Toronto Tomorrow

A new approach for inclusive growth

SIDEWALK LABS

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The Urban Innovations

Land Acknowledgement

Sidewalk Labs recognizes that this land we now call Toronto has been the site of human activity for over 15,000 years; we are within the Treaty Lands and claimed Territory of the Mississaugas of the Credit. Toronto is now home to many diverse First Nations, Inuit, and Métis peoples. It is the responsibility of all people to share in wise stewardship and peaceful care of the land and its resources. We are mindful of a history of broken treaties, and of the urgent need to work continuously towards reconciliation, and we are grateful for the opportunity to live and work on this land.

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Volume 2 Introduction

A New Set of Capabilities to Address Urban Challenges

Volume 2 describes the emerging physical, digital, and policy innovations that make it possible to improve quality of life in Toronto — and other global cities — at this unique moment in history.

Cities have always been humanity's greatest engines of opportunity, invention, and community, through their ability to connect so many diverse people in the same place.

They are where newcomers come for a fair shot or a fresh start. They are the wellsprings of arts, culture, and counterculture, where creativity sprouts along sidewalks and that next big idea is always around the corner. They are places that nourish both community networks and independent minds. They are global economic anchors and the planet's best hope for a greener future.

But cities have reached a pivotal moment in their development. The quality-of-life challenges facing Toronto are being experienced by rapidly growing metros around the globe, from New York to San Francisco to London and beyond.

Income inequality is growing, with more and more households unable to afford homes near their jobs.

Commuters spend hours a day trapped in traffic congestion.

Energy consumption must get leaner and cleaner to protect the environment.

Downtown neighbourhoods with limited developable space are squeezed for parks, open spaces, schools, health services, and community centres.

The proliferation of data and digital devices in cities has left people rightly concerned about their privacy.

While every city faces these problems in its own way, the symptoms are consistent: places that are less livable, affordable, and sustainable — with fewer chances for the broadest diversity of residents to thrive.

As these challenges rise, so too has the opportunity to address them using emerging digital and physical capabilities, such as ubiquitous connectivity, artificial intelligence, and sensing tools, as well as new design and fabrication techniques, including the use of robotics.

This suite of capabilities represents a fourth urban technological revolution of the modern era, potentially every bit as transformative for cities as the steam engine, electric grid, or automobile before it. But as the history of those prior revolutions shows, innovation can have great social benefits or significant drawbacks depending on how thoughtfully it is incorporated into urban life.

The steam engine gave rise to industry and brought new job opportunities, but it led to terrible smog and poor work conditions. Electricity brought cities 24/7 activity, elevators, and skyscrapers, but it furthered reliance on fossil fuels. The automobile made it easier to get people and goods in and out of cities, but it generated enormous congestion and led households to leave cities for the suburbs.

Applying new technology to cities in a thoughtful way is difficult.
The urban technologies emerging today face an inflection point.

Self-driving vehicles have the potential to make city streets dramatically safer, but only if they always follow the rules of the road. Factory-based construction can meaningfully improve housing affordability and accelerate development, but these savings must support below-market housing programs and robust public policies to reach their full benefit. Digital connectivity can expand job opportunities and encourage innovation, but it must come with a process that protects privacy and the public good.

The lesson from history, as well as from the recent smart cities movement, is clear: technology is not a quick fix for complicated urban challenges. Instead, new advances must be incorporated into the city with great care to improve urban life, not undermine it.

But infusing new capabilities into the urban environment is hard. Cities are complex places. The technologists who produce ambitious solutions do not speak the same language as the urbanists who must find ways to implement them in the public interest — an "urbanist-technologist" divide. These two groups have very different tolerances for risk, different requirements for transparency, and different expectations for how long things take to get things done.

That is why no single city stands as a new model for a brighter urban future.

Developing innovations to improve urban life

Key Term
Urban Innovation
is the integration of physical, digital, and policy advances to improve urban life.

Sidewalk Labs was founded in 2015 for the very purpose of delivering dramatic improvements in urban life — on the belief that tackling these challenges is possible with a careful integration of emerging innovations and forward-thinking urban design. To fulfill that mandate, Sidewalk Labs assembled a unique team from across the worlds of urban planning, urban development, and digital technology.

Together, this team has developed a unique approach to "urban innovation," broadly defined as the integration of physical, digital, and policy advances into the urban fabric to improve quality of life in cities. Much more than just the pursuit of isolated efficiencies associated with "smart cities," urban innovation requires a thoughtful interdisciplinary approach that sits at the intersection of two of the defining trends of the 21st century: global urbanization and technological change.

Sidewalk Labs team members identify innovations that are beginning to be deployed to improve life in cities, drawing inspiration from the cutting-edge work being done by urban planners and designers around the world, as well as from the capabilities being developed by leading technologists, ranging from digital infrastructure and geospatial mapping to self-driving vehicles and energy management.

Critically, this approach does not presume that Sidewalk Labs alone would develop all the innovations a city might need. On the contrary, Sidewalk Labs aims to create the open conditions for ongoing improvement — recognizing that the best solutions to urban challenges come not from the top down but rather from the community up.

An innovation toolkit for the future city.
Volume 2 of the Master Innovation and Development Plan (MIDP) provides greater detail on the physical, digital, and policy innovations that make it possible to address some of the toughest challenges facing cities at this unique moment in time across core areas of urban life. These innovation plans focus on Toronto, but they also represent a general toolkit that could be applied in different ways to other growing cities around the world.

These core areas include:

Chapter 1:
Mobility.
A transportation system that reduces the need to own a car by providing safe, convenient, connected, and affordable options for every trip.

Chapter 2:
Public Realm.
A system of streets, parks, plazas, and open spaces that encourages people to spend more time outdoors, together.

Chapter 3:
Buildings and Housing.
Sustainable buildings that can be constructed and adapted far more quickly, and a new set of financial and design tools that help improve affordability and expand options for all households.

Chapter 4:
Sustainability.
A new standard of sustainability that creates a blueprint for truly climate-positive communities.

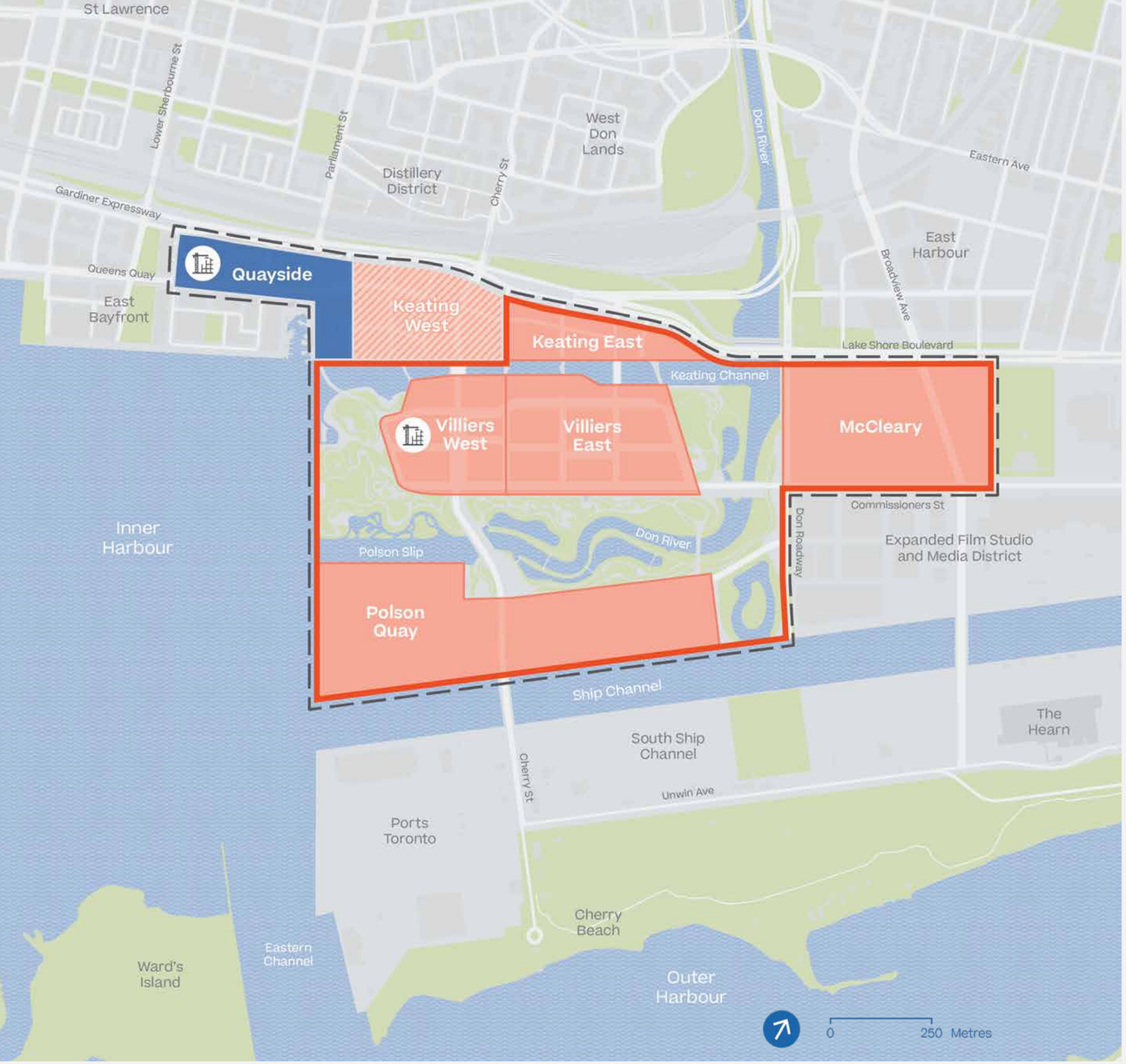
Chapter 5:
Digital Innovation.
Catalyze digital innovations that help tackle urban challenges and establish a new standard for the responsible collection and use of data in cities.

No community is complete with a cross-cutting layer of social infrastructure that could provide support to health, civic life, learning, and workforce initiatives that enable people to thrive. But given its intricate ties to a specific place, social infrastructure is explored in greater detail in the planning sections of the MIDP found in Volume 1.

Still, many general aspects of social infrastructure can be found across the Volume 2 chapters, including the health benefits of walking and cycling infrastructure (on Page 45 of the "Mobility" chapter), new housing types suited to families and seniors (on Page 236 of the "Buildings and Housing" chapter), and new digital tools that can empower community decisions (on Page 444 of the "Digital Innovation" chapter).

Applying urban innovations across the IDEA District.
Many of the urban innovations described in Volume 2 require a sufficient geographic scale to maximize quality-of-life impact — and to become financially viable in the first place.

To demonstrate the full potential of the innovations included in this volume, their impact has been measured across the entire proposed Innovative Design and Economic Acceleration (IDEA) District: a 77-hectare area that includes Quayside and the River District (as well as private parcels in this geography that would have the option to join the IDEA District, such as Keating West).



Map

The proposed IDEA District geography

The proposed 77-hectare IDEA District provides sufficient scale for urban innovations to realize ambitious quality-of-life outcomes in a financially sustainable way.

IDEA District
River District

Phase 1: Quayside
Phase 2: River District
Optional participation in Phase 2

Sidewalk Labs develops real estate and advanced systems

See Volume 3 for the proposed governance structure of the IDEA District, including the role of a public administrator in overseeing the district.

The IDEA District also addresses the fact that many of the innovations described in Volume 2 require regulatory or policy changes.

Many existing urban regulations and policies were designed in an earlier era, when the primary way to achieve necessary public policy outcomes involved sweeping, one-size-fits-all regulations. While designed around important objectives, these policies now sometimes limit the ability to find creative solutions to the very same problems they attempted to mitigate.

For example, single-use zoning regulations that separate residential and non-residential uses were intended to protect the public from industrial hazards. But an "outcome-based building code" system with real-time sensors that monitor for nuisances, such as noise, could enable neighbourhoods to incorporate light production uses into residential buildings, creating more vibrant streets and greater economic opportunities while still ensuring safety.

Core to the premise of the IDEA District is an empowered and forward-thinking public administrator that can prioritize innovation and new approaches without compromising the public interest.

With the right physical, digital, and policy conditions in place, and sufficient scale to realize their full quality-of-life benefits, the urban innovations described in Volume 2 can not only show a path forward for Toronto — they can also spark the imagination of cities tackling the challenges of diverse, equitable, and inclusive growth around the world.