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WATERFRONT TORONTO

RESILIENCE AND INNOVATION
FRAMEWORK FOR SUSTAINABILITY

"We are the first generation to feel the impact of climate change, and we are the last generation that can do something about it."

—

Washington State Governor, Jay Inslee

ACKNOWLEDGEMENTS

FORWARD

The challenges presented by climate change create the need for transformational leadership. Few urban organizations have the ability and opportunity to take on that role. Even fewer are prepared to innovate at the scale needed to really make a difference. Waterfront Toronto has seized the opportunity to demonstrate that leadership through action.

This Framework is designed to be the foundation upon which Waterfront Toronto will deliver on its mandate for Environmentally and Socially Responsible Prosperity. It represents a commitment to educating, inspiring and attracting the world to Toronto through developing a 21st century Complete Community. It sets out the process through which built, social and natural systems will support a Climate Positive community. This includes addressing resilience to the unavoidable impacts of climate change. It also represents a commitment to achieving the behavioral and technological shifts in urban development that are required to keep the global average temperature rise to below $2^{0}C$.

The Climate Positive approach involves achieving net negative operational carbon emissions. It sets goals for minimizing emissions from energy generation and consumption, and conserving resources. It includes removing atmospheric carbon through preserving and enhancing natural ecosystems and creating carbon offsets. It recognizes the learning opportunity presented by Waterfront Toronto's physical location on the shore of a freshwater lake and the bank of a river.

The Framework recognizes the role of technology in achieving a Climate Positive, mixed-use, mixed-income community. It recognizes that the associated social paradigms for residents, visitors, investors, employers, and service providers must evolve over time, and the technology platform will have to adapt.

Success will be measured both at the project performance level, and by the impact on the community, region and world. The end result will be a thriving waterfront for generations to come that helps Toronto compete effectively with other top-tier global cities for investment, jobs and talent.

Sincerely,

Peter Halsall
Executive Director, Canadian Urban Institute

FRAMEWORK

The Framework contains the following sections:

1. **OVERVIEW**

This section provides an overview of the components of the Framework, which are:

   a. **Our Future:** Waterfront Toronto's vision for the next 50 years and beyond.

   b. **Our Values:** the leadership priorities for all new development and operational activities.

   c. **Our Practices:** the operational initiatives that will translate Our Values into reality.

2. **OUR VALUES + OUR PRACTICES**

This section provides more information about Our Values and Our Practices and how each will inform Waterfront Toronto's work.

3. **ACTION PLAN**

This section is a plan which sets out the Actions, Strategies and Our Practices that will be used to implement each of Our Values and achieve the aspirations for Our Future.

4. **GLOSSARY**

This section provides definitions for key terms used in the Framework.

INTRODUCTION

The changing climate can no longer be ignored. Global temperatures are increasing as a result of human activity[1]. These changes are affecting our communities today and will continue to do so in ways we cannot yet fully appreciate. Reducing carbon emissions will not be enough to keep warming from causing catastrophic disruption to the earth's ecosystems. Carbon must now be removed from the atmosphere to keep warming to below 2°C[2].

Waterfront Toronto recognizes that we can and should act now to demonstrate leadership by creating and communicating solutions that help mitigate climate change. The Climate Positive Development Program, which Waterfront Toronto has joined, is an example of that leadership.

An investment is required to reduce the carbon emissions in the Waterfront, but the return on investment will be an improvement to many aspects of life in Toronto. Actions to support carbon reductions will create environmental, social and economic co-benefits for the city such as improved air quality, increased green space, improved energy and food security and economic development[3].

In addition to the focus on carbon emissions reductions, Waterfront Toronto's leadership priorities include the creation of resilient communities that are positioned to both respond and adapt to the changing climate and the stresses and shocks of urban life; intelligent and connected places that use technology to improve quality of life; human experience-driven places created with the needs of users in mind; and biophilic design inspired by our connection to nature.

These priorities, and the operational initiatives that will be used to translate them into reality, are described in this Resilience and Innovation Framework for Sustainability. Its development was guided by local, national and international best practices and in consultation with the Framework Steering Committee and Advisory Committee, the waterfront community and members of the Waterfront Toronto team. It builds on the success of Waterfront Toronto's 2005 Sustainability Framework in setting a vision for how Waterfront Toronto can create lasting benefits - social, economic and environmental - for people locally, nationally and internationally through the revitalization of Toronto's waterfront.

The time to act to mitigate climate change is now, and Waterfront Toronto has created a bold plan to help do that.

1   Cook, J., Oreskes, N., Doran, P. T., Anderegg, W. R., Verheggen, B., Maibach, E. W., ... & Nuccitelli, D. (2016). Consensus on consensus: a synthesis of consensus estimates on human-caused global warming. Environmental Research Letters, 11(4), 048002.

2   Gasser, T., Guivarch, C., Tachiiri, K., Jones, C.D., & Ciais, P. "Negative emissions physically needed to keep global warming below 2°C."Nature Communications. 6, 1-7 (2015). DOI: 10.1038/ncomms8958

3   Floater, G., Heeckt, C., Ulterino, M., Mackie, L., Rode, P., Bhardwaj, A., Huxley, R. (2016). Co-benefits of urban climate action: A Framework for Cities. LSE Cities. Retrieved from: http://www.c40.org/researches/c40-lse-cobenefits

SECTION

1

OVERVIEW

OVERVIEW

The Resilience and Innovation Framework for Sustainability structure is visualized through an infographic that demonstrates the relationships between its different components. These are described below.

The Core

Waterfront Toronto's primary goal is to create vibrant and sustainable places for people who live, work, play and draw inspiration from the waterfront. As a result, people are placed at the heart of the new Framework.

Our Future

Surrounding the core is Our Future ring, which describes the future envisioned for the waterfront community. This is how people will recognize and experience the waterfront over the next 50 years. This ring displays a vision of a waterfront that is:

1. REGENERATIVE: Development revitalizes, restores and renews the Toronto waterfront. The ongoing process of regeneration supports healthy, connected systems and communities.

2. INSPIRED BY WATER: Connections to Lake Ontario and the Don River are reflected in design and operations. Waterfront revitalization respects and enhances the health of the aquatic ecosystem and connects visitors and residents to the water.

3. CATALYTIC: The waterfront is an exemplar of resilience and innovation — a place to which people and cities look for inspiration about actions that they can take to improve their own communities. Waterfront revitalization drives innovation and builds capacity locally and globally.

4. PROSPEROUS: Projects create sustained economic development by leveraging a variety of innovative partnerships and funding models invested in the future of the waterfront.

SECTION 1: OVERVIEW

Our Values

The next ring of the Framework is Our Values, which sets out the priorities that will inform all of Waterfront Toronto's work. These are the leadership drivers for the next stage of revitalization. They are aspirational and their full achievement will be recognized over time.

Waterfront Toronto's priorities for the development and operation of the waterfront include:
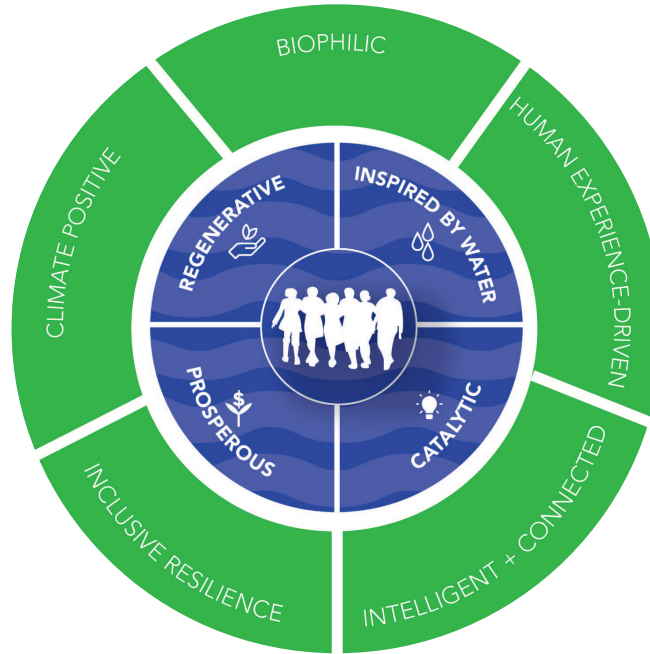
1. CLIMATE POSITIVE: Guided by the C40 Climate Positive Development Program, Waterfront Toronto's projects and initiatives support the development of low carbon communities with an aspiration to reduce greenhouse gas emissions below zero.

2. INCLUSIVE RESILIENCE: Toronto's waterfront is a dynamic, adaptive and flexible environment with the ability to respond to technical, social and environmental changes. Buildings, communities and infrastructure are designed to survive and thrive in response to a changing climate and in times of emergency. Resilience planning considers the built, natural and social environment.

3. INTELLIGENT + CONNECTED: Technologies are used to support community needs and improve quality of life. High-speed, resilient connectivity creates reliable connections between people and things. Access and digital inclusion build personal connections to the community.

4. HUMAN EXPERIENCE-DRIVEN: Waterfront communities are healthy, safe, just, active, multi-generational, human scale and accessible. Design excellence enriches the human experience.

5. BIOPHILIC: The waterfront is a place where people learn from and are inspired by nature. Buildings and infrastructure incorporate natural forms and systems into the design and operations.

SECTION 1: OVERVIEW

Our Practices

Lastly, the outer ring is Our Practices, which are the operational initiatives that will be used to implement Our Values to achieve Our Future. They are:
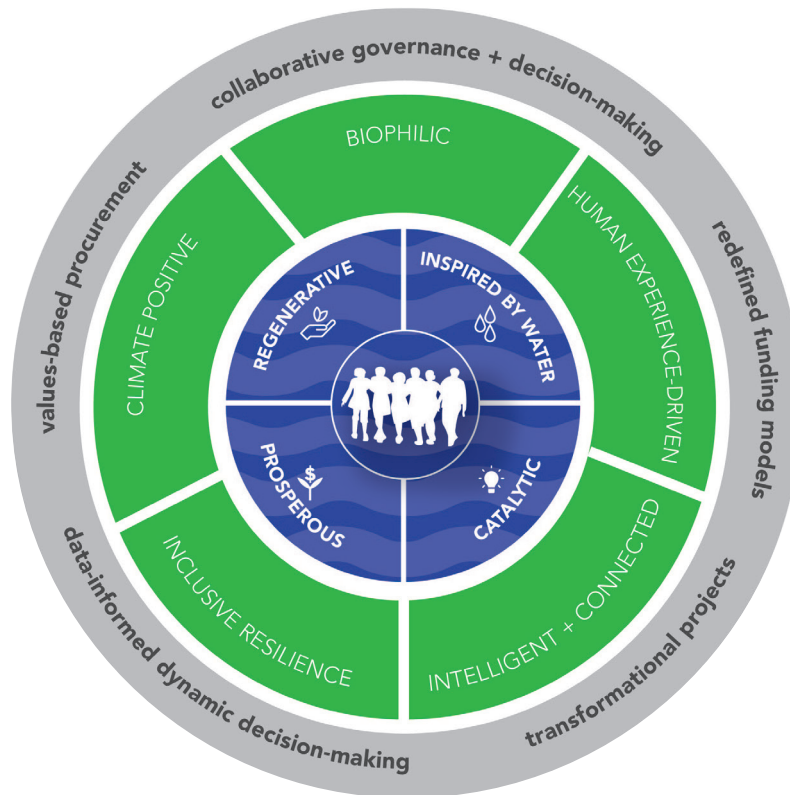
1. COLLABORATIVE GOVERNANCE AND DECISION-MAKING: Governance processes achieve a stewardship ethic, support capacity building and provide inspiration through engagement and education. There is a focus on creating models for more inclusive decision-making.

2. REDEFINED FUNDING MODELS: Redefined partnerships include public-private partnerships, partnerships with non-profits, pension funds, industry and academia to realize sustainable economic development.

3. TRANSFORMATIONAL PROJECTS: Innovative projects demonstrate leadership and the feasibility of innovative approaches locally, nationally and internationally. They provide Waterfront Toronto a means of assessing, procuring, funding and delivering new technologies and ideas.

4. DATA-INFORMED DYNAMIC DECISION-MAKING: Data is collected on the performance of projects to track, learn from and improve future performance. Learnings are shared internally and externally. Decisions are informed by accurate, timely and appropriate data sets.

5. VALUES-BASED PROCUREMENT: To achieve innovation and development that is aligned with Our Values and Our Future Waterfront Toronto's procurement processes factors in addition to price, such as the impact on society, the environment and the local economy.

SECTION

2

OUR VALUES +
OUR PRACTICES

OUR VALUES

OUR VALUES

This section provides more information on Our Values and how each will inform Waterfront Toronto's work.

1. Climate Positive

Guided by the C40 Climate Positive Development Program, Waterfront Toronto's projects and initiatives support the development of low carbon communities with an aspiration to reduce greenhouse gas emissions below zero.

Recent studies show that, in addition to substantial and immediate reductions in carbon emissions, we must also remove existing carbon from the atmosphere to keep global warming below 2°C[4]. Recognizing this need to substantially reduce carbon emissions, Waterfront Toronto has joined other world-leading communities in aligning its goals with the Climate Positive Development Program. Under this program, projects must reduce their emissions, sequester carbon on-site and offset the remainder by exporting clean energy or investing in carbon reduction initiatives in the surrounding community. Waterfront Toronto's Lower Don Lands development is one of the 17 inaugural projects included in the C40 Climate Positive Development Program launched in 2009.

The C40 Program is a non-prescriptive program which aims to "create large-scale models for urban development that reduce greenhouse gas emissions below zero in an economically viable manner"[5]. The Program focuses on the three main sources of operational carbon emissions: energy, waste and transportation. To achieve this scale of carbon reductions, Waterfront Toronto must track and set incremental targets for the reduction of carbon on the Waterfront. Developments must include highly efficient buildings, renewable energy, using waste as a resource, access to low-carbon mass transit and creating carbon offsets through sequestration and abating emissions from surrounding communities.

4   Gasser, T., Guivarch, C., Tachiiri, K., Jones, C.D., & Ciais, P. (2015). "Negative emissions physically needed to keep global warming below 2℃."Nature Communications. 6, 1-7 (2015). DOI: 10.1038/ncomms8958

5   Roadmaps for Successful Climate Action: C40 Cities Share 100 Case Studies Proven to Work (March 2016). C40 Cities. Retrieved from http://www.c40.org/blog_posts/roadmaps-for-successful-climate-action-c40-cities-share-100-case-studies-proven-to-work

2. Inclusive Resilience

Toronto's waterfront is a dynamic, adaptive and flexible environment with the ability to respond to technical, social and environmental changes. Buildings, communities and infrastructure are designed to survive and thrive in response to a changing climate and in times of emergency. Resilience planning considers the built, natural and social environment.

Recognizing the need for resilience planning to include the wide range of stakeholders affected by the waterfront area, Waterfront Toronto collaborates with businesses, residents, government organizations, academia and community groups in planning for a more resilient waterfront.

Through initiatives such as the City of Toronto's 100 Resilient Cities group, Waterfront Toronto works with a range of partners to address climate change, the impacts of extreme weather and additional challenges specific to Toronto such as growing inequality, aging infrastructure and housing and transit issues.

Waterfront Toronto will assess risks specific to the Waterfront area and the vulnerability of critical infrastructure and natural and social systems. Broad participation will be sought when determining the actions and strategies required for resilience and response planning. Resilience planning will be an ongoing process of assessing progress and refining the response to address current conditions.

3. Intelligent and Connected

Technologies are used to support community needs and improve quality of life. High-speed, resilient connectivity creates reliable connections between people and things. Access and digital inclusion build personal connections to the community.

Intelligent Communities apply digital information technology through the built environment to improve the overall quality of life for people at home, work and play.

Waterfront Toronto's vision for Intelligent Communities is to create the world-leading exemplar of a 21st century city, where physical, digital, social, environmental and economic factors align to create an exceptional quality of life. The focus is on improved quality of life through effective solutions, inclusivity, and input from public, private, government and not-for-profit sectors.

Waterfront Toronto development prioritizes Intelligent Community Forum (ICF) critical success factors for Intelligent Communities including: broadband – recognizing it is now as important to economic growth as other utilities like clean water; knowledge workforce – providing the conditions to stimulate highly-skilled employment opportunities; innovation – supporting innovation that contributes to a healthy economy; digital equality – providing broadband technology access to all members of the community; sustainability - developing in ways that protect the environment for future generations; and advocacy – leading the changes needed to create a leading 21st century digital neighbourhood[6].

Intelligent communities on the waterfront improve quality of life by providing digital connectivity and infrastructure, helping create more efficient and low carbon transportation, improving the efficiency of buildings, operating systems and utilities, and supporting community and economic development.

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6   *Intelligent Community Forum. Retrieved from: http:// www. intelligentcommunity.org/ intelligent_community_indicators*

4. Human-Experience Driven

Waterfront communities are healthy, safe, just, active, multi-generational, human scale and accessible. Design excellence enriches the human experience.

Design driven by human experience creates spaces with the needs of users in mind. Waterfront Toronto encourages the development of places for people that provide affordable options for housing and utilities, welcome diverse communities, encourage transit and active mobility, incorporate human scale development and are safe and healthy. They support the development of neighbourhoods with accessible amenities like places to buy food, work, study, gather, worship and be active.

5. Biophilic

The waterfront is a place where people learn from and are inspired by nature. Buildings and infrastructure incorporate natural forms and systems into the design and operations.

Building on the affinity of human beings with the natural world, a biophilic city is "a place that learns from nature and emulates natural systems, incorporates natural forms and images into its buildings and cityscapes, and designs and plans with nature[7]." Biophilic design learns from and incorporates the elements and systems of the natural world into the built environment, fosters environmental restoration and increases ecological function.

In addition to enhancing the human experience of places through improved connection with natural elements, Waterfront Toronto supports the use of biomimicry and green infrastructure to reduce energy use, material inputs, stormwater runoff and noise, to provide shade and urban agriculture and to improve the microclimate. Development of the waterfront considers the impact on biodiversity, aquatic health and urban forestry.

7   Beaty, Timothy (2010). Biophilic Cities: Integrating Nature into Urban Design and Planning.

OUR PRACTICES

OUR PRACTICES

This section provides the intent of Our Practices and how each will be used to guide implementation at Waterfront Toronto.

1. Collaborative Governance

Governance processes achieve a stewardship ethic, support capacity building and provide inspiration through engagement and education. There is a focus on creating models for more inclusive decision-making.

Waterfront Toronto's success is a result of collaborating with different orders of government, developers, businesses and residents, among other groups. Strong engagement and information-sharing practices that are integrated into Waterfront Toronto's operational processes ensure continued collaborative governance and decision-making. Engaging with community about development projects and having progressive policies around issues like open data fosters a sense of ownership of the waterfront, creating a stewardship ethic. Empowering stakeholders enables them to contribute to revitalization efforts and results in information exchange, resource sharing and feedback loops.

2. Redefined Funding Models

Redefined partnerships include public-private partnerships, partnerships with non-profits, pension funds, industry and academia to realize sustainable economic development.

A diversity of revenue streams is a key factor for the economic resiliency of waterfront revitalization, so that development is not reliant on any one source. Corporate investments, public-private partnerships, pension fund investments, crowdfunding, community benefit agreements, Local Improvement Changes and philanthropy are examples of strategies that Waterfront Toronto will examine to attract funds using redefined funding and partnership models.

3. Transformational Projects

Innovative projects demonstrate leadership and the feasibility of innovative approaches locally, nationally and internationally. They provide Waterfront Toronto a means of assessing, procuring, funding and delivering new technologies and ideas. appropriate data sets.

Transformational projects provide the opportunity to test future solutions through smaller-scale pilot studies that help determine feasibility, manage risk, validate benefits and promote change. These projects are used as industry examples to implement innovation and act as a primary step towards widespread rollout.

4. Data-Informed Dynamic Decision-Making

Data is collected on the performance of projects to track, learn from and improve future performance. Learnings are shared internally and externally. Decisions are informed by accurate, timely and appropriate data sets.

Waterfront Toronto will use data to inform decision-making, such as by comparing actual performance metrics against internal and external best practices. Data will be used to better understand operations and to identify possible improvements. The success of benchmarking depends on the quality and accessibility of data, and is an evolving process that promotes industry growth and development. The data and resulting analysis will help to inform the key decisions required for the next stage of revitalization.

5. Values-Based Procurement

To achieve innovation and development that is aligned with Our Values and Our Future Waterfront Toronto's procurement processes evaluate factors in addition to price, such as the impact on society, the environment and the local economy.

Waterfront Toronto will use procurement processes to set standards for the developments it oversees. Our Practices will support regenerative design by using lifecycle costing and carbon modeling to better understand the whole-life implications of decisions. To ensure the revitalization of Toronto's waterfront is prosperous, procurement and contracting practices will support economic development and build local capacity. Waterfront Toronto will employ values-based procurement to generate and promote innovation, serving as a model for other jurisdictions. Processes will support connection, dialogue and communication between Waterfront Toronto, the bidding community and other stakeholders.
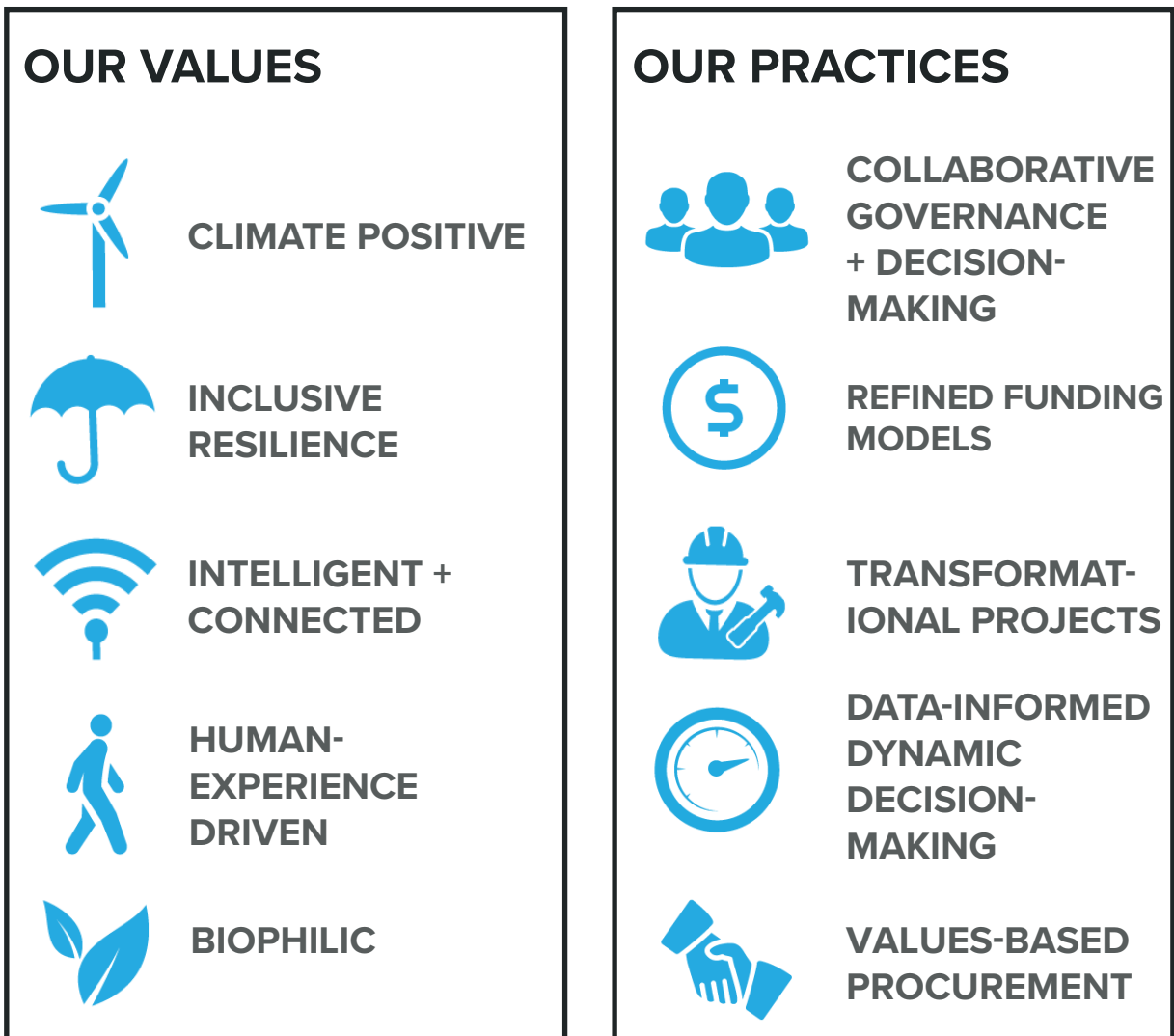
SECTION

3

ACTION PLAN

ACTION PLAN

The Action Plan shows how Our Values will be implemented using specific Actions, Strategies and Our Practices. Symbols are used to identify which of Our Values is achieved and which of Our Practices is used for each action. The Plan includes:

- Actions: the high-level activities required to achieve each of Our Values; and

- Strategies: the detailed steps required to implement each Action.

OUR VALUES

CLIMATE POSITIVE

INCLUSIVE RESILIENCE

INTELLIGENT + CONNECTED

HUMAN-EXPERIENCE DRIVEN

BIOPHILIC

OUR PRACTICES

COLLABORATIVE GOVERNANCE + DECISION-MAKING

REFINED FUNDING MODELS

TRANSFORMAT-IONAL PROJECTS

DATA-INFORMED DYNAMIC DECISION-MAKING

VALUES-BASED PROCUREMENT

SECTION

4

GLOSSARY

GLOSSARY

Active Transportation: "Any form of human-powered transportation"[8] including walking, cycling, in-line skating, skateboarding, and skiing.

Biophilic Design: "[A]n innovative approach that emphasizes the necessity of maintaining, enhancing and restoring the beneficial experience of nature in the built environment"[9]. Biophilic design incorporates natural systems and processes into the built environment to provide ecological functions and enhance the ability for healthy and sustainable living. Examples include the use of natural lighting and the creation of natural areas such as green roofs and green walls.

Building Information Modeling (BIM): A digital representation of physical and functional characteristics of a facility. BIM is a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle; defined as existing from earliest conception to demolition[10].

Climate Positive: "Net-negative operational Greenhouse Gas (GHG) emissions[11]. Under

the Climate Positive Development Program, projects reduce their emissions, capture carbon on-site (by creating carbon sinks), and offset the remainder by exporting clean energy or investing in carbon reduction initiatives in the surrounding community.

Co-benefits: "[R]efers to the non-climate benefits of GHG mitigation policies that are explicitly incorporated into the initial creation of mitigation policies[12]."

Complete Communities: Communities that meet "people's needs for daily living throughout an entire lifetime by providing convenient access to an appropriate mix of jobs, local services, housing, and community infrastructure". They include accessibility to public transportation and safe non-motorized travel options.[13]

Crowdfunding: A financing strategy that collects small contributions from a large number of people, often through the internet. Crowdfunding offers smaller businesses and organizations an alternative to fundraising from traditional sources, such as banks and financial investors.[14]

Design Excellence: The process of creating spaces, buildings and communities that

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8   Public Health Agency of Canada. What is Active Transportation. Retrieved from: http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/pa-ap/at-ta-eng.php

9   Kellert, Stephen R., Heerwagen, Judith H., & Mador, Martin L, (2008). Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life.

10   "Frequently Asked Questions About the National BIM Standard-United States - National BIM Standard - United States". Nationalbimstandard.org.Retrieved from: https://www.nationalbimstandard.org/faqs#faq1

11   Roadmaps for Successful Climate Action: C40 Cities Share 100 Case Studies Proven to Work (March 2016). C40 Cities. Retrieved from http://www.c40.org/blog_posts/roadmaps-for-successful-climate-action-c40-cities-share-100-case-studies-proven-to-work

12   Metz, B. (2001). Climate change 2001: mitigation: contribution of Working Group III to the third assessment report of the Intergovernmental Panel on Climate Change (Vol. 3). Cambridge University Press.

13   Growth Plan for the Greater Golden Horseshoe. (2006). Ministry of Municipal Affairs and Housing. Retrieved from https://www.placestogrow.ca/index.php?option=com_content&task=view&id=359&Itemid=12#7

14   Gedda, David., Billy Nilsson, Zebastian Sathen, and Klaus Solberg Soilen. "Crowdfunding: Finding the Optimal Platform for Funders and Entrepreneurs." Technology Innovation Management Review 6, no. 3 (2016): 31-40.

SECTION 4: GLOSSARY

respect and enhance the environment and enrich human activity.

Digital Equality: The principle that everyone in the community deserves access to broadband technologies and the skills to use them.[15]

Green Building: A building which "aims to amplify the positive and mitigate the negative impacts on the natural environment" throughout its lifespan. Green buildings support "planning, design, construction and operations" which focus on "energy use, water use, indoor environmental quality, material section and the building's effects on its site[16]."

Hackathon: An event that challenges citizens and members of the software development community to solve problems using open data sources. Many hackathons offer prize money to individual developers or development teams that advance the "innovative use of open data, more specifically the creation of commercial software applications that deliver services to citizens[17]."

Human Experience-Driven: A revitalization strategy that prioritizes the creation of spaces with the experiential needs of human users in mind.

Human Scale: A strategy where developments, buildings and neighbourhoods are designed at an appropriate scale for human interaction. This can help enhance comfort levels and create livable and healthy spaces.[18] Mixed use

developments and walkable neighbourhoods support the creation of human scale places.

Intelligent Communities: Communities where digital information technology has been applied through the built environment to improve the overall quality of life for people at home, work and play.

Internet of Energy: The integration of wireless sensor networks (WSNs), actuators, smart meters, and other components of the power grid together with communication technology (ICT) [19].

Internet of Things: A system that uses instruments and sensors to collect and share data over the internet, which can then be used to provide appropriate services in a given area. For example, a sensor in an "internet of things" system might capture the movement levels near a street light, and then use that information to provide a suitable amount of lighting in the area.[20]

Machine Learning: The subfield of computer science that "gives computers the ability to learn without being explicitly programmed[21]."

Open Source Data: Data that is available, accessible, and can be used, re-used, and redistributed by anyone[22].

Public-Private Partnership: Long-term performance-based approach to procuring public infrastructure where the private sector holds a large proportion of the financial and construction risks as well as the responsibility

15   Intelligent Community Forum. Retrieved from: http://www.intelligentcommunity.org/digital_equality

16   Kriss, Jacob. "What is green building?" U.S. Green Building Council. Last modified August 6, 2014. Accessed October 14, 2016. http://www.usgbc.org/articles/what-green-building.

17   Johnson, Peter, and Pamela Robinson. "Civic Hackathons: Innovation, Procurement, or Civic Engagement?" Review of Policy Research 31, no. 4 (2014): 349-357.

18 Friedman, Avi. (2001). Tipping the scales of urban design to human scale: [Final Edition]. Times Colonist (Victoria).

19   Jaradat, M., Moath J., Abdelkader B., Yaser J., and Ayyoub.M. (2015). "The Internet of Energy: Smart Sensor Networks and Big Data Management for Smart Grid." In Procedia Computer Science, 56:592–97. Elsevier.

20   Chen, Feng., Ren, C., Wang, Q., Shao, B. (2012). A process definition language for Internet of Things

21   Simon, P. (2013). Too Big to Ignore: The Business Case for Big Data. Wiley. p. 89. ISBN 978-1-118-63817-0.

22 Open Knowledge International. Open Data Handbook: What is Open Data?" Retrieved from: http://opendatahandbook.org/guide/en/what-is-open-data/.

to ensure effective performance and long-term maintenance[23].

Real-Time Data: Information that is delivered immediately after collection. There is no delay in the timeliness of the information provided. Real-time data is often used for navigation or tracking.[24]

Smart Grids: Electricity networks that supply users with energy in amounts corresponding to their level of demand. Smart grids are central to climate policies that attempt to efficiently deliver sustainable, economic and secure supplies of electricity.[25]

Universal Design: A design approach that emphasizes "building features which, to the greatest extent possible, can be used by everyone[26]."

Urban Resilience: "The capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience[227]."

Woonerf: A street typology that prioritizes pedestrians and cyclists, highlighting the social and recreational function of streets. Cars traveling on a woonerf must adjust their speed to accommodate cyclist and pedestrians.

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23   PPP Canada. What is a P3? Retrieved from: http://www.p3canada.ca/

24   Wade, Tasha, and Shelly Sommer. 2006. "A to Z GIS: An Illustrated Dictionary of Geographic Information Systems." Journal Of Planning Literature. doi:10.1177/0885412208327016

25   Clastres, Cedric. "Smart grids: Another step towards competition, energy security and climate change observations." Energy Policy 39, no. 9 (2011): 5399-5408.

26   Iwarsson, Susanne, and Agneta Stahl. "Accessibility, usability and universal design—positioning the definition of concepts describing person-environment relationships." Disability and Rehabilitation 25, no. 2 (2003): 57-66.

27   100 Resilient Cities. What is Urban Resilience? Retrieved from: http://www.100resilientcities.org/resilience#/-_Yz46NjY6NCdpPTEocz5j/

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FRAMEWORK FOR
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