à ces travaux.

Réalisations récentes

Nouveaux points d'accès publics au réseau Wi-Fi. En 2021, avec le concours du Conseil municipal, la Ville a déposé avec succès, auprès du gouvernement fédéral, deux demandes de financement totalisant près de 180 000 $ pour étendre le Programme Wi-Fi public de la Ville consacré aux points d'accès prioritaires. L'extension de ce service devrait se poursuivre grâce à un investissement infrastructurel supplémentaire de 40 000 $ pour accroître le nombre de points d'accès publics au réseau Wi-Fi dans les zones rurales d'Ottawa.

Amélioration de l'accès au réseau Wi-Fi pour les établissements d'enseignement postsecondaire. D'ici la fin de 2023, les étudiants, les chercheurs et les professeurs locaux et invités des institutions d'enseignement supérieur participantes auront accès au réseau Wi-Fi dans tous les immeubles de la Ville qui offrent gratuitement la connectivité à ce réseau, grâce au partenariat de la Ville avec eduroam, service Wi-Fi sécurisé qui leur donne accès au réseau Wi-Fi.

Évaluation du modèle des services publics. D'après les résultats des travaux menés avec les consultants externes, aucun des modèles existants n'est « prêt à l'emploi » pour Ottawa, et la prochaine étape importante pour la Ville serait d'envisager de mettre au point sa propre approche en matière de connectivité. En outre, le personnel de la Ville continuera de suivre l'évolution des plans de la Société de portefeuille d'Hydro Ottawa Inc. dans le cadre des Réseaux Hiboo que vient de lancer cette société.

Démarches pour améliorer la connectivité. En tant qu'organisation, la Ville peut et doit faire des démarches dans ce domaine, au nom de ses résidents, auprès des autres ordres de gouvernement. Essentiellement, ces démarches ne sont pas la seule activité menée à l'heure actuelle qui devrait avoir un impact local, puisqu'il existe aujourd'hui des programmes de financement fédéraux et provinciaux qui devraient permettre d'étendre la portée de la connectivité dans la région.

Dans le cadre du processus de planification stratégique du prochain mandat du Conseil municipal, la DGSNC — en partenariat avec la Direction générale de la planification, de l'immobilier et du développement économique (DGPIDE) et d'autres directions

générales de la Ville qui jouent un rôle dans la connectivité — continuera d'examiner le rôle de la Ville dans la satisfaction des besoins en connectivité des résidents.

BACKGROUND

Ottawa City Council's approval of the Smart City 2.0 Strategy in 2017 set out the strategic approach that has enabled staff to make important enhancements to Ottawa's connectivity landscape over the past several years. This has included expanding the City's Public Wi-Fi Program, forming strategic partnerships with other entities focused on addressing the connectivity needs of Ottawa residents, and exploring funding opportunities for connectivity.

Over the course of this Term of Council, the Information Technology Sub-Committee (ITSC) has directed staff to further explore connectivity-related activities and report back with respect to expanding the City's public Wi-Fi offering (see direction from October 4, 2019); exploring opportunities for the City to provide broadband connectivity as a potential utility service and the City's role in advocating to the telecommunications providers for improved connectivity for residents (see direction from September 21, 2020).

Along with the IPD of November 18, 2020 (attached as document 1), and the memos to Council sent on August 3 and December 6, 2021 (attached as documents 2 and 4), this report provides an update on the connectivity-related activities that have been undertaken and is intended to close the original directions to staff.

DISCUSSION

Public Wi-Fi Program

Background

The City's Public Wi-Fi Program has been designed to contribute to an enhanced connectivity landscape in Ottawa by providing members of the public access to a free, reliable, public Wi-Fi service for personal use at a selection of City-run facilities.

In 2014, the City signed a five-year revenue-generating agreement to implement a public Wi-Fi service in 26 high-traffic, public facing City-run facilities. Due to feedback regarding the instability of the service and lower than predicted revenue, the City opted not to renew the contract in 2019 and instead assumed ownership and the associated costs of administering this service at the original 26 locations.

With the onset of the global pandemic in 2020 and the resulting shift towards greater rates of remote work and education, the disparities in rates and coverage of connectivity

across the city were further highlighted. As a result of this shift, the City began focusing its connectivity efforts on supporting marginalized populations, including equity-deserving groups and those with specific socioeconomic needs, and underserved neighbourhoods including those in rural areas of the city, as a means of countering isolation, enhancing digital access for education and employment needs, and increasing access to virtual supports.

Innovative Client Services (ICS) leads the Public Wi-Fi Program, with strategic oversight provided by Service Transformation. Information Technology Services manages the installation and operational needs of the program, ensuring administration of the technical services to manage the ever-evolving security landscape of the networks connected to our facilities.

Service Transformation works closely with partner departments such as Recreation, Cultural and Facility Services (RCFS) and Community and Social Services (CSS) to identify priority locations for expansion of this service based on the above areas of focus (i.e., marginalized population and underserved neighbourhoods).

Current Status

The 2019 direction to staff regarding the City's Public Wi-Fi offering included a request for details on the funding strategy. Given the Provincial and Federal responsibilities tied to improving connectivity, staff have sought to leverage federal funding opportunities to expand this service offering.

As previously reported, Council's 2021 endorsement of an application to the Government of Canada's 'Investing in Canada Infrastructure Program', enabled $104,147 in funding to initiate a Phase 2 expansion of the City's Public Wi-Fi Program adding 12 new locations in priority neighbourhoods across the city. Additionally, the City's 2021 application to the Canada Healthy Communities Initiative led to Phase 3 of this Program, with $75,000 in funding to expand public Wi-Fi services to an additional 11 facilities in priority areas identified as part of the Phase 2 site-selection analysis. This analysis was conducted with partners across the organization, including the Integrated Neighbourhood Services Team in CSS.

With the addition of these locations, the total number of free public Wi-Fi sites offered at City facilities will reach 53 locations by the start of 2023. This is in addition to the more than 30 Ottawa Public Library locations currently offering this service. The full list of the planned and completed locations has been attached as document 6 to this report.

The annual operating costs for these new locations are budgeted at $31,500. As more new locations are added, these costs are anticipated to increase and will be brought forward for consideration during each budget cycle.

It should be noted that the City is also planning to extend the use of its public Wi-Fi network to local and visiting students, researchers and faculty through eduroam, a secure, Wi-Fi service for the international research and education community that is available in more than 100 countries. This is possible through our partnership with eduroam's operator in Canada, CANARIE, which was established in late 2021. It is anticipated that this service will be in place by the end of this year.

Next Steps

ICS will continue to lead the Public Wi-Fi Program with a focus on priority locations.

In a direction from Council on February 10, 2021, $40,000 in funding was earmarked for rural connectivity initiatives. The Planning, Real Estate and Economic Development Department (PRED) will outline in their forthcoming connectivity report to the Agriculture and Rural Affairs Committee (ARAC) that this funding should be used to increase the number of public Wi-Fi locations in City facilities located in the rural areas of Ottawa. Staff in Service Transformation will lead this exercise, working with partners to identify priority locations for the expansion of this service.

In addition, staff will continue to monitor and apply for external funding opportunities for capital installation costs and as noted previously, will provide operational costs for the provision of this service to Council for consideration during subsequent budget cycles.

Exploring Broadband as a Public Utility

Background

In 2016, the Canadian Radio-television and Telecommunications Commission declared that "broadband internet access and mobile wireless service are basic telecommunications services that should be available to all Canadians". The notion of whether local governments should be in the business of delivering this "basic service" is an idea that has gained prominence in recent years, particularly as a way of combatting digital inequity within the community.

At the ITSC meeting of September 21, 2020, staff received a direction to examine opportunities for the City to provide broadband connectivity as a potential utility service. Given the overall complexity of this direction, professional services with expertise in this area were retained to assist with an assessment of the overall feasibility of this type of model for Ottawa as a way of meeting the connectivity needs of residents.

This engagement included: consultation sessions with members of ITSC, internal subject matter experts, and several external groups (i.e., the Ottawa Public Library, Ottawa Community Housing and Invest Ottawa) to understand the different perspectives on the issue; an assessment of the public utility model; and options for next steps. A summary of each of these phases of work is provided below.

Consultations

It is now well-established that the use of telecommunications technology has become ubiquitous in our society and that the ongoing pandemic situation intensified the reliance on this technology for day-to-day activities (e.g., school, work, socializing). Through the consultation process, the following challenges faced by Ottawa residents because of the increased reliance on this technology were identified:

- **Affordability:** Primarily a concern for some groups for whom internet service can be cost-prohibitive (i.e., a choice between that and food or shelter). Even when a low-cost internet option is available, the service is often insufficient.
- **Accessibility:** Primarily a concern for those living in rural areas of Ottawa where access to "acceptable" levels of broadband coverage is not available. The availability of required equipment (computers, laptops) and/or technology literacy was also flagged as an issue, primarily among older and more vulnerable residents.
- **Quality:** The quality of service is inconsistent (i.e., interruptions, lag times, reduced speed) in rural areas and in the core of the City during peak times.

With respect to **the role for the municipality in responding to these challenges**, the consultations also indicated that – while there is a general agreement that connectivity has become "an essential service like water" – there is no consensus on whether the municipality should have a role in providing access to the internet as a public utility service. There is, however, broad support for the City doing what it can to support the connectivity needs of its residents, including expanding the availability of free Wi-Fi in City facilities, advocating for improved network infrastructure, and coordinating activities of ISPs as they expand their networks. Lastly, there was an understanding that there are other demands on the municipality that may take priority over connectivity in the long term.

An Assessment of the Public Utility Model

There are a growing number of municipalities in North America that are building and operating their own broadband networks as a way of offering internet as a service to residents for a fee. In Canada, the municipally owned Niagara Regional Broadband Network is the region's leading fiber optic network service provider, and there are

hundreds of municipal broadband service providers in small and mid-sized towns across the United States.

While this model can be positioned as providing cities with an added level of control over the deployment of connectivity services within their communities, they can be costly to implement and have been flagged in some instances as putting municipalities in direct competition with private industry.

Notably, there are no known examples of municipalities with comparable geographies to Ottawa that have implemented this type of model. Indeed, the sheer size of Ottawa makes this proposition cost prohibitive, as it would require the City to either fund or support the build of its own broadband infrastructure to ensure equitable levels of service for residents across all 2,796 square kilometres of the municipality. Moreover, this model puts responsibility for the provision of expanded connectivity on the municipality, when – as discussed later in this report – this is an area of responsibility that is led by the federal and provincial governments.

Other Options

The notion of the City providing broadband connectivity as a potential utility service is just one of several different models emerging with respect to the role of a municipality when it comes to addressing the connectivity needs of residents.

In some instances, municipalities are collaborating with other service providers by granting access to its assets for a fee or a concession, such as no-cost access to the network for municipal operations. For example, the Cities of Kingston and Sudbury have attempted to encourage City-focused local service providers to build out their networks, but with limited success to date.

In others, municipalities are creating a blueprint for their city's connectivity that leverages the City's assets, but also controls what is being installed (i.e., cellular towers, 5G small cells, 6G wireless structures, fibre), where its being installed, and when. For example, the New York City provides discounts to broadband companies signing new information services franchise agreements to increase competition in underserved areas of the city and accelerate the build out of broadband infrastructure outside of the core.

Next Steps

A review of the literature suggests that none of the existing models are "plug and play" for Ottawa. An important next step for the City may be to develop its own connectivity approach. Service Transformation will work with internal City partners to explore options that will move us towards gaining clarity around the City's posture longer term.

A digital infrastructure plan is an example of what could be developed to act as a guide to defining the City's goals as it relates to connectivity. This type of plan would provide clarity around the City's role and would support the alignment of City policies, such as the development of a 'dig once' policy.

Staff will continue to follow Hydro Ottawa Holding Incorporated's plans around its recently launched Hiboo Networks. As detailed in a press release from April 28, 2022, Hiboo Networks will offer high speed fibre optic network services to local universities, schools, hospitals, as well as to large commercial and industrial customers before being extended to the broader business community in the cities of Ottawa and Gatineau. While details of Hiboo Networks' plan are limited at this time, staff will study the implications of this announcement for the City in relation to our broader strategy around connectivity.

Advocating for Improved Connectivity

Background

The September 21, 2020, meeting of ITSC also directed staff to examine the role for the City in advocating for investments in broadband infrastructure upgrades to ensure that the City's vulnerable and rural residents are better connected.

As discussed in the November 2020 IPD to ITSC, there is a high degree of interdependency between the different levels of government when it comes to connectivity. While there are emerging models challenging some of the roles and responsibilities in this space, the traditional roles are outlined at a high level below.

- The **federal government** is responsible for setting out the regulatory and legislative frameworks for the oversight of telecommunications services in this country and for setting the national policy direction with respect to ensuring connectivity for Canadians.
- The **provincial governments** are responsible for supporting the development of the network infrastructure to provide internet to their communities.
- The **municipal governments** are responsible for granting internet service providers (ISPs) access to the rights-of-ways (roads, utilities, lands) required to build the broadband network infrastructure.

The roles of the different levels of government are interconnected and rely on significant cooperation and coordination with the private sector to ensure that the connectivity needs of Canadians are being met.

Current Status

The City as an organization can and does advocate to other levels of government on behalf of its residents, and has consistently done so where possible in the area of connectivity. Importantly, advocacy is not the only activity currently underway that is expected to have a local impact. A summary of the recent activities being undertaken by all levels of government to either improve or advocate for improved connectivity for vulnerable and underserved Canadians is provided in Table 1 below.

Table 1: Summary of Government Efforts to Improve Connectivity

Government	Recent Activities
The City of Ottawa	• Ottawa has joined the Big City Executive Partnership with other major Canadian cities (including Montreal, Toronto, Calgary, Edmonton, and Vancouver) to share best practices in the area of digital equity and to advocate to the federal government for greater investment in the infrastructure required to improve internet access throughout Canada. • Ottawa has provided feedback on connectivity-related legislation and associated policies and regulations via its participation in organizations including the Association of Municipalities of Ontario (AMO) and the Federation of Canadian Municipalities (FCM).
The Ontario Provincial Government	• In the 2021 Budget, the Ontario government increased its overall investment in broadband to nearly $4 billion beginning in 2019–2020 with a commitment for every community in Ontario to have access to high-speed internet by the end of 2025. • The provincial Accelerated High Speed Internet Program is expected to deploy high-speed internet service to parts of Ottawa that currently do not have access to this level of service
The Government of Canada	• The federal Connecting Families initiative is expected to offer hundreds of low-income families and seniors across Canada – including many in Ottawa – access to $20/month high-speed internet starting in 2022. • The federal Universal Broadband Fund is expected to provide funding for several broadband infrastructure investments in the Ottawa area.

Next Steps

Further information on many of these activities and related programs will be detailed as part of the information report that PRED is anticipated to bring to ARAC on June 30, 2022.

Conclusion

As part of the strategic planning process for the next Term of Council, ICS – in partnership with PRED and other City departments with a role in connectivity – will continue to examine the City's role in supporting connectivity needs of residents.

FINANCIAL IMPLICATIONS

There are no financial implications associated with this report.

LEGAL IMPLICATIONS

There are no legal impediments to approving the information in this report.

COMMENTS BY THE WARD COUNCILLOR(S)

As a City-wide report, this section is not applicable.

ADVISORY COMMITTEE(S) COMMENTS

No advisory committee comments were collected for the purposes of this report.

CONSULTATION

As noted in the report, professional services were retained with respect to part of the September 2020 direction to staff, which asked about opportunities for the City to provide broadband connectivity as a potential utility service. These services included consultations with members of ITSC, internal subject matter experts, and several external groups (i.e., the Ottawa Public Library, Ottawa Community Housing and Invest Ottawa) to understand the different perspectives on the issue.

Through the consultation process, the following challenges were identified:

- Affordability: Primarily a concern for groups for whom internet service can be cost-prohibitive (i.e., a choice between that and food or shelter). Even when a low-cost internet option is available, the service is often insufficient.
- Accessibility: Primarily a concern for those living in rural areas of Ottawa where access to "acceptable" levels of broadband coverage is not available. The availability of required equipment (computers, laptops) and/or technology literacy was also flagged as an issue, primarily among older or vulnerable populations.
- Quality: The quality of service is inconsistent (i.e., interruptions, lag times, reduced speed) in rural areas and in the core of the City during "peak times".

With respect to the role for the municipality in responding to these challenges, the consultations also indicated that – while there is a general agreement that connectivity has become “an essential service like water” – there is no consensus on whether the municipality should have a role in providing access to the internet as a public utility service. There is, however, broad support for the City doing what it can to support the connectivity needs of its residents, including expanding the availability of free Wi-Fi in City facilities, advocating for improved network infrastructure, and coordinating activities of ISPs as they expand their networks.

ACCESSIBILITY IMPACTS

Service Transformation supports and considers the *Accessibility for Ontarians with Disabilities Act, 2005* (AODA) in its operations, projects and initiatives.

RISK MANAGEMENT IMPLICATIONS

Risks have been identified and explained in the report and are being managed by the appropriate staff.

RURAL IMPLICATIONS

The expansion of the Public Wi-Fi Program has and will continue to include a focus on expanding connectivity to underserved neighbourhoods, including those in rural areas.

In support of this focus, the Planning, Real Estate and Economic Development Department (PRED) will outline in their forthcoming connectivity report to the Agriculture and Rural Affairs Committee (ARAC) that, per the direction from Council on February 10, 2021, they will allocate $40,000 in funding earmarked for rural connectivity initiatives to ICS to increase the number of public Wi-Fi locations in City facilities located in the rural areas of Ottawa.

TECHNOLOGY IMPLICATIONS

All technology implications are being executed within existing budgets and in conjunction with Information Technology Services under the Smart City governance structure.

TERM OF COUNCIL PRIORITIES

This report and the supporting documentation fall under the 2019-2022 Term of Council Priority, Service Excellence through Innovation. The Public Wi-Fi Program is an initiative within the Smart City 2.0 Strategy within the Connected City and Innovative Government pillars.

SUPPORTING DOCUMENTATION

Attachments:

- Document 1 - ITSC IPD November 2020 - Update on Connectivity: Interim Response to Directives
- Document 2 - Memo to Council dated August 3, 2021_EN
- Document 3 - Memo to Council dated August 3, 2021_FR
- Document 4 - Memo to Council dated December 6, 2021_EN
- Document 5 - Memo to Council dated December 6, 2021_FR
- Document 6 - List of Public Wi-Fi Locations (All Phases)