

ConnectTO: City-owned Fibre Inventory Update

Date: October 22, 2024

To: Executive Committee

From: Chief Technology Officer, Technology Services Division

Wards: All

SUMMARY

This interim report on the ConnectTO Program provides information on the City-owned fibre internet infrastructure inventory, including a comparative jurisdictional analysis, historical context, and what is required for City Council to assess the feasibility of establishing a City-owned fibre network. A full program update will be presented at City Council in the second quarter of 2025.

As directed by City Council, City staff conducted an inventory of City-owned fibre across all City divisions, and twelve agencies and corporations to identify existing fibre, and to determine its suitability for the purposes of supporting a municipal fibre network.

The results show that the City does not own fibre. City agencies and/or corporations currently own 464.3 km of fibre infrastructure, all of which is unavailable for repurposing as a network for the delivery of internet services as it has limited capacity and is used to support critical infrastructure and operations. Toronto Hydro, through its subsidiary Toronto Hydro Telecom, previously owned approximately 500 km of municipal fibre that provided City Agencies, Boards and Commissions a favourable competitive rate for fibre access and network services, and was sold in 2008 for \$200 million, approved by City Council (see Attachment 1 – Decision History and Attachment 2 – City of Toronto Fibre Network Historical Context).

Building a municipal fibre network would first require a feasibility study to establish: if a build would be possible, deliver sufficient return on investment and provide public value; and whether a proof of concept should be pursued. The feasibility study is unfunded and would require prioritization in future budgets. Costing and other details would be determined by the feasibility study. A significant investment would likely be required to build a municipal fibre network.

RECOMMENDATIONS

The Chief Technology Officer recommends that:

1. Executive Committee receive this report for information.

FINANCIAL IMPACT

There is no financial impact resulting from the adoption of this report. Any future costs related to a municipal fibre network referred to in this report would be included in future years' budget submissions of the relevant divisions for consideration and approval. The Chief Financial Officer and Treasurer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

A decision history is attached to this report as Attachment 1.

COMMENTS

City-Owned Fibre Inventory

In the first half of 2024, City staff conducted an inventory of City-owned fibre across all City divisions and twelve agencies and corporations to identify existing fibre, and to determine its suitability for the purposes of supporting a municipal fibre network. The results show that City agencies and corporations currently own 464.3 km of fibre. These assets are unsuitable to support broader municipal operations both to provide capacity to the City for use and/or assist in bridging the digital divide.

The reported fibre is predominantly utilized to support critical facility operations and monitoring (i.e. automation and control) and other internal operations. As such, this fibre is limited in its capacity and, in its existing state, is unsuitable for repurposing to support broader municipal operations. Its distribution is noted below:

Agency, Board or Corporation	Amount (km)	Comments
Exhibition Place	4.3	Fibre used operations
Toronto Hydro	414	Shared conduit used primarily for device control and automation, and critical operations
TTC	46	Along subway lines 1 and 2 dedicated to infrastructure operations

Agency, Board or Corporation	Amount (km)	Comments
Total reported*	464.3	

* Toronto Police Services excluded; supports public safety

The asset inventory exercise further indicated that agencies and corporations, like the City, rely on leasing access to the fibre infrastructure of private telecommunication service providers (such as Bell Canada, Rogers, Beanfield) to sustain internal network operations, including secure network services.

The feasibility of establishing a municipally owned fibre network and determining the required reinvestment

As the existing fibre is unsuitable for municipal or corporate use, a feasibility study could be conducted to assess the time, cost, and viability of building in a municipally owned fibre network to achieve two key outcomes: (1) to reduce telecommunications costs and (2) to reduce the digital divide.

The City is not currently structured to build and manage a City-owned fibre network since the sale of the municipal fibre network owned and operated by Toronto Hydro, through its former subsidiary Toronto Hydro Telecom Inc. ("THT"). THT previously owned approximately 500 km of municipal fibre that provided City Agencies, Boards and Commissions a favourable competitive rate for fibre access and network services; the network was sold in 2008 for \$200 million, approved by City Council (see Attachment 1 – Decision History and Attachment 2 – City of Toronto Fibre Network Historical Context).

To return to a municipal fibre network arrangement, the City would need once more to consider whether an arms-length corporation or agency (similar to utility providers such as Toronto Hydro) should be established. Significant resources would need to be put into place to establish a proper entity to build, operate and maintain the infrastructure and provide services consistent with relevant regulations. Additionally, the capacity to support operations and to meet relevant regulatory obligations for auditing and financial reporting would require specialized support from the City's finance division, as well as new customer-relationship management resources. Attachment 3 provides a high-level overview on what the City's regulatory obligations with the CRTC may include.

Additionally, a comparative jurisdictional analysis and research on municipal networks (see Attachment 4 – Municipal Fibre Networks and Comparative Jurisdictional Analysis) generally all indicate a key critical insight: in urbanized areas where there is little-to-no municipally owned fibre, and where a municipality desires to "start from scratch", the capital and operational resources required to develop a municipal fibre network are significant, requiring a long-term (greater than 10 years) planning and funding commitment.

Should City Council wish to explore whether to invest in a municipal fibre network, the first step would be a feasibility study. At minimum, the feasibility assessment would need to address the following:

- The suitability of the any City-owned fibre identified through this inventory for use as a primary data network;
- Determine the total amount and topography of fibre required to support the City's network operations that are currently provisioned by third parties;
- Estimate the capital construction costs associated with building such a network;
- Estimate the additional operational and capital costs necessary over the long term to manage and administer the network (typically 15-25% and 10-15% of overall network deployment costs, respectively);
- Determine the expected return-on-investment for any third-party leasing arrangements in the context of Toronto's existing telecommunication service providers and internet service providers markets; and
- Assess the additional reporting and other responsibilities the City would take on as a regulated telecommunications service provider.
- A feasibility assessment to improve high-speed and affordable internet connectivity in City-owned residential facilities.

The feasibility assessment would require coordinated participation from City agencies and corporations, several City Divisions, and a third-party consultant, to collect and analyze the data. It would also determine whether a proof of concept should be pursued. The feasibility study is unfunded and would require prioritization in future budgets. Significant investment would likely be required to build a municipal fibre network.

Additional City Actions to Address the Digital Divide

The City continues to bridge the digital divide in ways that offer the best return of investment for the City and equity outcomes for residents. Staff are leading projects to increase connectivity options and affordability for Torontonians. A full program update is to be provided in the second quarter of 2025 that includes:

- Expanded Free Public Wi-Fi Strategy outcome and approach
- Potential integration of public Wi-Fi in standard TSD practice
- Analysis and recommendation on in-building wiring in City residential facilities
- Additional findings on the digital divide in Toronto

DIGITAL INFRASTRUCTURE IMPACT STATEMENT

The ConnectTO program and this report align with the following Digital Infrastructure Strategic Framework (DISF) Strategic Priority of Connectivity and Digital Equity. More specifically, ConnectTO furthers the principle of Equity and Inclusion and the following Implementation Considerations:

1.4.1. Consider strategic and operational policies which could coordinate, centralize, and administer the deployment of City owned fibre infrastructure

1.4.2. Explore connecting City buildings, facilities, and public spaces through a City owned, high-capacity fibre broadband network

1.4.5. Support the expansion of full fibre and 5G, using public assets to stimulate infrastructure investment, with a focus on communities experiencing the digital divide the most

In addition, the ongoing and planned work of the ConnectTO Public Wi-Fi program also supports the same Strategic Priority of Connectivity and Digital Equity, by expanding access to internet connectivity.

The report also presents considerations that are relevant to the DISF principle of Well-run City, aligning to the Strategic Priorities of Digital Transformation, Asset Management and Collaboration by carrying out an analysis of whether or not a municipally owned fibre network would be effective at meeting the goal of addressing the digital divide for Torontonians, and whether it is in the public interest to proceed with such a network or not.

ConnectTO ("the Program"), approved by City Council in 2021, aims to improve digital connectivity and accessibility for all Torontonians. The Program, collaborating with City divisions, agencies, and corporations, works to bridge the persistent digital divide faced by Toronto residents by installing public Wi-Fi in City-owned facilities; conducting new research with higher education institutions to ensure program investments are made with highest equity impact; and through exploring other means that the City can use to improve its fibre network operations.

CONTACT

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SIGNATURE

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ATTACHMENTS

Attachment 1 – Decision History

Attachment 2 – City of Toronto Fibre Network Historical Context
Attachment 3 – CRTC Registration and Regulatory Requirements
Attachment 4 – Municipal Fibre Networks and Comparative Jurisdictional Analysis