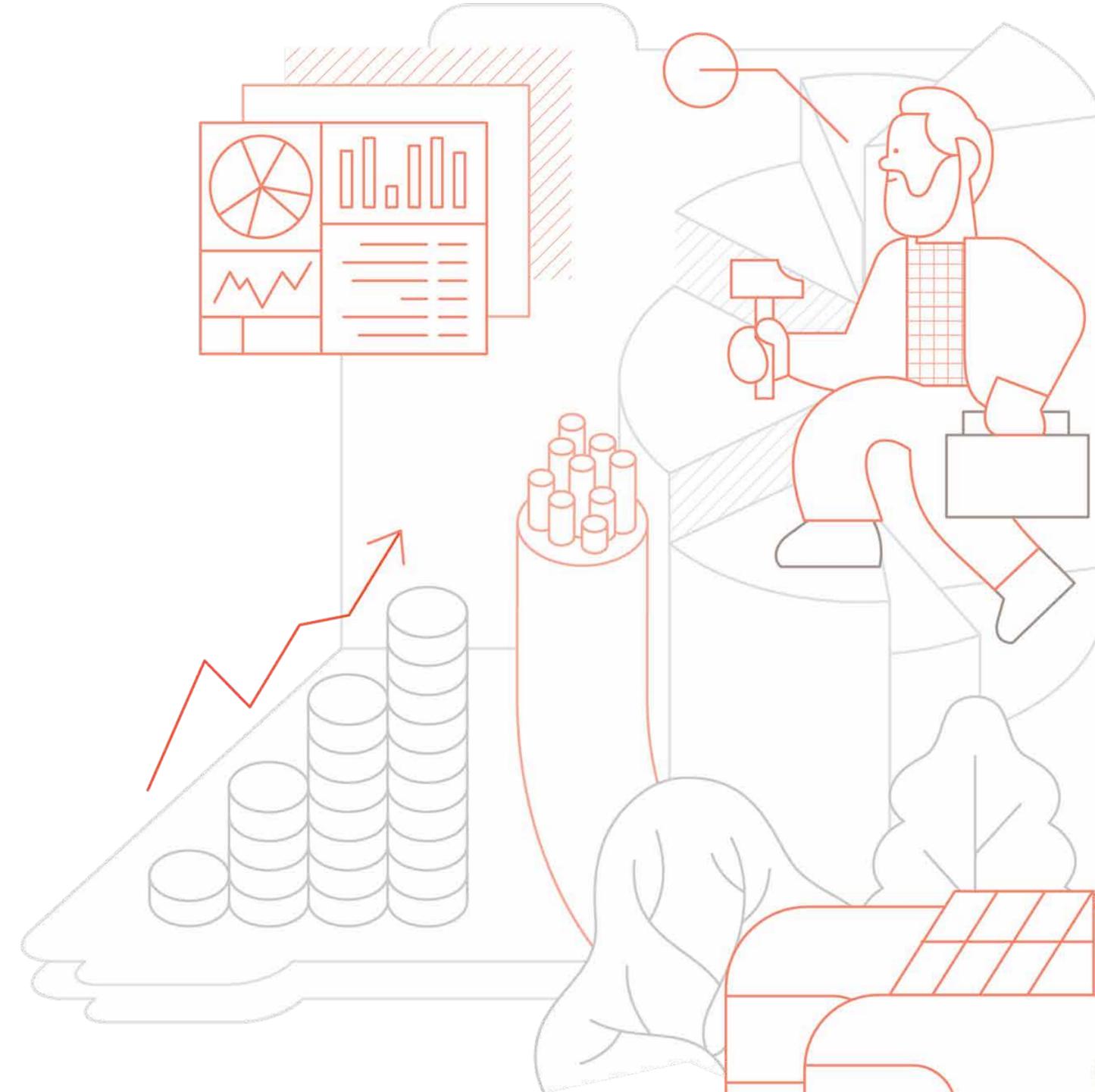
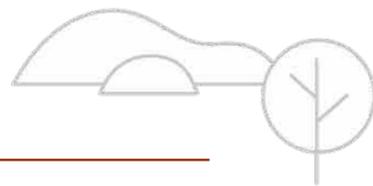
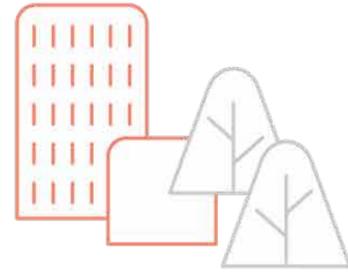


Eco- nomic Develop- ment



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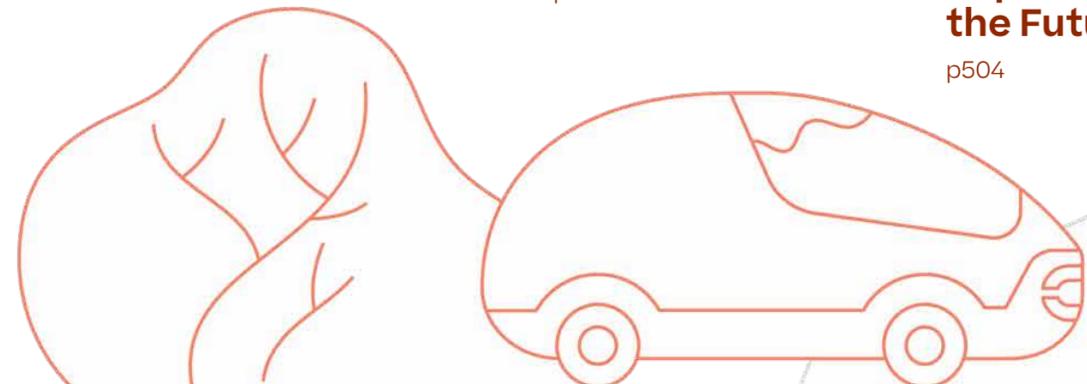
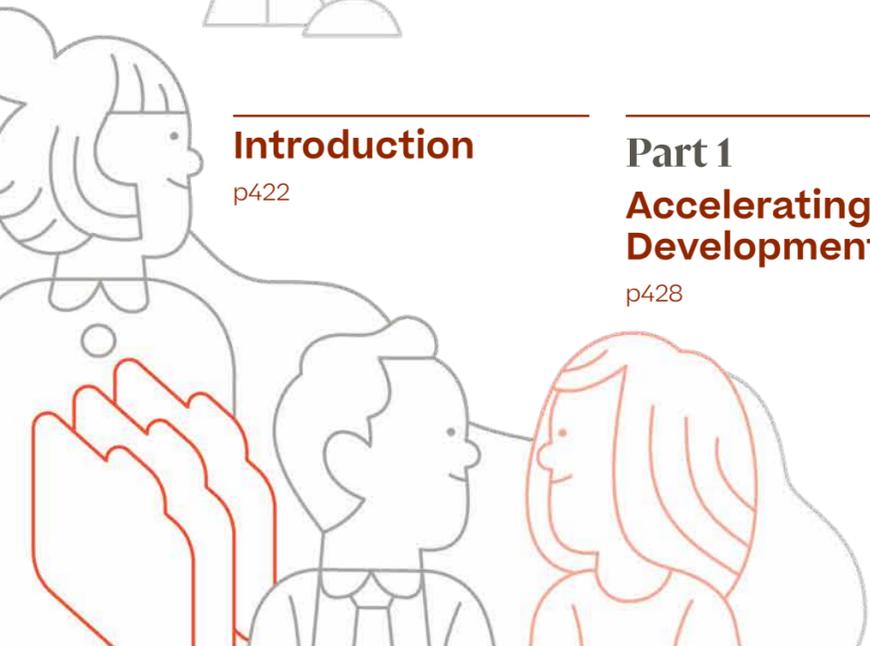
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A New Economic Engine to Drive Job Growth on an Accelerated Timeline

Sidewalk Labs' approach to economic development can help Toronto realize the full potential of the eastern waterfront on a significantly expedited time frame, resulting in more than 93,000 total jobs stimulated by the IDEA District by 2040.¹

Any comprehensive approach to urban development requires a strong plan for economic growth with an equally strong commitment to inclusion.

In recent years, all three levels of government in Canada have recognized the importance of inclusive growth. These efforts have included federal investment in public transit and affordable housing, community benefit agreements on provincial projects, and social procurement initiatives at the city level. Waterfront Toronto recognized this need in its 2017 Request for Proposals for Quayside, establishing as one of its primary objectives the need “to deliver key economic and social benefits that enable Toronto to compete effectively with other top-tier global cities for investment, jobs and talent.”²

Waterfront Toronto also identified a focus for this growth: an economic cluster centred around urban innovation. Broadly defined as the ability to tackle pressing city challenges using new physical, digital, or design advances, “urban innovation” is a burgeoning sector whose global market value is projected to top \$2 trillion USD by 2025.³ But despite the vast potential for urban innovation to spark economic growth, no one place has put together a holistic plan to become the global hub of this emerging field.

The Sidewalk Toronto project provides a unique opportunity to help meet and exceed government and Waterfront Toronto goals for inclusive growth by generating a new economic engine — one designed specifically to improve quality of life, affordability, and prosperity for residents, workers, and businesses of all sizes. Sidewalk Labs proposes a two-part approach to economic development with the potential to catalyze significant jobs and growth anchored around urban innovation.



The innovation plan.

First, Sidewalk Labs plans to help boost general economic growth by accelerating development across the underutilized areas of the IDEA District.

This effort involves unlocking new neighbourhoods through upfront investments in critical infrastructure, such as light rail transit; relocating Google's Canadian headquarters to Villiers West as part of a new innovation campus; and implementing a general approach to people-first planning that aims to attract talent through a vibrant mix of homes, offices, shops, civic amenities, and open spaces. Together these efforts would help create an “expanded downtown” area capable of supporting new and existing industries, including the growing film industry in areas adjacent to the IDEA District.



IDEA District

The 77-hectare Innovative Design and Economic Acceleration (IDEA) District, consisting of Quayside and the River District, provides sufficient geographic scale for innovations to maximize quality-of-life impact and to become financially viable.

Inside the numbers

How Sidewalk Labs estimated economic impact

To help predict and measure the impact of this approach to economic development, Sidewalk Labs engaged urbanMetrics, a leading Toronto-based firm with extensive experience on the waterfront. The urbanMetrics analysis, detailed throughout this chapter, demonstrates both the one-time and recurring benefits associated with Sidewalk Labs' proposal, compared to an incremental approach to development based on prevailing land-use policies and planning trends.

The urbanMetrics analysis compared two scenarios. The first (baseline) scenario created by urbanMetrics is based entirely on the current set of government-created planning documents for the project geography (including zoning where it exists, precinct plans, and the Port Lands Planning Framework). This scenario does not make any assumptions about how implementation of proposals in these documents might evolve in the future.

The second scenario is based on the proposed MIDP plan and accounts for specific elements and planning approaches that differentiate these plans from traditional development, including creating the conditions for a cluster in urban innovation, deploying factory-based mass timber construction for the entirety of the program, and using widespread mixed-use design at both the neighbourhood and building level. This second scenario considered the IDEA District to refer to its proposed full geographic scope, including Quayside and the River District.

The results of that report suggest that the economic impact of the project would deliver on the high expectations that Torontonians have for the enormous potential of the waterfront.

Critically, Sidewalk Labs recognizes that its approach to accelerating development must benefit everyone. To plan for prosperity with equity, Sidewalk Labs commits to a robust inclusion program, anchored by an ambitious housing vision that provides 40 percent of units at below-market rates. Building on that foundation, Sidewalk Labs plans to launch a new workforce development program, implement a construction jobs program for equity-seeking populations, and invest in an Ontario-based mass timber factory capable of supporting approximately 2,500 person-years of full-time employment over 20 years.

Second, Sidewalk Labs plans to help catalyze a cluster focused on urban innovation with the potential to spark a new economic engine.

This effort aims to build on Toronto's existing assets in emerging fields of technology and urban design by creating the unique physical, digital, and policy conditions that would enable innovators, entrepreneurs, and companies large and small from around the world to research, explore, build, and scale ideas that can improve the quality of life in cities. This approach involves establishing the IDEA District as a designated zone subject to a special set of regulatory and policy tools to promote innovation and accelerate development.

To further jumpstart this cluster, Sidewalk Labs plans to help launch an independent, non-profit Urban Innovation Institute — designed in collaboration with local academic institutions — to serve as a new epicentre for applied research focused on urban challenges.



The impact.

Application of Sidewalk Labs' approach in Quayside is a critical first step in realizing the city's goals and the economic potential of the waterfront; it is expected to result in 3,900 direct jobs and a one-time vertical construction impact of \$1.6 billion in value added to the Canadian economy alone. These impacts would extend to the River District, resulting in a total of 93,000 jobs (including 44,000 full-time "direct" jobs), \$4.3 billion in annual tax revenue, and \$14.2 billion in annual GDP — all delivered on a far more accelerated timeline compared to plans in place today to activate the waterfront.⁴

In addition to these ongoing impacts beginning at completion in 2040, the project would also realize cumulative property taxes of \$1.6 billion.

Sidewalk Labs believes the majority of jobs located within the IDEA District would be "net new," meaning jobs that would not otherwise exist in Toronto but for the creation of the district. While Sidewalk Labs recognizes that a portion of the total direct jobs would relocate to the district from elsewhere in Toronto, far more would be new additions to Toronto's economy, driven in part by the establishment of an urban innovation cluster. The historically low vacancy rates in Toronto's downtown core also suggests that if the IDEA District did attract tenants from existing buildings downtown, there would continue to be demand to fill that newly vacated space.



Benefits of implementing the vision

More than 93,000 total jobs (including 44,000 full-time, permanent jobs)

Roughly \$14.2 billion in annual GDP output beginning in 2040

Roughly \$4.3 billion in annual tax revenue (federal, provincial, and municipal) by 2040

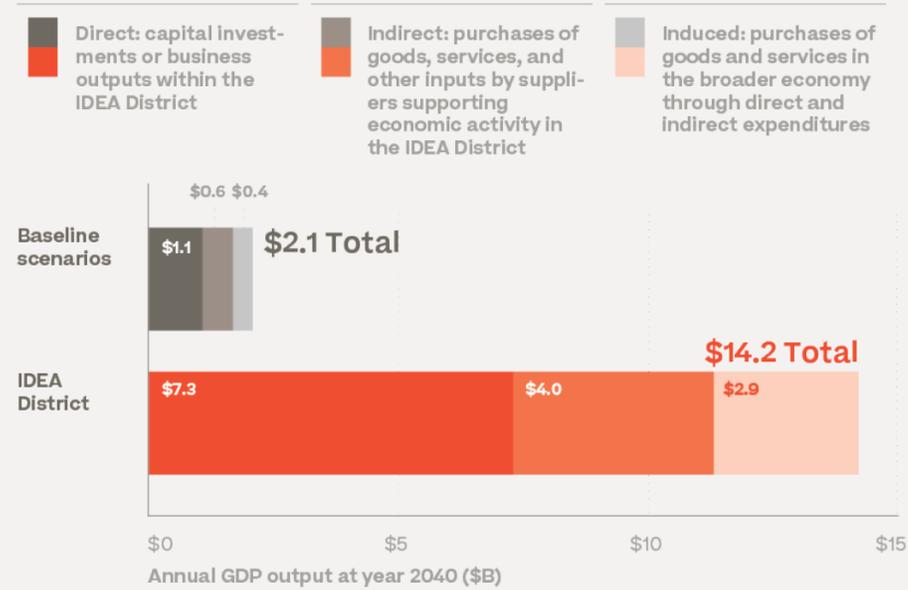
A global hub for urban innovation, anchored by a new Google campus, a new applied-research institute, and a new venture fund for Canadian companies

This growth would enable all three levels of government to maximize the return realized on the \$1.25 billion investment⁵ made as part of the Don Mouth Naturalization and Port Lands Flood Protection Project; allow Toronto to realize more than triple the cumulative property tax revenues over the baseline scenario from the area within the same time frame; and deliver both critical public transit infrastructure and thousands of affordable housing units decades earlier than anticipated.

The IDEA District's significant economic impact on GDP, tax revenue, and jobs by 2040

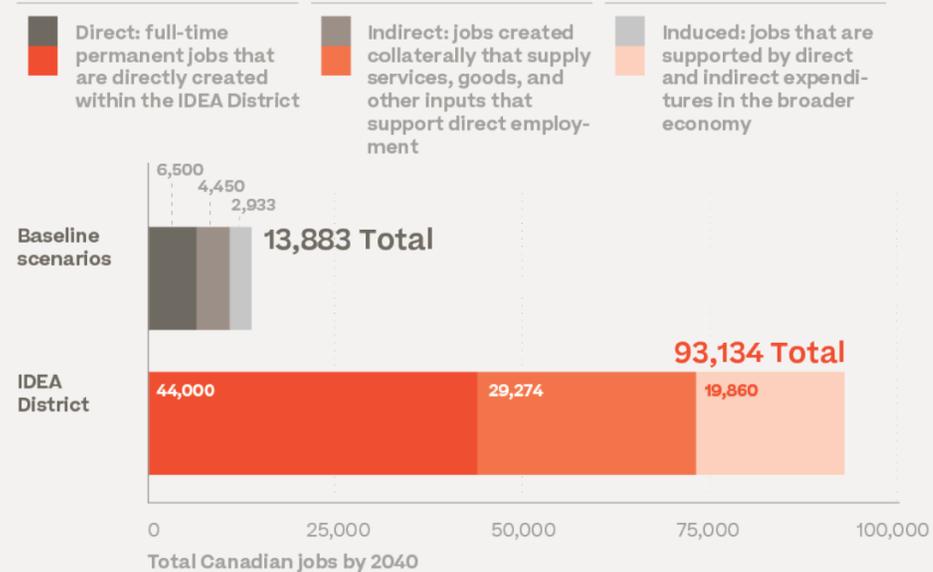
Nearly seven times the annual GDP contribution by 2040

In its analysis, urbanMetrics estimates that, by 2040, the IDEA District would contribute nearly seven times the value to Canadian GDP annually than would result from existing proposals for the eastern waterfront. Sidewalk Labs recognizes that there are many factors that could contribute to increased value aside from the unique conditions established in the IDEA District, such as a potential increase in commercial and residential density. The baseline scenario assumed the densities as currently considered in existing planning documents.



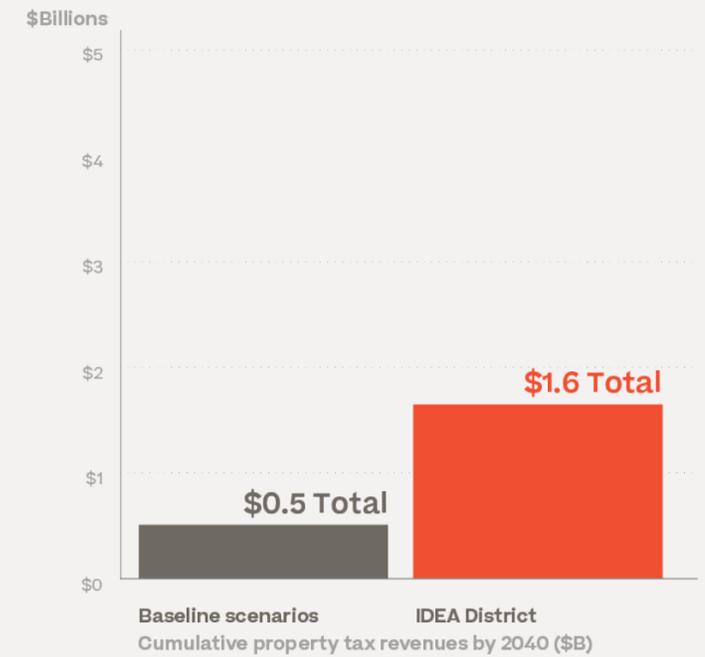
Nearly seven times as many jobs by 2040

Implementation of Sidewalk Labs' plans for the IDEA District could realize significantly greater permanent employment opportunities, achieved on a faster timeline, than existing proposals. In its analysis, urbanMetrics estimates that, by 2040, the IDEA District would stimulate more than 93,000 jobs — nearly seven times the number of jobs by 2040 that would be realized under the approach currently envisioned in the Port Lands Planning Framework.



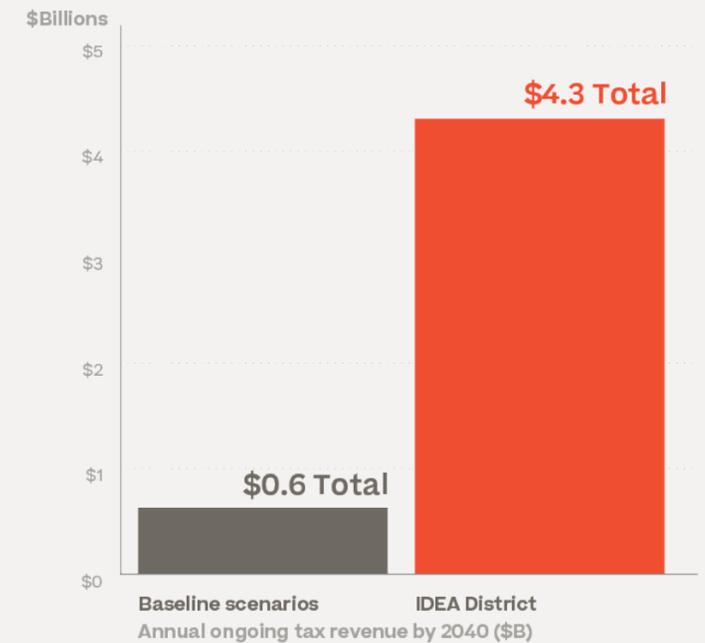
Three times the cumulative property tax revenue by 2040

Accelerating development of the eastern waterfront would allow for a rapid accumulation of property tax revenues generated upon expedited occupancy. In its analysis, urbanMetrics estimates that, by 2040, full buildout of the IDEA District would accrue more than three times the cumulative property tax revenue of that generated under existing proposals.



Nearly seven times the annual ongoing tax revenue by 2040

The urbanMetrics analysis also estimates that overall annual tax revenues generated throughout the IDEA District would be realized at a magnitude nearly seven times that of the baseline scenario by 2040. Importantly, a fully developed IDEA District would have the capacity to produce this annual benefit across municipal, provincial, and federal jurisdictions.



The above revenues include personal tax, corporate tax, property tax, and other taxes.

Accel- erating Develop- ment

By extending public transit, establishing a major jobs anchor, designing complete communities, and supporting new industries, the IDEA District can boost economic growth on a faster timeline than existing plans for the area — and do so in a way that preserves equity for all.

Introduction



Strategies

1
Unlock the waterfront through infrastructure investments

2
Anchor waterfront growth with a new Google campus

3
Attract talent and jobs with complete communities

4
Support new and existing industries with an “expanded downtown”

5
Plan for prosperity with equity

Sidewalk Labs’ plans for Quayside and proposed approach for the IDEA District would help the city and Waterfront Toronto unlock the potential of this underutilized area on an accelerated timeline, creating the conditions for significant new economic growth. Part 1 of this chapter outlines the steps necessary to lay that foundation.

Realizing the full potential of the IDEA District begins with early delivery of the planned Waterfront Light Rail Transit extension, which would not only better connect the area with the rest of the city but also with other planned development nearby, including commercial development at East Harbour and the planned expansion of the Film District.

Realizing the full potential of the IDEA District begins with early delivery of the planned Waterfront Light Rail Transit extension.

As a next step, the relocation of Google’s Canadian headquarters onto Villiers Island as part of a new innovation campus would spark economic activity and draw businesses and talent from around the world. A thoughtful approach to mixed-use development that integrates new innovations to improve sustainability, affordability, and mobility would further attract workers and residents by creating complete communities filled with homes, jobs, shops, community spaces, and parks.

Finally, new affordable housing and workforce development programs help ensure that this approach to prosperity also comes with equity — creating opportunities for Torontonians of all ages, incomes, and abilities, as well as businesses of all sizes.



Strategy 1

Accelerating Development

Unlock the waterfront through infrastructure investments

Sidewalk Labs’ holistic planning approach prioritizes (and provides optional financing for) accelerated delivery of district-scale infrastructure systems, setting the necessary foundation to support widespread development by a range of players and providing critical connectivity to and from the city’s existing economic centres.

Waterfront Toronto and all three levels of Canadian government have taken major steps towards reconnecting Torontonians to the waterfront and realizing its immense economic potential. The largest recent example is the \$1.25 billion Don Mouth Naturalization and Port Lands Flood Protection Project announced in 2017.⁶ Yet this commitment is only one component of the infrastructure necessary to truly capture the enormous potential of the eastern waterfront.

Sidewalk Labs estimates that the additional utility, energy, and public transit infrastructure needed to enable development of the IDEA District could total upwards of \$3 billion, with these costs reaching upwards of \$4.5 billion across the entire eastern waterfront.⁷

One standard approach to securing this infrastructure is to collect necessary funds through charges levied on developments immediately before they begin

construction. But this process could lead to piecemeal infrastructure expansion and create doubts around the timely construction of core infrastructure, especially the light rail extension.

Accelerating delivery of these infrastructure systems, particularly public transit, would likely have an outsized effect on the pace of economic growth. The benefits of early investments in core infrastructure have been found in cities around the world, from Washington, D.C., to Rotterdam. The stakes in Toronto are just as high. According to a 2019 report prepared for the Waterfront Business Improvement Area (BIA) organization by the engineering and development consultancy Hatch, a delay in light rail development until 2045 would result in over \$20 billion in forgone cumulative tax revenue across all three levels of government and cost more than \$1.8 billion in lost productivity.⁸

Between 2004 and 2016, jobs along the Capitol Riverfront's new metro corridor grew by 94 percent. Credit: Geoff Alexander



(Centre) Since a public transit investment, Kop van Zuid has become one of the densest areas in the Netherlands, known for its economic connections. Credit: Rene Mensen

(Right) Following investment in new transit infrastructure, London's Canary Wharf was able to realize its potential as a core business centre. Credit: Nikada

The importance of early investment in public transit

Making large infrastructure investments in public transit is a crucial first step in accelerating development, encouraging more sustainable mobility choices, and creating more affordable communities.

Transit provides essential access to growing urban districts and enables cities to realize the economic potential of newly developed areas on a far earlier timeline.

As mentioned on Page 108 of Volume 1 and described in greater detail in the “Mobility” chapter of Volume 2, Sidewalk Labs proposes that the public sector pursue a self-financing approach to transit expansion within the IDEA District *before* development begins in this area.

This approach draws inspiration from several precedents.

1. Capitol Riverfront (Washington, D.C.).

The Capitol Riverfront in Washington, D.C., is one of the city's most vibrant areas today, but for years it was inactive and underutilized. To redevelop this former industrial area, the city made an early investment in transit infrastructure, creating two new metro stops in the district that expanded subway service and connected the riverfront directly to the city centre. Like the planned extension of the light rail, the D.C. riverfront's new line connected to the city's primary train station, with access to regional and national rail lines.

The results of this investment were significant. Early provision of transit facilitated the relocation of critical anchor tenants, which in turn attracted jobs and activity to the district, fuelling additional growth and development over time. The Capitol Riverfront metro stops were completed in 1991⁹; between 2004 and 2016, jobs along the corridor grew to 76,000, representing a 94 percent increase.¹⁰

2. Kop van Zuid (Rotterdam).

In Rotterdam, initial efforts to develop the Kop van Zuid historic docklands initially stalled due to the lack of transit infrastructure and connectivity to the rest of the city.¹¹ Recognizing that private developers were unwilling to invest in the area for these reasons, the central government, the public sector Rotterdam City Development Corporation, and the Rotterdam Transport Company funded¹² the district's first large-scale project: construction of the Erasmus Bridge, with vehicle, pedestrian, and rail access.¹³

Today, Kop van Zuid is one of the densest areas in the Netherlands and is known for the physical, social, and economic connections it has fostered between North and South Rotterdam. For example, South Rotterdam, which was previously disconnected from the economic city centre, now sits adjacent to a strong commercial district with direct access to the rest of the city via the Erasmus Bridge.¹⁴

3. Canary Wharf (London).

As described in more detail in the “Mobility” chapter of Volume 2, the risks of developing an area without robust public transit connection in place include the potential to stifle growth or become locked into expensive road infrastructure that generates traffic congestion.

Take Canary Wharf in London, where the lack of transit connectivity was one of several factors that initially crippled efforts to redevelop the city's deteriorating docklands in the early 1990s.¹⁵ Without a reliable transit system, the area struggled to attract a critical mass of businesses. Following investment in new transit infrastructure, which connected the area to the rest of London, Canary Wharf was able to become a more active, diverse urban neighbourhood and realize its potential as a core business centre.

Supplementing finite resources to expand light rail

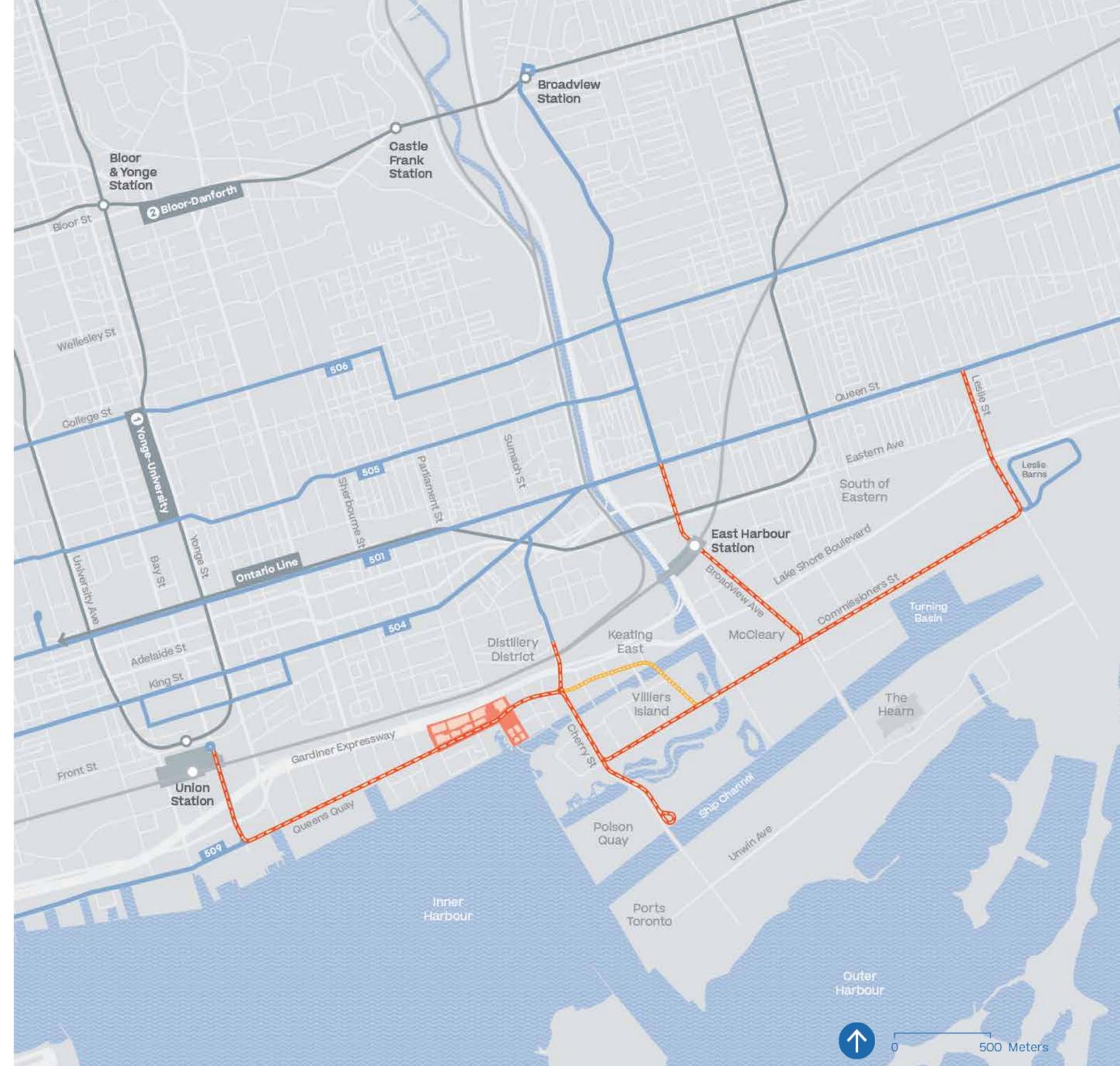
In Toronto, the importance of a connection between the downtown core of Toronto and the eastern waterfront has long been recognized by public and private stakeholders. Numerous municipal planning documents, including Toronto’s 15-Year Rapid Transit Network Plan and the City of Toronto’s Official Plan, as well as industry analysis such as the Waterfront BIA report, all affirm the potential benefit of such an extension by opening up the waterfront for residents and businesses.

Funding for projects of this magnitude can be difficult given the many competing needs of thriving cities. The Toronto Transit Commission (TTC) alone has identified nearly \$24 billion in existing transit needs over the next 10-year planning period¹⁶ (including the Line 2 East Extension, formerly the Scarborough Subway Extension, the Ontario Line, Eglinton East LRT, Sheppard East LRT, and SmartTrack commuter-rail line transformation), \$17.5 billion of which does not have designated funding. Furthermore, city officials often need to prioritize funding for projects that serve an immediate need for existing constituencies over those that supplement long-term development plans, especially in underdeveloped areas.

Sidewalk Labs’ proposal to support early financing of the light rail extension provides an alternate option for the city to relieve funding pressures and enable the delivery of the system on an expedited time frame.

Sidewalk Labs endorses a \$1.2 billion, 6.5-kilometre light rail extension that would realize the city’s existing plans and position the eastern waterfront for future development. To help accelerate the implementation of this extension, Sidewalk Labs commits to providing financing, which could facilitate the delivery of a significant portion of the system years sooner than currently projected in the TTC 2018 Corporate Plan.¹⁷

In addition to providing critical connectivity to Union Station, Quayside, the planned East Harbour transit centre, the West Don Lands, the Distillery District, and neighbourhoods to the east, the expanded light rail would become the transit spine connecting economic hubs across the eastern waterfront.¹⁸ Sidewalk Labs envisions the light rail linking a new economic hub, anchored by Google, at Villiers West, with a film and media cluster concentrated within the Film District and McCleary District, and the GO train and future subway transit hub and commercial core at East Harbour. Mobility across these hubs would contribute to the vitality of each area, allowing convenient and affordable access for residents, workers, and visitors.



Map
A \$1.2 billion plan to extend light rail along

- GO Transit / SmartTrack
- Subway (existing and planned)
- Existing Light rail
- - - Approved extension
- ... Optional extension
- └ Quayside

Beyond increasing access, early provision of the light rail extension has the potential to encourage more sustainable choices among travellers. When transit is introduced earlier in an area's development, residents and visitors are more likely to develop commute and travel patterns that prioritize public transit over the use of private car trips, creating a virtuous cycle in which future development also prioritizes more sustainable mobility

infrastructure over parking lots or wide streets designed primarily for vehicle trips. The aforementioned Waterfront BIA report estimates that the extension of the light rail has the potential to prompt a significant mode-share shift — resulting in a 44 percent decrease in automobile use¹⁹ and a 15 percent increase in public transit usership (by incoming workers and residents).

At full buildout of the light rail extension, Sidewalk Labs estimates that it could support roughly 72,900 daily trips.

Sidewalk Labs anticipates the light rail extension would link to the city's expansive existing network, including connections to multiple citywide routes that carry over 250,000 passengers daily.²⁰ At full buildout of the light rail extension, Sidewalk Labs estimates that it could support roughly 72,900 daily trips and reduce car trips by 16.5 percentage points.

Enabling holistic planning and long-term sustainability

Early delivery of the light rail extension would also make investments in other district-scale infrastructure more viable, enabling the City of Toronto and Waterfront Toronto to undertake a holistic approach to planning for development, rather than funding piecemeal solutions that may result in only incremental improvements. A comprehensive approach at a district scale would enable the integration of innovative systems such as a thermal and power grid to support energy efficiency, dynamic street networks, and greener energy and stormwater management systems that support the city's critical sustainability goals and Waterfront Toronto's climate-positive ambitions.

A transit-first approach designed to enable the development of dense, walkable neighbourhoods has the added impact of allowing for more complete communities, connecting a broader diversity of residents and visitors to new jobs and areas of economic activity.

Hong Kong provides a particularly relevant precedent for using a self-financing or value capture model to support the growth of complete communities. The city undertook a strategy of proactively focusing growth in areas close to the city's Mass Transit Railway system,²¹ drawing private investment for new revenue sources enabled through the transit system, including publicly owned spaces adjacent to the transit system, the sale of air rights above rail stations, and retail and advertising within stations. With access to these new revenue streams, Hong Kong was able to invest back into its transit system as well as in new community benefits, which included the potential for over 600,000 new public housing units.²²

Similarly, on the far west side of Manhattan, ongoing development of one of the city's last remaining underdeveloped areas was enabled in large part through an extension of the city's No. 7 train line. The new transit infrastructure, completed in 2015,²³ created a vital lifeline between the west side of Manhattan and the rest of the city, drawing additional investment and encouraging businesses to relocate and contribute to a new centre of activity. *The city's use of a value capture model is expected to produce more than \$21 billion USD in net revenue by 2047, according to a 2019 analysis.²⁴*

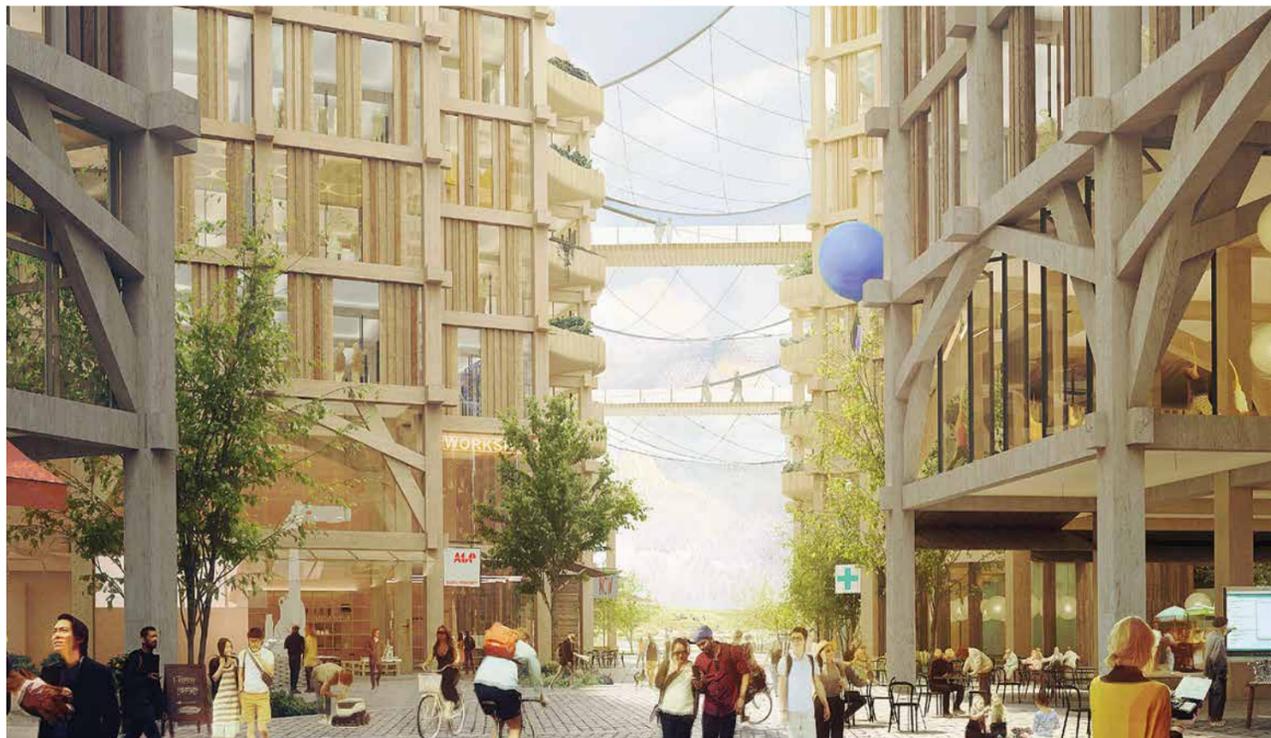


Strategy 2

Accelerating Development

Anchor waterfront growth with a new Google campus

Relocating Google’s Canadian headquarters and surrounding it with a new public campus could draw talent and innovators from around the world and amplify the waterfront’s economic potential.



A new Google Canadian headquarters in Villiers West has the potential to serve as a catalyst of economic growth, drawing businesses of all sizes and a diverse workforce for existing and new types of jobs.

To further accelerate the development of a new hub for economic activity and innovation, Alphabet commits to establishing a new Canadian headquarters for Google on the western edge of Villiers Island, as part of an agreed-upon transaction within the IDEA District. Alphabet would target up to 500,000 square feet, which would be sufficient to accommodate as

many as 2,500 jobs, the majority of which would be for Google employees (though actual hiring will depend on market conditions and business requirements).

Based on its impact in other neighbourhoods in cities around the world, described more on Page 441, Google’s arrival on the waterfront has the potential



A view of the western edge of the innovation campus (looking west towards downtown).

to catalyze economic growth, attracting firms of all sizes and a diverse workforce, while contributing to the growth of Toronto’s existing innovation ecosystem.

Establishment of large-scale Google campuses in other cities has consistently demonstrated significant impacts in the local real estate market,²⁵ such as strengthening demand for Class A office space, increasing private-sector activity and investment, and driving retail and residential growth that far outpaces the rest of the city.

In many cases, Google’s arrival has prompted the rapid development of local micro-markets, validating the competitive position of specific neighbourhoods within a city and generating an influx of activity. Critically, Sidewalk Labs’ approach prioritizes equitable access to economic prosperity and opportunity, ensuring Google’s presence at Villiers West spurs inclusive growth and is realized by a broad diversity of Torontonians, as described in greater detail on Page 462.

An innovation campus to catalyze an ecosystem

Sidewalk Labs’ proposal for an innovation campus on Villiers Island includes approximately 2.7 million square feet of mixed-use development, anchored by the future home of the Urban Innovation Institute and Google office space. The campus would be located on a planned light rail stop and adjacent to the seven-hectare Promontory Park. In this location, the campus would serve as an important connector between the city’s downtown core and the rest of the eastern waterfront.

The urban innovation campus on Villiers Island would be specifically designed as a campus featuring residential spaces integrated with non-residential spaces for business, cultural, retail, and community uses. The Google Canadian headquarters itself would include select areas dedicated as Google workspaces, as well as more flexible spaces to support a range of community uses, with the flexibility to change over time.



Map
The proposed innovation campus within the broader IDEA District

The campus for urban innovation envisioned by Sidewalk Labs would be central to the development of Villiers West, creating a bridge between Quayside and the River District and sparking a new network of neighbourhoods.

- IDEA District
- River District
- Phase 1: Quayside
- Phase 2: River District
- ▨ Optional participation in Phase 2

By creating such a campus at Villiers Island, filled with a range of businesses and neighbourhood amenities, Google would help attract a deep talent pool of workers and a range of best-in-class employers, establishing the neighbourhood as one of Canada's premier business and innovation districts. A range of commercial, retail, and community spaces of all sizes would enable businesses large and small to locate within this new economic centre, ensuring that the eastern waterfront is open for business to a broad range of players.

Google's reputation as a leader in innovation is well known: a recent survey of executives at various technology firms²⁶ as

ranked Google as the top leader in "driving technology innovation," above Apple, Microsoft, Tesla, Alibaba, and Amazon. At the neighbourhood level, Google's campus model, designed to encourage collaboration and knowledge-sharing, has positioned its offices as local hubs for innovation. For example, in Pittsburgh, Google is the largest tenant at Bakery Square,²⁷ operating alongside departments from Carnegie Mellon University. The co-location of these and other players has fuelled cross-disciplinary collaboration: Google operates a 24-hour shuttle between its offices and CMU,²⁸ and Google staff participate in student thesis committees. Further, Google's arrival resulted in a rise in commercial growth as

Strategy 2

More than
8,000
 jobs were added in
 Kitchener-Waterloo's
 tech sector from
 2011 to 2016.

well as in startup incubator, accelerator, and co-working spaces; it has also drawn further investment from other major companies throughout the area.²⁹

In addition to driving the development of an ecosystem for innovation along the eastern waterfront, the establishment of a larger Google Canadian headquarters on Villiers Island has the potential to strengthen the emerging innovation corridor between Toronto and Kitchener-Waterloo and support the growth of both locations.

Located 110 kilometres west of Toronto, Kitchener-Waterloo is home to a rapidly growing hub for technology,³⁰ including Google's largest engineering office in Canada.³¹ More than 8,000 jobs were added in Kitchener-Waterloo's tech sector from 2011 to 2016,³² representing the highest growth rate among Canada's top 10 metropolitan areas. The development of a parallel node of activity in the eastern waterfront enables further opportunities for attracting talent at both locations while reinforcing the region's leadership on a global stage. The proposed East Harbour Transit hub would provide a public transit connection between Kitchener-Waterloo and the IDEA District.

While Sidewalk Labs believes that the unique innovations planned for Quayside will draw new residents, workers, and visitors, the role of Google as an anchor tenant has the potential to significantly build on this momentum. As described by economist Enrico Moretti,³³ the presence of anchor corporations like Google have

driven growth of new economic and innovation economies to a greater degree than government initiatives alone. This trend has been demonstrated across a range of innovation clusters in North America, including Kansas City, Boston, San Diego, Seattle, and Vancouver, and has the potential for replication in Toronto as well.

The catalytic impact of a large Google presence

Once a critical mass of employees has been reached, Google's impact on local job and real estate markets has been found to support a city's competitive position as an economic engine.

To estimate the potential impact of Google's relocation to the waterfront, Sidewalk Labs conducted extensive research on the impact of Google in cities around the world, focusing on New York, Los Angeles, Chicago, and Austin, Texas, each of which has between 1,000 and 10,000 Google employees, a range that indicated the impact of the proposed new campus. Across these cities, Google's entrance correlated with characteristics of growth within the local district, above and beyond that of the rest of the city. Compared to the years prior to Google's arrival, each of the districts studied exhibited an increase in office value in the five years following Google's occupancy, as well as an uptick in the retail and residential inventory of the area.

Sidewalk Labs believes the establishment of a larger Google campus on the eastern

Google NY by the numbers:
Over **7,000** employees in nearly two decades

A **10%** post-Google increase in commercial inventory in the Meatpacking District

A **3.3%** average quarterly growth in office value in the district

waterfront could catalyze growth similar to that demonstrated in each of these markets — and particularly to that of New York City and Chicago.

Google New York.

In New York City, Google has grown to over 7,000 employees in nearly two decades,³⁴ helping to transform the western edge of Manhattan into a major economic hub that rivals Midtown and the Financial District.

The growth of big tech companies like Google has demonstrated potential to catalyze small business formation, create buyers for the products that startups produce, and encourage skilled workers to apply for tech-related jobs in non-tech industries. Academic research suggests that a high concentration of tech employment can improve wages for a wide range of jobs,³⁵ including those that do not require a degree. More broadly, the growth of tech jobs is associated with an increase in the overall number of non-tech jobs, amounting to approximately five new non-tech jobs for every new tech job created.

Google's growth in New York City has impacted the commercial interest of surrounding areas as well, validating the competitive position of the Meatpacking District as a core hub of economic activity. In the five years following the arrival of Google, the Meatpacking District experienced a more than 10 percent increase in commercial inventory, and the broader geography of Chelsea (which includes the Meatpacking District) experienced a 30 percent increase. This growth is especially significant in light of the overall stagnation of office inventory in Midtown Manhattan over the same time period.

Further, the value of office space in the Meatpacking District has almost tripled following Google's arrival, again far outpacing that of Midtown Manhattan, which did not demonstrate any meaningful growth over the same time period. While both Chelsea and the Meatpacking District experienced declining office value rates in years prior to Google's arrival, the post-Google years reversed this trend, resulting in 3.3 percent average quarterly growth in the Meatpacking District and 1.7 percent average quarterly growth in Chelsea. Growing demand in these areas has, in turn, changed the character of retail in the area, resulting in more restaurants and amenities available within walking distance for a growing workforce, for residents, and for visitors to the neighbourhood. The new office space drove broader impact throughout the city as well, including by catalyzing the development of lower-cost commercial districts in New York City's outer boroughs, particularly Brooklyn and Queens.

Google Chicago.

In Chicago, the Fulton Market neighbourhood, located west of the city's downtown core, was announced as the home to Google's midwestern headquarters in 2013,³⁶ ultimately opening in 2015.³⁷ Prior to Google's entrance, the area was largely home to food processors and distributors. Despite the area's proximity to major expressways and the downtown core, the historically industrial area struggled to draw sustained commercial interest. Google's arrival at Fulton Market represented the first move of a large-scale commercial entity, repurposing an existing windowless and formerly industrial warehouse into an office for hundreds of employees.

Google Chicago by the numbers:
100% post-Google increase in office inventory

5.7% average quarterly increase in office space value

400% growth in multifamily unit inventory

Today, more than five years after Google announced its move, the Fulton Market area is home to robust a new neighbourhood and business district. New restaurants and retail and lifestyle shops have drawn visitors to the area at a rate that has not been seen in the past. Campus spaces that host a range of creative uses function as a magnet for talent and attract employers seeking to source local workers. Fulton Market is now one of the most in-demand areas for growth and relocation.³⁸

Google's arrival at Fulton Market has also led to an increase in office inventory of more than 100 percent, compared to only 19 percent growth throughout the West Loop in the same time period. The value of Fulton Market's office spaces has increased as well — at a rate of 5.7 percent on average quarterly, compared to a rate of 0.9 percent prior to Google's arrival. In addition to expanded commercial space, the Fulton Market area has experienced nearly 400 percent growth in the inventory of multifamily units, compared to an increase of 39 percent in the West Loop over the same time period.

Growth in commercial space over a five-year period after Google's entrance

An analysis of four U.S. cities found that commercial assets increased in micro-market office value in the five years following Google's opening of an office space, above and beyond the growth exhibited in each city's central business district.

city	Central Business District growth post Google entry	Micro-market growth post Google entry
New York City (Chelsea, 2005-2010)	-0.1%	30.6%
Chicago (Fulton Market, 2013-2018)	19.0%	108.0%
Austin (Shoal Creek, 2015-2018)*	23.6%	64.4%
Los Angeles (Playa Vista, 2012-2017)	0.0%	21.8%

* Due to Google's presence within Austin beginning in 2015, commercial inventory analysis for this location is based on a three-year period rather than a five-year period.



Strategy 3

Accelerating Development

Attract talent and jobs with complete communities

An approach to planning that emphasizes a vibrant mix of homes, offices, shops, and community spaces — initiated in Quayside and expanded across Villiers West — could welcome significant economic opportunity for businesses large and small.

The benefits of compact, walkable, mixed-use neighbourhoods designed for residents are now well-established, including improved public health, a stronger sense of community, reduced pollution, and a greater range of housing and transportation options.

Sidewalk Labs' proposed plans for Quayside and Villiers West, and its larger vision for the IDEA District, would advance existing strategies for creating dense urban neighbourhoods activated by a vibrant streetscape, including through an expanded public realm that draws people outdoors, a street network that prioritizes pedestrians and public transit, adaptable building spaces that accelerate renovations, and a new approach to programming ground floors that expands opportunities for small businesses and community spaces.

This new type of complete community with quality-of-life benefits would be attractive to entrepreneurs and companies of all sizes and establish the eastern waterfront as a magnet for top talent and new jobs while preserving and promoting socioeconomic diversity.

Mixed-use neighbourhoods as a backdrop for economic opportunity

Twenty years ago, many experts claimed that the rise of email, video-conferencing, and other low-cost digital communications would eliminate the need for workers to meet face-to-face — and, by extension, the competitive advantage of cities. Today, it is clear that the opposite is true. In a knowledge economy increasingly driven by new ideas, the networking effects of urban density are more important than ever. A clear bellwether of this trend is the steady demise of the isolated



The revitalization of the formerly industrial “Two Kings” area has helped establish Toronto as a global leader in mixed-use development.
Credit: David Pike

suburban office park and the global ascent of mixed-use neighbourhoods in the heart of urban centres.

Cultural, generational, and market changes in urban areas are happening faster than ever before, and cities need to be prepared to be more flexible and responsive to these shifting dynamics. Mixed-use environments provide the necessary integration of resources for talent and companies of all sizes to thrive, serving as a backdrop for the innovation economy.

Throughout Toronto, the reimagination and reinvestment in several older central areas of the city — including Liberty Village, Corktown, and the Distillery District — has resulted in a set of dynamic business districts that contribute to the vitality of

their surrounding neighbourhoods and to the city at large. Each of these areas has attracted leading-edge companies and cultural enterprises, paving the way for new economic opportunity.

Perhaps the best-known examples are at King-Spadina and King-Parliament — the “Two Kings.” There, formerly industrial buildings underwent redevelopment efforts in the mid-1990s to spur the renewal of the surrounding area, which at the time was underdeveloped and largely comprised of surface parking lots. Redevelopment of the two areas was enabled through what was innovative regulation at the time — a zoning bylaw, implemented in 1997,³⁹ that eliminated antiquated land-use policy restrictions and allowed for a new mixed-use development approach.

The success of these districts is widely lauded in Toronto and beyond and has helped establish Toronto as a global leader in mixed-use planning. Revitalization of the Two Kings has allowed for more than 50,000 new residential units.⁴⁰ And while job growth in Toronto increased by 20 percent citywide between 1996 and 2016, job growth in King-Spadina and King-Parliament far outpaced this trend, increasing by nearly 70 percent and 30 percent, respectively. In the two decades since redevelopment efforts were completed, more than 20,000 net new jobs have been created in these districts, nearly 30 percent of which are in the cultural, creative, and tech sectors.

The transition of the Two Kings into thriving mixed-use areas was enabled in large part through the expansion of land uses, which in turn allowed for the entry of larger waves of tenants and businesses. Each new entrant was able to take advantage of the historic spaces in ways that the original architects and city planners never conceived, but given the flexible design, these spaces were able to be repurposed for a range of new uses.

Examples like Two Kings demonstrate how the nature of urban experiences in mixed-use districts represents a marked difference from traditional economic centres, with the capacity to draw new talent and companies, facilitating more diverse economic activity in cities.

Advancing mixed-use plans with innovation to create a new type of place

Sidewalk Labs' vision for the IDEA District builds on existing best practices for mixed-use planning by integrating a suite of innovations designed to draw more people outdoors, encourage more active transportation choices, help buildings respond to market conditions, and create a livelier mix of homes, offices, shops, social infrastructure, and community uses. The large-scale application of this approach would create a truly dynamic live-work community in which households and businesses of all sizes can find the spaces they need to thrive.

An expanded public realm that draws people outdoors.

Residents and workers in the IDEA District would benefit from open spaces and sidewalks made comfortable at least 35 percent more of the year thanks to a set of weather-mitigation tools — deployed in real time based on micro-climate data — that provide shade from the sun and shelter from the elements. Open spaces and sidewalks would be integrated closely with the surrounding stoa space, creating the foot traffic and vibrant street life ground-floor retailers depend on.

A street network that prioritizes pedestrians and public transit.

To further encourage active sidewalk life, the IDEA District would feature a street network designed to expand pedestrian space by up to 91 percent compared with business-as-usual development, enabled by transit, walking, cycling, and



All proposed digital innovations would require approval from the independent Urban Data Trust, described more in the “Digital Innovation” chapter of Volume 2.

new mobility options (and, eventually, self-driving vehicles) that reduce the need for vehicle space. This improved walkability and public transit access form the foundation of a complete community that puts homes near work and residents near essential daily services.

Adaptable building spaces that accelerate renovations.

Adaptable “Loft” spaces designed to accommodate both residential and non-residential uses can ensure an ongoing mix of households and businesses while reducing vacancy time. Loft's flexible interior wall system enables renovations to occur 50 percent faster than in traditional building spaces, ensuring that neighbourhoods can respond to changing market conditions.

The IDEA District innovations would create a truly dynamic live-work community in which households and businesses of all sizes can thrive.

A new approach to programming ground floors that expands opportunities.

Adaptable stoa space on the lower two floors of buildings in the IDEA District are designed to accommodate a wide range of retailers, pop-up shops, civic groups, and maker spaces. A digital leasing platform enables these spaces to be leased at a variety of sizes big or small and at lease lengths short or long, as needed, expanding opportunities for small businesses and startup ventures. 

A range of housing options that improve affordability.

In addition to a 40 percent below-market housing program (described more on Page 463), efficient unit designs can expand housing options for single-person and multi-generational households alike, enabled by advances including access to off-site storage space with on-demand shipping.

A network of social infrastructure to anchor complete communities.

Ensuring a strong network of social infrastructure, including access to health care and community services, is critical to meeting Waterfront Toronto's objectives for designing complete communities. The city has also noted the need to ensure that appropriate, affordable, and accessible space is available for the delivery of services; to proactively plan for health care service delivery alongside community services and facilities planning; and to co-locate services in central hubs to enhance coordination and resource sharing. In fact, all levels of government have recognized the need for enhanced integration of services.



Strategy 4

Accelerating Development

Support new and existing industries with an “expanded downtown”

The network of neighbourhoods that emerge from Quayside and Villiers West would connect three anchors of economic activity: the innovation campus on Villiers West, a hub of new office space at East Harbour, and Toronto’s Film District.

Waterfront Toronto and the City of Toronto have played a leading role in sparking new business activity and the development of new communities along the waterfront. Partnerships with the development community in recent projects at East Bayfront, the West Don Lands, Corus Entertainment, George Brown College, and Menkes Developments’ Waterfront Innovation Centre set the stage for a significant concentration of employment extending into the developments of Quayside and the innovation campus on Villiers West.⁴¹

When combined with two other major economic drivers — First Gulf’s East Harbour project, which will provide necessary expansion relief for the downtown office market,⁴² and the current and future activity within the Film District and Media City⁴³ — the volume and diversity of economic activity would transform the eastern waterfront into a second commercial core for Toronto.

Embracing the film industry on the eastern waterfront

Toronto is home to a thriving cluster of film-related industries that have helped to establish the city as a global film and television production leader and to boost tourism, including through the promotion of renowned events like the Toronto International Film Festival. Much of the industry’s resources are concentrated on the waterfront, including production, distribution, exhibition, post-production, and radio and television broadcasting functions.⁴⁴ The film industry has broad economic impact and is a critical economic driver for Toronto: in 2016 it contributed more than \$2 billion, and each year it has been responsible for approximately 40,000 jobs.⁴⁵

The industry’s growth is now quickly outpacing capacity. Without sufficient studio space to meet local and international

production demands, Toronto’s studios have been forced to turn away multiple projects each year. Other jurisdictions throughout Canada and the U.S. are increasingly bidding for and winning larger pieces of the production pie thanks to some structural advantages over Toronto, such as milder weather and larger production spaces. The value of projects turned away due to lack of studio space cost Ontario potential revenue of \$130 million in 2016 alone,⁴⁶ with the potential for greater impact in years to come.

Sidewalk Labs supports the film industry and recognizes the value of dedicating the lands within the Film District and Media City exclusively for film-related uses. This area has deliberately not been included in the geographic boundaries of Sidewalk Labs’ proposed IDEA District. Sidewalk Labs also recognizes that film expansion projects could occur within the boundaries of the proposed IDEA District, such as the McCleary District, and is committed to supporting the inclusion of such projects within precinct plans and other such actions undertaken by Waterfront Toronto or the City of Toronto.

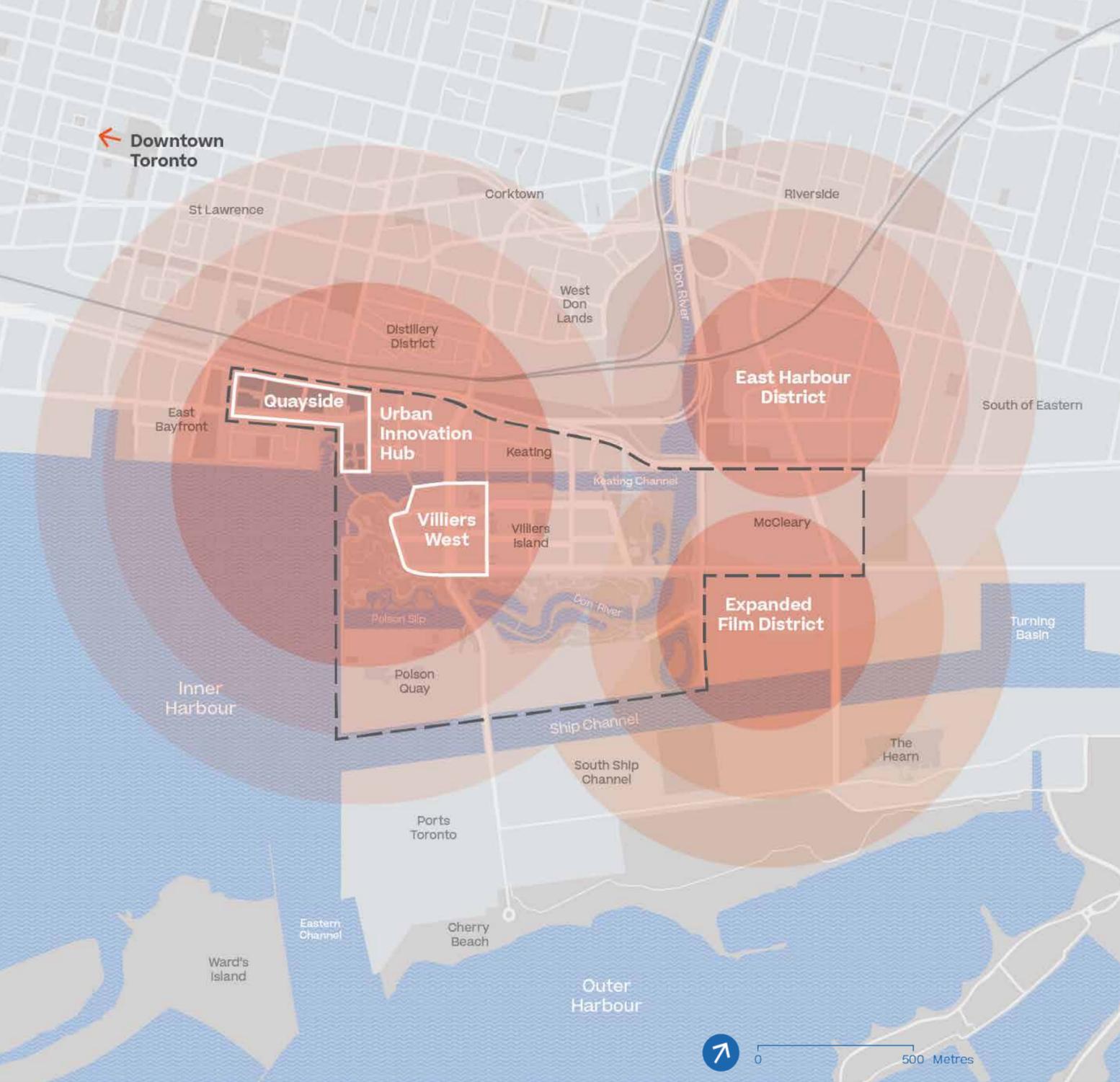
Sidewalk Labs also believes that the aspirations for the IDEA District, the development plans for Quayside and Villiers West, the acceleration of the infrastructure, and the creation of vibrant mixed-use neighbourhoods would boost film industry growth.

The growth of the urban innovation ecosystem along the waterfront can create opportunities for the film industry to participate in and benefit from the physical, digital, and policy innovations unfolding in its backyard. Proximity to mixed-use, affordable neighbourhoods

can result in housing opportunities for film industry employees, help attract talent, and create a vibrant environment around the studios. Transit connections, such as the Waterfront LRT expansion, with a stop at the border of the existing film district, would connect the studios to both Union Station and the planned East Harbour transit hub, greatly facilitating access between the facilities and the rest of the city.

Sidewalk Labs has identified specific opportunities to collaborate directly with the film industry and hopes to explore them as the Sidewalk Toronto project advances. This effort includes the integration of film-supportive design into its plans for the public realm, streets, and buildings in Quayside and Villiers West. For example, access to power sources and internet connectivity within the public realm — provided as part of Sidewalk Labs’ proposals for open space infrastructure and digital innovation — could present new, cost-effective opportunities to support film shoots.

Additionally, film is a technology-driven industry, and Sidewalk Labs believes that opportunities should be explored for the film industry to participate in the ecosystem for urban innovation envisioned at Villiers West. For example, post-production departments could collaborate with graphic design startups to improve film animations or special effects.



Map
Three economic hubs connected by the IDEA District

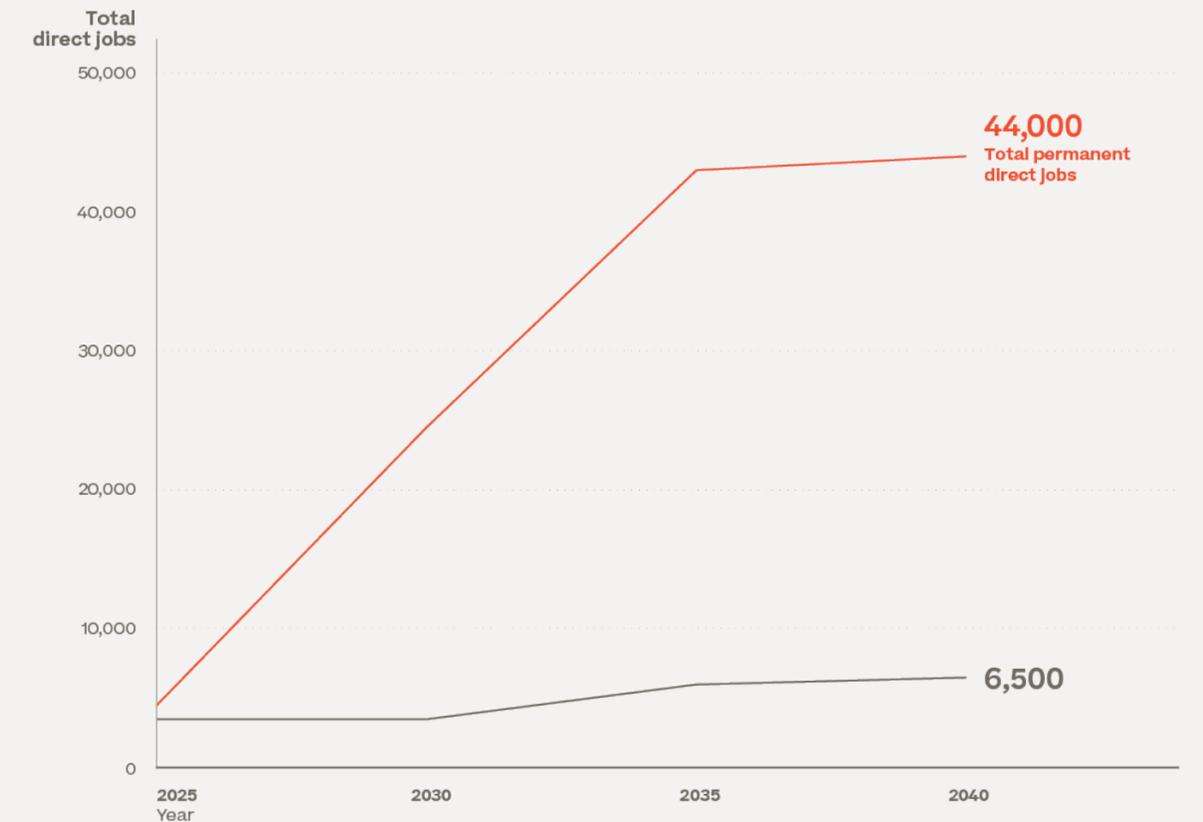
The IDEA District would support three economic hubs that together would transform the eastern waterfront into a second commercial core for Toronto.

----- IDEA District

The IDEA District: Dramatically accelerating job growth by 2040

The urbanMetrics analysis estimates that the IDEA District would stimulate 44,000 full-time direct jobs by 2040. Within the first 10 years alone, the district would be home to more permanent jobs than the total number predicted for the baseline scenario at full completion, which is not projected to occur until 2050.

■ IDEA District
 ■ Baseline scenarios





Strategy 5

Accelerating Development

Plan for prosperity with equity

Sidewalk Labs is committed to not only spurring sustainable economic development throughout the IDEA District but to doing so in a way that is equitable to all, expanding opportunities for those who have traditionally faced barriers to prosperity.

Like all growing cities, Toronto faces challenges around equity, affordability, work stability, and income disparity — issues with disproportionate impacts on marginalized and vulnerable groups. Sidewalk Labs’ program for the IDEA District is built on the premise that urban development and technological innovation must advance prosperity for all, particularly those who have been historically excluded from opportunity.

Residents of high-demand cities across North America are increasingly concerned that the economic growth generated by new technology industries will benefit a select few while creating greater affordability challenges for many. In San Francisco, for example,⁴⁷ the tech boom increased median income but also led to a widening income-inequality gap, and a lack of new or affordable housing has driven low-income households to relocate elsewhere.

Similar fears of pricing out lower- and middle-income households often arise with new mixed-use developments. For all their benefits in terms of transit access, health, and vibrancy, mixed-use developments have also been found to increase housing prices unless there are explicit commitments to affordability. One recently published study found that the decline in affordability in Toronto between 1991 and 2006 was more severe in mixed-use zones than in the rest of the city.⁴⁸

Despite Canada’s global reputation for inclusion, many sectors fall short on diversifying their workforce — and the tech sector is no exception. A 2017 survey of 900 Canadian tech firms found that women occupy just 5 percent of CEO roles and 13 percent of executive positions.⁴⁹ A 2018 study of Toronto’s tech community by MaRS found that nearly two-thirds of black respondents reported experiencing discrimination at their jobs.⁵⁰

To help directly mitigate these consequences, Sidewalk Labs’ approach to driving economic growth starts with an ambitious program for affordable housing and other commitments to diversity, equity, and inclusion. It builds on this foundation with a set of workforce development initiatives designed to help prepare Torontonians for the 21st-century economy.

More broadly, Sidewalk Labs’ vision for growth aims to lower barriers to entry and enable a wide range of innovators to plug into an open platform — with an emphasis on individuals who might not otherwise have access to employment opportunities or the resources to launch a business. Research suggests that clustering industries enhances skills training and non-profit partnerships for employment positions, supporting transitions to higher-skilled jobs. Sidewalk Labs aims to build on this trend by leveraging partnerships with academic institutions, research organizations, and non-profits to support new training and educational opportunities.

By creating the conditions to spur innovation, Sidewalk Labs can enable a range of third parties to discover promising solutions to urban challenges that create brand new career paths for people with a range of backgrounds.

Affordability and accessibility commitments: Anchored by 40% below-market housing

Sidewalk Labs believes that prosperity must not sacrifice equity — and that thoughtful planning can help both coexist. To help ensure that the IDEA District does not become an elite enclave, Sidewalk Labs has committed to a broad plan for diversity, equity, and inclusion (see Page 82) anchored by a housing program that devotes 40 percent of units to below-market housing.

As described in further detail in the “Buildings and Housing” chapter of Volume 2, Sidewalk Labs’ vision for housing devotes 20 percent of units to traditional affordable housing (a quarter of which would go towards households with “deep” affordability needs) as defined by the City of Toronto. Another 20 percent of units would go towards middle-income households that cannot qualify for affordable housing programs but also cannot afford to pay market rates for rentals or homes.

Additionally, half of all housing units in this program would be purpose-built rentals to improve affordability over the longer term. And 40 percent of units would be “family-sized” at two bedrooms or larger.

In addition to expanding housing affordability, Sidewalk Labs aims to improve the “all-in” affordability of living in the neighbourhood. For example, Sidewalk Labs believes its expanded suite of mobility options — including better walking and cycling infrastructure, public transit expansions, and ride-hail services — would enable households to give up car-ownership without sacrificing their ability to get around. Sidewalk Labs

estimates that a two-person household that gives up a car in exchange for a Sidewalk Toronto **mobility subscription package would save more than \$4,000 a year.**⁵¹

A complete community must also plan for people of all ages and abilities. To accommodate residents across the lifespan, from seniors wishing to age in place to growing families with young children, Sidewalk Labs plans to incorporate **flexible housing types that can expand or shrink with household needs, co-living units that provide greater community support, and a range of social infrastructure services accessible throughout neighbourhoods.** A host of accessibility initiatives would include accessible street features and building entrances for people who use wheelchairs, and new wayfinding tools for people who are visually impaired.

Together these efforts are designed to ensure that the opportunities provided by this economic development plan truly exist for the benefit of everyone — and to demonstrate to cities around the world that prosperity with equity is not just possible but necessary in the digital age.

Workforce development: Preparing Torontonians for the 21st-century economy

Sidewalk Labs plans to provide workforce development opportunities to ensure the local workforce is equipped with the skills needed to succeed in a 21st-century economy.

The IDEA District should become a place where more women feel empowered to launch startups and scale prototypes; where workers without college degrees can find apprenticeships in new trades such as mass timber, equipping them not only to complete one-off construction jobs but to launch meaningful careers in an emerging field; where graduate students from other countries can move to conduct research at the Urban Innovation Institute and find a welcoming, affordable community.

By implementing an economic development strategy that is designed specifically to improve access to opportunity, the eastern waterfront and Toronto on the whole could fundamentally redefine development practices, setting a higher standard for economic equity and demonstrating tools and programs that can be replicated around the world.

Sidewalk Labs' economic development strategy has the potential to realize priorities identified by the city, including those articulated in its Official Plan. These include supporting “employment and economic development that meets the objectives of Toronto’s Workforce Development Strategy, including people-based planning and the Vision Statement on Access, Equity and Diversity and promoting infrastructure and support programs to ensure that all Torontonians, particularly equity-seeking groups, such as racialized youth, persons with disabilities, single mothers and newcomers, especially refugees, have equitable access to employment

opportunities”; and recognizing “the full diversity of employment activities that are increasingly taking place in non-traditional employment areas such as homes and public spaces, and strengthening the necessary regulatory frameworks and policies to support this employment.”⁵²

Building stronger and more inclusive pathways into both the urban innovation economy and the broader economic opportunities unfolding across the waterfront is critical to ensuring that the wealth created here is broadly shared, as well as to meet growing employer demands for a skilled workforce. Getting into the opportunity pipeline early in life is critical for strengthening economic mobility. At the same time, reskilling mid-career workers to shield them from economic disruption is an increasingly urgent challenge. In Ontario, it is estimated that up to 3 million workers could lose their jobs to automation over the next 20 years.⁵³

Increasing worker productivity is also critical in light of Canada’s shifting demographics. In 2016, for the first time in history, seniors over the age of 65 outnumbered children under the age of 14.⁵⁴ This has worrying implications for future productivity and the ability of workers to support an expanding population of seniors. The gig economy is also cause for concern. In 2016, for example, nearly all net new job creation in Canada was for part-time roles, according to TD Economics.⁵⁵ Developing more permanent, high-quality jobs is essential for promoting broad-based social mobility.

Conceived in close concert with local partners, Sidewalk Labs’ workforce strategy aims to support Torontonians of all ages and backgrounds so that they are trained to compete, and remain competitive in the 21st-century economy. Sidewalk Labs also wants to help employers — from tiny startups to major corporations — fill their talent needs.

This strategy begins by establishing a proposed non-profit entity, Sidewalk Works, to help those who are currently underrepresented in the tech sector prepare for jobs in the new economy. Working closely with qualified partners, Sidewalk Works would curate and influence skills training to meet real-time employer needs, recruit across the city to broaden workforce participation, and provide access points to the urban innovation economy — all supported by cutting-edge digital tools. It would also champion equity in the tech sector by convening employers in the IDEA District across industries to identify and address common challenges, build their capacity to support and retain diverse candidates, and drive equity through economic opportunity.

This approach continues by opening paths to the skilled trades. Sidewalk Labs plans to ensure that at least 10 percent of hiring goes to those who need these jobs most, with a focus on low-income youths, women, and Indigenous people.

Sidewalk Labs plans to ensure that at least

10%

of hiring is reserved for low-income youth, women, and Indigenous people.

Contractors would be required to provide opportunities for mentorships, internships, and other work-integrated learning opportunities, as well as to consider qualified candidates from targeted communities first for professional, administrative, and technical positions — an approach known as “first source” hiring.⁵⁶

Finally, this workforce strategy would be complemented by the rise of a world-leading Canadian industry focused on sustainable mass timber building materials and capable of creating thousands of full-time jobs, including higher-paying jobs in carpentry specialties.

These three main strategies would ensure the IDEA District can support work opportunities for all Torontonians.

1

Expanding opportunity with Sidewalk Works.

Once Quayside is up and running, the workforce development program Sidewalk Works would build an inclusive talent pipeline, support on-site employers in filling real-time needs, and create a culture of inclusion in the workplace. It would work closely with local partners, taking advantage of cutting-edge work in sustainability, mobility, buildings, and technology to build on-ramps into the urban innovation economy.

First, Sidewalk Works would focus on growing and training an inclusive talent pipeline through youth engagement, higher education partnerships, digital recruitment tools, training, and work-integrated learning opportunities. It would work closely with local institutions and community agencies to curate a range of training programs — including boot-camps, online courses, and micro-credentials — that blend the best of face-to-face and online learning and are designed to accommodate students with a variety of schedules, skills, and backgrounds. Sidewalk Works would aim to build strong local collaborations that can help support a diverse workforce, including with the Toronto Public Library and George Brown College to offer skills development courses across the city; with Seneca College to train next-generation building managers and operators; with the CEE Centre for Young Black Professionals and the City of Toronto’s Partnership to Advance Youth Employment program to support training opportunities in tech for youth; and with agencies such as ACCES Employment, Dixon Hall, and Miziwe Biik Aboriginal Employment and Training to build awareness and opportunities for newcomers, low-income people, and Indigenous people.

Sidewalk Works would also work to connect tenant employers with graduates of an entry-level information-technology (IT) certification course called the Google IT Support Professional Certificate, a program developed by Google and Coursera to help non-traditional candidates begin careers in technology. The course is one

component of “Grow with Google,” an initiative to help Canadians acquire the digital skills needed to get jobs or grow businesses. In Canada, approximately 182,000 jobs need to be filled within the IT field in 2019.⁵⁷ Many of these jobs do not require a four-year college degree but do require skills and industry-relevant experience. While designed to serve the needs of employers on-site, these and similar partnerships would also pay dividends to the broader tech sector in Toronto by diversifying and accelerating the overall talent pipeline.

Second, Sidewalk Works would aim to ensure that employers can meet their talent needs by gathering information about tenant employer needs through data collection and real-time analysis of current skills gaps as well as direct engagement with human resources executives.

Part of Sidewalk Works would be a service called Talent Connect, a “talent concierge” that can provide curated access to top-tier talent and assistance with navigating government-funded services and post-secondary co-op and work placement programs. Talent Connect would be available to all member firms operating in the IDEA District but would likely be of particular value to small firms that may not have dedicated human resources staff.

Third, Sidewalk Works would work to set a standard for inclusive workplaces and economic equity across the waterfront.

Diversity does not rely only on training and recruitment alone: building an inclusive workplace requires culture change.

An employer consortium would be created to share best practices, convene events, track key metrics, and build the capacity of employers to lead the way in modelling a culture of inclusion.

For its part, Sidewalk Labs is committing to furthering diversity and inclusion in the tech industry by joining RBC, LinkedIn, AutoDesk, and other industry leaders on MaRS’ Inclusion Council. These firms could also join the Sidewalk Works employer consortium if they locate on the eastern waterfront.

Finally, the programs advanced by Sidewalk Works align with the goals of the Future Skills Centre recently announced by the federal government,⁵⁸ including developing innovative approaches to help Canadians gain emerging skills in demand now and into the future. While still in the early stages of development, the Future Skills Centre will allocate half of its funding to disadvantaged and underrepresented groups (including up to 20 percent for youth), reinforcing the importance of creating inclusive economic opportunities.

2

Broadening the construction workforce.

The Toronto Board of Trade projects that total construction activity in Toronto in the next 12 years will be 43 percent greater than it was over the past 15 years,⁵⁹ with an anticipated 147,000 job openings in 500 construction-related occupations. Development across the full scale of the IDEA District could lead to further shortages in skilled labour, generating ripple effects throughout the regional economy. This demand for labour, combined with a rapidly aging population, creates not just an opportunity but a competitive imperative to build and train Toronto's construction workforce of the future.

In Canada, women account for approximately 13 percent of the construction workforce,⁶⁰ and Indigenous people account for roughly 3 percent. Nationwide, just 9 percent of workers in the building trades are visible minorities,⁶¹ despite the fact that visible minorities make up roughly 22 percent of the general population.⁶² To help address this imbalance, Sidewalk Labs plans to build on the Waterfront Toronto Employment Initiative, working with Construction Connections (a unique construction-sector workforce development program managed by the city and the province) and Toronto Employment and Social Services, to target at least 10 percent of construction hours for racialized youth, women, and Indigenous people.

Sidewalk Labs also plans to work with other partners in the employment and labour sectors to support training opportunities for women, racialized youth, and Indigenous people; these groups include the College of Carpenters and Allied Trades, Building Up, Dixon Hall, and Miziwe Biik Aboriginal Employment and Training. Sidewalk Labs proposes to require that contractors provide opportunities for mentorships, internships, and other work-integrated learning opportunities and implement a first-source hiring approach for professional, administrative, and technical positions.

3

Catalyzing the mass timber industry.

Canada owns about 37 percent of the world's certified forests, defined by the international Forest Stewardship Council as areas that can be harvested for wood in a sustainable way, with proper spacing to regrow trees and with access to existing railways or roads to transport supplies. Canada is also a world leader when it comes to ensuring innovative and sustainable forestry management practices that safeguard our wood resources for future generations.

But while Canada harvests nearly 800,000 hectares of timber per year, the majority of that supply is devoted to framing lumber, such as simple two-by-fours or plywood. As a result, Canada

Factory-based construction of mass timber building parts could ultimately lead to higher-paying factory jobs for new advanced carpentry work.



currently imports mass timber parts from Austria and other production centres instead of producing them itself.

A new Ontario-based mass timber factory would support 2,500 person-years of full-time employment over 20 years.

In Quayside, Sidewalk Labs intends for the entirety of the planned 2.6 million-square-foot neighbourhood to be built from mass timber, demonstrating beyond previous efforts the viability of this sustainable building material for a variety of uses and forms. The hope is that this proof of concept would spur a more rapid adoption of this material, enabling Canadian industry growth commensurate with its natural resources.

With a commitment for the proposed development scale of the River District, Sidewalk Labs is prepared to catalyze industry growth with an investment to create a new Ontario-based factory for modular mass timber construction. To be opened prior to the construction of Quayside, this factory would ensure the delivery of a mass timber supply chain for building construction along the eastern waterfront and beyond.

Sidewalk Labs believes that the domestic supply of mass timber products produced in such a factory would support an estimated 2,500 person-years of full-time employment over a 20-year period.

The launch of this factory would have additional benefits for local workers. As described more in the “Buildings and Housing” chapter of Volume 2, an enhanced mass timber industry could ultimately lead to higher-paying factory jobs for new advanced carpentry work and bring about new local suppliers of timber as well as competing factories over time. Finally, by accelerating development across the IDEA District, a factory would catalyze an estimated 5.2 million total work hours for all factory-related trades.

Sparkling a Cluster in Urban Innovation

By building on Toronto's existing innovation ecosystem, creating the conditions for innovation, launching a new applied research institute, and establishing a new venture fund for local companies, Sidewalk Labs' plan for the IDEA District can catalyze a cluster focused on urban innovation — and establish an economic engine that drives growth far beyond the eastern waterfront.

Introduction



Strategies

- 1 Invest in a cluster-based approach
- 2 Build on Toronto's existing innovation ecosystem to grow the field
- 3 Create the physical, digital, and policy conditions for urban innovation
- 4 Launch an Urban Innovation Institute as a portal for learning and research
- 5 Establish a new venture fund for local, early-stage enterprises
- 6 Benefit Toronto companies and catalyze new ones

The city's Official Plan articulates the potential for a cluster-based approach to drive meaningful impact in Toronto: "Today, the real competitive advantage for urban economies lies in the foundations that support growth in economic clusters that bring new wealth to the region: a well-educated, highly-skilled labour force; research and development leading to innovation; access to financial capital; adequate infrastructure, including advanced information and communications networks; a dynamic business climate; an enviable quality of life; and safe, cohesive, congenial and inclusive neighbourhoods."⁶³

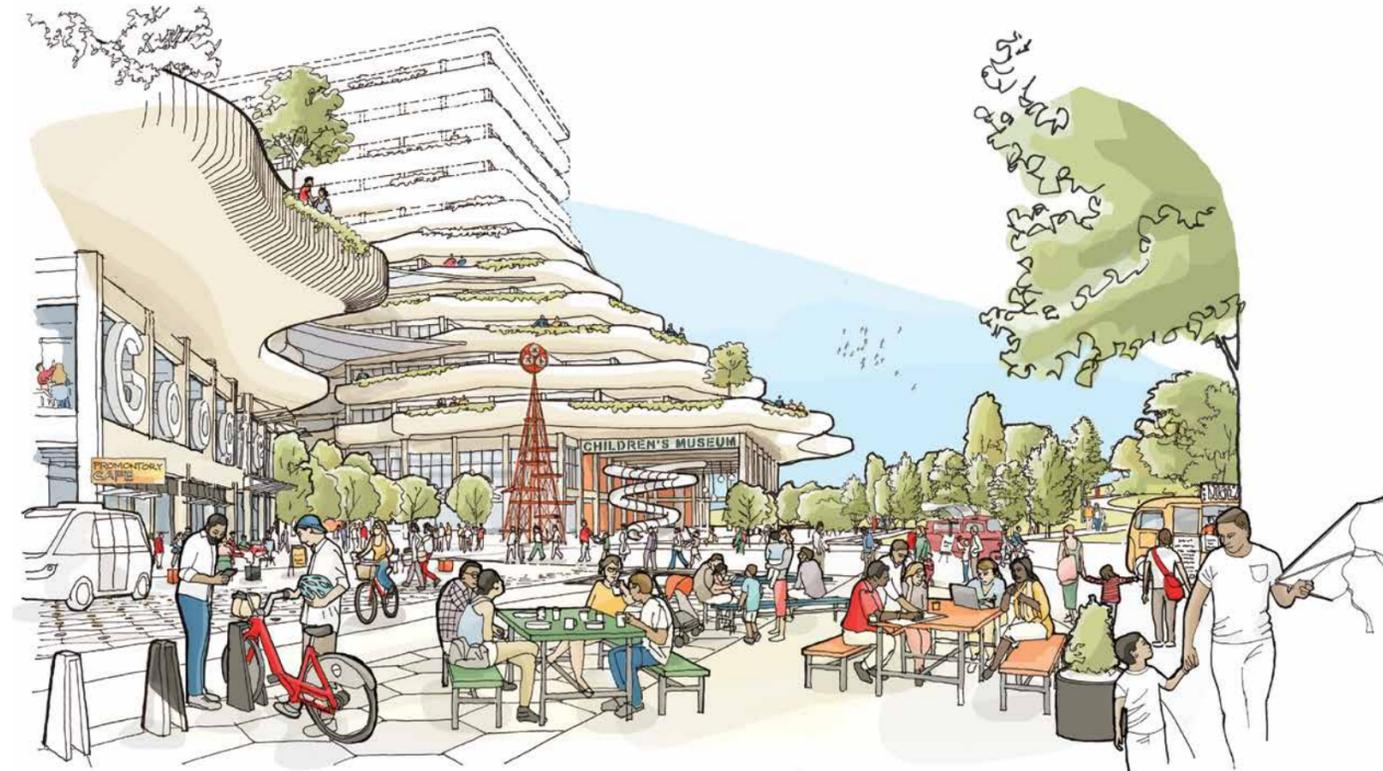
Consistent with these objectives, Sidewalk Labs' approach to sparking a new cluster for urban innovation along the waterfront draws inspiration from global examples of successful clusters but is specifically designed to address the challenges to improving life in cities today. This approach can shape the future of the field, create thousands of jobs, and drive economic opportunity well beyond the waterfront. Part 2 of this chapter outlines the steps necessary to catalyze such a cluster.

First, this cluster would be designed to build on top of Toronto's existing innovation ecosystem, including its world-class academic and research institutions and its support from all levels of government, towards promoting related technology industries.

To build on that foundation, Sidewalk Labs would integrate the unique physical, digital, and policy conditions — found nowhere else at scale throughout the world — necessary to help researchers, entrepreneurs, startups, civic organizations, government agencies, and all third parties tackle difficult urban challenges.

Beyond these unique conditions, Sidewalk Labs plans to further spark this cluster through seed funding for a new Urban Innovation Institute focused on applied research for urban innovation as well as a new venture fund to support local, early-stage enterprises.

Sidewalk Labs believes the combination of these ingredients will create the conditions for innovation, catalyzing economic activity in Toronto, driving meaningful contributions to the field of urban innovation globally, and drawing innovators from around the world to research, invest, explore, build, and scale ideas that can improve the quality of life in cities.



Villiers West has the potential to catalyze economic development across the region, anchored by the new Google Canadian headquarters and an Urban Innovation Institute designed to connect seamlessly with the new Promontory Park.

A new urban innovation cluster would build on and expand Toronto's already robust startup and innovation ecosystem.



Defining the field of urban innovation

Sidewalk Labs was established with the belief that integrating forward-thinking urban design and technological solutions can address big urban challenges and improve quality of life in cities around the world. This set of solutions informs [Sidewalk Labs' definition of urban innovation, broadly described as the interdisciplinary approach to integrating innovations that address all aspects of life in cities into the urban fabric.](#)

By some measures, the field of urban innovation is now the biggest tech sector on the planet, attracting more venture capital investment than high-growth fields like biotech and artificial intelligence. After all, [urban innovation sits at the intersection of two of the defining trends of the 21st century: global urbanization and technological change.](#)

Much more than just the pursuit of urban efficiencies associated with “smart cities,” urban innovation is a diversified set of industries — from mobility to waste management to construction and beyond — in the process of being redefined by capabilities such as ubiquitous connectivity, machine learning, sensing technology, and digital fabrication. Between 2016 and 2017, urban tech's share of global VC funding surged from 13 percent to 22 percent.⁶⁴ And this is just the start: as mentioned in the chapter introduction, by 2025, the sector's market value is projected to grow to over \$2 trillion USD.

Just as Sidewalk Labs has employed a comprehensive approach to urban planning that integrates innovations across its core focus areas, advancements in the emerging field of urban innovation often require bringing together players, expertise, and disciplines that might not otherwise intersect in traditional planning practices. The new technologies or solutions that emerge out of this approach are driven by interdisciplinary collaboration and reflect coordination across many stakeholders — public, private, and non-profit sectors alike. They reflect iteration and testing enabled through access to a large-scale, real-world urban environment. And they fall along a broad design spectrum: from highly technical solutions like mobility management systems to more systemic solutions like enabling a new pipeline for mass timber construction.

For example, consider the various players and resources that need to be in place today to make meaningful improvements in housing affordability. Government agencies, financial institutions, private and non-profit developers and operators, housing experts, residents, and community stakeholders all play a part. Developing affordable units today often looks like a series of handoffs between these players, ranging from governmental approvals to redesign processes.

The process of driving affordable housing innovation could be fundamentally different within an urban innovation cluster. Sidewalk Labs' own strategy creates new financial tools for below-market housing programs, including factory-driven land value, condo resale fees, and affordability by design. It also drives meaningful public-private partnerships, as with the proposed Waterfront Housing Trust and collaboration model with the non-profit sector. These proposed approaches mobilize governments,

developers, academics, and non-profits to work together — and thus more powerfully — to solve a major challenge in Toronto.

Housing affordability is just one aspect of urban life that could benefit from advancements in the field of urban innovation. [Establishing a cluster for urban innovation could provide the necessary conditions and resources to significantly accelerate the pace and frequency of developing innovative solutions to address a wide range of urban issues — from traffic congestion to building design to greenspace access — and further the development of the field overall.](#)

An urban innovation cluster could accelerate the pace of developing innovation solutions for a wide range of issues, from traffic congestion to greenspace access.



Strategy 1

Sparking a Cluster
in Urban Innovation

Invest in a cluster-based approach

Economic clusters are dense ecosystems of companies, researchers, investors, suppliers, and anchor institutions working together in a similar field. As theorized by economist Michael Porter, clusters boost firm productivity in three ways.

First, the sharing of suppliers, facilities, and infrastructure creates economies of scale that can be realized by firms of all sizes and maturities. Second, clusters enable the pooling of workers with relevant skills and experience, often supported them through specialized degree programs. Finally, clusters accelerate learning driven by physical proximity, vigorous competition, and advanced research by anchor institutions with industry-relevant expertise.

Co-location thus creates outsized gains for cluster participants and accelerates the pace of industry innovation, boosting regional economic performance (including through higher levels of wage and employment growth as well as spillover benefits to related economic sectors) and serving as a critical lever for foreign investment. Across a range of industries, as clusters grow and become more specialized, efficiency and productivity have been demonstrated to increase at an average of 4 to 5 percent.⁶⁵

The benefits of cluster growth apply to fields far beyond computers and technology. In industries as varied as health care, manufacturing, agtech, and more, the cluster model has demonstrated potential for driving transformational impact within a given municipality or economy.

Sidewalk Labs' own approach draws inspiration from several precedents, including cities that are comparable to Toronto in quality of life, innovation culture, and concentration of tech workers, such as Seattle, Boston, and Stockholm, as well as global examples of clusters in other industries, such as Houston's health care hub or the growing agtech hub in St. Louis.

Cities best able to realize the benefits of the cluster are those designed as open systems — with structures and resources in place to not only allow for co-location but to encourage collaboration between firms, institutions, academics, and the public.

In addition to improving regional employment growth over time, economic clusters have the added benefit of improving resilience against potential downturns, contributing to higher rates of employment growth during recessions as compared to economies of other cities as well as faster than average growth rates in the wake of a recession.

Core to the economic resilience of a cluster or economy is the number and vitality of small firms that make up a cluster. While a single company or institution may serve a catalytic role in the creation of a cluster, larger firms may be more vulnerable to external events. Over time, the growth of startups and spin-off businesses is crucial to improving the economic resilience within a given industry or geographic area.

Take Seattle, where major players like Boeing and Microsoft were instrumental in the city's emergence as a globally significant leader in both tech and aerospace. The concentration of talent and expertise drawn to Seattle by these two anchor firms has since spurred the spin-off of over 4,000 companies. The growth of smaller, earlier-stage enterprises has contributed both to the resiliency and overall growth of the tech industry — which rose over 33 percent between 2011 and 2016.⁶⁷

Canadian policy-makers are already focused on the critical importance of traded clusters for economic growth. The federal government's recently announced Innovation Superclusters Initiative, for example, commits close to \$1 billion to support five new innovation "superclusters," from ocean-based industries in Atlantic Canada to digital technology in British Columbia.⁶⁸ There is a concerted regional effort to transform the 110-kilometre Toronto-Waterloo Innovation Corridor into one of the world's leading technology clusters. Local planners and

Best practice spotlight

Houston: A health-care cluster that generates \$20 billion USD annually

In Houston, over 60 member institutions make up a health-care cluster, anchored by the Texas Medical Center Corporation, that employs over 110,000 people and contributes \$20 billion USD annually to the regional economy.

Mixed-use facilities throughout the cluster, all connected by a privately operated transit system, encourage collaboration on shared research priorities that are both relevant to individual members and strategically important to the promotion of Houston's competitiveness on a global scale. Making collaboration across industries more convenient and more valuable has been critical to advancing these goals, spawning groundbreaking work in new fields such as genomics and regenerative medicine, and raising Houston's global profile in health care.

The cluster's success has prompted plans for a new innovation centre, TM3, a 12-hectare campus to support commercialization of research and attract new venture capital entrants. TM3 alone is expected to add an additional \$5.2 billion USD and nearly 30,000 jobs to the local economy, a testament to the virtuous economic cycle created by the cluster's success in supporting an open ecosystem for innovation.⁶⁶



The Texas Medical Center Corporation anchors Houston's health-care cluster. Credit: Monica and Michael Sweet via Getty Images

policy-makers are also leveraging the cluster model to drive economic growth. The Port Lands Planning Framework speaks to the benefits of economic clusters, including the “live-work synergies that will be created with the diversity of employment clusters and uses proposed both in proximity to the new communities, but also in the communities themselves.”

But despite the impressive growth in the field of urban innovation, no city or region has come to dominate the market. Some cities are focusing on subsets of urban technology such as self-driving vehicles (in Detroit), drones (in Calgary), or modular construction (in Singapore). Many more are changing their regulations to accommodate disruptive outsiders such as Uber or Airbnb or are developing “smart city” master plans to incorporate technology into municipal operations. But very few have seized on urban innovation, broadly defined, as an industry in and of itself.

Sidewalk Labs believes that the conditions it plans to help create within the IDEA District will position Toronto to be that place, growing a world-leading cluster in urban innovation that delivers outsized economic benefits to the region.

The challenges facing urban innovators

Clusters are difficult to create in their own right. But for many reasons, the creation and expansion of a cluster in urban innovation poses an even greater set of challenges.

First, urban innovation often requires integration with the built environment, increasing the cost of prototyping, requiring greater coordination among more stakeholders, and making it difficult to test and commercialize early-stage concepts. It can be far more difficult to prototype a new system for flexible, rearrangeable walls in ground-floor retail space, than it is to test a new app on iOS.

Second, urban innovation often requires close coordination with government and existing policy. Take an innovation that is focused on creating more sustainable and cost-efficient street lights that provide brighter and safer night-time environments while using less power. Innovators often must coordinate with formal or informal authorities, even for early testing, to secure necessary input, buy-in, authorization, or permits. Coordination becomes more complicated and time-intensive as innovators move from testing to scale and as new stakeholders introduce additional constraints or complexities.

Finally, unlike other disciplines where innovators are encouraged to fail fast, urban innovation can have higher stakes. Changes to construction technologies

that inadvertently compromise structural integrity are not acceptable — unsafe buildings have significant real-world consequences. The same holds true for self-driving vehicle testing and other innovations that operate in public space.

To help potential innovators overcome these challenges, Sidewalk Labs’ approach to creating an urban innovation cluster on the waterfront is focused on creating the core physical, digital, and policy conditions — in coordination with government. Together these conditions safely minimize and mitigate barriers to urban innovation, increase the ability for a diverse set of entrepreneurs and companies to explore new ideas, encourage the sharing of lessons learned, and accelerate the potential for breakthroughs.

Sidewalk Labs would work to mitigate barriers to urban innovation, support a diverse set of entrepreneurs and companies, encourage lesson-sharing, and accelerate potential breakthroughs.

Sidewalk Labs believes an urban innovation cluster would be even more diversified and resilient than a normal economic cluster, spanning a wide range of sectors, building on Toronto’s competitive strengths, and responding to a global demand for city life that is only expected to grow in the coming years. Seeding the urban innovation economy in Toronto would significantly contribute to local efforts to catapult the Toronto-Waterloo Innovation Corridor onto the global stage, generating a wave of new startups and creating strong incentives for Canadian innovators to stay at home.



Build on Toronto's existing innovation ecosystem to grow the field

Toronto has many of the necessary assets to drive urban innovation: a network of world-class education and research institutions focused on urban issues, demonstrated commitment from government partners, and the fastest-growing technology economy of any city in the world.

Toronto's overall population growth is an asset in and of itself, supporting economic activity citywide and a diversity of residents and visitors. Combined with a growing startup ecosystem and ongoing government commitments, the city's innovation ecosystem is positioned for continued growth and advancements in urban innovation.

The economic engine Sidewalk Labs envisioned for the IDEA District would build on these assets — leveraging partnerships with academic institutions, government partners, and innovators of all types, and creating a physical space and network for experimentation and collaboration.

Leading talent and universities

Toronto is home to a wide network of world-class academic and research institutions, which have consistently placed the city as a global leader in higher education. At the provincial level, Ontario is planning a 25 percent increase in the number of science, tech, engineering, and math graduates over the next five years.⁶⁹

A technology ecosystem is a core component of growing capabilities and expertise in urban innovation. And while Toronto's academic network already embraces technology and other related fields, recent commitments demonstrate a newfound focus on urban innovation. Leading institutions have invested in expanded departments, new curricula, graduate programs, and research opportunities in urban innovation-related fields.

The University of Toronto alone now has more than 200 faculty and researchers devoted to teaching and research in urban innovation and related disciplines.⁷⁰

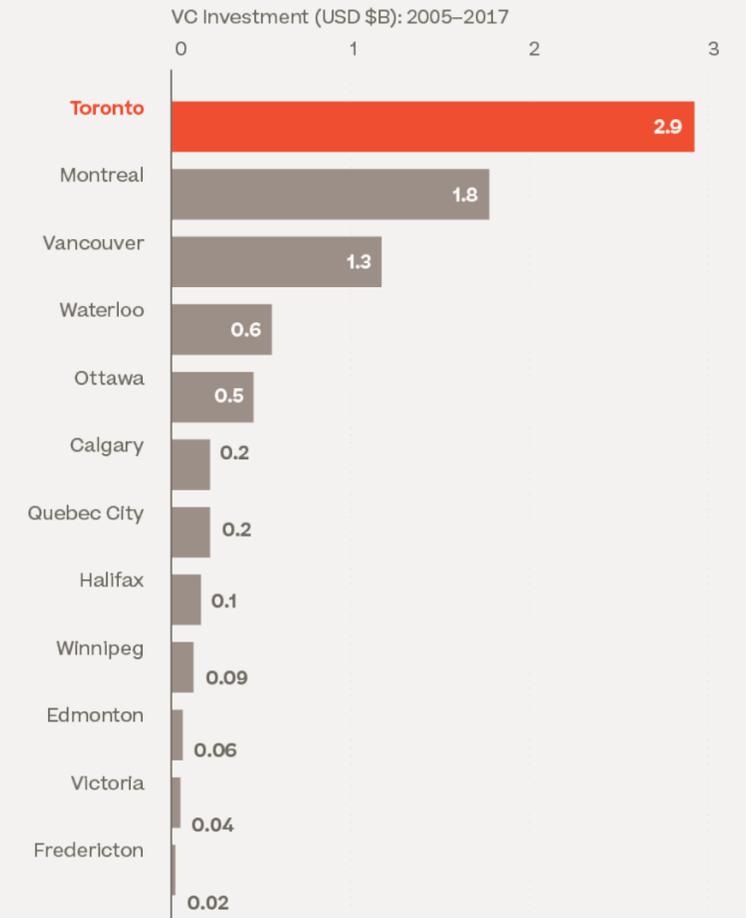
Further, designated departments like Ryerson University's Centre for Urban Innovation and the University of Toronto's School of Cities, among others, have emerged to drive local thought leadership.

The result of Toronto's growing leadership in urban innovation is the establishment of a robust talent pipeline. These institutions and others have supported a dramatic increase in the number of graduates in technology-related fields — up 35 percent from 2011 to 2015.⁷¹

Not only does Toronto's academic network produce top talent, it also draws top academics, researchers, and students from around the globe, in part enabled through Canada's progressive policies that promote inclusion and make it easier

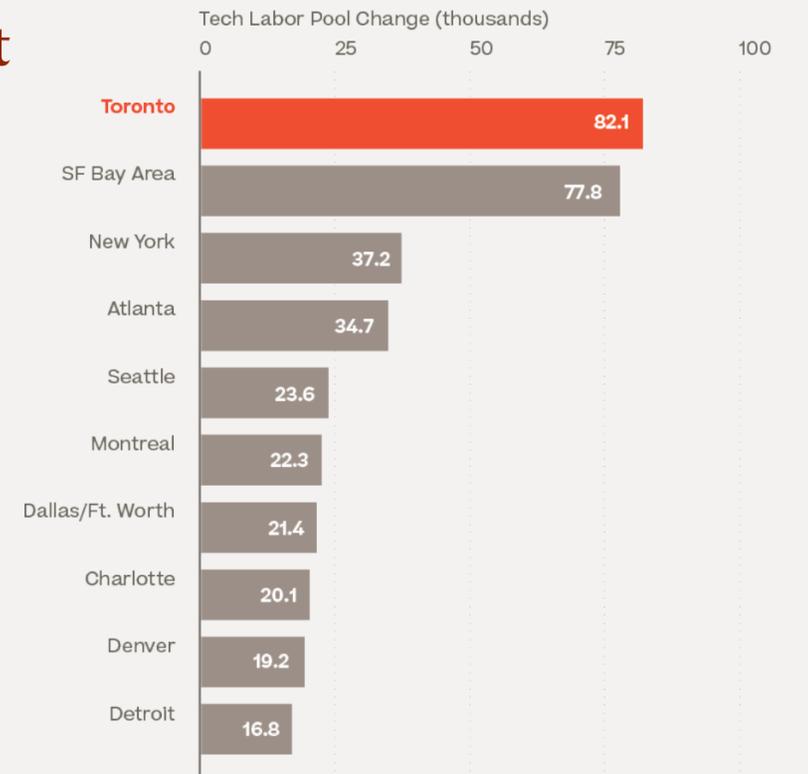
Toronto is home to nearly 40% of all VC investment in Canada

Between 2005 and 2017, enterprises in Toronto received nearly \$3 billion USD in VC funding, representing nearly 40 percent of all VC investment in Canada over that time period.



Toronto's tech talent pool has outpaced all North American cities since 2012

Since 2012, the growth of tech talent in Toronto has outpaced that of all other North American cities with leading technology industries, supporting a range of occupation areas, including software development and programming; computer support, databases and systems; engineering; and computer and information system management.



for innovators from around the world to study, live, and work in Toronto (particularly compared to the U.S.).

As a result, Toronto is home to one of the most diverse talent pools in the world, which in turn, makes Toronto's talent pool more attractive to a wider range of employers local and international alike.

Toronto's growing tech and startup ecosystem

The rapid growth of Toronto's tech and innovation ecosystem has created a gravitational pull drawing top talent and further investment to the region, which provides an important foundation for the growth of urban innovation as a field. In 2017 alone, Toronto added over 28,000 tech jobs, and it is now home to over 240,000 tech workers, representing an increase of more than 50 percent over the past five years.⁷²

Toronto's tech sector has demonstrated growth among firms large and small. Several major tech companies — including Shopify, Microsoft, Uber, Pinterest, LG, and Instacart — have established or expanded their footprints in Toronto in the past three years.⁷³ These and other players have increasingly sought to invest in local talent and innovation projects, announcing more than \$1.4 billion of new investments in September 2018 alone.

As a result of these investments and other factors, Toronto boasts a robust ecosystem for local startups and is home to an estimated 2,500 to 4,100 of them.⁷⁴

Based on trends in 2018, Toronto-based companies attract about half of venture capital funding in Canada.⁷⁵ These startups are supported by an ever-growing network of incubators and accelerators, with the ecosystem anchored by large local players such as the MaRS Discovery District, the Vector Institute, and OneEleven, as well as by new entrants such as Techstars.

Government support and funding

Engaged partners at all three levels of government who are committed to promoting the success of high-growth industries, including tech, have made significant investments to grow a culture of innovation. Government support focuses primarily on a specific pain point unique to the Canadian innovation ecosystem: while Canada produces startups in comparable numbers to other cities, small enterprises struggle to evolve into major companies backed by outside capital with global presence, in part due to a lack of access to large customers (such as governments or larger companies) that would create sufficient demand to grow the business.

As a result, governments have prioritized investments in improving access to capital and customers. For example, the Canadian government recently contributed over \$400 million to the Venture Capital Catalyst Initiative,⁷⁶ which provides funding for local cleantech firms, and \$1.1 billion to the new Trade Diversification Strategy, a federal program to help Canadian businesses export to new markets.⁷⁷ Further, Canada has seen a rise in the number and variety of innovation “sandboxes” — interdisciplinary

accelerators that are created by design and technology firms (with support from governmental partners) to enable regulatory innovation and experimentation.⁷⁸ Each of these investments demonstrates prioritization of the tech ecosystem among government leaders and the potential for Sidewalk Labs' own efforts to leverage partnerships in support of shared values.

Toronto's tech ecosystem by the numbers:
Over **240,000** tech workers

50% job growth in the past five years

Up to **4,100** startups

\$1.4 billion of investments in September 2018 alone

Since 2012, the growth of tech talent in Toronto has outpaced that of all other North American cities.



Strategy 3

Sparking a Cluster
in Urban Innovation

Create the physical, digital, and policy conditions for urban innovation

Although Toronto has many of the assets needed to grow a cluster in urban innovation, the IDEA District envisioned in Sidewalk Labs' proposal would provide a unique environment that allows these raw materials to reach new levels of output.

The district would provide an integrated set of specific physical, digital, and policy conditions that together form a platform for urban innovation on which others can act and experiment, creating a magnet for innovators from around the world.

1

Physical conditions.

In its plans for Quayside and proposed approach to the broader IDEA District, Sidewalk Labs has emphasized flexibility and adaptability in the built environment to create the conditions for rapid innovation. Spaces across buildings, mobility networks, and the public realm are designed to meet the needs of the community today, adapt to the changing needs of the community over time in a less costly and disruptive manner, and create opportunities to explore new ideas.

For example, in Quayside, Sidewalk Labs plans to prototype two new types of building space, stoa and Loft, specifically designed to enable buildings to change uses over time. As described on Page 160, stoa is flexibly designed lower-floor space that can make it easier for businesses of all sizes to meet their needs. The easy ability to reconfigure the space provides an opportunity for innovators to prototype new products and services that leverage this flexibility, such as apps that could manage leasing at a micro-scale, or flexible-panel and furniture systems that allow businesses to affordably change their layouts for one-off events.

Beyond the walls of any individual building, dynamic pavement and curbless streets enable greater flexibility in the way roads can be managed, providing not only space for mobility innovators to rethink urban transportation but a canvas for all residents to rethink how the community can re-use space that today is dedicated to parking or vehicle traffic.

Beneath the street, open access channels would house a full range of utilities, from fibre-optic cable to pneumatic waste tubes, in shared space. Locating these systems under removable pavers allows for easy access and greater flexibility to incorporate new systems as they are developed over time.



See the "Digital Innovation" chapter in Volume 2 for more details on the proposed responsible data use process.

2

Digital conditions.

Sidewalk Labs firmly believes that the success of the IDEA District as the hub of an urban innovation cluster should be measured not by the number of Sidewalk Labs' technologies deployed within the district but by the number of innovations created by others. But just like with ecosystems, such as the World Wide Web and the iPhone, third parties depend on open hardware and software as well as on an agreed-upon set of standards and protocols to successfully deploy their ideas.

Sidewalk Labs understands that setting the right governance standards for data and privacy is not the role of a private company — that is why it has proposed the idea of an independent Urban Data Trust to oversee responsible data use in the IDEA District and why it encourages strong action on the part of the Canadian government. But Sidewalk Labs also recognizes its role in creating the right conditions for digital innovation. That is why it has prioritized core digital infrastructure, published standards, and a limited set of launch services.

This proposed infrastructure includes a powerful ubiquitous connectivity network that leverages new advances to improve speed and security, as well as a standardized mount system that reduces the cost of deploying innovations and eliminates vendor lock-in. A set of published

standards around open-data architecture, access, and sources enables third parties to build upon a shared foundation, supported by a common set of security, formatting, and communication standards. Data generated by the launch services would be made publicly accessible (with the proper protections, including de-identification), further catalyzing third-party creation.

3

Policy conditions.

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. Many existing urban regulations and policies — such as zoning, building code, and automobile regulations — were designed in an earlier era, when the primary way to achieve necessary public policy outcomes involved sweeping, one-size-fits-all regulations.

These policies — designed around important objectives, such as protecting the public from industrial hazards or over-developing attractive residential areas — now sometimes limit the ability to find creative solutions to the very same problems they attempted to mitigate. Today's digital capabilities enable these policies to achieve their intended outcomes in more flexible ways.

For instance, advanced modelling can help ensure that neighbourhoods and buildings are designed to get adequate greenspace and sunlight without rigid built-form bylaws. Similarly, real-time building sensors that monitor for noise can mitigate the potential downsides of a mixed-use district that accommodates production and light manufacturing, enabling more fluid zoning.

Sidewalk Labs is committed to working with policy-makers and to demonstrating the enormous opportunity available to innovators to create positive outcomes when they work hand in hand with government.

Accelerating the pace of innovation

Together, these three conditions would create a platform for urban innovation that accelerates the development speed and magnifies the impact of new services, tools, and products in the IDEA District.

Consider the various people and organizations that are needed to collaborate on a meaningful solution to traffic congestion: infrastructure and construction companies, municipal regulators and public safety officials, public or private financiers, automotive manufacturers, and technology companies with data or modelling tools to forecast traffic patterns, among many others.

Convening and enabling collaboration among such a wide array of stakeholders tend to occur when the right people meet the right experts, champions, or partners in different fields; when collectively they see the mutual value of collaboration to deliver new breakthroughs; and when they have a physical environment that enables their ideas to be implemented.

The cluster for urban innovation that Sidewalk Labs envisions for the IDEA District would provide exactly this forum: the unparalleled physical space and common conditions required to spur the collisions necessary to drive urban innovation, out-sized economic growth, and better outcomes for residents, workers, and visitors.



Strategy 4

Sparking a Cluster
in Urban Innovation

Launch an Urban Innovation Institute as a portal for learning and research

Urban innovation is a field in which applied research, commercial product development, policy development, and new skills development all play a role. To focus all these areas around the most pressing issues facing cities, Sidewalk Labs proposes the creation of an Urban Innovation Institute: an applied research centre focused on urban innovation, uniquely located within a broader environment designed to enable the iterative development of new solutions to urban challenges. Sidewalk Labs believes that, over time, the institute could become perhaps the most critical anchor within the IDEA District for a cluster of economic activity focused on urban innovation.

The Urban Innovation Institute would be the vehicle through which academics, industry leaders, entrepreneurs, and civic actors could access, contribute to, and export the learning made possible throughout Quayside and the IDEA District. In an ecosystem filled with world-class educational institutions engaged in directly relevant subject areas, the Urban Innovation Institute can become the epicentre of integrated, applied research focused on innovative solutions to urban issues. As urbanization increases worldwide, such a knowledge centre in Toronto would have global relevance, building the field of urban innovation, attracting talent from around the world, exporting replicable solutions, and cementing Toronto's leadership profile.

The Toronto institutions collectively focused on urban issues are engaged in critical work and study around health, cleantech, fintech, infrastructure, economic development, policy, hardware and software engineering, and any number of other fields with relevance to urban innovation. Embedded within the IDEA District, the institute can be the venue through which researchers, students and entrepreneurs from the vast array of universities and colleges throughout Toronto and Ontario — the University of Toronto, Ryerson, George Brown, OCAD, the University of Waterloo, as well as stakeholders such as MaRS and Evergreen — can research, test, develop and scale concepts that fundamentally require the integration of all of these areas.

Sidewalk Labs envisions the Urban Innovation Institute as an independent, non-profit, applied research centre with degree-granting accreditation, and believes it should be designed in collaboration with local academic institutions and stakeholders, both for research purposes and for participation in collaborative degree programs. Once established, the institute could become a critical resource for all of the actors within the Toronto urban innovation ecosystem, providing a unique research and commercialization venue, generating new insights to inform curriculums across

Key Term

Urban Innovation Institute

A proposed independent, non-profit, applied research centre focused on urban innovation, designed in collaboration with local academic institutions and stakeholders.

traditional boundaries of discipline, and serving as a canvas for new areas of study to emerge.

Based on engagement and inquiries to date, Sidewalk Labs believes that the Urban Innovation Institute would also attract the participation of premier educational institutions from around the world. Sidewalk Labs plans to provide upfront financial and convening support to catalyze the creation of the institute, and is committed to helping facilitate the institute's long-term growth, but does not expect to play any role in its governance or operations once established.

The role of the Urban Innovation Institute

The institute would play several roles within the district's urban innovation cluster and the broader Toronto innovation ecosystem, as a unique hub of applied research, innovation commercialization and policy acceleration, and skills training for entrepreneurs and workers of the future.



Applied research.

The Urban Innovation Institute would be an organizing mechanism to enable flexible research partnerships across boundaries — whether disciplines, institutions, sectors, or funders — and the development of curriculum to complement those of other institutions. The IDEA District would provide numerous opportunities for the Urban Innovation Institute to be the vehicle through which to structure third-party access and collaborations.

For example, the opportunity for data collection within the IDEA District may have value for research purposes. Through a formal arrangement between the Urban Innovation Institute and the Urban Data Trust, appropriate guidelines, policies, and protocols could be established and enforced to facilitate approved research endeavours. Working in concert with civic organizations and the public and private sectors, the Urban Innovation Institute could conduct research that contributes to the development of replicable operating models that unlock the value of data to address urban issues. 

The expertise in conducting research with urban data sets developed within the Urban Innovation Institute would likely make it a sought-after venue for the trusted evaluation of relevant research data sets beyond those generated within the boundaries of the project.

For example, Quayside could provide the full set of tools needed to understand the linkages between the built environment and community well-being. If a public health researcher wishes to study the impact of local air quality on student learning, such an effort is often hampered by the availability of and access to local urban data. The urban data collection made possible by the IDEA District's infrastructure and data governance model would provide ongoing access to data streams, enabling this type of information to be applied for purposes such as research, predictive analytics, and resource allocation.

Moreover, the proposed Urban Innovation Institute would enable cross-cutting research that could bring together public health, health service delivery, urban planning, environmental, and data analytics expertise to advance this field of research and practice. Sidewalk Labs has begun conversations with the public health community and proposes developing a framework for these cross-disciplinary collaborations and pilots that can inform health research and public health planning and response.



Product research and development.

The Urban Innovation Institute can serve as the mechanism through which entrepreneurs, companies large and small, and organizations can develop prototypes, test new concepts, or connect with others to realize combined value.

As described above, the IDEA District creates the conditions for rapid prototyping — complete with digital infrastructure, a defined approvals process, ubiquitous high-speed connectivity, modular pavement with heating or lighting capabilities, dynamic curbs, and buildings with energy optimization systems, among other features. As ideas proven out in Quayside and Villiers West are adopted throughout the IDEA District, the number of new prototypes being developed on top of these initial services, tools, and products only stands to increase.

In collaboration with Toronto's rich array of innovation-oriented incubators, the Urban Innovation Institute can help match entrepreneurial research and development with practical applications.

For example, it is currently extremely difficult to test the early-stage commercialization of concepts for urban infrastructure; by definition, infrastructure has to perform as required, with little tolerance for risk. Quayside's core conditions would make it possible to test whether new devices for urban infrastructure — new traffic-management devices, new types of sidewalk furniture, even new network utilities — work with the reliability and accuracy that urban hardware requires in a safe way.

Similarly, the last decade has seen an explosion of new tools that operate in public space, from e-scooters to smart garbage cans. Early deployments of these ideas tend to rely on trial and error, with both new uses and negative consequences slow to be noted and documented. The IDEA District's infrastructure, management, and population make it the perfect setting to understand interactions between pedestrians and self-driving vehicles; new wayfinding techniques; new accessibility designs; and new on-demand businesses that might make use of the neighbourhood's freight system.



Policy research and development.

The research and development surrounding urban innovation is not limited to those with commercial intentions. Equally important are opportunities for policy makers, public sector entities, civic institutions, academics, and non-profit organizations to undertake research and participate in product research and development.

Developing effective governance and policy approaches to enable innovation in cities is critical, and the effective adoption and management of urban innovation requires new public and civic tools, skills, processes, and approaches. Playing a role in such civic dialogue would be a critical element of the mission for the Urban Innovation Institute, which can potentially also be relied on by the public sector to monitor and evaluate the outcomes achieved within the IDEA District.

The Urban Innovation Institute can connect multiple elements of the ecosystem required to enable practical product development and to undertake research. As the middle point between entrepreneurs, academics, funders, policy-makers, and government administrators — as well as the array of innovation incubators such as MaRS — the Urban Innovation Institute can make a substantial contribution to the development of Canadian intellectual property.



New skills development.

Sidewalk Labs believes that the same conditions within the IDEA District that will foster applied research and product

development could also help inform curriculum throughout all levels of education and academia. The Urban Innovation Institute could provide an array of coursework to integrate with programs such as those offered by the University of Toronto's School of Cities or its Master of Urban Innovation program, or to enable cross-disciplinary coursework or field work to supplement Ryerson University's Centre for Urban Innovation curriculum.

Over time, the Urban Innovation Institute could develop a breadth of graduate level coursework and models for cross-disciplinary research to support collaborative degree granting programs. Through these programs, the institute could become an asset to help Toronto's institutions attract and retain faculty and students, building a world-leading brain trust and local network focused on the practical application of urban innovation.

The IDEA District also presents unique opportunities to translate the insights gained across many fields — such as environmental studies, civil and digital engineering, physical and digital design, and the integration thereof — into curriculums, internships, and practicums for pre-university students from a diversity of backgrounds. These same insights can also serve as the basis for training programs for adults seeking new, forward-facing technical skills, potentially in collaboration with Sidewalk Works and the numerous Toronto organizations focused on workforce development.

From inception, the mission of the institute would include this type of knowledge development as a core part of its focus.

Creating the Urban Innovation Institute

Sidewalk Labs envisions the Urban Innovation Institute as an independent, non-profit institute with its own self-sustaining governance and business model. Creating a new institution is no small task, however, and requires drive, focus, and dedication, as well as capital. Over time, the institute could become self-sustaining through a combination of research funding, collaborative degree programs, and potentially innovative approaches to technology transfer and intellectual property. For example, Waterfront Toronto and the government could choose to dedicate a portion of the revenues generated from technologies developed within the IDEA District to the institute.

Sidewalk Labs is prepared to provide **\$10 million** in initial seed funding for the Urban Innovation Institute.

It is of paramount importance that the institute be developed in close collaboration with a consortium of Toronto institutions, as well as stakeholders within the public and private sectors.

These potential funding strategies would have to be explored in depth within the phase of work to create the institute.

Given the importance of the Urban Innovation Institute to the mission of the overall Sidewalk Toronto project and to the Toronto urban innovation ecosystem, Sidewalk Labs is prepared to provide \$10 million in initial seed funding, to be administered by an entity to be agreed-upon during the planning process, for the first phase of the development of a comprehensive mission, operating structure, and governance model.

It is of paramount importance that the institute be developed in close collaboration with a consortium of Toronto institutions, as well as stakeholders within the public and private sectors. Sidewalk Labs proposes that it work with the aforementioned entity to convene stakeholders; to provide support services that facilitate the development of an institutional mandate, governance structure, operating organization, and business model; and to stand up the initial phase of the institute.

To ensure the realization of the institute thereafter, Sidewalk Labs may provide additional grants in the future alongside partners, linked to project milestones to be agreed in the implementation agreements (including with respect to appropriate government support).

How applied institutions have catalyzed clusters

Academic and research institutions have historically played an important role in the development of clusters, in particular as an initial anchor that could draw complementary businesses and research institutions to the area.

In St. Louis, for example, BioSTL (a bioscience industry organization), the Danforth Center, and the St. Louis Economic Development Partnership, among other partners, support a cluster for agriculture technology that has embraced a collaborative governance model to prioritize industry input and balance both research and commercialization activities. The cluster has experienced rapid growth in just 10 years, anchored by its proximity to world-class research centres, major food producers with expertise in the industry, and an emerging startup ecosystem.

An urban innovation cluster with an academic institution at its core is positioned to ensure the advancements produced in the district contribute to training and educational opportunities, creating a virtuous cycle that grows human capital and creates a broader ecosystem of resources for testing and deployment of new innovations. An academic or research institution within a cluster could facilitate knowledge exchange and provide a forum for applied research, in turn drawing talent and investment and establishing the area as a hub for thought leadership.

The following case studies demonstrate the potential impact Sidewalk Labs

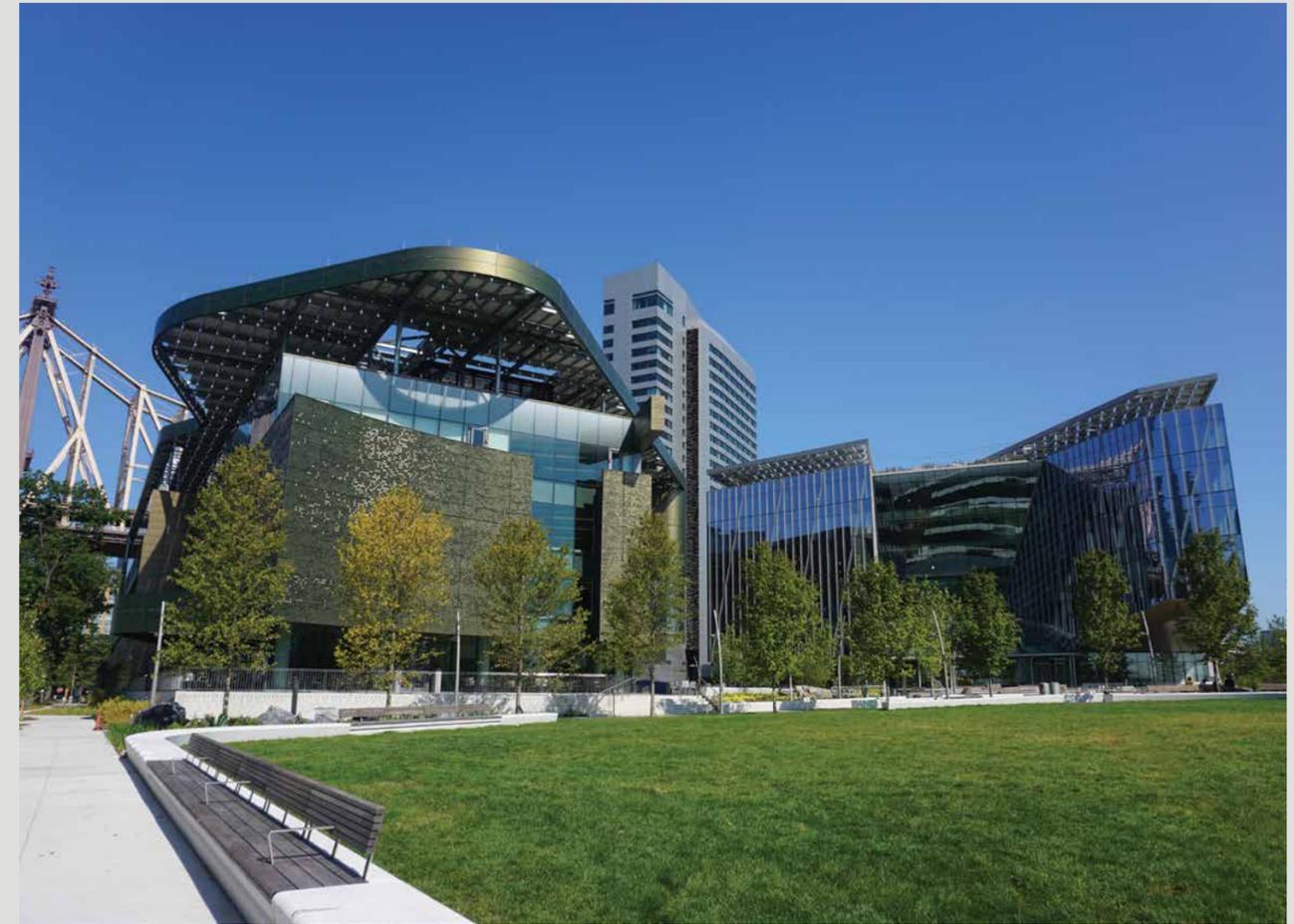
expects could be realized through the creation of an Urban Innovation Institute in the IDEA District.

Vector Institute.

The Vector Institute — launched in March 2017 with support from the Government of Canada, the Province of Ontario, and private industry,⁷⁹ and in partnership with multiple universities — seeks to “drive excellence and leadership in Canada’s knowledge, creation, and use of artificial intelligence (AI) to foster economic growth and improve the lives of Canadians.”⁸⁰

Specializing in machine and deep learning, the institute retains elite faculty and researchers to lead Ontario’s efforts to build and sustain AI-based innovation across the public and private sectors. An example of this type of collaboration includes the institute’s partnership with the Peter Munk Cardiac Centre and University Health Network to apply machine-learning research towards improvements in cardio-vascular care.⁸¹

The institute represents a strong model for how Toronto institutions could come together to advance innovation and tech commercialization. Vector is an independent, non-profit, non-degree-conferring entity that works closely with partner universities where institute researchers have existing appointments. The organization’s \$135 million endowment (over its first five years) comes from both public and private sources,⁸² and its leadership team reflects representation from both sectors.



Incentivized through the provision of \$100 million USD in funding and free land from the City of New York, Cornell Tech has already developed the first phase of its \$2 billion USD campus, growing to over 30 full-time faculty and over 300 students. Credit: Sidewalk Labs

Cornell Tech.

In 2011, the City of New York launched an international competition for the establishment of a new graduate campus for applied science and engineering on Roosevelt Island.⁸³ The city determined that the technology sector within the city’s ecosystem was missing a top-tier applied sciences program that could serve as a source for talent and a long-term anchor for growth. The winning proponent was a partnership between Cornell University and the Technion-Israel Institute of Technology, responsible for the development of the Cornell Tech campus, which opened in 2017.⁸⁴

Incentivized through the provision of \$100 million USD in funding and free land from the City of New York, Cornell Tech has already developed the first phase of its \$2 billion USD campus, growing to over 30 full-time faculty and over 300 students.⁸⁵ Cornell Tech’s degree programs (integrating technology, law, business, and design), integration of academia and industry, and emphasis on entrepreneurialism and social impact are already leading to substantial impacts.

As a catalyst for citywide economic growth, Cornell Tech has developed partnerships with companies across tech, finance, media, healthcare, and other industries; engaged in programs throughout the New York City public schools; and catalyzed significant economic activity in neighbouring Long Island City.

What it means to work in the IDEA District

The urban innovation cluster that emerges throughout the IDEA District is designed to be an open ecosystem, enabling both residents and workers, as well as people from around the world, to take advantage of the unique physical, digital, and policy conditions. The following examples illustrate a few ways innovations can launch, operate, and grow in this environment.

Launching a Canadian sensor startup.

A Canadian sensor startup, founded by two University of Toronto graduates, has a concept to improve energy management in buildings through the monitoring and optimization of building entrances and design. At a symposium at the Urban Innovation Institute on building efficiency, employees at the startup meet developers who are about to break ground on a new mixed-use building in the IDEA District. The employees pitch their sensor, and the potential for decreased utility costs is attractive to the developers, who decide to run a pilot in their new building. After completing the responsible data use process and gaining approval from the Urban Data Trust, the startup creates prototypes of the new sensors, runs the pilot, and demonstrates the value of their hypothesis.

After the study, the startup accesses investors through the Urban Innovation Institute and raises capital to bring the sensors to market. Simultaneously, the potential for greater building efficiency standards sparks the IDEA District administrator to re-evaluate its standards for future development within the district.



Keeping residents and visitors informed.

After a summer afternoon in Quay-side, a Toronto resident finds herself excited by the action at a dynamic curb along Queens Quay East but is concerned about the data that is being collected to make that system work. She attends a free workshop on data privacy regulations at the Urban Innovation Institute and

hears from private companies and public officials about how and why data is collected in the IDEA District and about the safeguards that are in place to ensure the data is used responsibly. She also learns that she can go to an online registry overseen by the Urban Data Trust to view the data being collected by the curb system and the location of any digital devices in public space.

Empowering public-sector improvements.

An international city manager is facing challenges in monitoring new construction that may pose safety concerns. She finds an Urban Innovation Institute publication about new advanced mapping technologies and plans a trip to the IDEA District to learn best practices. After meeting with Toronto city officials, local developers, and

researchers, she returns to her home city and uses IDEA District best practices to deploy advanced mapping to identify illegal or dangerous building modifications. She shares her implementation data with the Urban Innovation Institute, which updates its open database so that others from around the world can leverage these lessons in their own city.



Supporting small-business growth.

A Canadian financial services company wants to bring a new form of flexible small-business loan to market. The company decides that the conditions within the IDEA District — particularly the flexible stoa space, digital credentialing system, and active public oversight — make it the perfect place to pilot this new offering. As a prototype, the company

allows small-business owners in the IDEA District to apply for a seed loan along with their lease application, making the process much easier. Stoa retailers could apply and be approved instantly, and the financial services company knows that applications come from real businesses with real qualifications, thanks to their digital credentials.





Strategy 5

Sparking a Cluster
in Urban Innovation

Establish a new venture fund for local, early-stage enterprises

The rapid growth of Toronto's startup ecosystem in recent years has not come without its challenges. Like many growing industries or sectors, Toronto faces issues of inequality and lack of access to limited resources, especially for smaller players in the market. Compared to startups in other cities, small startups in Toronto face significant challenges to scaling their enterprises. The rate of new startups emerging has far outpaced the amount of VC funding available, forcing entrepreneurs and businesses to slow down development and growth or seek funding elsewhere.

To help tackle these challenges, Sidewalk Labs plans to provide initial capital to establish a new venture fund to support local entrepreneurial activity in urban innovation, designated for Ontario- and Toronto-based entrepreneurs and enterprises. Sidewalk Labs plans to contribute \$10 million to the venture fund and seek additional funding from local partners to increase the size of the overall investment.

The fund could help fuel growth for startups benefiting from the ecosystem created by the digital infrastructure and open standards within Quayside, Villiers West, and the overall IDEA District, or for researchers at the Urban Innovation Institute looking to commercialize new insights. Sidewalk Labs will look to partner with Toronto-based innovation incubators to provide shared services, research

support, and flexible space within Quayside and Villiers West, and to ensure that early-stage portfolio companies are able to tap into the networks, resources, and opportunities generated by the urban innovation cluster.

Sidewalk Labs' venture fund would focus on early-stage investments and be specifically designed to help Canadian ventures and entrepreneurs overcome challenges in Toronto's market, providing the necessary capital for startups and small businesses to become larger-scale enterprises. The fund could help a range of innovators: from recent Waterloo graduates developing a new product, to a team that permanently relocated to Toronto as part of the Startup Visa program, to repeat entrepreneurs looking for a strategic partner to help them develop, iterate, and scale faster.

By prioritizing investments for local ideas and innovators, this fund could help catalyze and support the growth of a new ecosystem for urban innovation in a way that encourages Canadian talent to stay home. The development of a local, targeted investment ecosystem has proven benefits in other global clusters. For example, the agtech cluster in St. Louis was facilitated initially by BioGenerator (the cluster's dedicated investment arm),⁸⁶ which helps prepare firms to raise

capital and connect with institutional investors. St. Louis' agtech sector was projected to reach \$90 million USD in VC money in 2018,⁸⁷ more than a 440 percent increase over the past four years.

Despite being home to world-class universities and an ever-growing technology and innovation sector, Toronto faces ongoing challenges in ensuring that the talent and expertise developed within the GTA has access to the necessary structures and resources to contribute back into the local innovation ecosystem. Between 2015 and 2016, two-thirds of software engineering students from top programs — including the Universities of Waterloo, British Columbia, and Toronto — accepted positions outside of Canada after graduation.⁸⁸ In addition to recent graduates, small businesses and startups

are being drawn to set up or grow their enterprises internationally, resulting in "brain drain" throughout the industry. Businesses and startups with different needs cite a range of factors driving their decisions to relocate: from a lack of local available funding to better commercialization opportunities, to lower-cost office space, to wider networks of resources outside of Canada.

With more advanced options for early-stage venture funding, Sidewalk Labs aims to help contribute to the region's ability to retain talent and IP locally. Sidewalk Labs expects to work collaboratively with other local funders, either as co-investors in the fund or as additional investors in the portfolio of companies supported. By working with existing angel, venture capital, corporate and ecosystem players, Sidewalk Labs aims to help provide a foundation for the development and growth of the urban innovation industry. This approach provides an opportunity for a wider array of players to work with Sidewalk Labs to foster a local system of innovation and investment with the potential to sustain lasting economic opportunity in urban innovation for years to come.

Sidewalk Labs' venture fund would focus on early-stage investments and be specifically designed to help Canadian ventures and entrepreneurs overcome challenges in Toronto's market.



Strategy 6

Sparking a Cluster
in Urban Innovation

Benefit Toronto companies and catalyze new ones

Sidewalk Labs believes that the combination of the unique conditions of the IDEA District and the catalytic impact of the Urban Innovation Institute could spark a cluster that supports companies, projects, and individuals across a full spectrum of industries, at varying stages of maturity.

For example, Stockholm's emergence as a global tech hub demonstrates a successful approach to supporting a wide range of players and functions. Anchors like Ericsson, Spotify, Skype, and King support a robust and diverse tech sector that is attracting global talent, while also driving a strong startup culture in video game development and music technology. The growth of existing and new capabilities has in turn drawn significant investment, 67 percent of which comes from outside of Sweden.⁸⁹ After Silicon Valley, Stockholm is home to the highest number of "unicorn startups" per capita (valued at over \$1 billion USD), and Stockholm's tech companies have generated over \$4 billion USD in funding, creating a robust local ecosystem for innovation and investment for players of all sizes.

Sidewalk Labs anticipates that the waterfront's urban innovation cluster, which would bring together a set of innovators from even more diverse disciplines, could have a similar effect. The cluster would support industries and capabilities where Toronto already plays a leading role, such as AI; provide critical resources to attract growth in emerging industries, such as

self-driving vehicles; and provide the conditions needed to spark growth and scale nascent industries that have yet to take off globally, such as autonomous freight.

Over time, the IDEA District would lead to new discoveries that cannot yet be imagined, but from which wholly new industries may emerge that change the way people live in cities around the world.

Established fields, poised for rapid growth.

For established fields, the urban innovation cluster could provide physical space for large-scale experimentation and the necessary concentration of talent to enable rapid growth. Toronto is already a leader in AI, for example. Canada was the first country to announce a national strategy for artificial intelligence — the Pan-Canadian Artificial Intelligence Strategy — which came with a commitment of \$125 million over five years by the federal government and has catalyzed investment from other levels of government as well as over \$100 million from the private sector to support the industry's growth.⁹⁰

To build on this momentum, the IDEA District presents an additional asset to support the realization of government objectives: a forum for interdisciplinary collaboration, a concentration of resources and investment, and the ability to test new technologies. Together, these

conditions can enable faster paths to the discovery of new applications and uses of AI to tackle urban challenges, supporting the growth of the larger field.

Emerging industries building momentum.

For emerging fields, the urban innovation cluster could provide resources to help industries overcome technical challenges, develop new capacities, and gain broader market acceptance and consumer support on an accelerated timeline compared to what might otherwise be possible.

Take the self-driving mobility industry, which is already gaining momentum in Ontario. Both the University of Ontario Institute of Technology's Automotive Centre of Excellence and the Waterloo Centre for Automotive Research (WatCAR) have a history of supporting advancements in automotive technology. Major automotive companies are building innovation and testing facilities, too, including GM's Urban Mobility Campus,⁹¹ located in close proximity to the eastern waterfront, and Uber's engineering research centre.⁹² The City of Toronto is also building on this momentum; in partnership with the TTC and Metrolinx, Toronto has secured more than \$1 million in funding from Transport Canada to operate a pilot project for self-driving shuttles, which, if approved, would begin in 2020.⁹³

Despite these leading-edge investments, the large-scale market adoption of self-driving vehicles is not around the corner. But by providing the opportunity to responsibly test vehicles in an urban environment, the urban innovation cluster could enable a world-class testing, research, and engineering centre that could make self-driving vehicles a reality at scale at a dramatically accelerated pace.

Nascent industries seeking scale.

For more nascent fields that might need support or intervention to scale up, the urban innovation cluster could provide greater and more immediate access to all of the tools required for growth. Supporting nascent industries has been a core priority demonstrated through Waterfront Toronto's recent work along the waterfront and a critical objective in its RFP for an Innovation and Funding Partner, which called for "a testbed for Canada's cleantech, building materials and broader innovation-driven sectors to support their growth and competitiveness in global markets." Entrepreneurs and companies that make up nascent industries would be able to share resources and expertise, leveraging opportunities for growth that might not otherwise be available.

The tall timber industry is a prime example of how the cluster could leverage Toronto's unique innovation assets while providing resources and expertise to expand the city's innovation ecosystem. Sidewalk Labs has committed to the widespread adoption of mass

timber-based construction methods, over the use of more traditional building materials like steel and concrete. But despite the significant environmental, financial, and building efficiency benefits of timber-based construction, it has not yet been deployed at scale, particularly in an urban context. An urban innovation cluster at the waterfront, supported by researchers and innovators in building technologies, would provide an opportunity for Toronto to capitalize on the momentum created by building an

entirely timber Quayside and become a global leader in the ongoing development of mass timber and, more broadly, the field of building materials innovation.

Industries that cannot yet be predicted.

A measure of a successful cluster is not only its ability to support the companies and industries that exist today, but to provide a platform to nurture and catalyze the development of new ideas and capabilities in the future — some of which the world cannot yet anticipate.

A measure of a successful cluster is its ability to nurture the development of new ideas and capabilities in the future.

The unique conditions of the IDEA District and the catalytic impact of the Urban Innovation Institute could spark a new cluster that supports a range of companies and individuals.

Measuring Impact

The IDEA District would spur the creation of 93,000 total jobs and generate \$14.2 billion of annual GDP output by 2040 — nearly seven times Toronto’s current projections for the area. It would also generate vast construction tax revenue and roughly 174,000 construction jobs, via the largest building project in North America.



Impact 1

Measuring Impact

Spurring the creation of 44,000 direct jobs and 93,000 total jobs

Applied across the entirety of the IDEA District, Sidewalk Labs' approach to activating the waterfront has the potential to change the economic development impact of the area, including catalyzing 44,000 direct jobs by 2040. This projected growth represents an increase of approximately 25,000 in direct jobs compared to the baseline scenario at its completion in 2050, as envisioned in the Port Lands Planning Framework and other existing planning documents.

Projected job growth will not just be confined to the boundaries of the IDEA District. The district's development can stimulate the creation of an additional 49,000 indirect and induced jobs across industries, skill levels, and companies throughout Toronto, Ontario, and Canada — creating an aggregate total of over 93,000 jobs.

But it is the composition of these jobs, beyond simply their existence, that could be most impactful for Toronto. The IDEA District's emphasis on innovation, entrepreneurship, and exploration likely means that a higher percentage of jobs would be created in fields such as professional and scientific and technical services (more than five times the baseline total, based on the urbanMetrics report), raising the projected average wage for all jobs in the IDEA District to \$70,000 — a 17 percent increase from the approximately \$60,000 based on the rough proportion of jobs in the Port Lands Planning Framework.

Further, research suggests that high concentrations of employment in tech-related fields have the potential to drive increased wages for a range of other job types, including those that do not require a degree. For every "high-tech" job created, approximately five non-tech jobs are created, across a wider range of functions and industries and accessible to a broader range of people.⁹⁴

The 44,000 permanent, full-time, direct jobs that emerge in the IDEA District would generally fall into three broad categories: industrial, population-based services, and knowledge-based industries.

Industrial.

First, the district would maintain a small but core mass of industrial jobs in industries such as light manufacturing and transportation. In its analysis, urbanMetrics estimates that this segment could account for 2,500 of the 44,000 jobs within the IDEA District.

Population-based services.

Second, the district would be home to thousands of jobs in population-based services that are the foundation of all local economies, primarily selling products and services for the local market. This segment includes the professions of teachers, doctors, and retail jobs. These jobs would create economic opportunities for people with a range of educational backgrounds and

Projected average income in the IDEA District: \$70,000

The IDEA District has the potential to realize substantial job growth across all industries and income levels, in comparison to existing proposals. The district can achieve this growth through a significant amount of commercial and retail space intended for companies of all sizes and missions, allowing for the cultivation of a business community that is accessible to all educational backgrounds. This diversity of jobs and skill levels would bring the average income within the area to an estimated \$70,000.

Industry	Average Industry Income (Toronto Census Metro Area)	Percentage of IDEA District Job Total
Professional, Scientific, and Technical Services	\$73,286	30.0%
Information and Cultural Industries	\$69,376	14.9%
FIRE (Finance, Insurance, and Real Estate)	\$94,428	12.5%
Management of Companies and Enterprises	\$122,377	10.0%
All Other Services	\$48,328	10.0%
Health Care and Social Assistance	\$53,251	5.0%
Accommodation and Food Services	\$22,164	5.0%
Retail, Wholesale, Transportation, and Warehousing	\$45,081	5.0%
Administrative Support, Waste Management and Remediation	\$34,324	5.0%
Goods-Producing Sector	\$56,986	2.4%
Average income across all categories	\$70,422	

Note: The table above includes only permanent, direct employment within the IDEA District. It includes neither the indirect and induced jobs catalyzed by this permanent employment, nor the direct, indirect, and induced jobs associated with the project's building and infrastructure construction.

skill sets. In its analysis, urbanMetrics estimates that this segment could account for approximately 12,000 of the 44,000 jobs within the IDEA District.

Knowledge-based industries.

Finally, the district would be home to tens of thousands of jobs in knowledge-based industries — such as technology, finance, professional services, and creative fields, including the film industry — drawn to the concentration of talent, new flexible and affordable office spaces, and strong connectivity to the downtown core and regional transit. An initial anchor of this segment would be Google’s Canadian headquarters, with up to 500,000 square feet, which would be sufficient to accommodate as many as 2,500 jobs, the majority of which would be for

Google employees (though actual hiring will depend on market conditions and business requirements). In total, urbanMetrics estimates that knowledge-based industries could account for approximately 29,500 of the 44,000 jobs within the IDEA District.

Over time, Sidewalk Labs predicts that a substantial portion of the jobs created within the knowledge-based industries segment would fall under the umbrella of urban innovation, drawn specifically by the unique conditions created as part of the IDEA District. Sidewalk Labs estimates that more than a third of the 29,500 knowledge-based jobs created in the IDEA District would fall into this emerging field. These 10,500 jobs would be the core of a cluster in urban innovation that has the potential to become a new economic engine for Toronto.

For every “high-tech” job created, approximately five non-tech jobs are created.

Research has found that high concentrations of employment in tech-related fields have the potential to drive increased wages for a range of other job types, including those that do not require a degree.



Nearly seven times the potential annual GDP impact

The new economic ecosystem envisioned for the waterfront, with a cluster for urban innovation at its core, has the potential to transform the eastern waterfront into a dynamic, diversified, and inclusive growth engine capable of generating new opportunities in Toronto and beyond. As a significant economic stimulus for the country, the accelerated development of the IDEA District could create many higher-paying direct and indirect jobs, generating billions of dollars in additional tax revenues at all three levels of government and, critically, producing significant GDP gains.

Building on Toronto's competitive strengths, Sidewalk Labs could spark the development of the waterfront and have a broader economic impact through a series of transformative investments, including in district-scale infrastructure, the Urban Innovation Institute, a new Canadian headquarters and a connected campus for Google, a venture fund for local enterprises, and a policy framework designed to encourage experimentation and innovation while protecting health, safety, and privacy.

By embracing a cluster-based model, Sidewalk Labs anticipates supporting a new network of neighbourhoods with unparalleled economic opportunity for

all residents and businesses, whether or not they participate directly in the urban innovation economy. A cluster for urban innovation would improve regional economic growth over time and improve the resilience of the local and broader economies against downturns in the future.

Further, introducing anchor tenants to catalyze the development of the cluster enables the district to attract future investment and talent and position the IDEA District, and Toronto on the whole, as a global leader in urban innovation. Sidewalk Labs believes the benefits of investing resources into the local innovation ecosystem will extend well beyond the waterfront — enabling a virtuous cycle of investment and innovation, and ensuring the sustainability of urban innovation as a core economic sector that can benefit the city and country for decades to come.

The Toronto firm urbanMetrics estimates that the growing global profile of the IDEA District could generate an estimated \$14.2 billion in economic output for Canada each year (GDP), including \$1.8 billion in Toronto, which represents a more than six-fold increase in value added to the Canadian economy compared to status quo development by 2040.

The IDEA District: \$14.2 billion in economic output and 93,000 jobs

Nearly seven times as many jobs by 2040

	Baseline scenarios	IDEA District
Toronto	11,601	79,025
Ontario	944	5,945
Canada	1,288	8,164
Total	13,833	93,134

Nearly seven times the annual GDP contribution by 2040

	Baseline scenarios	IDEA District
Toronto	\$1,723,717,641	\$11,769,431,015
Ontario (not including Toronto)	\$192,885,909	\$1,198,827,313
Canada (not including Ontario)	\$202,173,751	\$1,238,055,343
Total	\$2,118,777,301	\$14,206,313,671



The largest city building project in North America

The one-time investment in infrastructure and buildings related to the Sidewalk Labs proposal has the potential to generate enormous value. An estimated \$18 billion in new building construction — across the IDEA District — would be a nearly 49 percent increase over the amount spent within the baseline scenario.

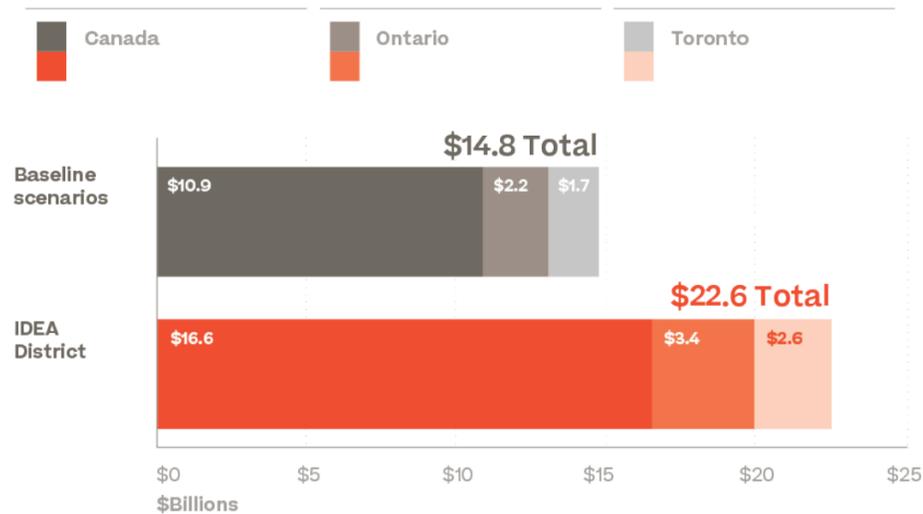
If the Sidewalk Toronto project proceeds at the proposed scale of the IDEA District, it would quickly become one of the largest construction projects in the world, providing an enormous number of jobs and generating tremendous value to a city that already has more cranes dotting its skyline than any other in North America. The urbanMetrics analysis suggests that, all told, between buildings and infrastructure, the project's construction

could add more than \$22.6 billion in value to the Toronto economy and create over 174,000 person-years of full-time employment. In total, the infrastructure and buildings construction represent an 18 times multiplier to the government's initial \$1.25 billion investment in the Don Mouth Naturalization Project.

Sidewalk Labs' proposed development program, if scaled across the IDEA District, would require the annual production of over 55,000 cubic metres of mass timber, enough to require the output from a dedicated factory factories supplying only this project and to support an estimated 2,500 person-years of employment over the next 20 years.

More than 50% increase in total construction GDP contribution at completion

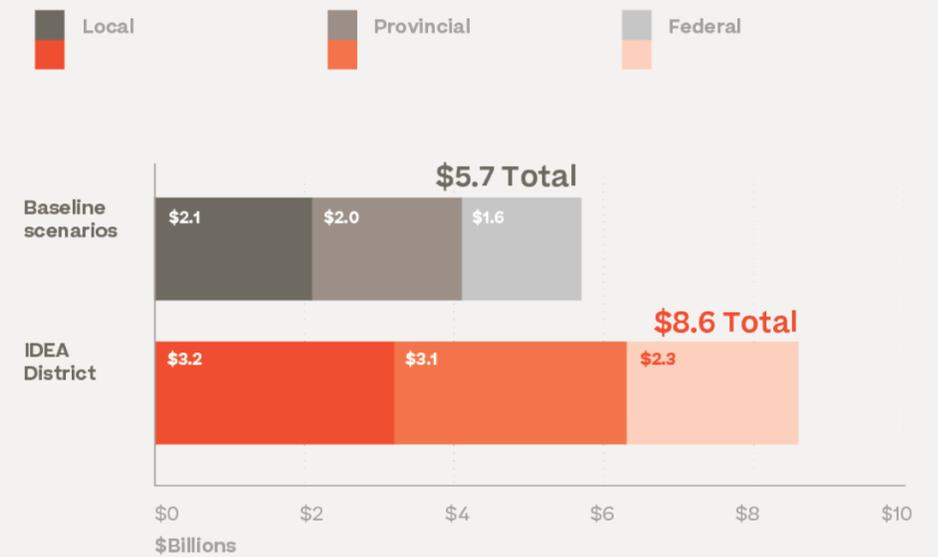
The vertical and infrastructure construction of the IDEA District would contribute an estimated \$22.6 billion to the Canadian economy, approximately \$8 billion more than the baseline scenario. This impact includes a one-time contribution of over \$16 billion to the Toronto economy.



One-time construction impact: \$22.6 billion in GDP, \$8.6 billion in taxes, and 174,000 jobs by 2040

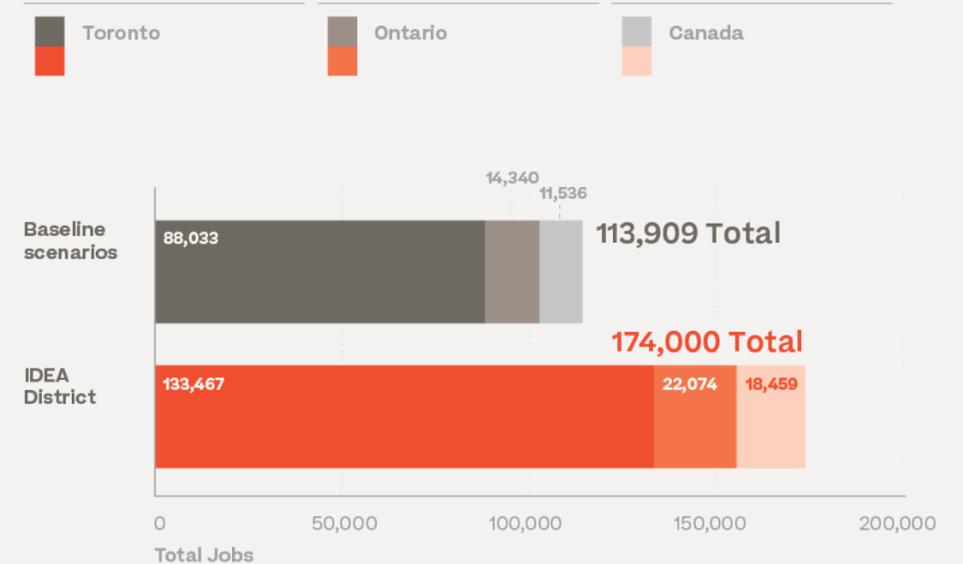
More than 50% increase in total construction taxes generated at completion

Under Sidewalk Labs' vision for the IDEA District, vertical and infrastructure construction projects would generate roughly \$8.6 billion in taxes by 2040, representing the full potential buildout of the IDEA District. This revenue would be spread across the federal (\$3.2 billion), provincial (\$3.1 billion), and local (\$2.3 billion) levels. In aggregate, this revenue amounts to a more than 50 percent increase in the amount that would be generated under the baseline scenario, according to the urbanMetrics analysis.



More than 50% increase in total construction jobs at completion

The construction of the IDEA district would create 174,000 person-years of full-time employment within Canada, 60,000 person-years of full-time employment more than the baseline scenario.



Note: All baseline scenario calculations are estimated to have a 2050 completion of construction, while all IDEA District calculations are estimated to have a 2040 completion of construction.

Exploring Economic Impact Further into the Future

Extending the innovation ecosystem beyond the IDEA District has the potential to create a total of 150,000 jobs, generate \$22.4 billion in ongoing economic output, and produce \$6.8 billion in tax revenues.

Advancing economic opportunities

The Sidewalk Toronto project proposal involves transforming 77 hectares of the eastern waterfront — less than one third of the total area — into an IDEA District that creates the conditions for urban innovation to thrive, helping to achieve Waterfront Toronto and City of Toronto objectives around affordable housing, economic opportunity, sustainable mobility, and climate positivity.

Sidewalk Labs' proposal does not include any specific plans for nor any Sidewalk Labs role in the development of this area. But the approach taken by the IDEA District could enable Ports Toronto (which owns roughly 35 percent⁹⁶ of the land south of the Ship Channel), Waterfront Toronto, and the city to further advance economic opportunities and help achieve priority outcomes around climate-positive development, housing affordability, and sustainable mobility. It could also further complement a significant expansion of the Film District and support the ongoing consolidation of more traditional and large-scale industrial uses into the East Port.

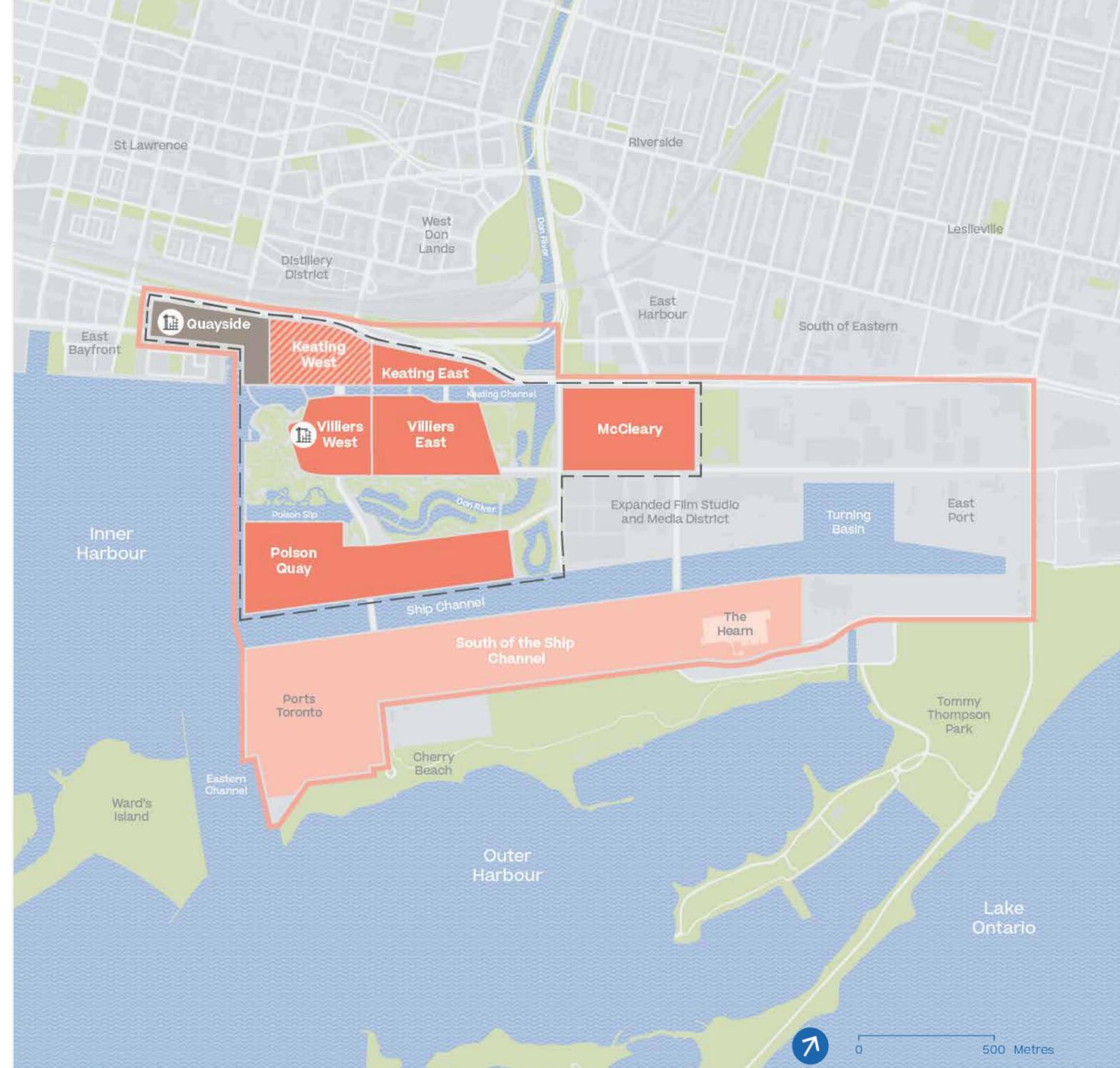
The urbanMetrics analysis found that the development approach initiated in Quayside and the River District — emphasizing innovation, greater densities, and mixed-use development — could realize enormous economic potential south of the Ship Channel, if applied by third parties.

On its own, development south of the Ship Channel could become home to over 26,000 direct jobs, create \$8.1 billion in annual GDP, and generate \$2.5 billion in tax revenues.

The business plan put forward in Volume 3 encompasses only the geography of the IDEA District, which includes Quayside and the River District. Over the long term, if the approach taken in the IDEA District proves successful in advancing and accelerating key public policy goals, it is possible to imagine extending this innovation ecosystem to neighbouring areas, bringing thousands of jobs as well as new public transit connections.

The area south of the Ship Channel is likely to become especially important for consideration of future development. The Port Lands Planning Framework identifies this area as a long-term revitalization opportunity.⁹⁵ It is unique in being surrounded by water on three sides and being home to the Hearn Generating Station, a vast decommissioned power plant and heritage structure that could anchor meaningful economic and community growth.

South of the Ship Channel by the numbers:
Over 26,000 direct jobs
\$8.1 billion in annual GDP
\$2.5 billion in annual tax revenue



Map
Potential South of the Ship Channel geography

- Eastern waterfront
- IDEA District
- Phase 1: Quayside
- Phase 2: River District
- Optional participation in Phase 2
- South of Ship Channel (future option)
- Sidewalk Labs develops real estate and advanced systems

Combined with Quayside and the River District, this expanded innovation ecosystem could be home to over 70,000 direct jobs at the waterfront and support the creation of an additional 77,000 jobs throughout Canada (over 60,000 within Ontario). The economic benefits translate into \$22.4 billion in annual GDP — a 262 percent increase in value added to the Canadian economy compared to status quo development at completion — and \$6.8 billion in tax revenues.

In addition, the construction alone of the entire area could generate over 267,000 person-years of full-time employment, over \$34.7 billion in economic output, and over \$13.1 billion total in taxes throughout Canada.

Sidewalk Labs believes that if the development of the River District proceeds as proposed, it could accelerate development south of the Ship Channel, greatly compressing the time frame during which Canada would realize these benefits.

Further extending transit infrastructure to realize the waterfront’s full potential.

Just like in the IDEA District, the area south of the Ship Channel area lacks basic infrastructure and connections to the rest of the city, creating significant barriers to realizing potential economic and community benefits for the city.

The area’s extraordinary assets lend themselves to a rare mix of nature, jobs, and housing. As a result, in the long-term, an additional public transit extension could support economic growth as well as more integrated live-work-make communities.

The city’s approved light rail expansion plans have the line ending in Polson Quay and looping back to the rest of the city. This extension could continue across two new bridges built to carry transit across the Ship Channel. The new route could form a large “U” across the southern edge of the eastern waterfront that would connect to the city’s broader transit network, supporting sustainable development and jobs access.

With public transit in place, newly connected neighbourhoods could become major economic drivers, especially the area surrounding the Hearn.

With public transit in place, newly connected neighbourhoods could become major economic drivers, especially the area surrounding the Hearn.

Toronto case study

The Bloor Viaduct: A precedent for visionary infrastructure investments in Toronto



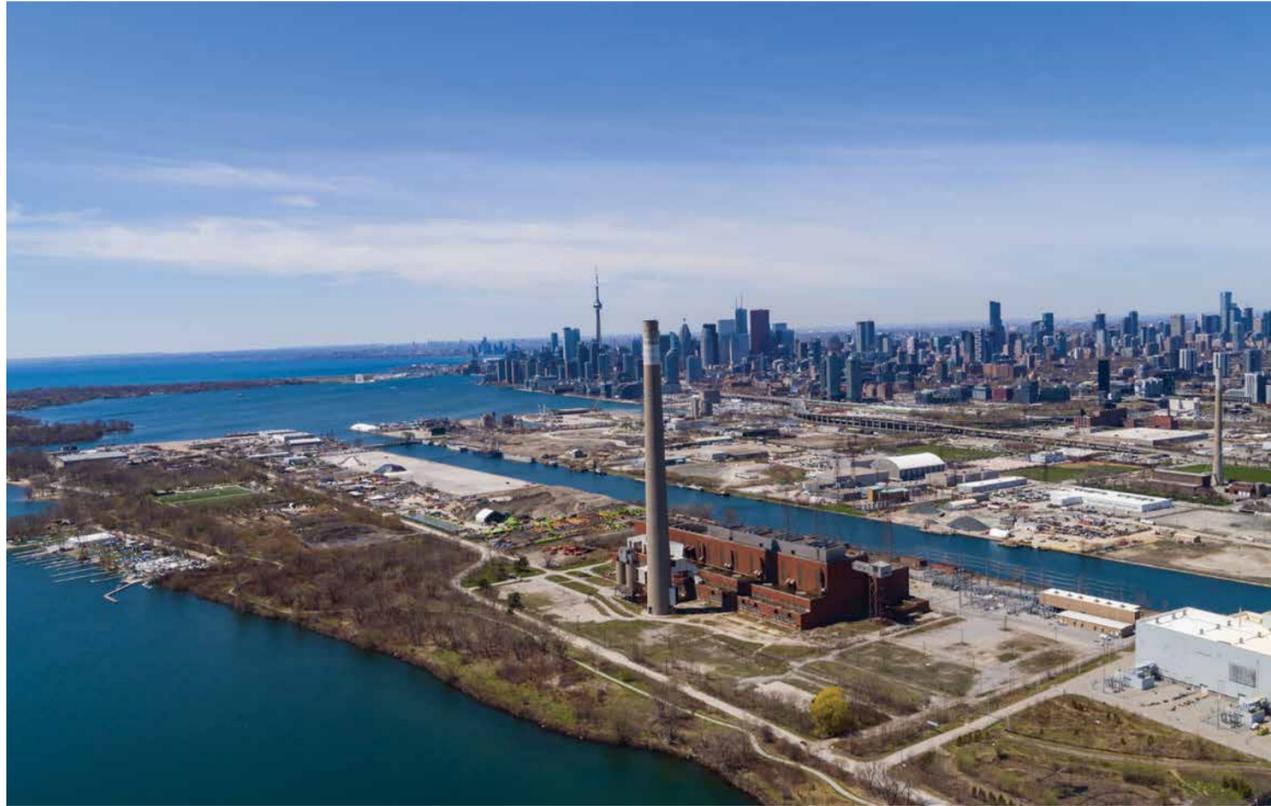
Toronto’s decision to construct the Bloor Viaduct in 1918 proved visionary, as it set the path for the subway system to connect the east end with downtown. Credit: City of Toronto Archives

Investing in a transit expansion south of the Ship Channel, as well as the bridges to support it, would echo the city’s ambition when it constructed the Bloor Viaduct in 1918.⁹⁷ At the time, there was significant controversy over including support for rail transit along the bottom of the viaduct, when the city had not even secured a rail operator.

This vision proved to be prescient, as the new infrastructure became the path for the Toronto subway, connecting the east end of Toronto with downtown. The expanded subway transformed

neighbourhoods all along the route, making it easy and affordable for thousands of people to reach jobs downtown and fostering new economic anchors all along the corridor.

This extension has become a shining example of the value created for people, jobs, and the environment when ambitious transit infrastructure is embedded into plans from the beginning.



The Hearn is a 400,000-square-foot megastructure that could become a prime site for driving economic development for the eastern waterfront. Credit: DroneBoy

The Hearn as economic catalyst

One of the most significant economic development opportunities involves the Hearn, a 400,000-square-foot megastructure that opened in 1951 as a coal-fired power plant and was decommissioned in 1983. This extraordinary space has been largely abandoned, but its towering smokestack, visible across the city, stands in silent testimony to the eastern waterfront’s history and the area’s future potential.⁹⁸

The Hearn sits at the middle of Unwin Avenue, right next to a potential light rail stop and bridge that could connect the area south of the Ship Channel up an extended Broadview Avenue through the Film District, McCleary, East Harbour, and Toronto’s revitalizing east end. This location, along with the structure’s unique

architecture, makes the Hearn a prime site for driving economic development for the region.

Recent years have seen glimpses of this potential. In 2002, Studios for America leased space at the Hearn and later bought the building. The iconic smokestack, towering ceilings, vast open space make it appealing as a potential film location, and the Hearn has hosted shoots, including for the Oscar-winning 2018 film, “The Shape of Water.”

The building has also hosted major cultural events, most notably in 2016, when the Luminato Festival used the Hearn for its festival hub.⁹⁹ Thousands of people flocked to the Port Lands — many for the first time — demonstrating the Hearn’s ability to draw crowds through innovative public programming and to become a



In 2016, the Luminato Festival drew thousands of people to the Hearn, demonstrating its ability to attract crowds through innovative public programming. Credit: PARTISANS

symbol for urban transformation, cultural expression, public accessibility, and civic celebration.

As Toronto continues to revitalize its eastern waterfront, the Hearn could become a centrepiece of this transformation and a city-wide magnet for arts, culture, production, and innovation. As it once powered the city with electricity, the Hearn can again be a generator — now of post-industrial forms of production, creating jobs and businesses while offering educational, cultural, and recreational resources that complement and catalyze Toronto’s existing strengths across a variety of industries.

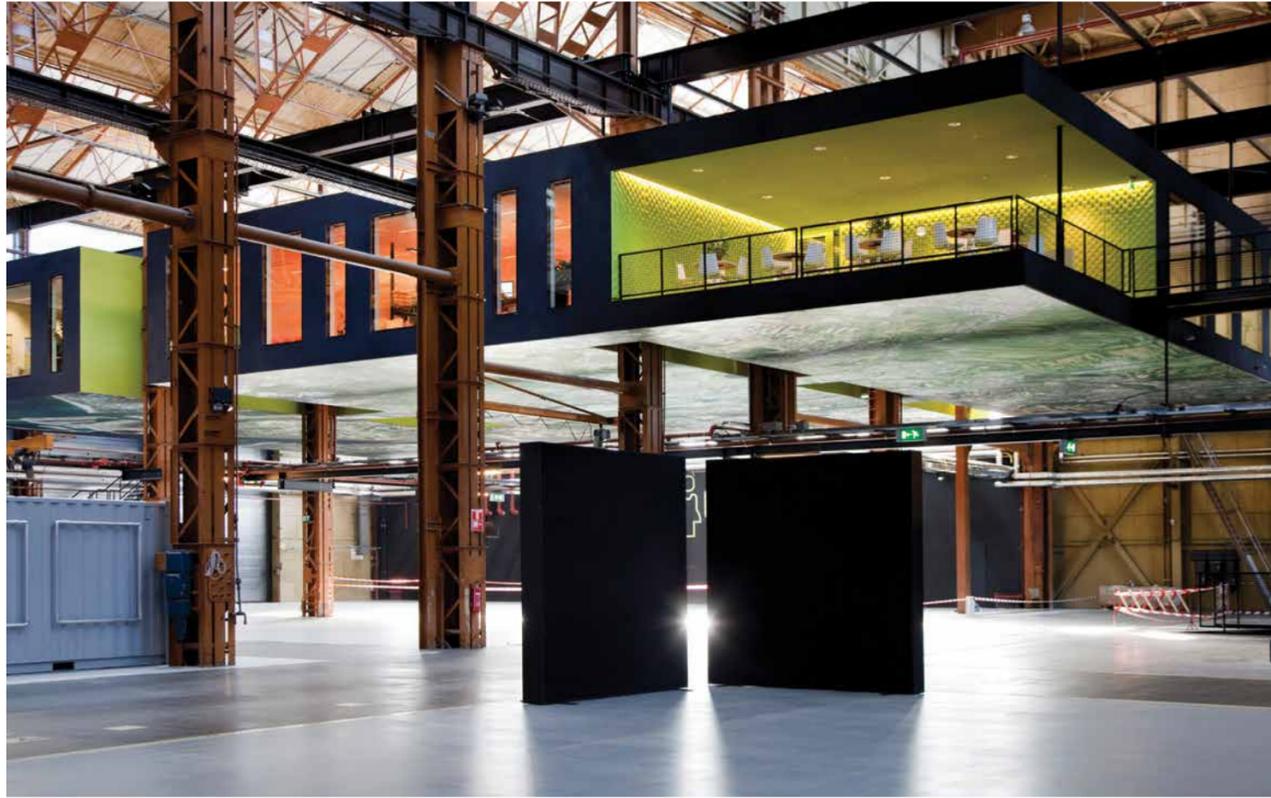
It can support the future of the film industry by bringing together emerging new media businesses, training programs, production spaces, and film screenings. It can be an incubator of new creative

projects, businesses, and institutions through a shared infrastructure that facilitates cross-disciplinary collaborations. The Hearn can become a gathering space, marketplace, and everyday asset for recreation, culture, and learning that will draw local and visiting populations. And it can be a trailhead, adding environmental, recreational, and educational assets to the diverse ecology of the Port Lands, from Lake Ontario to the Don Valley.

In short, the Hearn can become a microcosm and driver of a rejuvenated Port Lands that is built on the principles of adaptability, innovation, and mixed-use development.

Building on global precedents of post-industrial revitalization.

The approach to the Hearn as an economic catalyst could draw insight from many global examples of successful



The RDM Rotterdam campus is a six-hectare mixed-use campus on a former shipyard that has started to reactivate the area, including spawning 40 new companies. Credit: Vincent Wegener

revitalization of post-industrial sites. The most successful examples present a set of common characteristics: shared infrastructure, cross-disciplinary programming, resident and visiting populations, educational partnerships, and fabrication spaces. They also act as sparks in transitional districts, invigorating surrounding communities.

One of the most successful and innovative post-industrial catalysts of urban growth is the RDM Rotterdam campus in the Netherlands. (RDM stands for Research, Design, Manufacturing.)

While Rotterdam is still host to the largest port in Europe, a significant stretch of its waterfront had fallen into disuse as shipping activities migrated further downstream the Nieuwe Maas river. This relocation created roughly 1,600 hectares of underutilized land.¹⁰⁰

In 2007, Rotterdam Port Authority, Rotterdam University of Applied Science, and Albeda College collaborated to develop the RDM project, with an aim to educate talent and foster innovation for the future needs of a sustainable port and city. The result was a six-hectare mixed-use campus on a former shipyard that has started to reactivate the area, including spawning 40 new companies.

The campus centerpiece is the 230,000-square-foot Innovation Dock, a vast machine hall filled with prototyping equipment including robots, 3D metal printers, laser cutters, and an aquatic lab for hydrodynamic testing. Demand has been significant: 100 percent of this space is now leased out. The campus also boasts a “Concept Village” to demonstrate housing prototypes and a cultural platform for concerts, art exhibitions, and commercial events.

The Hearn has similar potential to become an anchor for urban innovation that draws the economic opportunities initiated in the IDEA District further into the eastern waterfront, supporting the area’s position as a global hub for this growing industry and spreading new ideas around the world.

Coupling economic development with ambitious quality-of-life objectives

As mentioned throughout this chapter, the unique economic opportunity of urban innovation is that it both is a growing, diverse industry that can support tens of thousands of jobs, as well as an industry built around tackling the major urban challenges facing cities today. To that end, in addition to catalyzing economic opportunity, the area south of the Ship Channel has the potential to further advance the waterfront’s priority outcomes of sustainability, housing affordability, and people-first mobility.

Should Waterfront Toronto and the city decide to extend advanced infrastructure systems beyond the IDEA District, these systems would allow for a further reduction of greenhouse gas emissions per capita beyond those achieved in Quay-side and the River District. Sidewalk Labs estimates that a reduction of 92 percent emissions beyond current city levels would be possible.

By expanding a holistic mobility approach south of the Ship Channel — including extensions to public transit, streets designed to encourage safe cycling and walking, pricing models designed to encourage shared trips, and coordinated traffic technology — Sidewalk Labs estimates that only 9.5 percent of trips would be made by private automobile by 2041. The result could be a sustainable model for other cities trying to plan for self-driving technology and the future of urban mobility.

Finally, if a housing vision with 40 percent below-market units were expanded south of the Ship Channel, it could create a cumulative 20,000 units of below-market housing (half affordable housing, half middle-income housing). While such a vision would require significant public-sector contributions, new sources of developer funding — such as greater land value created by factory-driven construction techniques or condo resale fees — could help support ambitious affordability objectives by generating almost \$2 billion through 2050 for below-market housing, at this scale of development.

Sustainability innovations could reduce GHG emissions by 92% if applied south of the Ship Channel

Mobility innovations could result in just 9.5% of trips occurring by private car if applied south of the Ship Channel

Affordability innovations could create some 20,000 units of below-market housing if applied south of the Ship Channel

Realizing the eastern waterfront's long-held potential

For more than a century, Toronto has tried to unlock the potential of the eastern waterfront as an outlet for inclusive growth. The innovative approach to development described in Volume 1 represents a belief that a powerful moment has arrived for the city to finally realize its long-held vision for this area.

This unique approach can not only meet but exceed Waterfront Toronto's ambitious priority outcomes. It can create new momentum for mixed-income, mixed-use, climate-positive communities along the waterfront. And it can create the conditions for a spirit of exploration to emerge — one that harkens back to the area's industrial past and draws innovators from around the world to a place designed from its core to help improve the lives of people in cities, both now and into the future.

Endnotes

General note: Unless otherwise noted, all calculations that refer to the full proposed IDEA District scale are inclusive of the entirety of its proposed geography, including all currently privately held parcels (such as Keating West). Unless otherwise noted, all currency figures are in Canadian dollars. Additional information can be found in the MIDP Technical Appendix documents, available at www.sidewalktoronto.ca/midp-appendix.

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With special thanks to:

Adam Barker, Charlotte Bovis,
Naydia Chantarasompoth,
Rebecca Craft, Steven Desrocher,
Dina Graser, Elliot Jefferies,
Neil Kittredge, Alex Laing,
Dan Levitan, Chad Markel,
Nancy MacDonald, Peter Macleod,
Jon Medow, Richard Moore,
Eddie Opara, Vanessa Pfaff,
David Sauve, Karl Schaefer,
Jenin Shah, Natalie Telewiak

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Acknowledgements

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140, 148, 242; Volume 1 pages 58, 60,
62, 64, 66, 300, 308, 372, 438, 514)
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