



Smart Cities Challenge Edmonton

FINAL PROPOSAL

March 2019

Edmonton

EXECUTIVE SUMMARY

INTRODUCTION

Modern municipalities operate in a period marked by a rapidly changing business environment, a call for more open and interactive government and an ever-increasing need to work collaboratively to address the complex challenges of today and tomorrow. As a world leader in leveraging data, technology and innovation, the City of Edmonton recognizes the need for an approach that is community-driven, evidence-based and delivered through partnerships in order to achieve sustainable solutions. This proposal highlights Edmonton's ability to lead the transformation of healthcare in Canada through the use of municipal-level interventions and a focus on building a stronger, more connected city, region and nation for all.

According to the World Health Organization, urban populations experience some of the world's most prominent health disparities. Residents are faced with increasing urban health hazards resulting from inadequate housing, transportation, food and environmental systems including air pollution, unhealthy diets, physical inactivity and isolation. Now, in the midst of the digital revolution that is transforming how individuals interact, communicate and connect, cities are also faced with understanding the technological challenges affecting the health of residents and how to lessen the impact of the digital divide.

Although technology is an integral part of building a smart and connected city, there are several non-technical components that work together to complete a Smart City ecosystem and become catalysts for innovation. These components range from the creation of public spaces where residents can come together to gain a sense of community belonging to the partnerships that will continue to drive the transformation of today's urban physical and digital environments. The City of Edmonton actively creates opportunities for diverse input and participation

by inviting residents to play a larger role in shaping their community to enable social and economic growth and impact environmental and health outcomes.

Smart Cities hold the promise to create healthier urban environments where residents can live their best lives. An open, inclusive and collaborative community is foundational to success. This means reducing socio-economic, physical and technical barriers, and creating accessible channels for delivery of effective programs and services. [Edmonton's Open City Initiative](#) strives to transform the City into a more transparent, open and accessible organization; one that is connected to the public and responsive to their vision for the future.

Edmonton proposes that municipal-level interventions guided by residents will have a significant impact on building healthier cities and will improve the quality of life for residents today and into the future. Edmonton's innovative Smart City approach to improve health through preventative measures addresses the true needs of the community through a collaboration between public and private sector organizations and residents. This approach,



HEALTHY CITY CHALLENGE STATEMENT

Edmonton will lead the **transformation of Canadian healthcare** using an unprecedented municipal approach by focusing on **leveraging relationships, health data and innovative technologies** to provide a personalized health connection and experience as **unique as the health of every Edmontonian.**

enabled by technology, analytics and data, will ensure Edmonton is a place where all residents have equitable opportunity for healthy, safe and joyful lives.

EDMONTON'S APPROACH

Edmonton's Smart Cities Challenge proposal encompasses the development and phased implementation of a Healthy City program. In this Healthy City program, municipal levers to improving the quality of life and well-being of residents are identified and changes to programs, policies and services will be implemented. Fundamental to the success of this program is partnering with residents, other levels of government, community organizations, educational institutions and businesses. The City of Edmonton will continue to evolve existing relationships with residents and partners, leveraging connected technology and data to understand the challenges in the community and create sustainable solutions that are scalable across Canada. Additionally, the City of Edmonton not only recognizes the importance of privacy to residents as technology advances and the use of big data increases, but also the importance of developing mitigating controls in partnership with residents as this field evolves.

By investing funds and resources in specific, purposeful steps that enable early adoption, measurement, refinement

and expansion of projects, the Healthy City program will transform the health of cities across Canada, starting with Edmonton. In collaboration with residents and partners, the program will lead projects to address the specific needs of diverse populations, evaluate with communities and then scale solutions appropriately.

In addition, the City of Edmonton believes a collaborative partnership with the Government of Canada is a critical component in the success of Canada's urban digital transformation. Through focused efforts to share knowledge, ideas and learnings, Edmonton's Smart City approach will contribute to the advancement of objectives and outcomes at a national level. This will result in a greater benefit for all residents across Canada.

SMART CITY GUIDING PRINCIPLES

The principles listed in Figure A will guide the development and implementation of Edmonton's Healthy City program. These principles emphasize the City of Edmonton's commitment to building a healthier, more connected city with residents and partners, inciting innovation within the region and beyond.

These guiding principles are directly aligned with the foundational principles of the [City of Edmonton's Business Technology Strategy](#) – a City Council-approved strategy

FIGURE A: Smart City Guiding Principles



RESIDENT FOCUSED

Residents and community are the driving force behind transformative change in cities. City-building is rooted in the engagement and empowerment of residents.

PARTNERSHIPS

Multi-sector collaboration results in sustainable systems change. Collective impact is achieved through a shared vision for a vibrant and healthy community.

USEABLE INFORMATION

Decision-making is driven by relevant information that is inclusive. Information and data gaps and biases are acknowledged and steps are taken to ensure they are addressed.

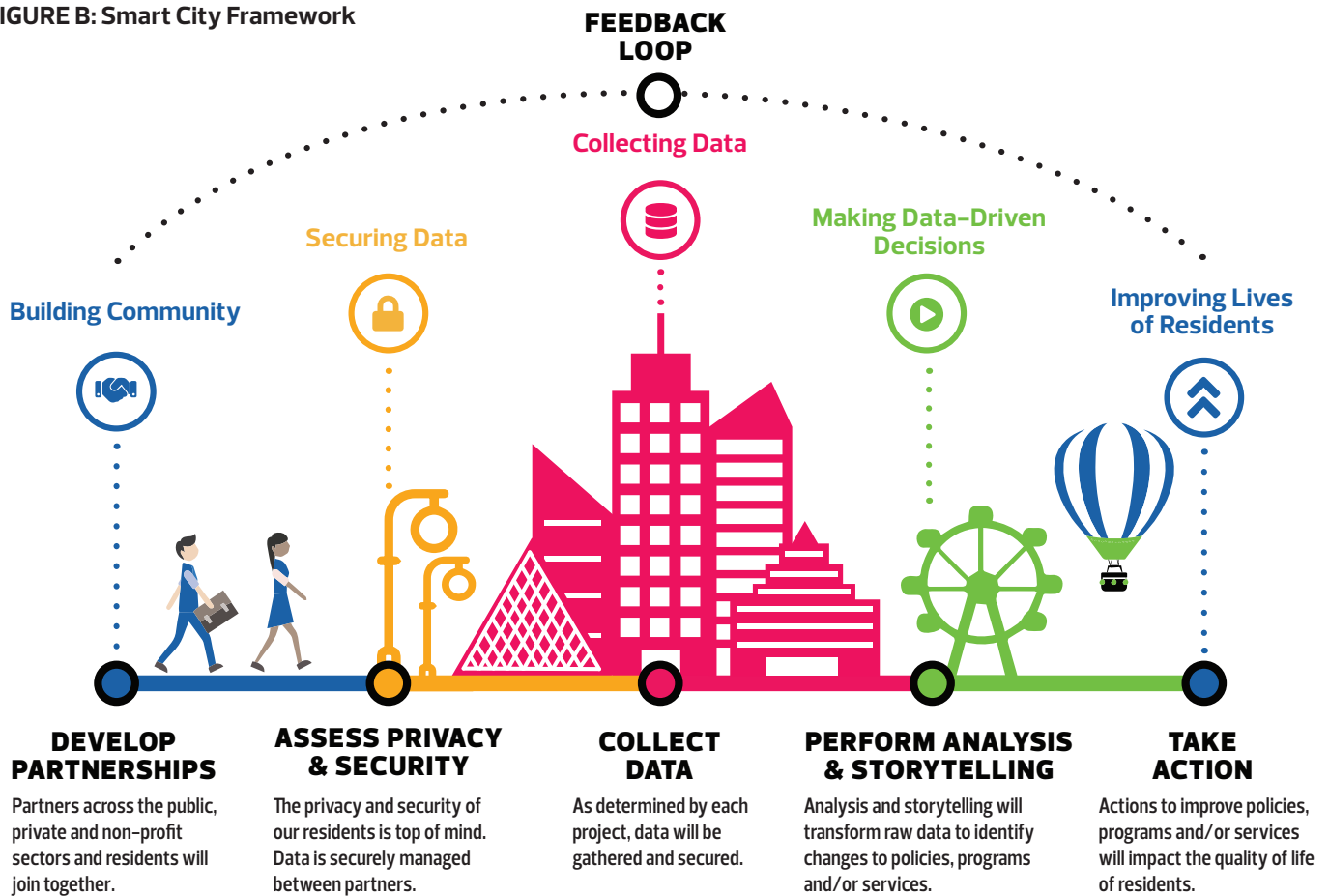
PRIVACY & SECURITY

Clear and transparent processes for gathering and using data and technology aligns with the highest privacy and security standards and the expectations of residents.

INNOVATION

Disruptive technology is embraced through a flexible and adaptable approach to doing business. Challenges transform into opportunities through an open and collaborative working environment.

FIGURE B: Smart City Framework



that enables a fully integrated approach to managing information, data and technology. The City has a significant amount of valuable data, business solutions and diverse technologies. To better leverage these assets, the application of the Business Technology Strategy increases internal and external data sharing, optimizes processes and delivers quality service while managing costs effectively—all in partnership with stakeholders and residents.

SMART CITY FRAMEWORK

Edmonton's Smart City Framework (Figure B) is a holistic approach to working collaboratively with residents and partners to optimize the use of data and technology, and influence the development of policies, programs, services and innovative funding models. Working with residents and partners, the City of Edmonton developed this approach to leveraging data, technology and innovation in order to provide an exceptional quality of life for residents. This framework is the foundation for Edmonton's phased approach to the building of a Healthy City program and ultimately healthier, more connected communities across the country.

TRANSFORMATION: EDMONTON'S PHASED APPROACH TO BUILDING SMARTER CITIES ACROSS CANADA

Edmonton's program methodology is broken down into three distinct phases: Initiate, Innovate and Embrace. The proposed approach demonstrates the City's commitment to investing funds and resources in the advancement of partnerships, processes and projects that will transform the municipal approach to solving complex problems across Canada.

Figure C demonstrates how the City of Edmonton plans to invest a total of \$60 million over three phases and the impact it will have over time. This \$60 million investment is a combination of \$50 million through Infrastructure Canada, \$5 million from the City of Edmonton and \$5 million through in-kind and other private or community investments. Through the creation of scalable and transferable tools and technology, Edmonton will provide opportunities for all municipalities to leverage this investment of funds and resources, resulting in the

transformation of how Canadian communities work with residents and partners to achieve excellence in data and technology.

CONNECTED CITIES FOR ALL RESIDENTS

Connected cities have vibrant public spaces, creative and diverse residents, opportunities for economic development and smart technologies. Connected cities have inclusive and innovative spirits that challenge the status quo and overcome barriers collaboratively. They are the cities that are transforming the regions they occupy and influencing community development at a national and global level. Edmonton is one of those cities and recognizes the importance connected communities play in building connected regions and ultimately a connected nation. In Edmonton, progress is linked to and driven by community for community. Connecting with others – across cultures, age groups, geography and communities of interest – is seen as essential for creating a vibrant, connected, engaged and healthy community for all.

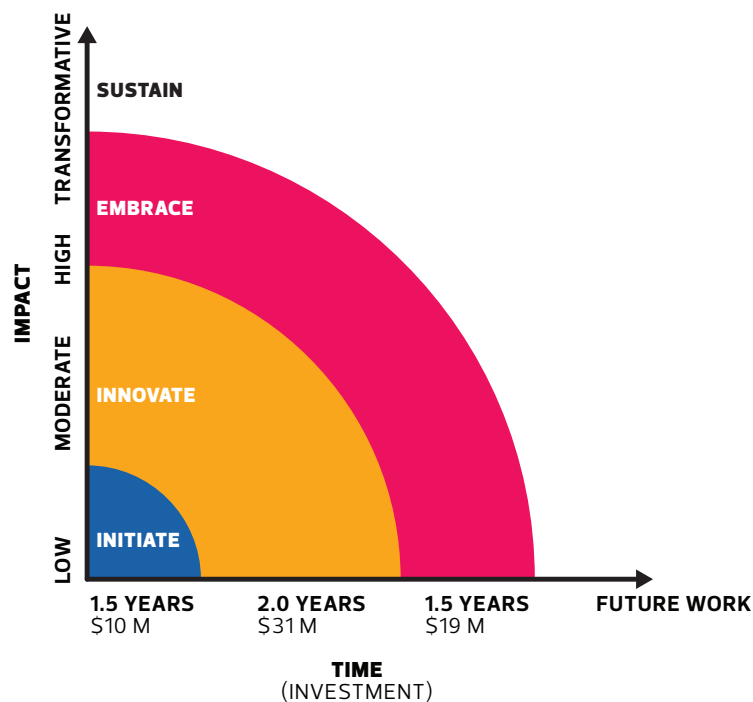
WHY EDMONTON?

Edmonton is Canada's Most Open City (Public Sector Digest, 2015, 2016 and 2017) and a Top 7 Intelligent Community (Intelligent Community Forum, 2017). It is a place where the community leverages data and connected technology to become more engaged with one another through social interactions such as volunteering, celebrating or just being together in the neighbourhood.

Edmonton is in an advantageous position to positively impact health outcomes for residents. The City has an outstanding network of academic, health, government and industry partners eager to work together on this initiative. Additionally, as a global leader in open data, open government, digital innovation and being a Smart City, Edmonton demonstrates an unwavering commitment to being a progressive and collaborative learning organization.

Edmonton was also recently named the best city in Canada for youth to work in 2019 from the [YouthfulCities Urban Work Index](#). The index used an expansive, youth-driven definition for work that includes four thematic areas: education, entrepreneurship, affordability and employment. Creating vibrant, dynamic and open places for youth to work, live and play establishes a foundation for a Smart City to continue to grow.

FIGURE C: Phased Approach to Building Smarter Cities



The City of Edmonton has a world-class team with experience managing complex, multi-stakeholder and multi-dimensional projects in partnership with all levels of government, industry and residents. The City will continue to use proven mechanisms and processes to deliver project excellence and share learnings with the Government of Canada to help advance Smart City goals and priorities.

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This document is the City of Edmonton's Final Proposal to Infrastructure Canada's Smart Cities Challenge. Thank you to all those who have contributed to the development of this proposal. Visit smartcities.edmonton.ca to learn more about the City of Edmonton's Smart Cities Challenge journey.

*As per the Smart Cities Challenge Finalist requirements, these sections are not included in the 75-page limit. The City of Edmonton's Final Proposal is a total of 75 pages.



1.0 VISION

1.1 EDMONTON'S SMART CITY STRATEGY

Edmonton is currently undergoing a resident-led digital transformation, championed by Mayor Don Iveson and City Council. To continue to provide value to residents, the City recognizes it must be a nimble organization – continuously evaluating and embracing the endless possibilities that accompany change.

As a result, the City created the Business Technology Strategy, the first of its kind in Canada, to guide the use of data, business solutions and diverse technologies to improve life in Edmonton. As a digital city, Edmonton is embracing new ways of delivering programs and services to address the challenges of the day with residents at the core.

Complementing the Business Technology Strategy is Edmonton's Smart City Strategy – an innovation ecosystem of government, academia, residents and industry, that follows the International Organization for Standardization Standard 37106 (2018). It is not just about the administration of municipal programs and services; it is about Edmonton as a thriving community. Edmonton is a creative community of changemakers and social innovators – where residents are engaged with their community and lead the charge for a better future. The City of Edmonton addresses today's challenges and creates tomorrow's opportunities through collaboration and innovation.

1.1.1 GUIDING PRINCIPLES

The principles shown in Figure 1 were used by the City of Edmonton to guide the development of Edmonton's Smart Cities Challenge proposal and demonstrate the organization's commitment to working collaboratively to achieve innovation. These principles will continue to guide the development and implementation of Edmonton's Healthy City program and Edmonton's other Smart City initiatives to ensure an integrated, collaborative, open and scalable approach.

As cities and communities eagerly search for new ways to address complex challenges, there is a growing recognition that solutions require multi-sector efforts and organizational agility in order to be meaningful and transformative. These guiding principles are critical success factors for Edmonton to continue to progress as a Smart

FIGURE 1: Smart City Guiding Principles



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PARTNERSHIPS

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USABLE INFORMATION

Decision-making is driven by relevant information that is inclusive. Information and data gaps and biases are acknowledged and steps are taken to ensure they are addressed.

PRIVACY & SECURITY

Clear and transparent processes for gathering and using data and technology aligns with the highest privacy and security standards and the expectations of residents.

INNOVATION

Disruptive technology is embraced through a flexible and adaptable approach to doing business. Challenges transform into opportunities through an open and collaborative working environment.

**HEALTHY CITY
CHALLENGE
STATEMENT**

Edmonton will lead the **transformation of Canadian healthcare** using an unprecedented municipal approach by focusing on **leveraging relationships, health data and innovative technologies** to provide a personalized health connection and experience as **unique as the health of every Edmontonian.**

City leader. Together, with the Business Technology Strategy and Edmonton's Smart City Strategy, these principles form the foundation for Edmonton's success in achieving transferable and scalable Smart City outcomes.

1.2 WHY HEALTH? A SMART CITY IS A HEALTHY CITY

A city of the future – a Smart City – is a Healthy City. It is one where residents, industries, academic sectors and government work collaboratively to learn about the challenges the city is facing, and create, test and scale sustainable solutions. A Smart City identifies the transformational shifts required to boldly challenge the status quo and build an inclusive and digitally enabled community. Together with residents and partners, a Smart City creates and nurtures a resilient, livable and workable community that rises to the challenges being faced today, enhances the vibrancy and diversity of the city, and embraces the opportunities of tomorrow. This concept is shown in Figure 2.

Cities are in the unique position of working directly with residents and the local built environment to use technology and innovation to revolutionize the urban setting and improve the health of residents. A city of the future – a Smart, Healthy City – recognizes this incredible opportunity to identify and intentionally advance transformative priorities with residents, not for them.

The 2016 Conference Board of Canada City Health Monitor ranked Edmonton eighth place out of ten in physical and socio-economic health among larger Canadian municipalities. A Smart City approach to improve the health of Edmontonians is indeed a priority. This approach is both aspirational and innovative. It has the potential to make Edmonton one of the healthiest cities in Canada. Through established mechanisms and community partners, the City is uniquely positioned to understand the health of its residents and quickly test interventions at the neighbourhood level, measuring outcomes and reporting results to inform decision-making in order to scale solutions effectively.

FIGURE 2: Smart Cities are Livable, Workable and Resilient



1.2.1 HEALTH DEFINED

The City of Edmonton is committed to improving the economic, mental, physical and social health and well-being of all residents and developing policies, programs and services that will benefit residents. Edmonton is addressing the following four facets of health as per the descriptions in Figure 3.

FIGURE 3: The Four Facets of Health



ECONOMIC HEALTH

Poor health can negatively affect both labour force participation and productivity. For individuals, it can result in reduced income or unemployment; for businesses, it may mean productivity losses, and labour and skills shortages.

Conference Board of Canada



PHYSICAL HEALTH

Physically active lifestyles have been linked to better overall health, better self-esteem, stronger muscles and bones, relaxation and reduced stress, continued independence in life, lower risk of chronic disease and improved sleeping habits.

Alberta Health



MENTAL HEALTH

Mental health includes emotional, psychological and social well-being. It affects how individuals think, feel and act.

MentalHealth.gov



SOCIAL HEALTH

The social determinants of health influence the health of populations. They include social status, social support networks, education, employment conditions, social environments, physical environments, personal health practices and coping skills, gender and culture.

Government of Canada

Municipalities play a vital role in contributing to the health of their residents. The City of Edmonton's proactive approach proposes to improve the health of residents by addressing the root causes of health issues. With the recognition that preventive health services need to be responsive to the unique needs of all residents, the City has created an approach that is resident-driven, evidence-based and will be delivered in partnership with the community. From a municipal perspective, addressing social determinants of health such as isolation and access to services in this collaborative setting is an innovative, transformational approach to achieving preventive health outcomes.

1.2.2 ALIGNMENT TO CITY OF EDMONTON PRIORITIES AND INITIATIVES

Edmonton City Council's Strategic Plan was renewed in 2018 with a focus on four goals shown in Figure 4.

FIGURE 4: Edmonton City Council's Strategic Plan



HEALTHY CITY

Edmonton is a neighbourly city with community and personal wellness that embodies and promotes equity for all Edmontonians.



URBAN PLACES

Edmonton neighbourhoods are more vibrant as density increases, where people and businesses thrive and where housing and mobility options are plentiful.



REGIONAL PROSPERITY

Edmonton grows prosperity for our Metro Region by driving innovation, competitiveness and relevance for our businesses at the local and global level.



CLIMATE RESILIENCE

Edmonton is a city transitioning to a low-carbon future, has clean air and water and is adapting to a changing climate.

While Edmonton's Smart Cities Challenge proposal supports all four goals, it focuses primarily on contributing to the Healthy City goal.

A selection of City of Edmonton initiatives that contribute to a Healthy City are shown in Figure 5. These initiatives demonstrate the City's commitment to working collaboratively with community and residents to create a healthier city for all, and showcase how the City of Edmonton continuously supports an inclusive, healthy and connected community.

Cities are in the unique position of working directly with residents and the local built environment to use technology and innovation to revolutionize the urban setting and improve the health of residents.

FIGURE 5: City of Edmonton Initiatives



HEALTH CITY

Health City is an economic development initiative created to catalyze the health innovation ecosystem in Edmonton. Their focus is on transforming innovations into solutions that have commercial application and global relevance – adopting them for impact in Edmonton and scaling them for export to global markets.



RECOVER

An initiative developed to define and improve urban wellness. It focuses on finding ways to better align and collaborate across different orders of government, social agencies, local businesses and the community.



URBAN ISOLATION & MENTAL HEALTH INITIATIVE

The City of Edmonton's initiative on Urban Isolation and Mental Health is working to positively affect mental health and well-being by connecting residents within their communities.



AGE FRIENDLY EDMONTON

Age Friendly Edmonton addresses the key factors that contribute to healthy, active, creative aging in Edmonton. It is an initiative to build a city that values, respects and actively supports the well-being of seniors.



CHILD FRIENDLY EDMONTON

Child Friendly Edmonton, in a spirit of cooperation and collaboration, works with residents, community groups and levels of government to create the best possible results for children and their families. The Child Friendly Edmonton Initiative is based on the International UNICEF Child Friendly Cities Initiative.



LIVE ACTIVE STRATEGY

This strategy provides a road map for supporting the active recreational and sporting needs of all Edmontonians. It raises awareness and encourages Edmontonians to become more physically active, whether that be in sports activities, recreational activities or active living pursuits.

1.2.3 SUPPORTING RESEARCH

The following is a summary of the research that provides additional context for the municipal focus on advancing the health of residents.

- The [United Nations](#) reports that today, 54 per cent of the world's population lives in urban areas, a proportion that is expected to increase to 66 per cent by 2050. (World's Population Increasingly Urban with More than Half Living in Urban Areas, 2014)
- The [World Health Organization](#) reports chronic diseases are the major cause of death and disability worldwide. In Canada, chronic diseases are projected to account for 89 per cent of all deaths. (Chronic Diseases and their Common Risk Factors, 2005)
- The [Canadian Institute for Health Information](#) reports that while the healthcare system can prolong survival and cure people of diseases, the improvement of population health depends largely on public health policies and on broader governmental action. (A Performance Measurement Framework for the Canadian Health System, 2013)
- "Evidence increasingly demonstrates that many aspects of city and neighbourhood form, urban and transport design, and residential environments play an important role in mediating health and health equity outcomes." (Cities and Health: An Evolving Global Conversation, 2017)
- "Many would be surprised to learn that the greatest contribution to the health of the nation over the past 150 years was made, not by doctors or hospitals, but by local governments. Our lack of appreciation of the role of our cities in establishing the health of the nation is largely due to the fact that so little has been written about it." (Healthy Cities and Communities: Past, Present and Future, 1997)
- "A Smart City for health and well-being is one that takes an integrated approach to the use of digital technologies to increase the connectedness of people to the information and city functions that improve health and well-being, reduce inequalities and support a higher quality of life for all its residents." (Cities as Places of Well-Being, 2015)

Additional research was completed into how other Smart Cities around the world are improving the health and well-being of residents. Two examples from this research are: City4Age and the Societal Engagement Toolkit.

- [City4Age](#): Elderly-friendly City services for active and healthy aging.
 - "City4Age will activate urban communities to facilitate the role of social/health services and of families in dealing with mild cognitive impairments and frailty in the elderly population. The challenge is to demonstrate that Cities play a pivotal role in the unobtrusive collection of 'more data' on individual behaviours, and with 'increased frequency'. This can then greatly improve the early detection of risks through the timely analysis of changes in these behaviours and, finally, the design of effective interventions for countering these risks." (City4Age EU Project, 2019)
- [SET: The toolkit to engage citizens in co-creating their cities](#).
 - "In order for cities to co-create the urban spaces of the future together with the people that live in them, a Societal Engagement Toolkit (SET) is being created to help local authorities bridge the gap between them and their citizens. Our cities today face challenges on an unprecedented scale from providing healthcare for an aging population, reducing crime rates and boosting employment to improving air quality, transforming transport to be more sustainable and (re-)building energy efficient housing. Cities cannot work in isolation to find solutions to such challenges. Cooperation with businesses, academics and public authorities is important to stimulate and steer change; however, involving the citizens who live and work in those cities is vital. A new and better future can only be delivered when citizens take personal and collective responsibility for how they 'use' their city, changing their mindset, behaviours and actions." (SET – The Toolkit to Engage Citizens in Co-Creating their Cities, 2018)

This research demonstrates the important role cities have in using partnerships, data and connected technologies to improve the health and well-being of residents. The results of the City of Edmonton's public engagement and consultation with stakeholders and partners further validated this focus (see Chapter 6).

1.3 HEALTHY CITY OUTCOMES

1.3.1 FINAL OUTCOMES

The primary outcomes to be achieved as a result of implementing the City of Edmonton's Healthy City program are shown in Figure 6.

FIGURE 6: Healthy City Outcomes



1. To improve quality of life for residents.

The City of Edmonton and partners will implement changes to policies, programs and services to positively impact the health and well-being of residents.



2. To transform how municipalities across Canada work with residents and partners to achieve excellence in data and technology.

The City of Edmonton will lead the creation of a municipal-focused digital innovation collective that spans communities across Canada in order to build capacity for resident-driven open data and analytics. This would also extend to First Nations, Métis and Inuit communities.

Utilizing an extensive body of national and global subject matter experts, academic research and thought leaders as well as ongoing, focused engagement with residents and stakeholders, the City's high level approach to achieving the above outcomes is outlined below:

- 1. Advance the Healthy City Ecosystem** – The City of Edmonton will advance the development of the Healthy City Ecosystem to work collaboratively to provide integrated community-based preventative health support. The Healthy City Ecosystem comprises public sector organizations, private sector organizations, academic institutions and residents. The ecosystem works collaboratively to improve the capacity of all partners while developing efficient and effective ways to provide meaningful services to residents. The growth of the ecosystem will continue by identifying partnerships, opportunities for innovation and the means by which to improve the efficacy of preventative health services.
- 2. Establish an Information Sharing Framework** – The City of Edmonton is developing an actionable framework that will facilitate the sharing of anonymized data and information across the Healthy City Ecosystem in order to understand the current state of data existence and completeness. This framework will be developed in conjunction with residents, community members and partners and will focus on understanding how data and information can be used to help identify and solve problems. Alberta's Office of the Information and Privacy Commissioner will play an integral role in the development and implementation of the Information Sharing Framework to ensure all current and potential privacy and security considerations are addressed.
- 3. Lead Projects to Improve Health and Well-Being of Residents** – The City will lead projects that positively impact the health and well-being of residents. The City envisions a community that thrives and is united, not divided, by data, information and digital technologies. Edmonton is a city for all, connected and healthy. When health programs are delivered to their maximum benefit, every Edmontonian and the city as a whole thrives.
- 4. Establish a Municipal-Focused Digital Innovation Collective** – The City of Edmonton will lead the development of a municipal collective for digital innovation across Canada in order to transform the use of data and connected technology for more effective decision-making. It will also work towards reducing data poverty across Canadian municipalities. This transformative approach will ensure replicability and scalability of processes and solutions across Canada.

In order to achieve these actions, the City will work with partners to break down traditional barriers to improving the development and delivery of policies, programs and services in Edmonton, a model that can be applied to all Canadian municipalities. Chapter 3 explains in detail how these actions form the basis for the Healthy City Program Management Plan.

1.3.2 EVOLUTION OF OUTCOMES

The final outcomes of the Healthy City program vary from those identified in Edmonton's initial application. This evolution of outcomes was the result of additional engagement, practicality of implementation, transferability, access to supporting data, and privacy and security considerations. It was acknowledged through additional research and community consultation that the original outcomes were too prescriptive to allow for continuous learning and adaptation of the Healthy City program. These final outcomes reinforce Edmonton's agile approach to building a healthier, more connected city.

1.3.3 OUTCOME RATIONALE AND SUPPORT FROM COMMUNITY



Outcome 1: To improve quality of life for residents.

The City of Edmonton consulted with numerous residents and stakeholders in the Healthy City Ecosystem to solidify this outcome. The consensus was that Edmontonians want to transform how programs and services are delivered, in addition to becoming healthier and more engaged in their communities. They desire to create a sense of compassion, inclusiveness and connectedness that empowers them to support each other. The results of the City's engagement activities validated the importance that residents place on quality of life, as opposed to other initiatives including economic development and smart mobility.



Outcome 2: To transform how municipalities across Canada work with residents to achieve excellence in data and technology.

Through consultation with stakeholders in the Healthy City Ecosystem, the City of Edmonton developed an ambitious, yet achievable, second outcome. The City of Edmonton, through support from City Council and the Executive Leadership Team, continues to be a leader in the use of data, technology and innovation to achieve meaningful results for residents. The City receives ongoing requests to speak at national and international conferences and share learnings, processes and tools with other communities. Through this outcome, a formal program for the continuous sharing and advancement of ideas and capacities will be established.

Evaluating Outcomes

A comprehensive evaluation framework has been developed to make certain these outcomes, while aspirational, are measurable and achievable. This detailed framework is provided in Chapter 2 and includes a number of performance indicators.

1.3.4 PROGRESS TO DATE ON OUTCOMES

Tables 1 and 2 showcase the progress Edmonton has made to date during the final submission period on achieving the two program outcomes.



Outcome 1: To improve quality of life for residents.

The City of Edmonton and partners will implement changes to policies, programs and services to positively impact the health and well-being of residents.

TABLE 1: Progress to Date on Improving Quality of Life for Residents

PROJECT OR INITIATIVE	DELIVERABLES
HealthHack Competition – March 2018	The HealthHack competition brought together the civic tech community to build solutions for a healthier city. Five finalists were selected on March 16, 2018 and their ideas included a buddy bench extension program, a cannabis ecosystem, a fitness app for non-athletes, an urban design and mental health app, and a wheelchair accessibility tracker.
Grow with Google – September 2018	Grow with Google is a series of community events that help Canadians develop the skills they need to prepare for a job, find a job or grow their business. In this collaboration with the City of Edmonton, Google provided training to local educators, business owners, aspiring technology professionals and entrepreneurs. Over 400 individuals were able to build community partnerships, learn valuable digital skills and enhance their career potential through this initiative.
HackED – January 2019	The City of Edmonton sponsored this student-led Faculty of Engineering initiative at the University of Alberta. Through this sponsorship and engagement at the event, the City of Edmonton raised awareness to 450 attendees for open data and Smart City initiatives. Participants in the hackathon created teams to design and build smart, innovative projects to solve problems important to the community. It is an excellent opportunity for learning through collaboration that leads to positive sociological and psychological outcomes.
You Can Benefit – Ongoing	The You Can Benefit online tool helps residents in Edmonton easily access information on municipal, provincial and federal benefits. You Can Benefit provides Edmontonians access to more than 28 programs and 120 community services in one place, such as the City of Edmonton Leisure Access Program and Ride Transit Program, the Alberta Child Care Subsidy and the Alberta Seniors Benefit. Several iterations have been introduced to provide better reliability and results.
RECOVER – Ongoing	RECOVER is a community wellness program developed for the City's most vulnerable populations. Using a phased approach, the program aims to develop a new, fully integrated approach across a continuum of pre-crisis, crisis intervention, post-crisis and transitional services.



Outcome 2: To transform how municipalities across Canada work with residents to achieve excellence in data and technology.

The City of Edmonton will lead the creation of a municipal-focused digital innovation collective that spans communities across Canada in order to build capacity for resident-driven open data and analytics. This would also extend to First Nations, Métis and Inuit communities.

TABLE 2: Progress to Date on Transforming how Municipalities across Canada work with Residents to achieve Excellence in Data and Technology

PROJECT OR INITIATIVE	DELIVERABLE
Open Data Citizen Advisory Group – March 2018	The City, in partnership with the Open Data Citizen Advisory Group, shared insights and feedback on the functionality of the Open Data Portal. The group provided feedback on the look and feel of the tool and file structure allowing the City to make user-centric improvements.
Canadian Open Data Summit 2018 – Wendy Gnenz, Canadian Open Data Leader Award – November 2018	The Canadian Open Data Summit jury recognized Edmonton's successes and leadership in the Open Data movement in Canada under the strategic leadership of the City's Chief Information Officer, Wendy Gnenz. Wendy was the driving force behind advancing the Open City Policy, adopting the International Open Data Charter, and winning Most Open City in the Open Cities Index three years in a row.
City Park Usage – Pedestrian Counter – Ongoing	Through the Smart Cities program, a prototype was developed for a park pedestrian counter. The prototype uses thermal sensing and image recognition to understand how parks or attractions are utilized. The sensors use a wireless data sharing network to transfer data. The pedestrian counter has gone through a variety of iterations to improve accuracy and the code was shared through an open source platform with municipalities globally.
Open Science Partnership with University of Alberta – Ongoing	The City of Edmonton works with researchers at post-secondary institutions to actively promote open data for research purposes. Edmonton's Open Data Portal is regularly referenced as a source in academic publications. As an example, a University of Alberta professor in Earth and Atmospheric Sciences directed an entire class of graduate students to perform geospatial analysis using Edmonton's open data. The students' final work was presented at City Hall with viewers from City Planning Committees, City employees and the public. The students contributed diverse research and analysis as well as requests for new datasets to be included in the Open Data Portal.
MetroLab Network Partnership with the University of Alberta – Ongoing	The MetroLab Network between municipalities and universities focuses on bringing data, analytics and innovation to local government. These institutions partner together to tackle problems and share solutions and best practices for economic development, resiliency, social equity, transportation and governance. This initiative aims to positively impact Edmontonians and strengthen the reputation of the City as a partner in innovative city-building. Edmonton is the first participating Canadian municipality in the MetroLab Network.
Developing Shareable Solutions – Ongoing	The City of Edmonton continuously works with partners in developing technology solutions to improve the lives of residents. These solutions are shareable with communities and can be applied utilizing local partnerships and data. Solutions include the Optimized Safe Needle Response and Emergency Operations Demand Dashboard. These projects are explained in further detail in Chapter 4 (see 4.1.2 Shareable Solutions).

1.4 WHY EDMONTON?

The City of Edmonton is a world leader in leveraging data, technology and innovation to improve quality of life for residents. In addition to being named Canada's Most Open City and a Top 7 Intelligent Community of the Year, Edmonton is the most recent winner of the Gold WeGo Smart Sustainable City Award, the first Canadian city to win the IBM Smarter Cities Challenge award, and the first Canadian pilot of Johns Hopkins University's Centre for Government Excellence [What Works Cities](#) initiative.

The following achievements and initiatives demonstrate the City of Edmonton's readiness to work in partnership with community to continue to lead as a Smart City:

- ✓ The City has led the country in understanding the value of combining open data, public engagement and analytics. The [Open City Initiative](#) is a complex program of work streams and projects spanning all 30+ internal business areas and extending to external organizations through outreach and partnerships. The accomplishments of this initiative are internationally recognized.
- ✓ With the development and implementation of Canada's first measurable Open Data Strategy, Edmonton has shown its commitment to transparency and openness. [Edmonton's Open Data Portal](#) was launched in 2010 and has grown to over 2,000 assets with more than 50 million annual transactions. Edmonton's City Council was also the first in the United States and Canada to adopt the [International Open Data Charter](#). This adoption again demonstrates the unprecedented commitment to accessibility and transparency by City of Edmonton leaders.
- ✓ The City of Edmonton's Analytics Center of Excellence (ACE) is world-renowned for delivering complex and multi-disciplinary projects. ACE has completed projects of global significance, including a contextual analysis of crime, development of a human trafficking identification tool, and an optimization model for snow plowing routes. The optimization and analytics models developed through these projects are made available to other municipalities under the Creative Commons license and open-source code.

✓ [Health City](#) is a unique, Edmonton-built initiative that represents a hub of expertise in health and the health industry. It supports broad innovation ecosystem development and is working to transform health to meet the evolving needs of residents.

The City of Edmonton continues to deliver complex, multi-stakeholder and multi-dimensional projects in partnership with all levels of government, industry and residents. Through the Healthy City program, the City will continue to use these proven mechanisms and processes to deliver project excellence and share learnings with the Government of Canada to help advance Smart City goals and priorities.

2.0 PERFORMANCE MEASUREMENT

Outcomes-based performance measurement in government organizations provides a strong evidence base for service improvement and transformation. It facilitates effective decision-making, risk mitigation and the efficient use of resources. Strong performance management contributes to the growth and sustainability of an organization by continuously identifying areas for intervention and action, leading to the achievement of outcomes.

The City of Edmonton is an outcomes-based organization with a defined framework that links strategic planning, risk management and performance management processes together to ensure progress is made towards resident-driven outcomes. The City also has experience in successfully managing outcomes-based funding agreements, including the current agreement with Infrastructure Canada on the Yellowhead Trail Freeway Conversion project. As such, the City has incorporated learnings and best practices from these experiences into the development of a comprehensive Performance Measurement Plan for the Healthy City program.

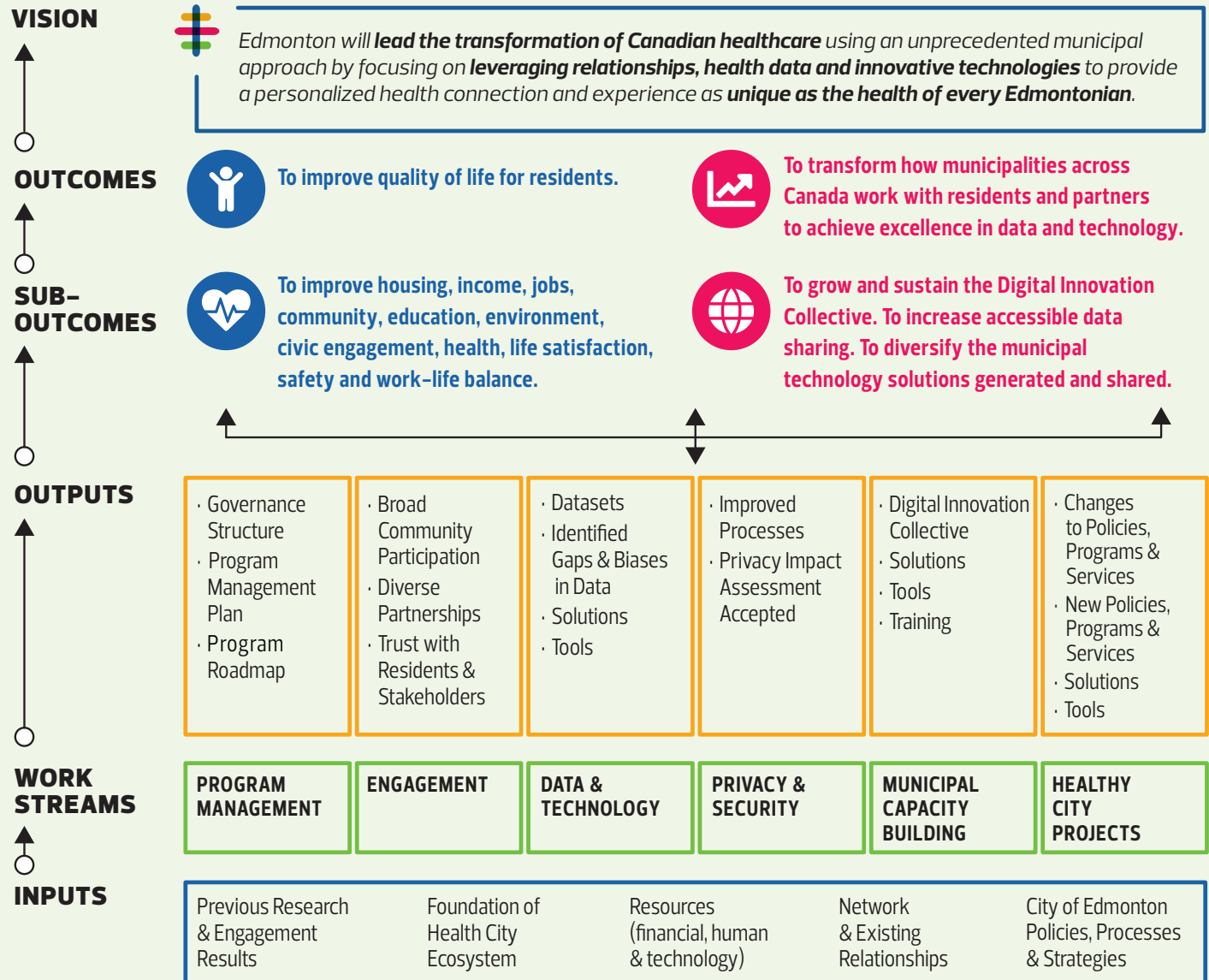
2.1 HEALTHY CITY PROGRAM LOGIC MODEL

The City of Edmonton defines a logic model as a tool used by an organization to align work activities with desired outputs and outcomes. A sound and robust logic model effectively aligns program outcomes with program outputs, work streams and inputs. The following additional definitions provide context for terms used in the logic model and throughout this chapter:

1. **Outcome:** Specific changes in individuals or conditions as a result of the completion of work streams and activities.
2. **Sub-Outcome:** One component of the overall outcome; achievement of numerous sub-outcomes are required to achieve the higher-level outcome.
3. **Output:** What is produced as a result of activities delivered through work streams.
4. **Work Streams:** Groupings of individual activities against which progress can be measured to ensure sub-outcomes and outcomes are achieved.
5. **Input:** The resources utilized in order to achieve an output. This includes financial, human and technology resources.
6. **Performance Indicator:** Evidence that progress has been made towards sub-outcomes and outcomes. Performance indicators will be assigned to one of three categories:
 - **Relevance:** The relationship between a program's outcomes and the current priorities of residents and partners. A relevant program helps address the City's priorities and advances the essential needs and wants of the community.
 - **Effectiveness:** The relationship between outputs and outcomes. Effectiveness is concerned with ensuring the program's outputs are resulting in the intended outcomes that will ultimately contribute to the achievement of the long-term vision and priorities of residents.
 - **Efficiency:** The relationship between inputs and outputs. Efficiency is concerned with the resources used to produce the outputs as well as the quality and timeliness of the outputs. An efficient service produces the maximum outputs possible that meet specified quality and timeliness with the least amount of resources.
7. **Community Indicator:** The state or condition of something, generally at a community level, which is impacted by a composite of programs, partnerships and external factors.

The Healthy City logic model (Figure 7) demonstrates the links between program outcomes and sub-outcomes as well as program outputs, work streams and inputs.


FIGURE 7: Healthy City Program Logic Model




2.2 ALIGNMENT BETWEEN OUTCOMES AND SUB-OUTCOMES

The purpose of the Healthy City program is to deliver on the following two outcomes:

FIGURE 6: Healthy City Outcomes (previously shown in Chapter 1)

- 

1. To improve quality of life for residents.
 The City of Edmonton and partners will implement changes to policies, programs and services to positively impact the health and well-being of residents.
- 

2. To transform how municipalities across Canada work with residents and partners to achieve excellence in data and technology.
 The City of Edmonton will lead the creation of a municipal-focused digital innovation collective that spans communities across Canada in order to build capacity for resident-driven open data and analytics. This would also extend to First Nations, Métis and Inuit communities.

As there is no single metric for measuring municipal resident quality of life or transforming municipalities, a multifaceted approach to measuring program success is required. The outcomes will be realized through achievement of a series of sub-outcomes as described below.

2.2.1 SUB-OUTCOMES FOR IMPROVING THE QUALITY OF LIFE FOR RESIDENTS

The [Organization for Economic Cooperation and Development \(OECD\) Better Life Index](#) has identified 11 factors essential to well-being because of how they impact quality of life. These factors consist of the following:

- **Housing:** Satisfactory and affordable housing conditions.
- **Income:** Adequate resources to satisfy basic needs and achieve well-being.
- **Jobs:** Alignment of employment with aspirations and competencies allow for financial stability.
- **Community:** Frequency of contact and quality of social support network.

- **Education:** Knowledge, skills and competencies exist to participate effectively in society and the economy.
- **Environment:** Quality of local living environment.
- **Civic Engagement:** Trust in open and transparent government processes.
- **Health:** Living standards, environmental improvements, lifestyle changes and education impact life expectancy and well-being.
- **Life Satisfaction:** Personal evaluation of health, education, income, personal fulfilment and social conditions.
- **Safety:** Sense of personal security.
- **Work-Life Balance:** Suitable balance between work and daily living.

In alignment with this research, the City of Edmonton has chosen the sub-outcome measures shown in Table 3 for their relevance in assessing the achievement of improved quality of life and the existence of current baseline data.

TABLE 3: Sub-Outcome Measures for Quality of Life

#	SUB-OUTCOME MEASURE	METHODOLOGY/SOURCE	YEAR	RESULT/BASELINE
1	Measures the percentage of respondents indicating they feel connected to their community.	Citizen Perception (Leger Research, 400 sample size)	2017	45%
2	Measures the percentage of seniors (55+) indicating they feel lonely at least once per week.	Age Friendly Edmonton (Pivotal Research, 713 sample size)	2018	12%
3	Measures the percentage of respondents indicating that "being a member of this community (neighbourhood) is part of my identity".	Sense of Community (Insight Community, 972 sample size)	2018	15%
4	Measures the percentage of respondents indicating that "I am with other community members a lot and enjoy being with them".	Sense of Community (Insight Community, 972 sample size)	2018	14%
5	Measures the percentage of respondents reporting that, overall, Edmonton is a safe city.	Citizen Perception (Leger Research, 400 sample size)	2017	66%

Additional sub-outcomes may be identified during the Health City program delivery as individual projects are defined and implemented.

2.2.2 SUB-OUTCOMES FOR TRANSFORMING HOW CANADIAN MUNICIPALITIES ACHIEVE EXCELLENCE IN DATA AND TECHNOLOGY

The City of Edmonton has been a leader in the open government movement in Canada for many years. As a leader, Edmonton has and will continue to develop practices not only to assist other municipalities with understanding the importance of open government, but also create practical tools and technologies for them to become more transparent, inclusive and collaborative.

The City recognizes the significant data poverty issue that exists within Canadian municipalities. The Healthy City program envisions a future state where municipalities

in Canada, big or small, urban or rural, will have the opportunity to overcome this challenge and build capacity to be effective in making data-driven decisions.

Edmonton has developed Open Data in a Box to help municipalities embark on their own open data program. Open source code developed from local intelligence and analytics projects is readily shared around the globe. Edmonton has also facilitated numerous Canadian and global conversations regarding data, technology transformation and the importance of Smart City philosophies.

Achievement toward this outcome will be measured through the sub-outcome measures in Table 4.

TABLE 4: Sub-Outcome Measures for Transforming how Canadian Municipalities Achieve Excellence in Data and Technology

#	SUB-OUTCOME MEASURE	METHODOLOGY/SOURCE	YEAR	RESULT/BASELINE
1	Per cent of Canadian municipalities with an open data committee	Open Cities Index	2018	45%
2	Per cent of Canadian municipalities with an open data policy	Open Cities Index	2018	45%
3	Number of municipalities with a dedicated Smart City program or office	Survey	2019	To be established
4	Number of open source projects released by municipalities on GitHub	Survey	2019	To be established

As the Healthy City program moves through the phases of program implementation (see 3.1 Program Delivery Approach), additional sub-outcomes may be added.

As a leader, Edmonton has and will continue to develop practices not only to assist other municipalities with understanding the importance of open government, but also to create practical tools and technologies for them to become more transparent, inclusive and collaborative.

2.3 MEASURING PERFORMANCE OF THE HEALTHY CITY PROGRAM

The alignment between the Healthy City program work streams, outputs and performance indicators is shown in Table 5. Performance indicators have been identified to demonstrate short-, mid- and long-term progress. These will be reported on throughout each phase of the program.

TABLE 5: Healthy City Program Performance Indicators

WORK STREAM	OUTPUT	PERFORMANCE INDICATORS	TYPE OF PERFORMANCE INDICATOR	SOURCE
Program Management	Governance Structure	Active participation from all individuals and groups within the governance structure	Effectiveness	Annual self-evaluation from program participants
	Program Management Plan	Program Management Plan is robust and addresses program risks	Relevance	Healthy City Program Governance Review Processes
	Program Roadmap	Program Roadmap is agile and flexible	Relevance	Healthy City Program Governance Review Processes
Engagement	Broad Community Participation	Residents from diverse demographics and communities participate actively in Healthy City Program engagement activities	Relevance	Post-engagement session questionnaire Consistent demographic specific questions will be present on every survey
	Build Trust with Residents and Stakeholders	Residents and stakeholders have trust in the Healthy City Program	Effectiveness	Annual Healthy City Program Survey
	Diverse Partnerships	Healthy City Ecosystem partners represent multiple sectors and diverse demographics	Effectiveness	Healthy City Program and Project Partnership Evaluation Survey
Data & Technology	Datasets	Number of datasets shared between Healthy City Ecosystem partners	Efficiency	Healthy City Program Quarterly Report
	Identifying Gaps and Biases in Data	Number of gaps and biases in data identified	Effectiveness	Healthy City Program Quarterly Report
	Solutions	Number of data and technology solutions implemented	Efficiency	Healthy City Program Quarterly Report
	Tools	Number of data and technology tools implemented	Efficiency	Healthy City Program Quarterly Report

TABLE 5: Healthy City Program Performance Indicators (continued)

WORK STREAM	OUTPUT	PERFORMANCE INDICATORS	TYPE OF PERFORMANCE INDICATOR	SOURCE
Privacy & Security	Improved Privacy and Security Processes	Enhancement of Privacy and Security processes	Effectiveness	Healthy City Program Management Office
	Privacy Impact Assessments accepted from Office of the Information and Privacy Commissioner of Alberta	Number of Privacy Impact Assessments accepted from Office of the Information and Privacy Commissioner of Alberta	Effectiveness	Healthy City Program Quarterly Report
Municipal Capacity Building	Digital Innovation Collective	Number of municipalities participating in the Digital Innovation Collective	Relevance	Digital Innovation Collective Terms of Reference
	Solutions	Number of transferable solutions generated through the Digital Innovation Collective	Efficiency	Digital Innovation Collective Annual Report
	Tools	Number of transferable tools generated through the Digital Innovation Collective	Efficiency	Digital Innovation Collective Annual Report
	Training	Number of training sessions hosted	Efficiency	Digital Innovation Collective Annual Report
		Number of average participants in training sessions	Efficiency	Digital Innovation Collective Annual Report
		Number of training guides created	Efficiency	Digital Innovation Collective Annual Report
Healthy City Projects	Changes to Policies, Programs and/or Services are Implemented	Number of policies, programs and/or services changes as a result of the Healthy City program	Effectiveness	Healthy City Program Quarterly Report
	New Policies, Programs and/or Services are Developed	Number of policies, programs and/or services developed as a result of the Healthy City program	Effectiveness	Healthy City Program Quarterly Report
	Solutions	Number of solutions implemented (unique from data and technology as reported earlier)	Efficiency	Healthy City Program Quarterly Report
	Tools	Number of tools implemented (unique from data and technology as reported earlier)	Efficiency	Healthy City Program Quarterly Report

Targets for each performance measure will be created during the Initiate phase. A detailed explanation of the phases of the Healthy City program is in Chapter 3 (see 3.1 Program Delivery Approach). In addition, comprehensive evaluations of individual Healthy City projects will be completed on an ongoing basis using the process described below to ensure achievement of sub-outcomes and outcomes.

2.3.1 PHASED APPROACH TO PERFORMANCE EVALUATION

A phased approach to evaluation has been developed for the Healthy City program that aligns with the three phases of program implementation detailed in Chapter 3: Initiate, Innovate and Embrace. Performance will be monitored by the program's governance structure (see 5.1.2 Healthy City Program Governance).

During the Initiate phase of the program, the focus of the Healthy City program will be primarily on achieving short-term milestones and deliverables that build the foundation for a strong Healthy City program. As the program enters subsequent phases, milestones and deliverables will focus on mid-term and long-term performance, showcasing progress towards achieving the Healthy City program's outcomes.

2.3.2 DETAILED PERFORMANCE EVALUATION OF HEALTHY CITY PROJECTS

Each phase of the Healthy City program will include a series of projects aligned to at least one sub-outcome. The City of Edmonton, along with partners and residents, will determine how best to evaluate these projects and allow for modifications to be made based on learning. A standard evaluation framework will be applied to all Healthy City projects and, at minimum, include the following details:

1. Purpose

The project purpose will articulate the community change desired as a result of this project. It will include a summary of the engagement and research conducted in support of the project's implementation.

2. Alignment to Outcomes and Sub-Outcomes

This section of the project evaluation framework will describe how outcomes will be achieved through the project's implementation. It will include research to validate the alignment of the project activities, desired community change and the selected outcomes.

3. Project Audience

The project audience will impact the development of performance measures and evaluation methodologies. Through engagement activities, members of the project audience will be invited to participate in determining how the project will be evaluated against outcomes. The project audience may include specific demographics of residents, communities of interest or practice, geographic areas and/or industry sectors.

4. Project Performance Indicators

Specific project performance indicators will be developed that reflect the community change desired and evaluate the project's success in achieving that change. Performance indicators will be monitored throughout the duration of the project using a variety of evaluation methodologies.

5. Evaluation Methodologies

Both qualitative and quantitative methodologies will be used in the evaluation of projects. The methodologies selected for each project will reflect the needs of the community and the best opportunity to evaluate the desired outcomes. The list below provides options to be considered for methodologies.

- Before/after studies
- Conversion rates
- Efficiency assessments
- Field-level observations
- Financial analysis (cost savings)
- Focus groups
- Indigenous circles
- Interviews
- Participation rates
- Point-in-time counts
- Storytelling
- Surveys
- Workshops

6. Community Indicators

Potential community indicators that can be used to complement the project performance measures and selected outcomes will be identified. These may include:

- Civic and community event participation rates
- Crime rates
- Distress calls
- Emergency room visits
- Life expectancy

7. Scalability and Sustainability

Following evaluation, and dependent on the successful outcome, projects may be scaled geographically and functionally. This would result in additional evaluation and refinement of solutions in order to increase the project's impact and reach.

This evaluation framework will be applied to the first Healthy City project: ConnectED (see 3.5 Healthy City Project: ConnectED). Over three phases, the project will work towards achieving the sub-outcomes of housing, income, jobs, community, education, environment, civic engagement, health, life satisfaction, safety and work-life balance.

2.3.3 MONITORING, REPORTING AND FEEDBACK

Smart Cities recognize the value of working within an ecosystem that is open, agile and responsive in order to ensure sustainable solutions and ultimate benefit realization for residents. In each phase and project of the Healthy City program there will be regular touchpoints with partners, stakeholders and residents. This will allow for adjustments to be made to the program or projects through a continuous and collaborative learning cycle. Ongoing evaluation is fundamental to ensuring the Healthy City program remains agile and responsive to community needs throughout the entirety of implementation. Progress on performance indicators and achievement of outcomes will be reported to residents, partners and stakeholders quarterly over the three phases.

2.4 MILESTONES, DELIVERABLES AND PAYMENT SCHEDULE

Phase 1: Initiate

The Initiate phase will be executed over the first 18 months of the program with a grant funding requirement of \$10 million. Milestones and payment scheduling for the Initiate phase are shown in Table 6.

TABLE 6: Initiate Phase Milestones and Deliverables

INITIATE PHASE MAJOR MILESTONES	COMPLETION QUARTER (END OF)	PAYMENT QUARTER (END OF)
Approved Program Roadmap and Program Management Plan	Q1, Year 1	
Established governance structure	Q1, Year 1	
PIA accepted by OIPC	Q2, Year 1	\$2 million
Approved technology and data architecture	Q4, Year 1	\$3 million
Establish Digital Innovation Collective	Q4, Year 1	
Selected vendors	Q1, Year 2	
Partner network has grown	Q1, Year 2	
Deliver Phase 1 of ConnectED	Q2, Year 2	\$5 million

Additional deliverables in this phase include:

- Engagement sessions and workshops
- Register of open datasets available in the Healthy City Ecosystem
- Privacy and security training sessions for all Healthy City Ecosystem partners and Healthy City program employees and contractors
- Maturity Assessment model is tested with Digital Innovation Collective members
- Project proposals for Phase 2 Healthy City projects
- Quarterly report back to the community

Phase 2: Innovate

The Innovate phase will be executed over 24 months with a grant funding requirement of \$30 million. Milestones and payment scheduling for the Innovate phase are shown in Table 7.

TABLE 7: Innovate Phase Milestones and Deliverables

INNOVATE PHASE MAJOR MILESTONES	COMPLETION QUARTER (END OF)	PAYMENT QUARTER (END OF)
Digital Innovation Collective Summit	Q4, Year 2	\$7 million
Partner network growth	Q2, Year 3	\$7.5 million
Delivery of Phase 2 of ConnectED	Q3, Year 3	
PIAs for projects accepted	Continuous	
Data sharing, information management and research agreements	Continuous	\$7.5 million (end of Q4, Year 3)
Delivery of Phase 2 Healthy City projects achieving sub-outcomes	Q2, Year 4	\$8 million

Additional deliverables in this phase include:

- Engagement sessions and workshops
- Digital Innovation Collective web meetings
- Maturity Assessments are completed by Digital Innovation Collective members
- Technology solution research for Healthy City projects
- Project proposals for Phase 3 Healthy City projects
- Quarterly report back to the community

Phase 3: Embrace

The Embrace phase will be executed over 18 months with a grant funding requirement of \$10 million. Milestones and payment scheduling for the Embrace phase are shown in Table 8.

TABLE 8: Embrace Phase Milestones and Deliverables

EMBRACE PHASE MAJOR MILESTONES	COMPLETION QUARTER (END OF)	PAYMENT QUARTER (END OF)
Private Investments secured	Q4, Year 4	\$6 million
Digital Innovation Collective publishes Smart City leading practices	Q2, Year 5	\$2 million
Delivery of Phase 3 of ConnectED	Q3, Year 5	
Projects transitioned to appropriate City operational area or community organization for sustainability	Q3, Year 5	
Delivery of Phase 3 Healthy City projects achieving sub-outcomes	Q4, Year 5	
Community Action Plan for Healthy City program sustainability	Q4, Year 5	\$2 million

Additional deliverables in this phase include:

- Engagement sessions and workshops
- Feasibility and best practices research for Healthy City data repository
- Empowered and engaged community has ownership over long-term direction of Healthy City program

2.5 RISKS

Risks identified for performance measurement primarily relate to establishing performance indicators, baselines and targets to accurately measure progress towards outcomes. The City of Edmonton has assessed these and other program risks related to performance measurement and has developed a series of mitigating actions to reduce their impact and likelihood. Performance Measurement risks

are shown in Table 9. Likelihood and impact are measured on a scale of 1-5, with 1 being extremely low and 5 being extremely high. The likelihood and impact measures are multiplied to establish the overall risk score. Risks with scores between 1 and 6 are given a low risk rating, 7 and 12 a medium risk rating, 13 and 20 a high risk rating, and 21 and 25 an extreme risk rating.

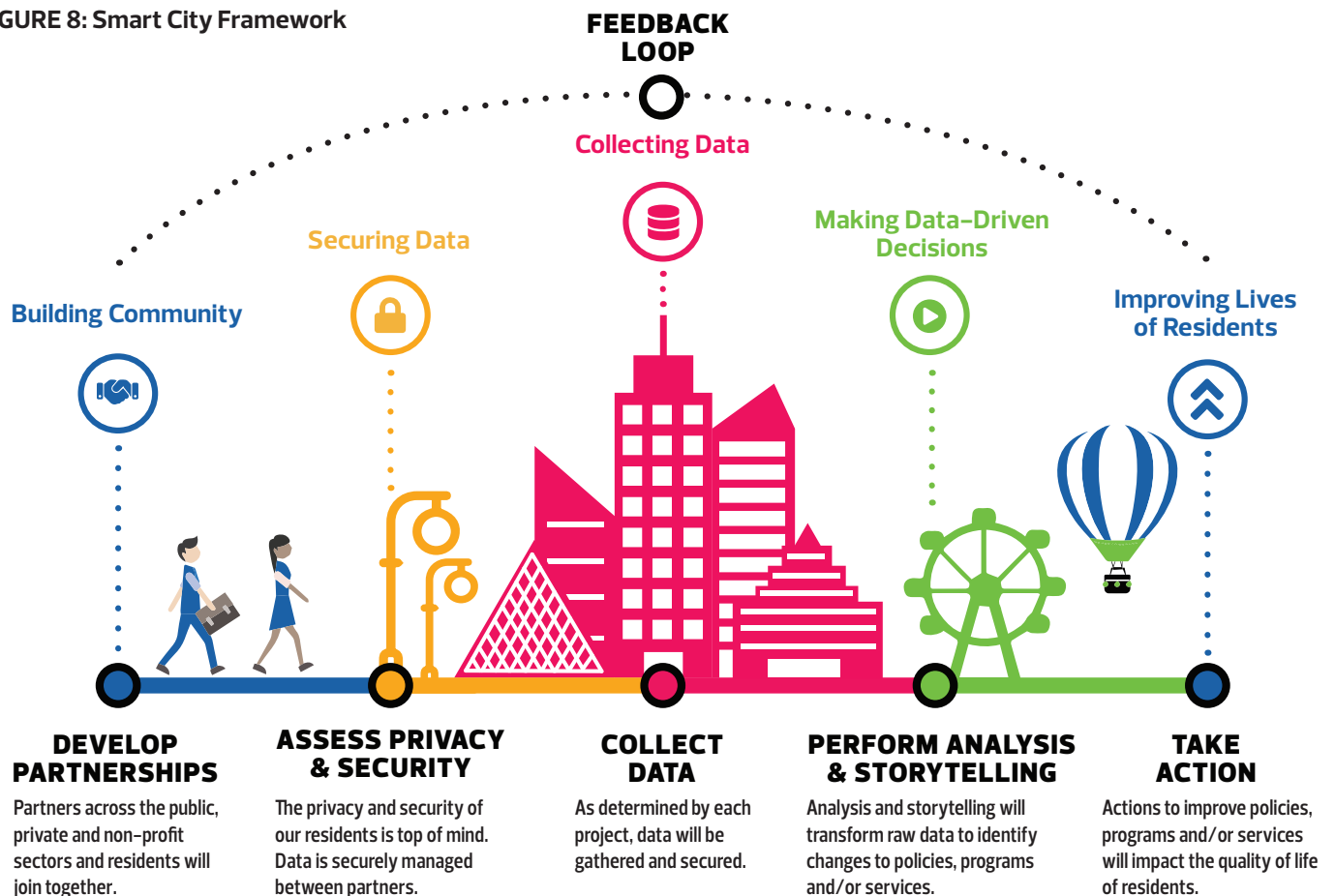
TABLE 9: Performance Measurement Risks and Mitigating Actions

RISK	LIKELIHOOD	IMPACT	RISK SCORE	RISK RATING	MITIGATING ACTIONS
Insufficient data collection strategies and data sources result in inability to measure progress accurately	1	4	4	Low	Outline clear program research and data collection methodology, including privacy and security considerations, and consult with subject matter experts and community to ensure sufficient process are in place to validate data collection and evaluation.
Misalignment of projects do not result in achieving targets or desired outcomes	1	5	5	Low	Program logic model has been developed to provide a realistic opportunity to achieve targets and outcomes. Frequent monitoring, reporting and check-ins with stakeholders and residents will enhance the program's ability to meet targets and outcomes.

3.0 PROJECT MANAGEMENT

Cities are complex systems facing a multitude of challenges in today's dynamic world. Edmonton's Smart City Framework (Figure 8) is a holistic approach to working collaboratively with residents and partners to optimize the use of data and technology, and create sustainable solutions at a municipal level.

FIGURE 8: Smart City Framework



The application of the framework will result in new and revised policies, programs and services, and innovative funding models. This framework, shown in Figure 8, is the foundation for Edmonton's phased approach to the building of a Healthy City program and ultimately healthier, more connected communities across the country.

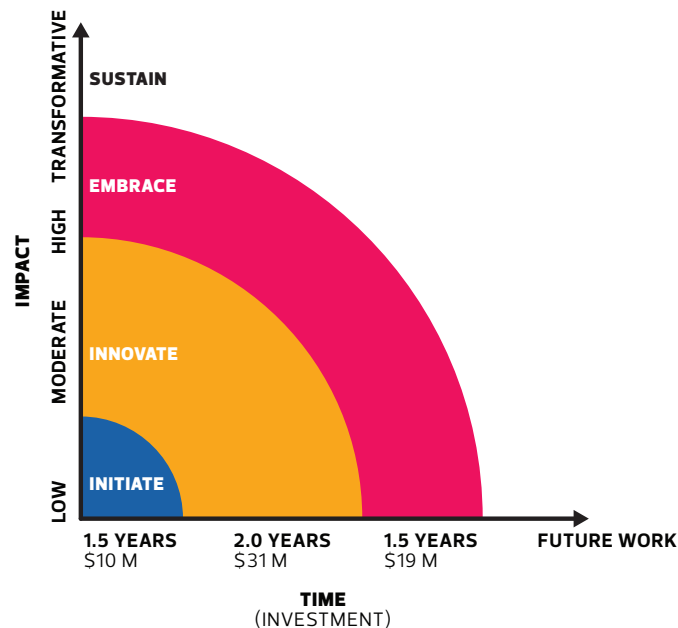
This Chapter details the program and project management methodologies that will be used to implement the Smart City Framework in the Healthy City program. It also provides an overview of the team that will make up the Healthy City Program Management Office.

3.1 PROGRAM DELIVERY APPROACH

A Smart City utilizes established project management practices to achieve sustainable community outcomes. The Healthy City program will follow program and project management methodologies from the Project Management Institute and be delivered in three phases as shown in Figure 9.

The City of Edmonton plans to invest a total of \$60 million over the three phases of the Healthy City program. This \$60 million investment is a combination of \$50 million through Infrastructure Canada, \$5 million from the City of Edmonton and \$5 million through in-kind and other private or community investments.

FIGURE 9: Phased Approach to Building Smarter Cities



The investment approach for the Healthy City program is aligned with the City of Edmonton's vision of transforming the health and well-being of residents, not just in Edmonton, but across Canada. Unlike the majority of Smart City programs, which focus solely on the deployment of technology assets, the Healthy City program will focus on the transformation of municipal programs and services through the use of partnerships, data, technology and analytics.

Phase 1: Initiate

A strong program management foundation will be established in the Initiate phase. The scope of this phase will include the following tasks:

- Establish a formal governance structure (see 5.1.2 Healthy City Program Governance)
- Approve all program planning documents, including Program Charter and Program Management Plan
- Sign the Outcome Based Contribution Agreement with Infrastructure Canada
- Execute the activities identified in the Program Management Plan
- Acquire additional resources based on the Resource Management Plan
- Deliver projects to validate the Smart City framework
- Begin to identify and prioritize Phase 2 projects
- Develop project-based data sharing agreements with Healthy City Ecosystem partners

- Establish the Digital Innovation Collective
- Monitor and evaluate results from all activities, track program benefits, deliver identified outputs linked to the outcomes (refer to Chapter 2 for more details)

These tasks are explained in further detail in 3.3 Detailed Work Streams.

Phase 2: Innovate

Building on the strong foundation established in the first phase, the Innovate phase will scale the use of the Smart City framework to larger projects, resulting in changes in policies, programs and services. In this phase, the majority of the technology and data assets will be deployed by challenging the status quo related to data sharing, privacy, security and ethics. This phase will transform not only how Edmonton approaches community-based technology solutions, but also influence the work of other municipalities across Canada through the work of the Digital Innovation Collective. The scope of this phase will include the following tasks:

- Scale the Smart City Framework
- Update the Program Management Plan and execute activities
- Sustain the projects delivered in previous phase
- Acquire additional resources based on the Resource Management Plan
- Deploy technology and data assets
- Scale Digital Innovation Collective deliverables
- Deliver best practices in data governance, ethics, quality, privacy and security
- Explore national partnerships in the Healthy City Ecosystem
- Monitor and evaluate results from all activities, track program benefits and deliver identified outputs linked to the outcomes

These tasks are explained in further detail in 3.3 Detailed Work Streams.

Phase 3: Embrace

The intent of the Embrace phase is to sustain the technology deployments and policy advancements established in the previous phases, and apply best practices in data-driven decision-making to transform municipal services and programs across Canada. The scope of this phase will include the following tasks:

- Update the Program Management Plan and execute activities
- Sustain technology assets, policy advancements and projects delivered in this phase and the previous one
- Acquire additional resources based on the Resource Management Plan
- Mature the Digital Innovation Collective to include global participants
- Mature practices in data governance, ethics, quality, privacy and security in municipalities across Canada
- Explore private funding partnerships in the Healthy City Ecosystem
- Monitor and evaluate results from all activities, track program benefits, and deliver identified outputs linked to the outcomes

These tasks are explained in further detail in 3.3 Detailed Work Streams.

3.2 PROGRAM AND PROJECT MANAGEMENT APPROACH

The Healthy City program is a City of Edmonton program aligned with City Council's strategic plan and goals. As such, this program will adhere to established corporate program and project management approaches and controls.

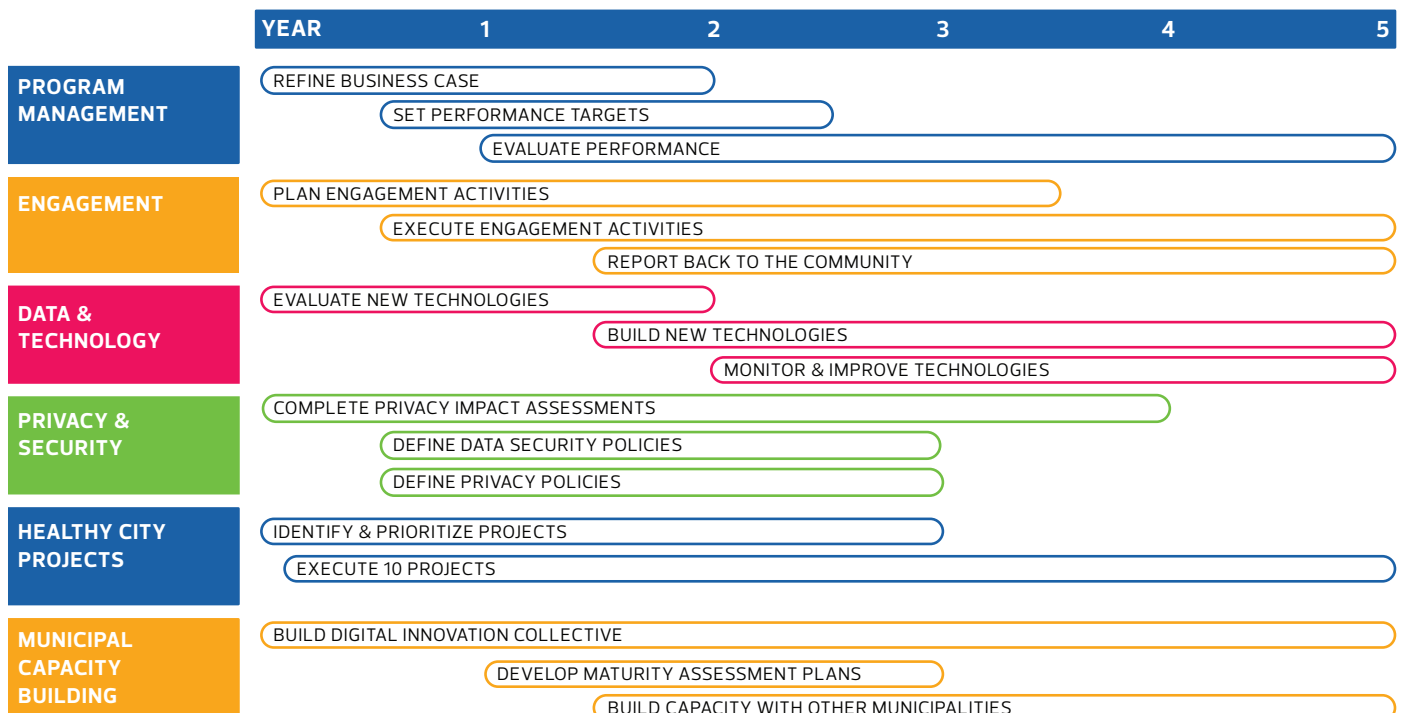
The City of Edmonton has established program and project management methodologies and processes that align with the principles of the Project Management Institute. The City ensures that all programs and projects are managed using this framework and that all contractors and vendors abide by the City's established processes and methodologies. In addition, the Office of the City Auditor ensures that adequate management controls are in place during program implementation and benefit realization phases. The City also provides organization-wide training in project management methodologies and ensures industry best practices are followed throughout the entirety of the project management lifecycle.

In order to align with best practices for large, complex program management, the Healthy City program has six streams of work. These work streams will ensure that strategic alignment, execution and benefit realization are managed proactively. They are described in detail in the following section.

3.3 DETAILED WORK STREAMS

Figure 10 is a visual representation of the detailed work streams and shows the estimated timing for completion of deliverables and milestones. Along with the Healthy City program phases, these work streams form the basis for the financial model in Chapter 8. The work streams and corresponding activities are explained in detail in this section.

FIGURE 10: Healthy City Program Gantt Chart



3.3.1 PROGRAM MANAGEMENT

The purpose of the Program Management stream is to maintain the ongoing alignment of the Healthy City program with the strategic direction and goals of both the City of Edmonton and Infrastructure Canada.

The Program Management stream includes the following activities:

- **Business Case, Program Charter and Program Roadmap:** Edmonton's Smart Cities Challenge final proposal is the initial Business Case for the Healthy City program and will be approved through the program's governing bodies during the Initiate phase. It acts as a formal declaration of the value the Healthy City program will deliver and a justification for the resources that will be expended to deliver it. During the Initiate Phase, a Program Charter and Program Roadmap will be developed to align with the Business Case. During the Innovate and Embrace phases of the Program, the success criteria outlined in Chapter 2 will be monitored. Any variance between achieved and planned outcomes will be evaluated and adjustments will be made to ensure the overall success of the program.
- **Environmental Assessments:** Environmental factors refer to conditions not under the immediate control of the Healthy City program that influence, constrain or direct the program. Environmental factors may include economic, demographic, political, legal and technologic. These factors will have a significant impact on the Healthy City program's success and will be monitored on an ongoing basis.
- **Risk Management:** The successful delivery of the Healthy City program will depend on a well-defined approach to risk management. In alignment with the City of Edmonton's Corporate Risk Management Framework, the Risk Management Plan will identify program risk thresholds, perform continuous risk assessments, develop high-level program risk response strategy, and communicate risks to strategic levels of the City and Infrastructure Canada. Throughout the program's lifecycle, risk thresholds will be evaluated and communicated on an ongoing basis. An initial Program Risk Register has been developed with a table included in Chapters 2, 3, 4, 5, 6, 7 and 8 detailing the identified risks and mitigating actions. As the program

evolves, additional risks will be identified and included for monitoring and mitigation on the Program Risk Register.

- **Lifecycle Management:** The purpose of this activity is to manage the program components required to facilitate effective program definition, program and project delivery, and program closure. A program with such scale and complexity as the Healthy City program will require a flexible, yet rigorous, program management approach. Through this activity, a Program Management Plan will be developed and include the following details:
 - **Financial Management Plan:** The Financial Management Plan will identify financial resources, integrate the budgets of individual program components to create the overall program budget, and control expenditures throughout the lifecycle of the program. It will include all aspects of the program's finances including funding schedules and milestones (see 2.4 Milestones, Deliverables and Payment Schedule), budget, contract payments and schedules, financial reporting activities and mechanisms, and financial metrics.
 - **Procurement Management Plan:** The Procurement Management Plan will detail the City's innovative and effective approach to procurement. The foundation of this plan is partnerships with entities including Health City that will expand the procurement channels available for program delivery. In addition, the City has taken a proactive step in breaking down traditional procurement barriers by being the first Canadian municipality to join the [Startup In Residence](#) program.
 - **Quality Management Plan:** The Quality Management Plan will document the overall quality objectives and principles that will be shared by all components of the Healthy City program. The plan will ensure City of Edmonton quality and regulatory standards are applied consistently across all phases and components. The Quality Management Plan will be implemented through the Privacy and Security work stream.
 - **Resource Management Plan:** The Resource Management Plan will ensure that all required resources (people, materials, data, information, etc.) are made available to work streams and projects. In addition to resource allocation, the Resource Management Plan will forecast resource requirements, both internal and external, throughout the lifecycle of the program.

- **Schedule Management Plan:** The Schedule Management Plan will determine the order and timing of the program activities required to achieve the program outcomes. It will also estimate the amount of time required to deliver each activity, identify significant milestones during the performance of the program and document the outcomes of each milestone.
 - **Scope Management Plan:** The Scope Management Plan will identify tasks and deliverables that align with program outcomes and exclude all work that is out of scope. As the program will be delivered over the next several years, and with the constant change in the municipal technology landscape, the scope of the program will be managed closely throughout the program lifecycle to ensure outcomes are achieved.
 - **Governance:** The purpose of this activity is to enable effective and efficient program decision-making, establish practices to support the program implementation, and maintain program oversight. This activity will implement the framework, functions and processes by which the Healthy City program will be monitored, managed and supported in order to meet the desired outcomes. This is described in Chapter 5 in more detail.
 - **Monitor, Report, Sustain:** The purpose of the Monitor, Report, Sustain activity is to monitor and evaluate the delivery of benefits and sustain the outcomes achieved by the Healthy City program. The activity will ensure program outcomes are measured, achieved, scaled and sustained through the following tasks:
 - **Benefits Analysis and Planning:** The Healthy City program outcomes have been identified and outlined in detail in Chapters 1 and 2. These Chapters established the foundation that will guide the delivery of benefits and achievement of outcomes during the program lifecycle.
 - **Benefits Monitoring:** Progress will be monitored to ensure ongoing strategic alignment of the program with the strategic priorities of the City of Edmonton, community and Infrastructure Canada through the following actions:
 - > Monitor opportunities and threats affecting outcomes
 - > Evaluate key performance indicators related to program financials, compliance, quality, safety, governance and stakeholder satisfaction
 - > Monitor program progress in achieving benefits
 - > Communicate progress through various reports, dashboards, artifacts, etc. to stakeholders, partners, residents and governing bodies including Infrastructure Canada
 - **Benefits Transition:** The benefits transition step is to ensure that Healthy City program benefits are transitioned to operational areas, both within the City of Edmonton organization and to Healthy City Ecosystem partners. The transition plan for program benefits will be developed and executed in collaboration with partners and stakeholders in Edmonton and across Canada. Effective transformation will ensure new processes, capabilities and technologies are embedded in these partner organizations.
 - **Benefits Sustainment:** The purpose of this step is to ensure continued generation of the benefits and outcomes delivered by the program through partnerships. The Healthy City program will develop a formal Benefits Sustainment Plan which will identify additional outcomes or benefits that will be delivered through operations, maintenance, new activities or other efforts at the end of the funding cycle for the Healthy City program.
- The Initiate phase will primarily focus on ensuring robust plans are in place for program management activities. Through the Innovate and Embrace phases, these plans will be monitored and updated regularly to ensure alignment with outcomes and the successful transferability and scalability of solutions.

3.3.2 ENGAGEMENT

The purpose of the Engagement stream is to identify and analyze stakeholder needs, manage expectations, and develop communication and engagement activities to foster community support and collaborative design. This work is described in greater detail in Chapter 6. The City of Edmonton has engaged with residents, partners and other stakeholders throughout the development of Edmonton's Smart Cities Challenge final proposal and will continue to do so during the subsequent phases of program implementation. In addition, the program will extend the engagement strategy to include residents, partners and stakeholders across Canada, primarily during the Innovate and Embrace phases.

This stream will continue the development of the Engagement Plan in collaboration with the community through the following activities:

- **Stakeholder Identification and Analysis:** Initial Healthy City Ecosystem partners and stakeholders have been identified in Chapter 5 (see 5.2 Smart City Partners). During the Initiate phase, a Stakeholder Engagement Plan will be developed that addresses ongoing program requirements and evolving stakeholder needs and expectations in order to continue to build the ecosystem. The plan will also be used to deliver engagement activities and determine communication channels and frequencies to ensure accessibility for all stakeholders. During subsequent phases, the Healthy City program will continue to identify additional key stakeholders or partner groups to further enhance the Healthy City Ecosystem. The Stakeholder Management Plan will be updated regularly throughout the lifecycle of the program.
- **Engagement Planning and Execution:** An extensive Program Engagement Plan has been developed in Chapter 6. This plan will be updated regularly to identify new methods, tools and activities for working collaboratively with the community, in order to reach diverse audiences and create meaningful opportunities for public participation. The plan will ensure that residents and stakeholders have been consulted and feedback from non-profit, academic, public and private sector partners is integrated into program and project plans.

- **Communications Planning and Execution:** An initial plan to communicate with residents, partners and stakeholders has been developed and included as part of Chapter 6. It will continuously evolve to accommodate the diverse needs and expectations of the community, taking into account requirements such as the type of information communicated, language, format, content and level of detail. The Program Communication Plan will provide the opportunity for a two-way dialogue with the community and will be updated regularly throughout the lifecycle of the program.

3.3.3 DATA AND TECHNOLOGY

A foundational element of the Healthy City program is to be able to share anonymized data and information across the Healthy City Ecosystem and to develop inclusive, accessible and open technology solutions. The purpose of this stream is to maintain a holistic perspective on technology implementation and data sharing across projects, implement technology architecture best practices, and provide guidance on data governance and data quality. Chapter 4 provides a detailed plan on Data and Technology implementation. The assets created through this stream and the knowledge assimilated will be transferred to all partners in the Health City Ecosystem and other municipalities across Canada.

This stream consists of the following activities:

- **Technology and Data Interoperability:** Interoperability of technology and data is crucial to the success of any Smart City program. This activity will ensure industry standards and specifications for technological and data interoperability are being addressed. In the Healthy City program, the majority of technology implementation will be delivered through projects. To ensure the alignment of technologies being deployed throughout the program, a holistic understanding of technology and data architecture is crucial. This activity will eliminate duplication in technologies being implemented across the program and will ensure the greatest return on technology investments. In addition, having a centralized approach to technology planning will ensure that lessons learned from one project will be incorporated in the design of the next. Key tasks in the Initiate phase

will include the development of service-oriented and microservices architectures, data sharing guidelines and data standards. During subsequent phases, this activity will ensure architecture guidelines and standards are updated and projects adhere to interoperable and open standards.

- **Data Governance:** Through this activity, the City of Edmonton will ensure appropriate data governance practices are in place for the Healthy City program and that data ownership remains within the jurisdiction of the community and appropriate Healthy City Ecosystem partners. This is further detailed in Chapter 7.
- **Evaluate New Technologies:** Future-proofing technologies requires the continuous evaluation of new technologies, not only to develop new products but also to procure new services through vendors. While individual projects in the Healthy City program will deploy the technologies, testing and validating new technologies through pilot initiatives will be executed at the program level. This activity will ensure that lessons learned and best practices are shared across the program and with all Healthy City Ecosystem partners. It will also ensure these technologies are scalable to other municipalities. Lessons learned through this activity will form the basis of the Knowledge Sharing activity under the Municipal Capacity Building stream (see 3.3.6 Municipal Capacity Building).
- **Implementing Technology Infrastructure:** The Healthy City program will implement technology and data solutions to solve complex problems and achieve program outcomes. Most technology implementations will be delivered through various projects and will be specific to the problem the project is trying to solve. However, from an efficiency and interoperability standpoint, the platform infrastructures will be implemented at the program level. This will include technologies such as big data and analytics platforms, program management and reporting tools, Internet of Things management systems, identity and access management systems, and data security provisioning systems. Through this activity, along with Technology and Data Interoperability, the Healthy City program will implement common technologies required by all aspects of the program and the underlying projects. A key task in the Initiate phase includes gathering requirements from

a technological and strategic perspective. In the Innovate phase, this activity will manage the procurement, deployment and operationalizing of the technology infrastructure required by the program. During the Embrace phase, this component will collaborate with other program components to ensure the sustainability of the implemented technologies and to scale the technology infrastructure to other municipalities across Canada.

3.3.4 PRIVACY AND SECURITY

The purpose of the Privacy and Security stream is to maintain a holistic view of the program from a privacy and security perspective, develop relevant policies and procedures, and manage program risks related to privacy and security breaches. This stream will also focus on assessing the ethical considerations that go beyond current legislation related to data usage and analytics. The assets created through this stream and the knowledge gained through the activities will be transferred to all Healthy City program partners and other municipalities across Canada. Chapter 7 provides a detailed plan for Privacy and Security.

This stream will ensure data security, integrity and privacy through the following activities:

- **Data Security and Privacy Policies:** Data security and privacy is of the utmost importance to the Healthy City program. The City understands the risk implications associated with a privacy and/or security breach and will ensure adherence to policies and procedures by all program participants and partners. This activity will ensure the formalization, refresh and application of all security and privacy policies and procedures within the Healthy City program. Lessons learned and best practices will be shared with municipalities across Canada.
- **Privacy Impact Assessments:** As the Healthy City program evolves and new projects are identified, the data required to implement these projects will be identified and steps will be taken to source it appropriately. Through the development of Edmonton's Smart Cities Challenge proposal, the City has developed a strong relationship with the Office of the Information and Privacy Commissioner of Alberta and has submitted a preliminary Privacy Impact Assessment for review and feedback (see

7.2 Preliminary Privacy Impact Assessment). This activity will ensure that as new projects are identified, resources are assigned to develop Privacy Impact Assessments and acceptance from the Office of the Information and Privacy Commissioner of Alberta is received before new projects are initiated. Depending on the complexity of the projects, this activity may impact scheduling and scope.

- **Data Ethics and Responsibility:** Data-driven decision-making is at the core of the Smart City Framework outlined earlier in this Chapter (see Figure 8). As a result, a comprehensive data ethics and responsibility framework is required. This activity will work to build and maintain residents' trust in the program. It will also monitor unethical or illegal use of insights or biases that intensify issues of social and economic justice or do not align with the original disclosure purpose and consent.
- **Data Sharing Agreements and Partnerships:** The core value proposition of the Smart City Framework is bringing together anonymized data from disparate sources and analyzing them to generate meaningful insights that will inform changes to policies, programs and services. In the Initiate phase, the Healthy City program will maximize the use of open data. However, as the program matures and enters the Innovate phase, there will be a requirement to access additional data from stakeholders in the Health City Ecosystem and beyond. In order to do so while ensuring data security, privacy and ethics, the program will develop robust data sharing, information management and/or research agreements with stakeholders and partners. Lessons learned and best practices will be shared with municipalities across Canada.

In addition, the City of Edmonton is currently hiring a Data and Analytics Ethics Advisor who will report to the City's Chief Information Security Officer and play an integral role in achieving the activities in this workstream.

3.3.5 HEALTHY CITY PROJECTS

The purpose of the Healthy City Projects stream is to implement high-value strategic projects and deliver benefits that will ensure the program achieves its desired outcomes. During the Initiate phase of the program, this stream will deliver ConnectED, a project that has been identified and described in further detail later in this Chapter (see 3.5 Healthy City Project: ConnectED). As new projects are identified and prioritized, this stream will create assets such as those shown in Figure 11.

Figure 11: Digital & Information Assets



Each approved project will have a common project management approach that includes the ongoing monitoring of performance, privacy and security and achievement towards outcomes. This allows for core project activities to proceed while making interim course corrections throughout implementation to optimize results and make systems and processes available to other projects.

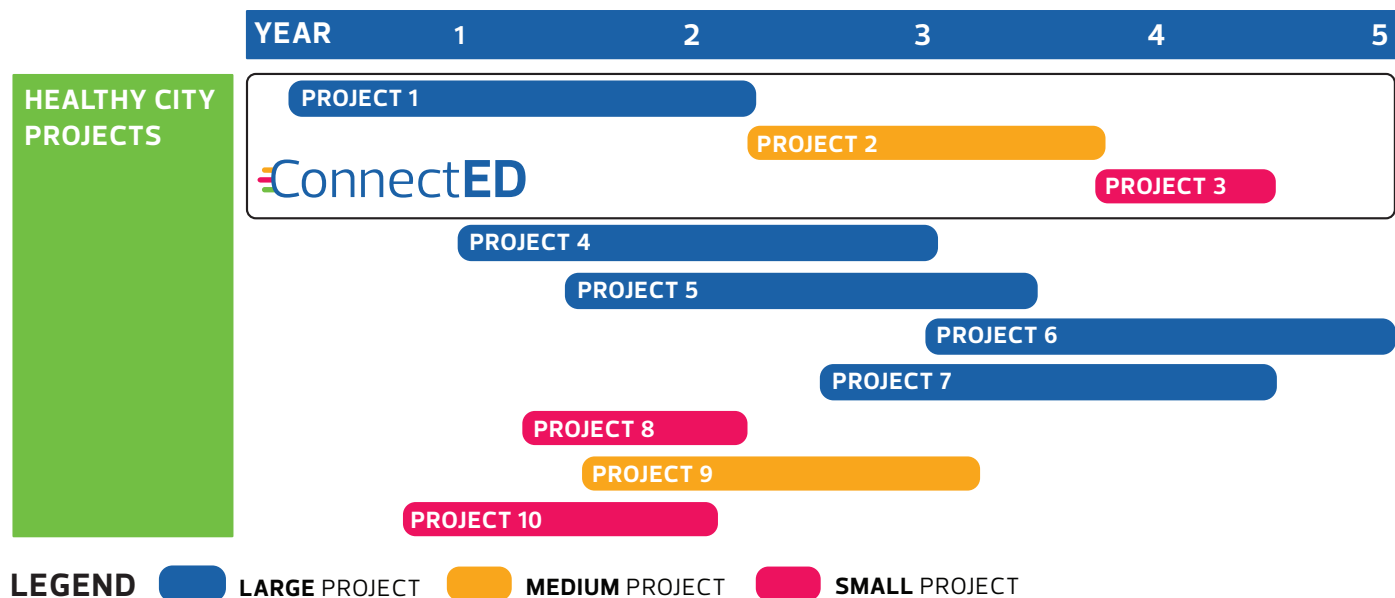
The Healthy City program is expected to implement ten projects over five years. These projects will vary in size, scale and schedule as shown in Table 10 and Figure 12.

The first Healthy City project will be ConnectED (see 3.5 Healthy City Project: ConnectED). Due to its scale and complexity, it has been broken down into three phases which are considered individual projects as each phase has a distinct deliverable.

TABLE 10: Healthy City Project Size, Duration and Cost

NUMBER OF PROJECTS	SIZE	DURATION	ESTIMATED COST (PER QUARTER)
3	Small	12-15 months	\$150,000
2	Medium	18-20 months	\$250,000
5	Large	24-30 months	\$320,000

FIGURE 12: Healthy City Projects Gantt Chart



3.3.6 MUNICIPAL CAPACITY BUILDING

The purpose of the Municipal Capacity Building stream is to ensure transferability and scalability of knowledge, experiences, processes and solutions across Canadian municipalities. This stream of work will ensure solutions and learnings are open, integrated, transferable and collaborative beyond the traditional municipal boundary and span of control. This stream directly contributes to achieving the program's second outcome of transforming how municipalities across Canada work with residents and partners to achieve excellence in data and technology.

The stream includes the following activities:

- Digital Innovation Collective:** Edmonton will build a network of municipalities that are working towards advancing work with residents and partners through data and connected technology. This would also extend to First Nations, Métis and Inuit communities. The Digital Innovation Collective will establish the foundation for sharing ideas, learnings and solutions to enhance how municipal programs and services are delivered. In the Initiate phase, the City of Edmonton will lead the Collective in developing terms of reference and guiding principles. In the subsequent phases, the municipalities in the Digital Innovation Collective will work together to identify areas of focus and activities.
- Maturity Assessment:** An initial Smart City Maturity Self-Assessment tool, shown in Figure 13, has been developed by the City of Edmonton. During the Initiate phase, Edmonton












will work with municipalities to modify and refine the maturity framework. In subsequent phases, this tool will be utilized by all members of the Digital Innovation Collective to assist with prioritizing areas for growth.

- Capacity Building:** The Healthy City program will work towards transforming how municipalities across Canada work with residents and partners to build healthier cities. As a result, the Healthy City program is focused on building capacity not only in Edmonton but also in municipalities across Canada. The Initiate phase of the program will identify community needs based on the Maturity Assessment described above and develop a change management framework. During the Innovate phase, this activity will focus on specific actions such as planning for the operational, financial and behavioural changes necessary for all Healthy City Ecosystem partners to incorporate transformational change across their organizations. As the program evolves during the Embrace phase, the program will work towards ensuring the knowledge, experiences, processes and solutions are scaled and sustained in Edmonton and across Canada.
- Open Source Knowledge Sharing:** This activity will share knowledge and technology with other municipalities through open source technologies. Sharing open source code is not new; however, instead of simply sharing code over open source platforms, this activity will build ongoing collaboration and contribution to these shared open source

projects by municipalities across Canada. During the Initiate phase, the focus will be to finalize the technology and legal framework to ensure this activity is feasible.

During the Innovate and Embrace phases, this activity will scale the approach to include all Health City Ecosystem partners municipalities across Canada.

FIGURE 13: Maturity Assessment

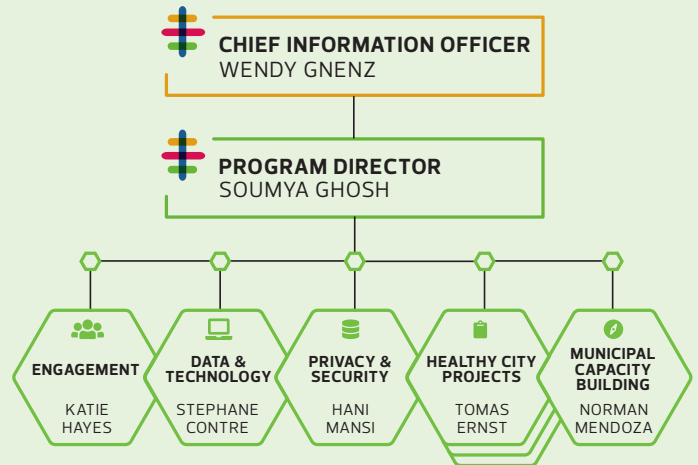
	 LISTENING	 LEARNING	 MANAGING	 LEADING
 Open Data Advancement	There is recognition that open data is a foundation for further Smart City initiatives. Market scanning and proof of concepts with vendor solutions is common.	Open Data policy is under development. Data use, privacy and security guidelines are not fully established. Requests for data are frequently declined by internal stakeholders.	Open Data Policy is in place; data use, privacy and security guidelines are established and institutionalized. Requests from residents, internal City areas and elected officials is commonplace.	Open data is a foundational benefit to the partnership's ecosystems. The value realized through partners' use of the data is measurable.
 Data Management Practices	The need for improved data management practices is recognized, but initiatives to define data management standards and processes, and policies are recognized as important and are not yet in place.	Small scale re-use of data to fuel smart solutions and data analytics. Pilots using business intelligence tools emerge. Initiatives to define data management standards, processes and policies are in place.	Data is combined from multiple sources in new and creative ways. Data analytics are applied to provide new insights. Data management standards and processes are being implemented.	City-wide use of mature advanced data analytics (real-time, big data, predictive). Most data is available via open standards. Operational data management standards and processes exist and data quality is guaranteed.
 Culture of Innovation	There is recognition that the benefits that innovation will bring to cities will require an increased tolerance of risk.	There is opportunistic innovation happening across the organization. Partner innovation models are being tested.	Systematic innovation is primarily focused on ideas from inside the City and engages some partners and residents.	Innovation is encouraged, institutionalized and managed. Residents and partners are consistently involved in innovations in the City.
 Resident Engagement	There is recognition that Smart City approaches benefit from design thinking that includes significant resident engagement.	Different methods and channels of engagement are experimented with and evaluated.	Multiple channels are used to engage residents based on their needs. Formalized processes and methods are being created.	A formalized city-wide engagement model enables ongoing and inclusive interactions with residents.
 Technology Readiness	There is recognition that fragmented and siloed architecture and systems are impediments to Smart City initiatives.	Data provisioning and analysis tools are implemented and usage is small, but growing. The use of Application Programming Interfaces for integration is ad hoc.	Data provisioning and analysis tools are implemented and well utilized. Event-driven Application Programming Interfaces are implemented and used to create visibility of data across City systems. Integration within partnership ecosystems is becoming more commonplace.	Open platforms allow data to be visible and leveraged across the City and between and within partnership ecosystems.
 Partnership Ecosystems	The City is occasionally connecting with its ecosystem of academia, government organizations, businesses and residents. Collaboration is ad hoc or fragmented.	The ecosystem is engaged and collaboration on Smart City initiatives is encouraged. New processes, procurement and legal mechanisms are being created and tested. Collaboration is intentional.	An ecosystem model that involves all levels of government, academia, business and residents is involved in Smart City initiatives. Collaboration is systematic.	Collaboration is based on shared outcomes and results in a flow of new products, services, and transformed business models.
 Privacy & Security Awareness	Recognition of and assessment of issues with privacy and security is occurring.	Mitigations to privacy and security issues are reactive. Efforts to increase awareness are initiated.	Sustainment of privacy and security awareness is achieved. Technology and data management architectures are adapted to respond.	Privacy and security is being established to enable partnership ecosystems.

3.4 EDMONTON'S HEALTHY CITY PROGRAM MANAGEMENT OFFICE

Edmonton's Healthy City Program Management Office structure is shown in Figure 14.

A short biography for each of the individuals listed in the Program Management Office has been included to demonstrate the readiness of this team and ability to achieve effective and timely results.

FIGURE 14: Healthy City Program Management Office



Wendy Gnenz, Chief Information Officer

Wendy Gnenz provides corporate leadership for digital enablement and innovation, data and analytics, technology planning and all aspects of technology infrastructure operations for the City's 14,000 employees and nearly one million residents. In this role, she is leading the transformation of data and technology through reimagining how partnerships and usable information can provide innovative, integrated services to residents. In the workplace, Wendy has fostered a culture of collaboration through the motto "Think Yes," which encourages staff to always approach issues/problems with a can-do attitude.

As a Chartered Professional Accountant and a Certified Management Consultant, Wendy brings with her a wide variety of experience in strategy, process, technology and consulting from her work in the health industry, municipal and provincial governments, and private sector organizations.



Soumya Ghosh, Program Director

Working with community partners, Soumya Ghosh aims to advance the Open City and Smart City portfolios by driving innovative technology-focused solutions to improve resident services. Additionally, Soumya is responsible for managing the City of Edmonton's award-winning Open Data program and developing the Smart City proposal for Infrastructure Canada's Smart Cities Challenge.

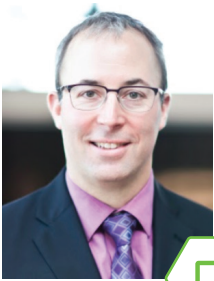
Prior to joining the City of Edmonton, Soumya worked as an IT consultant with Fortune 500 companies such as Oracle Corporation, McKesson Corporation and Deutsche Bank. He completed his MBA from the University of Alberta, has a Bachelor of Engineering degree and is PMP certified.



Katie Hayes, Engagement

Katie Hayes works with organizations and the community to identify opportunities for making places more vibrant, healthy and safe. She works collaboratively to transform processes and programs for community benefit. She has led community engagement and stakeholder relations activities with programs including Edmonton's Capital City Clean Up Graffiti Management and Strathcona County Victim Services.

She has a Bachelor of Commerce degree and a Masters degree in Community Development. She dedicates much of her free time to volunteering with community organizations and events.



Stephane Contre, Data and Technology

Stephane Contre leads the City's Analytics Centre of Excellence, whose mission is to assist the City in understanding and leveraging analytics to improve business outcomes. A passionate analytics professional, Stephane has developed a corporate-level consultation service that supports the City's modernization and innovation agenda through the use of statistics, business intelligence, predictive modelling and advanced analytics.

Prior to working for the City of Edmonton, Stephane served as an Army Officer in the Canadian Forces, was a Police Officer in Ottawa and also worked as a security contractor overseas.



Hani Mansi, Privacy and Security

Hani Mansi brings 28 years of work experience, spanning many different industries, having worked for organizations such as IBM, ATB Financial, Workers Compensation Board and most recently, ATCO Group. Throughout his career Hani has focused on the creation, management and optimization of security programs, with responsibilities that have included Information Security, Risk Management and Cyber Security.

Hani has a Bachelor of Science degree from the University of Alberta, numerous certifications related to Information Security and Risk Management, is a Board Member for the Alberta Chapter of the International Information System Security Consortium and has been a speaker at a number of Information Security events throughout Canada.



Tomas Ernst, Healthy City Projects

Tomas Ernst is a bilingual professional with over 15 years of experience in local, provincial, federal and international civil service. He has a Bachelor of Commerce degree and a Masters degree in International Relations. Tomas' start-up company, donate2play.com, was recognized for its innovation by Boulevard Magazine in transforming the financial practices of nonprofits. He spent eight years as a Project Manager working with the United Nations and World Bank Group in Australia, Europe, East Africa and the Middle East. He has served as Acting Branch Manager and Director in the Citizen Services Department at the City of Edmonton prior to joining the Open City and Technology Branch.



Norman Mendoza, Municipal Capacity Building

In his role leading innovation and open data, Norman Mendoza is involved in helping Edmonton continue its evolution into a Smart City. Norman recently joined the steering group for the Municipal Innovation Pilot Project as the City of Edmonton's representative. Along with the City of Montreal, City of Guelph, Region of Durham, Region of Niagara, City of Sarnia, MISA Ontario, FCM Innovation Network and the Government of Canada's Digital Enablement Unit, the group is building collaborative communities around open source projects for cities.

Prior to joining the City, Norman was a serial entrepreneur in Edmonton's technology startup community, which provides a unique combination of perspectives and approaches that can be used to help the City promote collaboration and partnerships with the technology community, post-secondary institutions, and businesses.

3.5 HEALTHY CITY PROJECT:

ConnectED

The Healthy City program will work to build a digitally inclusive city where residents have increased access to programs and services that positively impact their quality of life. One of the ways in which this will be achieved is through the creation and ongoing evolution of ConnectED, a digital tool for residents that will integrate information from various sources into a user-friendly format. This tool will be agile and adaptable, able to provide residents with the information they require as they move through the various stages and circumstances of life. Residents will have the ability to customize the digital tool to their personal preferences and needs based on where, when and how they would like to access programs and services.

The purpose of ConnectED, as the first project of the Healthy City program, is to validate the effectiveness of the Smart City Framework and the processes established in the Healthy City program. Through engagement and research, this project has been identified to meet residents' needs. It also aligns with the Healthy City program outcomes and has strong support through existing City of Edmonton and partner initiatives.

In the Initiate phase, the Healthy City program will work with residents and partners to develop and evaluate ConnectED technology and complete a Privacy Impact Assessment. During this phase, ConnectED will maximize the use of municipal and community open data. As the Healthy City Ecosystem grows during subsequent phases, additional Privacy Impact Assessments will be completed for ConnectED. This will increase the diversity of data and information available to residents through the digital tool.

In the Innovate phase, ConnectED will become accessible through additional digital channels, including existing and additional kiosks in public spaces, and other smart devices and connected technologies in the home and community.

During the Embrace phase, through ensuring compliance with the privacy and security legislation and expectations of residents, ConnectED will also enable two-way communication and data-sharing to allow the stakeholders in the Healthy City Ecosystem to analyze information at an aggregated neighbourhood or population level. The

access to anonymized and aggregated data will give service providers and policymakers the ability to perform analytics and determine the relevance, effectiveness and efficiency of current and planned programming as well as make recommendations, ranging from changes in services to full policy amendments. As the adoption of the tool progresses, the Healthy City program will engage with innovative wearable-technology manufacturers to build further connections between the community and residents by providing the option to incorporate residents' wearable data into their ConnectED experience.

The purpose of ConnectED, as the first project of the Healthy City program, is to validate the effectiveness of the Smart City Framework and the processes established in the Healthy City program.

3.6 RISKS

Potential project management risks include lack of technical expertise to complete deliverables and ineffective change management processes. These risks will be amplified as the program moves from the Initiate phase to the more complex Innovate and Embrace phases. The City of Edmonton has assessed these and other program risks related to project management and has developed a series of mitigating actions to reduce their impact and likelihood. Project Management risks are shown in Table 11.

Likelihood and impact are measured on a scale of 1-5, with 1 being extremely low and 5 being extremely high. The likelihood and impact measures are multiplied to establish the overall risk score. Risks with scores between 1 and 6 are given a low risk rating, 7 and 12 a medium risk rating, 13 and 20 a high risk rating, and 21 and 25 an extreme risk rating.

TABLE 11: Project Management Risks and Mitigating Actions

RISK	LIKELIHOOD	IMPACT	RISK SCORE	RISK RATING	MITIGATING ACTIONS
Inability of contractors to deliver on projects results in program delays	1	4	4	Low	Strong contract management practices are in place to ensure ongoing oversight including robust evaluation of vendors and regular reporting.
External factors (economic, environmental, etc.) result in program delays	2	2	4	Low	Complete ongoing environmental scans and update timelines accordingly. Review economic forecast and adjust timelines if required.
Complexity of projects results in increased legal liability	1	5	5	Low	Robust privacy and security processes are in place to ensure liability is managed appropriately.
Insufficient resources (financial, human, information, tools, etc.) result in program delays	2	3	6	Low	Prioritize program initiatives and projects and assign resources as required. Develop succession plan to ensure continuity in the event of reduced resources. Identify unique skill sets required for program implementation and recruit proactively.
Lack of executive support results in program not achieving desired outcomes	2	3	6	Low	Complete continuous stakeholder assessments. Ensure ongoing communication with senior leaders. Develop continuity plan.
Inaccurate cost forecasts result in inability to implement all desired solutions	2	4	8	Medium	Prioritize program initiatives and projects and reallocate resources when required. Continuously market scanning to ensure cost effective decision-making.
External factors (partner readiness, economic, etc.) result in unsustainable and non-transferable solutions	2	4	8	Medium	Partner readiness is assessed at the beginning of projects to ensure ability to achieve outcomes. Ongoing development of partnerships will lead to new opportunities for funding sources.
Program scope creep results in inefficient use of resources	3	3	9	Medium	Program initiatives and projects are prioritized based on ability to achieve outcomes. Scope will be managed for individual projects and for the program as a whole through established project management processes.

4.0 DATA AND TECHNOLOGY

Progressive organizations around the world continually reimagine themselves through innovative digital tools, systems and processes. In today's dynamic environment, it is imperative for municipalities to understand the role technology plays in building smart, sustainable cities and addressing complex societal challenges in a collaborative setting. Urban planning needs to embrace the digital opportunities that contribute to the vibrancy and sustainability of places and refrain from taking a siloed approach to managing investments in connected technology and physical infrastructure.

The usability of data and information is dependent on the technology used to create, access and manage it. As such, the City of Edmonton is presenting a combined data and technology plan as part of the Smart Cities Challenge final proposal. Through the use of data and connected technology, the City of Edmonton is rethinking the planning and development of urban landscapes and the delivery of services in order to avoid the inefficiencies of today and build a healthier, more connected City of the future. The built environment will influence health outcomes and impact the way residents feel, both physically and mentally. Data and connected technology will be used within the Healthy City Ecosystem to improve well-being in Edmonton by creating spaces and solutions that are accessible, vibrant and inclusive, that celebrate the unique features of the city and its residents, and increase security and reduce isolation.

4.1 THE HEALTHY CITY PROGRAM DATA AND TECHNOLOGY PLAN

Residents' relationship with technology is constantly evolving. To meet the diverse and dynamic needs of residents and community, cities must build and strengthen internal and external collaboration and better leverage the data, business solutions and diverse technologies that exist. Edmonton's Business Technology Strategy provides a strategic framework to connect all of these pieces in order to transform Edmonton and the region it occupies into a place that meets the expectations of the modern world. The Business Technology Strategy is the foundation from which the Data and Technology Plan has been developed.

The Data and Technology Plan also follows ISO 37106: 2018 Guidance on Establishing Smart City Operating Models for Sustainable Communities. The premise of the ISO framework

is to lead the transformation of the traditional municipal operating model to empower the community through data. It will also break down silos that inhibit truly resident-centric service delivery and enable digital inclusion in ways that are not achievable through traditional technology approaches. Through the implementation of the following two initiatives, the Data and Technology Plan will deliver directly on these transformational opportunities.

4.1.1 DATA ACCESSIBILITY AND SHARING

A foundational element of the Healthy City program is to increase the capacity for data accessibility and sharing within the Healthy City Ecosystem and in municipalities across Canada. Through this increased capacity, the use of data can be optimized to enhance the development and delivery of programs and services for residents, as well as enhance and animate the physical spaces they occupy. This consolidation of disparate data through partnerships also increases the ability for organizations and municipalities to identify gaps and biases and work together to resolve them.

The City and its partners have significant and valuable amounts of open data. In the Initiate phase of program implementation, the Data Accessibility and Sharing initiative of the Data and Technology plan will begin with the creation of a register of open datasets available for collaborative use. This will enable the collaborative identification of potential projects and allow for data to be analyzed with the intent to discover useful information, form the foundation for creating solutions and ultimately support decision-making.

The City of Edmonton currently has over 2,000 data assets in the Open Data Portal. All of this data is publicly available and has been obtained and published under an established set of management controls and approval processes.

These processes include steps to ensure both Freedom of Information and Protection of Privacy Act and legal requirements are met and approvals for the release of data have been received prior to it being published.

The Open Data Portal also makes available certain datasets that are external to the City of Edmonton. The Edmonton Police Service, Edmonton Public Library, Alberta Environment and Parks and EPCOR have all shared data to be used in this tool for residents and community. This data is anonymized and was made available to the Open Data Portal through data sharing agreements with the City of Edmonton.

Data analysis will be paired with community consultation throughout the entirety of the implementation of the Healthy City program and is not a stand alone activity. Examples of this data analysis include data clustering, data matching, data mining and advanced analytics.

As the Healthy City program progresses, it will lead to projects or initiatives that require the sharing of data that does not exist in an open platform. In the Innovate phase, the City along with its partners will assess the risk of using this type of data and determine if the opportunity is appropriate. If deemed acceptable, a data sharing, information management or research agreement would be created and the necessary steps would be taken to share and secure the data for the duration of the project. The data sharing agreement would also articulate what happens to the data following the completion of the project. In order for the data sharing between partners to be successful, members of the Healthy City Ecosystem must ensure that all data housed on their platforms is secure, including appropriate authentication and authorization rules for those who have access to internal data. The Data and Technology work stream will develop the foundational technology infrastructure so that the individual projects can retrieve, store and analyze data.

During the Embrace phase, the Healthy City program and its partners will conduct research into best practices and pursue the potential of building a Healthy City data repository. This repository would consist of anonymized data from partners within the Healthy City Ecosystem and allow for greater capacity and flexibility to analyze data for gaps and biases. It would be a flexible platform for secure anonymized data sharing between both internal and approved external users

within the Healthy City Ecosystem and would allow for multiple data sources and data types to be securely available for consumption and use.

Throughout the three phases, as the Healthy City Ecosystem grows and data accessibility and sharing increases, ConnectED, the resident tool described in Chapter 3 (see 3.5 Healthy City Project: ConnectED), will also grow.

4.1.2 SHAREABLE SOLUTIONS

As the data and technology landscape evolves, so does the ability for Canadian municipalities and governments to realize innovative opportunities through the sharing of their experiences and solutions. This begins with sharing code and best practices as municipalities are often striving for similar outcomes through building and procuring the same solutions. However, the truly transformative nature of data and technology is not achieved by simply sharing open source code. It is done through building a network of cities and their respective innovation ecosystems that will extend and sustain the new digital products that residents expect. This is a new business model opportunity where the efforts of each city and their community partners is multiplied, rather than duplicated. The Data and Technology Plan for the Healthy City program includes active engagement of the network and community around the analytic and digital products that are created through all phases of the program.

Throughout the Initiate phase and with the establishment of the Digital Innovation Collective (see 3.3.6 Municipal Capacity Building), the City of Edmonton will continue as an active participant in the Federation of Canadian Municipalities and Government of Canada Municipal Innovation Pilot Project. The City of Edmonton will also be able to provide municipalities across Canada with a series of shareable solutions as shown in Table 12.

TABLE 12: Shareable Solutions

PROJECT	DESCRIPTION	EASE OF REPLICABILITY / TRANSFERABILITY (5 – HIGH TO 1 – LOW)
<p>You Can Benefit</p>	<p>You Can Benefit, a made-in-Edmonton web tool, provides individuals, families and community workers with information on available municipal, provincial and federal benefits. Built using open source content, You Can Benefit can be shared with other organizations and municipalities nationwide.</p>	<p>5 – Municipalities who use this code require foundational open data and analytics. A strong and collaborative working relationship with benefit providers is an additional requirement in order to acquire the necessary data.</p>
<p>Emergency Operations Demand Dashboard</p>	<p>The wildfire that forced 88,000 people in Northern Alberta to flee their homes in 2016 required a municipal response that was nimble and adaptive. In an effort to support the evacuation efforts, City of Edmonton staff developed and deployed an analytic dashboard to monitor the ever evolving demands. By consolidating real-time evacuee service reporting, the dashboard empowered municipal decision-makers with the information necessary to make critical service delivery decisions in uncertain and ever-changing times.</p>	<p>5 – Municipalities who use this code require foundational open data and analytics.</p>
<p>Transit Security Deployment Model</p>	<p>Edmonton Transit Security adopted the Transit Security Deployment Model, an approach that optimizes the deployment of Transit Peace Officers to trouble locations in a timely manner along the transit network. The Transit Security Deployment Model uses cutting-edge data mining algorithms to automatically analyze current transit incident data to deploy Officers where they are needed the most. Since its introduction, Edmonton Transit Security has seen its number of proactive incidents go up by 159 per cent while reactive events have gone down by 52 per cent.</p>	<p>3 – Municipalities who use this code must be confident in their open data and analytics maturity.</p>
<p>Optimized Needle Response</p>	<p>The Optimized Needle Response solution overhauled the municipal strategy that was in place to manage discarded needles by way of leveraging data to forecast anticipated resident complaints and incorporate route, needle box and shift optimization. In addition to increased operational efficiencies, the Optimized Needle Response has resulted in a near \$200,000 cost avoidance per year.</p>	<p>3 – Municipalities who use this code must be confident in their open data and analytics maturity.</p>
<p>Safety Code Inspector</p>	<p>The City of Edmonton performs over 50,000 inspections a year on newly built houses. In order to reduce the burden of this workload while upholding the integrity of the inspections, the City developed a predictive analytics software. This solution is able to identify low-risk safety code inspections, freeing up resources to concentrate on higher-risk safety code inspections. Currently being piloted in Edmonton, the goal is to reduce annual inspections by 10 per cent (5,000) per year.</p>	<p>2 – Municipalities who use this code must be advanced in their open data and analytics maturity.</p>

During the Innovate phase and as the Digital Innovation Collective grows and matures, the focus will be on capacity building and sharing open source projects with municipalities across Canada. The Embrace phase will emphasize the sustainability of solutions within the ever-changing technology landscape and dynamic municipal environment.

4.2 PILOTING AND TESTING RESULTS

Throughout Edmonton's preparations for the Smart Cities Challenge initial application and since being named a Finalist, the City has conducted pilot projects to test and validate the proposed Smart City approach. These are summarized in the two charts in Chapter 1 under Progress to Date on Outcomes (see 1.3.4 Progress to Date on Outcomes).

4.3 FUTURE-PROOFING TECHNOLOGIES

As cities continue to embrace disruptive innovation and technologies, the challenge of future-proofing becomes increasingly complex. The City of Edmonton has developed effective processes to work with the community to identify and test new technologies to advance municipal programs and services. Through the City's broad partnership base, extensive subject matter expert network and ongoing engagement with residents, Edmonton has the capacity to recognize potential future-proofing issues and proactively make adjustments to the program in order to ensure ongoing success.

With a focus on data sharing enabled through service-oriented and microservices architecture, the City of Edmonton will address the challenge of future-proofing. This approach places a priority on how the interface between systems is created rather than how the specific technology is being used. Systems will evolve and change, but the value created through data sharing is sustained.

When technologies are considered for projects within the Healthy City program, a standard and open approach to tool connectivity will be a mandatory requirement. The skill set required to bring together these types of services already exists in the City's workforce and is expanding amongst staff whose work focus is on data analytics. Additionally, building software using service-oriented architecture is commonly taught in post-secondary institutions, resulting in a growing talent base to perform this work going forward.

4.4 LEGISLATIVE COMPLIANCE AND STANDARDS FOR DATA AND TECHNOLOGY SOLUTIONS

The City of Edmonton recognizes the importance of understanding and incorporating standards into the development and implementation of data and technology solutions. This section outlines standards and strategies the City of Edmonton has and will utilize to ensure interoperability and replicability of all data and technology assets.

All data and technology solutions will be evaluated based on conformity to the following ISO standards:

- ISO 37106 Guidance on Establishing Smart City Operating Models for Sustainable Communities
- ISO 27001 Managing Information Risks
- ISO 27017 Controlling Cloud-Based Information Security
- ISO 27018 Protecting Personal Data

In addition, the following standards, toolkits and strategies will be considered as technology solutions are developed. This will ensure interoperability between the technologies and other existing community systems and services. It will also increase opportunities for infrastructure replicability and scalability.

- [Report to the Clerk of the Privy Council: A Data Strategy Roadmap for the Federal Public Service](#)
- [Government of Canada Digital Standards](#)
- [Canada's Spatial Data Infrastructure](#)
- [Canada's Digital Geospatial Metadata](#)
- [Canadian Standards for Big Data Analytics](#)
- [Cyber Security - Government of Canada](#)
- [CIO Strategy Council](#)
- [Smart Cities for All](#)

Chapter 7 (see 7.3.1 City of Edmonton) provides a complete listing of City Policies, Administrative Directives and Technical Standards that will guide the implementation of the Healthy City program, as well as ensure compliance with other legislative requirements at the provincial and federal level.

4.5 THE CITY OF EDMONTON'S DATA AND TECHNOLOGY SOLUTIONS ARE INCLUSIVE AND ACCESSIBLE

Smart cities are inclusive and accessible. They develop and use innovative technologies to benefit all residents and create equitable opportunities to live healthy, safe and joyful lives. The City of Edmonton prioritizes being inclusive and accessible. In 2016, the City of Edmonton's Open Data Portal was awarded the Canadian Open Data Award for Accessibility by the Open Data Society of British Columbia and Open North.

Throughout the development and implementation of technology solutions for the Healthy City program, the City will engage key stakeholders and subject matter experts to offer their perspectives regarding content, accessibility and usability. The City will also work directly with residents to ensure the identification and creation of inclusive technology solutions that are responsive to evolving needs.

Understanding and mitigating data biases and gaps will also contribute to the accessibility and usability of technology solutions. The City of Edmonton will work with subject matter experts to understand how biases in data can be verified and what mechanisms can be put in place to overcome negative effects. In addition, the members of the Healthy City Ecosystem will work together to ensure populations that are typically underrepresented in data are provided the opportunity to participate in engagement activities that are meaningful and relevant to them. This is explained in greater detail in Chapter 6 (see 6.4 Inclusive Engagement).

4.6 EDMONTON'S DATA AND TECHNOLOGY PARTNERS

As evidenced in the Business Technology Strategy, the City of Edmonton views partnerships as being critical to the advancement of a modern municipal corporation. Specifically, the City has developed strategic partnerships with technology collaborators who are essential to the continued growth of Edmonton as a Smart City. As the Healthy City program progresses, the City will align the contributions of existing and new partners with the evolution of the Data and Technology Plan. This means that vendors will have new contractual requirements, including the enablement of open data, incentives for innovation and collaboration, and new models for collaboration based on shared outcomes. Furthermore, as the regulatory environment for data and technology evolves, the City of Edmonton expects data and technology partners to assist and respond to changing regulations.

Data and technology at the City of Edmonton is supported by several partners today. A selection of these partners are listed in Table 13.

TABLE 13: Technology Partners

PARTNER	ROLE
BetaCityYEG	BetaCityYEG connects public employees, residents and members of Edmonton's technology and data community to address the city's and region's pressing issues.
CISCO	CISCO provides the City of Edmonton with networking and connectivity hardware where required.
Edmonton Public Library	As Edmonton's largest lender of information and entertainment, Edmonton Public Library creates connections to help, grow, inspire and change. A pillar in our City, Edmonton Public Library continues to reimagine the modern library and best serve the growing and changing needs of Edmontonians.
Esri	Governments collect and manage vast amounts of location-related data – the City of Edmonton is no exception. From the City's use of ArcGIS to Story Maps, Esri has and continues to make a lasting impression as a critical partner.
Health City	Health City is an economic development initiative that catalyzes, accelerates and connects the health innovation ecosystem in Edmonton and the surrounding region.
Google	Edmonton was the first Canadian municipality to migrate its email and office applications to the Google Suite. In addition, the City's partnership with Google includes everything from large-scale event sponsorship to supporting the movement of analytics to action.
Oracle (APEX)	From coordinating evacuation efforts during emergencies to keeping tabs on significant projects, the City's partnership with Oracle (APEX) provides a low-code development platform that fuels many scalable and secure apps at the City of Edmonton.
R-Brain	The City of Edmonton has embraced the resurgence of data science in municipal government – a trajectory empowered by a partnership with R-Brain. R-Brain is a data science platform that provides data scientists with the tools they need when developing models with popular open source languages.
SAP (Business Objects)	Business Objects, a reporting and analytics business intelligence platform that is offered as a result of the City's partnership with SAP, enables data discovery and the generation of reports that visualize insights.
Startup Edmonton	Transforming ideas into some of Canada's most exciting and successful startup and scaling companies, Startup Edmonton works with entrepreneurs as they build and grow tech-enabled products and companies.
Tableau	One of the best ways to tell a story related to data is with a compelling visualization, which explains why the City's usage of Tableau has skyrocketed over recent years – from 36 users in 2015 to 3,113 at the end of 2018. The City's partnership with Tableau enables the creation of informative visualizations that help City staff make evidence-based decisions.
TEC Edmonton	A partnership between the University of Alberta and the Edmonton Economic Development Corporation, TEC Edmonton operates the Edmonton region's largest accelerator for scale-up technology companies and manages the commercialization of University of Alberta technologies.
Tyler Technologies	Originally launched as “the world's easiest database,” Socrata supports the City's data as a service platform that aims to reduce government silos. It is the platform that powers the award-winning Open Data Portal.
What Works Cities	The What Works Cities Initiative, a program launched by Bloomberg Philanthropies in April 2015 and delivered by the Center for Government Excellence (GovEx) at Johns Hopkins University, partnered with the City of Edmonton to help prioritize data management efforts, address current challenges and identify opportunities for improvement. It is a partnership focused on increasing data-driven decision-making through effective data governance.

4.7 RISKS

Potential risks identified for technology relate to the pace of technology change, the dependence on the open source development community, and the availability of specific technology skill sets. The City of Edmonton has assessed these and other program risks related to technology and has developed a series of mitigating actions to reduce their impact and likelihood. Data and Technology risks are shown in Table 14. Likelihood and impact are measured on a scale of 1-5, with 1 being extremely low and 5 being extremely high. The likelihood and impact measures are multiplied to establish the overall risk score. Risks with scores between 1 and 6 are given a low risk rating, 7 and 12 a medium risk rating, 13 and 20 a high risk rating, and 21 and 25 an extreme risk rating.

TABLE 14: Data and Technology Risks and Mitigating Actions

RISK	LIKELIHOOD	IMPACT	RISK SCORE	RISK RATING	MITIGATING ACTIONS
Costly technology architecture results in program delays	2	3	6	Low	Program initiatives and projects are prioritized based on ability to achieve outcomes. Resources will be reallocated if required.
Inability to operationalize technology results in an unsustainable program	2	4	8	Medium	As part of the design phase, develop concept of operations for each technology project. Engage operational groups earlier in the project implementation.
Poor data quality results in a lack of meaningful and actionable insights	2	4	8	Medium	Validate data quality as part of the project selection and priority process to determine project feasibility. Establish ongoing monitoring of data quality as part of program monitoring and control.
Data biases result in a lack of meaningful and actionable insights	2	4	8	Medium	When developing project plans, work to incorporate as many datasets as possible while still adhering to all privacy requirements. Design project to encourage open conversations amongst team members and promote fact challenging. Recruit subject matter experts specializing in data theory and ethics.
Proprietary constraints associated with technology result in lack of transferable solutions	2	4	8	Medium	Establish clear requirements regarding future-proofing technologies, importance of replicability and scalability and desire to share advance open source solutions.
Lack of specialized skills (ex. Data Scientists) results in program delays	3	3	9	Medium	Proactive recruitment of advanced technical resources. Build strong partnerships with the post-secondaries and develop a talent pipeline. Where possible, leverage existing agreements already in place (Startup In Residence, Health City, MetroLab Network, etc.).
Inadequate technology solutions result in security or privacy breach	2	5	10	Medium	Processes and standards are in place to ensure the privacy and security of data and information. All members of the Healthy City Ecosystem and anyone working on the implementation of the Healthy City program (including employees and contractors) will be trained on the processes and standards including collection, use and disclosure of information. Develop and maintain an incident management plan.

5.0 GOVERNANCE

5.1 THE HEALTHY CITY PROGRAM GOVERNANCE FRAMEWORK

The City of Edmonton recognizes that an effective governance structure is foundational to the successful delivery of complex programs and the achievement of outcomes. Good governance involves the integration of diverse perspectives for improved decision-making, the ability to prioritize and manage resources effectively, and strong oversight and management of program risks. It is rigorous, transparent and ensures value for money. The City of Edmonton has demonstrated success in establishing governance structures that include both residents and partners through the Open Data and Smart City Advisory Groups, as well as EndPovertyEdmonton and RECOVER.

Following City of Edmonton standards, a comprehensive governance framework has been developed to manage the development and implementation of Edmonton’s Healthy City program. It ensures the transparent operation of the program and individual projects through a robust governance approach well-suited to a Smart City. This governance framework consists of two integrated layers and a series of supporting foundational principles as described in 5.1.1 and 5.1.2.

5.1.1 CANADIAN COMMUNITIES AND THE GOVERNMENT OF CANADA

As shown in Figure 15, the highest level of governance for the Healthy City program will include the essential partnership between the Government of Canada, the City of Edmonton and other Canadian municipalities, communities and regions.

The City of Edmonton will work to facilitate collaboration and advance the goal of building smarter communities across the country. This will include continual touchpoints with Infrastructure Canada as well as other municipalities, communities and regions in order to build collective capacity for transformative digital innovation that aligns with the goals of the Government of Canada.

FIGURE 15: Federal Government Municipal Connections



5.1.2 HEALTHY CITY PROGRAM GOVERNANCE

The City of Edmonton recognizes that multiple layers of governance do not necessarily improve the quality of technical solutions, the efficiency of delivery or the reduction in risk. As such, the governance structure shown in Figure 16 has been developed to foster collaboration, innovation and the breaking down of barriers that perpetuate organizational and societal silos. This, in turn, will result in more transparency and better decision-making for the Healthy City program.

Detailed descriptions of the governance components shown in Figure 16 are included in Table 15.

Good governance involves the integration of diverse perspectives for improved decision-making, the ability to prioritize and manage resources effectively, and strong oversight and management of program risks.

FIGURE 16: Healthy City Program Governance

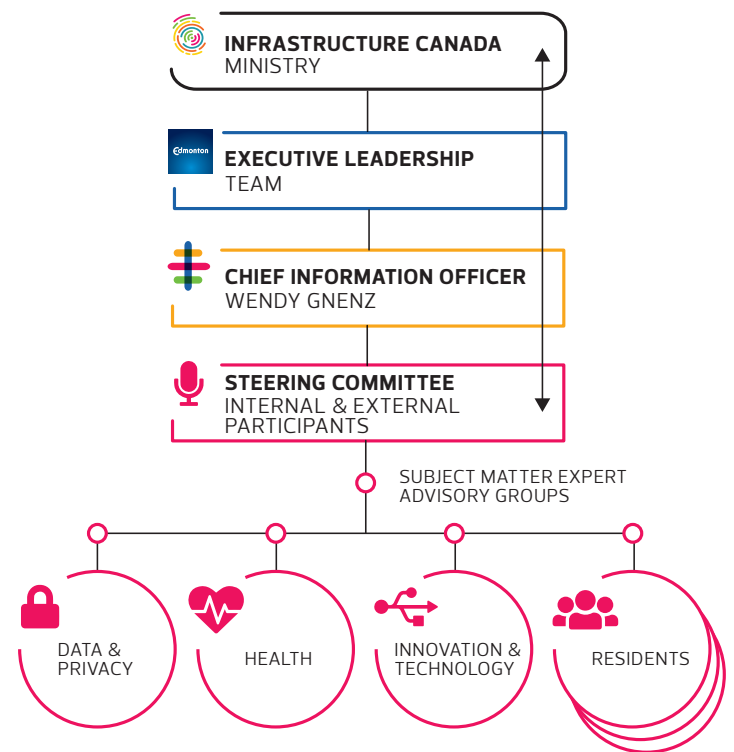


TABLE 15: Governance Roles and Responsibilities

INDIVIDUAL OR GROUP	DESCRIPTION AND MEMBERSHIP	ROLES AND RESPONSIBILITIES
Executive Leadership Team	As drivers of the strategy and direction for the City of Edmonton, the Executive Leadership Team members champion the transparent and innovative approach to implementation of the Healthy City program. The Executive Leadership Team at the City of Edmonton includes the City Manager as well as all supporting Deputy City Managers.	<ul style="list-style-type: none"> • Share the vision for a Healthy City and effectively lead the delivery of that vision. • Accountable to Infrastructure Canada for the City of Edmonton's progress and achievement of outcomes. • Approve membership of the Steering Committee. • Advocate for the program.
Chief Information Officer	The individual responsible for overseeing the program in its entirety.	<ul style="list-style-type: none"> • Share the vision for a Healthy City and provide guidance to the Program Team. • Decision-making authority for prioritizing investments for the program and projects. • Approve allotment of resources to specific projects and initiatives and any delegation of authority within the program. • Oversee strategic and operational risk program and ensure appropriate mitigation strategies are in place. • Advocate for the program.
Steering Committee	A committee of internal and external leaders who can advance the strategic vision of the Healthy City program. A combination of up to four community leaders and up to four City of Edmonton Senior Managers representing diverse departments.	<ul style="list-style-type: none"> • Share the vision for a Healthy City and provide guidance to the Program Team. • Provide strategic oversight to the advisory groups. • Provide recommendations on projects to be implemented and allotment of resources. • Identify potential program or project risks. • Advocate for the program.

TABLE 15: Governance Roles and Responsibilities (continued)

INDIVIDUAL OR GROUP	DESCRIPTION AND MEMBERSHIP	ROLES AND RESPONSIBILITIES
<p>Data and Privacy Advisory Group</p>	<p>An advisory group of six to eight internal and external subject matter experts in the field of information and data privacy, security and ethics to guide the Healthy City program implementation.</p> <p>Membership will be appointed by the Steering Committee and reviewed on an annual basis.</p>	<ul style="list-style-type: none"> • Share the vision for a Healthy City. • Review and provide feedback on information management and research agreements, data sharing agreements and Privacy Impact Assessments. • Provide recommendations regarding privacy and security to the Steering Committee. • Provide oversight to ensure all privacy and security procedures are as per industry standards and legislative requirements. • Ensure proper procedures are followed in the event of a breach within the program. • Identify and mitigate risks. • Advocate for the program.
<p>Health Expert Advisory Group</p>	<p>An advisory group of up to six internal and external subject matter experts in the field of health (economic, mental, physical and social).</p> <p>Positions will be advertised and individuals interested must submit an application that will be reviewed by the Steering Committee. The Steering Committee will interview individuals from the applicant pool and appoint members.</p> <p>Membership is reviewed by the Steering Committee on an annual basis.</p>	<ul style="list-style-type: none"> • Share the vision for a Healthy City. • Provide advice regarding specific areas of expertise to the Steering Committee and individual project teams on an ongoing or as-needed basis. • Identify privacy and security concerns. • Help identify and mitigate potential program or project risks. • Provide constructive feedback to the Healthy City program. • Advocate for the program.
<p>Innovation and Technology Advisory Group</p>	<p>An advisory group of up to eight internal and external subject matter experts in the field of technology innovation.</p> <p>Positions will be advertised and individuals interested must submit an application that will be reviewed by the Steering Committee. The Steering Committee will interview individuals from the applicant pool and appoint members.</p> <p>Membership is reviewed by the Steering Committee on an annual basis.</p>	<ul style="list-style-type: none"> • Share the vision for a Healthy City. • Provide advice regarding specific areas of expertise to the Steering Committee and individual project teams on an ongoing or as-needed basis. • Help identify privacy and security concerns. • Help identify and mitigate potential program or project risks. • Provide constructive feedback to the Healthy City Program Implementation Team. • Advocate for the program.

TABLE 15: Governance Roles and Responsibilities (continued)

INDIVIDUAL OR GROUP	DESCRIPTION AND MEMBERSHIP	ROLES AND RESPONSIBILITIES
<p>Residents Advisory Group</p>	<p>An advisory group of up to ten individuals and community leaders, established to share perceptions, provide feedback and ensure the Healthy City program maintains accountability to residents. The group will be representative of community demographics.</p> <p>The advisory group may determine it necessary to establish additional sub-groups with subject matter expertise in specific demographics (i.e. children and youth, seniors, newcomers, Indigenous, etc.) depending on the projects identified and approved for implementation.</p> <p>Positions will be advertised and individuals interested must submit an application that will be reviewed by the Steering Committee. The Steering Committee will interview individuals from the applicant pool and appoint members.</p> <p>Membership is reviewed by the Steering Committee on an annual basis.</p>	<ul style="list-style-type: none"> • Share the vision for a Healthy City. • Ensure residents are engaged throughout all aspects of the program. • Ensure resident feedback is represented in the implementation of programs and projects. • Identify privacy and security concerns from the resident perspective. • Help identify and mitigate potential program or project risks. • Provide constructive feedback to the Healthy City program. • Advocate for the program.

5.1.3 Governance Principles

A series of principles were developed to ensure the governance of the Healthy City program is meaningful, effective and diverse. These principles, shown in Figure 17, will guide the members within the governance structure to ensure public value is not only achieved through implementation, but that it is maximized and reflects the diverse needs of the community.

FIGURE 17: Healthy City Program Governance Principles



The governance of Edmonton's Healthy City program will facilitate the flexible and effective management of the program itself, as well as individual projects and initiatives to ensure long-term success and achievement of goals and outcomes. As a result, the program will be able to adapt quickly to the city's changing needs and environment over the next five years and into the future. The maintaining of a rigorous, yet adaptable, approach to governance moves the City and its partners forward to better embrace innovation with clear accountability, transparency and commitment to maximizing value for the public.

5.2 SMART CITY PARTNERS

The City of Edmonton will drive the growth of the Healthy City program and increase its reach and effectiveness by encouraging strong, open and collaborative partnerships enabled by technology, data and information. These partners play an integral role at every level of the governance of the Healthy City program.

Determining partner readiness is an iterative, dynamic and collaborative process. The assessment of readiness

will begin in concert with partners in the Healthy City Ecosystem to ensure an alignment of vision and outcomes. If the potential partnership has aligned vision and outcomes, it will then be assessed for the necessary capacity and operations required from the partnership. Partner readiness will be assessed on a project-by-project basis as each project will have varying needs. An emphasis will be placed on building capacity amongst the partners in the Healthy City Ecosystem to operate effectively in a dynamic Smart City environment.

Edmonton is well positioned to be successful in effectively integrating partners into the governance and implementation of the Healthy City program. The City has received letters of support from 15 organizations ready to become partners at various stages of program and project implementation. These partners are identified in Table 16, including a description of the organization and a brief overview of the value they bring to the Healthy City Ecosystem. The 15 letters of support are included in the Appendices.

TABLE 16: Healthy City Ecosystem Partners





PARTNER	DESCRIPTION AND VALUE ADD
 <p>Alberta Blue Cross</p>	<p>Committed to providing wellness solutions that shift the focus from treatment to prevention. This is achieved through innovative solutions that drive behaviour change and foster positive social interactions through an online wellness platform, Balance. Through Balance, Edmontonians are provided with valuable tools and resources that have demonstrated positive improvements in social connections, physical activity levels and sleep quality while also decreasing stress levels, weight and smoking prevalence.</p> <p>Alberta Blue Cross brings health and wellness services expertise to the Healthy City Ecosystem.</p>
 <p>Alberta Health</p>	<p>Sets policy and direction to achieve a sustainable and accountable health system to promote and protect the health of Albertans.</p> <p>Alberta Health connects the Healthy City Ecosystem to health policies at the provincial level.</p>
 <p>Alberta Health Services</p>	<p>Canada's first and largest province wide, fully-integrated health system, responsible for delivering health services to the over four million people living in Alberta, as well as to some residents of Saskatchewan, British Columbia and the Northwest Territories.</p> <p>Alberta Health Services brings healthcare expertise and information to the Healthy City Ecosystem.</p>
 <p>Alberta Machine Intelligence Institute (Amii)</p>	<p>An Edmonton-based research lab that pushes the bounds of academic knowledge, guides business understanding of artificial intelligence and machine learning, and is home to some of the world's top talent in machine intelligence.</p> <p>Amii brings expertise in advanced analytics and technology to the Healthy City Ecosystem.</p>

TABLE 16: Healthy City Ecosystem Partners (continued)










PARTNER	DESCRIPTION AND VALUE ADD
<p>Edmonton Community Foundation</p> 	<p>Edmonton Community Foundation strengthens the community by connecting donors to charities and causes that are important to them. Edmonton is full of passionate people dedicated to building a vibrant community. Edmonton Community Foundation supports this by encouraging innovation, visionary thinking and leadership.</p> <p>Edmonton Community Foundation brings extensive community connections to the Healthy City Ecosystem.</p>
<p>Edmonton Public Library</p> 	<p>Edmonton's largest lender of information and entertainment with immense passion for creating connections to help, grow, inspire and change.</p> <p>Edmonton Public Library provides the Healthy City Ecosystem with shared resources and extensive community programs.</p>
<p>Health City</p> 	<p>An economic development initiative that catalyzes, accelerates and connects the health innovation ecosystem in Edmonton and the surrounding region.</p> <p>Health City connects the Healthy City Ecosystem to diverse additional health and wellness partners.</p>
<p>Institute of Health Economics</p> 	<p>An independent, non-profit organization with key competencies in health economics and decision analytic modelling, health technology assessment and knowledge transfer/exchange. Their mission is to inform coordinated, innovative, evidence-guided health policy and practice.</p> <p>The Institute of Health Economics brings expertise in research and analytics to the Healthy City Ecosystem.</p>
<p>MacEwan University</p> 	<p>Provides a transformative education in a collaborative and supportive learning environment where creativity thrives through research and innovation that engage students, faculty and the community. Students can choose from undergraduate degrees, certificates, diplomas and degree-transfer programs.</p> <p>MacEwan University provides the Healthy City Ecosystem with expertise in research.</p>
<p>NorQuest College</p> 	<p>NorQuest College provides learning opportunities for all and equips students with the skills Alberta needs in a supportive and inclusive environment.</p> <p>NorQuest College brings expertise in community learning to the Healthy City Ecosystem.</p>
<p>Primary Care Network (PCN) - Oliver Area</p> 	<p>Team-based primary healthcare delivery in Alberta. PCNs are groups of doctors working collaboratively with teams of healthcare professionals, such as nurses, dietitians and pharmacists, working together to meet primary healthcare needs in their communities.</p> <p>Primary Care Network - Oliver Area brings healthcare expertise and information to the Healthy City Ecosystem.</p>
<p>Sage Seniors Association</p> 	<p>Inspiring and supporting seniors to be the best they can be by providing programs and services that enhance the quality of life of older persons and their families.</p> <p>Sage Seniors Association brings expertise in seniors health and wellness to the Healthy City Ecosystem.</p>
<p>TELUS Health</p> 	<p>Passionate about transforming Canada's healthcare system and dedicated to making better health outcomes possible for all Canadians.</p> <p>TELUS Health brings innovative health and technology opportunities to the Healthy City Ecosystem.</p>

TABLE 16: Healthy City Ecosystem Partners (continued)

PARTNER	DESCRIPTION AND VALUE ADD
<p data-bbox="136 289 289 415">United Nations International Organization for Migration (IOM)</p> 	<p data-bbox="363 289 1487 422">Established in 1951, IOM is the leading inter-governmental organization in the field of migration and works closely with governmental, inter-governmental and non-governmental partners. With 172 member states, a further eight states holding observer status and offices in over 100 countries, IOM is dedicated to promoting humane and orderly migration for the benefit of all. It does so by providing services and advice to governments and migrants.</p> <p data-bbox="363 436 1450 533">The International Organization for Migration brings expertise to the Healthy City Ecosystem in the areas of international migration law, policy debate and guidance, protection of migrants' rights, migration health and the gender dimension of migration.</p>
<p data-bbox="136 573 277 632">University of Alberta (U of A)</p> 	<p data-bbox="363 573 1474 669">With over 100 years of excellence, the University of Alberta is the province's leading academic and research institution and the fourth leading major medical and research university in Canada. The U of A has a strong focus on building partnerships and innovative collaborations with community health partners.</p> <p data-bbox="363 684 1471 743">The University of Alberta brings ground-breaking research and innovative health devices and interventions to the Healthy City Ecosystem.</p>

The City of Edmonton is committed to continuing to grow a partnership network that reflects the diversity of the community and the growth of the Healthy City Ecosystem. Insights from the ongoing implementation of the program will proactively identify previously unconsidered partnership opportunities to align with program and project outcomes.

5.2.1 HEALTH CITY

A strategic partner of the Healthy City program is Health City – a non-profit, municipal economic development initiative created to catalyze the health innovation ecosystem in Edmonton and the surrounding region. Health City works with the Healthy City Ecosystem to create a vibrant health industry that achieves health and social outcomes for residents. They support the transformation of innovations from within the health ecosystem into solutions that have commercial application and global relevance. Health City is also attracting talent and capital at both a local and international level – something integral to ensuring the sustainability of the Healthy City Ecosystem and the Healthy City program.

Led by CEO Reg Joseph, Health City will connect the Healthy City program and other partners in the Healthy City Ecosystem to an array of stakeholders from diverse sectors including philanthropic organizations, primary care networks, health and life science academic institutions, workforce training programs, and industry associations and networks. Reg brings 20 years of experience to this role, spanning the biotechnology, high technology and investment sectors, government and industry.

Health City is currently partnering with health practitioners in the community to identify and solve specific health challenges by developing a model that is predictive and wellness-based. One of the key components of the Health City model, that also supports the growth of the Healthy City program, is maximizing the use of data to drive smart decision-making in community health. An example of this is a current project being led by Health City to improve the wellness of seniors in Edmonton. Health City is working with a variety of collaborators including physicians, clinicians, a large multinational life sciences company and two local companies with strengths in artificial intelligence and machine learning to use both clinical data and social indicators to improve the lives of seniors in the community.

Health City has established a series of working groups to ensure the success and vitality of health innovation in Edmonton. The working groups, made up of representatives of the health innovation community, focus on persistent challenges in priority areas identified by stakeholders. These priority areas include better access to markets, training and retaining talent, developing relevant funding models, and leveraging capacity and partnerships in data, artificial intelligence and machine learning to drive health system innovation. Working group members undertake short- and long-term initiatives to build a collaborative and cohesive health innovation community in Edmonton.

5.2.2 ADVANCED ANALYTICS IN EDMONTON

Leveraging the expertise and talents of the local community is integral to the success of the Healthy City program. Edmonton is a thriving hub for data and analytics and home to some of the world's top talent in machine learning. Through organizations such as the Alberta Machine Intelligence Institute (Amii), AltaML and Darkhorse Analytics, the Healthy City Ecosystem will continue to challenge the status quo for data-driven decision-making. These organizations also work to build strong collaborations with global subject matter experts.

5.3 APPROACH TO SENSITIVE AND PERSONAL DATA

The City of Edmonton recognizes the need for community and residents to retain control over sensitive and personal data and for them to understand how this information is being protected. This will occur through the aforementioned Data and Privacy Advisory Group. Working closely with the Office of the Information and Privacy Commissioner of Alberta to understand current trends and concerns, this group will ensure the community is consulted and collaborated with on an ongoing basis regarding data and privacy.

During the implementation of the Healthy City program, there will be no transfer of ownership of information or

data from the primary owner and steward of that data. Information and data may be shared between partners within the Healthy City Ecosystem; however, a formalized data sharing, information management or research agreement must be in place prior to this occurring and a Privacy Impact Assessment complete, if required. In this event, the data is shared, retained and refreshed at the source. This process is explained in further detail in Chapter 7.

5.4 RISKS

Potential risks for governance primarily focus on a lack of diversity, accountability and continuity of members. The City of Edmonton has assessed these and other program risks related to governance and has developed a series of mitigating actions to reduce their impact and likelihood. Governance risks are shown in Table 17. Likelihood and impact are measured on a scale of 1–5, with 1 being extremely low and 5 being extremely high. The likelihood and impact measures are multiplied to establish the overall risk score. Risks with scores between 1 and 6 are given a low risk rating, 7 and 12 a medium risk rating, 13 and 20 a high risk rating, and 21 and 25 an extreme risk rating.

TABLE 17: Governance Risks and Mitigating Actions

RISK	LIKELIHOOD	IMPACT	RISK SCORE	RISK RATING	MITIGATING ACTIONS
Lack of participation and support of internal/external stakeholders results in delays in decision-making	1	4	4	Low	Ensure key stakeholders, residents and partners are engaged in meaningful ways and feel connected to collectively achieve program outcomes. Renew participation commitments at regular intervals.
Governance committee member conflicts of interest result in misaligned program priorities and outcomes	1	5	5	Low	Conflicts of interest will be addressed through the recruitment and selection process of the steering committee and advisory group members. Membership terms are reviewed annually.
Turnover within governance structure results in delays in decision-making	2	3	6	Low	Ensure effective succession planning and documentation to ensure continuity. Teams and terms will be established to minimize high volumes of turnover.

6.0 ENGAGEMENT

6.1 EDMONTON'S APPROACH TO ENGAGEMENT

Public engagement is a critical component of all decision-making, and the City of Edmonton has robust processes and standards to ensure engagement activities are meaningful and accessible. Edmonton is a city that enables and values the participation of residents to define and achieve a better quality of life. The City is committed to seeking diverse opinions, experiences and information through inclusive public engagement practices. Active, engaged Edmontonians make for a more vibrant and connected city as they are contributing to the enhancement of the City's policies, programs, projects and services.

In the fall of 2018, the City of Edmonton won the 2018 International Organization of the Year Award from the International Association for Public Participation. The award was earned due to the collaborative approach taken by the City in building an approach to public engagement with residents. Residents worked in partnership with the City to develop the foundation for the innovative and inclusive public participation practices now commonplace in Edmonton.

6.1.1 EDMONTON'S PUBLIC ENGAGEMENT FRAMEWORK

[The City of Edmonton's Public Engagement Framework](#) is part of the City's overall commitment to open government – Edmonton is an open, innovative, inclusive and engaged city. Building such a city takes foresight, planning and active participation by residents. An Open City creates opportunities for diverse input and participation, inviting residents to play a larger role in shaping their community and enabling social and economic growth.

The Public Engagement Spectrum, shown in Figure 18, explains the four roles the public can play when they participate in City of Edmonton public engagement activities. It also indicates the City's purpose for engaging them. As engagement moves within the spectrum, there is an increasing level of public influence and commitment from the City and the public to working collaboratively.

Throughout the implementation of the Healthy City program, residents will participate in roles at every level of the Public Engagement Spectrum; however, the primary focus for residents will be in the spaces of Advise, Refine

and Create depending on the stage of the program or specific project requirements.

6.1.2 Applying the Public Engagement Framework

The City of Edmonton, by applying diverse methods of engagement throughout the implementation of the Healthy City program, will continue to ensure ongoing alignment between the program's outcomes and the concerns and needs of residents and stakeholders.

As projects are identified, engagement plans will be built in collaboration with residents and partners. This will allow for residents and partners to shape the activities to best suit the outcome of the project and to apply learnings from previous engagement activities. A component of the engagement plan for each project will include a change management approach – the steps that will be taken to gain acceptance and onboard residents and stakeholders throughout the project implementation and beyond. It will also include a comprehensive communications plan that identifies how residents and stakeholders will be informed of how their input influenced the development, implementation and sustainability of the project.

Whenever possible, the City will work internally to identify opportunities to collaborate on engagement activities with other projects and programs that seek similar outcomes, so as not to overwhelm residents and stakeholders with multiple activities or events on very similar topics. The City will also work with partners to identify other similar opportunities for collaborative engagement activities.

FIGURE 18: Public Engagement Spectrum



6.2 ENGAGEMENT THAT SHAPED EDMONTON'S FINAL PROPOSAL

The development of Edmonton's Smart Cities Challenge Proposal was informed by 16 months of intense, focused engagement with stakeholders to understand what makes Edmonton a Smart and Healthy City. This specific engagement built upon 11 years of previous engagement that shaped Edmonton's 2009–2018 Strategic Plan and its subsequent initiatives, as well as the recent work that was done with the community to revise the plan for 2019–2028.

- In 2007 and 2008, extensive public engagement shaped Edmontonians' common vision for their community's future as articulated in The Way Ahead, the City of Edmonton's Strategic Plan.
- In 2010 and 2011, a livability plan (The Way We Live) was developed through consultation with Indigenous people, seniors, people with disabilities, and youth.
- In 2015, EndPoverty Edmonton engaged more than 3,000 Edmontonians to identify how poverty could be ended in a generation. Outreach activities focused on Indigenous people, newcomers, young and old, and the organizations that support these individuals.
- In 2016 and 2017, consultation with businesses, community leagues, recent immigrants and refugees, school boards, cultural community leaders (Indigenous, Métis, Muslim and Somali communities), the homeless and those who work

with them, and sufferers of mental health and addictions informed the development of an Urban Wellness Plan, RECOVER.

- Between January and March 2018, over 85 community leaders and 8,000 residents helped refine and advise Council on the vision, principles and strategic goals that will help make Edmonton a more innovative, resilient, inclusive, connected and healthy city.

As the City continues to grow and evolve, Edmonton's Strategic Plan is being revised, ensuring that the long-term needs of residents are well articulated and guiding everything the City does. The City works with the community to ensure engagements are inclusive, accessible and outcome-driven.

6.2.1 Smart City Engagement Results

Edmonton's initial Smart Cities Challenge application was informed by a year of comprehensive, focused engagement with stakeholders. During that time, the City heard that:

- Residents want to transform how municipal services are delivered.
- Residents want to become healthier and be more engaged in their communities.
- Residents desire to create a sense of connectedness that empowers them to support each other.

This public engagement also identified certain barriers to achieving the above, including:

- **Urban Sprawl:** Physical isolation has contributed to social isolation, poor access to healthy food choices and increased incidence of chronic disease.
- **Winter City:** A challenging winter climate complicates achieving a year-round active lifestyle and accessing services, especially for newcomers from warmer climates.
- **Social Support Structures:** Some segments of Edmonton's population, newcomers to Edmonton in particular, lack family, language, cultural supports and the awareness of the services available to assist them.
- **Health Awareness:** Individuals may not be aware of changes in the health and social conditions that impact their lives. Due to community disconnection, individuals at risk may not be identified.
- **Access to Services:** Health and social services can operate in a disparate fashion, making it challenging for residents to access the right care, at the right time, at the right place, by the right provider, with the right information. Services also are not delivered in a way that acknowledges the unique needs of language and culture.

Building upon what was heard in the initial round of engagement, the City wanted to learn more about what makes residents feel connected and how their technology use may increase or decrease their connections.

This engagement identified five common themes related to increasing connectedness:

- Establishing a sense of community through accessible events, festivals, activities and spaces
- Connecting to nature through Edmonton's river valley and green spaces
- Moving around the city using various modes of transportation
- Embracing and celebrating the diversity of residents.
- Enhancing public safety

It also highlighted the following about technology use:

- The two biggest barriers to using technology devices for surveyed participants were cost and concern for the safety of personal information.
- Eighty-eight per cent of surveyed respondents indicated they used a smartphone multiple times a day for anything from arranging transportation and completing errands to communicating with family and friends and ensuring personal safety.
- Ninety-nine per cent of survey respondents indicated they had access to Wi-Fi in their homes.

The above engagement results will be shared back to the community through a What We Heard Report to be released in March 2019. This will provide residents and stakeholders an overview of how their stories and ideas shaped the final vision and plan for the Healthy City program.

FIGURE 19: Engagement Tools

 INFORM	 GENERATE & OBTAIN INPUT	 GAIN ACCEPTANCE & ONBOARD
<ul style="list-style-type: none"> • Electronic Signs • Information Booths at Events • Open Data Portal • Printed Items (brochures, postcards, handouts, advertising) • Public Meetings • Social Media • Sponsorship • Website 	<ul style="list-style-type: none"> • Contests and Competitions • Ethnographic Research • Focus Groups • Interviews • Surveys • Workshops (human-centred design, appreciative inquiry) • World Cafes 	<ul style="list-style-type: none"> • Advisory Groups • Community Asset Mapping • Consensus Workshops • Training Programs • Working Groups

6.3 ENGAGEMENT TOOLS: PAST, PLANNED AND FUTURE

Building relationships with diverse communities through public engagement is a priority for the City of Edmonton. In collaboration with residents, community leaders and service providers, the City develops engagement activities to best suit the needs of residents and makes use of a diverse array of engagement tools to ensure a meaningful connection with residents and stakeholders. These tools can be adapted to target different population groups in order to encourage high participation. A sample of these tools is provided in Figure 19.

6.3.1 Engagement to Build Edmonton's Smart Cities Challenge Final Proposal

The City of Edmonton is committed to ensuring the diversity of the City is reflected in its engagement approach. To provide transparency to the development of this approach and encourage participation, the City:

- Advertised in print media and through posters in libraries, community centres, social agencies, safe houses and shelters.
- Used Twitter and Facebook to update progress and solicit ideas.
- Gathered 260 distinct viewpoints from more than 1,000 individuals in the newcomer, Indigenous, low income, homeless, vulnerable youth, seniors, and LGBTQ2S+ communities through communication vehicles reflecting their preferences, including in-person workshops, interviews and paper and electronic surveys.

Figure 20 provides a summary of the activities completed between July 2018 and February 2019 in which residents and stakeholders shared their stories and ideas to help finalize the vision and approach for Edmonton's Healthy City program.

FIGURE 20: Engagement Activities



IN-PERSON EVENTS

- Attended **8 community-led events** and spoke with over **3,100 residents**.
- Hosted **3 pop-up engagement events** in community centres and libraries and met with over **100 residents**.
- Hosted **5 focus groups** (including an LGBTQ2S+ and Indigenous-specific focus groups) with **52 participants**.
- Presented at **3 workshops** attended by over **300 service providers** to learn about their perspectives on building a healthier, more connected City.
- Sponsored HackED, Alberta's largest student-run hackathon with **450 participants**.



DIGITAL STORYTELLING

- Developed a [video series](#) featuring **10 community leaders** to inspire residents to share their stories. **361 residents** shared their story. **Videos were viewed 128,912 times** on Facebook and YouTube.
- Engaged with over **650 children and youth** from Edmonton's City Hall School.
- Reached over **725 residents** through a telephone survey.
- Received over **580 Twitter post engagements** (likes, mentions and retweets).
- Received over **3,800 Facebook post engagements** (likes, comments, shares and clicks).
- Hosted a technology survey through the Edmonton Insight Community. The survey received **1,020 responses**.

In addition, to help formulate the strategy for inclusive engagement under the implementation of the Healthy City program, the City of Edmonton worked with the non-profit and academic sectors to learn about meaningful engagement activities for newcomers to Canada, the urban Indigenous population, seniors, children and youth, and those with experience living in poverty and homelessness. The City also met with subject matter experts in the non-profit sector, government and academia to discuss opportunities for future collaborations on engagement activities and potential partnership opportunities within the Healthy City Ecosystem.

6.3.2 Engagement Activities Planned for the Healthy City Program

The Healthy City program will embed residents and stakeholders in all elements of implementation from problem identification and solution generation to testing tools and scaling technologies.

The activities listed below will ensure the approach to implementing the Healthy City program continues to reflect the true needs and perspectives of Edmontonians. These activities will support ongoing program development and implementation as well as form the basis for project-specific engagement plans to be built in partnership with the community.

- Activity-specific campaigns to engage target audiences on concepts such as data privacy and security and use of technology devices.
- Demographic-specific engagement activities including workshops with diverse communities, storytelling circles, presentations, focus groups and surveys.
- Online engagement through the Edmonton Smart Cities website, Twitter and Facebook.
- Annual workshops with networks of service providers.
- Annual surveys through network of community leagues.
- Quarterly surveys hosted through the Edmonton Insight Community.
- Quarterly tech/data-oriented meetups with the local civic technology community.

- Biannual hackathons on National Civic Hacking Day and International Open Data Day.
- Participating in technology training sessions with community organizations.
- Maintaining a strong network of community leaders who will encourage diverse resident participation in engagement activities.
- Sponsoring civic tech community programs that highlight the use of open data for solving community challenges.
- Ensuring accessibility of engagement activities through proactive planning and guidance from Edmonton's Accessibility Advisory Committee.

Residents and service providers will be invited to provide ongoing input into the development and expansion of engagement activities as the implementation of the Healthy City program progresses. The City will continue to engage with residents using approaches that are meaningful to them to facilitate and encourage broad participation so that Edmonton continues to be a community in which residents lead the development of the City's long-term strategic priorities.

6.4 INCLUSIVE ENGAGEMENT

The City of Edmonton is committed to ensuring all residents have the opportunity to participate in civic life. This is demonstrated through [Edmonton's Diversity and Inclusion Framework](#) and the work being done by the City to fully implement a Gender-Based Analysis Plus (GBA+) program to guide the development of policies, programs and services. This framework exists to ensure that the City recognizes Edmonton's growing diversity and that all Edmontonians have the opportunity to fully participate in the programs and services that the City provides. As a representative body and service provider, the City must find a way to serve all residents in a manner that meets their expectations and fosters full contribution by all members of the community.

The City of Edmonton is committed to ensuring all residents have the opportunity to participate in civic life.

All engagement activities and plans for the implementation of the Healthy City program will be developed by applying a diversity and inclusion lens through consultation with subject matter experts, community leaders and service providers. As the program evolves and projects grow, engagement processes will be modified based on feedback from the community to ensure they remain relevant and reflective of the diverse needs and aspirations of residents.

In order to mitigate the potential for unintentional effects or bias towards certain population groups to arise as a result of engagement, the City will work with community leaders to understand the diverse needs of individual groups and design plans and activities collaboratively. The City will ensure the community retains ownership over the information gathered throughout the engagement process and remains informed as to how the information is being used to inform, enhance or build projects.

6.5 EXPERIENCED OR EXPECTED RESIDENT REACTIONS

The City of Edmonton recognizes the importance of effective training for employees responsible for leading public engagement. Through training and practice, employees develop the skills to manage diverse reactions from residents and stakeholders as well as mitigate and manage any issues that arise. The courses available to City of Edmonton employees are certified through the International Association for Public Participation and include:

- Foundations in Public Participation
- Strategies for Dealing with Opposition and Outrage in Public Participation
- IAP2 Certificate in Public Participation
- Public Participation for Decision-Makers

Some of the challenges that may be faced during public engagement activities include cynicism and distrust towards the organization, lack of time to participate and lack of awareness of the program. The City of Edmonton works to reduce these barriers to positive public participation by taking the time to intentionally plan engagement with residents and stakeholders in a meaningful way, having a strong understanding of

community issues, needs and local support networks, and approaching projects and planning efforts in collaboration with the community.

Throughout the course of the public engagement activities for the Smart Cities Challenge, the City of Edmonton received overwhelmingly positive responses from residents, service providers, academic institutions and the private sector regarding the pursuit of building a smarter, healthier and more connected city. The City of Edmonton worked in collaboration with service providers and other programs and initiatives at the City to develop engagement activities that were meaningful and would not duplicate previous or ongoing engagement in order to avoid engagement fatigue.

Throughout the course of the public engagement activities for the Smart Cities Challenge, the City of Edmonton received overwhelmingly positive responses from residents, service providers, academic institutions and the private sector regarding the pursuit of building a smarter, healthier and more connected city.

6.6 RISKS

Engagement is a critical component of the Healthy City Program. A number of potential risks have been identified that require mitigation and monitoring on a continual basis, including engagement fatigue resulting in low participation and being unable to engage meaningfully with underrepresented or vulnerable populations. The City of Edmonton has assessed these and other program risks related to engagement and has developed a series of mitigating actions to reduce their impact and likelihood. Engagement risks are shown in Table 18. Likelihood and impact are measured on a scale of 1-5, with 1 being extremely low and 5 being extremely high. The likelihood and impact measures are multiplied to establish the overall risk score. Risks with scores between 1 and 6 are given a low risk rating, 7 and 12 a medium risk rating, 13 and 20 a high risk rating, and 21 and 25 an extreme risk rating.

TABLE 18: Engagement Risks and Mitigating Actions

RISK	LIKELIHOOD	IMPACT	RISK SCORE	RISK RATING	MITIGATING ACTIONS
Resident perception is impacted by national and international media stories resulting in lack of trust in local program	2	3	6	Low	Ensure that key messages are in place to articulate the value of the program and tangible activities and outcomes. Describe that the fundamental nature of the program recognizes the importance of a progressive and evolutionary approach when it comes to data and technology. Transparency exists in reporting back to community on an ongoing basis.
Lack of diverse resident participation results in skewed engagement results	2	4	8	Medium	Ensure residents are engaged in diverse and meaningful ways. Develop specific engagement approaches to target diverse demographics. Evaluate success of diverse engagement activities in order to continuously improve.
Stakeholder groups not identified and engaged early in the program results in projects not achieving outcomes	2	4	8	Medium	Ongoing stakeholder analysis will take place encouraging diverse participation from initial stages of program implementation. With the growth of the Healthy City Ecosystem, the program's ability to reach additional stakeholders and partners will increase.
Engagement fatigue results in lack of resident participation	3	3	9	Medium	Work in collaboration with service providers and other programs and initiatives at the City to develop engagement activities that are meaningful and do not duplicate previous or ongoing engagement.
Conflicting priorities among stakeholder groups results in delays in program implementation	3	3	9	Medium	Ensure outcomes for program and projects are clear. Develop key messages for working with stakeholders to communicate vision and outcomes.
Diverse populations are underrepresented in engagement efforts resulting in biases	3	4	12	Medium	Engage community leaders and subject matter experts to gain insight on best practices on how to include and engage underrepresented populations in a meaningful way. This includes recognizing that methods of engagement can take many forms.

7.0 DATA PRIVACY, SECURITY AND ETHICS

7.1 DATA MANAGEMENT PLAN

The quality, reliability and integrity of information are critical to effective decision-making at the City of Edmonton. As an Open City, Edmonton is working to build new ways to share information with residents, find new opportunities for dialogue and make programs and services easier to access. The City is committed to ensuring compliance with privacy and security standards for obtaining and using data as well as having mitigating controls in place to minimize risk. In addition, the City not only ensures compliance with controls, but also prioritizes the ethical use of data.

The following sections outline how data is governed at the City of Edmonton and provide the framework for how data will be managed throughout the implementation of the Healthy City program.

7.1.1 DATA GOVERNANCE AT THE CITY OF EDMONTON

Data governance is a fundamental pillar in the success of digital transformation. The City is a recognized leader in the use of data as a strategic asset and, from the award-winning Open Data Portal to the innovative work in the Analytics Centre of Excellence, Edmonton has set the bar for municipal data governance considerably high.

In recognition of these efforts, Edmonton was selected as the first Canadian pilot city for the What Works Cities Initiative, a program delivered by the Center for Government Excellence (GovEx) at Johns Hopkins University. As a result of this partnership with What Works Cities, the City of Edmonton developed a comprehensive [Data Governance Roadmap](#) to guide the work that will enhance the City's ability to treat data as a strategic asset and lay the foundation for advanced data practices. This roadmap lists major milestones and associated deliverables, the majority of which are underway by a team of individuals dedicated to improving data management practices across the organization. This includes work in the areas of data quality and standards, prioritization for release, privacy and security and data retention.

Edmonton's progressive data governance practices continue to support the advancement of the City's open government initiative and leadership as a Smart City.

7.1.2 EDMONTON'S OPEN CITY INITIATIVE

An Open City is a connected city. Edmonton is building an open and connected city, in which residents have the opportunity to collaboratively design, develop and deliver innovative, inclusive and efficient public programs, services and policies.

The City's Open Data Portal was launched in 2010 and was followed by the Open City Initiative – a municipal perspective on the philosophy of open government – in June of 2014. The Open City Initiative guided the development of the Open City Policy which was adopted by Edmonton's City Council on April 14, 2015. Since that time, the City has continued to progress in its open government journey.

The basis of the City's award-winning Open Data Portal and other Open City projects is that the City's information is a public asset – consistent with privacy legislation, it exists readily in a portal that Edmontonians can easily find and use in ways that will help improve their quality of life.

The City has established an Open Data Advisory Group with representatives from diverse business areas, including privacy advisors, legal advisors and data stewards. The City has also established an Open Data Citizen Advisory Group where residents are engaged to provide their ongoing feedback and ideas. As an operational body, the Open Data Advisory Group also manages the open data lifecycle through robust data quality review and release mechanisms. In addition, Edmonton's Open Data program established the Smart City Steering Committee with executive representation from across the City of Edmonton. The Committee oversees and supports the Open Data program as it achieves its goals and vision. By providing leadership

support to the Open Data program, the Committee ensures value realization through an annual performance audit.

7.1.3 HEALTHY CITY PROGRAM DATA MANAGEMENT

To accommodate the phased development of the Healthy City program and individual projects, privacy and security are being approached through an ongoing, cyclical process. When new projects are identified or a change in direction of an existing project or initiative is deemed necessary, the project will be evaluated for privacy and security implications prior to any action being taken. Privacy and security will be considered throughout the lifecycle of all projects and any new ideas, data or changes in approach will be analyzed through a standard privacy and security assessment. Ongoing reviews of existing projects and initiatives will ensure the Healthy City program is continuously meeting the privacy and security needs of residents and partners in the Healthy City Ecosystem.

Through all phases of the Healthy City program, the implementation team will work directly with the Information Security Office of the City of Edmonton and Edmonton's Corporate Information Security Officer to maintain the privacy and security of all information shared through the Healthy City Ecosystem. Privacy Impact Assessments will be submitted to the Office of the Information and Privacy Commissioner of Alberta (OIPC) through the Office of the City Clerk at the City of Edmonton. Additionally, information and research agreements, as well as data sharing agreements, will be completed and managed for compliance.

All violations or suspected violations of privacy and security will be reported in accordance with governing legislation. Following the City of Edmonton's Privacy Breach Management process, such notifications of violations or suspected violations will result in steps to limit the breach, a Privacy Breach Report and determining which authorities or organization need to be informed. Affected employees and partners will be involved and consulted. Notification of affected parties will occur based on potential risk and impact.

7.2 PRELIMINARY PRIVACY IMPACT ASSESSMENT

The purpose of Edmonton's Preliminary Privacy Impact Assessment was to examine the privacy, confidentiality and security risks associated with the first phase of the Healthy City program. It was developed through the Office of the City Clerk at the City of Edmonton and in consultation with the Office of the Information and Privacy Commissioner of Alberta prior to submitting to the OIPC on January 31, 2019. Additionally, the City of Edmonton's Smart Cities Challenge Team participated in a roundtable hosted by the OIPC in Edmonton and Calgary for communities across Alberta. During this roundtable, Edmonton presented the approach to managing privacy and security as part of the Healthy City program.

In order to develop Edmonton's Smart Cities Challenge proposal, the City has not collected, used nor disclosed any personal or health information or data. Rather, a Preliminary Privacy Impact Assessment was developed to provide background to the proposed usage of information to show that the City of Edmonton is undertaking reasonable steps to maintain administrative, technical and physical safeguards to protect the confidentiality of the information under the City's custody and control. Edmonton is required to protect the personal and health information in their custody or control against reasonably anticipated threats or hazards that could result in loss, unauthorized disclosure or use, modification or inaccuracy.

In phases two and three of the Healthy City program, it is proposed that information and data will be collected and shared between partners in the Healthy City Ecosystem for use on specific projects. This will assist with identifying gaps in services and outlining potential changes to policies and programs that would increase the quality of life for residents. As the Healthy City program enters these phases of development, further Privacy Impact Assessments will be submitted based on legislative requirements and potential personal or health information gathered. Future phases may include the sharing of Alberta Health or Alberta Health Services data. As such, the City is cognizant of Section 64 of Alberta's Health Information Act.

Edmonton's Preliminary Privacy Impact Assessment documents reasonably anticipated threats or hazards and the suitable safeguards put in place by the City of Edmonton to manage those threats and hazards in the proposed program. It includes a review of the 10 privacy principles set out in the Canadian Standards Association's Model Code for the Protection of Personal Information as they apply to data sharing within the Healthy City Ecosystem.

The City of Edmonton understands the responsibility of ensuring the privacy and security of personal and health information and ensures that appropriate privacy and security measures are in place. The information that will be collected, used and disclosed will be securely protected end-to-end. As the program grows or changes, plans for additional projects or initiatives will be assessed and for those that require an updated Privacy Impact Assessment, one will be completed.

As this program will be implemented using a phased approach, with variables as to its future state and potential datasets, this Preliminary Privacy Impact Assessment was designed to ensure the privacy and security of phase one and that all datasets shared, used and disclosed are identified and secure.

7.3 COMPLIANCE WITH MUNICIPAL, PROVINCIAL AND FEDERAL PRIVACY REGIMES

The City is committed to ensuring compliance with privacy and security standards for obtaining and using data as well as having mitigating controls in place to minimize risk. The following sections outline the municipal, provincial and federal privacy regimes that will govern the Healthy City program.

7.3.1 CITY OF EDMONTON

City Policies are Council statements that set standards of performance for the City as a whole, and guidelines for the manner in which public City initiatives and activities will be carried out. Administrative Directives and Procedures are instructions that City employees must adhere to when performing their duties on behalf of the City. They are inward-facing in that they guide the behaviours of internal staff. The City Policies and Administrative Directives included in Table 19 are the foundation for management of data within the Healthy City program. They are available publicly through the City of Edmonton's website.

TABLE 19: City of Edmonton Policies, Administrative Directives and Procedures

NAME	PURPOSE	APPLICATION TO PROGRAM
Policy C538 – Diversity and Inclusion	Expresses the City of Edmonton's values respecting diversity and inclusion and to ensure the City's unwavering commitment to cultural, economic, social and political excellence.	The Healthy City program values the input, knowledge and background that makes Edmonton an effective place to live, work and play.
Policy C581 – Open City	Articulates the City's commitment to bring to action the Open City principles of collaboration, inclusiveness, innovation, participation and transparency.	The Healthy City program will create opportunity for diverse input and participation, inviting Edmontonians to play a larger role in shaping the community and enabling social and economic growth.
Policy C587 – Enterprise Risk Management	Establishes framework for the City to mitigate risk while conducting City business.	The Healthy City program has structured risk management in accordance with the Enterprise Risk Management policy.
Policy C593 – Public Engagement	Creates opportunities for residents to contribute to decision-making by City Council and Administration about the City's policies, programs, projects and services, and communicates how public input is collected and used.	Effective and inclusive public engagement is critical to the success of the Healthy City program.
Administrative Directive A1100C – Employee Code of Conduct	Establishes principles for appropriate employee conduct in the workplace.	This Administrative Directive is the cornerstone of workplace behaviour including understanding of acceptable use of City assets and information.

TABLE 19: City of Edmonton Policies, Administrative Directives and Procedures (continued)

NAME	PURPOSE	APPLICATION TO PROGRAM
<u>Administrative Directive A1205A – Contract Management Directive</u>	Establishes guiding principles, procedures and processes that ensure the City follows best practices when procuring goods, services and construction.	For effective delivery of the Healthy City program, there will be procurement contracts or agreements required for partnerships.
<u>Administrative Directive A1429D – Acceptable Use of Communication Technology</u>	Establishes standards and guidelines for employees and other users when transmitting, storing and accessing communication technology, in accordance with the Code of Conduct. This directive clarifies responsibility and establishes guidelines for employees to protect mobile data storage from loss or theft, including protecting any sensitive data which might be stored there.	Various forms of communication will be utilized throughout the implementation of the Healthy City program.
<u>Administrative Directive A1433A – Privacy</u>	Ensures that the City complies with the privacy provisions of the Freedom of Information and Protection of Privacy Act (FOIP) and commits itself to the protection of all recorded personal information about an identifiable individual. This directive reflects the collection, use and disclosure of information to ensure compliance with other legislation as required.	The Healthy City program will ensure the collection, use and disclosure of information is compliant with all legislation.
<u>Administrative Directive A1445 – Privacy Breach</u>	This directive establishes guidelines for the management of inadvertent disclosure of personal information by assisting employees in the reporting, investigating and documenting of privacy breaches and determining the severity of the privacy breach.	Mandatory breach reporting under various legislations makes this directive essential for the Healthy City program as proper processes, procedures and policies are in place with clear direction in case of a breach.
<u>Administrative Directive A1457 – Information Technology Investment and Architecture</u>	Clarifies responsibility and establishes procedures for information and technology investment and architecture of all business systems, information, applications, technology and/or processes.	The successful delivery of the Healthy City program requires effective investments in technology.
<u>Administrative Directive A1461 – Information Management</u>	Prescribes the standards for all employees handling City information and articulates the information management principles to be applied when creating new processes or standards related to information management.	Strong information management is critical to the privacy and security of the Healthy City program, along with a strong information management standard.
<u>Access Control Technical Standard</u>	Identifies the requirements to ensure that access controls will be identified, implemented and managed appropriately for systems. Access control restrictions on systems mitigate the risk of security threats such as internal and external intrusions.	The Healthy City program requires robust access controls in place to manage and mitigate any potential security threats.
<u>Asset Management Technical Standard</u>	Identifies the asset management requirements for the management of information technology systems and the classification of information processed through those systems.	To run a successful program, asset management is critical to ascertain needs, requirements and classifications of information being processed.
<u>Business Continuity Management Technical Standard</u>	Identifies the requirement to include cyber security requirements in the planning for the continuance services where a human-induced or natural disaster has occurred.	Business continuity is essential to any program and in the unlikely event of an incident, business continuity plans will be implemented to ensure no loss of information and protection of the assets and information.

TABLE 19: City of Edmonton Policies, Administrative Directives and Procedures (continued)

NAME	PURPOSE	APPLICATION TO PROGRAM
Communications and Operations Management Technical Standard	Identifies the requirements to ensure that communications and operations functions of systems are identified, implemented and managed following a set of baseline security requirements.	Processes are in place to ensure communications and operations of systems are consistent with industry standards or best practices.
Cyber Security Incident Management Technical Standard	Identifies the requirement to ensure that cyber security incident management processes are established. The process will enable the City to identify, assess, manage, mitigate and accurately communicate facts of cyber security incidents.	Processes are in place to manage and mitigate any possible cyber attack.
Information Technology Systems Acquisition, Development and Maintenance Technical Standard	Establishes requirements and controls for managing the lifecycle of information technology systems ensuring that security requirements are identified early on as part of the business needs, and ensures that information technology acquisition takes into account information protection.	Information Technology is a key component of the Healthy City program, including effective acquisition, development and ongoing maintenance.
Physical and Environmental Security Technical Standard	Articulates the requirements to identify and manage physical and environmental threats against technology systems and the premises where those systems reside.	The technical standard for security from a physical and environmental standpoint is required to meet the privacy and security requirements of the Healthy City program.

7.3.2 PROVINCIAL

The City of Edmonton is aware of the following provincial legislations and has developed processes to ensure adherence as outlined in Table 20.

TABLE 20: Provincial Legislations

NAME	PURPOSE	APPLICATION TO PROGRAM
Personal Information Protection Act (PIPA)	Provides individuals with the right to request access to their own personal information while providing private sector organizations with a framework for conducting the collection, use and disclosure of personal information.	Alberta's PIPA legislation has been in effect since 2004 and guides the collection, use and disclosure of personal information. While PIPA is Alberta-based, the privacy principles are similar to the Personal Information Protection and Electronic Documents Act and when developing any datasets or information, the goal is that privacy requirements are usable and transferable across Canada.
Health Information Act (HIA)	Sets out the rules for the collection, use, disclosure and protection of health information that is in the custody or under the control of a custodian. Custodians include Alberta Health, Alberta Health Services, physicians, pharmacists, etc.	Alberta based legislation that may impact future phases of the Healthy City program. The Health Information Act of Alberta manages the collection, use and disclosure of health information and includes mandatory breach reporting.
Freedom of Information and Protection of Privacy Act (FOIP)	Governs public bodies, including municipalities, universities, school boards, etc., and controls the manner in which a public body may collect personal information from individuals, to control the use that a public body may make of that information and to control the disclosure by a public body of that information.	The City of Edmonton complies with Alberta's FOIP Act.

7.3.3 FEDERAL

The City of Edmonton is aware of the following federal legislations and has developed processes to ensure adherence as outlined in Table 21.

TABLE 21: Federal Legislations

NAME	PURPOSE	APPLICATION TO PROGRAM
Personal Information Protection and Electronic Documents Act (PIPEDA)	Governs how private sector organizations collect, use and disclose personal information in the course of commercial business.	Federally, PIPEDA legislation oversees the protection of electronic documents, as well as personal information protection. In Alberta, compliance with PIPA is also required. As both have similar privacy principles, along with mandatory breach reporting, adhering to both Acts provides a guarantee of effectively managing the information collected, used and disclosed by the Healthy City program.

7.4 DATA LIFECYCLE MANAGEMENT

As the Healthy City program evolves and new projects are identified, the data required to implement them will be identified and steps will be taken to source and manage it appropriately. Table 22 details how the data lifecycle will be addressed in the Healthy City program.

TABLE 22: Data Lifecycle Management

DATA LIFECYCLE MANAGEMENT	DETAIL
Data Collection	In phase one, the Healthy City program will work with open data from the City of Edmonton as well as external open datasets. As the program evolves, the sharing of datasets between partners within the Healthy City Ecosystem will occur, requiring formalized agreements and the completion of additional Privacy Impact Assessments. In order for this data to be utilized in these phases, it must be anonymized, with the rules around collection being limited to groups over 20 (any number less than 20 is eliminated) or first three digits of postal code (GIS locator), which limits information to a group of 38–40 houses.
Data Generation	Methods for data generation include interviews, questionnaires, surveys, observations, focus groups, ethnographies, oral history, case studies, documents, records and statistical information.
Data Analysis	Data analysis will be paired with community consultation throughout the entirety of the implementation of the Healthy City program and is not a stand alone activity. Examples of this data analysis could include data clustering, matching, mining and advanced analytics.
Data Storage	Data generated publicly through the Healthy City Ecosystem and for use in Healthy City projects will remain a public asset as defined under the City's Open Data Strategy. Whenever possible and appropriate, newly generated data will be shared through the City of Edmonton's Open Data Portal which allows for community access and the potential for locally-based solutions to be developed.
Data Transmission	Data will only be transmitted utilizing appropriate secure and private transmission methods.
Plans for Reuse	Under the data sharing approach described in Chapter 4, data will not be available for reuse. The only data available for reuse will be the datasets available in the Open Data Portal.
Plans for Redistribution	Under the data sharing approach described in Chapter 4, data will not be available for redistribution.
Data Archiving and Preservation	Data managed by the City of Edmonton will be archived and preserved according to organizational standards and is dependent on the type of data. The City of Edmonton will not archive or preserve data made available to the organization through data sharing, information management or research agreements. These agreements will outline the return or disposal of shared data.

7.5 SECURITY, PRIVACY AND ETHICS CONSIDERATIONS

Ongoing efforts will be made to integrate security and privacy considerations raised by users, residents and partners throughout the phased implementation of the Healthy City program. Individual project plans will have a privacy and security component that will be developed through ongoing consultation with residents and stakeholders to ensure their expectations are met and to further the collective understanding of ethical privacy and security measures.

The Healthy City program will also focus on assessing the ethical considerations that go beyond current legislation related to data usage and analytics. A comprehensive ethical assessment framework will be developed using the Information Accountability Foundation's [Essential Elements of Accountability](#), the United Nations Global Pulse [Risks, Harm and Benefits Assessment Tool](#) and the Open Data Charter 2019 Strategy: [Bringing Power into the Open](#). The Office of the Information and Privacy Commissioner of Alberta will assist the Healthy City program in assessing ethical considerations as the program progresses, including potential impact on social and environmental ecosystems.

7.6 ADHERENCE TO DATA AND PRIVACY PRINCIPLES

Table 23 outlines how the City of Edmonton will adhere to the following data and privacy principles.

TABLE 23: Adherence to Data and Privacy Principles

PRINCIPLES	DETAILS
Governance	As referenced in Chapter 3, two critical streams of work for the implementation of the Healthy City program are Privacy and Security, and Engagement. These streams will work collaboratively, with guidance from their associated Advisory Groups (Data and Privacy, and Residents), to ensure meaningful resident engagement throughout the lifecycle of projects.
Ownership and Control	During the implementation of the Healthy City program, there will be no transfer of ownership of information or data from the primary owner and steward of that data. The City will ensure the community retains ownership over the information gathered throughout the development and implementation of projects by working collaboratively with residents and stakeholders to establish processes and plans that meet their expectations. The community will be informed as to how their information and data is being used to inform, enhance or build projects.
Consent	Consent for the collection and sharing of information and data will be maintained through open and transparent communication with partners and community through the progression of projects and initiatives. A phased approach to implementation and the development of projects allows for information and data to be identified and sourced on an as-needed basis ensuring the Healthy City program can clearly articulate the need and use to the owner of that information.
Data Minimization and De-Identification	The Healthy City program will only use anonymized datasets. The procedure for data collection and anonymization are outlined in Chapter 4. Data processing will only use as much data as is required to successfully accomplish the outcomes of the specific project. Additionally, data collected for one purpose will not be repurposed.
Accessibility	Open Data is all about promoting transparency and innovation – making data truly accessible and barrier-free. Edmonton's Open Data Portal provides public access to hundreds of datasets. Available in multiple formats, these datasets can be downloaded for free. Whenever possible and appropriate, new datasets will be shared through the Open Data Portal to allow for community access and the potential for locally-based solutions to be developed. A growing number of entrepreneurs, creative municipal employees and community members use open data to develop innovative products and enhance public service delivery.
Security	Data will be hosted through the same cloud-based infrastructure as the current Open Data Portal. The City's standardized cyber security contractual requirements for cloud solutions will be applied to the Healthy City program. These standards include leveraging ISO standards for controls, controlling information and protecting data.

7.7 OPEN AND BIG DATA STRATEGIES

7.7.1 OPEN DATA AT THE CITY OF EDMONTON

The City is continuously enhancing the quality and increasing the quantity of information available through open data. By provisioning, delivering, consuming and crowdsourcing data, the City, along with residents and partners, enhances services, stimulates economic opportunities, encourages innovation and unlocks new social values. It is this approach that not only positions Edmonton as a leader in open government, but allows the City to work collaboratively with other municipalities and communities to share resources and experiences that transform how governments interact with residents and partners.

7.7.2 OPEN CITY PRINCIPLES

The principles shown in Figure 21, govern the City of Edmonton's approach to being an Open City. They are the foundation from which other communities interested in developing open programs and initiatives can learn and grow.

As an Open City, the entire City of Edmonton organization is working to build new ways to share information with residents, find new opportunities for dialogue and make services easier to access. Under the governance of the Open City Initiative and Edmonton's Open Data Strategy, and with adherence to privacy and security standards that meet the expectations of regulatory bodies and residents, the application of the Healthy City program will continue to demonstrate Edmonton's leadership in the practice of open government and commitment to building a city of the future alongside residents and partners.

7.7.3 TRANSFERABILITY AND REPLICABILITY

Edmonton, as an Open City, learns from and integrates aspects of other open government initiatives. The City is evolving to collect and share data that will influence how public services are designed and delivered globally. Through this mindset of continuous learning and evolution, the City of Edmonton is a collaborator and contributor to how other communities can increase their capacity for open government.

FIGURE 21: Open City Principles



COLLABORATIVE

The City actively engages Edmontonians, non-profit organizations, businesses and the community to design and deliver programs and services in an integrated and effective manner.

INCLUSIVE

Edmontonians and City employees have access to information, programs and services, and the democratic processes that shape municipal decisions. This means reducing socio-economic, physical and technical barriers, while creating accessible channels for delivery of programs and services.

INNOVATIVE

With the participation of Edmontonians and employees, the City envisions, creates and fosters new approaches, and efficient and sustainable practices.

PARTICIPATORY

The City values and respects public input and engages people in decision-making. Community consultation provides valuable input into the decision-making process.

TRANSPARENT

The City is a steward of the information we manage and the services we provide on behalf of Edmontonians. Being transparent with Edmontonians and City employees promotes trust and accountability. The City's information is a public asset; consistent with privacy and protection legislation, it is disclosed in forms that Edmontonians can readily find and use.

7.8 RISKS

Potential risks for data privacy and security include the inability to keep up with changing regulations and resident expectations, as well as insufficient training for employees and partners. The City of Edmonton has assessed these and other program risks related to data management, privacy and security and has developed a series of mitigating actions to reduce their impact and

likelihood. Data Privacy and Security risks are shown in Table 24. Likelihood and impact are measured on a scale of 1-5, with 1 being extremely low and 5 being extremely high. The likelihood and impact measures are multiplied to establish the overall risk score. Risks with scores between 1 and 6 are given a low risk rating, 7 and 12 a medium risk rating, 13 and 20 a high risk rating, and 21 and 25 an extreme risk rating.

TABLE 24: Data Privacy and Security Risks and Mitigating Actions

RISK	LIKELIHOOD	IMPACT	RISK SCORE	RISK RATING	MITIGATING ACTIONS
Security or privacy breach at a partner organization results in loss of trust in program	1	4	4	Low	All members of the Healthy City Ecosystem and anyone working on the implementation of the Healthy City program (including employees and contractors) will be trained on the processes and standards including collection, use and disclosure of information. Develop and maintain an incident management plan.
Changing regulations on data privacy results in additional resources required to manage changes	2	4	8	Medium	Ongoing engagement with the Office of the Information and Privacy Commissioner of Alberta to ensure future iterations of data and privacy practices are in line with standards and requirements. Resources will be allocated to ensure changes are managed appropriately.
Regulations governing data privacy are modified or changed resulting in insufficient processes	2	4	8	Medium	Ongoing engagement with the Office of the Information and Privacy Commissioner of Alberta to ensure future iterations of data and privacy practices are in line with standards and requirements. Resources will be allocated to ensure processes are updated accordingly.
Lack of proactive communication with residents results in them raising concerns over data privacy and security	2	4	8	Medium	Privacy and security processes and standards are clearly communicated with residents. Residents are encouraged to share their feedback and concerns regarding data privacy and security.
Inability to assess ethical considerations related to data result in loss of trust in program	2	4	8	Medium	Development of a data ethics and responsibility framework referencing the Information Accountability Foundation's Essential Elements of Accountability and the United Nations Global Pulse Risks, Harm and Benefits Assessment Tool. Ongoing engagement with the Office of the Information and Privacy Commissioner of Alberta to assist in assessing ethical considerations.
Security or privacy breach results in loss of trust in program	2	5	10	Medium	Processes and standards are in place to ensure the privacy and security of data and information. All members of the Healthy City Ecosystem and anyone working on the implementation of the Healthy City program (including employees and contractors) will be educated on the processes and standards including collection, use and disclosure of information. Develop and maintain an incident management plan.

8.0 FINANCIAL

The City of Edmonton delivers programs and services to more than 900,000 residents through the management of an annual operating budget of \$3 billion and a capital budget of \$4 billion over four years (2019–2022). The City has been recognized as the most open and transparent municipality in Canada by the Public Sector Digest (2015, 2016 and 2017) and has robust accountability structures, financial controls, processes and systems to support the delivery of a \$60 million multi-stakeholder, multi-year program.

The following definitions are being used in this chapter for key terms:

Cash Contributions: Matching capital and operating funds committed to spend to deliver solutions. Cash contributions could come from a government, private or non-profit organization.

In-Kind Contributions: Contributions such as providing access to research, subject matter expertise, skilled resources, laptops, phones, internet access and office spaces as required by the program team and stakeholders. In-kind contributions could come from a government, private or non-profit organization.

Hard cost: The tangible assets (technology and/or physical infrastructure) and the resources (including labour

and materials) directly involved in putting the asset into production, often referred to as capitalized costs.

Soft cost: An expense that is not considered a hard cost. Examples of soft costs include architectural, engineering, financing and legal fees, and other pre- and post-program expenses.

8.1 PROGRAM BUDGET

A detailed Financial Plan for the Healthy City program has been developed in alignment with the three phases of implementation and the program work streams. The summary of the program budget is shown in Table 25. The total budget is \$60 million, as matching contributions totaling \$10 million are planned from the City of Edmonton as well as additional organizations and stakeholders.

TABLE 25: Healthy City Program Budget

(MILLIONS)	PHASE 1: INITIATE		PHASE 2: INNOVATE		PHASE 3: EMBRACE		TOTAL	
Funding	\$10.0		\$31.0		\$19.0		\$60.0	
Program Management	\$0.9	9%	\$0.9	3%	\$0.7	4%	\$2.6	4%
Engagement	1.9	19%	3.9	13%	4.2	22%	10.0	17%
Data and Technology	0.8	8%	4.1	13%	2.2	12%	7.1	12%
Privacy and Security	0.7	7%	3.4	11%	1.4	8%	5.6	9%
Healthy City Projects	3.0	30%	10.8	35%	3.8	20%	17.6	29%
Municipal Capacity Building	1.8	18%	5.0	16%	4.8	26%	11.6	19%
Contingency - 10%	0.9	9%	2.8	9%	1.7	9%	5.5	9%
Expenditures (rounded)	\$10.0	100%	\$31.0	100%	\$19.0	100%	\$60.0	100%
NET	0.0		0.0		0.0		0.0	

For the Healthy City program, the soft costs are 54 per cent of the total \$60 million budget. Table 26 provides a summary of the program's hard and soft costs.

TABLE 26: Healthy City Program Hard and Soft Costs by Work Stream

WORK STREAMS	HARD COST		SOFT COST	
	MILLIONS	%	MILLIONS	%
Program Management	\$0.0	0%	\$2.6	100%
Engagement	0.0	0%	10.0	100%
Data and Technology	6.3	88%	0.8	12%
Privacy and Security	4.4	78%	1.2	22%
Healthy City Projects	12.3	70%	5.3	30%
Municipal Capacity Building	0.0	0%	11.6	100%
Contingency - 10%	4.4	80%	1.1	20%
NET	\$27.4	46%	\$32.6	54%

A detailed payment schedule was developed, including milestones and deliverables, and is included as part of Chapter 2 (see 2.4 Milestones, Deliverables and Payment Schedule).

8.1.1 METHODOLOGY

The Financial Plan has been developed by considering best practices applied to other similar-sized City of Edmonton programs, analyzing data from similar-sized agreements and contracts, conducting market and industry consultations, and interviewing subject matter experts.

The Financial Plan follows an activity-based costing methodology, identifying hard and soft costs associated with each program work stream and corresponding activities. Costs associated with the acquisition and implementation of technology assets under the Privacy and Security and Data and Technology work streams have been categorized as hard costs. The Healthy City Projects work stream will deliver projects that will acquire and implement additional technology assets such as wearables, sensors, etc. As such, 70 per cent of project costs have been identified as hard costs. Costs associated with managing the program, developing intellectual property, and delivering communications and engagement activities have been categorized as soft costs. These activities do not produce

tangible technology or physical infrastructure assets but are critical to the achievement of the program's two outcomes and sub-outcomes outlined in Chapters 1 and 2.

The analog estimation method was used to prepare a substantive budget which provides a -10 per cent to +15 per cent accuracy. This method compares previous similar work to the proposed work of the Healthy City program to establish an estimated budget. During the Initiate phase, the Program Management Office will be able to develop a definitive budget (+/-5 per cent accuracy) as detailed information will become available from the prospective vendors through requests for proposals (RFPs). Budgets for subsequent phases will be progressively developed through adequate monitoring and planning of the program components and individual projects.

The City of Edmonton has cash flowed projected expenditures and revenues and is prepared to fund shortfalls through its operating budget for the duration of the five year implementation plan.

8.1.2 ASSUMPTIONS

The Healthy City program Financial Plan was built based on the following assumptions that have been taken into consideration in developing the overall program budget.

1. The City of Edmonton contributes \$5 million in addition to the funding received from Infrastructure Canada through the Smart Cities Challenge.
2. Stakeholder organizations who are part of the Health City Ecosystem contribute an additional \$5 million in Phase 3 of the program.
3. The projects invest 70 per cent of the funds in implementing technology solutions.
4. The Healthy City program will implement 10 projects (three small, two medium and five large).
5. Small projects are completed in 12-15 months and cost \$150,000 per quarter.
6. Medium projects are completed in 18-20 months and cost \$250,000 per quarter.
7. Large projects are completed in 24-30 months and cost \$320,000 per quarter.
8. The first Healthy City Project is ConnectED for a total cost of just under \$4.4 million. Under the breakdown of

10 Healthy City projects, ConnectED comprises three of the 10 because each phase has a distinct deliverable. The first phase is a large project, the second is a medium project, and the third is a small project in order to effectively implement and scale this complex resident tool.

9. City of Edmonton staff costs are charged to the program utilizing current market rates.
10. In keeping with project management practices, a 10 per cent contingency has been incorporated into the budget.
11. Eighty per cent of the contingency funds are allocated to implement technology solutions.
12. A zero per cent inflation rate has been assumed over the five years.
13. The Healthy City program commences on July 1, 2019.
14. There are 20 working days in a month with seven hours in a day.

8.2 CONTRIBUTIONS (FINANCIAL OR IN-KIND) FROM OTHER SOURCES, AND APPROACH TO LEVERAGE REVENUES

Through the phased implementation of the Healthy City program, new or changes to existing programs, services or policies will be identified and actioned in order to achieve the program's outcomes. These actions will not be the sole responsibility of the City of Edmonton to implement – some of the actions will be implemented directly by or in collaboration with Healthy City Ecosystem partners through funds and in-kind contributions.

Through program and project management processes, consideration will be made for each action on the economic and social return on investment, feasibility and sustainability. Only actions that will provide a positive impact to the outcomes will be considered for implementation. This will result in the program being more attractive to private and partner investments. Additionally, as the program begins to extend to other municipalities, including data, technology platforms and analytic models, the scale of the impact and return will increase exponentially.

The Healthy City Ecosystem partners have provided a commitment to implementing actions identified through the Healthy City program, as demonstrated through letters of support included in the Appendices. In addition, the program is expecting matching capital investments as listed in Table 27.

TABLE 27: Healthy City Program Matching Capital Investments

ORGANIZATION	AMOUNT	FOCUS AREA(S)
City of Edmonton	\$5 million	Investment to implement data security and privacy management program (the technology, processes and change management aspects)
Private as yet undetermined	\$5 million	Private or community-based funding to augment the Healthy City Ecosystem data sharing infrastructure

8.3 TOOLS AND PROCESSES

The City of Edmonton has established program and project management processes and tools. The City uses the SAP Project Systems Module as the Program Cost Information Management System which tracks costs by activities. The system is integrated with time entry, accounts payable and receivable, and procurement systems, which provides a consolidated view of all critical elements of the project. In addition, the City has sophisticated program and project monitoring processes that provide the following information to Executive Leadership Team members, elected officials, program governance committees and residents through Tableau dashboards, Council reports and other executive reports:

- Overall project status compared to prior period for:
 - Schedule
 - Scope
 - Budget
- Highlights, accomplishments and planned activities
- Milestone details including per cent complete, status, start and end date
- Issues and risks including mitigation plan and accountability

- Project financials including total budget, actuals to date, accruals, estimate to complete and variance to budget

For the program and project team members, detailed status reports and project logs are shared on an as-needed basis. This report includes the following financial measures:

- Schedule Metrics
 - Baseline Project Start Date
 - Actual Project Start Date
 - Baseline Project Finish Date
 - Forecast/Actual Project Finish Date
 - Per cent Complete by Milestone
 - Baseline Milestone Completion Date
 - Forecast/Actual Milestone Completion Date
- Cost Metrics
 - Baseline Cost
 - Actual Costs to Date
 - Cost Estimate to Complete
 - Cost Accrual for the Period
 - Cost Variance

8.4 RISKS

The risks for the financial plan include a reduction in funding levels and potential program or project delays as a result of timing of funds received. The City of Edmonton has assessed these and other program risks related to data management, privacy and security and has developed a series of mitigating actions to reduce their impact and likelihood including a 10 per cent contingency. Financial risks are shown in Table 28. Likelihood and impact are measured on a scale of 1-5, with 1 being extremely low and 5 being extremely high. The likelihood and impact measures are multiplied to establish the overall risk score. Risks with scores between 1 and 6 are given a low risk rating, 7 and 12 a medium risk rating, 13 and 20 a high risk rating, and 21 and 25 an extreme risk rating.

TABLE 28: Financial Risks and Mitigating Actions

RISK	LIKELIHOOD	IMPACT	RISK SCORE	RISK RATING	MITIGATING ACTIONS
Partner investments or in-kind contributions are lower than expected which impacts reach, ability to make a greater impact and possibly sustainability over the long-term	2	3	6	Low	Ongoing engagement with partners and stakeholders including reporting on progress towards achieving outcomes. Where possible, leverage existing agreements already in place (Startup In Residence, Health City, MetroLab Network, etc.). Prioritize projects and other program initiatives and assign resources as appropriate. Develop succession plans to ensure continuity in the event of reduced resources.
Timing of funds received results in delays to overall program or project-specific implementation	2	3	6	Low	Prioritize projects and other program initiatives and reassign resources as required.

8.5 SMART CITIES CHALLENGE FINALIST GRANT REPORT

The Smart Cities Challenge Grant Summary in Table 29 provides a final breakdown of City of Edmonton expenses under the Smart Cities Challenge Finalist Grant.

TABLE 29: Smart Cities Challenge Finalist Grant Budget

EXPENSES	DESCRIPTION	TOTAL
Consulting Services	Program development and privacy	\$152,428
Personnel	Smart Cities Challenge Team	\$28,826
Communications	Website hosting fees, promotional videos, finalist video, advertising, submission designer	\$37,936
Engagement	Community engagement sessions, community engagement event materials and supplies, community surveys, community event sponsorship, site visit	\$26,761
Technology	Technology program support	\$4,049
Total Expenditure		\$250,000

During the final proposal development, the City of Edmonton continued to engage with the community through both in-person and digital communication channels and invested 26 per cent (versus 25 per cent as planned) of the \$250,000 grant funding into engagement activities. Priorities were realigned resulting in an investment of 72 per cent (versus 50 per cent as planned) of the grant funding in the development of a robust proposal and Smart City Framework that encompasses

resident and partner engagement and data ethics, privacy and security at its core. The technology pilot accounted for two per cent (versus 25 per cent as planned) of the grant funding. The City decided not to build a technical tool and instead the funds were directed toward ensuring the privacy and security framework would set the Healthy City program up for a successful implementation. Additional costs of \$190,000 were incurred by the City of Edmonton during the development of the finalist proposal.

HEALTHY CITY PROGRAM FINANCIALS

CITY OF EDMONTON SMART CITIES CHALLENGE BUDGET

SUMMARY & ASSUMPTIONS

The City will receive cash from the Canadian Government of:	\$50,000,000										
<i>The City will receive cash and in-kind contributions from private companies and non-private companies.</i>											
The City's cash contributions:	\$5,000,000										
<i>The City will also provide access to printers, computers, etc. that are part of general duties in-kind.</i>											
Private and community in-kind contributions:	\$5,000,000										
<i>This could be by providing software, hosting a deployment, etc.</i>											
Allocation of funding that is not from the Canadian Government:	<table border="1"> <thead> <tr> <th>Year 1</th> <th>Year 2</th> <th>Year 3</th> <th>Year 4</th> <th>Year 5</th> </tr> </thead> <tbody> <tr> <td>0%</td> <td>0%</td> <td>5%</td> <td>10%</td> <td>85%</td> </tr> </tbody> </table>	Year 1	Year 2	Year 3	Year 4	Year 5	0%	0%	5%	10%	85%
Year 1	Year 2	Year 3	Year 4	Year 5							
0%	0%	5%	10%	85%							
<i>Personnel are assumed to be at the market rate. See Resource Rates Chart.</i>											
Assumes the number of days in a month:	20										
Assumes the number of hours in a day:	7										
Hard cost associated with Projects:	70%										
Number of Health City Projects delivered:	10										
Program contingency:	10%										
Percentage of hard cost in contingency:	80%										

(Millions)	Phase 1: Initiate		Phase 2: Innovate		Phase 3: Embrace		Total	
Funding	\$10.00		\$31.00		\$19.00		\$60.00	
Program Management	\$0.9	9%	\$0.9	3%	\$0.7	4%	\$2.6	4%
Engagement	1.9	19%	3.9	13%	4.2	22%	10.0	17%
Data and Technology	0.8	8%	4.1	13%	2.2	12%	7.1	12%
Privacy and Security	0.7	7%	3.4	11%	1.4	8%	5.6	9%
Healthy City Projects	3.0	30%	10.8	35%	3.8	20%	17.6	29%
Municipal Capacity Building	1.8	18%	5.0	16%	4.8	26%	11.6	19%
Contingency - 10%	0.9	9%	2.8	9%	1.7	9%	5.5	9%
Expenditures (rounded)	\$10.0	100%	\$31.0	100%	\$19.0	100%	\$60.0	100%

NET	0.0	0.0	0.0	0.0
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Work Streams	Hard Cost		Soft Cost	
	millions	%	millions	%
Program Management	\$0.0	0%	\$2.6	100%
Engagement	0.0	0%	10.0	100%
Data and Technology	6.3	88%	0.8	12%
Privacy and Security	4.4	78%	1.2	22%
Healthy City Projects	12.3	70%	5.3	30%
Municipal Capacity Building	0.0	0%	11.6	100%
Contingency - 10%	4.4	80%	1.1	20%
NET	\$27.4	46%	\$32.7	54%

HEALTHY CITY PROGRAM FINANCIALS

CITY OF EDMONTON SMART CITIES CHALLENGE BUDGET

PROGRAM MANAGEMENT

COST ELEMENTS	Phase 1								Phase 2								Phase 3								Summary
	Year 1				Year 2				Year 3				Year 4				Year 5								
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Total				
Governance																									
Branch Manager	15,750	15,750	15,750	15,750	6,300	6,300	3,150	3,150	3,150	3,150	3,150	3,150	3,150	3,150	3,150	3,150	3,150	6,300	6,300	6,300	129,150				
Program Manager / Manager Business Analytics	23,100	23,100	11,550	11,550	11,550	11,550	4,620	4,620	4,620	4,620	4,620	4,620	4,620	4,620	4,620	4,620	4,620	4,620	4,620	4,620	157,080				
Program Manager / Business Strategist / Project Manager	18,900	18,900	7,560	18,900	18,900	18,900	7,560	7,560	7,560	7,560	7,560	7,560	7,560	7,560	7,560	7,560	7,560	7,560	7,560	7,560	207,900				
Program Manager / Business Strategist / Project Manager	9,450	9,450	9,450	9,450	9,450	9,450	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	83,160				
Administrative Assistant	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	210,000				
Governance Expenses	77,700	77,700	54,810	66,150	56,700	56,700	27,720	27,720	27,720	27,720	27,720	27,720	27,720	27,720	27,720	27,720	27,720	30,870	30,870	30,870	787,290				
Strategy																									
Program Manager / Business Strategist / Project Manager	18,900	18,900	18,900	18,900	9,450	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	141,750				
Senior Advisor	6,300	6,300	6,300	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	1,260	40,320				
Technology Representative	3,780	3,780	3,780	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	43,470				
Industry Expert	3,780	3,780	3,780	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	43,470				
Health Expert	3,780	3,780	3,780	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	43,470				
Engagement Expert	3,780	3,780	3,780	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	43,470				
Data Scientists	3,780	3,780	3,780	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	43,470				
Data Ethics Advisors	3,780	3,780	3,780	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	1,890	43,470				
Financial Advisor	3,360	3,360	3,360	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,680	38,640				
Administrative Support	8,400	8,400	8,400	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	96,600				
Strategy Expenses	51,240	51,240	51,240	33,180	23,730	18,060	18,060	18,060	18,060	18,060	18,060	18,060	18,060	18,060	18,060	18,060	18,060	18,060	18,060	18,060	481,530				
Planning Expenses																									
Project Manager	9,450	18,900	18,900	18,900	18,900	18,900	18,900	18,900	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	595,350				
Analysts	8,400	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	327,600				
Administrative Support	4,200	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	163,800				
Planning Expenses	22,050	44,100	44,100	44,100	44,100	44,100	44,100	44,100	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	1,086,750				
Outcomes/Measurements																									
Senior Analyst / Evaluation and Reporting	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	189,000				
Administrative Support	3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360	67,200				
Outcomes/Measurements Expenses	12,810	12,810	12,810	12,810	12,810	12,810	12,810	12,810	12,810	12,810	12,810	12,810	12,810	12,810	12,810	12,810	12,810	12,810	12,810	12,810	256,200				
TOTAL PROGRAM MANAGEMENT EXPENSES	163,800	185,850	162,960	156,240	137,340	131,670	102,690	102,690	121,590	121,590	121,590	121,590	121,590	121,590	121,590	121,590	124,740	124,740	124,740	124,740	2,611,770				

HEALTHY CITY PROGRAM FINANCIALS

CITY OF EDMONTON SMART CITIES CHALLENGE BUDGET

ENGAGEMENT

COST ELEMENTS	Phase 1								Phase 2								Phase 3								Summary
	Year 1				Year 2				Year 3				Year 4				Year 5				Total				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4					
Project Manager	28,350	75,600	75,600	75,600	75,600	75,600	75,600	75,600	75,600	75,600	113,400	113,400	113,400	113,400	113,400	113,400	113,400	113,400	113,400	113,400	1,842,750				
Engagement Logistics	33,600	33,600	67,200	67,200	67,200	67,200	67,200	67,200	67,200	67,200	168,000	168,000	168,000	168,000	168,000	168,000	168,000	168,000	168,000	168,000	2,284,800				
Facilitator (Focus Groups, in-depth interviews, etc)	37,800	37,800	37,800	37,800	75,600	75,600	75,600	75,600	75,600	75,600	75,600	75,600	75,600	75,600	113,400	113,400	113,400	113,400	113,400	113,400	1,587,600				
Change Manager	37,800	37,800	37,800	37,800	75,600	75,600	75,600	75,600	75,600	75,600	75,600	75,600	75,600	75,600	113,400	113,400	113,400	113,400	113,400	113,400	1,587,600				
Communications	33,600	33,600	33,600	33,600	67,200	67,200	67,200	67,200	67,200	67,200	67,200	67,200	67,200	67,200	100,800	100,800	100,800	100,800	100,800	100,800	1,411,200				
Administrative Support	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	470,400				
Engagement - other Canadian municipalities/European for travel expenses			10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	180,000				
<i>Advertising (including promotional materials)</i>	1,091	2,500	5,000	5,000	10,000	10,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	25,000	25,000	25,000	25,000	25,000	25,000	303,591				
<i>Hosting</i>	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,300	10,000	10,000	10,000	10,000	10,000	10,000	94,800				
<i>Facilitation (specialist and materials)</i>	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	100,000				
<i>External Space Rent</i>	2,000	2,000	2,000	2,000	5,000	5,000	5,000	5,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	148,000				
TOTAL EXPENSES	198,541	247,200	293,300	293,300	410,500	410,500	415,500	415,500	420,500	420,500	559,100	559,100	575,900	575,700	702,600	702,600	702,600	702,600	702,600	702,600	10,010,741				

HEALTHY CITY PROGRAM FINANCIALS

CITY OF EDMONTON SMART CITIES CHALLENGE BUDGET

DATA & TECHNOLOGY

COST ELEMENTS	Phase 1				Phase 2				Phase 3				Phase 3				Summary					
	Year 1		Year 2		Year 3		Year 4		Year 5		Year 5		Year 5									
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		Q1	Q2	Q3	Q4	Total
Technology																						
Common Technology Infrastructure							500,000		500,000		500,000			500,000			100,000			100,000	2,200,000	
Data Repository									155,000	160,000	165,000	170,000	175,000	180,000	185,000	190,000	195,000	200,000	205,000	210,000	2,190,000	
Team 1																						
Project Manager	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	756,000
Business Analyst	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	756,000
Technology Support	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	378,000
Change Manager	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	378,000
Implementation Support	9,450	9,450	9,450	9,450	9,450	9,450	9,450	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	18,900	311,850
Reporting & Support	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	8,400	168,000
TOTAL EXPENSES	131,250	131,250	131,250	131,250	131,250	131,250	631,250	140,700	795,700	300,700	805,700	310,700	315,700	820,700	325,700	330,700	435,700	340,700	345,700	450,700	7,137,850	
Assumptions																						
Annual base cost of existing Open Data Catalogue	150,000																					
Cost of each additional data source	50																					
Estimated additional data sources	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
Annual base cost of a repository	150,000																					
Cost of each additional data source	50																					
Estimated additional data sources									500	500	500	500	500	500	500	500	500	500	500	500	500	

HEALTHY CITY PROGRAM FINANCIALS

CITY OF EDMONTON SMART CITIES CHALLENGE BUDGET

PRIVACY & SECURITY

COST ELEMENTS	Phase 1								Phase 2								Phase 3								Summary
	Year 1				Year 2				Year 3				Year 4				Year 5								
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Total				
Security Infrastructure							50,000	500,000		500,000				500,000								1,550,000			
Project Manager	18,900	18,900	18,900	18,900	18,900	28,350	28,350	28,350	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	633,150			
Office of the City Clerk Representative (Senior)	18,900	18,900	18,900	18,900	18,900	18,900	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	642,600			
Office of the City Clerk Representative (Intermediate)	16,800	16,800	16,800	16,800	16,800	16,800	16,800	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	554,400			
Privacy Expert	18,900	18,900	18,900	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	699,300			
Technology Expert	9,450	9,450	9,450	9,450	18,900	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	623,700			
Operations (ingest data, monitor, etc.)	9,450	9,450	9,450	9,450	9,450	9,450	18,900	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	567,000			
Administrative Support	4,200	4,200	8,400	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	302,400			
TOTAL EXPENSES	96,600	96,600	100,800	128,100	137,550	165,900	244,250	729,950	239,400	739,400	239,400	239,400	739,400	239,400	239,400	239,400	239,400	239,400	239,400	239,400	239,400	5,572,550			

MUNICIPAL CAPACITY BUILDING

COST ELEMENTS	Phase 1								Phase 2								Phase 3								Summary
	Year 1				Year 2				Year 3				Year 4				Year 5								
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Total				
Project Manager	28,350	28,350	37,800	37,800	75,600	75,600	75,600	75,600	75,600	75,600	113,400	113,400	113,400	113,400	113,400	113,400	151,200	151,200	151,200	151,200	1,871,100				
Business Analyst	16,800	33,600	33,600	67,200	67,200	67,200	67,200	67,200	100,800	100,800	100,800	134,400	134,400	134,400	134,400	134,400	134,400	134,400	134,400	134,400	1,932,000				
Privacy Expert	37,800	37,800	37,800	75,600	75,600	75,600	75,600	75,600	113,400	113,400	113,400	113,400	113,400	113,400	113,400	113,400	113,400	113,400	113,400	113,400	1,852,200				
Data Scientist	18,900	18,900	37,800	37,800	37,800	75,600	75,600	75,600	75,600	75,600	75,600	75,600	151,200	113,400	113,400	113,400	113,400	113,400	113,400	113,400	1,549,800				
Technology Expert	18,900	37,800	37,800	75,600	75,600	75,600	75,600	75,600	113,400	113,400	113,400	113,400	151,200	151,200	151,200	151,200	151,200	151,200	151,200	151,200	2,135,700				
Operations (ingest data, monitor, etc.)	16,800	33,600	33,600	67,200	67,200	67,200	67,200	67,200	100,800	100,800	100,800	100,800	100,800	100,800	100,800	100,800	134,400	134,400	134,400	134,400	1,764,000				
Administrative Support	4,200	16,800	16,800	16,800	16,800	16,800	16,800	16,800	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	525,000				
TOTAL EXPENSES	141,750	206,850	235,200	378,000	415,800	453,600	453,600	453,600	613,200	613,200	651,000	684,600	722,400	760,200	760,200	760,200	831,600	831,600	831,600	831,600	11,629,800				

HEALTHY CITY PROGRAM FINANCIALS

CITY OF EDMONTON SMART CITIES CHALLENGE BUDGET

HEALTHY CITY PROJECTS

COST ELEMENTS	Phase 1				Phase 2				Phase 3				Phase 3				Summary					
	Year 1		Year 2		Year 3		Year 4		Year 5		Year 5		Year 5		Total							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Total	
Technology Budget																						
<i>Smart Cities Challenge technology program growing with each project</i>																						
Project 1 - ConnectED Phase 1 - Large	-	311,134	311,134	311,134	311,134	311,134	311,134	311,134	311,134	-	-	-	-	-	-	-	-	-	-	-	-	2,489,072
Project 2 - ConnectED Phase 2 - Medium	-	-	-	-	-	-	-	-	-	240,659	240,659	240,659	240,659	240,659	240,659	240,659	-	-	-	-	-	1,443,951
Project 3 - Connect ED Phase 3 - Small	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	155,504	155,504	155,504	-	-	466,512
Project 4 - Large	-	-	-	-	311,134	311,134	311,134	311,134	311,134	311,134	311,134	311,134	311,134	-	-	-	-	-	-	-	-	2,489,072
Project 5 - Large	-	-	-	-	-	-	311,134	311,134	311,134	311,134	311,134	311,134	311,134	311,134	311,134	-	-	-	-	-	-	2,489,072
Project 6 - Large	-	-	-	-	-	-	-	-	-	-	-	-	-	311,134	311,134	311,134	311,134	311,134	311,134	311,134	-	2,489,072
Project 7 - Large	-	-	-	-	-	-	-	-	-	-	311,134	311,134	311,134	311,134	311,134	311,134	311,134	311,134	311,134	311,134	-	2,489,072
Project 8 - Small	-	-	-	-	155,504	155,504	155,504	155,504	155,504	-	-	-	-	-	-	-	-	-	-	-	-	777,520
Project 9 - Medium	-	-	-	-	-	-	240,659	240,659	240,659	240,659	240,659	240,659	240,659	240,659	-	-	-	-	-	-	-	1,684,610
Project 10 - Small	-	-	-	155,504	155,504	155,504	155,504	155,504	-	-	-	-	-	-	-	-	-	-	-	-	-	777,520
TOTAL EXPENSES	-	311,134	311,134	466,638	933,276	933,276	1,485,069	1,485,069	1,329,565	1,103,585	1,414,719	1,414,719	1,414,719	1,174,061	862,927	777,772	777,772	777,772	777,772	311,134	311,134	17,595,473

HEALTHY CITY PROGRAM FINANCIALS

CITY OF EDMONTON SMART CITIES CHALLENGE BUDGET

HEALTHY CITY PROJECT EXAMPLE

COST ELEMENTS	Phase 1								Phase 2								Phase 3							
	Year 1				Year 2				Year 3				Year 4				Year 5							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Large Project																								
Project Team																								
Project Manager	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	0	0	0	0	0	0	0	0	0	0				
Business Analyst	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	37,800	0	0	0	0	0	0	0	0	0	0				
Department Representative	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	0	0	0	0	0	0	0	0	0	0				
Technology Support	5,670	5,670	5,670	11,340	11,340	11,340	11,340	7,560	7,560	7,560	0	0	0	0	0	0	0	0	0	0				
Change Manager	5,670	5,670	5,670	9,450	9,450	9,450	18,900	18,900	18,900	18,900	0	0	0	0	0	0	0	0	0	0				
Implementation Support	9,450	9,450	9,450	9,450	18,900	18,900	18,900	18,900	18,900	18,900	0	0	0	0	0	0	0	0	0	0				
Reporting & Support	13,440	13,440	13,440	13,440	13,440	13,440	13,440	13,440	13,440	13,440	0	0	0	0	0	0	0	0	0	0				
Engagement																								
Engagement Logistics	18,900	9,450	18,900	9,450	18,900	9,450	18,900	9,450	18,900	9,450	0	0	0	0	0	0	0	0	0	0				
Facilitator (Focus Groups, in-depth interviews, etc)	11,550	11,550	11,550	4,620	4,620	11,550	11,550	11,550	4,620	4,620	0	0	0	0	0	0	0	0	0	0				
Change Manager	5,670	5,670	5,670	5,670	5,670	5,670	5,670	5,670	5,670	5,670	0	0	0	0	0	0	0	0	0	0				
Communications	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	9,450	0	0	0	0	0	0	0	0	0	0				
Project Specific Advisory Committee(s)																								
Senior Advisors FTE equivalent	11,550	11,550	11,550	11,550	11,550	11,550	11,550	11,550	11,550	11,550	0	0	0	0	0	0	0	0	0	0				
Support	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200	0	0	0	0	0	0	0	0	0	0				
Subject Matter Experts for projects	23,100	23,100	23,100	23,100	23,100	23,100	23,100	23,100	23,100	23,100	0	0	0	0	0	0	0	0	0	0				
Senior Research and liaison with other Healthy City initiatives (best practices)	5,670	5,670	5,670	5,670	5,670	5,670	5,670	5,670	5,670	5,670	0	0	0	0	0	0	0	0	0	0				
Technology Assets																								
New technologies				500,000				500,000																
TOTAL EXPENSES	203,700	194,250	203,700	696,770	215,670	213,150	232,050	718,820	221,340	211,890	-	-	-	-	-	-	-	-	-					

Assumptions

Average Project Cost used on the Healthy City All Projects Chart

311,134 Average expenses per quarter

TOTAL EXPENSES	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Medium Project																				
Project Manager	18,900	28,350	28,350	28,350	28,350	28,350	28,350	0	0	0	0	0	0	0	0	0	0	0	0	0
Business Analyst	28,350	28,350	28,350	28,350	28,350	28,350	28,350	0	0	0	0	0	0	0	0	0	0	0	0	0
Department Representative	3,780	3,780	3,780	3,780	3,780	3,780	3,780	0	0	0	0	0	0	0	0	0	0	0	0	0
Technology Support	5,670	5,670	7,560	7,560	13,230	13,230	7,560	0	0	0	0	0	0	0	0	0	0	0	0	0
Change Manager	7,560	7,560	13,230	13,230	18,900	18,900	18,900	0	0	0	0	0	0	0	0	0	0	0	0	0
Implementation Support	7,560	11,340	11,340	11,340	11,340	18,900	7,560	0	0	0	0	0	0	0	0	0	0	0	0	0
Reporting & Support	6,720	6,720	6,720	6,720	6,720	6,720	6,720	0	0	0	0	0	0	0	0	0	0	0	0	0
Engagement																				
Engagement Logistics	15,120	15,120	9,450	15,120	15,120	9,450	15,120	0	0	0	0	0	0	0	0	0	0	0	0	0
Facilitator (Focus Groups, in-depth interviews, etc)	4,620	4,620	4,620	4,620	4,620	4,620	4,620	0	0	0	0	0	0	0	0	0	0	0	0	0
Change Manager	3,780	3,780	3,780	3,780	3,780	3,780	3,780	0	0	0	0	0	0	0	0	0	0	0	0	0
Communications	9,450	9,450	9,450	9,450	9,450	9,450	9,450	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Specific Advisory Committee(s)																				
Senior Advisors FTE equivalent	11,550	11,550	11,550	11,550	11,550	11,550	11,550	0	0	0	0	0	0	0	0	0	0	0	0	0

HEALTHY CITY PROGRAM FINANCIALS

CITY OF EDMONTON SMART CITIES CHALLENGE BUDGET

HEALTHY CITY PROJECT EXAMPLE (CONTINUED)

COST ELEMENTS	Phase 1								Phase 2								Phase 3							
	Year 1				Year 2				Year 3				Year 4				Year 5							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Support	4,200	4,200	4,200	4,200	4,200	4,200	4,200	0	0	0	0	0	0	0	0	0	0	0	0	0				
Subject Matter Experts for projects	18,480	18,480	18,480	18,480	18,480	18,480	18,480	0	0	0	0	0	0	0	0	0	0	0	0	0				
Senior Research and liaison with other Healthy City initiatives (best practices)	3,780	3,780	3,780	3,780	3,780	3,780	3,780	0	0	0	0	0	0	0	0	0	0	0	0	0				
Technology Assets																								
New technologies			250,000			250,000																		
TOTAL EXPENSES	149,520	162,750	414,640	170,310	181,650	433,540	172,200	-	-	-	-	-	-	-	-	-	-	-	-	-				

Assumptions

Average Project Cost used on the Healthy City All Projects Chart

240,659 Average expenses per quarter

TOTAL EXPENSES	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Small Project																				
Project Manager	11,340	11,340	11,340	11,340	11,340	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business Analyst	18,900	18,900	18,900	18,900	18,900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Department Representative	1,890	1,890	1,890	1,890	1,890	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Technology Support	3,780	5,670	9,450	9,450	9,450	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Change Manager	3,780	3,780	13,230	18,900	18,900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Implementation Support	5,670	9,450	13,230	18,900	13,230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reporting & Support	3,360	3,360	3,360	3,360	3,360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Engagement																				
Engagement Logistics	9,450	9,450	9,450	9,450	9,450	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Facilitator (Focus Groups, in-depth interviews, etc)	2,310	2,310	2,310	2,310	2,310	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Change Manager	3,780	3,780	3,780	3,780	3,780	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Communications	3,780	3,780	3,780	3,780	3,780	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Specific Advisory Committee(s)																				
Senior Advisors FTE equivalent	4,620	4,620	4,620	4,620	4,620	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Support	1,680	1,680	1,680	1,680	1,680	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subject Matter Expert for projects	9,240	9,240	9,240	9,240	9,240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subject Matter Experts for projects	3,780	3,780	3,780	3,780	3,780	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Technology Assets																				
New technologies				250,000																
TOTAL EXPENSES	87,360	93,030	110,040	371,380	115,710	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Assumptions

Average Project Cost used on the Healthy City All Projects Chart

155,504 Average expenses per quarter

HEALTHY CITY PROGRAM FINANCIALS

CITY OF EDMONTON SMART CITIES CHALLENGE BUDGET

HEALTHY CITY PROJECT EXAMPLE RESOURCES (CONTINUED)

COST ELEMENTS	Phase 1				Phase 2				Phase 3											
	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Department Representative	5%	5%	5%	5%	5%															
Technology Support	10%	15%	25%	25%	25%															
Change Manager	10%	10%	35%	50%	50%															
Implementation Support	15%	25%	35%	50%	35%															
Reporting & Support	10%	10%	10%	10%	10%															
Engagement																				
Engagement Logistics	25%	25%	25%	25%	25%															
Facilitator (Focus Groups, in-depth interviews, etc)	5%	5%	5%	5%	5%															
Change Manager	10%	10%	10%	10%	10%															
Communications	10%	10%	10%	10%	10%															
Project Specific Advisory Committee (s)																				
Senior Advisors FTE equivalent	10%	10%	10%	10%	10%															
Support	10%	10%	10%	10%	10%															
Subject Matter Experts for projects	20%	20%	20%	20%	20%															
Subject Matter Experts for projects	10%	10%	10%	10%	10%															

HEALTHY CITY PROGRAM FINANCIALS

CITY OF EDMONTON SMART CITIES CHALLENGE BUDGET

RESOURCE MATRIX

COST ELEMENTS	Phase 1								Phase 2								Phase 3							
	Year 1				Year 2				Year 3				Year 4				Year 5							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Program Management - Governance																								
Branch Manager (BM1)	25%	25%	25%	25%	10%	10%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	10%	10%	10%				
Program Manager / Manager Business Analytics (ML4)	50%	50%	25%	25%	25%	25%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%				
Program Manager / Business Strategist / Project Manager (PT3)	50%	50%	20%	50%	50%	50%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%				
Program Manager / Business Strategist / Project Manager (PT3)	25%	25%	25%	25%	25%	25%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%				
Support (Administrative Assistant)	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%				
Program Management - Strategy																								
Program Manager / Business Strategist / Project Manager (PT3)	50%	50%	50%	50%	25%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%				
Senior Advisor (BM1)	10%	10%	10%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%				
Technology Representative (PT3)	10%	10%	10%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%				
Industry Expert (PT3)	10%	10%	10%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%				
Health Expert (PT3)	10%	10%	10%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%				
Engagement Expert (PT3)	10%	10%	10%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%				
Data Scientists (PT3)	10%	10%	10%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%				
Data Ethics Advisors (PT3)	10%	10%	10%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%				
Financial Advisor (MAll)	10%	10%	10%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%				
Administrative Support (Clerical Assistant)	50%	50%	50%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%				
Program Management - Lifecycle Management																								
Procurement specialist (PT3)	25%	50%	50%	50%	50%	50%	50%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				
Analysts (MA II)	25%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%				
Administrative Support (Clerical Assistant)	25%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%				
Engagement																								
Project Manager (PT3)	75%	200%	200%	200%	200%	200%	200%	200%	200%	200%	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%				
Engagement Logistics (MAll)	100%	100%	200%	200%	200%	200%	200%	200%	200%	200%	500%	500%	500%	500%	500%	500%	500%	500%	500%	500%				
Facilitator (Focus Groups, in-depth interviews, etc) (PT3)	100%	100%	100%	100%	200%	200%	200%	200%	200%	200%	200%	200%	200%	200%	300%	300%	300%	300%	300%	300%				
Change Manager (PT3)	100%	100%	100%	100%	200%	200%	200%	200%	200%	200%	200%	200%	200%	200%	300%	300%	300%	300%	300%	300%				
Communications (MAll)	100%	100%	100%	100%	200%	200%	200%	200%	200%	200%	200%	200%	200%	200%	300%	300%	300%	300%	300%	300%				
Administrative Support (Clerical Assistant)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	200%	200%	200%	200%	200%	200%	200%	200%				
Data and Technology																								
Team 1																								
PM (PT3)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				
BA (IT Analyst)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				
Technology Support (AIS III)	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%				
Change Manager (PT3)	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%				
Implementation Support (AIS III)	25%	25%	25%	25%	25%	25%	25%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%				
Reporting & Support (MAll)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%				
Healthy City Projects																								

HEALTHY CITY PROGRAM FINANCIALS

CITY OF EDMONTON SMART CITIES CHALLENGE BUDGET

RESOURCE MATRIX CONTINUED

COST ELEMENTS	Phase 1								Phase 2								Phase 3							
	Year 1				Year 2				Year 3				Year 4				Year 5							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
<i>Smart Cities Challenge technology program growing with each project</i>																								
Project 1 - ConnectED Phase 1 - Large	0%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%				
Project 2 - ConnectED Phase 2 - Medium	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	0%				
Project 3 - Connect ED Phase 3 - Small	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	0%				
Project 4 - Large	0%	0%	0%	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	0%	0%				
Project 5 - Large	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	0%	0%				
Project 6 - Large	0%	0%	0%	0%	0%	0%							100%	100%	100%	100%	100%	100%	100%	100%				
Project 7 - Large	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%				
Project 8 - Small	0%	0%	0%	0%	100%	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%				
Project 9 - Medium	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%				
Project 10 - Small	0%	0%	0%	100%	100%	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%				
Privacy and Security																								
Project Manager (PT3)	50%	50%	50%	50%	50%	75%	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				
Office of the City Clerk Rep (Senior) (PT3)	50%	50%	50%	50%	50%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				
Office of the City Clerk Rep (Intermediate) (MAIL)	50%	50%	50%	50%	50%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				
Privacy Expert (PT3)	50%	50%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				
Technology Expert (PT3)	25%	25%	25%	25%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				
Operations (ingest data, monitor etc) (PT3)	25%	25%	25%	25%	25%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				
Administrative Support (Clerical Assistant)	25%	25%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				
Municipal Capacity Building																								
Project Manager (PT3)	75%	75%	100%	100%	200%	200%	200%	200%	200%	200%	300%	300%	300%	300%	300%	300%	300%	300%	400%	400%				
Business Analyst (MAIL)	50%	100%	100%	200%	200%	200%	200%	200%	200%	200%	300%	300%	300%	300%	300%	300%	300%	300%	400%	400%				
Privacy Expert (PT3)	50%	50%	100%	100%	100%	200%	200%	200%	200%	200%	200%	200%	200%	300%	300%	300%	300%	300%	300%	300%				
Data Ethics Experts (PT3)	100%	100%	100%	200%	200%	200%	200%	200%	200%	200%	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%				
Technology Expert (PT3)	50%	100%	100%	200%	200%	200%	200%	200%	200%	200%	300%	300%	300%	300%	400%	400%	400%	400%	400%	400%				
Operations (MAIL)	50%	100%	100%	200%	200%	200%	200%	200%	200%	200%	300%	300%	300%	300%	300%	300%	300%	300%	400%	400%				
Administrative Support (Clerical Assistant)	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	200%	200%	200%	200%	200%	200%	200%	200%	200%	200%				
Monitor, Report, Sustain																								
Senior analyst to develop logic models and reporting, compile reports etc (PT3)	0%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%				
Administrative Support (Clerical Assistant)	0%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%				

HEALTHY CITY PROGRAM FINANCIALS

CITY OF EDMONTON SMART CITIES CHALLENGE BUDGET

GRANT FUNDING PAYMENT SCHEDULE

COST ELEMENTS	Phase 1				Phase 2				Phase 3				Total								
	Year 1				Year 2				Year 3					Year 5							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		Q1	Q2	Q3	Q4				
Outcome Based Payments - See Chapter 2	500,000	1,500,000	1,500,000	1,500,000	2,500,000	2,500,000	3,500,000	3,500,000	4,000,000	3,500,000	4,000,000	3,500,000	4,000,000	4,000,000	3,000,000	3,000,000	1,000,000	1,000,000	1,000,000	1,000,000	50,000,000
Total Grant Funding	500,000	1,500,000	1,500,000	1,500,000	2,500,000	2,500,000	3,500,000	3,500,000	4,000,000	3,500,000	4,000,000	3,500,000	4,000,000	4,000,000	3,000,000	3,000,000	1,000,000	1,000,000	1,000,000	1,000,000	50,000,000

HEALTHY CITY PROGRAM FINANCIALS

CITY OF EDMONTON SMART CITIES CHALLENGE BUDGET

OPEN CITY & TECHNOLOGY RESOURCE RATES

POSITION	Regular Rate
BM1 - Branch Manager	\$ 150.00
BM2 - Senior Director	\$ 130.00
ML2 - Program Manager	\$ 80.00
ML3 - Program Manager / Manager Business Analytics	\$ 90.00
ML4 - Director	\$ 110.00
PT2 - Strategic Coordinator I	\$ 70.00
PT3 - Program Manager / Business Strategist / Project Manager	\$ 90.00
PT4 - Program Manager / Senior Business Strategist	\$ 100.00
Administrative Assistant	\$ 50.00
AIS I = AT, SA	\$ 70.00
AIS II = BV, VK, HK	\$ 80.00
AIS III = JRP, KS	\$ 90.00
Business Co-op Student & Other	
Business Process Analyst ERP	\$ 90.00
Clerical Assistant	\$ 40.00
Clerk II	\$ 40.00
Clerk IV	\$ 50.00
Computer Facilities Supervisor	\$ 90.00
Computer Support Technician	\$ 50.00
Data Storage Operator	\$ 50.00
Desktop Support Supervisor	\$ 70.00
Domain Architect	\$ 90.00
IT Analyst = BA, Mobility	\$ 90.00
IT Project Manager	\$ 90.00
IT Sourcing Analyst	\$ 70.00
IT Sourcing Technician	\$ 50.00
Methods Analyst I	\$ 60.00
Methods Analyst II	\$ 80.00
Senior Domain Architect	\$ 90.00
Senior IT Analyst = RC	\$ 90.00
Senior IT Project Manager	\$ 90.00
Technical Training Facilitator I	\$ 60.00
Technical Training Facilitator II	\$ 80.00

9.0 IMPLEMENTATION PHASE REQUIREMENTS

9.1 DUTY TO CONSULT WITH INDIGENOUS GROUPS

The City of Edmonton recognizes there is a Duty to Consult with Indigenous groups. The City will work to build relationships rooted in trust and respect and will encourage Nations' Leadership and Elders to endorse and participate in activities for successful program implementation.

The City of Edmonton will work with Indigenous communities to create solutions that will improve their quality of life. Through the implementation of the Healthy City program, the City will work with Nations to seek wisdom and guidance on matters that affect our communities the most. Indigenous community data gathering may be a component of this in the future and the approach will be developed in consultation with community leaders.

Critical Success Factors include:

- Relationship building
- Opening clear communication lines
- Coordinating planning efforts across City of Edmonton departments, province, federal governments, non-profit organizations, private and community organizations.
- Respecting First Nations self-determination processes, including the right of autonomy and the Treaty Rights to Health (Truth and Reconciliation/United Nations Declaration on the Rights of Indigenous Peoples)
- Transparency and accountability

The Edmonton and surrounding area has the second largest urban Indigenous population in Canada, representing five per cent of the population. The City of Edmonton's Indigenous Relations reflects the ongoing efforts to define the City's long-term strategic direction to collaborate with and support Indigenous Peoples who call Edmonton home. The principles of relationships, agreements, celebration and renewal guide Indigenous relations at the City of Edmonton.

[The Edmonton Urban Aboriginal Accord](#) is a principle-based relationship agreement between Aboriginal Communities

in Edmonton and the City of Edmonton Administration to strengthen relationships between the City of Edmonton and Urban Aboriginal Peoples (2005).

The City of Edmonton has developed partnership agreements with various Indigenous organizations and communities including:

- [Memorandum of Understanding, Enoch First Nation and the City of Edmonton \(2017\)](#)
- [Memorandum of Coordination and Collaboration, Her Majesty the Queen of Right of Alberta and the City of Edmonton \(2013\)](#)
- [Memorandum of Cooperation and Dialogue, Confederacy of Treaty Six First Nations and the City of Edmonton \(2012\)](#)
- [Memorandum of Shared Recognition and Cooperation, Métis Nation of Alberta and the City of Edmonton \(2013\)](#)

9.2 MODERN TREATY OBLIGATIONS

The City of Edmonton acknowledges that we reside in Treaty Six Territory and the traditional Métis homeland of Region Four, and together call upon our collective honoured traditions and spirit to maintain a strong and lasting relationship with First Nations, Métis and Inuit peoples.

Treaties form the basis of the relationship between the Crown and First Nations Communities. The process of treaty-making in Canada is continuing to evolve as a result of developments in Indigenous groups. Due to the time and circumstances in which Treaty Six was negotiated, and the anticipated project solutions, the City of Edmonton does not foresee any impact on Modern Treaty Obligations for the Implementation Phase.

The City of Edmonton will work to support our provincial and federal government partners to fulfill their obligations. We will leverage existing structures such as the City of Edmonton Indigenous Relations Office to provide insight on best practices toward building reciprocal relationships between the City and Indigenous peoples, as well as organizations that serve Indigenous communities.

The City will act as an advocate, conduit, partner and witness to improve the quality of life for our urban Indigenous communities. The City and partners will work to ensure that the solutions are resident driven, culturally safe and inclusive.

9.3 COMMUNITY EMPLOYMENT BENEFIT

The City of Edmonton draws its energy not only from the ground but its residents. The City of Edmonton is a nationally recognized top employer:

- 2017 Canada's Best Diversity Employer
- 2017 Alberta's Top 70 Employers
- 2018 Canada's Top Employers for Young People
- Employer of Choice for Women Building Futures

The City of Edmonton is committed to hiring individuals from a variety of backgrounds. We value the diverse opinions and perspectives that form the fabric of our teams. Through the diversity of our workforce we will connect better with residents, foster creative and innovate solutions and improve our workplace culture.

The City of Edmonton is committed to providing employment opportunities for Indigenous peoples, newcomers to Canada, people with disabilities, students and youth, visible minorities, individuals transitioning from the Canadian Armed Forces, and eliminating the gender gap in targeted occupations.

The City of Edmonton has programs designed to support the following populations with their employment at the City:

- **Indigenous Peoples:** The City of Edmonton has numerous hiring programs designed to recruit and retain Indigenous staff including the Summer Student Program, Post-Secondary Graduate Internship Program, Staff Support Administrative Professional Pool, and Nikâniw Aquatic Leadership Program.
- **Newcomers to Canada:** To support newcomers, the City of Edmonton provides opportunities, which allow newcomers to Canada to gain valuable work experience, develop professional skills and learn about working at the City of Edmonton. We work with educational institutions

including NorQuest College, Robertson College, CDI College, and Campbell College to provide their students with opportunities to complete their work practicums.

- **People with Disabilities:** The City of Edmonton has an Abilities @ Work program that creates meaningful, unique employment opportunities for people with intellectual disabilities at the City of Edmonton.

The City's procurement processes follow best practices for public sector procurement and are in accordance with the Agreement on Internal Trade, Annex 502.4 (AIT), and the New West Partnership Trade Agreement (NWPTA).

The City of Edmonton's Sustainable Purchasing Policy encourages staff to purchase quality products, services and construction at competitive prices while considering key environmental and social benefits over the entire lifecycle of the product or service, including:

- Energy and water efficiency
- Reduced resource requirements
- Recyclability
- Biodegradability
- Minimal packaging
- Durability
- Workplace health and safety
- International labour standards
- Human rights
- Total cost of ownership
- Supporting small and medium businesses where possible

We value the diverse opinions and perspectives that form the fabric of our teams. Through the diversity of our workforce we will connect better with residents, foster creative and innovate solutions and improve our workplace culture.

9.4 CLIMATE LENS ASSESSMENT

The City of Edmonton plays a role in many social, economic and environmental global systems that support our quality of life and these systems are being disrupted by climate change. We recognize that the actions we take in our community have both local and global impacts.

The Change for Climate is a call to all Edmontonians to work together and take action to reduce our city's greenhouse gas emissions by 35 per cent by 2035. Edmontonians are working together to reduce greenhouse gas (GhG) emissions, thus reducing our contribution to climate change to protect our quality of life, health and economy.

The City of Edmonton will work to impose GhG footprint assessments for each component of the Healthy City program. Working in partnership with community and vendors, we will validate each project's GhG footprint in conformance with the guidance provided by the Federal Government's Climate Change Lens Assessment and international auditing standards outlined by ISO, as required.

9.5 OTHER APPLICABLE LAWS AND REGULATIONS AND POLICIES

In order to inspire, empower and guide collaborative work moving forward, the City of Edmonton will abide by applicable laws, regulations and policies, including any cases of change or exemption to legislation and regulations that may apply to the development and implementation of the Healthy City program.



LETTERS OF SUPPORT



www.ab.bluecross.ca



April 6, 2018

Wendy Gnenz
City of Edmonton
17 Floor, Century Place
102A Avenue Edmonton
Edmonton AB T5J 3A3

Dear Wendy:

Re: Smart Cities Challenge – Letter of support

On behalf of Alberta Blue Cross, please accept this letter of support to the City of Edmonton in its proposal for the Smart Cities Challenge.

We fully support the City of Edmonton in its effort to facilitate Edmonton's Smart Cities Challenge proposal development and implementation. We believe that cities play a vital role in prospering community health.

Alberta Blue Cross is committed to improving the health and wellness of citizens. The innovative solutions to Edmonton's most pressing health challenges have the capacity to greatly impact the mental, physical, social, and economic health of those who live, work and play in Edmonton and Canada.

If you require additional information about Alberta Blue Cross, please visit our corporate website at www.ab.bluecross.ca or contact me directly at 780-498-8999 or by email at rpisani@ab.bluecross.ca

Sincerely,

A handwritten signature in blue ink, appearing to read "Ray Pisani".

Ray Pisani
President & CEO
Alberta Blue Cross

THE OFFICE OF THE PRESIDENT, RAY R. PISANI
10009 108TH STREET, EDMONTON, ALBERTA, CANADA T5J 3C5 PHONE 780.498.8999



ALBERTA
HEALTH

April 12, 2018

*Deputy Premier
Office of the Minister
MLA, Edmonton-Glenora*

AR 153022

The Honourable Amarjeet Sohi
Minister of Infrastructure and Communities
House of Commons
Ottawa, Ontario
Canada
K1A 0A6

Dear Minister Sohi:

Amarjeet!

I am pleased to provide this letter of support for Edmonton's application to the Smart Cities Challenge.

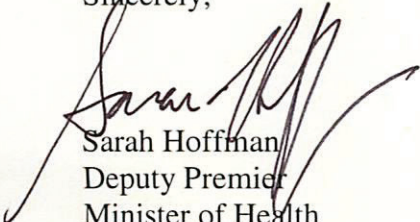
Building on its recent effort to establish Edmonton as Canada's Health City, the City of Edmonton has selected the theme of 'Healthy City' for the Smart Cities Challenge, to improve four health indicators: mental health, physical health, social health, and economic health.

As Alberta's Minister of Health, I am encouraged by Edmonton's theme as it aligns with ongoing work and efforts in my Ministry to support a learning health system that seeks to improve the health outcomes of all Albertans.

Alberta is home to one of the largest, most mature health administrative data assets in Canada which have the potential to make the province a global leader in real world evidence. Integration of health and non-health data is essential to support research and innovation, ultimately improving the lives and health of Albertans.

The largest contribution to people's health is the time spent outside of the health system, in the communities where they live, work, and play. The City of Edmonton's application to the Smart Cities Challenge, to use data-supported innovation to improve the four health indicators, has significant potential for future collaboration with my ministry. Through a successful Smart Cities Challenge application, Edmonton will demonstrate to other municipalities the value of data-based innovation and its potential for significant impact on the health outcomes of residents.

Sincerely,


Sarah Hoffman
Deputy Premier
Minister of Health

March 26, 2018

Wendy Gnenz
City of Edmonton
17 Floor, Century Place
9803 102A Avenue NW
EDMONTON AB T5J 3A3

Dear Ms. Gnenz:

Re: Smart Cities Challenge – Letter of support

On behalf of Alberta Health Services (AHS), please accept this letter of support for the City of Edmonton in its proposal for the Smart Cities Challenge.

We fully support the City of Edmonton in its effort to facilitate Edmonton's Smart Cities Challenge proposal development and implementation. We believe that cities play a vital role in prospering community health.

Alberta Health Services is Canada's first and largest province-wide, fully integrated health system, responsible for the delivery of health care services to all Albertans. We aspire to lead by example, working to improve health outcomes for Edmontonians. We are excited to support the City of Edmonton to find innovative solutions to Edmonton's most pressing mental, physical, social and economic health issues. As a leader in health data, statistics and reporting across Canada, AHS will work with the City to provide health information that will shape and support the Smart Cities challenge submission and greatly impact the way in which Edmontonians, live, work and play.

If you require more information about AHS, please contact my Executive Associate, Lorinda Prociuk at lorinda.prociuk@ahs.ca or at 780-342-2029.

Sincerely,



Verna Yiu, MD, FRCPC
President and Chief Executive Officer

February 15, 2019

Wendy Grenz

City of Edmonton
17 Floor, Century Place
102A Avenue Edmonton
Edmonton AB T5J 3A3

Dear Wendy:

Re: Smart Cities Challenge – Letter of support

On behalf of the Alberta Machine Intelligence Institute (Amii), I am pleased to offer this letter of support to the City of Edmonton in its proposal for the Smart Cities Challenge.

We fully support the City of Edmonton in its efforts to develop and implement their Smart Cities Challenge finalist proposal. We believe that cities play an important role in encouraging community belonging and connectedness— issues which directly impact the overall health and well-being of our community. By adopting innovative solutions that use data and connected technologies, Edmonton will take a proactive approach to preventing urban isolation and loneliness and building a strong and resilient community.

One of three centres of excellence in the Pan-Canadian AI Strategy, Amii is an Alberta-based research institute that works to push the boundaries of academic knowledge and to guide business understanding of artificial intelligence and machine learning. Amii is excited for the opportunity to support the City in its creation of innovative and adaptive solutions to the Cities most complex health challenges.

If you require more information about Amii, please contact Spencer Murray, Director of Communications & Public Relations at spencer.murray@amii.ca or visit our website at www.amii.ca.

Sincerely,



John Shillington
President & CEO , Alberta Machine Intelligence Institute (Amii)



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 - Georges Brosseau, Director
 - Herbert C. Belcourt†, Director
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- James F. Hole
- Ralph K. Hole†
- George & Rae Poole†
- John & Barbara Poole† Family
- Alison Baldwin Rice†
- E. John Slatter†
- Don† & Joan Stanley
- Robert & Shirley Stollery†
- Francis Winspear†
- †Deceased

April 16, 2018

Wendy Gnenz
 City of Edmonton
 17 Floor, Century Place
 102A Avenue Edmonton
 Edmonton AB T5J 3A3

Dear Wendy:

Re: Smart Cities Challenge – Letter of support

The City of Edmonton’s Smart Cities plan is an excellent opportunity to bring our community together in a coordinated way around the values of “transparency, experimentation, inclusiveness, empowerment, and knowledge-sharing.” Edmonton Community Foundation’s work makes Edmonton a Healthy City through its granting, convening, and knowledge sharing.

Granting

The most obvious way Edmonton Community Foundation (ECF) contributes to making Edmonton a Healthy City is by financially supporting front-line community organizations working to improve the indicators of health for Edmontonians. Examples of this include:

- Improving Physical Health by granting \$28,605 to Recreation for Life Foundation’s sport and recreation programs in Indigenous communities to create positive experiences for children by building healthy relationships and providing active play opportunities.
- Improving Economic Health by granting \$75,000 a year (a commitment until 2019) to Empower U to improve the financial literacy of low-income women, including a matched savings program to help with asset purchases.
- Improving Mental Health for women by granting \$75,000 a year (a commitment until 2019) to YWCA Edmonton to hire a counselling psychologist.
- Improving Social Health by granting \$47,547 since 2016 to CRIPSiE (Collaborative Radically Integrated Performers Society in Edmonton) which creates high-quality art by including people with disabilities and others who are often marginalized in mainstream arts programs.



COMMUNITY
 FOUNDATIONS
 OF CANADA
 all for community.



April 5, 2018

Wendy Gnenz
City of Edmonton
17 Floor, Century Place
102A Avenue Edmonton
Edmonton AB T5J 3A3

Dear Wendy:

Re: Smart Cities Challenge – Letter of support

On behalf of the Edmonton Public Library (EPL), please accept this letter of support to the City of Edmonton in its proposal for the Smart Cities Challenge.

We fully support the City of Edmonton in its effort to facilitate Edmonton's Smart Cities Challenge proposal development and implementation. We believe that cities play a vital role in prospering community health.

The innovative solutions to Edmonton's most pressing health challenges have the capacity to greatly impact the mental, physical, social, and economic health of those who live, work and play in Edmonton and Canada.

Edmonton Public Library is excited about the opportunity to partner with the City of Edmonton. As Edmonton's largest lender of information our greatest passion is creating connections which is paralleled in the City of Edmonton's Smart Cities Challenge theme of increasing community and citizen connectedness.

If you require more information about the Edmonton Public Library, please contact us via

www.epl.ca
pilar.matinez@epl.ca
780-496-7050

Yours truly,



Pilar Martinez
Chief Executive Officer

Spread the words.



**INSTITUTE OF
HEALTH ECONOMICS**
ALBERTA CANADA

1200 - 10405 Jasper Avenue, Edmonton AB Canada T5J 3N4
Tel. 780.448.4881 Fax. 780.448.0018
ihe.ca

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Institute of Health Economics

April 10, 2018

Wendy Gnenz
Open City and Technology
City of Edmonton
17 Floor, Century Place
9803 - 102A Avenue Edmonton
Edmonton AB T5J 3A3

Dear Ms. Gnenz:

Re: Smart Cities Challenge – Letter of support

On behalf of the Institute for Health Economics (IHE), please accept this letter of support to the City of Edmonton in its proposal for the Smart Cities Challenge.

We fully support the City of Edmonton in its' effort to prepare Edmonton's Smart Cities Challenge proposal development and implementation. We would encourage inclusion in the proposal strong evaluation and objective evidence gathering to steer what is an important effort in social change. It is well documented that local government and the community characteristics of *inclusion* and *connection* play a vital role in prospering improved individual and population health and well-being.

New innovative solutions to Edmonton's most pressing health challenges, utilizing new cross-sectoral data integration capabilities, have the capacity to greatly impact the mental, physical, social, and economic health of those who live, work and play in Edmonton and potentially provide some lessons for other jurisdictions in Canada.

If you require more information about the Institute of Health Economics, www.ihe.ca please contact us via John Sproule, Senior Policy Director, Institute of Health Economics, via jsroule@ihe.ca or 780-862-1905.

Sincerely,

Dr. Chris McCabe
CEO & Executive Director



February 26, 2019

Attn: Wendy Gneuz

City of Edmonton
17 Floor, Century Place
102A Avenue Edmonton
Edmonton, AB T5J 3A3

Dear Wendy:

Re: Smart Cities Challenge – Letter of support

On behalf of Health City, please accept this letter of support to the City of Edmonton in its proposal for the Smart Cities Challenge.

We fully support the City of Edmonton in its effort to facilitate Edmonton's Smart Cities Challenge proposal development and implementation. We believe that cities play a vital role in prospering community health.

Health City is an economic development initiative created to catalyze the health innovation ecosystem in Edmonton. Their focus is on transforming innovations from our health ecosystem into solutions that have commercial application and global relevance; adopting them for impact in Edmonton and scaling them for export to global markets. Edmonton has an outstanding network of academic, health, government and industry partners to position Edmonton as the healthiest city in Canada.

With the support of over 70 public, private and philanthropic organizations across Edmonton, Health City is proud to partner and will support the City of Edmonton in its effort to develop and implement a Healthy City Smart Cities Challenge proposal. We believe it takes a community to improve the health outcomes of our citizens and we will work with the City and community partners to improve the mental, physical, social and economic health challenges of Edmontonians.

If you require more information about Health City please contact Karen Gilchrist at 780.720.5446 or visit our website at edmontonhealthcity.ca.

Sincerely,

Reg Joseph, CEO

edmontonhealthcity.ca

1004 Compass Place, 10050 112 Street NW, Edmonton, Alberta, Canada, T5K 2J1

Phone: 780.628.3101 | Toll Free: 1.844.628.3101 | Email: admin@edmontonhealthcity.ca



MacEwan
UNIVERSITY

OFFICE OF THE PRESIDENT

P.O. Box 1796
Edmonton, Alberta
Canada T5J 2P2

Tel: 780-497-5400
Fax: 780-497-5405
Toll Free: 1-888-497-4622

April 23, 2018

Wendy Gnenz
City of Edmonton
17 Floor, Century Place
102A Avenue Edmonton
Edmonton, AB T5J 3A3

Dear Wendy:

Re: Smart Cities Challenge – Letter of support

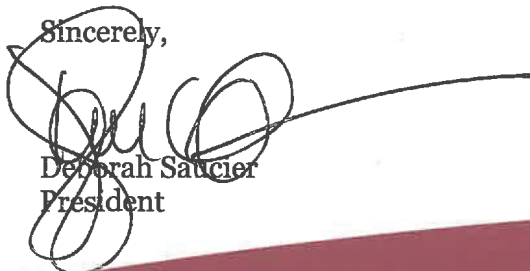
On behalf of MacEwan University, please accept this letter of support to the City of Edmonton in its proposal for the Smart Cities Challenge.

We fully support the City of Edmonton in its effort to facilitate Edmonton's Smart Cities Challenge proposal development and implementation. We believe that cities play a vital role in prospering community health.

MacEwan University is excited for the opportunity to come together and support the City of Edmonton to provide creative solutions through research and innovation in support of Edmonton's submission to the Smart Cities Challenge. We have nearly 20,000 undergraduate students that convene in the downtown core. As a campus, we have the potential to support the Smart Cities Challenge through programs in business, computing science and engineering, health and community studies, design studies and social innovation. Our faculty are committed to student-centered education, and as a result, our teaching and research agenda can be used to create academic collaborations to further strengthen the proposal submission. We are in full support of improving the mental, physical, social and economic health of Edmontonians.

If you require more information about MacEwan University, please contact us via Leo Wong from MacEwan Social Innovation Institute, leo.wong@macewan.ca, (780) 633-3269.

Sincerely,



Deborah Saucier
President

Office of the Vice President
External Affairs and Corporate Counsel

3-013 Singhmar Centre for Learning, 10215 108 Street
Edmonton, AB T5J 1L6



April 17, 2018

Wendy Grenz
City of Edmonton
17 Floor, Century Place
102A Avenue Edmonton
Edmonton, AB T5J 3A3

Dear Wendy:

Re: Smart Cities Challenge – Letter of support

On behalf of NorQuest College, please accept this letter of support to the City of Edmonton in its proposal for the Smart Cities Challenge.

We fully support the City of Edmonton in its effort to facilitate Edmonton's Smart Cities Challenge proposal development and implementation. We believe that cities play a vital role in promoting community health and improving related outcomes.

NorQuest College is proud to step forward and support the City of Edmonton in its efforts to find an innovative solution to Edmonton's most pressing mental, physical, and economic health challenges.

Located in the heart of downtown Edmonton, NorQuest College prides itself on community based learning that is both relevant and rewarding. We strive to maximize the opportunities of our learners and clients, in doing so – we enhance the socioeconomic health of Alberta. NorQuest College is excited to partner with the City of Edmonton to offer our research, knowledge and expertise in any way that aligns with the vision of Edmonton's Smart Cities Challenge proposal. It is our hope that we can support the City of Edmonton in developing solutions that improve communal health within Edmonton and throughout Canada.

If you require more information about NorQuest College, please contact me via email at joan.hertz@norquest.ca.

Sincerely,

A handwritten signature in blue ink, appearing to read "Joan Hertz", with a long, sweeping underline.

Joan Hertz, QC, ICD.D
Vice President External Affairs and Corporate Counsel
NorQuest College

Wendy Gnenz
City of Edmonton
17 Floor, Century Place
102A Avenue Edmonton
Edmonton AB T5J 3A3

April 5th, 2018

Dear Wendy:

Re: Smart Cities Challenge – Letter of support

On behalf of Edmonton Oliver Primary Care Network, please accept this letter of support to the City of Edmonton in its proposal for the Smart Cities Challenge.

We fully support the City of Edmonton in its effort to facilitate Edmonton's Smart Cities Challenge proposal development and implementation. We believe that cities play a vital role in prospering community health.

The innovative solutions to Edmonton's most pressing health challenges have the capacity to greatly impact the mental, physical, social, and economic health of those who live, work and play in Edmonton and Canada.

If you require more information about the Edmonton Oliver Primary Care Network, please contact David Ramsey, Executive Director on dramsey@edmontonoliverpcn.com 587-590-4841.

Sincerely,



David Ramsey
Executive Director
Edmonton Oliver Primary Care Network



15 Sir Winston Churchill Square 102A Avenue - 100 Street Edmonton, AB T5J 2E5 Tel: 780.423.5510 Fax: 780.426.5175 Web: www.MySage.ca

April 9, 2018

Wendy Gnenz
City of Edmonton
17 Floor, Century Place
102A Avenue Edmonton
Edmonton, Alberta T5J 3A3

Dear Ms. Gnenz,

Re: Smart Cities Challenge – Letter of support

It is my pleasure to provide this letter on behalf of the Sage Seniors Association in support of the City of Edmonton's Smart Cities Challenge proposal.

We fully support the City of Edmonton in its effort to facilitate Edmonton's Smart Cities Challenge proposal development and implementation. We believe that cities play a vital role in prospering community health.

The innovative solutions to Edmonton's most pressing health challenges have the capacity to greatly impact the mental, physical, social, and economic health of those who live, work and play in Edmonton and Canada.

If you require more information about the Sage Seniors Association, please contact us via 780.701.9008 or kmcdonald@mysage.ca.

Sincerely,

A handwritten signature in blue ink, appearing to read "Karen McDonald", is enclosed in a thin black rectangular border.

Karen McDonald
Executive Director



TELUS
10020 - 100 Street NW
Edmonton, Alberta
Canada T5J 0N5
telus.com
780 508 1952 Telephone
Shane.Sabatino@telus.com

April 9, 2018

Wendy Gnenz
City of Edmonton
17th Floor, Century Place
9803 – 102A Avenue
Edmonton, AB T5J 3A3

Dear Wendy:

Re: Smart Cities Challenge – Letter of support

On behalf of TELUS please accept this letter of support to the City of Edmonton in its proposal for the Smart Cities Challenge.

We fully support the City of Edmonton in its effort to facilitate Edmonton's Smart Cities Challenge proposal development and implementation. We believe that cities play a vital role in prospering community health.

The innovative solutions to Edmonton's most pressing health challenges have the capacity to greatly impact the mental, physical, social, and economic health of those who live, work and play in Edmonton and Canada.

If you require more information about TELUS please contact me at Shane.Sabatino@telus.com or at 780-508-1952.

Sincerely,

A handwritten signature in black ink that reads "Shane Sabatino". The signature is written in a cursive, flowing style.

Shane Sabatino
President, TELUS Employer Solutions & VP, TELUS Health AB
TELUS Communications Inc.



International Organization for Migration (IOM)
Organisation Internationale pour les Migrations (OIM)
Organización Internacional para las Migraciones (OIM)

8 February 2019

Letter of Support on the Smart Cities Challenge

Dear Ms. Gnenz,

On behalf of the International Organization for Migration (IOM), please accept this letter of support to the City of Edmonton in its submission on the "Smart Cities Challenge" to the Infrastructure Canada.

We believe municipalities can and should play a greater role to enhance the integration of refugees and migrants. Over the past 6 (six) months, we have had several bilateral discussions with the City of Edmonton to identify opportunities for further collaboration, including:

- Research and technical support to strengthen local programs and services aimed at newcomers;
- Exploration of digital tools and apps based on IOM's international work that could be applied to the Edmonton context; and
- Convening international expert meetings to share good practices on strengthening local policies and programmes and scaling successful pilot interventions aimed at newcomers

IOM, part of the United Nations system, is an intergovernmental organization with 172 member states plus many remaining states and organizations as observers, which is committed to the principle that humane and orderly migration benefits migrants and society, acts to: assist in meeting the operational challenges of migration, advance understanding of migration issues, encourage social and economic development through migration, and work towards effective respect of the human rights and well-being of migrants.

IOM is excited to support the City of Edmonton in the "Smart Cities Challenge" endeavor recognizing such support will go a long way in positively impacting the lives of newcomers.

If you require anything further, please consult our website <https://www.iom.int/> or contact Mr. Jobst Koehler +41.22.717 9245, jkoehler@iom.int

Sincerely,

Renate Held
Director

Department of Migration Management

Ms. Wendy Gnenz
Chief Information Officer
City of Edmonton
17th Floor, Century Place
102A Avenue Edmonton
Edmonton AB T5J 3A3
CANADA

Headquarters

17, Route des Morillons, CH-1211 Geneva 19, Switzerland
Tel: +41.22.717.9111 • Fax: +41.22.798.6150 • E-mail: hq@iom.int • Internet: www.iom.int

16 April 2018

Ms. Wendy Gnenz
Branch Manager and Chief Information Officer
Open City and Innovation
City of Edmonton
17th Floor, 9803-102A Avenue
Edmonton AB T5J 3A3

Dear Ms. Gnenz,

Re: Smart Cities Challenge – Letter of support

On behalf the University of Alberta, please accept this letter of support for the City of Edmonton's Smart Cities Challenge bid.

With over 100 years of excellence, the University of Alberta, as the province's leading academic and research institution and the fourth leading Major Medical and Research University in Canada, is an active and enthusiastic partner of the City of Edmonton's in Smart Cities bid.

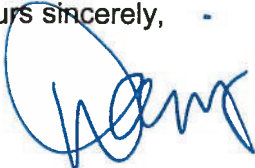
With a strong focus on building partnerships and innovative collaborations with our community health partners, the University of Alberta fully supports the city's vision for the development and implementation of the health-focused Smart Cities Challenge.

At the forefront of ground-breaking research, innovative health devices and interventions that improve health outcomes for Edmontonians and beyond, the University of Alberta shares the city's belief that the many dimensions of health—physical, economic, mental and social—are best served by collaborative efforts that leverage our city's many strengths to improve community health outcomes.

For this reason, the institution has been pleased to partner with the City of Edmonton to mobilize the institution's excellence in research, artificial intelligence, data mining and local and international partnerships to improve the health of Edmontonians.

If you require more information about the University of Alberta, please contact the Office of the President via email president@ualberta.ca or 780-492-3212.

Yours sincerely,



David H. Turpin, CM, LLD, FRSC
President and Vice-Chancellor



MAYOR DON IVESON
CITY OF EDMONTON

2nd FLOOR, CITY HALL
1 SIR WINSTON CHURCHILL SQUARE
EDMONTON, ALBERTA, CANADA T5J 2R7
PHONE: 780-496-8100
don.iveson@edmonton.ca

April 10, 2018

Infrastructure Canada
180 Kent Street, Suite 1100
Ottawa, Ontario K1P 0B6

Dear Smart Cities Challenge Jury,

On behalf of City Council, it is my pleasure to offer my enthusiastic support for Edmonton's Smart Cities Challenge proposal.

The impacts of poor health on our society are far reaching and well documented. But what role can cities play in reducing the overwhelming costs of health care delivery, tackling chronic diseases and improving the health outcomes of Canadians? The City of Edmonton's 'Healthy City' Smart City application will not only cement Edmonton's place as a leader in healthcare innovation and delivery, it will also demonstrate a future for how Canadian communities can care for their people.

Edmonton is already an influential force within the global healthcare industry. The Health City Initiative I announced in 2016 set out a clear vision to build upon the strength of our robust health assets, creating the best environment possible for health innovation. Our 'Healthy City' proposal directly supports the corporate outcomes as outlined in the City's strategic plans The Way Ahead and Vision 2050.

Our proposal will help to address the important issues of community belonging and connectedness – issues which directly impact a person's overall health and well-being. By using data and connected technology to build community belonging and connectedness, we will take a proactive approach to preventing isolation and loneliness, and in the process create healthier, more resilient communities.

I am confident that the skill of Edmonton's Smart Cities Challenge team, combined with the passion and ingenuity of our community, can achieve meaningful and measurable outcomes for Edmontonians. By encouraging collaboration between all orders of government, business, academia, the arts, non-for-profit organizations and most importantly, citizens, we have the opportunity to improve the quality of life for everyone.

I look forward to seeing the innovative activities, partnerships and opportunities that will come out of our response to the Challenge.

Yours truly,

A handwritten signature in black ink, appearing to read 'Don Iveson', written over a light yellow background.

Don Iveson
Mayor



SMART CITIES CHALLENGE

City of Edmonton
Final Proposal
March 2019

smartcities.edmonton.ca

