Attachment 3: Rogers Communications July 2022 Outage Impact: Economic, Operational & Potential for ConnectTO to Mitigate Future Events

Rogers Communications identified the root cause of the July 2022 outage as a network system failure that occurred during planned maintenance in their core network. The failure caused an error across critical central systems, eventually cascading to their entire network, which also includes Fido, Chatr and TekSavvy.[1]

To assess the economic impact of the service outage experienced by Torontonians, City staff examined the responses from Rogers to the Canadian Radio-television and Telecommunication Commission (CRTC) Requests for Information (RFIs) from July 2022 to March 2023, which are publicly available on the CRTC website, in detail. Specifically, staff focused on:

- The number of impacted users in Toronto by segments (residential vs. commercial vs enterprise customers)
- Duration of the service outage in Toronto
- Service provisions that were impacted by the service outage in Toronto
- Impact on critical infrastructures such as 9-1-1

Extensive portions of the RFI responses are redacted, which hindered the review and assessment of the service outage impact.

3.1. Economic Impact of the Outage

3.1.1. Approaches to assessing the potential cost

In the absence of detailed data to assess the impact of the service outage to the Toronto economy, staff relied on two approaches: a cost-based approach based on Rogers' credit insurance to its customers and a modelling approach reported by BNN Bloomberg.

The cost-based approach uses Rogers Communication's credit issuance to customers as compensation for the service outage, which equalled five (5) days of service fee credits to its residential, business and enterprise customers, as its basis. This credit is reported to be valued at around $150 million for approximately 13 million subscribers, according to the press release from Rogers Q3 Investor Communication Report.[2] Assuming Rogers' telecommunication market share in Toronto is similar to its share in the national market, Toronto's share of the credit issuance is estimated to be $11.82 million by using a ratio of Toronto population to the national population.

Canadian Radio-television and Telecommunications Commission. "General Information - Rogers - Service Outage: 8000-C12-202203868." March 10, 2023 (last modified). (https://crtc.gc.ca/otf/eng/2022/8000/c12-202203868.htm)

[2] "Rogers Communications Reports Third Quarter 2022 Results." Rogers Communications company statement. November 9, 2022. (https://investors.rogers.com/wp-content/uploads/2022/10/Rogers-Q3-2022-Press-Release.pdf)

Similarly, BNN Bloomberg reported on a modelling approach based on nation-wide telecommunication infrastructure failure where the cost of the service outage to the Canadian economy is estimated to be approximately $142 million.[3] Based on an estimate that the Toronto region's economic activity represents approximately 20% of the Canadian economy, the cost of the service outage to the Toronto region would be estimated to be approximately $28 million.

While the estimates derived from the approaches differ significantly, they each have caveats. For example, the caveats for the cost-based approach are the regionality of the telecommunication market and the reliance on Rogers' assessment on compensation of the service shortage, which has been widely reported as insufficient by various media outlets. The key caveat to the modelling approach is the reliance on a relatively unknown algorithm derived from a third-party organization. Additionally, neither approaches account for the spillover effect to indirect network users, who are not paying customers of Rogers (not accounting for the associated hidden societal and human costs).

3.1.2. Quantifying the full cost to the Toronto economy is a complex undertaking

Providing an accurate numerical figure to quantify the full cost to the Toronto economy is not feasible because the impact of the outage is multi-layered and extends beyond the nominal costs incurred by Rogers' residential and commercial customers, particularly due to institutional reliance on Rogers' telecommunication infrastructure, which amplified the impact experienced by Torontonians.

The service outage not only resulted in connectivity loss experienced by individual users of the network, but also in lost business revenue and operational challenges experienced by various institutions. Below is a non-exhaustive list highlighting some of the impacted services and sectors:

- **Cellular and Internet Access**
    - During the service outage, users on the Rogers network were unable to make phone calls or use cellular data. Internet and cable access were also unavailable.
    - The service outage lasted approximately 15 – 19 hours with some services and customers remaining unconnected up to 4 days after the onset of the network service outage.

[3] As reported by BNN Bloomberg on July 12, 2022 (https://www.bnnbloomberg.ca/rogers-pledges-five-day-credits-as-bay-street-weighs-outage-impact-1.1790982), the $142 million figure was reported to be estimated through data provided by Statistics Canada and the cybersecurity watchdog organization Netblocks. Netblocks model estimated the economic impact of Canada's entire telecommunication infrastructure experiencing a 19-hour shutdown, at $570 million. As the Rogers outage impacted 25 per cent of Canada's entire network connectivity, this is estimated to be $142 million.

- **Retail and other Business Operations**

    - Businesses on the Rogers network were not able to process transactions made by debit cards, e-transfers and some credit cards.
    - According to the Canadian Federation of Independent Business (CFIB), many small businesses reported a loss of thousands of dollars of sales due to failure to process transactions.
    - Several shopping malls, including Yorkdale Mall indicated that some stores were unable to open due to the service outage

- **Banking Services and Payment Processing**

    - According to a statement released by Interac[4], the system-wide outage at Rogers Communications had widespread impact, including the unavailability of Interac Debit and Interac e-Transfer services. On average, Interac facilitates approximately 25 million in Canada daily.
    - As reported by many news media outlets including the Globe and Mail, Toronto Star, CNBC, Reuters, and others, multiple banking institutions including RBC, CIBC, Scotiabank, BMO, TD, and Meridian indicated varying degrees of technical issues with ATM withdrawals, telephone banking and online banking activities (via websites, e-transfers and mobile banking apps).

- **Transit Infrastructures**

    - The City's Bikeshare system (stations and bikes) was unavailable.
    - Green P Parking experienced service disruptions: payments were not processed for on-street parking and Green P facilities were without gate arm functionality.
    - Metrolinx indicated that PRESTO fares could not be purchased using debit and credit cards. E-tickets were also unavailable at some transit locations.

- **Major events and outages**

    - Venues like Scotiabank Arena and Massey Hall experienced technical issues with points of sale and mobile tickets.

- **Service provision from other levels of government**

    - Service Ontario and Service Canada both indicated that some of its call centres and other operations including passport offices were impacted by the outage.

[4] "Rogers Outage – Interac status update." Interac corporate statement. July 7, 2023 (updated). (https://www.interac.ca/en/content/news/interac-statement-on-rogers-outage/)

- ArriveCAN, the application used to provide mandatory travel and public health information before entering Canada was impacted by the outage, resulting in physical proof of vaccination and government-issued documentations being required.

More importantly, the impacts of the service outage also imposed significant hidden human and societal costs to the Toronto economy that cannot be quantified. For example, law enforcement agencies around the country including the Toronto Police Service advised that Rogers network users experienced difficulty placing calls to 9-1-1 and 3-1-1 during the outage, several hospital networks indicated technical challenges with hospital communication networks and the cancellation of virtual medical appointments, court proceedings were halted and rescheduled due to inability of video conferencing, access to TDSB remote learnings were asynchronous, and a significant portion of the remote workforce who rely on the Rogers network also suffered from immeasurable productivity loss as their ability to work remotely was compromised.

3.2. Operational Impact of the Outage

3.2.1. Interruption to City Services

A significant portion of City of Toronto services and functions were disrupted over the 19-hour nationwide outage. At the time, over 55% of City staff with a mobile business device relied on Rogers, impacting the kind of tasks they were able to complete. While the outage affected all City divisions, it particularly affected Fire and Life Safety systems, and initial communication and coordination between the Technology Services Major Incident Management team and the Emergency Operations Centre. Toronto Emergency Management was able to effectively execute its responsibilities through its Emergency Operations Centre, and has since improved its telecommunications redundancy as a result of this incident.

Essential City services including long-term care, shelters, immunization clinics, and traffic control were impacted. For example**,** Toronto Public Health depends on Rogers for the operation of City-run immunization clinics and to access the Province of Ontario's COVID-19 vaccination management system (COVaxON). Back-up Wi-Fi hot-spot modems on alternate carriers were deployed to clinics to address delays and continue service, while clinics without access to these alternative systems recorded information manually and uploaded it once service was restored.

Within the City's 10 directly operated long-term care homes, inter-professional team members lost access to the electronic healthcare records of 2,600+ residents, ill or quarantined staff were unable to call into the centralized scheduling unit to request coverage, and visitors were unable to complete the on-line pandemic screening requirement to visit a loved one.

Under a 2020 ISP agreement, Rogers provides Wi-Fi to 10 shelters/hostel locations for community partners, support groups and a limited number of public users working with

residents within the locations. Shelters, Support and Housing Administration (SSHA) and Seniors Services and Long-Term Care (SSLTC) both reported staffing availability issues due to public transit and ride-sharing dependency on Rogers.

While all of the City's 2,400 traffic signals continued to operate normally, 630 intersections used the Rogers cellular network for communication with the central traffic control system. Signal adjustments through monitoring and remote control could not be made until service was restored on the following Monday (three days after the outage began).

Across the city, the public was also restricted from using free Wi-Fi civic centres and public libraries (more than a dozen TPL branches were unable to access Wi-Fi), and from making payments at City facilities, including civic and recreation centres and the Ferry Docks. The City also considered cancelling of aquatics and recreation programs due to a lack of confidence in reliable emergency calling and 9-1-1 access (though services ultimately continued as alternate carrier cell phones were provided and Rogers services recovered prior to the start of programming).

As the general outage lasted for 19 hours, the City employed a series of mitigation efforts by shifting to in-office work where possible, deploying 75+ back-up devices (including cell phones and hotspots), and shifting to secondary networks. The City also activated its Emergency Operations Centre to ensure a coordinated response across divisions, agencies, and corporations throughout the outage. The Emergency Operations Centre's strategies included assessing impacts, developing and sharing a common operating picture, and providing updates to senior leadership.

3.2.2. City Financial Impacts & Staff Recovery Level-of-Effort

The above impacts to City operations were extensive and costly, comprising a difficult-to-tally staff time cost, as well as those costs incurred during the outage and in the recovery phase.

The City of Toronto received from Rogers on its August 2022 invoices a credit in the amount in accordance with Rogers' credit policy.

3.3. ConnectTO Program's Potential for Mitigating Future Outages

The ConnectTO program as currently existing has a minimal impact on mitigation, primarily through the City's growing public Wi-Fi offerings. In addition to ConnectTO-affiliated programs, TPL operates public Wi-Fi and computer access at its branch locations. Taken together, the City's offerings provide locations where during a carrier outage, residents can go to ensure they have connectivity.

Under its future operational plan – based on previous recommendations and those in this report – the impact would be expanded in the following ways:

- A generalized and routinized approach to providing free public Wi-Fi in public spaces would vastly expand the number of locations where residents could access this service. In the event of carrier outages, these would be a built-in infrastructure that could support connectivity not just for equity for also for resiliency in critical or emergency situations.
- If the City's network modernization were to incorporate some degree of fibre asset renewal, this infrastructure would also mean the City would be in greater control over its connectivity. Third-party outages may still have some impact, but through network redundancy planning the City could, in advance, ensure that the negative consequences would be limited.

At the same time, it is important to acknowledge that the City's operations are occasionally interrupted for its own service or other reasons. No network is guaranteed at one hundred per cent uptime. To the extent that City networks and connectivity are under its control rather than that of third-party providers, however, it would be more able to ensure that policies and operations reflect fully the interests of the City and its residents.

Moreover, it is possible though not certain that a potential future City network served by additional municipally controlled fibre could, under a model resembling that of YorkNet or Mississauga, provide to the market on a cost-recovery basis access to excess broadband capacity. This would have the structural benefit of incentivizing new and potentially community-based ISPs into the market, at potentially competitive rates. This would benefit Torontonians by providing more market choice, while ensuring that City network operations focus not on operating as an ISP but instead optimizing its own municipally focused operations.

The ConnectTO program, as it works in concert with the TSD Network Services team, has the potential to ensure that the potential for public connectivity remains top-of-mind. In response to Council's concerns regarding the Rogers outage, for example, staff can ensure that overall network strategy and planning keeps in sight the connectivity and reliability for the public an addition to the City itself.