



# **BUILDING HUMAN RIGHTS INTO INTELLIGENT COMMUNITY DESIGN: A FOCUS ON CANADA**



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# INTRODUCTION

Cities have emerged as test beds for digital innovation. Data-collecting devices, such as sensors and cameras, have enabled fine-grained monitoring of public services including urban transit, energy distribution, and waste management, yielding tremendous potential for improvements in efficiency and sustainability. At the same, there is a rising public awareness that, without clear guidelines or sufficient safeguards, data collection and use in both public and private spaces can lead to negative impacts on a broad spectrum of human rights and freedoms. In order to productively move forward with intelligent community projects and design them to meet their full potential in serving the public interest, a consideration of rights and risks is essential.

The most common right considered as a part of intelligent community projects is the right to privacy. Indeed, in the digital age, the right to privacy has come to be described as a “guarantor” or a “precondition” for the enjoyment of other human rights and freedoms. The complexity of data flows, however, can make it challenging for individuals to discern—much less self-manage—the range of risks and rights they engage when consenting to the use of their personal data. Inadequate privacy protection can lead to a chilling effect on the exercise of other rights, such as freedom of expression or assembly in public spaces. As cities engage in public-private partnerships (PPPs) that seek to leverage data collection and advanced analytics such as artificial intelligence (AI) to improve or augment public

services, greater reliance on digital systems will require new processes for identifying and mitigating the risks they generate to human rights and freedoms.

Many municipalities intend digital services to improve equity and access in their communities, and design services carefully to ensure inclusion. However, many digital systems also have the potential to reify and reinforce social stratification. Biased data sets and/or biased models can lead to the unequal distribution of access to new public goods and services, resulting in adverse impacts on the right to equality and non-discrimination.<sup>1</sup> Increases in data collection, surveillance, and monitoring technologies, moreover, have the potential to disproportionately impact communities that are already at risk of being over-policed or over-surveilled. Too often, the negative human rights impacts of digital systems disproportionately affect the rights of more vulnerable people, including persons with disabilities, low-income households, workers, the elderly, and Black, Indigenous, People of Colour (BIPOC) communities.<sup>2</sup>

Many proposals for “intelligent communities,” “smart cities,” “innovation districts,” or individual technologies like smart parking sensors are received through procurement processes created for traditional real estate development projects or established and well-known technologies. While some municipalities attempt to manage risk through procurement (for example, by establishing

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<sup>1</sup> UN General Assembly 3rd Committee, “Promotion and protection of human rights: human rights questions, including alternative approaches for improving the effective enjoyment of human rights and fundamental freedoms,” *Report of the Special rapporteur on extreme poverty and human rights*, (2019): A/74/48037, accessed December 13, 2021, <https://undocs.org/pdf?symbol=en/A/74/493>.

<sup>2</sup> Tina Kempin Reuter, “Human rights and the city: Including marginalized communities in urban development and smart cities,” *Journal of Human Rights*, (2019): 382-402, accessed December 7, 2021, <https://doi.org/10.1080/14754835.2019.1629887>.

data governance processes in a request-for-proposals (RFPs)), these mechanisms are often ill-equipped to consider the impact of an emerging technology with novel risks, nor do they typically name or thoroughly address human rights. Furthermore, as digital layers of an intelligent community are built and begin to interact, the piecemeal approach offered by procurement may be insufficient to address emergent human rights risks. As cities increasingly look to technology to help address pressing public objectives, they simultaneously require a broader range of legal, governance, and technical innovations that might enable them to take advantage of the social and economic benefits of digital technologies while minimizing their potential risks.

Accordingly, this paper begins by examining the types of digital technologies being procured for intelligent community projects in Canada, alongside the potential human rights risks of these technologies. It then surveys existing attempts by municipalities to address these risks through procurement and outlines how a human rights-based approach can help clarify the distinct roles of municipal and private actors in intelligent community design, and better equip both municipal and private actors to fulfill their duties and responsibilities. Large and complex intelligent community technology projects, for example the urban development project proposed by Sidewalk Labs for Toronto's eastern waterfront, may require unprecedented measures—such as an independent human rights impact assessment (HRIA). Most municipalities, however, will not have the resources for such a process. In addition, most projects contemplated by cities are of a much smaller size.

This paper identifies a suite of scalable tools for protecting human rights in intelligent communities, derived from the international human rights law framework and the UN Guiding Principles on Business and Human Rights. While many Canadian municipalities already take a commendable approach to considering social impact through procurement, this can be broadened and formalized through a better understanding of human rights and the array of tools for their protection.

# HUMAN RIGHTS RISKS IN INTELLIGENT COMMUNITY PROCUREMENT



## The Incremental Approach to Building an Intelligent Community

While an intelligent community calls to mind a community of fully integrated technologies, like that proposed by the Sidewalk Toronto project, most procurement related to intelligent communities in Canada does not occur on that scale or timeframe. Rather, cities often identify single projects—gaps in infrastructure, mobility needs, city services, or sustainability—that may use technology to make them more efficient, equitable, or accessible.

Across Canada, governments are procuring solutions to improve their digital infrastructure or deliver digital services, using technologies that strengthen connectivity; collect data; clean, organize, and secure that data; and translate data into citizen services. Even a small project—such as implementing a smart mobility project for real-time monitoring of public transit—implicates numerous technologies (e.g., sensors, smartphone applications, and the network infrastructure to support them). In turn, each of these technologies and projects carries with them potential benefits and risks to consider before implementation. Furthermore, the long-term risks and benefits of projects can be difficult to assess as new layers of a city's digital infrastructure may be added incrementally, with different impacts over time as the makeup of a city itself also changes.

The risk profile of municipal projects involving digital technologies can vary extensively. Certain projects listed in Appendix A, related to infrastructure monitoring and mapping, for instance, may carry relatively low potential for risks to privacy or other human rights on account

of the relative or total absence of personal data being collected or used. Others, such as sensors embedded on traffic lights, for instance, will depend on the type of data being collected (e.g., de-identified images versus the mere detection of a presence), the application of data minimization and purpose limitation principles, or the effectiveness of de-identification and measures to prevent re-identification. Cities have also become one of the principal test beds for experimenting with new approaches to open data. Where one of the purposes of a project is to make any data collected publicly available for open innovation purposes—and therefore used by municipal departments, private sector innovators, and the public alike—new models of accountability and oversight for data governance may be needed to ensure that future usages of the data respects the public interest.

This section provides several examples of past and present RFPs in Canadian municipalities seeking to procure technologies that strengthen digital infrastructure or provide digitally enabled services and introduces potential human rights risks. For a full list of RFPs evaluated for the author's examination of intelligent community procurement, see Appendix A.

## Intelligent Community RFPs and Relevant Risks

### I: STRENGTHENING DIGITAL INFRASTRUCTURE

Projects that strengthen digital infrastructure may address connectivity (broadband, Wi-Fi, cellular service); data collection (Internet of Things and associated infrastructure, among other technologies); data analysis (artificial intelligence/machine learning software solutions, database solutions); or cybersecurity and privacy-enhancing technologies. All of these contribute to a municipality's ability to gather data (whether from technologies or crowdsourced public knowledge) and improve efficiency and sustainability.

As examples of this type of project, the following two RFPs and RFQs propose installing advanced systems to detect water leaks and provide advanced electricity metering, projects that save municipalities money and energy while collecting data in public and private spaces.

#### **DURHAM, ONTARIO: NOTICE FOR PILOT PROJECT FOR SMART CITIES WATER LEAK DETECTION TECHNOLOGY (NRP-1066-2020)**

The intent of this public notice is to advise the supplier community that the Region intends to conduct an assessment of smart water technologies (Pilot Project), and to allow potential suppliers (respondents) to signal their interest in participating in this Pilot Project by submitting a Statement of Capabilities for approval." Service requirements include providing live data to troubleshoot operational issues, find leaks to manage water loss, and minimize the need for emergency repairs, as well as analyzing collected data to improve operations and reduce future costs.

#### **NEW WESTMINSTER, BRITISH COLUMBIA: ADVANCED METERING INFRASTRUCTURE SYSTEM (NWRFAQ-10-01)**

Within the next five years, more than 60% of residential, commercial, and industrial metres in New Westminister will need to be replaced or recertified. To support their electric utility customers, the city launched a call for a Digital Metering Platform that will "consist of metres, network, field deployment tools, a metre head end and network management system, and a metre data management system." Service requirements include cyber security services, "business process and technical integration design and development," and "organizational change management and communications support."

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Projects such as these that improve the efficiency of municipal infrastructure are known to have positive impacts on resource conservation and municipal savings.<sup>3</sup> Yet to maximize the intended benefits of such projects, it remains important to consider and attempt to mitigate potential risks associated with them. Energy monitoring technologies, for example, may disproportionately impact individuals or communities that must consume more energy on account of their age, illness, or a disability. In addition, new technologies such as smart metering systems create valuable data that may require innovative approaches to data protection and cyber security.<sup>4</sup> Accordingly, a close analysis of human right risks at the foundation of intelligent communities—digital infrastructure—is necessary to ensure the equitable delivery of public services.

## II: DELIVERING PUBLIC SERVICES

Ultimately, the vast majority of intelligent community procurements aim to deliver an important service to citizens. This may manifest itself in the form of data collection and infrastructure tools which, as above, pave the way for improvements to sustainability or efficiency. Alternatively, procurement may be oriented toward immediate provision of a service. The following two examples illustrate such cases, with Vancouver seeking an open government platform for citizen engagement and reporting, and Whitehorse seeking a way to improve transit efficiency.

### **CITY OF VANCOUVER: “PROVISION OF A DIGITAL ENGAGEMENT PLATFORM” (PS20191175)**

“The City seeks a user-friendly platform that, at a minimum, does the following: Supports users of all/varied physical abilities to engage (i.e., meeting WCAG Accessibility requirements); Ensures transparency in the quality and strategic nature of each digital experience ; Provides a one-stop-shop engagement portal with the ability to show all engagement activities (closed, current, and upcoming) and the ability to report on summaries, opportunities to participate, and outcomes; Updates quickly, and harmonizes reporting approaches; Provides flexible and visual project pages with the ability to share information; Is multi-media enabled; Allows users to subscribe to updates on their channel of choice; Can integrate engagement tools that include surveys, ideation, asset mapping, trade-offs, options analysis, voting, discussion forums; Can serve as an archive for previous engagement findings; and provides content in a manner that can be accessed and engaged with through multiple channels.”

<sup>3</sup>For example, see Steven Renzetti and Diane Dupont, “Buried Treasure: The Economics of Leak Detection and Water Loss Prevention,” *Environmental Sustainability Research Centre (ESRC) Working Paper Series*, (2013), accessed December 4, 2021, <http://hdl.handle.net/10464/4279>.

<sup>4</sup>Rainer Knyrim and Gerald Trieb, “Smart metering under EU data protection law,” *International Data Privacy Law* 1, no. 2 (2011): 121–128, <https://doi.org/10.1093/idpl/ipr004>.

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## CITY OF WHITEHORSE: “TRANSIT REAL-TIME PASSENGER INFO AND ELECTRONIC PAYMENTS SYSTEM”

“This technology benefits riders, non-riders, and the City itself in terms of operations, safety, and rider satisfaction. These benefits can provide operational improvements, as well as play an important role in providing effective communication between the transit system and riders so that riders could be informed of any impacts to service and mitigate service risks.”

Like the earlier projects listed, these projects have positive goals, in this case ensuring citizen access to public decision-making and important transit information. Intelligent community service provision raises the same question that municipal policymakers have always grappled with: how do cities ensure that the services they provide reach those citizens most in need, and hardest to reach? While each of these projects may carry new potential risks associated with data collection and privacy, the question of equity of access is not novel. However, it may manifest in new ways through the involvement of new technologies. Data collection technologies used to improve public service planning and delivery (for example, in the context of urban transit and mobility solutions) may inadvertently distort access to transit services depending on the willingness or ability of individuals to become technology adopters. Furthermore, iterative systems, where data is collected about a service's use and then used to redesign that service, may create negative feedback loops in which underserved populations are inadvertently further marginalized.<sup>5</sup>

As cities seek to make information and access to public services available online, careful planning to guarantee digital inclusion and the accessibility of mobile applications, web sites, and engagement platforms become critical considerations to ensuring equal enjoyment of municipal life. Other projects listed in Appendix A, such as voice recognition technologies used by law enforcement, AI-enabled redaction of digital evidence, or chatbots used to improve public service delivery, may also raise preliminary concerns on account of the potential for bias associated with the data sets or machine learning systems being proposed. These risks must be addressed by careful planning, as discussed in the following section, both through existing procurement mechanisms and other assessments.

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<sup>5</sup>This phenomenon is well known in questions of AI fairness and algorithmic bias and described with greater scope in Cathy O'Neill's *Weapons of Math Destruction How Big Data Increases Inequality and Threatens Democracy*. Cathy O'Neill, *Weapons of Math Destruction How Big Data Increases Inequality and Threatens Democracy*. (New York: Crown Publishers, 2016).

A close-up photograph of a person's hands holding a smartphone. The person is wearing a dark watch on their left wrist. The background is a blurred view of a bicycle, showing the handlebars, seat, and frame. The overall scene suggests a focus on mobile technology and its integration with transportation or community design.

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## Addressing Risks in Procurement and RFPs

This paper has thus far outlined a number of risks that may emerge from intelligent community projects and technologies. These have included crucial human rights-related considerations such as privacy, security, and equity. Despite these risks, human rights are not often included in intelligent community RFPs.<sup>6</sup> In fact, while procurement has been used to contest discrimination and bolster inclusive employment policy since the 1900s,<sup>7</sup> under half of the RFPs analyzed for this paper (see Appendix A) included considerations of equitable hiring or other social impact parameters.

This exclusion may be due in part to a divide among economists, legal theorists, and policymakers regarding the primary purpose of public procurement. As the traditional goal of public procurement is value for money,<sup>8</sup> some theorists suggest that RFPs are an inefficient vehicle for achieving social goals.<sup>9</sup> They further assert that stipulation-laden procurement processes can deter suppliers from engaging with

the proposal in the first place.<sup>10</sup> On the other hand, some theorists position the inclusion of human rights in public buying as “mandatory” and point to examples of successful procurement initiatives that support human rights, such as the Electronics Watch model.<sup>11</sup>

In addition to this theoretical divide, experts suggest that other practical concerns prevent municipalities from integrating human right considerations into their procurement processes, including smaller budgets and access to a smaller pool of suppliers in rural Canadian communities.<sup>12</sup>

Although they are in the minority, some RFPs analyzed for this study include social impact guidance. Beyond committing to existing privacy and accessibility legislation (such as accessibility standards for customer service or the BC Freedom of Information and Protection of Privacy Act), these municipalities added social impact statements to promote equity, accessibility, and non-discrimination. This section takes a closer look at the different levels of social impact guidance that emerged in ICTC’s RFP analysis.

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<sup>6</sup>Olga Martin-Ortega and Claire Methven O’Brien, “Public Procurement and Human Rights: Interrogating the Role of the State as Buyer,” in *Public Procurement and Human Rights*, ed. Olga Martin-Ortega and Claire Methven O’Brien (2019), accessed December 12, 2021, <https://www.elgaronline.com/view/edcoll/9781788116305/9781788116305.00009.xml>.

<sup>7</sup>Christopher McCrudden, “Buying Social Justice: Equality, Government Procurement & Legal Change,” Oxford Legal Studies Research Paper, no. 18 (2007), accessed December 1, 2021, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1014847](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1014847).

<sup>8</sup>“Government Procurement - The Plurilateral Agreement on Government Procurement (GPA),” *World Trade Organization* online, accessed November 19, 2021, [https://www.wto.org/english/tratop\\_e/gproc\\_e/gp\\_gpa\\_e.htm](https://www.wto.org/english/tratop_e/gproc_e/gp_gpa_e.htm).

<sup>9</sup>Jody Freeman, “Extending Public Law Norms Through Privatization,” *Harvard Law Review* 116, no. 5 (2003): 1285–1352, <https://doi.org/10.2307/1342728>.

<sup>10</sup>Anastasia Konina, “Promoting Human Rights in the Context of Police Procurement: A Study of Predictive Policing Instruments,” *Forthcoming, McGill Graduate Research Series: Law and the City*, (August 27, 2021), <https://doi.org/10.2139/ssrn.3914169>.

<sup>11</sup>Olga Martin-Ortega and Claire Methven O’Brien, “Public Procurement and Human Rights: Interrogating the Role of the State as Buyer,” in *Public Procurement and Human Rights*, ed. Olga Martin-Ortega and Claire Methven O’Brien (2019), accessed December 12, 2021, <https://www.elgaronline.com/view/edcoll/9781788116305/9781788116305.00009.xml>; Olga Martin-Ortega, “Public Procurement as a Tool for the Protection and Promotion of Human Rights: A Study of Collaboration, Due Diligence and Leverage in the Electronics Industry,” *Business and Human Rights Journal* 3, no. 1 (January 2018): 75–95, <https://doi.org/10.1017/bhj.2017.35>.

<sup>12</sup>Anonymous, in discussion with Maya Watson, July 21, 2021.

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## SOCIAL IMPACT STATEMENTS IN INTELLIGENT COMMUNITY RFPS

**General commentary** includes statements that link the vision, mission, or goals of the project with increasing social or digital inclusion. For example, a recent (2020) RFP to improve internet access as part of Cape Breton Regional Municipality's Smart Cities Initiative states that the project aims to support "low-income residents [who] don't always have access to quality internet and if they do, it can be very expensive." Parkland County (2019) similarly notes that the "main purpose of Smart Parkland is to support creating opportunities for increased social and digital inclusion for residents."

**Optional statements of guidance** provide more detailed direction than general commentary, but still let the suppliers decide whether to include the suggested social aims to their proposal. The (2018) RFP for Kingston's bike sharing system, for example, included a statement that the city preferred purchasing a system that is "accessible for those without a credit card or mobile phone." Similarly, in a (2019) RFP from Guelph, suppliers are warned that "if the solution relies on public participation, it has to be inclusive and ensure that factors such as socioeconomic status, homeownership, or race, don't unfairly benefit some streets and neighbourhoods over others."

**Social impact in evaluation scores** requires suppliers to fulfill specific criteria related to social impacts to become eligible. For example, the (2021) RFP from Nunavut for remotely delivered counselling specifies that offers are contingent on proponents "[identifying] cost components for Inuit, Nunavut and Local Content" under a regulation that "[ensures] Inuit, Nunavut and local businesses supply materials, equipment, and services on any GN contract, and that Inuit, Nunavut and Local labour is used to the fullest extent practical." Social impacts in RFP evaluation scores also appeared as points for suppliers 1) who have targeted hiring initiatives for marginalized groups,<sup>13</sup> 2) whose staffing reflects "social value and economic inclusion supporting equity, diversity, inclusion and reconciliation,"<sup>14</sup> and 3) whose proposal details "Indigenous Person Hours, Indigenous Ownership, or Indigenous Engagement."<sup>15</sup>

As evidenced by the varying levels of detail and commitment demanded by the few RFPs that chose to include social impact considerations, there is little standardization around human rights risks in Canadian tech RFPs, nor do these RFPs typically name "human rights" as a concern. While there are exceptions to this rule, of the RFPs read for this study, many of those that feature social impact parameters are procuring solutions to address specific social issues, such as cyclist rights or mental health. Far fewer efficiency-focused RFPs (for example, on energy management or technologies used to improve public service planning) included social impact guidelines.

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<sup>13</sup>City of Kelowna, "LED Lighting Retrofit for Parkade Structures," RFP T20-046, (Kelowna, BC: 2020), <https://www.kelowna.ca/business-services/business-city/bidding-opportunities/current-bidding-opportunities>.

<sup>14</sup>City of Vancouver, "Provision of a Digital Engagement Platform," RFP No. PS20191175, (Vancouver, BC: 2019), <https://vancouver.ca/doing-business/bids-contracts-rfps-purchase-orders.aspx>.

<sup>15</sup>City of Saskatoon, "Installation of LED fixtures for the LED conversion project," RFQ-20-0290, (Saskatoon, SK: 2020), <https://sasktenders.ca/content/public/Search.aspx>.

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While research supporting the inclusion of HRIA in Canadian tech RFPs is growing,<sup>16</sup> so are the complexities of the technologies in question and their connection to the human rights issues. Accordingly, additional tools may be required to help cities name human rights in their procurement mechanisms and consider them in a standardized, methodical way regardless of the social or economic goals of the technology-related procurement. The following section outlines how the international human rights law framework and guidance contained in the UN Guiding Principles can help equip both cities and corporate actors to fulfill their human rights obligations in the context of intelligent communities.



## Defining and Understanding Human Rights in Public-Private Partnerships

The international human rights law framework, supported by the UN Guiding Principles on Business and Human Rights (UN Guiding Principles), contains globally authoritative guidance for state actors such as municipalities, as well as companies, regarding their distinct roles and responsibilities for upholding human rights and freedoms.<sup>17</sup>

State and corporate actors are expected to assess their activities against all internationally recognized human rights including, at minimum, the International Bill of Human Rights.<sup>18</sup> Depending on the context, businesses may need to consider additional standards, such as the UN Convention on the Rights of Persons with Disabilities, regarding potential human rights impacts on individuals belonging to specific groups or populations at heightened risk of vulnerability or marginalization.<sup>19</sup> In the Canadian context, it is critical to consider the UN Declaration on the Rights of Indigenous Peoples, as well as engagement with Indigenous groups more broadly, to work toward the greater project of reconciliation.

<sup>16</sup>Anastasia Konina, "Promoting Human Rights in the Context of Police Procurement: A Study of Predictive Policing Instruments," *Forthcoming, McGill Graduate Research Series: Law and the City*, (August 27, 2021), <https://doi.org/10.2139/ssrn.3914169>.

<sup>17</sup>United Nations Office of the High Commissioner of Human Rights (OHCHR), *Guiding Principles on Business and Human Rights*, (New York and Geneva: United Nations, 2011), [https://www.ohchr.org/documents/publications/guidingprinciplesbusinesshr\\_en.pdf](https://www.ohchr.org/documents/publications/guidingprinciplesbusinesshr_en.pdf). The United Nations Office of the High Commissioner for Human Rights has launched a dedicated project to help governments, companies and other stakeholders understand how the UN Guiding Principles can be tailored and applied to the context of digital technologies and AI, available at: "B-Tech Project," United Nations Human Rights Office of the High Commissioner, accessed December 15 2021, <https://www.ohchr.org/EN/Issues/Business/Pages/B-TechProject.aspx>.

<sup>18</sup>The International Bill of Human Rights consists of the Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights and the International Covenant on Economic, Social and Cultural Rights, as well as the principles concerning fundamental rights set out in the International Labour Organization's Declaration on Fundamental Principles and Rights at Work.

<sup>19</sup>United Nations Office of the High Commissioner of Human Rights (OHCHR), *Guiding Principles on Business and Human Rights*, (New York and Geneva: United Nations, 2011), [https://www.ohchr.org/documents/publications/guidingprinciplesbusinesshr\\_en.pdf](https://www.ohchr.org/documents/publications/guidingprinciplesbusinesshr_en.pdf).

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**Clarifying responsibilities.** First, the UN Guiding Principles can clarify the distinct roles and responsibilities held by state and corporate actors in the international human rights law framework. This distinction is particularly useful for municipal digital transformation projects where unclear procurement processes can create a diffusion of responsibility around data governance or privacy, confusing the roles and responsibilities of the actors in these public-private partnerships.

While states have a positive duty to respect, protect, and fulfill human rights,<sup>20</sup> businesses have a responsibility to respect human rights. As part of their positive duties, state actors are expected to consider the need to adjust the “full range of measures, including policies, legislation, regulations and adjudication” to respond to evolving human rights considerations.<sup>21</sup> The corporate responsibility to respect human rights cautions that businesses should “avoid causing or contributing to adverse human rights impacts through their own activities, and should address such impacts when they occur.”<sup>22</sup> Included in a business’ responsibilities is the expectation to adopt a human rights policy, undertake regular HRIAs as part of an ongoing due diligence process, and develop corporate grievance mechanisms to provide relief in event of abuse.

## **OPERATIONALIZING HUMAN RIGHTS PROTECTIONS IN PUBLIC-PRIVATE PARTNERSHIPS FOR DIGITAL TRANSFORMATION: BEYOND PROCUREMENT**

The late Professor John Ruggie, former UN Special Representative on business and human rights who stewarded the development of the UN Guiding Principles, has stated that public-private partnerships should have in place both “measures to reinforce existing state duties as well as corporate due diligence processes.”<sup>23</sup> No matter the relationship structure of actors involved in a digital transformation project, cities can neither abdicate nor delegate their higher-order duties to protect and fulfill the human rights of their citizens.

As such, there are a number of proactive measures and governance tools that cities can make use of to better equip themselves for addressing the unique human rights risks arising from the adoption of digital systems.

**Procurement.** Procurement represents one of the earliest stages at which a municipality can impose specific requirements on project proponents. Incorporating the elements of a business’ responsibility to respect human rights into RFPs under the UN Guiding Principles could help embed respect for human rights into digital transformation projects from the very beginning. Cities could, for example, assign a human rights impact score to vendors and proposals. To this end, RFPs could include the requirement to:

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<sup>20</sup> Ibid.; see also the Office of the United Nations High Commissioner for Human Rights (OHCHR), *The Corporate Responsibility To Respect Human Rights: An Interpretive Guide*, (New York and Geneva: United Nations, 2012), [https://www.ohchr.org/Documents/Publications/HR.PUB.12.2\\_En.pdf](https://www.ohchr.org/Documents/Publications/HR.PUB.12.2_En.pdf).

<sup>21</sup> Ibid.

<sup>22</sup> Ibid.

<sup>23</sup> John Ruggie, “Making public-private partnerships work,” *Thomson Reuters Foundation News*, September 11, 2013, <https://news.trust.org/item/20130911091253-vmh6s/?source=hppartner>.

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- Provide a copy of the organization's corporate human rights policy adapted to the digital context, and identify a focal point responsible for overseeing its implementation.<sup>24</sup>
- Demonstrate adherence to a risk management process that accounts for the potential human rights impacts of a proposed digital system, consistent with the UN Guiding Principles framework for human rights due diligence.
- Provide a copy of the organization's internal responsible data and AI governance policies and procedures.
- Provide a brief, summary self-assessment of the potential human rights impacts of the project, noting the most salient risks and specific approaches to mitigating them.
- Comply with a series of project-specific digital rights embedded directly into procurement contracts, including penalties for breach.

However, in the event several digital systems are interacting, the evaluation of potential human rights impacts may be more complex than the methods listed above are able to address. As Mantelero has noted, the combined effect of integrating multiple technical layers in an intelligent community environment, including data-intensive and AI systems, results in "a whole system that is greater and more complicated than the sum of its parts."<sup>25</sup> In such a context, the assessment of potential risks to human rights and freedoms cannot reasonably be carried out on a case-by-case analysis of each application. Rather, the assessment may require an "integrated approach that looks at the whole system and context, as well as the interaction amongst its various components, which may have a wider impact than each component taken separately."<sup>26</sup> This is an important consideration for cities scaling digital transformation incrementally, one project or system at a time, as the need for broader civic engagement or consideration of the impacts of aggregate digital systems may be less evident.



<sup>24</sup> The UN High Commissioner on Human Rights has stated that technology companies should adopt an explicit policy statement outlining their commitment to respect human rights throughout the company's activities. See Lucy Amis, *A Guide for Business How to Develop a Human Rights Policy*, (New York and Geneva: United Nations Global Compact Office and Office of the United Nations High Commissioner for Human Rights, 2011), [https://www.ohchr.org/Documents/Publications/DevelopHumanRightsPolicy\\_en.pdf](https://www.ohchr.org/Documents/Publications/DevelopHumanRightsPolicy_en.pdf). See also The Ranking Digital Rights project, which ranks the world's biggest technology companies in terms of their respect for freedom of expression and privacy, uses the quality of human rights policies as a key element of its methodology: "To get the highest scores, companies must disclose policies that are also responsible policies – ones that can effectively protect and respect users' rights." "Our Principles," Ranking Digital Rights, accessed Dec 01 2021, <https://rankingdigitalrights.org/about/principles/>.

<sup>25</sup> Alessandro Mantelero and Samantha Esposito, "An evidence-based methodology for human rights impact assessment (HRIA) in the development of AI data-intensive systems," *Computer Law & Security Review* 41 (July 2021).

<sup>26</sup> Ibid.

# A HUMAN RIGHTS-BASED APPROACH TO INTELLIGENT COMMUNITY DESIGN

**Citizen engagement.** Citizen participation in public life is key to protecting and advancing other human rights.<sup>27</sup> Indeed, the Draft Principles for Dignity in the Built Environment, an international initiative to develop human rights principles covering all phases of the development and use of urban spaces, sets the expectation that “individual residents and communities must have clear avenues to have a say over the present and future of their neighbourhoods.”<sup>28</sup>

In particular, meaningful civic engagement that features robust discussion, education, and consultation on digital rights, particularly with regards to vulnerable communities, is critical for shaping a democratic, rights-respecting municipal vision regarding the role of technology in advancing pressing public objectives. Consultation can also play a significant role in helping to identify, mitigate—or altogether avoid—potential adverse impacts of proposed digital projects or systems on human rights and freedoms. In larger scale projects, consultation may not be enough. Instead, stakeholder participation in the governance of the project, including in key decisions, may be necessary.<sup>29</sup>

Meaningful citizen engagement remains critical to success over the course of the project, particularly as demographics with different experiences and capabilities grapple with new digital concepts, forms of data collection, and use in the public space. The Digital Transparency in the Public Realm initiative, which grew out of a co-design project led by Sidewalk Labs employees in Toronto, has led to the publication of an open-source communication standard to enable transparency, accountability, and better control for people in municipal digital environments.<sup>30</sup> Cities can rely on the standard to improve public transparency of the data that technologies collect, by whom, and for what purposes.

**Digital Rights Policy.** For cities with limited legislative or regulatory power over matters such as data protection, or data and AI governance, developing internal policies and procedures is a useful place to start. For example, cities could establish a human rights policy for digital adoption specifically adapted to their municipal context. To this end, a network of more than 50 cities across the globe have joined forces as the “Coalition of Cities for Digital Rights” (CCDR) to articulate a vision and exchange best practices to protect and uphold human rights in municipal digital

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<sup>27</sup> The right to participation in public affairs is elaborated in 2018 guidelines developed by the Office of the UN High Commissioner for Human Rights (OHCHR). See: *Guidelines for States on the Effective Implementation of the Right to Participate in Public Affairs*, (New York and Geneva: United Nations, n.d.), [https://www.ohchr.org/Documents/Issues/PublicAffairs/GuidelinesRightParticipatePublicAffairs\\_web.pdf](https://www.ohchr.org/Documents/Issues/PublicAffairs/GuidelinesRightParticipatePublicAffairs_web.pdf). The New Urban Agenda, endorsed by the United Nations General Assembly in 2016, committed government to “promoting institutional, political, legal and financial mechanisms in cities and human settlements to broaden inclusive platforms, in line with national policies, that allow meaningful participation in decision-making, planning and follow-up processes for all, as well as enhanced civil engagement and co-provision and co-production.” United Nations, *New Urban Agenda*, (2017), 63, <http://uploads.habitat3.org/hb3/NUA-English.pdf>.

<sup>28</sup> *Draft Principles for Dignity in the Build Environment*, (Institute for Human Rights and Business, 2019), [https://www.ihrb.org/uploads/reports/Draft\\_Principles\\_for\\_Dignity\\_in\\_the\\_Built\\_Environment\\_1.pdf](https://www.ihrb.org/uploads/reports/Draft_Principles_for_Dignity_in_the_Built_Environment_1.pdf).

<sup>29</sup> Tina Kempin Reuter, *Smart City Visions and Human Rights: Do They Go Together?*, (Harvard: Carr Center Discussion Paper Series, Spring 2020), [https://carrcenter.hks.harvard.edu/files/cchr/files/CCDP\\_006.pdf](https://carrcenter.hks.harvard.edu/files/cchr/files/CCDP_006.pdf).

<sup>30</sup> “About,” Digital Transparency in the Public Realm, accessed Dec 01 2021, <https://dtp.helpfulplaces.com/>.

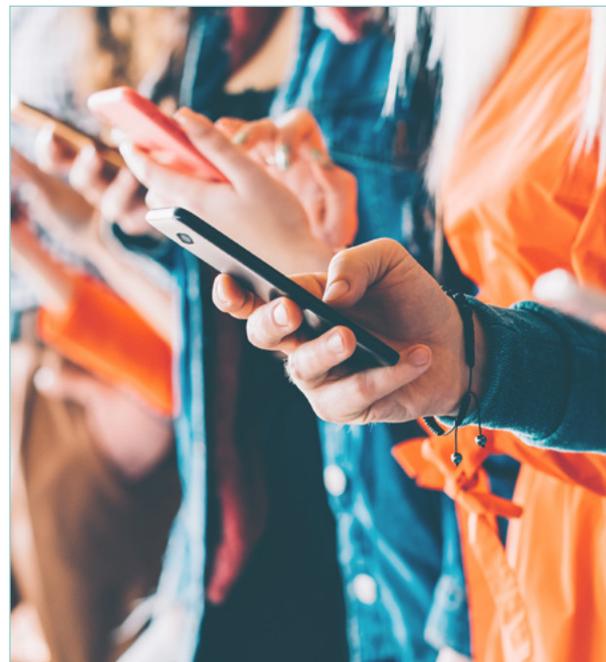
# A HUMAN RIGHTS-BASED APPROACH TO INTELLIGENT COMMUNITY DESIGN

transformation projects.<sup>31</sup> The CCDR's Declaration affirms a series of principles that can inform further municipal policy development, project design, and risk management around key topics, including:

- Equal access to the internet and digital literacy
- Privacy, data protection, and security
- Transparency, accountability, and non-discrimination of data, content, and algorithms
- Participatory democracy, diversity, and inclusion
- Open and ethical digital service standards

The City of Montreal has also developed a Digital Data Charter to help ensure the municipality, its partners, and collaborators “guarantee human rights in the digital age.”<sup>32</sup> The Digital Data Charter identifies 13 guiding principles applicable to the “digital data lifecycle”—many of which are derived from international human rights law standards. In the context of the Sidewalk Labs proposals for the Quayside project in the City of Toronto, Waterfront Toronto had considered plans to enforce compliance with project-specific digital rights—such as the prohibition against surveillance or the use of facial recognition technologies—by embedding project guidelines directly into procurement contracts.<sup>33</sup>

**Institutional capacity.** Cities may also consider whether changes to municipal institutions may be necessary to meet duties under the UN Guiding Principles, which include taking appropriate measures, such as “judicial, administrative, legislative or other appropriate means” to ensure an effective remedy is available in the event of abuse. In the municipal context, this might include budgeting for personnel with appropriate expertise, or, like the City of Porto, empowering existing institutions, such as the office of the city ombudsman, with new resources and an expanded mandate to investigate complaints flowing from potential violations of a city’s digital rights policy.<sup>34</sup>



<sup>31</sup>“Cities,” Cities Coalition for Digital Rights, accessed Nov 19 2021, <https://citiesfordigitalrights.org/cities>.

<sup>32</sup> *Montreal's Digital Data Charter, Laboratoire d'innovation urbaine et service des technologie de l'information*, (Monreal: City of Montreal, October 2020). [https://laburbain.montreal.ca/sites/villeintelligente.montreal.ca/files/25817-charte\\_donnees\\_numeriques\\_ang.pdf](https://laburbain.montreal.ca/sites/villeintelligente.montreal.ca/files/25817-charte_donnees_numeriques_ang.pdf).

<sup>33</sup> Waterfront Toronto, *Discussion Guide: Waterfront Toronto's MIDP Evaluation Consultation February 2020, Round 2*, (Toronto: Waterfront Toronto, 2020), <https://quaysideto.ca/wp-content/uploads/2020/02/Quayside-Discussion-Guide-Round-Two-Consultation-February-18-2020.pdf>.

<sup>34</sup> “Porto,” Cities for Digital Rights, accessed November 19, 2021, <https://citiesfordigitalrights.org/city/porto>.

# A HUMAN RIGHTS-BASED APPROACH TO INTELLIGENT COMMUNITY DESIGN

Innovative data governance. As cities begin to scale up digital transformation efforts, new governance models may be necessary to improve transparency, oversight and accountability frameworks related to the governance of data and AI systems. Critics of the open data model proposed by Sidewalk Labs for the City of Toronto, the so-called “Urban Data Trust,” identified the need for greater investments into the legal and technical infrastructure required to support responsible data governance and sharing in the public interest. In particular, new institutions that serve as trusted data intermediaries, data trusts, or safe-sharing sites that offer assurances and auditability of data access and use against established data standards, could be an important tool for enabling effective regulation and innovation.<sup>35</sup>

**Algorithmic transparency.** In order to provide the public with a “window” into the AI systems that the cities use, Amsterdam and Helsinki implemented AI transparency registries. The registers incorporate an overview of the AI systems, details on the datasets they use, how data is processed, how inclusion is ensured, risks, and whether the tools have human oversight. Systems already listed in Helsinki include chatbots that answer questions about pregnancy, medical issues, relevant public health services, city parking services, or make recommendations for books held in the city’s public library. Amsterdam’s Algorithm Register includes a program to monitor parking compliance,

automatic categorization of citizen-reported issues, and an algorithm that helps prioritize investigations into reports of possible illegal holiday rentals. Both cities plan to bring more applications into the registers in due course.

Of course, these are just some of the examples of the legal, governance, and technical innovations that cities may consider implementing prior to procuring digital and AI systems to ensure respect for human rights. They may be adapted in proportion to the scale and risk profile of the digital transformation project under consideration. A host of other initiatives undertaken by cities to promote respect for human rights in the digital age is publicly available on the Cities Coalition for Digital Rights website.<sup>36</sup>

## INDEPENDENT HUMAN RIGHTS IMPACT ASSESSMENTS: LESSONS FROM SIDEWALK LABS

When a city is contemplating the simultaneous integration of multiple interacting digital systems or is launching a complex, large-scale digital transformation project that has the potential for broad impacts on the community, a more comprehensive assessment than provided by the tools outlined above may be necessary. The independent human rights impact assessment commissioned by Waterfront Toronto on Sidewalk Labs’ proposals for the Quayside project represents one potential example of such a scenario.

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<sup>35</sup> Lisa Austin and David Lie, “Safe Sharing Sites,” *New York University Law Review* 94, no. 4 (2020): 581–562; Teresa Scassa, “Designing Data Governance for Data Sharing: Lessons from Sidewalk Toronto,” *Technology & Regulation* (September 30, 2020): 44–56; Open North, *Data Governance and Digital Infrastructure: Analysis and Key Considerations for the City of Toronto* (Open North, 2020), <https://assets.ctfassets.net/e4wa7sgik5wa/2EvFXS5BAmQ0gTv4MPY8cz/6ecf0cd9b46b2250e6dfe4883c2924e0/2020-07-10-Open-North-Data-Governance-Report-Main-report.pdf>.

<sup>36</sup> “Cities,” Cities Coalition for Digital Rights, accessed Nov 19 2021, <https://citiesfordigitalrights.org/cities>.

## A HUMAN RIGHTS-BASED APPROACH TO INTELLIGENT COMMUNITY DESIGN

An HRIA is “a tool to evaluate the potential or actual impact of an organization’s strategy, practice, or product on people’s human rights.”<sup>37</sup> The UN Guiding Principles recommend that HRIAs should be undertaken regularly and at appropriate stages of a business’ operations as part of its human rights due diligence processes, for instance, prior to a new activity or relationship, before major decisions, or changes in its operations (e.g., market entry, product launch, policy change, or wider changes to the business), and periodically throughout the life of an activity or relationship. In general, the assessment should include identifying who may be affected, cataloguing the most salient human rights issues, projecting how the proposed activities could adversely impact stakeholders’ human rights, and identifying mitigations that might eliminate or reduce the level of risk to an acceptable level.

In the case of Quayside, Sidewalk Labs’ project proposal contemplated the development of more than 50 digital solutions and included extensive public consultations. As part of its consideration of the proposals, and in light of public discussion of its digital aspects, Waterfront Toronto commissioned an independent preliminary HRIA based on the Universal Declaration of Human Rights, the UN Guiding Principles, the Cities Coalition of Digital Rights statement, and Waterfront Toronto’s Digital Principles. While

the final report of this HRIA was never publicly released after Sidewalk Labs pulled out of the project, the assessment, which included regular exchanges with representatives from Waterfront Toronto, Sidewalk Labs as well as extensive consultations with subject matter experts and local stakeholders, contributed to the rapid acceleration and enhancement of existing human rights-based governance efforts related to the project in a relatively short period of time.

While labour-intensive HRIAs that involve extensive research and field work may be desirable in complex multi-factor scenarios, they are likely too burdensome and costly to serve as appropriate models for projects of a smaller scale.<sup>38</sup> As guidance regarding the design, scope, timing, and methodologies for HRIAs conducted on digital systems remains in development, consideration should be given to designing “light-touch” HRIAs, with methodologies calibrated to the nature of the context, risk profile, and/or stage of the digital transformation project in question.<sup>39</sup>

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<sup>37</sup> Mark Latonero and Aaina Agarwal, *Human Rights Impact Assessments for AI: Learning from Facebook’s Failure in Myanmar*, (Harvard: Carr Center for Human Rights Policy, 2021), <https://carrcenter.hks.harvard.edu/files/cchr/files/210318-facebook-failure-in-myanmar.pdf>.

<sup>38</sup> Brandie Nonnecke and Philip Dawson, *Human Rights Implications of Algorithmic Impact Assessments: Priority Considerations to Guide Effective Development and Use*, (Harvard: Carr Center Discussion Paper Series, October 21, 2021), <https://carrcenter.hks.harvard.edu/publications/human-rights-implications-algorithmic-impact-assessments-priority-considerations>.

<sup>39</sup> *Ibid.*; see also “B-Tech Project,” United Nations Human Rights Office of the High Commissioner, accessed December 15 2021, available at: <https://www.ohchr.org/EN/Issues/Business/Pages/B-TechProject.aspx>.

# CONCLUSION

Digital transformation can help cities meet critical public objectives—from sustainable transit and efficient energy programs to innovation and economic development opportunities for local governments and organizations. As cities await longer-term legislative and regulatory development by other levels of government, many have taken up the challenge of developing innovative ways to address the potential environmental and social impacts of digital systems, augmenting internal policies and procurement processes. More recently, others have undertaken significant effort to translate international human rights standards and guidance to digital technologies in the municipal context, including devising new policy, governance, and technical infrastructure to mitigate and remedy potential harms.

This paper has examined the types of digital systems and infrastructure being commissioned by cities in Canada, alongside the potential risks that these projects may involve. While some municipalities address these risks through social impact parameters in traditional procurement, they rarely name or consider human rights in these documents. Furthermore, as incremental digital layers of an intelligent community are built and begin to interact, the piecemeal approach offered by procurement is often insufficient. Consideration of human rights leads to a thorough approach to equity, public and private responsibilities, and citizen engagement. Accordingly, this paper highlights a swath of alternatives and complements to procurement that can improve cities' abilities to secure human rights. Finally, this paper examines

the role of HRIAs, concluding that while they are valuable for large-scale, complex projects like Sidewalk Labs in Toronto, smaller projects and municipalities will require significant support to use independent HRIAs, and a “lighter touch” method should be developed to address these municipalities' needs.

All told, the promise of intelligent community technologies to serve the public interest through resource conservation and equitable access to municipal services is too great an opportunity to forfeit through insufficient consideration of their potential negative impacts. Canadian municipalities have an opportunity to lead in responsible technology adoption by embracing thorough and innovative human rights-based approaches to intelligent community design.

# APPENDIX A: TYPES OF INTELLIGENT COMMUNITY TECHNOLOGIES BEING PROCURED IN CANADA

Each of the following categories provides examples of intelligent community-related procurements across Canada in recent years.

## Strengthening Digital Infrastructure

### CONNECTIVITY

Municipalities are strengthening or introducing public Wi-Fi, universal broadband, or cellular service. Improved connectivity infrastructure provides the baseline required for other intelligent community projects: much data collection, service delivery, and public engagement relies on high-quality connectivity.

- Next Generation Broadband Network (Brooks, AB-2020-04754)
- Internet Service Enhancement (Clearwater County, AB-2020-03722)
- CBRM Public Wi-Fi Initiative (Cape Breton Regional Municipality, NS CBRM\_EOI01-2020)
- RFP for Cellular Service Expansion (Inverness, NS, MCI-RFP-2020-004)
- Smart Parkland Feasibility Study (Parkland County, AB, P191115SI)
- Managed Wireless Internet Services to Provincial Parks (PEI, PEIG-5484)
- Integrated Networking Platform (Canmore, AB 2020-02769)
- VOIP Telephone System (Yellowknife, NT, RFP #20-058)

### CLEARWATER COUNTY, ALBERTA: INTERNET SERVICE ENHANCEMENT

Clearwater County launched an RFP in 2020 to improve internet service for their citizens. The city acknowledges that “in the same way that drinking water, electricity, and safe roads were key drivers of community development in the last century, broadband is the new infrastructure paradigm shaping the growth and sustainability of communities, households, and businesses in this century and is key to improving the quality of life for Clearwater residents.” Service requirements include providing subscribers with speeds of 50Mbps Down/10Mbps Up, 24/7 remote monitoring via a NOC, and using existing technology and infrastructure as much as possible.

(AB-2020-03722, 2020-06-08)

# APPENDIX A: TYPES OF INTELLIGENT COMMUNITY TECHNOLOGIES BEING PROCURED IN CANADA

## CAPE BRETON REGIONAL MUNICIPALITY, NOVA SCOTIA: PUBLIC WI-FI INITIATIVE

Connecting citizens by improving internet access is key to Cape Breton Regional Municipality's Smart Cities Initiative. By providing free internet "areas for residents to connect, engage, and collaborate," the initiative will respond to the increasing need for online access, intensified by the Covid-19 pandemic. In particular, the project aims to help "low-income residents [who] don't always have access to quality internet and if they do, it can be very expensive." Service requirements include providing cost reduction or elimination options.

(CBRM\_EOI01-2020, 07-07-2020)

## PROJECTS FOR DATA COLLECTION

While intelligent community conversations almost always discuss the importance of the Internet of Things (IoT) as a foundational requirement for interconnected, efficient urban spaces, IoT itself is not a technology but an idea enabled by a wide variety of technologies, including hardware (such as embedded sensors or chips), software, and communications technology. One could, for example, implement short-range wireless communication between devices using Bluetooth or near-field communication (NFC), two technologies with different applications within the bigger IoT bucket. IoT hardware uses everything from short-range "multi-hop" communication, to the more efficient use of fourth- and fifth-generation (5G) cellular networks, to commercial long-range, low-power wireless technologies.

## SUSTAINABILITY AND WASTE

- Smart System Waste Containers (North Vancouver, BC RFP.090.17)
- Water Leak Detection Correlators Technology (Red Deer, AB, RFI-2020-14)
- Notice for pilot project for smart cities water leak detection technology (Durham, ON, NRP - 1066-2020)

### DURHAM, ONTARIO: NOTICE FOR PILOT PROJECT FOR SMART CITIES WATER LEAK DETECTION TECHNOLOGY

"The intent of this public notice is to advise the supplier community that the Region intends to conduct an assessment of smart water technologies (Pilot Project), and to allow potential suppliers (respondents) to signal their interest in participating in this Pilot Project by submitting a Statement of Capabilities for approval." Service requirements include providing live data to troubleshoot operational issues, find leaks to manage water loss, and minimize the need for emergency repairs, as well as analyzing collected data to improve operations and reduce future costs.

# APPENDIX A: TYPES OF INTELLIGENT COMMUNITY TECHNOLOGIES BEING PROCURED IN CANADA

## INFRASTRUCTURE MONITORING AND MAPPING

- Network of Seismic Sensors for the North Shore (North Vancouver, BC RFP.054.18)
- Advanced Metering Infrastructure System (New Westminister, BC, NWRFAQ-19-01)
- Satellite Imagery & Community Based Mapping Services (Iqualuit, Nunavut, RFP #2018-29)
- WTS Remote Security Monitoring (West Kelowna, BC, RFP # R20-542)

### NEW WESTMINSTER, BRITISH COLUMBIA: ADVANCED METERING INFRASTRUCTURE SYSTEM

Within the next five years, more than 60% of residential, commercial, and industrial metres in New Westminister will need to be replaced or recertified. To support their electric utility customers, the city launched a call for a Digital Metering Platform that will “consist of metres, network, field deployment tools, a metre head end and network management system and a metre data management system.” Service requirements include cyber security services, “business process and technical integration design and development,” “organizational change management and communications support.”

(NWRFAQ-19-01, 2019-06-06)

## PROJECTS TO CLEAN AND ANALYZE DATA

While many kinds of sensor networks have the ability to collect immense quantities of instantaneous data, synthesizing and analyzing that data is another matter. Without the help of programs for cleaning, organizing, and analyzing data, only a tiny fraction of all collected data would be leveraged to its full extent.

Machine learning (ML) identifies and improves on methods for teaching computers to interpret and act on many different types of data, including, increasingly, language and images. As such, the interconnected IoT and “smart infrastructure,” when paired with ML algorithms, can collect information, analyze it, and make decisions, such as dimming a streetlight or identifying a water leak. ML is just one example of a technology for cleaning, organizing, and analyzing data in an intelligent community project.

Many of the data collection RFPs above involve some aspect of data cleaning and analysis. For example, New Westminister’s smart grid proposal involves many steps beyond the simple collection of data. Below are a few additional RFPs that involve data analysis.

- Law Enforcement Voice Transcription Software (Brandon, MB, RFP-179/19)
- Integrated Camera and Digital Evidence Management Solution (Thunder Bay, ON, RFEI 01 – 2019)
- Civic Accelerator Program (Guelph, ON, RFP 19-100)

# APPENDIX A: TYPES OF INTELLIGENT COMMUNITY TECHNOLOGIES BEING PROCURED IN CANADA

“The City of Guelph is requesting proposals from qualified Applicants to develop a solution that will allow the City to improve the capture, monitoring, analysis, and forecasting of information related to the quality of the road network. How might the City of Guelph improve the capture, monitoring, analysis and forecasting of information related to the quality of roads?”

- Conversational Artificial Intelligence (AI) Phase 1 (Ottawa, ON, RFP 32319-91871-P01)

“The city doesn’t know enough about how to use AI in its services and wants to learn more; the city wants an AI chatbot for garbage and recycling services.”

- Purchase and Implementation of Various IT Systems (Brandon, MB, RFP-19-030)

## **THUNDER BAY, ONTARIO: INTEGRATED CAMERA AND DIGITAL EVIDENCE MANAGEMENT SOLUTION**

To replace their “fragmented” digital evidence system, the Thunder Bay Police Service launched an RFP in 2019. They were searching for a “one-stop solutions” to 1) “[capture] and [manage] digital video through an integrated camera (includes body worn, vehicle and interview room)” and 2) a “digital evidence management system (DEMS).” Service requirements include “secure Cloud storage solution located within Canada”. As part of their services, AXON, the successful vendor, offers “AI-based redaction and transcription.”

(RFEI 01 – 2019)

## **PROJECTS TO KEEP DATA SECURE & PRIVATE**

There are a variety of technologies that primarily aim to protect privacy and cybersecurity. Importantly, many of the RFPs discussed thus far incorporate some cybersecurity requirement or privacy guidance. Synthetic data, security technologies, privacy technologies may also be procured individually, such as:

- Internet of Things (IoT) Security Consulting Services (Bridgewater, NS, RFP2020-08)

## **PLANNING SERVICES FOR SMART INFRASTRUCTURE: IOT ENERGY NETWORK SECURITY CONSULTING SERVICES**

Town of Bridgewater: “Internet of Things (IoT) Security Consulting Services for Energize Bridgewater Program”

“The Primary objective of this RFP is to provide a standardization (NIST, ISACA, COBIT or equivalent) security vulnerability and risk analysis with recommendations to guide the Town of Bridgewater’s design of an IoT network to monitor energy usage in residential housing. The risk and vulnerability assessment will include (but not limited) to the following:

1. The physical security of IoT devices
2. The transfer of data through an edge gateway to the EMIS
3. System integrations between the EMIS and systems hosted by the town
4. The energize web portal”

RFP2020-08, August 2020

# APPENDIX A: TYPES OF INTELLIGENT COMMUNITY TECHNOLOGIES BEING PROCURED IN CANADA

## Delivering Public Services

### OPEN GOVERNMENT

- Provision of a Digital Engagement Platform (Vancouver, BC RFP No. PS20191175)
- SIP/ST Smart Screen Kiosk for City Hall (Ottawa, ON, RFQ 32319-20422-Q01)

### SMART GOVERNMENT: PLATFORM FOR OPEN DATA AND VIRTUAL PUBLIC ENGAGEMENT

City of Vancouver: "Provisions of a Digital Engagement Platform"

"The City seeks a user-friendly platform that, at a minimum, does the following:

- Supports users of all/varied physical abilities to engage (i.e., meeting WCAG Accessibility requirements)
- Ensures transparency in the quality and strategic nature of each digital experience
- Provides a one-stop-shop engagement portal with the ability to show all engagement activities (closed, current, and upcoming) and the ability to report on summaries, opportunities to participate, and outcomes
- Updates quickly, and harmonizes reporting approaches
- Provides flexible and visual project pages with the ability to share information
- Is multi-media enabled
- Allows users to subscribe to updates on their channel of choice
- Can integrate engagement tools that include surveys, ideation, asset mapping, trade-offs, options analysis, voting, discussion forums
- Can serve as an archive for previous engagement findings
- Provides content in a manner that can be assessed and engaged with through multiple channels"
- RFP No. PS20191175, August 2019

# APPENDIX A: TYPES OF INTELLIGENT COMMUNITY TECHNOLOGIES BEING PROCURED IN CANADA

## SMART MOBILITY

- Smart Traffic Feasibility Study (Leduc, AB-2019-04705)
- Regional smart fare solution (RSFS) (Edmonton, AB, 928920)
- Automated Fare Collection (AFC) system, On Board Announcement System and Transit CAD/AVL Software (Brandon, MB, RFP-108/19)
- Supply of a Fleet Management Information System (Vancouver, BC, PS20161295)
- Consulting Services – Electric Vehicle Strategy (Victoria, BC, RFP-20-072)
- Provision of EV Infrastructure (BC Hydro, RFP 1391)
- Real-Time Passenger Info Electronic Payments System (Whitehorse, YT, RFP 2019-093)
- Smart City Parking Technology Solutions (Saskatoon, SK, OS19-0529)
- Level 2 EV Charger Installations (Summerside, PEI, SUM-014)
- Electric School Bus (PEI, PEIG-5521)
- Electrical Infrastructure for Level 2 EV Charging Stations (Kingston, ON, RFP-F31-CS-REEI-2018-04)
- Supply and operate a kingston community bike sharing system (Kingston, ON, RFP-F31-CS-REEI-2018-02)
- Para Transit Mapping Upgrades & notification software (Brandon, MB, RFP-124/19)

## SAULT STE. MARIE, ONTARIO: RFP FOR ENGINEERING, PROCUREMENT, AND CONSTRUCTION SERVICES

The Sault Smart Grid Project launched an RFP to provide “for community-scale smart grid technology applications and an integrated and intelligent distribution management platform for the PUC Distribution electrical distribution service area.” Service requirements include “[increasing] efficiency of distribution grid” and “[reducing] electrical energy losses” in order to create “direct savings in energy bills,” increased “outage minutes savings,” and “improve integrated system data management systems” for both normal and extreme-weather induced outages.

# APPENDIX A: TYPES OF INTELLIGENT COMMUNITY TECHNOLOGIES BEING PROCURED IN CANADA

## SUSTAINABLE INFRASTRUCTURE

- Solar Resource Measurement Equipment and Services (Berwick, NS, AREASOLARRESOURCE)
- Call for Energy Investment Implementation Services (Western Regional Enterprise Network, NS, 20200805WRENEIPIMP)
- LED lighting retrofit for parkade structures (Kelowna, BC, RFP T20-046)
- Installation of LED fixtures for the LED conversion project (Saskatoon, RFQ-20-0290)
- Pownal Parkade Energy Efficient LED Lighting Upgrade (Charlottetown, PEI, 2019-157)
- ENERGY PERFORMANCE CONTRACT (Charlottetown, PEI, 2019-153)
- Conversion of the Outdoor Lighting Network to LED and Installation of Smart Control and Monitoring System (Richmond Hill, ON, RFP-44-16)
- Request for Proposal Supply and Installation of Smart-Waste and Recycling Bins (Winnipeg, MB, 646-2018)
- RFP for Engineering, Procurement, and Construction Services, (Sault Ste. Marie, ON, RFP-SSG2019)
- Somba K'e Civic Plaza Lighting (Yelloknife, YT, RFP # 15-055)
- "Supply and Install LED fixtures or lamps maintaining current lighting levels."

## HEALTHCARE

- Cortellucci Vaughan Hospital (Ontario, RFP No. 14-124P)
- SOA Remotely Delivered Counselling / Therapy and Clinical Supervision Services (Nunavut, RFP-2021-04-01)

### VAUGHAN, ONTARIO: CORTELLUCCI VAUGHAN HOSPITAL

Mackenzie Health launched an RFP in 2015 for a service provider to "support the delivery and vision of the Smart Hospital that is context aware, personalized, anticipatory, adaptive, ubiquitous, transparent and capable of complex semi-autonomous interactions. "Service requirements are extensive and include "financing, procuring IT equipment, installation, configuration, commissioning, the services of integration, interoperability and event stream processing, and developing Mackenzie Health core systems and workflows." The service provider "will also participate in the related design development of the Design-Build-Finance-Maintain (DBFM) RFP process for the construction of the new Mackenzie Vaughan Hospital... to ensure the incorporation of managed ICAT service requirements into the design."

(RFP No. 14-124P, 11/19/2015)