Executive Committee
City of Toronto
100 Queen St. W., 13th Floor
Toronto, Ontario M5H 2N2

RE: ConnectTO Update—Supplementary Report: Item EX32.1, 4 May 2022 Executive Committee Meeting (previously Item EX31.8 at 30 March 2022 Executive Committee Meeting; deferred)

2 May 2022

Dear Executive Committee members,

1. Beanfield Technologies Inc. builds, owns, and operates the largest independent fibre network in Toronto and Montreal. It connects more than 3000 commercial MDUs and more than 300 residential MDUs. We are proud to supply services to the public sector, including the City of Toronto and many of its agencies, boards, commissions, and corporations.

2. Beanfield started out by building a fibre network in Liberty Village, because we felt it was completely ignored by incumbent telcos. I understand from the materials on record that some of Toronto's neighbourhoods remain in the same predicament today.

3. Beanfield would like to help.

4. When I first heard about the ConnectTO program, I was very excited. The digital divide in rural areas has been the focus of much federal and provincial attention. The digital divide in urban centres has not. However, we did not submit a response to the ConnectTO nRFP because it appeared to emphasizes creating building and operating new fibre, which Toronto already has quite a lot of.

5. Areas in the cities are underserved because of the high cost and difficulty of building there. Use the City's capacity to streamline processes, align actors, and reduce red tape, and you will remove the barriers to closing the digital connectivity divide between neighbourhoods.

6. There are four things we think you can, and should, do in this regard, outlined below: create a fibre notice period for new tower builds *(paragraphs 7-10*); create a utilities notice period for new trenching *(paragraphs 11-12)*; assign a larger role to Toronto Hydro as a pathways operator similar to its Montreal counterpart, the Commission des services électriques de Montréal (CSEM) *(paragraphs 13-16);* and consider including riser retrofits in tower renewal programs *(paragraphs 1719).* A grid summarizing our responses to each of the ConnectTO recommendations proposed by the Deputy City Manager, Corporate Services and by the Chief Technology Officer in their March 16 report, including those recommendations whose deletion was recommended in their supplementary April 26 report, follows.

I. Create a fibre notice period for new tower builds

7. The Canadian Radio-television and Telecommunications Commission (CRTC), which regulates telecommunications services in Canada, prohibits multi-tenant buildings from anointing an exclusive fibre

provider. All facilities-based Internet Service Providers must be permitted to build into a building. This "access condition" is intended to safeguard residential and commercial end-users' choice of providers.[1]

8. In practice, however, bulk marketing arrangements with an individual carrier often, and increasingly, acts as an incentive for some building owners, managers, and builders to make it harder for other carries to enter the building on a timely basis. Even if raised before the CRTC, these impedances are of a type that it is usually too late for the CRTC to do much about until the building's construction is well underway, or even completed.

9. The City of Toronto should, and has the opportunity and jurisdiction to, finish the conversation that the CRTC started. The City could do so by formalizing an entry window for fibre builders. During that window period, new towers would be required to let CRTC-registered carriers in to incorporate their fibre into the building—and require the consent of all interested carriers, or else informal dispute resolution by a City official, to close the file.

10. Towers should be marketplaces in which different telecom carriers can install their best facilities and compete with one another to win customers—not a contest to lock one another out until it is too late. The City has the ability to make sure of this, and Beanfield respectfully urges the City to use it.

II. Create a utilities notice period for new trenching

11. Second, and relatedly, re-examine the process of how telecom carriers can jump in to add conduits during municipal works projects. Toronto Water, Toronto Hydro, and other utilities frequently dig up streets. The cost for another utility, including a telecom carrier, to add additional conduits to an already-ongoing trenching project, is far lower than to trench anew.

12. This could be done in a manner similar to the tower fibre notice period described above. If a dig is planned, and the route is of interest to a telco, providing for the telco to know about it and to participate—and share the cost equitably, improving the economics for all parties—would significantly lower what is one of the most significant outlays associated with building fibre telecommunications facilities.

III. "Toronto Hydro and Pathways"

13. Toronto Hydro, a City subsidiary, is an electricity provider. But it also operates an unrivalled set of pathways for cabled networks, like conduits, throughout the city. Its connections between, up to, and within buildings can support fibre transmission facilities access in ways that minimize costly modifications to existing structures.

14. The most impactful change driving down the cost of network deployment in Toronto would be for Toronto Hydro to leverage its pathways to create a highly-coordinated, easily-accessible, and reasonably-priced framework for fibre supports. No other actor, including the City, will have future capacity or engage in activities that are comparable or likely relevant to driving down deployment costs, even assuming open access.

15. This would not be a new approach. Toronto Hydro could look to the world-renowned program run for more than a century by its Montreal counterpart in this matter, the CSEM (Commission des services électriques de Montréal), as a model. The CESM's primary mission since the creation of Hydro-Québec in the 1960s has been to promote and encourage the burial of cabled networks across the City of Montreal—including:

- subterranean conduit;

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[1] *Access to in-building wire in multi-dwelling units,* Telecom Regulatory Policy CRTC 2021-239, 27 July 2021, paragraph 186.

- aerial supports (since 2001); and
- pathways into buildings,

the three most important ways in which leveraging Toronto Hydro's existing installed base could change the telecom game for Toronto.

16. Doing so would signal an important shift in the role that Toronto Hydro is understood to play within the city. From a utilities coordination perspective, it might be better understood as "Toronto Hydro and Pathways".

IV. Include riser retrofits in tower renewal

17. The City operates various Tower Renewal programs, like its High-Rise Retrofit Improvement Support Program, and promotes these to building operators. Most of these are intended to support the important goal of stanching energy inefficiencies that generate both expenses and unpriced carbon emissions.

18. But many old buildings are not just energy-inefficient. They are fibre-resistant, too: Toronto towers built before the 21st century often do not run the conduit to individual units that laying fibre generally requires. That, in our view, is one of the key reasons why many older buildings—including those in priority neighbourhoods—apparently lack the fibre facilities, and competition between fibre-based providers, their residents deserve.

19. Beanfield suggests that the City consider putting these two items together. Toronto already supports modernization of older buildings to help spur reinvestment and improvement in tower communities. Why not partner with telecom carriers willing, once the building has been opened up anyway, to undertake the necessary riser and conduit work to make these retrofitted buildings fibre-ready?

V. Conclusion

20. Beanfield appreciates the opportunity to provide these written comments in respect of the important work being undertaken by the City of Toronto to address urban digital divides through the ConnectTO program. We look forward to speaking to the comments before the Executive Committee, and to continuing to engage with the City on making things better for all of the intersecting communities that call Toronto home.

Yours sincerely,

[filed electronically]

Dan Armstrong
Chief Executive Officer
Beanfield Technologies Inc.

Att. (1): Grid of ConnectTO recommendations and Beanfield's reactions

Recommendations of DCM, Corporate Services, and Chief Technology Officer	*Beanfield's views and suggestions*
[DELETED] R1a (1/17): Endorse the proposed creation of a City-owned high-speed Municipal Broadband Network that will, in the long term: *a.* support municipal services[.]	The City of Toronto has a responsibility to design, procure, and deliver its internal services as efficiently and equitably as feasible. In the same way it makes sense for the City to build and own some buildings, rent other buildings, and rent space within still other buildings—and manage it all centrally—there is a similar opportunity for the City to centralize its network planning and operations, too: • In some places, it makes sense for the City to dig its own pathways, and install its own fibre in them. In others, to install fibre within third-party pathways, especially Toronto Hydro's. • In others, based on volumes and locations, it will make sense to buy and manage fibre strands, rather than a whole fibre sheath. • Elsewhere, buying wavelengths within a third-party fibre strand may suffice—or buying Ethernet connectivity over third-party wavelengths, or procuring Internet connectivity directly. We had understood the proposed "Municipal Broadband Network" *(R1a, R1b)* to be a "container" brand for the heterogeneous vertical and horizontal chains of network services, assets, and identifiers – some built, some bought – procured by the City *(R2)*, and whose procurement ought to reflect efficient and equitable choices for delivering connectivity in diverse scenarios. As to making excess or surplus City network services and assets (including duct space and unused wavelengths) accessible to Internet Service Providers *(R1c)*, while we have no objection to this approach, we note that in locations where the City's least-cost long-term solutions is to dig new pathways, lay new fibre, or both: • one or both of the segment's endpoints are likely to be City property whose chief use is delivering City services; • the segment is unlikely to add a significant new middle-mile option, as middle-mile transport can already be assembled readily in respect of most sets of last-mile access segments or "tails"; and • lack of fit between the City's and a carrier's technical standards, physical access and maintenance guidelines, and other operational considerations, may challenge the attractiveness of using the City as a provider for fibre strands, wavelengths, Ethernet connectivity, Internet transit, or such other product or service as it makes available. Generally, those ISPs that manage fibre directly prefer to use their own fibre. That is why we believe the main opportunity presented by ConnectTO is not in constructing yet more fibre at market rates, but in taking actions that only the City can undertake that will lower the cost—and, therefore, market rates and business case—for constructing more fibre. Finally, as to equitable access to broadband connectivity *(R1d)*, there appear two, mutually-reinforcing paths: • One is to establish below-market rates for those who cannot afford them. The federal government is active on this front, and groups like ACORN are doing important work to towards serving a more substantial portion of those who most need it • The other is lower the market rate for everyone. We address opportunities to address the latter in our suggestions in response to R6 and R7, below.
[DELETED] R1b (2/17): Endorse the proposed creation of a City-owned high-speed Municipal Broadband Network that will, in the long term: *b.* connect City-owned facilities and assets[.]	
[DELETED] R1c (3/17): Endorse the proposed creation of a City-owned high-speed Municipal Broadband Network that will, in the long term: *c.* be accessible for Internet Service Providers[.]	
[DELETED] R1d (4/17): Endorse the proposed creation of a City-owned high-speed Municipal Broadband Network that will, in the long term: *d.* help ensure equitable access to broadband internet for residents regardless of their financial means or circumstances.	
[DELETED] R2 (5/17): Direct the Chief Technology Officer, Technology Services supported by the Chief Engineering and Executive Director, Engineering and Construction Services, the General Manager, Transportation Services, the General Manager, Toronto Water, the Executive Director, Corporate Real Estate Management, and appropriate staff in other Divisions as required to centralize and administer the deployment and management of City-owned fibre broadband infrastructure.	

Recommendations of DCM, Corporate Services, and Chief Technology Officer	*Beanfield's views and suggestions*
R3a (6/17): Request the Province to: *a.* ensure that incremental investments in broadband from other orders of government are made in urban areas and directed to fill gaps in the Greater Toronto and Hamilton Area[.] **R4a (9/17):** Request Canada to: *a.* ensure that incremental investments in broadband from other orders of government are made in urban areas and directed to fill gaps in the Greater Toronto and Hamilton Area[.]	We ask that the Executive Council first consider the four suggestions Beanfield makes in response to R6 and R7 below, which address inefficiencies that the City has the ability to eliminate in the network building process that will lower the cost of broadband deployment for everyone, facilitating builds to underserved parts of the City. To be clear: where the only path forward is to subsidize inefficient deployments to high-priority areas, we support it. In our view, however, the more sustainable approach is to make more efficient the method and, therefore, cost of deployment. This could include subsidies for fibre-friendly tower retrofits that block entry at reasonable costs *(see our fourth suggestion below),* but should also include those suggestions that require coordination and rulemaking rather than new funding *(see our first, second, and third suggestions).*
R3b (7/17): Request the Province to: *b.* identify provincially-owned fibre assets that can be leveraged to help close the digital divide – such as in schools, hospitals and traffic corridors[.]	We have no objection to the Province's leveraging assets that can be helpfully be leveraged. However, we are uncertain that this would be impactful within the City of Toronto, where population density does not challenge the ability to build middle-mile transport—as evidenced by the quantity of fibre already buried beneath Toronto's streets and hung from its poles—and where MUSH aggregation will not solve challenges in the last mile, nor within the "last inch" to and inside the building. To do that, we think coordination solutions are required. We describe what we have in mind in the suggestions we make in response to R6 and R7, below.
R3c (8/17): Request the Province to: *c.* review existing legislation to include provisions on open access to telecommunications cabling and trenching activities for all developments.	Beanfield supports this recommendation, and would be pleased to make equivalent deputations to the Province. However, such a request will be best received if the City not only "talks the talk", but also "walks the walk" through its own coordinated utilities planning. In particular, the City should first ensure that when it issues permits or licences in respect of a utility's trenching activities—it build in a coordination window during which other utilities, and other types of utility, have an opportunity to leverage the dig to lay their own cabling, sharing costs equitably.
R4b (10/17): Request Canada to: *b.* recognize that high-speed internet is an essential service, and formalize a definition of affordability that combines fixed and mobile internet costs as a percentage of household income[.]	With respect to designating high-speed Internet an "essential service", it is not clear to us what this federal designation would entail or how it would differ from: • the CRTC's designation of high-speed Internet as a "basic telecommunications service", or • Public Safety Canada's designation of "[m]aintenance of communications infrastructure (wireline, wireless, internet, broadcast, satellite, news), including privately owned and maintained communication systems and/or networks supported by sub-contractors, technicians, operators, call-centres, wireline and wireless providers, cable service providers, satellite operations, undersea cable landing stations, Internet Exchange Points, and manufacturers and distributors of communications equipment and services" as "[f]unctions deemed essential in the context of the COVID-19 pandemic" because they "are considered essential to preserving life, health and basic societal functioning."

Recommendations of DCM, Corporate Services, and Chief Technology Officer	*Beanfield's views and suggestions*
	Beanfield therefore recommends that Executive Council obtain further clarity on the nature of this proposal, and add detail translating that clarity, before making such a request of the Government of Canada. With respect to formalizing a definition of affordability that combines fixed and mobile internet costs as a percentage of household income, we assume would require that the Government of Canada or its delegates, such as the CRTC, define the level of mobile Internet service that is required as a basic telecommunications service, either as a complement or substitute for fixed broadband; and then compare that household cost to poverty levels in a given community. Beanfield would support such an initiative, and the involvement of partners such as ACORN and the Public Interest Advocacy Centre (PIAC), which have been active on these issues, in undertaking it.
R4c (11/17): Request Canada to: *c.* collect and share local level data on fibre infrastructure assets, internet speeds, and internet service terminations/collection activities, where permissible and in cooperation with Internet Service Providers[.]	Beanfield supports this recommendation, but strongly encourages the City to "walk the walk" by undertaking a similar initiative, particularly with respect to the ducts and other pathways that could be made available through the City, Toronto Hydro, and any other relevant agencies, boards, commissions, and corporations.
R4d (12/17): Request Canada to: *d.* request that the Canadian Radio-television and Telecommunications Commission examine supports for municipal carriers who wish to promote access to their fibre broadband networks for public and private service providers.	It is not clear to Beanfield that regulatory barriers exist to municipal carriers' electing to promote access to their fibre broadband networks for public and private service providers. Should the City be aware of such barriers, we would be pleased to review them in order to suggest strategies for overcoming them.
R5 (13/17): Forward this report for information to appropriate Federal Departments, Provincial Ministries, the Federation of Canadian Municipalities and the Association of Municipalities of Ontario.	Beanfield supports this recommendation. Insofar as written and oral deputations in relation to the report prove helpful, we suggest that those written remarks and summaries of those oral remarks likewise be forwarded.
R6 (14/17): Direct the Chief Technology Officer, Technology Services to explore the specific opportunities outlined in this report as well as other opportunities in continued consultation with Toronto's tech community, anti-poverty groups and potential end users, to help bridge connectivity gaps in the shorter-term for communities in need.	We propose four actions the City can take immediately. **First**, use the City's permitting and licensing system to create a fibre notice period. During that window period, new towers to be built would have to let CRTC-registered carriers in to incorporate their fibre into the building—who would have ready recourse to City staff to help quickly clear roadblocks encountered along the way. Building owners, managers, and builders are already required to allowing carriers like Beanfield in on a non-discriminatory basis. But bulk marketing arrangements with individual carriers incentivize some building stewards to create barriers to entry for other carriers. These barriers are usually of a type that, even if raised

Recommendations of DCM, Corporate Services, and Chief Technology Officer	*Beanfield's views and suggestions*
R7 (15/17): Direct the Chief Planner and Executive Director, City Planning, to examine the inclusion of broadband access as a matter of public interest in appropriate sections within the City of Toronto Official Plan, as well as the identification of opportunities to integrate the provision of broadband infrastructure into the land use and development process in order to complement and advance the Plan's social, economic and environmental goals, with this work to start in 2023 as part of the ongoing Municipal Comprehensive Review.	before the CRTC, it would be too late to do anything about them. Finishing the conversation started before the CRTC, by formalizing an entry window for fibre builders, would be a small but potentially game-changing move that would enhance utility coordination and reduce traffic interruptions. **Second**, and relatedly, re-examine the process of how telecom carriers can jump in to add conduits during municipal works projects. Toronto Water, Toronto Hydro, and other utilities frequently dig up streets. Similar to the MDU fibre window, create a utilities window for open access to telecommunications cabling and trenching activities. This approach is, we note, similar to Recommendation 3(c), except that it concerns the full range of utilities, including those controlled by the City. **Third,** open a dialogue with the City's wholly-owned subsidiary, Toronto Hydro, on leveraging its extensive network of subterranean pathways to create a highly-coordinated, easily-accessible, and reasonably-priced framework for constructing fibre. Because building and deploying conduit is the most expensive part of building fibre networks, this is likely the most impactful of our four suggestions. Toronto Hydro could look to the world-renowned program run for more than a century by its Montreal counterpart in this matter, the CSEM (Commission des services électriques de Montréal), as a model. The CESM's primary mission since the creation of Hydro-Québec in the 1960s has been to promote and encourage the burial of cabled networks across the City of Montreal—including subterranean conduit, aerial supports (since 2001), and building pathways. This would require an important shift in mindset that understood Toronto Hydro as, not just an electricity provider, but also the operator of an unrivalled network of conduits and pathways throughout the City of Toronto that are essential to network building. Put simply, rather than "Toronto Hydro", the company is better thought of as "Toronto Hydro and Pathways". **Fourth**, include fibre-friendly riser and conduit alignment in the City's various Tower Renewal programs—like its High-Rise Retrofit Improvement Support Program—and promote it to building operators. Building codes began, in the last two decades or so, to require that MDUs have conduit pathways to each unit, facilitating fibre deployment. Toronto towers older than that do not have the riser space needed to easily retrofit fibre into them. Toronto already supports modernization of these buildings to help spur reinvestment and improvement in tower communities. Include the necessary riser and conduit work in these programs—and solve the primary reason companies like ours forego building opportunities into older buildings not set up for it, in favour of newer buildings that are.
R8 (16/17): Discontinue the Prudent Avoidance Policy for Siting Telecommunication Towers and Antennas, recognizing that evidence as outlined in the report shows that the policy is no longer required, and that removing this policy will assist the City of Toronto in maximizing opportunities	It is clear that the higher cell density associated by higher-frequency 5G services and beyond will require flexibility and collaboration in antenna placement, while continuing to work with Torontonians to address safety and trust, and with carriers in order to ensure open access to interconnecting networks that wish to provide antenna backhaul services. Beanfield supports activities in this direction.

Recommendations of DCM, Corporate Services, and Chief Technology Officer	*Beanfield's views and suggestions*
to extend high-speed internet access across Toronto.	
R9 (17/17): Request the Chief Technology Officer, Technology Services to report back to the Executive Committee in 2023 to provide a further progress update on the ConnectTO program.	Beanfield supports this recommendation.

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