



CANADIAN
URBAN
INSTITUTE



WATERFRONToronto



WATERFRONT TORONTO

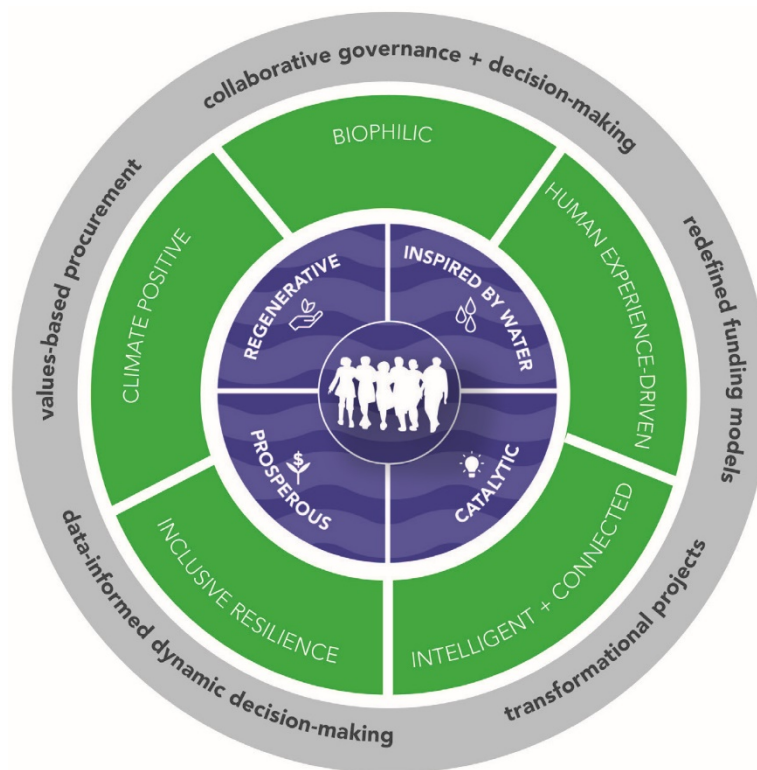
RESILIENCE AND INNOVATION
FRAMEWORK FOR SUSTAINABILITY
ACTION PLAN

INTRODUCTION

Waterfront Toronto is committed to making the city's waterfront both a national and global model for sustainability and resilience – it's at the heart of our mandate and approach. In every project we deliver, we strive to create a lakeshore that supports a thriving city while sustaining healthy ecosystems. By guiding the creation of a greener built environment and supporting the health of our city, we're creating a waterfront where people and nature thrive together.

In 2017, Waterfront Toronto published a new [Resilience and Innovation Framework for Sustainability](#). This document is the next chapter in our continually evolving approach to green city-building and builds on the success of the 2005 [Sustainability Framework](#). The Resilience and Innovation Framework for Sustainability is designed to be the foundation upon which Waterfront Toronto will deliver on its mandate for Environmentally and Socially Responsible Prosperity. It establishes a vision for how to create lasting social, economic and environmental benefits through waterfront revitalization and sets out the process through which our built, social and natural systems will support a Climate Positive community.

The Resilience and Innovation Framework for Sustainability can be visualized through the infographic below that demonstrates the relationships between its different components. At the core of the Framework is the community followed by Our Future, which describes the future envisioned for the waterfront community. The next ring is Our Values, which sets out the priorities that will inform all of Waterfront Toronto's work, followed by the outmost ring that represents Our Practices. This ring represents the operational initiatives that will be used to implement Our Values to achieve Our Future.






As part of the Framework, an **Action Plan** has been developed that outlines various long-, medium- and short-term initiatives. This is Waterfront Toronto's bold plan to help mitigate climate change and deliver a thriving waterfront for generations to come. Some of the action items are beyond the scope of Waterfront Toronto's mandate and will require the support of other partner organizations to drive meaningful change.






The actions in this Plan represent the high-level activities that have been identified to achieve each of Our Values and includes the detailed steps required to implement each action. As you read through the Plan, a series of symbols has been used throughout to help identify which of our Values is achieved and which of Our Practices is used for each action item.


















WATERFRONT TORONTO RESILIENCE AND INNOVATION FRAMEWORK FOR SUSTAINABILITY – ACTION PLAN











LEGEND










 Now – 2025
 2025 – 2050
 Aspirational










OUR PRACTICES








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








Ref #	Action	Strategy	Alignment with Our Practices
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.	
1.1 SET TARGETS AND TIMELINES FOR CLIMATE POSITIVE DEVELOPMENT			
	a. Establish the baseline	 Establish a carbon baseline for the designated waterfront area. Estimate current emissions of the waterfront area, in accordance with the C40 Climate Positive Development Program.	
	b. Develop the Climate Positive Aspiration and Timeline	 Based on the established baseline, develop a plan to become Climate Positive. Create targets for new construction, retrofits and carbon credits. Targets for new developments include:	
		 i. Construct first net zero building on the waterfront;	
		 ii. Develop Villiers Island as Waterfront Toronto's first Climate Positive community; and	
		 iii. Achieve Climate Positive status for the Designated Waterfront Area.	
	c. Bring the market along	 Communicate the Climate Positive aspiration and progress towards the goal.	
		 Hold market sounding sessions involving developers, designers, financiers, regulators, businesses and residents to discuss and address the challenges and opportunities for implementation.	
1.2 MINIMIZE CARBON IMPACT OF BUILDINGS, TRANSPORTATION, WASTE AND WATER			
<i>1.2.1 Buildings</i>			
	a. Use energy modeling to reduce carbon impact on a community scale	 Use early stage energy modeling to determine the most energy-efficient building siting, massing, orientation and geometry.	


Ref #	Action	Strategy	Alignment with Our Practices
b.	Design buildings for a Climate Positive future	<ul style="list-style-type: none"> Where net zero buildings are not yet possible, require developers to submit plans showing how buildings can be adapted over time to be net-zero emissions by 2025. 	
c.	Update the building standards	<ul style="list-style-type: none"> Continually raise the bar on Waterfront Toronto's Minimum Green Building Requirements by developing more aggressive energy targets and maintain the comprehensive and wide-ranging nature of the requirements. 	
d.	Require carbon assessment for all new designs	<ul style="list-style-type: none"> Require carbon emissions projections that include construction, operations, lifecycle of the asset and associated transportation. 	
		<ul style="list-style-type: none"> Develop or adapt an existing carbon tool for use on all Waterfront Toronto projects to standardize outputs. 	
		<ul style="list-style-type: none"> Require GHG-intensity factors for certain building types to ensure efficiency. 	
		<ul style="list-style-type: none"> As part of the procurement process, ensure the evaluation measures include technical evaluation criteria that award points to designs based on the extent to which they reduce carbon. 	
e.	Optimize the use of photovoltaic (PV) and building-scale renewables	<ul style="list-style-type: none"> Require development submissions to include a solar opportunity assessment to define feasibility for designing and constructing present and future PV installations on roofs, exterior walls and site areas. Analysis should include solar incidence and impacts of new buildings on adjacent sites. 	
		<ul style="list-style-type: none"> Set a target for PV coverage. 	
		<ul style="list-style-type: none"> Increase the target for total renewable energy production. 	
f.	Design buildings to optimize material lifecycle through adaptability and reuse	<ul style="list-style-type: none"> Expand the Long-Term Flexibility requirements of the MGBR to include the requirement for developers to plan, design and build for adaptability and component reuse and recycling. Require the provision of a plan describing how this has been addressed. 	










Ref #	Action	Strategy	Alignment with Our Practices
g.	Increase and improve provisions for electric vehicles (EVs)	● Increase the required percentage of EV infrastructure in parking spaces in both residential and commercial buildings.	
h.	Increase support in buildings for low-emissions vehicles and prepare for electric autonomous vehicles	● Designate priority parking bays for EVs, low-emissions vehicles and autonomous vehicles.	
i.	Support reduction of energy use and carbon emissions of existing buildings	● Encourage existing buildings to join programs such as the Toronto 2030 District, which is working to create a high-performance district in downtown Toronto, or the Save on Energy program, which offers incentives for home owners and businesses to lower energy use.	
		● Engage with existing buildings to understand their energy-related challenges and opportunities and work together to devise a program to implement energy and carbon reduction strategies.	
<i>1.2.2 Transportation</i>			
a.	Undertake transit planning	● As part of the Waterfront Transit Reset plan, advocate for infrastructure to support improved transit modal share.	
b.	Optimize sidewalk design	● Ensure all-season walking capability, comfort, safety, attractiveness with the use of paths that are smooth, sufficiently wide, and that have curb cuts and turning radii to accommodate a wheelchair or walker.	
c.	Support telecommuting	● Support options to work remotely by implementing necessary telecommunication networks and high speed broadband, thereby relieving the reliance on transportation to access economic and social networks.	
d.	Develop industry partnerships	● Leverage funding from businesses with local offices on the waterfront that would benefit from improved transportation accessibility.	
e.	Assess the success of woonerfs	● Assess the success of the West Don Lands woonerf and continue to roll them out in waterfront communities applying lessons learned, if appropriate.	









Ref #	Action	Strategy	Alignment with Our Practices
f.	Explore low-emissions vehicle zones	● Explore the opportunity to implement low-emissions vehicle zones.	
g.	Explore car free zones	● Explore the opportunity to implement car free zones.	
h.	Design and build vibrant streets	● Design and build streets in accordance with the City of Toronto's Urban Design Guidelines, which include standards for streets, sidewalks, hardscape and softscape and the City of Toronto's Complete Streets guidelines, which ensures that social, economic and environmental priorities are integrated in street planning and design.	
i.	Expand ferry terminals and routes	● Increase no./frequency of ferry stops and routes to provide more commuter transport services in addition to the current offering. Ensure integration with other land based travel modes.	
j.	Increase support for low-emissions vehicles and prepare for electric autonomous vehicles	● Designate priority parking bays for EVs, low-emissions vehicles and autonomous vehicles.	
k.	Optimize parking space use	● Reduce emissions due to car travel in search of a parking spot. Implement sensors in parking lots to better manage and update drivers of vacant parking spaces in real-time.	
l.	Reduce parking spaces	● Explore a reduction/cap on parking spaces in new developments.	
<i>1.2.3 Waste</i>			
a.	Increase construction waste diversion	● Require 90% waste diversion for all construction projects.	
b.	Local re-use of organic materials	● Explore opportunities for local reuse of organic materials.	




Ref #	Action	Strategy	Alignment with Our Practices
		<ul style="list-style-type: none"> Pilot an on-site composting system for organic solid waste and/or sewage in one new development. 	
	c. Implement Automatic Vacuum Waste Collection (AVAC)	<ul style="list-style-type: none"> Explore opportunities to implement a district AVAC system to improve waste diversion rates and reduce truck traffic along the waterfront. Pilot an AVAC project in a new development and evaluate its effectiveness of waste diversion and reduced traffic. 	
	d. Establish a community reuse centre	<ul style="list-style-type: none"> Explore opportunities to establish community reuse spaces for residents to donate and share reusable goods. Identify potential locations to co-locate public reuse facilities, such as in an existing public building or as part of the development of a district energy, waste or wastewater treatment facility. 	
1.2.4 Water			
	a. Reuse grey and rain water	<ul style="list-style-type: none"> Require developers to capture, treat and reuse grey and rain water on-site. Mandate the use of purple piping, which is designated for recycled water. 	
	b. Minimize carbon impact of water use	<ul style="list-style-type: none"> Calculate the energy and carbon footprint of water management infrastructure systems in the carbon baseline. Use the Ryerson Integrated Water Resource Evaluation Tool to enable the implementation of more sustainable wastewater, storm water and potable water servicing solutions. 	
1.3 MINIMIZE CARBON IMPACT OF ENERGY SUPPLY			
	a. Help create renewables markets	<ul style="list-style-type: none"> To create a market for renewables on the waterfront, explore the idea of requiring developers to enter into energy purchase agreements with renewable energy providers. Facilitate the development of renewable energy cooperatives. 	
	b. Conduct Renewable Energy Feasibility Studies to determine opportunities for	<ul style="list-style-type: none"> To help support the creation of renewable energy in the waterfront to meet Waterfront Toronto's Climate Positive aspiration, complete renewables feasibility studies to identify opportunities and challenges. Include studies for: 	











Ref #	Action	Strategy	Alignment with Our Practices
	minimizing the carbon impact of energy supply.	<ul style="list-style-type: none"> - Combined cooling, heat and power (CCHP) - Wind, solar, biomass - Community-scale clean energy generation - Grid capacity - Energy storage - Regulatory barriers and opportunities 	
	c. Develop partnerships to promote renewables and energy storage solutions	● Overcome regulatory barriers, take advantage of incentive programs and foster innovation in clean energy technologies (such as district heating and cooling and combined heat and power systems) in support of the Climate Positive target.	
	d. Optimize energy supply management	● Use smart metering and control software to intelligently buy and sell energy to and from the grid.	
	e. Support the use of innovative materials to generate renewable energy	● Explore the feasibility of innovative materials, such as paint that converts surfaces into solar energy generators or PV road surfaces, and pilot material use in at least one new development.	
	f. Reduce emissions from natural gas	● Explore opportunities for using renewable energy sources for building heating and hot water.	
	g. Explore opportunities for low-carbon back-up power generation	● Work with Toronto Hydro's Demand Response DR3 Program to explore low-carbon back-up power generation capacity and exploit opportunities to self-generate power during peak periods. This will form a strategy to optimize back-up power generation.	
1.4 CREATE CLIMATE POSITIVE CREDITS			
	a. Promote carbon sequestration through trees and plantings	● Require developers to plant tree and plant species that promote carbon sequestration, selecting species which will maximize carbon storage. Give consideration to the species identified in the appendix to the City's Tree Species Sequestration Information Staff Report.	
	b. Support carbon retention of soils	● Ensure exposed soils are covered year round with mulches and plant residues, ideally keeping a living root in the ground all the time. Disturb the soil with tillage as little as possible to promote carbon retention and health of soils.	











Ref #	Action	Strategy	
c.	Abate emissions from surrounding communities	● Identify opportunities to earn Climate Positive Credits by generating more renewable energy than required; creating projects with capacity to serve neighbouring communities; or creating emission reducing projects within other communities.	











Ref #	Action	Strategy	Alignment with Our Practices
2.		<p>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.</p>	
2.1 INITIATE RESILIENCE LEADERSHIP AND ENGAGEMENT			
a.	Create a resilience committee	<ul style="list-style-type: none"> ● Appoint a lead of the Resilience Committee tasked with overseeing Waterfront Toronto's resilience operations and liaising with other organizations such as 100 Resilient Cities and the City of Toronto's Resilient City Team. 	
		<ul style="list-style-type: none"> ● Create a committee of key staff to advise on the development of the Waterfront Toronto Resilience Plan and ensure implementation. 	
b.	Identify and empower stakeholders	<ul style="list-style-type: none"> ● Complete a partner asset map to identify relevant stakeholders including vulnerable groups, residents, local organizations and businesses. 	
		<ul style="list-style-type: none"> ● Engage stakeholders through knowledge dissemination and identification of opportunities for collaboration. 	
2.2 IDENTIFY, ANALYZE AND EVALUATE RISKS TO THE COMMUNITY			
a.	Identify risks of chronic stresses and acute shocks as defined by 100 Resilient Cities	<ul style="list-style-type: none"> ● Obtain available data and identify specific risks relating to relevant stresses and shocks including: aging infrastructure, blizzards, economic inequality, heat wave, infrastructure failure, lack of affordable housing, insufficient transportation systems and rainfall flooding. 	
b.	Assess vulnerability: critical infrastructure assets	<ul style="list-style-type: none"> ● Conduct a risk review to identify critical infrastructure elements and technology/communication systems that are projected to be vulnerable to climate change and confirm Waterfront Toronto's role in managing and mitigating risk. 	
c.	Assess vulnerability, natural systems	<ul style="list-style-type: none"> ● Use risk review to identify key natural systems within the designated Waterfront area and confirm Waterfront Toronto's role in managing risk. 	
d.	Assess vulnerability: social stability, security and justice	<ul style="list-style-type: none"> ● Use an occupant survey to evaluate social resilience, including the fairness and stability of community services delivery and accessibility, along with financial security for businesses and residents. 	











Ref #	Action	Strategy	Alignment with Our Practices
2.3 CONDUCT RISK ASSESSMENT			
a.	Conduct risk assessment	● Using the risks identified in the sections above conduct a risk assessment by assigning a probability of an event multiplied by the consequence of that event. The ISO Standard 3100-2009 provides a framework for risk management. Include estimated costs in the risk analysis.	
2.4 PLAN FOR RESILIENCE – DEVELOP RESILIENCE RESPONSE PLAN			
a.	Develop partnerships to support resilience response planning	● Create partnerships to align targets and plans with the City, Province, TRCA, industry, academia and other key organizations.	
b.	Create a Climate Adaptation and Resilience Plan	● Create a plan which outlines required actions to promote resilience to mitigate potential impacts of identified risks.	
c.	Involve stakeholders in the planning process	● Involve identified stakeholders in the development of the mitigation, preparedness and response strategies needed to reduce the impact of events on vulnerable groups, residents, local organizations, technology/communication systems and businesses.	
d.	Develop a communications plan	● Develop a communications plan which connects stakeholders and enables them to be well-informed, capable and involved.	
e.	Develop an infrastructure asset management plan	● Ensure an infrastructure asset management plan is in place for assets in the Waterfront Toronto area, which outlines future actions and budgets that are likely required to enable long term operations of critical assets.	
f.	Develop a crisis management and emergency plan	● Ensure a crisis and emergency management plan is in place for the Waterfront Toronto area, which describes potential emergencies and appropriate responses related to the identified risks.	
2.5 IMPLEMENT THE RESILIENCE AND RESPONSE PLANS THROUGH ACTIONS			
a.	Require developers to design based on climate data	● Develop resilience strategies to be included in the design of buildings, infrastructure and public realm.	









Ref #	Action	Strategy	Alignment with Our Practices
b.	Integrate resilience strategies in design	● Integrate resilience strategies in the design of buildings, infrastructure, technology/communication systems and public realm through design competitions.	
c.	Create resilience hubs for emergencies	● Create or designate community facilities, such as libraries, that can act as gathering places during emergencies. These facilities should have access to water, power and emergency supplies.	
2.6 MONITOR AND REVIEW			
a.	Monitor and review adaptation process	● Review the Resilience and Response Plans and assess what further actions are needed. Update the plans, as necessary.	

Ref #	Action	Strategy	Alignment with Our Practices
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 connection to the community.	
3.1 ENABLE CONNECTIVITY WITH DIGITAL INFRASTRUCTURE AND THE INTERNET OF THINGS (IOT)			
	a. Provide high-speed wired and wireless connectivity	<ul style="list-style-type: none"> ● Ensure the designated Waterfront area has the fastest available, uninterrupted, wired and wireless telecommunications network. 	
		<ul style="list-style-type: none"> ● Provide localized free Wi-Fi in public places where possible. 	
		<ul style="list-style-type: none"> ● Review the potential benefit of leveraging existing connectivity and no-cost Wi-Fi to attract investment, developers and philanthropy. 	
	b. Enable open-data use	<ul style="list-style-type: none"> ● Promote open-source, publicly available data, when appropriate. 	
		<ul style="list-style-type: none"> ● Provide a common data platform to promote standardized data. 	
		<ul style="list-style-type: none"> ● Enable data sharing agreements with project partners and in development agreements that enable data sharing across agencies/corporations. 	
		<ul style="list-style-type: none"> ● Ensure existing data sharing agreements are honoured. 	
		<ul style="list-style-type: none"> ● Create a database for gathered data from all the buildings/assets in the designated waterfront area, and encourage its use by all stakeholders. 	
	c. Implement sensors and enable connection between equipment and devices	<ul style="list-style-type: none"> ● Use sensors to collect a pool of raw, real-time data that can be mined and analyzed, both privately and publicly, to optimize asset utilization (e.g. buildings, transportation, roads, sidewalks, public spaces, lighting systems, utilities, etc.). 	
















Ref #	Action	Strategy	Alignment with Our Practices
		● Create partnerships with local, data-analytics businesses for advisory and implementation support.	
		● Identify the opportunity to implement or enhance data management and sharing systems to meet current business and residential needs.	
d. Ensure equity and digital inclusion		● Provide equitable broadband access to all occupants, regardless of age or socio-economic status (occupants include students, residents, businesses and visitors).	
		● Explore and experiment with a financially supporting localized free Wi-Fi service through advertisement efforts to support digital inclusion and to promote local businesses and organizations.	
		● Implement hardware and software sharing options and programs to promote digital inclusion. (e.g. a "digital tool library")	
		● Encourage provision of SME support packages (software, apps etc.) through partnerships with vendors.	
		● Collect and analyze usage data from localized free Wi-Fi to inform programming design and outreach.	
e. Provide resilience and redundancy of telecom systems		● Adopt redundant and distributed networks that are resilient to shocks and stresses, as identified in the Resilience Planning Process, with no single points of failure.	
f. Ensure data security		● Ensure that the vendors provide a safe and protected network with zero systems downtime.	
		● Support the growing demand of online transactions.	
3.2 USE TECHNOLOGY TO SUPPORT EFFICIENT AND LOW CARBON TRANSPORTATION			











Ref #	Action	Strategy	Alignment with Our Practices
a.	Explore opportunities to electrify transit (e.g. light rail, vehicles)	● Work with transit providers to identify opportunities to electrify transit.	
b.	Pilot an autonomous electric transit route	● Provide autonomous electric shuttles within the waterfront area.	
c.	Optimize traffic movements	● Inspire the use of real-time traffic data to re-route journeys to less congested routes.	
		● Improve journey planner information by increasing data availability of destinations, experiences and events.	
		● Implement transit priority signals and dedicated/contained routes (also applicable to bikeway access) using smart signaling.	
d.	Support autonomous vehicles	● Provide an environment to accommodate level 5 autonomous electric vehicles.	
		● Provide a test bed for the early adoption of autonomous vehicles and attract innovative manufacturers.	
e.	Encourage multi modal integration	● Improve the first/last mile integration and interchange transit points.	
		● Display real-time information on bus, train, microtransit and bike share availability and location on information boards to encourage walking to transit connection points.	
f.	Encourage microtransit use in the waterfront area	● Support microtransit development by providing data and promoting the services to residents.	
3.3 USE TECHNOLOGY TO IMPROVE EFFICIENCY AND PERFORMANCE OF BUILDINGS AND OPERATING SYSTEMS			











Ref #	Action	Strategy	Alignment with Our Practices
a.	Improve functioning of buildings and community systems	● Connect all future developments to high-speed broadband technology.	
		● Gather, store and provide access to real-time carbon, energy and water data at the building level.	
		● Encourage the use of open-source and non-proprietary technologies to reduce barriers of entry for start-ups.	
		● Use data-enabled machine learning technology to predict emergencies and security breaches in the public realm and buildings	
b.	Use sensor technology to improve monitoring and performance of building efficiency	● Automate building systems to minimize carbon emissions (e.g. heating, ventilation, air conditioning and lighting controls).	
		● Understand the movement, presence and patterns of occupants, and provide targeted energy supply using technologies.	
		● Utilize pedestrian flow modelling to determine high value commercial opportunities and programming activities.	
		● Optimize buildings systems usage (e.g. use daylight and occupant sensors to save on lighting cost) for commercial buildings.	
c.	Promote building reporting	● Promote the use of personalized and building-level energy and carbon dashboard reporting to understand a building's energy consumption and emissions. Support public disclosure when appropriate.	
d.	Improve construction efficiency	● Implement procurement requirements for all buildings to be designed, constructed and managed using BIM or other technologies that support modelling to a Climate Positive standard.	



Ref #	Action	Strategy	Alignment with Our Practices
e.	Optimize operations and maintenance	<ul style="list-style-type: none"> Require developers to manage environmental compliance with Waterfront Toronto's Environmental Management Plan using online reporting systems. 	
		<ul style="list-style-type: none"> Utilize machine learning technologies for self-diagnostic and system anomaly monitoring to optimize building operations and maintenance. 	
3.4 USE TECHNOLOGY TO ENSURE EFFICIENT UTILITIES			
a.	Support demand management using technology and data collection (e.g. smart meters, smart grid and Internet of Energy)	<ul style="list-style-type: none"> Evaluate the use of internet-enabled appliances to communicate with the grid; to promote the most efficient use of energy supply to meet demand. 	
		<ul style="list-style-type: none"> Fully utilize data from smart meters and create data-sharing program between hydro, water and gas for analytic purposes. 	
3.5 USE TECHNOLOGY TO SUPPORT COMMUNITY DEVELOPMENT			
a.	Improve leisure services	<ul style="list-style-type: none"> Use technology at community recreational facilities for programming and events promotion. 	
3.6 PROMOTE ECONOMIC DEVELOPMENT			
a.	Encourage thought leadership, start-ups and disruptive technologies	<ul style="list-style-type: none"> Invest in start-ups and international outreach. 	
		<ul style="list-style-type: none"> Provide affordable rental space for start-ups and university spin-outs. 	
		<ul style="list-style-type: none"> Develop a Business Leaders Programme which includes annual events, networking sessions, educational workshops, demonstrations and awards to promote business leadership. 	









Ref #	Action	Strategy	Alignment with Our Practices
		● Create the WT Innovation Agenda and host events focusing on how the waterfront can assist Toronto start-ups to scale and to compete globally.	
		● Collaborate with post-secondary institutions and technology providers to animate the waterfront facilitated by digital engagement (e.g. virtual reality and video games such as SimCity).	
		● Develop a global laboratory for technological advancements and innovation in urban design.	
	b. Promote applications for business growth (attraction and retention of labour)	● Host challenge competitions/hackathons to promote technology adoption, raise awareness and stimulate collaboration with public and private partners.	
		● Provide an opportunity for online discussion on an ongoing basis regarding the issues among/between developers and asset owners. When possible, recognize valuable feedback and implement recommendations as appropriate.	
	c. Develop employment and skills training in the technology sector	● Help overcome the issue of scaling up for Canadian companies (with a specific focus on Cleantech and the Internet of Things).	
		● Attract highly skilled, knowledge-based employment to the waterfront, creating a vibrant ecosystem in the appropriate clusters.	
		● Increase the number of interns, summer school placements and employed graduates in the innovative sectors within the waterfront.	
		● Utilize an economic assessment model to prove project viability and to unlock funding by calculating and communicating the wider economic impact (e.g. the creation of direct and indirect employment opportunities) of a transformational project.	


















Ref #	Action	Strategy	Alignment with Our Practices
4.	 Human Experience-Driven Waterfront communities are healthy, safe, just, active, multi-generational, human scale and accessible. Design excellence enriches the human experience.		
4.1 IMPROVE THE OVERALL HUMAN EXPERIENCE			
	a. Develop Waterfront Toronto Design Guidelines	 Develop guidelines based on best practices to provide standards for continued high quality design. Use these guidelines to evaluate and inform designs for new development projects and to guide the design review panel.	
	b. Design for legacy	 Ensure buildings and infrastructure are built with long term legacy of the waterfront in mind, and strategies are in place to support long term operations and maintenance. Require developers of community infrastructure to provide operations and maintenance manuals.	
	c. Promote public art	 Continue to promote public art through Waterfront Toronto's art program: create a public art strategy during the neighbourhood planning phase and select high profile locations for artwork installations funded by pooling all public art money.	
	d. Support the health and active use of water	 Promote a paddling, fishing and swimming friendly community by supporting the implementation of waterfront recreational nodes for water access.	
4.2 DEVELOP AFFORDABLE AND DIVERSE COMMUNITIES			
	a. Create housing affordability	 Maintain a target of 20% of residential units or land sufficient for gross floor area (GFA) on land within Waterfront Toronto's control to be designated for Affordable Rental Housing and an additional 5% of units or land sufficient for GFA be low-end-of-market units.	
	b. Provide accessible utilities	 Review current utility costs and compare with the City of Toronto's reasonable limits for cost of living.  Provide affordable access to utilities, where possible.	
			










Ref #	Action	Strategy	Alignment with Our Practices
		<ul style="list-style-type: none"> ● Implement a portable Wi-Fi hotspot device loan program. 	
	c. Promote social justice at Waterfront Toronto and in partner organizations	<ul style="list-style-type: none"> ● Achieve Waterfront Toronto certification under the International Living Future's Just - Social Justice Label, which sets a standard for employee diversity, equity, safety, benefits and stewardship. ● Encourage partner organizations to also participate. 	 
4.3 ENCOURAGE TRANSIT & ACTIVE MOBILITY			
	a. Support and increase bicycle sharing systems	<ul style="list-style-type: none"> ● Coordinate with the City of Toronto to provide bicycle sharing stations at a specified rate, spacing and quantity dependent on density and expected ridership within the Designated Waterfront Area. 	
	b. Improve and increase bicycle lanes	<ul style="list-style-type: none"> ● Evaluate the use of physically separated bike lanes on all new roads, consistent with the City of Toronto's Cycling Network Plan. ● Provide a fully integrated and connected network of safe, separate, cycle lanes, on all existing roads, consistent with the City of Toronto's Cycling Network Plan ● Explore opportunities for other dedicated cycling routes, where two-way cycle routes are physically separated from other road users, consistent with the City of Toronto's Cycling Network Plan. ● Develop and ensure the use of clear bicycle route signage. ● Ensure availability of route mapping online. ● Provide self-service bike maintenance stations. 	     








Ref #	Action	Strategy	Alignment with Our Practices
c.	Promote and increase safe and secure bicycle storage	● Provide bicycle parking spaces in the public realm.	
		● Provide secure bicycle storage areas at key hub locations and multi modal interchanges.	
d.	Promote walkable neighbourhoods	● Monitor current Walk Scores for residential buildings within the Designated Waterfront Area. Investigate scores below 90 and determine feasible strategies to increase scores.	
		● Adopt a Vision Zero target of no fatalities due to road traffic within the Designated Waterfront Area.	
		● Limit traffic speed to 30 kmph where collisions between pedestrians/cyclists and motor vehicles may occur.	
		● Provide seating, drinking fountains, restrooms and other infrastructure that support increased frequency and duration of walking.	
		● When designing large urban-scale developments, create on-site pathways as extensions to public sidewalks.	
		● Implement other roadway, sidewalk and bicycle infrastructure design measures to support improved safety. Refer to the Toronto Road Safety Plan, for example.	
e.	Support public transit	● Provide transit options to all persons within 5 minutes walking distance, or 350 meters, or less.	
		● Apply existing City Transit and Active Mobility criteria to the waterfront through the Waterfront Toronto Design Guidelines	
4.4 CREATE HUMAN SCALE DEVELOPMENT			

Ref #	Action	Strategy	Alignment with Our Practices
a.	Promote street level animation and human scale design through Street Level Design Guidelines	<ul style="list-style-type: none"> ● As part of the Waterfront Toronto Design Guidelines, include guidance on street level design that is supported in the MGBR and incorporates the following recommendations: 	
		<ul style="list-style-type: none"> i. Require minimum ground floor heights of 5 m, noting greater heights provide more design opportunities, and require depths of 12 m, not including parking; 	
		<ul style="list-style-type: none"> ii. Outline minimum frontage areas for active use and maximum areas for exposed parking, utility functions and single users. Recommend use of transparent glass to support visibility and active uses; 	
		<ul style="list-style-type: none"> iii. Minimize surface parking by specifying the maximum percentage of space allowed; 	
		<ul style="list-style-type: none"> iv. Ensure new buildings are made sympathetic to the scale, form and proportion of older developments. Minimize building heights that are significantly above average. Tall buildings should not affect their surroundings adversely in terms of microclimate, wind turbulence, overshadowing, noise, reflected glare, aviation, navigation and telecommunication interference; 	
		<ul style="list-style-type: none"> v. Require mixed use ground floors that include active uses to engage with the surrounding streets; 	
		<ul style="list-style-type: none"> vi. When utilities need to be incorporated on the ground floor, encourage them to be incorporated in the design with considerations of human scale activities; and 	
		<ul style="list-style-type: none"> vii. Limit number of signs per community and provide maximum dimensions for freestanding signs. 	
4.5 CREATE SAFE, EQUITABLE AND HEALTHY NEIGHBORHOODS			
a.	Promote safer neighbourhoods through effective design	<ul style="list-style-type: none"> ● Ensure adequate illumination of public infrastructure, such as parks, paths, seating and shelter, controlled by sensors. 	

Ref #	Action	Strategy	Alignment with Our Practices
		<ul style="list-style-type: none"> ● Include safer neighbourhood design guidelines in the Waterfront Toronto Design Guidelines. Refer to Crime Prevention Through Environmental Design or Secure by Design standards. 	
	b. Support universal design	<ul style="list-style-type: none"> ● Ensure compliance with Accessibility for Ontarians with Disabilities Act (AODA) and best practices from City of Toronto's Accessibility Design Guidelines. 	
		<ul style="list-style-type: none"> ● Include accessibility principles in the Waterfront Toronto Design Guidelines. Reference the principles of Universal Design: equitable use, flexibility in use; simple and intuitive; perceptible information; tolerance for error; low physical effort; and size and space for approach and use, where appropriate. 	
	c. Provide universal access to the following community services within 0.8 km, or 0.4 km to a public transportation line which provides direct access within 3 km	<ul style="list-style-type: none"> ● Places to gather: community centres and youth or seniors centres; 	
		<ul style="list-style-type: none"> ● Places to learn: daycares, schools or higher education institutions; 	
		<ul style="list-style-type: none"> ● Places to buy food: grocery stores or farmers markets with fresh produce and meat; and 	
		<ul style="list-style-type: none"> ● Places of culture: museums, libraries, places of worship, art galleries. 	
	d. Promote healthy neighbourhood design by providing access to the following community amenities within 0.8 km	<ul style="list-style-type: none"> ● Passive recreation such as parks, water, public spaces, and bike trails. 	

Ref #	Action	Strategy	Alignment with Our Practices
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 design and operations		
5.1	REQUIRE BIOHILIC PLANS FOR THE DEVELOPMENT OF PUBLIC SPACES AND BUILDINGS, WHICH:		
a.	Incorporate nature	 Incorporate nature through environmental elements, lighting and space layout. Examples include: plants, water, airflow, sunlight, fire, natural materials and views.	
b.	Incorporate design inspired by nature	 Incorporate natural systems and biomimicry.	
c.	Provide for human-nature interactions	 Provide for human-nature interactions in both the interior and exterior of buildings so the majority of occupants are connected with nature directly.	
5.2	INCORPORATE GREEN INFRASTRUCTURE STRATEGIES FOR EXISTING AND NEW DEVELOPMENTS		
a.	Use natural systems to manage storm water	 Reduce the use of traditional stormwater management infrastructure and, where possible, rely on low impact development (LID) practices for stormwater to manage water near where it falls.	
		 Encourage the use of natural LID systems such vegetated filter strips, grass swales and wetlands for stormwater management.	
		 Advance naturalization of built shores for natural flood proofing, where appropriate.	
b.	Use natural systems to manage waste water	 Evaluate the potential for natural sewage treatment at a community scale.	
c.	Explore other opportunities for green infrastructure	 Identify additional opportunities for green infrastructure, such as green roofing that meets or exceed the requirement of the City of Toronto's Green Roof Bylaw.	
5.3	IMPROVE AIR QUALITY		

Ref #	Action	Strategy	Alignment with Our Practices
	a. Minimize impacts of construction on air quality	● Continue to require developers to develop Air Quality and Dust Management Environmental Protection Plans through the Environmental Management Plan.	
	b. Use materials innovation to improve air quality	● Explore and pilot, where possible, innovative materials to improve air quality such as titanium dioxide added in cement to create concrete with photocatalytic features that decompose air pollutants when exposed to ultraviolet light.	
5.4 PROMOTE URBAN AGRICULTURE			
	a. Explore opportunities for urban agriculture	● Support urban agriculture including community gardens and rooftop gardens.	
5.5 SUPPORT URBAN FORESTRY			
	a. Increase tree canopy	● Achieve at least 40% tree canopy coverage for the Designated Waterfront Area in alignment with the City of Toronto's Strategic Forest Management Plan.	
	b. Promote the use of native species	● Require developers to plant only species which are included on the Toronto Native Plant List.	
5.6 SUPPORT BIODIVERSITY			
	a. Improve biodiversity	● Develop and implement strategies for each precinct to improve biodiversity potential.	
	b. Provide habitat for pollinator species	● Implement pollinator patches or strips with native plants to provide habitat for pollinator species.	
	c. Mitigate and prevent bird deaths	● Require developers to mitigate and prevent bird deaths by meeting Toronto Green Standard (TGS) requirements and following the City of Toronto Bird Friendly Development Guidelines and the Bird Friendly Development Guidelines - Best Practices - Glass.	
		● Participate in the FLAP Mapper project by reporting bird strikes.	

Ref #	Action	Strategy	Alignment with Our Practices
d.	Promote dark skies	● Encourage occupants in the Designated Waterfront Area to turn off lights at night on unoccupied floors and use adaptive controls for indoor and outdoor lighting. Public outdoor lighting should be designed to reduce glare, light trespass and sky glow, and should also use a control system. Meet the TGS Light Pollution requirements.	
e.	Design, develop and monitor aquatic habitat	● Continue to work with Aquatic Habitat Toronto to design, develop and monitor aquatic habitat.	
5.7 DEVELOP A LIVING LAB FOR BIOPHILIC DESIGN			
a.	Develop a Living Lab	● Determine areas of focus for a living lab to demonstrate potential and emerging biophilic designs.	
		● Identify and connect with other living labs around the world to share best practices.	
		● Invite suppliers to present established systems that have been designed to harness natural systems to provide community services.	
b.	Develop a methodology for implementing biophilic design in urban places.	● Identify effective strategies for incorporating biophilic design within a community and develop a comprehensive and transferable methodology to be shared publicly.	
c.	Develop a Global Communication Plan	● Develop strategies for communicating results of innovative projects that incorporate biophilic design.	
		● Present on a project incorporating biophilic design in a minimum of two events.	