Toronto Tomorrow

A new approach for inclusive growth

SIDE|WALK|LABS

3

The Partnership

Land Acknowledgement

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

The Partnership
Contents

The Partnership
Contents

Chapter 6
Stage Gates and Risk Mitigation

Chapter 7
Overview of the Participants in IDEA District Development

Supplemental Tables

MIDP Acknowledgements

Partnership Overview

Introduction

Toronto's eastern waterfront represents one of the greatest tracts of undeveloped or underdeveloped land in any major North American city. It presents Waterfront Toronto, the City of Toronto, the governments of Ontario and Canada, and the people of Toronto with an extraordinary opportunity to shape the future of Toronto and serve as a model for how cities around the world manage growth. The Master Innovation and Development Plan represents a comprehensive proposal for how to realize that potential in a portion of the eastern waterfront.

An aerial view of Toronto's waterfront looking east towards the Port Lands, from circa 1933, shows the industrial area created by filling in Ashbridge's Bay marsh. Credit: City of Toronto Archives

For over a century, public officials and developers have looked to the eastern waterfront to help address the land-use problems of the day.[1] Early last century, they envisioned the waterfront as a new home for Toronto's growing industrial base. For a variety of reasons, including economic timing and a lack of supporting infrastructure, the eastern waterfront never lived up to its lofty expectations.

After World War II, Toronto's economy shifted away from manufacturing — as was the case in many cities across North America — leaving the waterfront's industrial areas to enter a long period of decline and neglect.[2] Towards the close of the 20th century, Toronto's waterfront remained underutilized and in need of the critical infrastructure necessary for a post-industrial revival, but there was no single entity tasked with creating a cohesive vision for the waterfront's future. Today, beyond the important Film District, the eastern waterfront is largely a storage ground whose remaining industrial structures serve as a testament to the difficulty of large-scale urban development. As the 21st century beckoned, public

leaders took the first steps towards bringing the long-neglected waterfront to life. This effort began as part of an Olympics bid, with the bid committees strategically locating many proposed venues along the waterfront.[3]

Although the Olympics never materialized, the waterfront's economic potential became a focal point of Toronto's civic imagination, and a new resolve emerged from all three orders of government to revitalize the waterfront. In 2001, they formed Waterfront Toronto, a public corporation whose mission was to revive the waterfront as an economic engine.[4] From its inception, Waterfront Toronto's mission was about more than economic growth for its own sake — seeing innovative development as a way to advance core public priorities, such as economic opportunity, sustainability, and affordable housing.

Over the years, Waterfront Toronto has made significant progress. Waterfront Toronto has guided roughly 2.5 million square feet of

development (completed or planned) and leveraged initial government funding to spur $4.1 billion in economic output for the Canadian economy.[5] The agency's achievements also include attracting a privately funded fibre-optic gigabit network, leading the creation of new public transit corridors and active streets, guiding over 36 hectares of parks and public spaces, and helping secure roughly 600 units of affordable housing.[6] The waterfront revitalization area under Waterfront Toronto's scope is 800 hectares, and to date, the agency has overseen the transformation of nearly 100 hectares of waterfront lands.[7]

In 2017, Waterfront Toronto took the first key step towards unlocking the eastern waterfront by securing an extraordinary $1.25 billion investment in flood mitigation by all three orders of government. This project will help to unlock a new swath of land for future development.

At this point, Waterfront Toronto could have continued using a traditional model, bidding out a series of development parcels, with market-rate condos dominating the mix. But several emerging trends rightly led Waterfront Toronto to choose a different path.

Owing to its rapid growth, the Greater Toronto Area has become increasingly unaffordable for middle- and low-income Torontonians.[8] Rapid transit infrastructure has failed to keep pace with growth, increasing traffic and pushing Torontonians farther and farther away from centres of opportunity.[9] Open space is in high demand with limited supply.[10] These trends, in turn, have exacerbated the city's environmental challenges, which mirror those of other major North American cities.

The result is that the more traditional model of development — with its low levels of affordability, lack of public realm, lack of commercial space — is no longer viewed as an economic panacea, but as one symptom of the problem. Nor does the usual approach meaningfully address greenhouse gas emissions or other serious 21st century challenges.

Waterfront Toronto began to study innovative solutions to these increasingly complex sets of urban challenges — with many new approaches made possible, in part, by emerging digital capabilities. Those challenges start with affordability and extend to sustainability, inclusivity, economic opportunity, and mobility. In spring 2017, seeing an opportunity to leverage the land within its jurisdiction to greater purpose, Waterfront Toronto issued a Request for Proposals (RFP) for an Innovation and Funding Partner to work alongside Waterfront Toronto to devise, finance, and implement a bold vision of urban progress for the eastern waterfront.[11]

Waterfront Toronto issued the RFP to unlock the potential of the eastern waterfront as an engine of urban progress and economic development.

Centred on the five-hectare Quayside parcel, the RFP sought proposals for achieving a series of objectives that went far beyond

narrow economic goals. Waterfront Toronto was looking for proposals to create a "globally-significant community that will showcase advanced technologies, building materials, sustainable practices and innovative business models that demonstrate pragmatic solutions toward climate positive urban development." The RFP also recognized the potential constraint of scale at Quayside, including a requirement to "describe your team's ability and readiness to take the concepts and solutions deployed on Quayside to scale in future phases of waterfront revitalization."

Instead of a more traditional plan, which might lead mainly to single-use condos, the RFP sought to forge a new model for a complete, mixed-use community, with outsized levels of affordable and below-market housing. Rather than looking to Quayside for incremental improvements on past development, the proposal sought to use the area as a demonstration for how advances in technology and design can yield substantial improvements in quality of life for Torontonians and for urban residents. And instead of seeking modest sustainability gains, the RFP sought plans to deliver an extraordinary level of sustainability: a climate-positive community.

Thus, the Innovation and Funding Partner would serve as more than the developer of Quayside, but as a partner to work alongside

Waterfront Toronto to conceive and execute a forward-looking vision for Quayside and the eastern waterfront — a partner with the right level of ambition, technical expertise, and financial resources.

Sidewalk Labs is an Alphabet company founded in 2015 for the very purpose of delivering dramatic improvements in urban life — on the belief that tackling urban challenges is possible with a careful integration of emerging innovations and forward-thinking urban design.

From its founding, Sidewalk Labs' goal was to create an urban district to show the broad value of applying innovations across multiple dimensions in an integrated strategy. Sidewalk Labs assembled a team of planners, architects, developers, technologists, and experts in finance and policy — with the combined expertise to deliver a large-scale project that achieves multiple, complex objectives in a public context. The result is a mission-driven company uniquely capable of rethinking urban systems with the goal of improving city life.

Following its formation, Sidewalk Labs entered a period of intensive research and development, including: consulting outside experts from around the world to advise on the impact of technology on urban life; evaluating hundreds of emerging urban innovations; reviewing 50 years of attempts to plan "smart cities" or "urban innovation districts"; and creating the framework for planning a large-scale district with innovation and quality of life built into its foundation.

Sidewalk Labs undertook feasibility studies based on this concept with several key assumptions. The district would have to be socio-economically diverse, closely connected to the surrounding metropolitan area, and of sufficient scale to support key infrastructure systems. Sidewalk Labs concluded that it could create the most innovative urban district in the world, which would materially improve on nearly every measure of quality of life and attract a vibrant mix of residents. And that it could do so in a financially viable manner.

As Sidewalk Labs was studying specific sites around the world, Waterfront Toronto was evaluating its approach to unlocking the

potential of the eastern waterfront. Sidewalk Labs immediately recognized that Toronto could be an ideal place to start.

The city is remarkably diverse, with nearly half its population foreign-born.[12] It is experiencing rapid growth; the City of Toronto is projected to add 1 million people by 2041.[13] Toronto's university system is extraordinary, and Toronto is home to one of the most dynamic technology ecosystems in the world.[14] The city's history is one of civic engagement, thoughtful urban planning, and policy innovation. And with the current development trajectory threatening Toronto's inclusiveness, Sidewalk Labs saw Torontonians as potentially open to exploring new ways to manage growth.

Sidewalk Labs responded to the RFP and six months later was honoured to be selected by Waterfront Toronto as its Innovation and Funding Partner, launching the Sidewalk Toronto project in October 2017. This designation gave Sidewalk Labs the exclusive right to work, at its own expense, with Waterfront Toronto and governmental partners to develop a plan and partnership proposal to demonstrate what could be possible. This plan would still need to be reviewed and approved by Waterfront Toronto and, as relevant, by the three orders of government.

Sidewalk Labs is honoured by the opportunity to present this third volume of its Master Innovation and Development Plan (MIDP) and by the prospect of working alongside Waterfront Toronto and the three orders of government it represents to dramatically improve urban life in the 21st century. This volume presents a proposal from Sidewalk Labs for a new kind of public-private partnership.

Resulting from more than a year of planning and outreach, Volume 3 lays out Sidewalk Labs' proposal for how it can play the role of Innovation and Funding Partner first contemplated in Waterfront Toronto's RFP. It attempts to harmonize the ambitions and concerns that Sidewalk Labs, the three orders of government, Waterfront Toronto, the private sector, and thousands of Torontonians have expressed in thousands of conversations over the past year.

"Waterfront Toronto is seeking a unique partner, one with invention ingrained in its culture, which can transform conventional business practices and help to establish a benchmark climate positive approach that will lead the world in city building practices."

Waterfront Toronto Quayside RFP
(March 17, 2017)

See Volume 1 for more details on the plans.

See Volume 2 for more details on urban innovations.

Harmonizing the objectives of Waterfront Toronto, the public, and Sidewalk Labs

Sidewalk Labs has reflected deeply on the objectives in Waterfront Toronto's RFP and solicited feedback from the people of Toronto through an extensive public engagement process, including concerted outreach to the business, academic, non-profit, and institutional sectors, as well as engagement with all three orders of government.

To date, Sidewalk Labs has heard firsthand from more than 20,000 Torontonians, including at a town hall kickoff, four public roundtables, dozens of community meetings and programs, six topic-specific advisory boards, hundreds of one-on-one or small group meetings, and a Residents Reference Panel.[15] Additionally, in June 2018, Sidewalk Labs opened a Toronto office and innovation workspace in Quayside called 307, welcoming thousands of people to learn more about the Sidewalk Toronto project and engage with early explorations into a variety of urban innovations.[16] Sidewalk Labs has also engaged extensively with Waterfront Toronto and public officials at all three orders of government to advance a plan that draws on the expertise of those who work in this area.

Objectives for the people of Toronto

Through the various touchpoints, Torontonians have expressed the following objectives:

Focus on priority outcomes. Overwhelmingly, Torontonians want the project to deliver results linked to Waterfront Toronto's priority outcomes: to create jobs, develop a climate-positive community, attain new levels of housing affordability, increase mobility options and reduce traffic, expand open space access, and, where appropriate, use digital innovations to improve outcomes while meaningfully protecting privacy and the public interest.

Make sure the public sector has a strong role. Torontonians stressed the importance of public entities having clear mandates and adequate resources to negotiate with Sidewalk Labs effectively and then to provide strong ongoing oversight and accountability of the public-private partnership as it unfolds.

No tech for tech's sake. While recognizing that technology alone is not capable of solving all city problems, technology's potential to improve urban life appeals to Torontonians. But they want technology that targets significant urban challenges, not technology for its own sake.

Be inclusive and make room for others. Torontonians want to see a broad group of businesses, non-profits, and innovators actively participate in the new opportunities created by the project, especially Canadian companies and entrepreneurs. Consequently, they also want to see open standards ("no technology lock-in"), where multiple parties can develop technology that is flexible enough to respond to tastes, trends, and technological advances.

Present a transparent business model. Torontonians highlighted transparency as key to gaining public trust, particularly with respect to the financial obligations and benefits in any agreement, initially and over time. The complex and long-term nature of the transaction increases the need for clarity about roles and responsibilities, and about how Sidewalk Labs intends to earn a return.

Prove out the concept. Torontonians are concerned about the potential that a complex, large-scale, long-term plan could fail. They support achieving a big vision through a phased approach, to prove out the model in Quayside, as a demonstration project before extending to successive phases.

Build on what has been done. Over time, Toronto has made considerable headway in developing the waterfront and in trying new ways to solve urban challenges. Torontonians emphasize the importance of building on this record, and of recognizing and expanding approaches that have been successful.

Requirements for Sidewalk Labs

While Torontonians generally recognize the potential of the Sidewalk Toronto project, Sidewalk Labs' motives for pursuing the RFP and its overall business model have been subject to speculation, even a fair amount of cynicism. Many of these concerns can be addressed up front with a few clear statements:

Sidewalk Labs is not seeking to sell personal information or use it for advertising. Sidewalk Labs made a commitment to not sell personal information to third parties or use it for advertising purposes. It also commits to not disclose personal information to third parties, including other Alphabet companies, without explicit consent. Finally, Sidewalk Labs has proposed that an independent entity approve proposed collections and uses of urban data in the project area by all parties, including Sidewalk Labs.

Sidewalk Labs is not motivated by a desire to export Canadian talent or intellectual output to the United States. Sidewalk Labs is not an internet company that can exist anywhere. An important part of its business model involves going "all in" on physical places. This proposal seeks to make Toronto such a place. And Sidewalk Labs has committed to sharing with the public sector the profits of certain technologies deployed in Toronto.

Finally, Sidewalk Labs is not trying to develop the Port Lands. Sidewalk Labs' role as a real estate developer would be restricted to Quayside and Villiers West, and undertaken for the limited purpose of proving out the model — and even in those locations, Sidewalk Labs expects to have local partners. In total, Sidewalk Labs proposes leading development on less than 7 percent of the eastern waterfront.

Sidewalk Labs' actual goals are quite simple.

Demonstrate the impact of innovation on quality of life in cities.
Sidewalk Labs is a mission-driven company. That mission is to combine forward-thinking urban design and cutting-edge technology to radically improve urban life. Sidewalk Labs is motivated to pursue this project by a desire to create places that apply 21st century concepts in design and technology to achieve improvements in nearly every dimension important to quality of urban life, from creating jobs and reducing the cost of living, to increasing mobility and advancing sustainability. This calls for an urban district of sufficient scale to demonstrate the value of an integrated approach for achieving measurable benefits on critical priorities.

Earn a reasonable return.
Sidewalk Labs is a commercial venture, and although mission-driven, a subsidiary of a publicly-owned company. As per its commitment under its Plan Development Agreement with Waterfront Toronto, Sidewalk Labs has already invested more than $50 million USD, with no guarantees of being repaid, to develop this MIDP. This, however, represents a small share of the overall cost to the company if the project is approved. The company will seek to earn a reasonable return on its investment.

Sidewalk Labs' unique capabilities

When it selected Sidewalk Labs as Innovation and Funding Partner, Waterfront Toronto recognized that Sidewalk Labs brought a range of unique capabilities that sets it apart from other potential partners. Several attributes, in particular, make Sidewalk Labs the ideal partner for delivering an urban project to match the ambitions of Waterfront Toronto and the three orders of government it represents.

See the "Digital Innovation" chapter of Volume 2 for more detail on Sidewalk Labs' data governance strategy.

SIP

Sidewalk Infrastructure Partners is a new company created by Sidewalk Labs to finance next-generation infrastructure systems that can help unlock sustainable development. See Chapter 2, on Page 147, for more details.

These include:

Cutting-edge urban design and technology.
Sidewalk Labs was formed to work with governments and private parties to build 21st century urban districts. The company has assembled a team unlike any other, drawing leading professionals from the diverse disciplines necessary to plan and execute an innovative development project of this scope and magnitude, including urban planning, technology, policy, architecture, engineering, development, and finance. Moreover, Sidewalk Labs has developed, and continues to refine, critical pieces of technology for improving cities. Just as importantly, Sidewalk Labs, as a subsidiary of Alphabet, has close familiarity with many of the technological assets in development by its sibling companies. Many of these technical resources are highly relevant to urban innovation, from digital infrastructure and geospatial mapping, to autonomous vehicles and energy management.

Patient capital.
Too often, outside pressures tempt companies to sacrifice long-term opportunities to meet quarterly market expectations. Sidewalk Labs' parent company, Alphabet, has a demonstrated commitment to taking a long-term view of investing, where warranted. Sidewalk Labs can likewise take a longer view. This approach is critical to the innovative urban model sought in the RFP, which calls for

a longer investment horizon than traditional real estate. Accordingly, it requires financial backers committed to seeing it through — to prove out the technologies and ultimately achieve economic viability.

Sidewalk Labs established a new company, Sidewalk Infrastructure Partners (SIP), for the purpose of investing in next-generation infrastructure systems, such as those proposed in the MIDP. This allows Sidewalk Labs to commit more resources to research and development than a typical real estate developer, and to invest in hard assets with higher capital requirements than a typical technology company.

Economic driver.
Sidewalk Labs' sister company Google has a well-documented history of acting as a catalyst to economic development when it experiences growth in a region. When it reaches a critical mass of employees in a city, time and again, significant growth follows. For example, Google's decision to open a New York City office in 2000 and the subsequent growth of that office paved the way for the city's emergence as a major hub for tech companies and jobs.

As reflected in the table below, an analysis of four U.S. cities found that, in the five years after Google opened office space, the value of nearby commercial assets increased at a faster rate than in each city's central business district.[17]

Fig. 0.1

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

City	Central Business District Growth Post-Google	Micro-Market Growth Post-Google
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%

* Because Google's presence in Austin began in 2015, the commercial inventory analysis for this location is based on a three-year period rather than a five-year period.

Key transaction terms

The following terms are critical to understanding the proposed transaction.

Advanced systems: Nine urban solutions described in the MIDP that are needed to deliver on Waterfront Toronto's priority outcomes. They are:

Advanced power grid. Advancement on Toronto Hydro's typical electricity service, which, among other elements, incorporates rooftop photovoltaic generation, battery storage, and dynamic demand management.

Advanced stormwater management system. District-scale stormwater management using continuously monitored green infrastructure and active controls to reduce infrastructure needs and enhance the public realm.

Digital communications network. Fibre-optic internet network using Super-PON technology to support ubiquitous internet connectivity.

District parking management system. System incorporating space-efficient on- and off-site parking, high-density parking equipment, attendant-based vehicle retrieval, and electric vehicle charging.

Dynamic streets. Innovative hex paving that incorporates dynamic lighting and signage, heating for snow melt, and digital infrastructure for traffic management.

Freight management system. System allowing most deliveries to arrive at a single freight consolidation centre and to be sent on to recipients through tunnels using self-driving delivery dollies.

Mobility subscription package. Specialized, app-enabled mobility service bundle spanning public transit, ride-hail, parking, shared services, and micro-mobility programs.

Pneumatic waste system. Pneumatic waste collection system with a dynamic pay-as-you-throw rate structure, a user interface at the chute, and downstream monitoring of contamination.

Thermal grid. Thermal energy grid that could incorporate geothermal heat exchange, building heat recovery, sewage heat recovery, and other clean energy sources.

Horizontal development / infrastructure: The construction and stabilization of infrastructure, improvements, systems, and services that affect and support multiple real estate parcels in a given area. These include municipal infrastructure, such as sewers and parks; transit infrastructure, such as a light rail extension; and the advanced systems.

Lead developer: The party responsible for delivering horizontal or vertical development to agreed-upon specifications and performance standards. To carry out this responsibility, the lead developer would engage third-party development partners, contractors, and operators.

Public administrator: Public entity serving as revitalization lead for the IDEA District with well-defined powers to advance a comprehensive innovation and development strategy.

Vertical development: The construction and operation of private residential, commercial, and mixed-use buildings on individual real estate parcels. Vertical systems refer to heating, water, and other in-building systems.

Seven principles guiding the proposed partnership

Sidewalk Labs considered its own objectives and capabilities, and reflected deeply on the objectives detailed in Waterfront Toronto's RFP and the feedback it received from the public. Sidewalk Labs distilled this 18-month engagement process into a series of seven transaction principles that seek to harmonize the priorities of Sidewalk Labs with those of Waterfront Toronto and the public at large, including:

1

Devise a transaction that would achieve Waterfront Toronto's priority outcomes.
Any proposal must first achieve Waterfront Toronto's priority outcomes through an innovative approach to both development and partnership:

Job Creation and Economic Development: Catalyzing economic growth for Toronto, Ontario, and Canada, including by bolstering the innovation ecosystem, creating new growth opportunities for Canadian firms, and expanding jobs and training across the socio-economic spectrum.

Sustainability and Climate-Positive Development: Creating neighbourhoods with below-zero annual greenhouse emissions and dramatically improving sustainability overall.

Housing Affordability: Exceeding Waterfront Toronto's affordable housing requirement, with minimal reliance on public funding, and otherwise enabling access to housing for all income groups.

New Mobility: Strengthening connections to the city's public transit network, reducing the cost and climate impact of transportation options, and increasing convenience for travellers and goods movement.

Urban Innovation (including robust data privacy and digital governance): Tackling complex urban problems, from traffic congestion to energy use, using emerging physical and digital tools.

2

Scale the project to achieve the desired outcomes.
Understanding that making progress on its project objectives could require a scale broader than Quayside, Waterfront Toronto invited proposals at a district scale. Waterfront Toronto recognized that certain promising approaches can only be supported financially or deliver a material public benefit when applied to a broader geography. Ultimately, the project should be scaled such that the public policy outcomes are met and the project can be commercially viable.

Key Term
Implementation Agreements would be developed following approval of the MIDP. These contracts, which would involve Sidewalk Labs, Waterfront Toronto, and, in certain cases, government, would govern all aspects of the transaction.

3

Phase development to manage risk.
The ability to extend new approaches to innovation beyond Quayside should depend on Sidewalk Labs first hitting milestones that demonstrate it is likely to succeed in future phases.

4

Establish strong public sector oversight.
No urban project of sufficient scope or complexity can succeed without meaningful public oversight and an administrator capable of moving it forward. This is especially true for projects bringing new ideas and approaches to bear.

5

Structure the role of Sidewalk Labs to leverage its strengths.
The role for Sidewalk Labs should capitalize on its unique combination of strengths, including a multidisciplinary team that spans urban planning, finance, design, and technology; its access to capital and technological resources, including from its parent, Alphabet; and its willingness to take calculated risks to advance its mission. The flipside is also true: Sidewalk Labs should not take on roles where it does not add special value.

6

Use proven approaches where possible.
Deal terms, financing mechanisms, and Implementation Agreements should rely on existing local precedents whenever possible, to simplify and de-risk the transaction.

7

Align financial interests.
As with any company seeking to invest in Toronto, it is appropriate that Sidewalk Labs seeks to earn a return on its investment. But the transaction structure must ensure that Sidewalk Labs is financially successful only when the public sector is financially successful and also achieves its objectives.

Overview of Innovation and Funding Partnership

The Plan Development Agreement between Sidewalk Labs and Waterfront Toronto established a planning roadmap for completion of the MIDP and identified a series of MIDP targets.

Guided by the core set of principles, Sidewalk Labs proposes a transaction to accelerate the development of Quayside, accomplish Waterfront Toronto's priority outcomes, and spur growth in the eastern waterfront. This proposal strives for a forward-looking public-private partnership, in which the public sector leverages outside expertise, technology, and resources to spur economic growth and deliver extraordinary benefits for the people of Toronto.

Waterfront Toronto or another public entity would have accountability for the project, set its objectives, and advance a forward-looking vision for the eastern waterfront. And as Innovation and Funding Partner, Sidewalk Labs would serve as a catalyst for innovative urban development — bringing expertise, financial resources, economic development assets, and a willingness to invest to pioneer a forward-looking, integrated, progressive, and sustainable model for improving urban life.

The ambition of the proposed transaction follows from the objectives identified in Waterfront Toronto's RFP and later articulated as "MIDP Targets" in its Plan Development Agreement (PDA) with Sidewalk Labs. As laid out in prior volumes of the MIDP, the result is an overall plan that offers an opportunity for the City of Toronto, the Province of Ontario, and the people of Canada to lead the world and show how to leverage cutting-edge technology and design, address fundamental urban challenges, and improve quality of life.

Responding to the broad challenge of the RFP, the MIDP consists of a blueprint for an integrated, multiphase project to transform Quayside into the centrepiece of a vibrant mixed-use, mixed-income district dedicated to using the best of design and technology to fuel improvements in urban life. The result would be a scalable proof of concept for the ideas that will drive economic growth, achieve urban progress, and deliver on Waterfront Toronto's priority outcomes.

The proposal requires Sidewalk Labs to achieve key project milestones and, based on its success, earn the right to develop the western portion of Villiers Island and later to advise on innovative development in a portion of the eastern waterfront. The MIDP refers to this area — which is depicted on the following map — as the Innovative Design and Economic Acceleration (IDEA) District. The project, when fully extended, is scaled to deliver on Waterfront Toronto's priority outcomes. Sidewalk Labs proposes to lead vertical development in about 16 percent of the IDEA District, or about 7 percent of the eastern waterfront, and to serve as a catalyst for sustainable development by others in the broader waterfront area.

Map
The IDEA District

Legend:
— Eastern waterfront
--- IDEA District

Sidewalk Labs would make the following commitments:

Advance a bold innovation agenda.
Sidewalk Labs would apply a range of new solutions to pressing urban challenges. The project would pioneer affordable and sustainable building techniques that can also significantly speed up construction times and reduce construction costs, including factory-built mass timber construction of up to roughly 30 storeys.[18]

New weather-mitigation strategies would make it comfortable to be outside for twice as much time each year in some areas.[19]

Mobility would be profoundly improved, including a subscription package that provides convenient and affordable options for every trip and saves households thousands of dollars a year. Dynamic streets could reduce traffic congestion, improve comfort and safety for cyclists and pedestrians, and dramatically expand public space.[20]

Cutting-edge energy infrastructure — including a thermal grid system that uses clean energy to heat and cool buildings, and an actively controlled green infrastructure solution to stormwater management — would result in remarkable levels of sustainability, with the potential to establish the largest climate-positive district in North America.[21]

Develop Quayside as a complete and inclusive community.
In Quayside, Sidewalk Labs would deliver 2.65 million square feet of developed space — with a strong commitment to working with local partners. This would include delivering roughly 2,600 units of housing, half of which would be purpose-built rentals. More than 40 percent of units would have two or more bedrooms, responding to the acute need for family-size housing. And the project would set a new high-water mark for affordability, with below-market housing accounting for 40 percent of residential units. Non-residential uses, such as commercial, office, retail, and community activities, would account for 33 percent of floor space (870,000 square feet),

with space for 3,900 full-time jobs. From the outset, Quayside would be designed to be a complete community.[22]

Deliver a major economic development project.
By successfully advancing the plan for Quayside, Sidewalk Labs would earn the right to lead development of the Villiers West urban innovation campus — with a similarly strong commitment to working with local partners. Alphabet commits to establishing a new Canadian headquarters for Google at Villiers West, as part of an agreed-upon transaction within the IDEA District. Alphabet would target up to 500,000 square feet, 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). This would both allow Google to accommodate its growth in Toronto and provide the city with significant economic development opportunities driven in part by the new employment being generated. The campus overall would have about 1.5 million square feet of commercial space.

To further spur the creation of a new urban innovation cluster, Sidewalk Labs would provide $10 million in initial seed funding for an Urban Innovation Institute, a new graduate applied research institution modelled on the success of Cornell Tech in New York — but focused on developing urban innovations — working in partnership with local post-secondary institutions. Sidewalk Labs would also commit $10 million to a venture fund (side by side with other institutional funding partners, including one or more local venture firms) that would invest in local startups focused on urban innovation.[23]

Serve as lead developer of advanced systems.
At both Quayside and Villiers West, Sidewalk Labs would serve as lead developer of a range of advanced systems; among other responsibilities, this role would include identifying and overseeing sophisticated third-party operators and partners. These systems are essential to achieving Waterfront Toronto's priority outcomes, especially sustainability and new mobility; to delivering the innovative development model proposed in the MIDP; and to proving the practical and financial viability of these advanced systems in the broader marketplace.

Serve as a technical partner and advisor.
From the outset, Sidewalk Labs would provide a suite of technical advisory and management services to expand sustainable economic growth and use innovative strategies to address urban challenges in the eastern waterfront. This includes preparing the technical specifications and performance requirements to guide innovative development; integrating new solutions and strategies for achieving public objectives at the project planning stage; and, if the project extends to later phases, assisting in procuring partners and operators for advanced systems, such as an advanced power grid, a new stormwater management system, and dynamic streets. This role starts at Quayside and would expand to the broader geography upon accomplishing a series of project milestones.

Deliver essential technology.
To achieve core project objectives, Sidewalk Labs proposes to identify key technology products on the market for use in the project. Sidewalk Labs would foster an urban innovation ecosystem open to entrepreneurs and inventors from across Canada and around the world, and work with the governments to design a structure to support Canada's capacity to build and retain intellectual property (IP) locally. Sidewalk Labs would also develop a limited number of services or products that do not exist in the current market but are needed to advance Waterfront Toronto priorities and improve digital infrastructure — identified by Waterfront Toronto in its RFP as "purposeful solutions." These would be provided by Sidewalk Labs at cost. For certain technologies that Sidewalk Labs develops and deploys at scale in connection with the project, Sidewalk Labs also proposes to share 10 percent of the profits with the public sector.

Optional financing for critical infrastructure.
Adequate provision of public transit is key to the economic success of the eastern waterfront. If needed, Sidewalk Labs is prepared to explore options with government to finance the LRT to ensure this project can move ahead in the near term.[24] Sidewalk Labs would also offer optional financing support for municipal infrastructure (such as parks and sewers) needed for the development of the IDEA District. Finally, to achieve Waterfront Toronto's objectives beyond Quayside and Villiers West, Sidewalk Labs could help to facilitate the financing of advanced systems through SIP, a company it formed focused on technology-enabled infrastructure.

Unlocking $29 billion in third-party investments.
In total, Sidewalk Labs would catalyze up to $3.9 billion in real estate investments in Quayside and Villiers West. With third parties, Sidewalk Labs would also enable optional financing for municipal infrastructure, transit, and advanced systems totalling up to $1.6 billion, and spur economic growth through a series of targeted investments, including in a tall timber factory and a venture fund targeting Canadian start-ups. This capital would come from various sources, including outside investors and asset-level debt for both real estate and infrastructure. This includes an estimated $900 million investment from Sidewalk Labs and its local development partners; an additional $400 million of financing that Sidewalk Labs would offer to the public sector as an option to expand the LRT and deliver municipal infrastructure; and additional capital (equity and debt) that Sidewalk Labs expects to facilitate for the delivery of advanced systems.

These investments would unlock more than $29 billion in additional third-party real estate investments and catalyze a project that, when fully implemented, would substantially exceed the objectives Waterfront Toronto has set forth, by being home to 44,000 permanent jobs (93,000 total jobs, including direct, indirect, and induced);[25] about 34,000 units of housing, with an estimated 13,600 units of below-market housing (with the vision extended to full IDEA District);[26] an 89 percent reduction in GHG emissions; and a world leading climate-positive district.[27]

To enable these commitments, Sidewalk Labs seeks the following public sector commitments:

Governance.
A project of this scope, complexity, and duration requires strong public oversight and a regulatory framework predisposed to new approaches. Building on Canada's success with targeted geographic governance strategies, the proposal calls for government to designate a public entity to serve — or, if Waterfront Toronto is so designated, to continue to serve — as revitalization lead for the IDEA District with certain additional powers. A carefully targeted package of regulatory reforms and development standards would apply in the IDEA District. Under this approach, this public administrator would be empowered to hold Sidewalk Labs and others working in the district accountable for performance, to steer innovation strategy, and to oversee the governance structures needed to manage new district systems.

Financial.
The proposal incorporates several key terms. First, Sidewalk Labs expects to purchase (or long-term lease) the land in Quayside and Villiers West from Waterfront Toronto at a price such that the innovation risk and cost will be borne by Sidewalk Labs, but that also fairly accounts for the heightened public policy outcomes required, such as levels of sustainability and affordability unprecedented in any commercial development.

Second, Sidewalk Labs expects to be reimbursed, over time, for its advisory and implementation services and repaid for Sidewalk Labs' optional financing or credit support

for transit and municipal infrastructure. The financing would be repaid at a fixed annual rate of return at market rates, to be negotiated — with a commitment from Sidewalk Labs to work with government, pension funds, and other institutional investors to develop transaction structures that reduce the rate as much as possible while still attracting the necessary financing. With funds expected from several sources, Waterfront Toronto would repay financing fronted by Sidewalk Labs and other partners; cover Waterfront Toronto's ongoing operations; and reimburse expenses Sidewalk Labs incurs in its delivery of technical and advisory services.

Finally, Sidewalk Labs is seeking performance payments to compensate for non-standard upfront costs and for serving as a catalyst to deliver on Waterfront Toronto's priority outcomes and accelerate development across the eastern waterfront. The amount of these payments would be negotiated in closing the transaction and earned if (and only if) Sidewalk Labs reaches a series of performance and growth targets directly tied to Waterfront Toronto's priority outcomes.

The proposed financial structure is designed to align the interests of Waterfront Toronto, Sidewalk Labs, and the public; to compensate Sidewalk Labs for serving as a catalyst for a new approach to urban development; and to account for the special challenges underlying the project, such as an extended repayment timeline and complexities associated with integrating next-generation systems that are new to Canada or the market. This structure includes a proposal to pay the public sector a share of the upside value if Quayside and Villiers West prove more profitable than expected; an approach where Sidewalk Labs only begins to earn performance payments after Waterfront Toronto and the public sector

reach their objectives; and a profit-sharing proposal, through which the public sector would receive a share of the profits generated by certain technologies first tested and deployed at scale in the IDEA District.

A third-party report commissioned by Sidewalk Labs forecasts that, in total, the project would generate approximately $4.3 billion in annual municipal, provincial, and federal tax revenues, $14.2 billion annually in Canadian gross domestic product (GDP), and a total of 44,000 permanent jobs (93,000 total direct, indirect, and induced) by 2050. As shown on the table below, this represents $2.8 billion more in annual tax revenues, a $9.0 billion increase in GDP, and 27,000 more jobs than the baseline scenario, which assumes development proceeds based 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).

Key Term
Growth target
A type of project milestone, in which Sidewalk Labs is required to increase development above a negotiated baseline.

Fig. 0.2
Summary of economic impact over baseline in 2050

	Baseline Scenario	IDEA District	Improvement Over Baseline
Total Tax Revenues (Annual)	$1.5 billion	$4.3 billion	+$2.8 billion (187% increase)
GDP (Annual)	$5.1 billion	$14.2 billion	+$9.0 billion (178% increase)
Direct Job Growth (Total)	17,000 jobs	44,000 jobs	+27,000 jobs (159% increase)

Note: The above figures are from an economic analysis urbanMetrics prepared for Sidewalk Labs, presenting tax and GDP forecasts in 2019 dollars.

Sidewalk Labs' approach to partnering with local firms

Sidewalk Labs recognizes the value of local partners in delivering on the vision of the MIDP and achieving Waterfront Toronto's priority outcomes. Toronto has a vibrant local development community, including developers eager not only to build projects on the waterfront, but to embrace new, sustainable ways of building and to advance innovative approaches to design.

Sidewalk Labs proposes to lead the development of real estate and advanced systems in a portion of the eastern waterfront, initially at Quayside and potentially expanding to Villiers West with the achievement of project milestones. This constitutes the extent of Sidewalk Labs' vertical development, representing 16 percent of the IDEA District and 7 percent of the eastern waterfront overall; if Sidewalk Labs is successful, its role in the IDEA District would then shift to serving solely as a catalyst for sustainable development by others. Just as importantly, Sidewalk Labs is committed to seeking capable local partners to participate in the vertical development of Quayside and Villiers West, the development of horizontal infrastructure (including traditional and advanced systems) and other project areas. By adding local knowledge, know-how, and relationships, these local businesses would supplement Sidewalk Labs' skillset and lead to a better overall project. This extends to Canada's sophisticated base of investors, including pension funds, that could invest capital for real estate, infrastructure, and other project elements. Whether specifically stated or not, Sidewalk Labs is committed to identifying appropriate partners to deliver many of the elements described in the MIDP.

Concurrent with negotiating the transaction and seeking public approvals, Sidewalk Labs therefore intends to identify appropriate local partners to participate in various aspects of project delivery. The actual business arrangements could take various forms, including partnerships, joint ventures, and licence arrangements.

Fig. 0.3
Summary of Innovation and Funding Partnership proposal

The proposal involves a set of mutual commitments for an incremental, multiphase project to establish the eastern waterfront as a global leader in using cutting-edge technology and design to achieve significant progress in tackling urban problems.

Commitments from Sidewalk Labs	Public Sector Commitments
Vertical development of Quayside to deliver a new model for using cutting-edge design and technologies to improve urban life.	Partnering with Sidewalk Labs to implement a comprehensive innovation and development strategy, with corresponding fees.
Vertical development of the Villiers West Urban Innovation Campus to further prove out the innovations initiated in Quayside, spur economic development, and cultivate an urban innovation cluster.	Establishment of the IDEA District with a public administrator, including regulatory adjustments to enable critical infrastructure and innovative strategies.
Horizontal development of the advanced systems for Quayside and Villiers West needed to deliver on Waterfront Toronto's objectives.	Disposition of land for Quayside and Villiers West at price that accounts for additional Waterfront Toronto requirements.
Deployment of Sidewalk Labs' technologies (e.g., "purposeful solutions"), including sharing the profits associated with certain technologies with the public sector.	Source a limited number of Sidewalk Labs' products (at cost) to enable prototyping and deployment at scale, with corresponding IP sharing provisions for certain technologies.
Optional financing at a fixed interest rate for enabling infrastructure, including credit support for Waterfront East LRT extension; financing for municipal infrastructure; and funding "supplemental innovation investments" to make the advanced systems financially viable in the early phases.	Payment of performance payments upon Sidewalk Labs achieving a series of negotiated growth and performance targets.
Major economic development investments, including a new Canadian Google headquarters on Villiers West, a tall timber factory, seed funding for an Urban Innovation Institute ($10 million), and a venture fund ($10 million) focused on Canadian startups.	
Payment to Waterfront Toronto of a share of upside value, above an agreed-upon threshold, from the Quayside and Villiers West proceeds.	
15-year agreement to provide ongoing technical, advisory, and management services for planning, design, and implementation in the IDEA District, including for advanced systems and certain other horizontal infrastructure.	

Sidewalk Labs proposes a multiphase transaction to accelerate the development of Quayside, accomplish Waterfront Toronto's priority outcomes, and spur inclusive growth across the eastern waterfront.

How the proposal reflects the seven transaction principles

The proposed transaction has been structured to reflect the seven transaction principles articulated earlier:

1

Devise a transaction that achieves Waterfront Toronto's priority outcomes

Sidewalk Labs prepared the MIDP and an overall transaction structure that delivers the priority outcomes for Waterfront Toronto and activates billions of dollars in outside financing and investment. On job creation and economic development, the MIDP lays the groundwork for a true mixed-use neighbourhood and proposes substantial investments to cultivate an urban technology cluster — including a new Google Canadian headquarters as a powerful economic driver, seed funding for a new applied research institute in Villiers West, and a new venture fund to target Canadian startups. On sustainability and climate positive development, a series of advanced systems would reduce GHG emissions by 89 percent and achieve the ambitious goal of a climate-positive neighbourhood; divert more recyclable and compostable waste away from landfills; reduce the discharge of untreated stormwater into municipal systems; and better address a host of other environmental challenges. To advance housing affordability and create a complete community, the plan would allocate 40 percent of units to affordable or below-market housing and prove out new construction approaches that would speed up project timelines and reduce costs. To improve mobility, among other outcomes, Sidewalk Labs would provide optional credit support to accelerate the city's planned Waterfront East LRT, and would construct dynamic streets and establish a mobility management system to ease traffic and expand transit

options, which would lead to a 17 percentage point reduction in solo car trips.[28] Finally, the plan would advance urban innovation using a range of technologies — from an advanced digital communications network to outdoor comfort systems — that would enable more dynamic use of the IDEA District and power future advances.

2

Scale the project to achieve the desired outcomes

Sidewalk Labs performed an intensive analysis first of what could be achieved in Quayside alone and then of what could be achieved at a broader scale in terms of sustainable infrastructure, buildings, the public realm, mobility, economic development, and social infrastructure. What became clear was that achieving the priority outcomes required infrastructure, investment, and advanced systems that become economically viable only over a broader geography, and are impossible at Quayside alone.[29] These include:

Substantially improving sustainability.
The RFP established an ambitious goal to create a climate-positive neighbourhood that sets a new global benchmark for sustainability and resiliency. The development of Quayside alone cannot justify the cost of the infrastructure systems and other approaches essential for dramatically reducing GHG emissions, such as an advanced power grid and a thermal energy grid. This costly infrastructure becomes affordable across a larger area as a result of the cumulative benefits of smarter energy management; new and increased sources of clean energy; economies of scale

in infrastructure development and maintenance; and a larger customer base across which to spread the costs of setting up and administering a business.

Delivering 40 percent below-market housing.
The MIDP proposes several new private sources of value, including factory-built timber construction and a condo resale fee, that can help deliver on the aggressive affordable and below-market housing targets called for in the MIDP. Quayside would consist of only 10 buildings, and therefore cannot support the estimated 6 million square feet of buildable area needed to catalyze the wood construction supply chain. A condo resale fee would likewise require time and unit resales to generate value to redeploy towards the below-market housing program. These new private sources, together with affordability by design, could support up to 37 percent of the cost of a 40 percent below-market housing program at the scale of the IDEA District — nearly triple the impact they would have at Quayside.

Providing sustainable mobility options.
Following through on the RFP's mobility objectives, the MIDP proposes a set of convenient options for every trip that reduces or eliminates the need for households to own a car, including new mobility options such as self-driving vehicles; the expansion of public transit into the eastern waterfront; and a mobility management system capable of coordinating the street network to prioritize pedestrian and cyclist safety while maintaining traffic flow. But while Quayside's four blocks can serve as an effective demonstration project, these solutions only begin to meaningfully affect mobility patterns when linked to a larger street and transit network. Additionally, Quayside alone is not large enough to support the financing of the proposed LRT extension, a major, new public work; the density across a larger area is needed to cover the projected cost. As part of an integrated mobility package at the scale of the IDEA District, the new mobility options could reduce solo car trips by more than 16 percentage points and save a two-person household that goes car-free roughly $4,000 a year.

Generating sustained job growth and economic activity.
The RFP calls for the development of an urban innovation cluster, which would seek to use Quayside as a focal point for technology firms, academic institutions, and non-profits dedicated to improving urban life and advancing sustainable technology. The MIDP would deliver jobs at all skill levels, including through the establishment of the Sidewalk Works program, which would build an inclusive talent pipeline and support on-site employers in filling real-time needs; broaden the construction workforce by targeting at least 10 percent of construction hours for racialized youth, women, and Indigenous people; and catalyze a mass timber factory, which would support an estimated 2,500 person-years of full-time employment over a 20-year period.[30] But delivering this level of job growth and economic activity requires a critical mass of space, resources, and investment, and a holistic approach to economic development that extends into the broader geographical area.

As summarized in Figure 0.4, Sidewalk Labs believes that the outcomes achievable within the IDEA District would have meaningful positive impacts for Toronto.

Critically, and consistent with the RFP, this analysis illustrates why Sidewalk Labs has not offered a proposal exclusively involving Quayside. As the table summarizes, a Quayside-only development project would not achieve Waterfront Toronto's priority outcomes and would not be commercially viable. By contrast, the broader IDEA District can support the carrying costs of the innovative solutions proposed, while applying them to a geography sufficient to demonstrate their benefits.

For the same reasons, Quayside alone would not achieve Sidewalk Labs' core business objective: to demonstrate that integrating cutting-edge design and technology into a comprehensive district strategy can radically improve urban life. This strategy depends on concentrating innovative solutions in a single area, including a series of costly advanced systems. The IDEA District overall provides enough scale and density to make these early innovation investments — investments inextricably linked with achieving Waterfront Toronto's priority outcomes — financially feasible.

Fig. 0.4

Impacts at the Quayside scale and when extended into the River District

Waterfront Toronto Priority Outcome	Phase 1: Quayside	Phase 2: River District
Job Creation and Economic Development	Creating 3,900 direct jobs and 12,000 short-term construction jobs to generate a one-time construction impact of $1.6 billion in value added to the Canadian economy. At the scale of Quayside, the disproportionate funding contribution of Sidewalk Labs is economically infeasible. The main drivers of this impact, such as the expansion of a Google Canadian headquarters and the cultivation of an urban innovation cluster, could not exist without the space, resources, and investment possible in the River District.	Creating 44,000 direct jobs (93,000 total direct, indirect, and induced) and catalyzing $14.2 billion in annual value added to the Canadian economy.
Sustainability and Climate Positive Development	A nearly carbon-neutral neighbourhood that generates 85 percent fewer greenhouse gas (GHG) emissions per capita than downtown Toronto, representing 24,000 tonnes of avoided carbon annually. Financially infeasible at the scale of Quayside due to insufficient economies of scale and customer base to enable affordable rates that cover capital and operating costs for thermal and advanced power grid infrastructure, control centres, billing technology, operations, and maintenance. Specifically, to keep Quayside resident energy bills in line with Toronto averages (within 10 percent), the power and thermal grid requires a $19 million supplemental innovation investment — which is not financially sustainable. No additional supplemental innovation investment would be required to extend operations (including control and billing platforms and staff) into the River District beyond Villiers West; the systems scale in a financially sustainable way.	A climate-positive community that generates 89 percent fewer GHG emissions per capita than downtown Toronto (representing nearly 300,000 tonnes of avoided carbon annually) and that includes the ability to export clean energy to neighbourhoods outside the project area to achieve climate positivity.
Housing Affordability	A 40 percent below-market housing program, generating over 1,000 below-market units. Financially infeasible alone due to insufficient sources of value, such as the mass timber project pipeline needed to justify factory. The project relies on three new private funding sources to make public housing dollars go farther: affordability by design; increased value of public land due to factory-built timber construction; and a condo resale fee. At the Quayside scale, however, only affordability by design would add value (achieving a 7 percent below-market program). Funds from the resale fee, which requires ongoing condo turnover, and the timber factory — which requires at least 6 million square feet of wood construction to break even, far more than possible at Quayside alone — would not yet generate any value.	A 40 percent below-market program, creating an estimated 13,600 units of below-market housing if the vision is extended to the full IDEA District with government support.

Waterfront Toronto Priority Outcome	Phase 1: Quayside	Phase 2: River District
New Mobility	Use of transit or active modes for 73 percent of trips, and reduction in drive-alone trips by nearly 16 percentage points from a standard development. Financially infeasible alone due to inability to finance Waterfront East LRT from a single development; the proposed segments within the IDEA District cost an estimated $406 million. Promising methods for financing the LRT, such as tax-increment financing, rely on funding from the growth area, which is far larger than the 10 buildings proposed for Quayside and the cost is far more than they can sustainably support. Minimal ability to affect traffic patterns in four-block development. Quayside's limited street network means that all streets must allow vehicular access, while the River District's network of complementary streets enables 90 percent of streets to be primarily car-free.	Use of transit or active modes for 77 percent of trips, and reduction in drive-alone trips by nearly 17 percentage points from a standard development.
Urban Innovation	Beginning to tackle urban problems, from traffic congestion to energy use, using emerging physical and digital tools that incorporate a series of requirements, such as making data open by default to ensure equitable access by third parties and enhance data security and privacy.	Tackling a greater set of urban problems using emerging physical and digital tools, with an ability to deploy advanced connectivity, such as lower-cost Super-PON technology, across the IDEA District as the foundation for countless new services and solutions.

Achieving Waterfront Toronto's priority outcomes requires the scale of the River District.

3

Phase development to manage risk

The MIDP advances a structural approach in which Sidewalk Labs would shoulder certain upfront investment risks and employ a gradual approach to technology deployment, with the value of new solutions being proven before they are deployed more broadly. These structural safeguards include a structure that ensures that Sidewalk Labs develops and proves the effectiveness of solutions before they affect other developments, off-ramps allowing Waterfront Toronto or Sidewalk Labs to terminate the relationship under certain circumstances, and a clear accounting methodology should costs need to be recouped prior to project completion. Perhaps most significantly, the proposal incorporates an incremental, carefully phased implementation strategy, in which Sidewalk Labs must earn the right to participate in future aspects of the project.

To proceed beyond Quayside, Sidewalk Labs would be required to first achieve a series of project milestones as part of a stage-gate approach which would be refined through negotiation. As proposed in Chapter 6, these would include devising and submitting a development application for Quayside that would implement the detailed innovation roadmap from the MIDP, including mixed-use space and minimum percentages of affordable housing; preparing an Infrastructure and Transit Plan for Waterfront Toronto; and investing in an Ontario-based wood-construction factory. Failing to achieve the required milestones at Quayside would mean Sidewalk Labs would proceed no further; it could neither participate in development beyond Quayside nor receive any funds beyond what it earns from Quayside. Accordingly, if Sidewalk Labs falls short, it bears the entire risk of its outsize investments in the vertical development at Quayside needed to prove out the model.

Additional project milestones apply incrementally thereafter and determine whether Sidewalk Labs can proceed to subsequent stages. The project milestones dictate when Sidewalk Labs' role would shift from leading vertical development at Quayside and Villiers West to serving principally as an advisor to the public administrator and catalyst for sustainable growth in the broader IDEA District. To move beyond Villiers West and shift to this role, Sidewalk Labs must achieve milestones linked with, among other things, performance targets tied to Waterfront Toronto's priority outcomes. Only upon achieving these milestones at Quayside and Villiers West — milestones that establish both the market viability and effectiveness of the solutions in the MIDP — would other parts of the IDEA District potentially become subject to Sidewalk Labs' innovation strategy. By failing to perform, Sidewalk Labs would not serve in an advisory capacity for the rest of the River District, would not see its solutions more broadly adopted, and would not receive performance payments.

Of particular note, the proposal provides that the new development standards and guidelines for the IDEA District would initially apply exclusively to Sidewalk Labs' development of real estate and advanced systems at Quayside and Villiers West, if Sidewalk Labs first satisfies relevant project milestones. And unless and until Sidewalk Labs demonstrates the commercial feasibility and the effectiveness of its solutions for achieving Waterfront Toronto's priority outcomes, no other developments would deploy them.
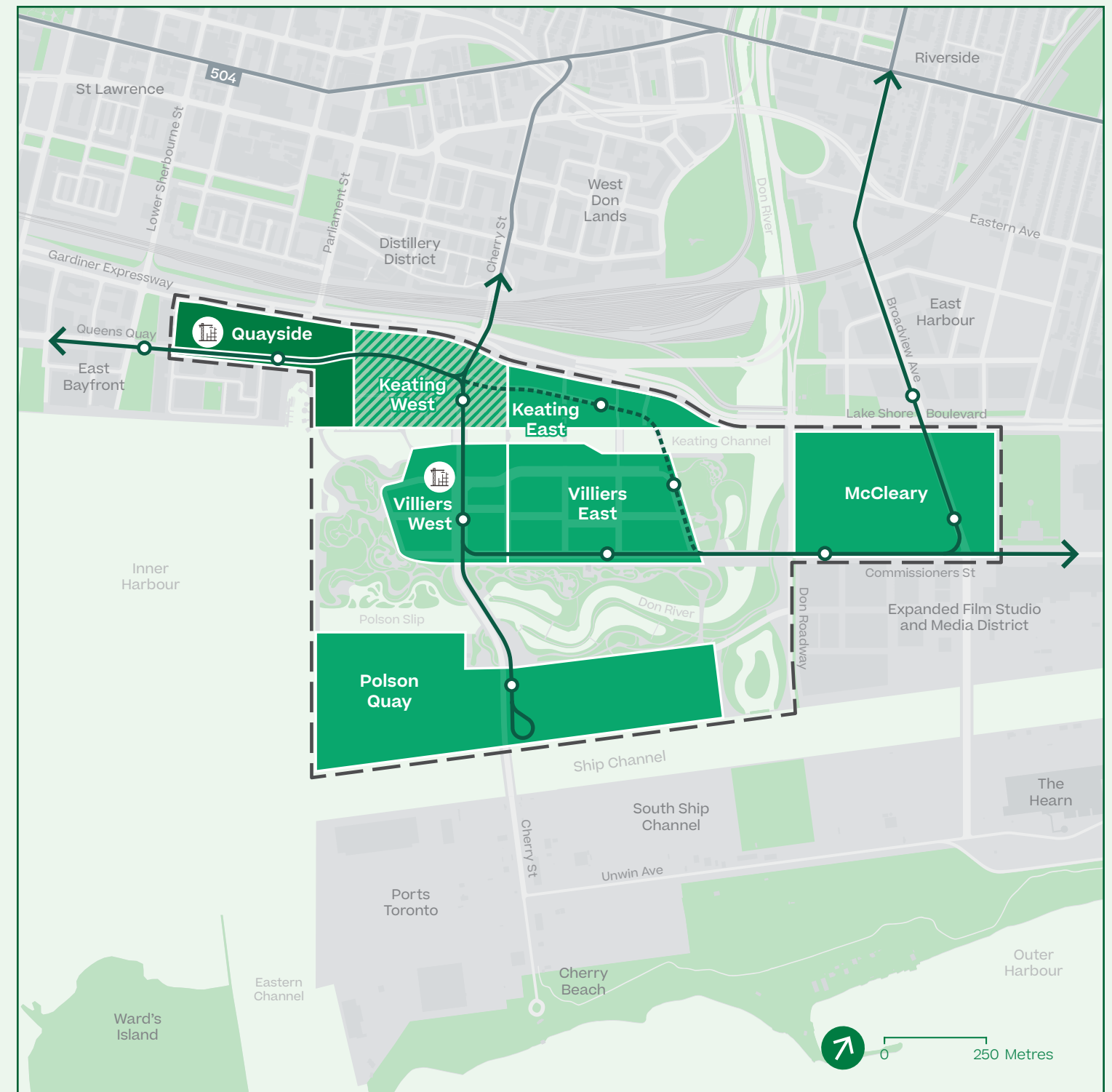
Map
Sidewalk Labs' role across phases of the IDEA District

Legend:
- – – – IDEA District
- ▊ Phase 1: Quayside
- ▊ Phase 2: River District
- ▨ Optional participation in Phase 2
- 🏢 Sidewalk Labs develops real estate and advanced systems

Light rail
- —— Existing
- —○— Approved extension
- ⋯○⋯ Optional

4

Establish strong public sector oversight

Dedicated public oversight and control are essential to propelling growth and fostering the urban innovations contemplated in the MIDP. Following Waterfront Toronto's directive to think holistically about the structures required for achieving the MIDP vision, Sidewalk Labs' proposal centres on a potential solution: to designate Waterfront Toronto or another public entity to lead a new geographically targeted strategy in the eastern waterfront. The proposal for an IDEA District includes a modified regulatory framework designed to advance public objectives and enable key innovations, including through the use of certain financing mechanisms and the new role of public administrator. 📖

The IDEA District proposal is presented in detail in Chapter 1 for the consideration of the three orders of government and would require government authorization.

5

Structure the role of Sidewalk Labs to leverage its strengths

Sidewalk Labs structured its Innovation and Funding Partnership Proposal to capitalize on its own unique combination of strengths, including a team that spans urban planning, technology, policy, architecture, engineering, development, and finance; its exceptional technological resources; its access to patient capital that is able to take a long-term view of investing, where warranted; and its ability to serve as an economic catalyst.

Together, these capabilities inform a general approach in the MIDP, in which Sidewalk Labs agrees to shoulder a disproportionate share of the cost of investments in infrastructure and innovation — and to receive its compensation in later stages. As reflected in the table below, these capabilities also inform the interrelated "Innovation" and "Funding" responsibilities that the Innovation and Funding Partner role comprises.

See Chapter 7, on Page 218, for a summary of the roles of all participants in the IDEA District, including the three orders of government, the real estate development community, and third-party vendors.

While Sidewalk Labs proposes to focus on the roles where it can add the greatest value, the converse is equally important: others should lead areas where they can uniquely contribute. For example, Sidewalk Labs proposes to provide optional financing support to advance the Waterfront East LRT extension but would not construct, own, or operate it.

This approach holds true across all aspects of the project, including technology and other horizontal infrastructure. It is especially evident with real estate development, where Sidewalk Labs proposes to lead vertical development only at Quayside and Villiers West, to prove to the private market that its innovation hypotheses are commercially viable. The expectation is that other developers would lead all other vertical development. 📖

Fig. 0.5
Responsibilities as Innovation and Funding Partner

Role	Scope
Innovation Partner	**Support and advise the public administrator on achieving innovation objectives.** Sidewalk Labs would provide advisory, technical, and management services to implement the MIDP's innovation strategy, including designing technical specifications and design standards to meet Waterfront Toronto's objectives; integrating advanced systems with municipal infrastructure; and, in later phases, advising on the development of advanced systems.
	Deliver Quayside as a demonstration. Sidewalk Labs would serve as lead developer, with local partners, of the vertical development of Quayside and advance associated horizontal infrastructure. Relying on Sidewalk Labs' willingness to undertake and finance mission-driven investments, Quayside would serve as the starting point of the project to demonstrate the benefits and feasibility of the innovative approaches, systems, and design elements.
	Deliver advanced systems in Quayside and Villiers West. Sidewalk Labs would serve as lead developer of most advanced systems and therefore would assume the responsibility of identifying operators and partners to implement the advanced power grid, thermal grid, and other systems identified as vital to the success of Quayside and the Villiers West urban innovation campus, and to achieving the priority outcomes identified by Waterfront Toronto.
	Deploy key technology products. Sidewalk Labs would identify or develop critical urban technology solutions, including a small number identified as "purposeful solutions." Building off Sidewalk Labs' technological expertise and assets, the resulting products would incorporate enhanced privacy protections and use published standards to avoid technology "lock-in."
Funding Partner	**Serve as economic development catalyst.** Sidewalk Labs would serve as lead developer for a major economic development project: an urban innovation campus on Villiers West. This role relies on a commitment from Alphabet to establish a new Canadian headquarters for Google on Villiers West, as part of an agreed-upon transaction within the IDEA District, and making a series of other strategic investments to cultivate an urban technology cluster. This would include seeding a new applied urban technology research institution, investing in Canadian urban tech startups, and developing an innovation-oriented workforce.
	Provide optional financing and credit support for critical infrastructure. At the option of Waterfront Toronto and the relevant government participants, Sidewalk Labs has offered to provide various types of financial support to facilitate the construction of essential infrastructure, including credit support to accelerate the delivery of the Waterfront East LRT and financing for municipal infrastructure throughout the project area. It would also seek to facilitate financing for operators of advanced systems through a newly formed company (with outside partners) focused on next-generation infrastructure.
	Fund supplemental innovation investments. To catalyze innovation, Sidewalk Labs is prepared to make "supplemental innovation investments" to support the advanced power grid and thermal grid, and possibly other advanced systems. These early investments help achieve Waterfront Toronto's sustainability outcomes without significant increases to user rates, until the systems reach a scale and operational efficiency sufficient to be economically viable on a standalone basis.

6

Use proven approaches where possible

Over the past 18 months, Sidewalk Labs was encouraged to apply strategies, tools, and practices that have already proven successful in Canada and beyond. Rather than reinvent the wheel, the MIDP seeks to build on what has worked. This principle informed the proposal for an IDEA District, which builds on Waterfront Toronto's existing authorities and Canada's success with geographically targeted development strategies.

This principle is also why Sidewalk Labs proposes to finance the roads, transit, and other municipal infrastructure the project requires through existing Canadian project financing strategies. These include using development and other developer-paid charges for infrastructure; reinvesting the proceeds from the sale of public lands in the area; and applying other value-capture approaches.

Together, these strategies aim to deliver a project that is largely self-contained and self-financed.

7

Align the interests of Sidewalk Labs, Waterfront Toronto, and the Public

The Innovation and Funding Partnership Proposal seeks to align the interests of Sidewalk Labs, Waterfront Toronto, and the public, to ensure that Sidewalk Labs only profits if the public sector does. The table below highlights a few of these structural alignments.

These terms and the project economics are further described in Chapter 3.

Fig. 0.6
Alignment of interests between Sidewalk Labs and Waterfront Toronto

Proposed Deal Term	Proposed Structural Alignment
Sidewalk Labs would receive a discount on the sale prices of Quayside and Villiers West lands to account for the additional requirements imposed by Waterfront Toronto.	If profits from Quayside and Villiers West exceed an agreed-upon threshold, Sidewalk Labs would pay Waterfront Toronto a share of the upside value.
Sidewalk Labs would make various forms of financing and credit support available for municipal and transit infrastructure.	Such financing is optional and offered at a fixed rate of return; the public has the ability to choose this financing if it finds that this option is the best way to achieve the project's objectives.
To compensate for upfront investments, for achieving core public outcomes, and for accelerating inclusive growth, Sidewalk Labs would receive performance payments if specific performance and growth targets are met.	Because these payments are linked directly to Sidewalk Labs' success at spurring growth beyond baseline expectations, the payments would arise only after Sidewalk Labs has generated significant value for the public sector.
Sidewalk Labs would test and deploy certain technology products within the IDEA District.	The public sector would share profits generated by certain technologies first tested and deployed in the IDEA District.

A partnership proposal intended for ongoing refinement

Just as the MIDP is unprecedented, the Innovation and Funding Partnership Proposal also breaks new ground; it outlines an integrated, multidisciplinary approach to urban innovation and its regulation, land use, governance, data use, and financing.

The Innovation and Funding Partnership Proposal constitutes a proposal. It is subject to further negotiation with Waterfront Toronto and, for certain elements of the proposal, the three orders of government. Ultimately, the proposal's success will require Sidewalk Labs and government to work together collaboratively and to adapt to unanticipated conditions that could arise.

The MIDP offers a holistic path for achieving the critical outcomes identified by Waterfront Toronto, which are the driving force for this project. As this process moves forward, Sidewalk Labs is fully prepared to work with Waterfront Toronto, the three orders of government, and the people of Toronto to further refine the solutions and approaches contained in the MIDP.

In particular, Sidewalk Labs expects to enter into detailed transaction documents with Waterfront Toronto (and other levels of government, as appropriate) that include customary terms to govern the project, consistent with similar public-private partnerships. While it is not necessary to detail all of the terms of

such transaction documents in the MIDP, they can be expected to include market-standard provisions intended to protect the interests of all parties, including:

Partners. As noted earlier, Sidewalk Labs anticipates working extensively with local partners that can bring relevant expertise as well as additional capital to the project. This is likely to include Toronto-based co-developers that share Sidewalk's vision for using innovative approaches to improve the quality of urban life. It is also likely to include domestic co-investors willing to invest significant amounts of equity capital alongside Sidewalk Labs to catalyze transformative growth. It is expected that the transaction documents will permit Sidewalk Labs to strike such partnerships; in turn, it is expected that Waterfront Toronto will retain customary governmental approval rights (not to be unreasonably withheld) to ensure, for example, that co-developers or co-investors are appropriately qualified and reputable.

Financing. As with any such project, Sidewalk Labs anticipates using debt to finance a majority of the capital required. In typical real estate projects in Toronto, such financing represents at least 50 percent of the capital and as much as 70 percent, depending on the type of asset, the number of pre-leasing or pre-sale agreements, and other such factors (the amount of financing is

typically even higher for projects backed by loans from Canada Mortgage and Housing Corporation). It is expected that the transaction documents will permit Sidewalk Labs to enter into market-standard financing arrangements, while the government can expect to receive usual protections from lenders (such as in the event of foreclosure) with respect to any obligations the project may owe to the public.

Pre-sales / pre-leasing. Real estate developers in Toronto often mitigate their capital outlays and risk exposure by entering into either pre-sale or pre-lease agreements early in the development process. In fact, for typical residential condominium developments in Toronto, lenders generally require the sale of approximately 70 percent of expected condominium proceeds prior to entering into committed financing.[31] These agreements may be with individuals or with institutions; for example, a pension fund may choose to acquire a multifamily rental building or a university may elect to pre-lease a building for student housing. It is expected that the transaction documents will permit such agreements, again subject to usual protections that the government may seek to ensure the achievement of the promised outcomes.

Delay provisions. It is expected that the transaction documents will include provisions requiring both Sidewalk Labs and the public sector to move expeditiously to meet their respective obligations in order to achieve the outcomes, with appropriate consequences for the failure to do so. However, it is expected that the documents will provide appropriate, market-standard relief in the event either party is unable to meet those obligations due to factors outside of their control. In the case of Sidewalk Labs, this would include the ability to delay in the event, for example, that the real estate financing markets in Toronto suffer a disruption that results in such financing not being available at reasonable rates. In the case of government, this would include relief from certain obligations in the event of third-party litigation.

The items above are meant to represent only a sample of the key terms of definitive transaction documents that Sidewalk expects to enter into with the public sector, for the benefit of all parties. Notwithstanding the innovative nature of the partnership, Sidewalk expects that virtually all of the key terms — whether referenced above or not — will mirror terms that are reflective of terms commonly accepted by all parties in the Toronto market, including in prior Waterfront Toronto transactions.

The MIDP offers a holistic path for achieving the critical outcomes identified by Waterfront Toronto, which are the driving force for this project.

Organization of Volume 3

The chapters that follow provide substantial detail on the overall transaction structure, the proposed roles and responsibilities of the various participants, the financial and legal terms, the preconditions needed to deliver the business case for the transaction outlined and the vision set out in Volumes 1 and 2, and the anticipated implementation of the project and its various components.

Chapter 1:
The Innovative Design and Economic Acceleration (IDEA) District

The success of this plan depends on strong public-sector oversight and a regulatory framework that allows new advances to take root. This chapter discusses a proposal for the consideration of government to achieve these aims by designating a public administrator with the development authorities needed to administer a new targeted innovation strategy for the IDEA District.

Chapter 2:
Innovation and Funding Partnership Proposal

This chapter provides an in-depth review of the four proposed roles that Sidewalk Labs would play as Innovation and Funding Partner. The chapter includes the following sections:

Role 1: Development of real estate and advanced systems.
With a commitment to work with local partners, Sidewalk Labs would vertically develop two sites with build plans and programming that serve complementary functions within the IDEA District. Together, these developments, and the advanced systems needed to deliver on Waterfront Toronto's priority outcomes, are designed to catalyze inclusive economic growth throughout the eastern waterfront.

The Quayside Plan. This section describes Sidewalk Labs' proposal to construct a complete, mixed-use, mixed-income community at the five-hectare parcel known as Quayside. The development seeks to show how to harness cutting-edge design and technology to radically improve urban life and to pave the way for sustainable development throughout the eastern waterfront.

Villiers West urban innovation campus. This section describes Sidewalk Labs' proposal to extend the innovations proven at Quayside and deliver a significant economic development project: an urban innovation campus on Villiers Island, anchored by a new Canadian headquarters for Google and a new Urban Innovation Institute.

Advanced systems. This section describes Sidewalk Labs' proposal to serve as lead developer for a range of advanced systems needed for Quayside and Villiers West and essential to achieving Waterfront Toronto's priority outcomes.

Role 2: Innovation planning, design, and implementation.
This section discusses Sidewalk Labs' responsibilities supporting the public administrator in carrying out the MIDP's comprehensive innovation strategy, including by providing various advisory, technical, and management services.

Role 3: Technology deployment.
Sidewalk Labs would deliver new technological approaches for solving urban challenges. This chapter describes this role, Sidewalk Labs' principles for technology deployment, and three "purposeful solutions." It also discusses a proposal for allowing the public sector to share profits from certain technological solutions and Sidewalk Labs' patent pledge.

Role 4: Optional infrastructure financing.
Achieving Waterfront Toronto's priority outcomes requires infrastructure investments, including traditional municipal infrastructure like sewers and parks; transit infrastructure, specifically the Waterfront East LRT extension; and advanced systems like an advanced power grid and dynamic streets. This chapter details the three types of anticipated infrastructure, how they would be delivered, and the optional financing Sidewalk Labs is prepared to offer to support their construction.

Chapter 3:
Transaction Economics

This chapter comprehensively reviews the financial terms associated with the proposed project, including the assumptions underlying the expected revenue, expenses, and returns associated with the overall transaction.

Chapter 4:
Achieving Waterfront Toronto's Priority Outcomes

The MIDP and the Innovation and Funding Partnership Proposal seek to achieve the specific objectives Waterfront Toronto first identified in its RFP and elaborated on in the PDA. This chapter presents a series of tables indicating how the various elements of the MIDP advance those objectives.

Chapter 5:
Implementation

This chapter describes how the MIDP would be implemented, describing the Implementation Agreements, timelines, and approval processes.

Chapter 6:
Stage Gates and Risk Mitigation

This chapter addresses the mechanisms in the transaction designed to ensure that the project advances in phases and limits risks to government and the public, including by requiring Sidewalk Labs to achieve a series of project milestones before advancing to successive stages of the project.

Chapter 7:
Overview of the Participants in IDEA District Development

This chapter summarizes the roles and responsibilities proposed for Sidewalk Labs, Waterfront Toronto, the public administrator, the City of Toronto, and other third parties in the success of the MIDP.

Supplemental Tables

This addendum provides informational tables with further details related to certain aspects of the proposal.

The Innovative Design and Economic Acceleration (IDEA) District

Introduction

Governments at the federal, provincial, and city levels have long recognized that the Toronto waterfront is an area of uncommon scope and promise that calls for a comprehensive, geographically specific strategy. Years ago, this recognition inspired the creation of Waterfront Toronto "to oversee all aspects of revitalization of Toronto's waterfront." Today, it informs Sidewalk Labs' proposal to establish an innovation district to unlock the potential of the waterfront as an engine of economic growth and a demonstration ground for urban innovation.

Canada has had remarkable success using innovative strategies to spur the revitalization of struggling or underdeveloped urban areas.

In 1970, Canada pioneered the use of Business Improvement Areas (BIA), when the business owners of Bloor West Village approved the first BIA.[32] The Ontario BIA law became a national and international model for how to upgrade local services, improve public space, and otherwise breathe new life into distressed commercial districts.

In 1972, just shortly after the founding of the first BIA, Granville Island in Vancouver began its turnaround from a derelict former industrial area to a vibrant centre of arts and commerce.[33] In a targeted strategy, Canada Mortgage and Housing Corporation assumed control of development and infrastructure; negotiated a modified regulatory framework with the City of Vancouver; and cultivated a spirit of public-private partnership and experimentation that turned the area into a dynamic world-class community.

In 1996, the City of Toronto focused its attention on the moribund Two Kings industrial areas.[34] By all but eliminating zoning and density restrictions, and easing parking and loading zone requirements, the city spurred rapid economic development, including the addition of over 40,000 desperately needed residential units.[35]

And in 1996, the City of Toronto also used a Community Improvement Plan in a novel way to advance the revitalization of the beleaguered Yonge-Dundas Square. Creating the Yonge-Dundas Community Improvement Project Area, the city set a series of geography-specific policy objectives, established a new management entity for programming and generating revenue, implemented a building-improvement incentive scheme for private landowners, and imposed new signage rules — resulting in a vibrant new public open space and entertainment hub.

Targeted geographic strategies have transformed former working waterfronts throughout the world. In the 1980s, for example, the United Kingdom established an "Enterprise Zone" in the London Docklands. The government eased certain legal restrictions in the zone, created incentives for desirable development, and assigned overall responsibility for the then-abandoned waterfront to a powerful administrator: the London Docklands Development Corporation. The result is that the Docklands, which includes Canary Wharf, is now one of the most prominent and successful business districts anywhere.[36]

Another example is HafenCity along the Elbe River in Hamburg, Germany. To revive the decommissioned port area, the Senate of Hamburg created a new district dedicated to cutting-edge urban and architectural design. Run by a public administrator, HafenCity GmbH, the area followed a comprehensive master plan and made substantial investments in transportation and advanced systems, such as a district energy thermal grid. Today, HafenCity is a world-renowned model of urban revival and sustainable, mixed-use development.[37]

What these strategies have in common is the recognition that a smart, targeted approach to development in a particular geographic area — in which certain restrictions are adjusted and, in return, developers and others are expected to achieve priority outcomes — can jumpstart development, ensure that social needs are met, and pay other dividends. As the formation of Waterfront Toronto attests, the Toronto waterfront offers an ideal

Key Term

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.

location for a similar zone-based strategy. It also presents an opportunity for Torontonians to again break new public policy ground — this time with a development strategy that does not focus narrowly on economic growth, but also on harnessing cutting-edge design and new technologies to improve quality of life, protect the environment, and take on other longstanding urban challenges, from traffic congestion to runaway housing costs.

The preceding volumes of the MIDP set out an innovative, integrated approach for how the City of Toronto, in collaboration with Waterfront Toronto and Sidewalk Labs, can finally realize the waterfront's promise as a hub of economic activity, a proving ground for innovative urban strategies, and a spur for social progress. Each of the proposed advances, standing alone, could benefit Torontonians. But their true value emerges when they join together in a series of interconnected, forward-looking, mixed-use, mixed-income neighbourhoods.

Achieving this vision requires a multi-faceted strategy for innovation and development on the waterfront — a strategy that, to a greater degree than in other parts of the city, enables and rewards successful experimentation and, in turn, demands more from developers to address public priorities. That is what the proposed Innovative Design and Economic Acceleration (IDEA) District seeks to accomplish, setting out a comprehensive vision and a specific set of rules and incentives for spurring innovation and development across a defined but limited geography on the eastern waterfront.

The governance strategy proposed in the following chapters emerges from the need to ensure strong public control and oversight of the project, and the specific request of Waterfront Toronto to develop a comprehensive plan for carrying out the vision set forth in the MIDP. The proposal reflects one way to realize an integrated and effective growth and innovation strategy for the waterfront.

This proposal builds on Canada's remarkable success at using smart, targeted approaches to jumpstart development in particular geographic areas.

Three global examples of revitalizing industrial areas through innovation designations

The following geographically targeted development strategies have leveraged innovative approaches to successfully transform and revitalize former industrial areas in Canada and around the world:

Granville Island (Vancouver). Granville Island is a 15-hectare peninsula adjacent to downtown Vancouver. In the early 1970s, the site was an industrial brownfield site controlled by the Government of Canada. In 1973, Canada Mortgage and Housing Corporation assumed control of the site's development and infrastructure, rehabilitating the roads, sewers, and flood controls; negotiated a modified regulatory framework with the City of Vancouver, exempting Granville Island from municipal regulation; and cultivated a spirit of public-private partnership and experimentation, for example, introducing shared streets (unprecedented in North America at the time).

Today, Granville Island is home to about 275 businesses, a popular public market, art galleries, retail spaces, a community centre, and multiple performing arts spaces; employs over 3,000 people; and attracts over 12 million visitors a year, making it a major tourist attraction for Vancouver. The cost of the project was $19.5 million; it now generates over $215 million a year in economic activity.

Two Kings (Toronto). Following the departure of much of Toronto's garment industry in the 1990s, the "Two Kings," about 162 hectares of historically industrial land on either side of Toronto's downtown core, were left nearly derelict.

To spur rapid economic development in the area, the city designated the site a "regeneration area," largely eliminating use zoning (any non-noxious use was permitted), density regulations, and most parking and loading zone requirements. The area has since experienced an extraordinary pace of development.

Today there are over 51,000 jobs in the area; employment is up 69 percent in King-Spadina and 32 percent in King-Parliament since 1996, compared with 19.9 percent citywide.

HafenCity (Hamburg). HafenCity is a 157-hectare district comprised of two islands, located within walking distance of downtown Hamburg. The area's ports had become largely vacant by 1990, when the Senate of Hamburg adopted the HafenCity Master Plan to turn the site into a new district dedicated to cutting-edge urban and architectural design. The master plan included substantial investments in transportation and infrastructure, such as a district energy thermal grid, as well as approvals process, governed by the Priority Area Status of the district, which required all investors and development partners to abide by the district mission and set high architectural standards. Aside from the subway, all infrastructure, development, and management of HafenCity is overseen by HafenCity GmbH, a fully municipally owned company.

Today, HafenCity is a true destination — home to residents, shops, businesses, museums, outdoor exhibits, public squares, parks, and promenades — that beautifully mixes open spaces, historic buildings, and contemporary architecture. By 2017, HafenCity employed over 12,000 people. In the coming years, HafenCity will become home to Germany's tallest wooden structure, self-driving buses, and Hamburg's first fintech hub.

Granville Island.
Credit: iStock

Two Kings.
Credit: David Pike

HafenCity.
Credit: iStock

IDEA District structure

As conceived, the IDEA District has three essential components.

1

A public administrator.
The district depends on a public administrator with a mission to promote innovation and development within the geography and the mandate to oversee and steer key real estate, infrastructure, and technology decisions — all with a focus on better addressing the core urban challenges facing Toronto. To be effective, this administrator must be accountable to the public; possess well-defined powers over development activity and the deployment and operation of innovative infrastructure and systems within the jurisdiction; and obtain priority treatment when interacting with and seeking approvals and cooperation from other government agencies.

2

A modified regulatory framework.
At the centre of the IDEA District is a modified regulatory framework, an "Innovation Framework." The framework — which the public administrator could adopt for the broader IDEA District if Sidewalk Labs achieves key project milestones — is designed to foster the necessary conditions for delivering on the promise of the MIDP and using its success as a catalyst to spur inclusive economic growth and social progress throughout the waterfront.

In practical terms, this framework constitutes a package that can be divided into two parts:

a limited number of targeted adjustments to existing legal requirements that are necessary to implement aspects of the MIDP (for instance, to permit the dynamic curb)

the Innovation Design Standards and Guidelines (IDSG) — a series of enhanced requirements for new developments in the IDEA District arising out of Waterfront Toronto's priority outcomes (for instance, to meet increased environmental sustainability specifications)

Because the IDEA District would only encompass lands that are publicly owned or where owners opt in, the public administrator would have the authority to mandate the IDSG through contract. Accordingly, the IDSG requires no change in law or regulation. This differs from the limited number of targeted regulatory adjustments, which would require government action such as administrative agreements or legislation.

3

Financing mechanisms.
To finance the construction and operation of novel infrastructure and approaches, the IDEA District calls for financing mechanisms that propel growth and technological advancement across the geography without diverting scarce public resources from other priorities or from elsewhere in the city or province. This calls for harnessing various "value capture" mechanisms. These financing strategies — including city fee and development charge credits, municipal infrastructure contributions, local infrastructure contributions, the use of local land proceeds, and, potentially, tax-increment financing — leverage the area's economic growth to fund infrastructure and innovation.

The IDEA District would advance a multi-faceted economic growth strategy that enables and rewards successful innovation, while demanding more from developers to address public priorities.

IDEA District geography

Eastern waterfront

IDEA District

Quayside

Downtown Toronto

Designated Waterfront Area

Inner Harbour

Outer Harbour

Lake Ontario

0   500 Metres

Legend:
- Eastern waterfront
- --- IDEA District

Map

The IDEA District within the Greater Waterfront

The first step in establishing the IDEA District is defining its geographic scope. This could be accomplished through enabling legislation or through existing legislative tools, such as the use of Section 28 of the Planning Act to establish a Community Improvement Project Area.[38] As depicted on the map above, the district would encompass 140 hectares.

St Lawrence · Riverside · West Don Lands · Lower Sherbourne St · Parliament St · Distillery District · Cherry St · Don River · Eastern Ave · Broadview Ave · East Harbour · Gardiner Expressway · Queens Quay · East Bayfront · **Quayside** · **Keating West** · **Keating East** · Lake Shore Boulevard · Keating Channel · Inner Harbour · **Villiers West** · **Villiers East** · **McCleary** · Commissioners St · Don River · Don Roadway · Expanded Film Studio and Media District · Polson Slip · **Polson Quay** · Ship Channel · Cherry St · South Ship Channel · Unwin Ave · The Hearn · Ports Toronto · Eastern Channel · Cherry Beach · Ward's Island · Outer Harbour

0   250 Metres

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

Map

IDEA District neighbourhoods

The public administrator and the three orders of government will determine whether to extend the IDEA District beyond Quayside and Villiers West. At its full anticipated scope, the IDEA District would consist of three subdistricts, which are further divided into seven neighbourhoods. The neighbourhood names in the map above were drawn largely from the Port Lands Planning Framework and other city planning documents.

Fig. 1.1
IDEA District sub-districts

Sub-District	Size* (hectares)	Description (Main Planning Documents)
Quayside	6.9	Toronto Official Plan, Central Waterfront Secondary Plan, East Bayfront Precinct Plan, Keating Channel Precinct Plan, Zoning Bylaw 1049–2006, Zoning Bylaw 1174–2010
Keating West	7.9	Toronto Official Plan, Central Waterfront Secondary Plan, Keating Channel Precinct Plan, Zoning Bylaw 1174–2010
River District (62 hectares)		
Villiers West	7.8	Toronto Official Plan, Central Waterfront Secondary Plan, Villiers Island Precinct Plan, Port Lands Planning Framework
Villiers East	11.7	Toronto Official Plan, Central Waterfront Secondary Plan, Villiers Island Precinct Plan, Port Lands Planning Framework
Keating East	5.9	Toronto Official Plan, Central Waterfront Secondary Plan, Keating Channel Precinct Plan, Port Lands Planning Framework
McCleary	13.6	Toronto Official Plan, Central Waterfront Secondary Plan, Port Lands Planning Framework
Polson Quay	23.0	Toronto Official Plan, Central Waterfront Secondary Plan, Port Lands Planning Framework
Total	**76.8**	

* The size of each district in the table includes open space and rights of way within its borders.
For instance, this is why Quayside is described as 6.9 hectares, while including only 4.9 hectares of developable land.

The table on the previous page summarizes the size of each sub-district and neighbourhood in the IDEA District, and the governing planning documents.

The Planning Policy Justification Report, a detailed assessment of the conditions imposed under the planning documents governing each area, is included in the MIDP Technical Appendix.

The IDEA District — which could be established through a Community Improvement Plan (CIP) — encompasses just 32 percent of the lands incorporated in the Port Lands Planning Framework. As proposed, the IDEA District excludes 5 of the 11 districts in the Port Lands already experiencing economic activity (Media City, Turning Basin District, Warehouse District, East Port, and South Port East). The proposal seeks to augment, not impair, positive development underway in the Film District, including multiple proposed studio expansions. The proposal further recognizes the ongoing role of East Port as a site for large-scale industrial uses, including those that may be relocated from other areas within the Port Lands.

Opt-in for private landowners.
The vast majority of land in the proposed IDEA District (78 percent) is publicly owned, and initially, the district would encompass only those publicly owned parcels. The landowners of the remaining 22 percent of privately owned parcels would be permitted to voluntarily opt in to the IDEA District.

As a strong incentive to join, commit to the objectives to be outlined in the Innovation Framework (See Page 72), and take on the additional development requirements in the district, existing private landowners would be eligible to access proposed regulatory adjustments and reforms included in the Innovation Framework and receive other inducements. If private landowners choose not to join the IDEA District, they would be responsible for delivering enabling infrastructure to their own sites.

Because precinct planning and zoning for the two private parcels making up Keating West are complete (Zoning Bylaw 1174–2010), they present a special situation, and the public administrator of the IDEA District may elect to engage in direct negotiations as to how they might participate.

For analysis purposes, the MIDP assumes that all private landowners opt in to the IDEA District.

Phased application.
The project and the Innovation Framework would initially apply exclusively to Quayside. These would extend to a greater portion of the overall IDEA District in stages, based on Sidewalk Labs achieving clearly defined project milestones. After Quayside, the Innovation Framework would extend to the proposed Villiers West urban innovation campus, where Sidewalk Labs also proposes to serve as lead developer. Only after achieving project milestones for both Quayside and Villiers West, which include hitting certain performance targets tied to Waterfront Toronto's priority outcomes, would the public administrator, at its discretion, potentially extend the scope of the IDEA District and the Innovation Framework to other sites. The premise of this incremental approach is that before the Innovation Framework would apply to other development parcels, the solutions proposed in the MIDP must prove economically viable and effective at Quayside and Villiers West — the two vertical developments led not by third-party developers, but by Sidewalk Labs, which would bear the financial risk. 📖

Key Term

CIP
Community Improvement Plan

A revitalization strategy City Council establishes for a designated district with special policies for advancing identified development objectives.

📖 See Chapter 6, on Page 208, for more detail on the proposed stage gates.

IDEA District Component 1: A Public Administrator

The capacity of the IDEA District to galvanize economic growth and foster productive exploration turns on its administration. The district requires the oversight and management of a dedicated, nimble, and empowered public administrator. The success of the public administrator, in turn, depends both on having the ability to set the innovation and development priorities for the district, alongside the three orders of government, and on having the tools to ensure that those priorities are achieved.

Specifically, the public administrator should be granted the authority to:

1   Set innovation and development objectives for the IDEA District;

2   Impose additional requirements on developments within the district, consistent with the objectives described in Item 1;

3   Determine whether new developments can access the regulatory relief approved for the district;

4   Perform precinct and infrastructure planning for waterfront development;

5   Certify development and construction permit applications before their submission to city agencies;

6   Develop a master transportation and infrastructure plan for approval by relevant city authorities, in phases, and give final approval before construction;

7   Receive and direct infrastructure contributions for the infrastructure proposed for, or built in, the district; and

8   Enter into and oversee agreements with developers, vendors, and partners, including Sidewalk Labs as Innovation and Funding Partner.

Importantly, the mandate of the public administrator would not, and should not, displace the oversight of the city departments currently responsible for development and infrastructure approvals on the waterfront. Nor would it replace the approvals required from provincial or federal authorities. Rather, the proposed authorities together would seek to give the administrator a greater voice and control within existing processes. The result is that, as revitalization lead for the IDEA District, the public administrator would have a greater ability to collaborate with all orders of government to streamline the development process and advance an integrated innovation strategy.

Designation of the public administrator

In 2002, Waterfront Toronto was formally charged with spearheading the waterfront's development. But as the Auditor General of Ontario recently observed, until now, Waterfront Toronto has lacked the authority needed to fulfill its mission.[39] In her 2018 annual report, the Auditor General recommended that Waterfront Toronto's mandate "reflect the public and government's vision for a revitalized waterfront."[40]

Consistent with this recommendation, Waterfront Toronto is well positioned to serve as administrator of the IDEA District. Waterfront Toronto's structure already incorporates the three orders of government. Its statutory responsibilities extend to the entirety of the proposed district. Based on its 2006 memorandum of understanding (MOU) with the City of Toronto, Waterfront Toronto already has the scope and certain powers needed over development on public lands on the waterfront.[41] And by granting the public corporation a discrete set of additional authorities to manage development, technology, and infrastructure, Waterfront Toronto could better achieve its mission to direct and accelerate development across the waterfront.

For context, Waterfront Toronto's statutory and contractual authorities with respect to publicly owned land, including under its 2006 MOU with the City of Toronto, include the authorities listed in the previous section in Items 1, 2, 4, and 8, with an advisory role with respect to Items 5 and 6. Only Items 3 and 7 would be entirely new authorities.

Alternatively, a different public entity could assume the additional responsibilities of public administrator, or a new entity could be established — either of which would necessarily work closely with Waterfront Toronto. Ultimately, the proper governance of the IDEA District is a matter within the sound discretion of the three orders of government, and its success depends less on where the public administrator sits within government and more on ensuring proper public accountability as well as granting the administrator a clear mandate and the tools to be successful. Importantly, where the MIDP refers to those responsibilities of the public administrator that Waterfront Toronto has today, in the event a different public administrator is selected, Sidewalk Labs anticipates that Waterfront Toronto would retain those responsibilities and would coordinate closely with the designated public administrator in carrying them out.

The district requires the oversight and management of a dedicated, nimble, and empowered public administrator with the ability to set innovation and development priorities.

Public administrator role in planning and implementation

The IDEA District proposal calls for a public administrator to oversee a comprehensive innovation and development strategy. The goal is to cultivate and expand the diverse ecosystem of real estate developers, service providers, employers, design firms, public agencies, research institutions, non-profits, and others — all working together in the IDEA District to advance job creation and economic development, sustainability and climate-positive development, housing affordability, new mobility, and urban innovation.

Whether Waterfront Toronto or another entity, the public administrator would work closely with the City of Toronto, including CreateTO, City Planning, and others, to lead planning efforts. Notably, as conceived, this role would incorporate some of Waterfront Toronto's current responsibilities and authorities, including those established in its MOU with the city. But the public administrator would assume certain additional responsibilities in connection with both planning and implementation.

The sections that follow describe, respectively, the planning deliverables and implementation responsibilities for the public administrator under this approach. Importantly, the role of the public administrator would be entirely supplemental to existing public approvals processes.

Planning deliverables

Infrastructure and Transportation Framework Plan.
Similar to Waterfront Toronto's current role in infrastructure planning, the public administrator would prepare an Infrastructure and Transportation Framework Plan (ITFP) for

areas of the IDEA District with no existing infrastructure master plan. The ITFP would identify the primary street, transit, infrastructure for advanced systems, and municipal servicing networks to achieve the objectives for the IDEA District, as well as other public objectives. The administrator would perform servicing and transportation analysis using population and employment estimates based on the MIDP.

The administrator would coordinate with, and obtain consent from, relevant city agencies and otherwise proceed through the standard approvals process, including City Council approval and, where necessary, an Environmental Assessment. The ITFP would then serve as a blueprint for subsequent Infrastructure and Transportation Master Plans (ITMP) to be prepared at the precinct level as part of the precinct planning process.

Innovation Design Standards and Guidelines.
The public administrator would approve and implement the IDSG as a set of development requirements for the IDEA District. Consisting of technical specifications, design intentions and requirements, and programmatic details, the IDSG would guide how future vertical and horizontal development proceed across the district and would be prepared concurrently with the related ITFP. In sum, these requirements — which are similar to requirements that Waterfront Toronto incorporates in its development agreements in the usual course — seek to achieve the objectives of the IDEA District, such as sustainability and affordability, and to implement the vision articulated in the MIDP.

The IDSG would directly inform the precinct planning process and development of the ITFP and ITMPs. From time to time, the administrator could update the IDSG to address local scale issues and to carry out updates that reflect ongoing planning initiatives and new innovations.

Precinct-level planning documents

Precinct plans and implementing bylaws.
The Central Waterfront Secondary Plan calls for a precinct planning process to govern land use and infrastructure development on the waterfront. Precinct planning would continue to serve as a key implementation tool for areas anticipated to be comprehensively redeveloped with mixed-use residential uses. Precinct plans would build on and enhance the recommendations and directions in the Port Lands Planning Framework. These plans would provide a level of detail and precision needed to move from Official Plan policies to the passage of City Council bylaws.

Similar to the planning function currently performed by Waterfront Toronto, the public administrator of the IDEA District would assume primary responsibility for the planning process and would collaborate with city staff to advance land-use planning regulations for the precinct plan area. These regulations would include land uses, densities, built-form standards, affordable housing requirements, sustainability requirements, social infrastructure requirements, and performance outcomes consistent with the MIDP.

The administrator would collaborate closely with city staff to prepare these regulations in the form of city bylaws (proposed to be Community Planning Permit Bylaws) and submit them for City Council approval. In addition, the administrator may prepare and seek approval of Draft Plans of Subdivision (DPOS) required prior to development call and land disposition. The administrator may also elect to permit the development of certain land parcels following the completion of a precinct plan and prior to the adoption of implementing bylaws, where such development is in the public interest and is consistent with the Precinct Plan.

In such cases, the relevant deliverables would be prepared as part of a development application and the responsibility would fall on the private applicant, working with the administrator, to ensure that the requirements are met.

Notably, in circumstances where a Precinct Plan and a Zoning Bylaw already exist, the responsibility for planning deliverables would fall to the private applicant and would be delivered as part of the development application. Within the IDEA District geography, precinct plans have been established for Quayside (a combination of two precinct plans: the East Bayfront Precinct Plan and the Keating Channel Precinct Plan), Keating, and Villiers Island. While Zoning Bylaws have been established for Quayside and Keating West, no bylaw is in place for either Keating East or Villiers Island, and McCleary and Polson Quay still require precinct plans.

Accordingly, the specific paths for development within the IDEA District would proceed on slightly different paths, given the varying levels of formal planning. The approval process for Quayside and Villiers West would generally proceed as a traditional development application, led by the vertical developer (Sidewalk Labs, working with local partners), including in connection with the process for seeking zoning modifications to achieve the MIDP.

By contrast, Villiers East and Keating East (which have precinct plans but no bylaws) and McCleary and Polson Quay (which have yet to undergo precinct planning) would undergo sequential, overlapping planning processes led by the public administrator of the IDEA District and coordinated with city staff. Those processes would be guided by the ITFP and the IDSG.

Infrastructure and Transportation Master Plan.
For each precinct, an ITMP would detail all horizontal infrastructure required to support and service the precinct development, including local roads and servicing. This plan would be coordinated with the ITFP for the broader geography. The public administrator would use the ITMP to prepare any necessary Environmental Assessment approvals. To the extent that a private developer would

complete any of the municipal infrastructure, as opposed to the public administrator as horizontal developer, the infrastructure obligations will be identified in the developer's DPOS application.

Administrator implementation responsibilities

Development call and land disposition management.
The public administrator of the IDEA District would lead and manage the land disposition and development call process, ensuring participation by a wide variety of developers in the build out. Working closely with the City of Toronto and CreateTO, the public administrator would ensure that the land disposition process meets City Council objectives and requires new developments to satisfy the IDSG.

Certification of development and building permit applications.
All development applications and building permit applications will undergo a review and certification process by the administrator to ensure conformance with the IDSG prior to City Council consideration or permit issuance.

Management of municipal infrastructure development.
Working closely with the City of Toronto, the public administrator would manage the design, construction, and turnover of all required municipal infrastructure, including site preparation, domestic water, sanitary sewer, storm drain conveyance, shoreline improvements, bridges, and public realm (such as parks, plazas, promenades, and streetscape areas), except where noted in Chapter 2, on Page 114.

Management of further light rail transit (LRT) development.
The public administrator would take the lead role on the detailed design and implementation of the LRT (which completed the Environmental Assessment process in 2010). Specifically, this process would involve the following steps:

The public administrator would procure and manage consultants to design the LRT corridor in accordance with the Toronto Transit Commission (TTC) design manual, with the TTC itself designing specific elements, such as electrical design and vertical alignment, as appropriate.

The TTC would review and approve the LRT corridor design.

The public administrator would procure and oversee contractors for construction of the LRT corridor, again with the TTC itself managing certain elements, such as electrical wiring and special track work, as appropriate.

Notably, this is consistent with the role Waterfront Toronto played on the Queens Quay West LRT realignment as part of the Queens Quay West revitalization.

Management of advanced systems.
The advanced systems required to meet the objectives of the IDEA District proposed in the MIDP take several different forms. These include a thermal grid, an advanced power grid, an advanced stormwater management system, a pneumatic waste system, dynamic streets, a digital communications networks, a freight management system, a mobility subscription package, and district parking management. As lead developer, Sidewalk Labs would deliver the advanced systems at Quayside and Villiers West. The public administrator would oversee that development and integrate advanced system designs into its plans for municipal infrastructure for Quayside and Villiers West. For advanced systems in the rest of the IDEA District, the public administrator would assume the role of lead developer.

Oversight of new management entities.
As discussed in the preceding chapter, the IDEA District proposal assumes that several new entities and administrative units would oversee or manage the advanced systems proposed in the MIDP. These entities include the Waterfront Transportation Management Association (WTMA), the Open Space Alliance (OSA), the Urban Data Trust (UDT), and the Waterfront Sustainability Agency (WSA). While its proposed relationship varies with respect to each of the entities, the public administrator would play a coordinating role between and among the various entities.

Annual public reports on the IDEA District's progress.
On an annual basis, the public administrator would prepare a public report for the three orders of government on the performance of the IDEA District and the progress of any pilot programs.

Public engagement.
The public administrator would be responsible for ensuring robust community engagement and consultation to ensure that the operation of the IDEA District remains responsive to the public. This would include online content, social media, public workshops, charrettes, and meetings with working groups, agencies, and other stakeholders.

Capabilities for the public administrator

To carry out its responsibilities, the administrator of the IDEA District would need a series of specific capabilities and capacities. These include a sophisticated understanding of land-use planning and the management and implementation of large-scale construction, infrastructure, and transportation projects. The role also requires sufficient knowledge of technology to oversee the work of third-party consultants and adequate staffing and institutional resources. In particular, developing and managing the performance of advanced systems in later years will require the administrator to develop specialized expertise. Finally, the administrator needs to institute appropriate institutional mechanisms to monitor compliance by parties participating in economic development activities across the IDEA District, including Sidewalk Labs, developers, technology firms, and others.

As discussed earlier, the IDEA District is designed to be self-financing and could provide for the administrator's operational expenses. Most notably, each management entity has a dedicated revenue stream designed to deliver necessary operational resources and reduce or eliminate the need for outside funding (see Page 80). For the advanced systems, these funds would come directly from the operators.

Waterfront Toronto has some of these capabilities, but additional capacity and resources consistent with the needs described would be required if Waterfront Toronto assumed the public administrator role, particularly with respect to the anticipated role in oversight and operations.

Governance and management of advanced systems and solutions

The innovative approaches needed to carry out the MIDP's vision — from new systems for improving mobility and sustainability to programming for newly created public spaces — require management and oversight by dedicated, accountable, and financially self-sustaining, community-based governance structures. The MIDP accordingly describes five management entities needed to carry out the plan. These include two proposed units of the public administrator (the Waterfront Sustainability Association and the Waterfront Transportation Management Association); the Waterfront Housing Trust, a private entity established at the discretion of the public administrator; and two independent non-profits (the Open Space Alliance and the Urban Data Trust). These management entities would take on responsibilities outside the jurisdiction of existing public agencies, pilot and administer novel systems, and consolidate certain powers as needed to carry out an integrated district-focused strategy. 📖

Open Space Alliance.

The MIDP proposes establishing a new non-profit open space entity, the Open Space Alliance (OSA), which would be jointly financed and managed by public (e.g. Parks, Forestry & Recreation) and private stakeholders (e.g. land owners, local businesses). In partnership with the City of Toronto, the OSA would create opportunities to pilot ideas together with city staff, enabling a continuous cycle of knowledge sharing and learning to help successful innovations benefit Torontonians around the city.

There are a number of factors driving the proposal for the OSA: Publicly accessible space in Quayside would include a mix of privately and publicly owned spaces requiring coordination to give residents and visitors a seamless experience. Several of the innovative systems planned, including district-wide green infrastructure, digital and physical infrastructure for public artworks and film shoots, weather mitigation, digital maintenance technologies, and new tools for community programming, would require active oversight, with an expectation of experimentation, iteration, and adjustment. Moreover, open space funding is very limited, and it would be even more stretched at Quayside, which will have more open space per person than other developments, due to innovative policies which promote reclaiming parts of the rights of way for people instead of vehicles. Non-profit management of open spaces is not a new concept in Toronto; in response to a similar set of factors, the City has entered into a number of successful collaborations with non-profits to run open spaces, such as Evergreen at the Brick Works, the AGO at Grange Park, Artscape at Wychwood Barns, and the Bentway Conservancy under the Gardiner Expressway.

The MIDP proposes that the City of Toronto and private landowners follow this model, initially for Quayside, and enter into a collaborative management agreement with the OSA. This agreement would outline, policies, standards of performance, and scopes of work between OSA, private landowners, and the City of Toronto (all public land would remain publicly owned). Based on its success, the public administrator could call for new open spaces in the IDEA District to likewise enter into similar agreements with the OSA.

Urban Data Trust.

The MIDP proposes the creation of a new entity, the Urban Data Trust (UDT), to oversee the collection and use of "urban data" throughout the IDEA District. There is no existing entity that has the legal authority, capacity, or experience to approve the proposed collection and use of urban data by private and public sector entities. Recently, Canada recognized the need to grapple with data collection and use in "Digital Charter for Canada," a call to action to revamp the rules in the digital sphere.[42]

As more fully described in Volume 2, this new governance entity would issue a set of Responsible Data Use (RDU) Guidelines and review applications for proposed collections and uses of urban data throughout the district. While the UDT would determine the most appropriate RDU Guidelines, Sidewalk Labs has suggested an initial set for consideration, including that all digital products and projects apply values of diversity, inclusion, and privacy; use data minimization and de-identification by default; make non-personal data publicly accessible by default; and prohibit the sale of personal information or its use for advertising without explicit consent.

Any entity, whether public or private (and including any entity created by IDEA District legislation), that desires to collect or use urban data in the district would have to comply with UDT requirements, in addition to applicable Canadian privacy laws (as overseen by the provincial and federal privacy commissioners). Initially, UDT requirements would be enforceable by contract, with a view to a long-term solution, such as transforming the UDT into a public sector or quasi-public sector agency. Public sector entities may need certain exceptions from those requirements where acting in the public interest, such as in an emergency. 📖

Waterfront Housing Trust.

Facing a serious affordable housing shortage, the City of Toronto announced the "Housing Now Initiative," which seeks to create 40,000 units of affordable housing citywide.[43] Consistent with the city's goal and Waterfront Toronto's priority outcome of housing affordability, Sidewalk Labs has committed to an ambitious approach to affordable housing at Quayside — dedicating 40 percent of residential units to below-market housing.

To further advance affordable housing across the IDEA District, the MIDP proposes the establishment of a new financial vehicle to oversee an affordable housing portfolio. Building off successful precedents in the United States and elsewhere, the trust could assemble and disburse funding from a variety of sources, including a condo resale fee proposed for the IDEA District (see Page 76). With appropriate public sector governance in place, it could offer increased predictability and certainty of funding for developers of affordable housing. At the scale of the IDEA District, a trust could incubate alternative funding sources tailored for the market, including low-cost loans and top-loss guarantees to reduce lending costs for developers.

Waterfront Sustainability Association.

Reaching the ambitious targets detailed in the MIDP and needed to achieve Waterfront Toronto's priority outcome for sustainability and climate-positive development depends on the development of four advanced systems: an advanced power grid, a thermal grid, a waste management system, and a stormwater management system. Many (although not all) of these services have limited public regulatory oversight and would be operated by third parties. The MIDP therefore envisions a new unit of the public administrator called the Waterfront Sustainability Association (WSA), whose core responsibilities would be to:

Administer and enforce all operational service contracts for sustainability-related systems within the district, and

Report on performance relative to sustainability objectives within the IDEA District.

The proposal seeks to establish a mechanism to hold operators accountable and to fairly represent the interests of users in the district for systems that are not currently subject to public regulation. (Where they are, those regulations would prevail and not be replaced by any requirements of the WSA.) The WSA would issue and oversee operating contracts

as needed, monitor operator performance, enforce contractual rates (for rates not regulated by an existing public agency), compile GHG performance reports, and enforce contractual remedies for underperformance. Participating operators would fund the staff and operations the WSA requires through fees prorated based on each operator's revenue.

Waterfront Transportation Management Association.

The mobility plan calls for an adaptive approach to mobility, including a series of ideas that reflect new approaches (such as dynamic curbs, passenger drop-off and pick-up zones, ride-hail vehicle staging areas, and curb pricing). In certain instances, these mobility innovations would require independent regulatory approval. But to function, they all require direction from, coordination through, and supervision by a dedicated mobility manager for the IDEA District.

Throughout Canada and elsewhere in North America, transportation management associations oversee and seek to upgrade transit, manage parking, expand transportation options, and provide related services in an identified area or neighbourhood. These entities recognize the added value of a targeted, multi-faceted, local approach.

Expanding on this model, the MIDP calls for the creation of a Waterfront Transportation Management Association (WTMA) as a unit of the administrator. Working with the Toronto Transit Commission (TTC) and the city's Transportation Services Division, the core responsibilities of the WTMA would be to:

Implement mobility policy objectives within the IDEA District;

Oversee planning, operation, and maintenance of the new mobility-related infrastructure, such as "dynamic streets"; and

Manage the four advanced mobility systems in the district, including the mobility subscription package.

The WTMA would oversee the maintenance of the modular pavement system; set and collect certain district-specific, mobility-related fees (specifically parking fees and curb pricing); allocate travel credits and subsidies; and adjust speed limits for certain speed-separated streets. The proposal would create a transparent, accountable, and fiscally responsible manager. The WTMA would include a steering committee with representatives from all three orders of government and would collect and retain revenue from parking and curb pricing — providing a dedicated funding source for capital improvements and operations.

Because many of the functions and authorities proposed for the WTMA — for instance, managing parking and coordinating traffic lights in the area — are currently dispersed across city departments, they have not been coordinated into a single integrated, district-level mobility strategy in Toronto so far. In certain cases, the proposed authority pertains to new solutions and does not fit neatly within the purview of an existing agency. By assigning the WTMA to manage the innovative mobility systems proposed for the IDEA District, and by enacting a City Council resolution granting it oversight of mobility-related functions pertinent to the district (discussed under the Innovation Framework), the WTMA could advance important transit objectives for the waterfront and seamlessly integrate diverse mobility options.

The innovative solutions needed to achieve Waterfront Toronto's priority outcomes require management and oversight by dedicated, accountable, and financially self-sustaining, community-based governance structures.

IDEA District Component 2: The Innovation Framework

Objectives and principles

The second main feature of the IDEA District is the Innovation Framework, a package of targeted regulatory adjustments and enhanced requirements on development that would apply in the area. These reforms, submitted here for government consideration, are designed to facilitate and foster innovative development and achieve Waterfront Toronto's priority outcomes: job creation and economic development, sustainability and climate-positive development, housing affordability, new mobility, and urban innovation (including robust data privacy and digital governance).

Overall, the MIDP seeks to explain why the proposed Innovation Framework is fundamental to achieving these objectives. The proposed framework proceeds from five key principles:

Active government oversight.
The development of the IDEA District would proceed as a multiphase public project conceived and implemented to meet well-defined policy objectives. Further development is, and must remain, subject to clear public directives and proper oversight by the federal, provincial, and city governments.

A predictable policy environment.
To invest the resources required to achieve the vision laid out in the MIDP and to develop the broader waterfront, Sidewalk Labs, vertical developers, and others operating in the district require certainty that the conditions necessary for success are in place. Advancing this initiative is impossible without a clear understanding of the rules governing the Quayside project or the IDEA District as a whole.

A responsive regulatory approach.
Using cutting-edge urban design and technologies as a catalyst for innovative development, programming, and service delivery on the waterfront requires a regulatory environment that affords

Key Terms

The IDEA District's **Innovation Framework** — a modified regulatory framework designed to foster the policy conditions necessary to tackle urban challenges using innovative solutions comprised of regulatory adjustments and the IDSG.

Regulatory Adjustments — a part of the Innovation Framework constituting legal modifications that would require further action, such as legislation or an administrative agreement, from the federal, provincial, or municipal government.

IDSG (Innovation Design Standards and Guidelines) — a part of the Innovation Framework constituting enhanced requirements for new IDEA District developments arising out of Waterfront Toronto's priority outcomes.

developers additional leeway to test out new solutions, offers flexibility in implementation, and can adapt as circumstances change or as key milestones are achieved.

Accountability and incentives to match higher demands for performance.
The regulatory structure must link accountability and incentives to performance. This means increasing the requirements on new developments to address key priorities, like affordability and sustainability. It also means holding developers accountable for those higher standards, through incentives and penalties.

Recognizing the value of scale.
The viability of the MIDP, specifically components requiring significant, upfront infrastructure investments, depends on sufficient scale. These advances cannot proceed or receive funding on a development-by-development basis and must be integrated into a broader strategy for the eastern waterfront.

The particular reforms proposed in the next section reflect these principles and follow a close review of the applicable regulatory schemes. Notably, the Innovation Framework does not refer to the more standard planning permissions and other regulatory approvals associated with larger developments.

Proposed policies: Introduction

The Innovation Framework would serve as a centrepiece of the IDEA District, encompassing the policies needed to advance the vision set forth in the MIDP and lay the groundwork for sustained innovation and economic growth. This section outlines proposed aspects of the Innovation Framework associated, respectively, with mobility, public realm, buildings and housing, sustainability, social infrastructure, and digital innovation.

Each section highlights certain reforms needed to advance Waterfront Toronto's priority outcomes for the eastern waterfront. The Innovation Framework, as proposed,

has two distinct parts. The first part consists of a smaller number of targeted regulatory adjustments that would require additional action by the federal, provincial, or municipal government, such as legislative amendments or administrative agreements.

The second part of the framework, the Innovation Design Standards and Guidelines (IDSG), would require no further action by the three orders of government. Similar to the development requirements that Waterfront Toronto today imposes on new developments on the waterfront, the public administrator would establish the IDSG to require new developments on public land in the IDEA District (or where private landowners opt in) to advance district innovation and development priorities. For example, new developments would be required to adopt sustainable construction techniques and contribute annually to support the public realm. Over time, the administrator would oversee revisions to the IDSG based on the early practical experiences at Quayside and Villiers West, the availability of new technologies, the perceived success or limitations of the MIDP solutions in practice, and economic practicalities. The initial IDSG would be approved in connection with the Implementation Agreements, but would not expand beyond its initial application in Quayside and Villiers West until the public administrator adopts the IDSG for the broader IDEA District. This would occur after the approaches prove both effective at achieving district priorities and financially viable.

The proposed regulatory adjustments touch on a number of specific subject matters that necessarily require review and consideration by the relevant orders of government. In certain circumstances, Sidewalk Labs may be called on to demonstrate the safety of a particular reform from a science and engineering standpoint (for example, that Sidewalk Labs can construct safe wooden buildings of 30 storeys or higher).

Accordingly, Sidewalk Labs recognizes that not all regulatory adjustments would be enacted when the parties first enter into Implementation Agreements. In the near term, Sidewalk Labs is seeking formal approval by government of a policy framework and implementation timetable — potentially through

a Community Improvement Plan under Section 28 of the Planning Act — sufficient to ensure that reforms are considered by government and enacted in time for their application to this project, and without delaying it.[44]

To advance the IDEA District's priority outcomes, the MIDP proposes a set of targeted legal adjustments and proposed requirements that would be included in the IDSG (See the Supplemental Tables). A few that merit further discussion are discussed in detail in the following spreads.

Innovation Framework: Mobility

The MIDP offers a detailed, multimodal strategy for ensuring area residents, workers, and visitors have access to a broad array of mobility options in Quayside and across the IDEA District.

This plan includes the addition of an LRT system to Toronto's existing streetcar network, upgrades to bicycle infrastructure, and management systems to reduce traffic congestion and ease traffic flow — all while reclaiming parts of the roadway for public space. The plan also includes a street network designed to accommodate the emergence of self-driving vehicles.

This plan would increase mobility options; promote affordability and convenience for residents, workers, and visitors; and attract further investment and development to the IDEA District. 🔖

Regulatory adjustments: Mobility
Allowing dynamic curbs. The MIDP calls for the deployment of dynamic curbs where the amount of space allocated to roadway, sidewalk, or parking would vary based on demand. When rush hour ends, for example, certain vehicle lanes could become pedestrian space. This system relies on lighted pavement and digital signage, and on the elimination of raised curbs, instead pursuing one consistent grade from building front to building front. As a consequence, it may require exemptions from specifications in Ontario's Highway Traffic Act and Toronto's Municipal Code, specifically regarding acceptable signage, and from certain parking rules. Sidewalk Labs proposes including these adjustments in the

Innovation Framework, with oversight of the dynamic curbs falling to the WTMA.

Authorizing curb pricing. The MIDP calls for the WTMA to administer "curb pricing" to reduce traffic congestion, encourage the use of alternative forms of transportation, and cut down on greenhouse gas emissions. Under the proposal, all vehicles would be assessed a charge to access curb space, and vehicles waiting longer than five minutes would pay higher time-based charges. The plan also calls for delivery vehicles to pay for permits to make curbside deliveries (as opposed to at a central distribution centre, where no fee would be charged). Such a scheme requires authorization by the province, in the form of an amendment to the City of Toronto Act to permit the city to adopt this approach. The City of Toronto, in turn, could authorize the WTMA to manage the program and apply the funds to mobility in the IDEA District.

Authorizing ride-hail pick-up / drop-off / staging zones. To move away from curbside parking and reduce traffic in the IDEA District, the MIDP envisions the establishment of ride-hail pick-up, drop-off, and staging areas that would shift based on demand. Sidewalk Labs proposes that, as part of the Innovation Framework, Toronto amend its Municipal Code to permit these dynamically shifting areas, require drivers to comply with these rules, and empower the WTMA to modify and work with law enforcement to administer them.

IDSG: Mobility
Requiring increased bike parking and bike lane access or bike priority streets for all new buildings. To make bicycles and e-bikes an attractive transit option for as many people as possible, the mobility plan calls for an unprecedented level of bike access in Quayside and across the IDEA District through dedicated lanes and bike priority streets. Consequently, Sidewalk Labs has advanced designs for Quayside with bike access to all buildings and expanded long- and short-term bicycle parking, and proposes that these constitute requirements for new developments in the district (as well as a component of future precinct plans for the area).

Facilitating underground delivery tunnels and a neighbourhood logistics hub. The MIDP calls

for a pilot project at Quayside to develop an underground system of tunnels linked to a neighbourhood logistics hub for deliveries, storage, waste, and borrowing. By keeping delivery and garbage trucks off major roads, the proposal would substantially reduce congestion and pollution. Advancing the Quayside plan would require certain upfront permissions, including permission to tunnel under city roadways. Based on the success of the pilot, the IDSG would mandate that new developments in the IDEA District connect to the tunnel system for deliveries and sanitation.

Innovation Framework: Public Realm

The MIDP offers a strategy for delivering more and higher-quality open space in Quayside, space that is flexible, better programmed, and attractive more seasons of the year. Overseen through a collaborative management agreement with a new independent non-profit, the OSA (see Page 68), the success of this approach would pave the way towards expanding access to improved public space across the IDEA District. This approach approach seeks to reduce social isolation, improve health, and contribute to a vibrant community life on the waterfront. 🔖

IDSG: Public Realm
The MIDP separately proposes that the public administrator require new developments to support the open space network, by incorporating the following requirement into the IDSG:

Requiring new developments to contribute to open space management. To operate well-programmed, well-maintained, and innovative publicly accessible space, the OSA requires operational funding. But public funding for these purposes is limited. To help fill this funding gap, the IDSG would include a requirement that landlords furnish funds, which they may pass on to commercial tenants in the form of common area maintenance fees, to support parks and other open spaces across the IDEA District. Modelled off of the funding framework for Business Improvement Areas and Green Benefit Districts that exist elsewhere in North America, these funds would be dedicated exclusively to improving and administering local open spaces.

Innovation Framework: Buildings and Housing

The MIDP details how Sidewalk Labs intends to construct buildings in Quayside and Villiers West that are faster to build, more affordable to live in, and more sustainable from an environmental perspective.

This approach includes the factory construction of mass timber buildings as tall as roughly 30 storeys; the development of highly adaptable "Loft" and stoa (lower-floor) spaces that can support a mix of uses, from residential to light manufacturing; and the use of a low-voltage power system. Anchored around the use of factory-built wood construction, the plan announced an unprecedented commitment to below-market housing, with below-market units accounting for 40 percent of the new residential units, including both purpose-built rentals and a novel shared equity model. 🔖

Regulatory adjustments: Buildings and Housing
Permitting mass timber buildings and related advances. The MIDP calls for the use of mass timber in all buildings developed in Quayside. This will include buildings of varying heights, including a roughly 30-storey wood building, which is taller than any previous wood construction in Canada. This construction would also incorporate several other novel design features — including the use of fire-resistant, environmentally friendly Shikkui plaster (rather than drywall) — that make the buildings as safe as traditional concrete and steel buildings, at much higher levels of sustainability.

The proposed wood construction would require permission to exceed the six-storey limit on wood construction imposed by the Ontario Building Code and permission to use the Shikkui plaster that is a key aspect of the construction.[45] Sidewalk Labs is actively consulting with the city's building department and with federal and provincial officials on these specifications, and is prepared to establish their benefits from a safety and sustainability perspective. The ultimate ability of mass timber construction to proceed will depend on either provincial legislation to allow such construction in the IDEA District or a determination through the city's "alterna-

tive solutions" process that the construction in Quayside, as described, achieves the same or better level of performance to currently permitted approaches.[46]

Authorizing a pilot to shift to an outcome-based, building-use system. The MIDP contemplates buildings with highly flexible spaces that can quickly adapt to new uses, from residential to commercial to light manufacturing. In a bid to increase the adaptability of spaces without negatively affecting those living and working nearby, the proposed Innovation Framework would establish a pilot program of an "outcome-based" system for new developments to allow for a broader range of uses to coexist together and for a simpler and easier process changing uses within existing built spaces. Sidewalk Labs has identified nine "use-neutral" code categories (such as restaurants, single dwelling units, mercantile/retail uses, and low-hazard industrial uses), where the effects on third parties tends to be limited. Rather than prescribe how these use-neutral spaces are to be used, the proposed system would monitor real-time compliance with city-established standards for noise, air pollution, and other nuisances — in other words, focusing on the outcomes and allowing flexibility, as long as the outcomes are met. This requires Zoning or Community Planning Permit Bylaws permitting a broader range of uses and incorporating real-time monitoring in the building permitting process.

IDSG: Buildings and Housing
The MIDP separately proposes that the public administrator require new developments to improve access to affordable housing by establishing the following requirement:

Funding below-market housing through a condo resale fee for new developments in the IDEA District. The shortage of affordable housing represents a serious challenge for Torontonians at all income levels. The Innovation Framework proposes a new source of private funds for affordable housing: a resale fee for all condo sales from new developments in the IDEA District.

Pursuant to a restrictive covenant or other legal strategy, condo sellers would have to pay a percentage of the sales price to support affordable housing. A Waterfront Housing

Trust (see Page 69) could collect this new revenue stream, pair with it with existing funding sources, and use the combined funds to advance an affordable housing strategy for the IDEA District overall. Notably, the new fees could support not only traditional affordable housing but also below-market units for middle-income households.

Innovation Framework: Sustainability

Waterfront Toronto's RFP set an ambitious goal to make the waterfront a climate-positive community. To deliver on this goal, and to accomplish a range of other environmental-sustainability objectives, the MIDP details a multi-part strategy.

This approach starts with the design and construction of buildings using mass timber. It extends to how buildings are powered, heated, and cooled, and includes the management of waste and stormwater across the neighbourhood. To reduce and manage energy needs, Sidewalk Labs plans to construct highly energy-efficient buildings and deploy advanced systems for generating, managing, using, and storing electricity and thermal energy. The plan also incorporates a smart waste disposal chain designed to improve the diversion of recyclable and compostable waste from landfills and a centralized, actively controlled green-infrastructure approach to stormwater management.

Regulatory adjustments: Sustainability
Establishing an advanced power grid for the IDEA District. Key to achieving a climate-positive waterfront is the deployment of an advanced power grid. The MIDP calls for connecting Quayside to the main Toronto electric grid, supplementing the energy supply with local solar generation and battery storage, and employing an innovative rate structure. This rate structure is designed to reward behaviour and technology that move discretionary energy use to "off peak" times when the grid's electricity is cleaner (lower GHG intensity) and often less costly. It employs a "monthly power budget" scheme that gives commercial and residential occupants far greater control to manage their utility costs than ever before.

Compensating Toronto Hydro at the regulated rate based upon a campus meter, and then charging customers within the campus at a variable rate, requires approval from the Ontario Energy Board to implement the new rate structure and potentially amend Local Distribution Company regulations to allow a campus approach to electricity.

Facilitating a novel stormwater management system for the IDEA District. As climate change causes storms of increasing frequency and severity, actively managing stormwater is fundamental to the sustainability and resiliency of cities. The MIDP calls for increased reliance on district-wide green infrastructure solutions to manage stormwater, including structural soil beds, scientifically selected vegetation, and permeable paving — systems that capture and naturally filter stormwater collected beneath the street.

Executing this vision requires permission from the city for stormwater systems to encroach into the right of way. Furthermore, it requires allowing stormwater management infrastructure that serves larger swathes of the IDEA District, rather than mandating a development-by-development approach.

Finally, the approach would require directing funding to stormwater infrastructure. Accordingly, the Innovation Framework would require new developments to fund the new stormwater management infrastructure and its ongoing management in lieu of developing their own more expensive, in-building solutions. At the same time, the Innovation Framework would seek an equivalent reduction in the portion of the Toronto Water billing for stormwater.

IDSG: Sustainability
Requiring new developments to meet heightened sustainability and active energy management requirements. Waterfront Toronto set a climate-positive objective for development in the waterfront. Achieving this objective begins with how buildings are constructed and outfitted. In Quayside, Sidewalk Labs intends to show that truly sustainable buildings are commercially viable, safe, and economical. Based upon success in Quayside, the Innovation Framework would impose heightened sustainable-building requirements for new developments in the IDEA District.

Among other requirements, new developments would need to be constructed with materials at least as sustainable as the mass timber construction proposed for Quayside. They would need to feature a well-insulated building envelope to prevent avoidable energy loss. And they would need to connect to the advanced power grid and employ active energy management systems — what Sidewalk Labs is calling "Schedulers" — that optimize heating, air conditioning, ventilation, and other systems to sharply limit the extent to which energy is being used when not needed. Over time, the sustainability requirements would be refined to keep pace with advances in research and technology.

Developing an outcome-based energy code. While the existing Toronto Green Standard (TGS) imposes requirements for sustainability in the design phase, there is no ongoing performance requirement that applies post-construction during building operation.[47] As a consequence, TGS-compliant buildings may consume higher levels of energy in operation than desired or reasonably needed. The solution is a dynamic approach that holds developments accountable for their energy performance in actual operation.

As an initial step, the Innovation Framework would require that new developments in the IDEA District maintain systems for collecting real-time data related to energy performance, occupancy, and tenant type, as well as sharing that data in standard published formats with the administrator. This data would be used to establish dynamic operational energy performance standards to apply in the district.

Connecting to a fossil fuel–free thermal energy solution. To substantially reduce the reliance on fossil fuels for heating and cooling, the MIDP calls for the development of a thermal grid that could harness clean energy resources (such as geothermal energy), waste heat from buildings, industrial waste heat (from a data centre, for example), and wastewater heat recovery. To proceed with this type of thermal grid, the City of Toronto would need to permit thermal pipe under the right of way and the operation of a thermal energy utility in the IDEA District. As part of the Innovation Framework, new developments in the district would be required to connect to the thermal grid and pay for service.

Connecting to a pneumatic waste system.
As part of delivering a sustainable, resilient, and innovative waterfront, the MIDP proposes the use of other major new infrastructure, including a pneumatic waste collection system that rapidly sends trash, recycling, and organics to a neighbourhood collection point. This approach keeps trash off the street, makes recycling easier and more effective, reduces contamination across waste streams, and reduces garbage truck–related congestion. To make the system financially feasible and spread its benefits across the IDEA District, the Innovation Framework would require that new developments connect to the new sanitation system (with protections to prohibit monopolistic pricing).

Innovation Framework: Social Infrastructure

The MIDP sets out a vision for Quayside as a model of a complete, inclusive community — one that prioritizes the health and well-being of residents, workers, and visitors; fosters a civically engaged community; and enables opportunities for lifelong learning so that everyone has an opportunity to thrive. More broadly, the MIDP proposes to address from the outset social development objectives, including civic participation, health equity, and workforce development, and to allocate space where local non-profits and government entities may choose to pilot new models of service delivery to achieve better outcomes. (Sidewalk Labs would not provide any community services.)

Establishing healthy urban design and construction requirements for new developments.
The design and construction of the built environment has profound implications for the health outcomes of residents and workers in the district and for overall community well-being. Seeking to optimize the health and well-being of those who live and work in Quayside, the MIDP includes features designed to prioritize health and well-being, including pedestrian- and bicycle-friendly infrastructure, outdoor green spaces, and community gathering and service delivery spaces. The precinct and land-use plans for the IDEA District, as well as the Innovation Framework, would reflect a similar commitment to incorporating the best

practices for promoting community well-being. Specifically, the public administrator of the IDEA District would advance existing healthy urban design guidelines and require adherence by new developments.

Requiring all new developments to advance health, education, and civic engagement through proactive planning. Urban revitalization is about improving the lives of city residents. Yet too often, the delivery of community services is an afterthought in development planning. Consistent with the City of Toronto's TOcore Strategy, the Innovation Framework seeks to ensure that all new developments in the IDEA District incorporate planning for community service spaces and coordinate with service delivery partners.[48] New developments would need to describe how they align with district-wide community service and facility plans prepared by the city, and detail their specific contributions to establishing healthy communities; creating connected, civically engaged communities; and promoting lifelong learning.

Incorporating space for health facilities in new development plans. Meeting the health needs of the waterfront depends on ensuring that residents and workers continue to have access to health care and community services as development proceeds. Based on that insight, the Quayside plan sets aside a central space for the co-location of health care and community services, called the Care Collective.

Building on the existing partnership between the city and the province to coordinate planning efforts to enhance population health, the administrator would work closely with these bodies to integrate health care service and facility planning into future Precinct Plans for the IDEA District and would explore opportunities to incorporate appropriate, flexible spaces for delivering health care services in new developments if deemed a priority by the province.

Requiring new developments to prioritize community benefits in construction. To ensure that new construction means new opportunities for community residents, the Innovation Framework would establish community benefit requirements for new

construction. These requirements are consistent with Ontario's Infrastructure and Jobs for Prosperity Act and with the City of Toronto's Social Procurement Policy.

First, new developments would be required to commit to training, apprenticeships, and jobs for members of historically disadvantaged groups, at minimum participation thresholds (equivalent to 10 percent of all construction labour hours, where applicable). Second, new developments would be required to commit to directing a minimum percentage of project costs to diverse suppliers, small businesses, and social enterprises. Third, during planning and construction, development leads would be required to meet quarterly with a working group of community members and representatives from government agencies to report on progress towards achieving these goals.

Establishing sustainable funding for a non-profit neighbourhood association. Neighbourhood associations play an important democratic role, representing the interests of community members in the broader city and responding to their concerns as an independent, non-profit entity. This is especially true for the nascent neighbourhoods of the eastern waterfront, where decisions today could influence the shape of community life for years to come. But funding for these associations is often ad hoc, typically proceeding on a voluntary, membership model which makes the adoption of new processes, programs, tools, and spaces challenging.

The public administrator would consider more reliable funding models, for example, incorporating a dues requirement into the Innovation Framework, in which area residents pay a small monthly fee on a sliding scale. Another option would be to seek sustaining contributions from area businesses.

Innovation Framework: Digital Innovation

The MIDP proposes ubiquitous connectivity for residents, workers, and businesses in Quayside on a secure, super-fast internet network — no matter where they are, at an affordable cost. This connectivity would boost productivity, bridge the digital divide, and power

cutting-edge digital and automated technologies — all to improve quality of life across the waterfront.

Many of the previously mentioned innovative systems rely on information collected from the physical space, such as using cameras to chart traffic patterns. To safeguard the interests of urban residents, the MIDP calls for an innovative approach to digital governance in the IDEA District that builds on the strong foundation established by Canadian privacy laws to create a new process for approving the use or collection of urban data gathered in the public realm. The initiative aims to demonstrate to Toronto, Canada, and the rest of the world that cities do not need to sacrifice their values of inclusion and privacy for opportunity in the digital age.

As discussed earlier, the MIDP calls for the creation of the UDT, a new entity that will oversee the collection and use of urban data throughout the IDEA District. The MIDP proposes that any entity, whether public or private (and including any entity created by IDEA District legislation), that desires to collect or use urban data in the district would have to comply with UDT requirements in addition to applicable Canadian privacy laws (as overseen by the provincial and federal privacy commissioners). Compliance with UDT requirements would be enforceable by contract initially, with a view to a long-term solution that may include transforming the UDT into a public sector or quasi-public sector agency. Public sector entities may need certain exceptions from those requirements where acting in the public interest, such as in an emergency or other urgent situation.

IDEA District Component 3: Financing

The MIDP sets out an ambitious vision for spurring economic growth in the eastern waterfront while tackling core urban challenges. But improving quality of life in the waterfront should not come at the expense of other municipal or provincial priorities. As recognized in the Toronto Official Plan, there is a need for "new funding mechanisms … to provide monies for investment in facilities, services and amenities."[49]

Self-financing or "value capture" strategies are commonly used throughout Canada and the United States, offering a way to finance district infrastructure and growth-generating strategies with the economic value they are expected to generate. To advance a comprehensive development strategy for the IDEA District, the public administrator should receive the authority to employ at least three typical value capture strategies:

1

City fee and development charge credits, municipal infrastructure contributions, and local infrastructure contributions.
In Toronto, city fees, development charges, and, for certain projects, other developer contributions, are typically assessed to pay for the municipal infrastructure required to support the infrastructure needs associated with new development. For example, Waterfront Toronto has used such fees — including a local area improvement charge specified in the East Bayfront Zoning Bylaw — to fund local infrastructure in East Bayfront.[50]

Within the IDEA District, the administrator would deliver a broad range of enabling horizontal infrastructure and services typically funded through city fees and development charges. As a consequence, the administrator would reasonably seek a credit of equivalent

value to reduce the city fees and development charges developers in the IDEA District would pay. Acting under its authority over the sale of public lands, the administrator would recoup the value of this credit by requiring developers to pay a district-specific fee, called a "municipal infrastructure contribution" (MIC), to fund the enabling horizontal infrastructure and services the public administrator delivered.

Some of the local infrastructure required to make land parcels suitable for development in the IDEA District replaces the costs for certain business as usual (BAU) horizontal systems, specifically gas and electrical distribution systems. These systems are not eligible for city fee or development charge credits. To fund this local infrastructure, the administrator would also assess a "local infrastructure contribution" (LIC) as part of the land disposition process. This fee, which would be equivalent to the avoided BAU horizontal costs, would be used to reimburse operators up to the amount of those avoided costs.

2

Land proceeds reinvestment.
By selling public land incrementally over time and investing the proceeds in local area development, a city can use the growth potential of land to fund development. Waterfront Toronto has used this approach since 2006, relying, in part, on the authorities contained in its MOU with the City of Toronto.

In concert with Infrastructure Ontario, Waterfront Toronto used this strategy to develop the West Don Lands, leveraging provincial lands to fund the costs of the new infrastructure, remediation, and land-use approvals necessary to enable development. Reinvesting land proceeds also represented another part of Waterfront Toronto's approach to funding East Bayfront. And the Harbourfront Corporation used this strategy to enable development of approximately 36 hectares along Toronto's central waterfront; the corporation obtained land-use approvals, delivered enabling infrastructure, and later sold the lands to repay an initial federal investment.[51]

This financing approach requires ensuring that the public administrator has control over the disposition of public lands within the IDEA District (akin to the authorities the city has already granted to Waterfront Toronto in their 2006 MOU) and the authority to apply the proceeds to finance the overall development and innovation strategy.

3

Incremental property tax.
Tax-increment financing (TIF), known elsewhere in Canada as a Community Revitalization Levy (CRL), directs a share of the increase in property tax revenue within a project area to fund major infrastructure, like transit. For example, Calgary used a CRL financing strategy to advance the Rivers District Community Revitalization Plan. Since 2007, this approach has enabled $396 million in infrastructure funding, attracting nearly $3 billion in planned private development to downtown Calgary.[52] As a result, residential property assessments reportedly increased from $328 million to about $1.2 billion, and non-residential assessments jumped from $647 million to $1.8 billion.

In another example, Edmonton will use a CRL financing strategy to fund several projects in the Capital City Downtown CRL Plan.[53] TIF is commonplace for funding projects across the United States, including Hudson Yards (New York), Mesa del Sol Development (New Mexico), and Lincoln Yards (Illinois).

Toronto's Official Plan acknowledges the value of TIF, specifically commending the strategy as a way to "invest without direct cost to the municipal taxpayer."[54] This tool should be available in Ontario and to the public administrator of the IDEA District. Notably, the MIDP proposes using TIF as one way to finance the Waterfront East LRT extension.

Ontario enacted a TIF law in 2006. To make TIF available for infrastructure, the province must promulgate implementing regulations. Moreover, the public administrator should be granted the authority to recommend IDEA District projects as prospective recipients of TIF funding.

Innovation and Funding Partnership Proposal

Introduction

Through the RFP process, Waterfront Toronto selected Sidewalk Labs as its Innovation and Funding Partner and entered into a PDA to prepare this MIDP. By design, this role encompasses several distinct but interrelated responsibilities that involve conceptualization, implementation, and financing.

The MIDP Innovation and Funding Partnership Proposal suggests that Sidewalk Labs would play four distinct, interrelated roles:

1

Development of real estate and advanced systems.
Sidewalk Labs would vertically develop two neighbourhoods in the IDEA District, Quayside and Villiers West, and is committed to advancing this development with local partners.

In Quayside, the result would be a new neighbourhood that would pioneer strategies for improving sustainability, affordability, mobility, and other Waterfront Toronto priorities. In Villiers West, Sidewalk Labs would serve as lead developer of a new urban innovation campus, which would be anchored by an expanded Canadian headquarters for Google and a new academic institution, the Urban Innovation Institute. The overall campus would include 1.5 million square feet of commercial space.[55]

Sidewalk Labs would also serve as lead developer of the advanced systems critical to the success of Quayside and Villiers West and to the achievement of Waterfront Toronto's priority outcomes. These include an advanced power grid, thermal grid, waste management system, stormwater management system, freight management system, dynamic streets, district parking management system, digital communications network, and mobility subscription package. To implement these systems, Sidewalk Labs would identify or partner with experienced third-party operators wherever possible.

By acting as lead developer of real estate and advanced systems, Sidewalk Labs would serve as a catalyst for broader development that follows Waterfront Toronto's principles — laying the foundation for how, as part of a district-wide strategy, future developments can achieve ambitious public objectives. Accordingly, Sidewalk Labs has no intention of serving as vertical developer for any parcels in the IDEA District beyond Quayside and Villiers West.

2

Innovation planning, design, and implementation.
Sidewalk Labs would provide advisory services and management services in connection with planning, devising, constructing, integrating, delivering, and operating project-specific infrastructure and advanced systems for the IDEA District. Assuming it achieves all required project milestones, Sidewalk Labs would apply its practical insights from serving as lead developer of a range of advanced systems and vertical development at Quayside and Villiers West. Although the precise scope of these services varies for different aspects of the project, the role would centre on areas where Sidewalk Labs' expertise and resources can uniquely benefit the project.

3

Technology deployment.
Sidewalk Labs would source or create key technological solutions needed to deliver on the MIDP targets. These would include a number of new technologies where no suitable alternative exists, including for mobility and digital innovation, that qualify as "purposeful solutions." In addition, as part of this role, Sidewalk Labs would share profits of certain technologies deployed in connection with the project.

4

Optional infrastructure financing.
As described throughout the MIDP, the accelerated development of horizontal infrastructure is critical to realizing the promise of the eastern waterfront as a leading force in sustainability, affordability, mobility, public realm, and other quality-of-life factors. To ensure financing is not a barrier to constructing critical infrastructure, Sidewalk Labs is prepared to arrange or enable front-end financing for the accelerated construction and support of certain critical infrastructure and advanced systems.

The next four sections detail how Sidewalk Labs, as Innovation and Funding Partner, proposes to leverage its unique assets and outline the scope of its responsibilities and the associated financial terms.

Innovation and Funding Partner Role 1: Development of Real Estate and Advanced Systems

Fig. 2.1
Build Plan by parcel

	Phase 1	Phase 2	
	Quayside (led by Sidewalk Labs)	Villiers West (led by Sidewalk Labs)	Rest of River District* (developed by others)
Scale	7 hectares**	8 hectares	62 hectares
	2.65M sq ft	2.75M sq ft	27.5M sq ft
Percent of IDEA District Development Program	8.1%	8.3%	83.6%
Build Plan (GFA)*			
Residential	1.78M sq ft (67%)	1.15M sq ft (42%)	20.15M sq ft (73%)
Office	550K sq ft (21%)	1.4M sq ft (51%)	5.55M sq ft (20%)
Retail	230K sq ft (9%)	150K sq ft (5%)	1.4M sq ft (5%)
Social Infrastructure	90K sq ft (3%)	50K sq ft (2%)	400K sq ft (1%)
Total Units	**2,670**	**1,720**	**30,470**
Total Residents	**4,176**	**2,710**	**46,090**
Total Jobs	**3,952**	**7,680**	**33,990**
Full Absorption Year	**2026**	**2030**	**2045**

* Volume 3 includes Keating West in the River District.
** The size of each district in the table includes open space and rights of way within its borders. For instance, this is why Quayside is described as 7 hectares, while including only 4.9 hectares of developable land.
*** Numbers reflect gross floor area ratio, inclusive of rights of way. Retail includes production space at Quayside.

Sidewalk Labs' proposal centres on two interdependent vertical real estate development projects that serve distinct functions and on a series of advanced systems essential for delivering key performance outcomes.

In Quayside, Sidewalk Labs is seeking to deliver a national and global model to encourage market transformation towards climate-positive city building and to achieve a range of specific public objectives, including affordability, economic opportunity, and sustainable mobility. In Villiers West, Sidewalk Labs seeks to extend the innovations piloted at Quayside while undertaking a major economic development project: a new urban innovation campus anchored by Google's Canadian headquarters and an Urban Innovation Institute. Together, these projects represent a core element of Sidewalk Labs' role as Innovation and Funding Partner to achieve the MIDP priority outcomes and to catalyze growth across the eastern waterfront. For each area, Sidewalk Labs would serve as the lead developer and work with local partners.

The success of these development projects, however, relies on advanced systems for mobility and sustainability, such as an advanced power grid, a thermal grid, and dynamic streets. Accordingly, Sidewalk Labs proposes to serve as lead developer for those systems in Quayside and Villiers West and to identify capable operators or partners to run those systems. Importantly, serving as lead developer of advanced systems is distinct from Sidewalk Labs' role in technology deployment (see Page 120), which concerns the sourcing or creation of individual technological solutions.

As reflected in the following table, vertical development at Quayside and Villiers West represents a small percentage (about 16 percent) of projected development for the overall IDEA District.

The economics associated with each transaction are discussed in Chapter 3.

Critically, as part of an overall transaction involving Villiers West, Sidewalk Labs is incurring higher-than-market real estate costs at Quayside, to prove the model — and to enable third-party developers to employ these same sustainable construction methods and innovative building systems on a cost-effective basis. For example, Sidewalk Labs is shouldering the engineering, testing, and regulatory costs necessary for the approval of tall timber, environmentally friendly Shikkui plaster, and digital electricity. This would pave the way for future developers to receive the benefits of these techniques and systems at substantially lower risk and cost.

The first two sections that follow describe the respective objectives, build programs, and implementation plans for the developments proposed for Quayside and Villiers West. The third discusses Sidewalk Labs' role as a developer of the advanced systems associated with both parcels.

The Quayside Plan

As the lead vertical developer, Sidewalk Labs would enter into an agreement with Waterfront Toronto to plan, design, deliver, and operate a mixed-use, mixed-income development on the consolidated properties that together constitute Quayside. By tackling fundamental urban challenges with powerful new strategies, the development would serve as a model and proof of concept demonstrating the benefit, feasibility, and financial viability of economic development that advances Waterfront Toronto's priority outcomes.

Completed during an intensive 18-month consultation and planning process, the Quayside plan is detailed in Volume 1. The planning process involved frequent consultations with Waterfront Toronto, the City of Toronto, the Province of Ontario, and the Government of Canada as well as four public roundtables, dozens of community meetings, six topic-specific advisory boards, hundreds of one-on-one and small group meetings, and a Residents Reference Panel. Overall, Sidewalk Labs heard from more than 20,000 Torontonians.[56] Sidewalk Labs considered numerous designs and build plans, explored potential urban innovations and how to integrate them, and emerged with a comprehensive strategy for achieving the objectives in the RFP and the PDA.

Working alongside Waterfront Toronto, Sidewalk Labs reviewed substantial feedback from stakeholders to prepare an inventory of promising ideas to integrate into a holistic development plan for Quayside. Sidewalk Labs next reviewed the broader physical, social, and economic context around Quayside, including existing precinct plans, zoning bylaws, analyses of market economics and waterfront development patterns, and pre-existing concept plans for specific elements, such as the

extension of Queens Quay. With that information, Sidewalk Labs made a detailed assessment of what the business as usual approach to its development would look like.

The Sidewalk Labs team developed plans integrating urban innovations, people-centred urban design, public feedback, site planning, and economic strategies into a proposed build program, site plan, and delivery strategy.

Using an iterative process, Sidewalk Labs continuously weighed alternatives, adjusted the plan, and revisited how best to integrate the numerous project elements into a singular strategy — all to maximize the impact of the development of Quayside on achieving the MIDP priority outcomes.

As a result of this deliberate process, Sidewalk Labs is confident that the build program, site plan, and development strategy proposed for Quayside serve as a realistic and comprehensive basis for Implementation Agreements. Sidewalk Labs expects that the plan, as with all development proposals, will evolve further as it advances through the design and approvals process.

Objectives

The Quayside Plan would achieve the objectives set out in the RFP and the PDA: demonstrating replicable and scalable systems that enhance sustainability, increase affordability, and benefit the broader public. As a world-class sustainable, mixed-use, mixed-income development, the development of Quayside would serve as a powerful catalyst for inclusive economic growth across the eastern waterfront and beyond.

For more details on the Quayside development plan, as well as the innovations helping that plan achieve quality-of-life objectives, see the "Quayside Plan" chapter of Volume 1.

Build program

The proposed Quayside development plan consists of 10 buildings on five sites comprising approximately 2.65 million square feet of developed space. This would include approximately 2,600 housing units, about half of which would be purpose-built rentals. The proposal also includes 40 percent of units at below-market rates (with 20 percent affordable housing units and 20 percent middle-income housing units). Non-residential uses, such as retail, office, and community uses, would account for roughly 33 percent of gross floor area, resulting in approximately 3,900 full-time permanent jobs and 12,000 Canadian construction jobs.

Notably, the 2.65 million square feet of developed space is less than the 3 million square feet of developable space allowed in the existing zoning bylaw.[57] Proposing a development with lower density and forgoing a request for greater density reduce the financial upside of the project. Sidewalk Labs nevertheless opted for lower density to advance several key objectives for the project, including expanding access to open and publicly accessible space; accommodating stoa and flexible spaces that require taller ceiling heights, thereby reducing total floors; and enabling sustainable tall timber construction, which may create limits on building heights in the 30- to 35-storey range. Sidewalk Labs will refine the Quayside plan as it prepares a Development Plan Application for Quayside after approval of the MIDP and may adjust the build program through this process.

Building design

All Quayside buildings would be built with a system of mass timber construction to demonstrate the significant benefits to project speed and sustainability over traditional concrete and steel construction. This construction would incorporate other innovations that improve sustainability, accelerate construction speeds, and enhance building safety, including mist-based fire suppression, Shikkui plaster that is as fire-resistant as drywall but more environmentally friendly, and low-voltage energy systems.

Sidewalk Labs proposes to advance these efforts through a new economic develop-

ment project: with one or more partners, Sidewalk Labs would build a factory in Ontario to process mass timber building parts, create a library of building parts that could be combined in thousands of permutations to ensure design excellence while accelerating the design and procurement phases, and develop a digital management system that coordinates the entire supply chain from conception to completion. The design and fabrication approach also includes a series of components, such as flexible wall systems and hybrid building cores, intended to support a range of housing and unit types. As part of a holistic transaction and alongside local partners, Sidewalk Labs will catalyze an investment of up to $80 million in this Ontario-based factory.

The combination of off-site prefabrication and use of mass timber is expected to reduce labour and materials costs versus traditional development by approximately 20 percent. It would also create meaningful value for developers by accelerating project timelines by approximately 35 percent and improving predictability in regard to schedule and cost for any given development.[58]

Housing

The total residential gross floor area of the Quayside development would be approximately 1.78 million square feet, with approximately 2,600 residential units.

To help improve long-term affordability, roughly 980,000 square feet of residential space (more than 1,250 units) would be dedicated to purpose-built rentals. To address the affordable housing shortage confronting middle- and low-income Torontonians, Sidewalk Labs would offer 40 percent of housing units at below-market prices, with 20 percent of units dedicated to affordable housing and another 20 percent to below-market rentals for middle-income households. Roughly a quarter of the affordable housing units would meet the city definition of "deep affordability."

To further expand affordable options for middle-income households, the plan would also apply a novel shared equity model for an estimated 125 units, allowing residents to purchase a share of equity in an apartment without a large down payment.

Sidewalk Labs would seek to establish a mixed-income community not only across the neighbourhood but also at the building level. The goal is to distribute affordable and below-market units throughout Quayside. Current plans have not yet finalized the specific distribution, which would be a component of the next phase of development planning.

The housing program would also address the shortage of family-size housing units. At least 1,000 units (40 percent of the total) would have two or more bedrooms. The residential plan also incorporates shared facilities for the benefit of the building community, including to assist families, children, and seniors.

Employment

Sidewalk Labs would dedicate roughly 33 percent of total space in Quayside, approximately 870,000 square feet, to non-residential uses. This commitment seeks to promote economic development objectives and a mixed-development model, in which a variety of spaces would support employment, commercial, and community uses. Office or production spaces would make up 570,000 square feet of this space. These would accommodate a range of businesses, provide a sizable base of economic activity, and set the stage for significant economic generation within the larger eastern waterfront. Development of Quayside alone would create 3,900 direct jobs and 12,000 short-term construction jobs. 📖

Ground-floor stoa

The Quayside program dedicates significant portions of the lower two floors of buildings to animated and publicly accessible uses, an approach dubbed "stoa" in tribute to the Ancient Greek structures that played a range of civic functions, acting as markets, art galleries, and teaching spaces. This modern stoa will foster a diverse urban ecosystem of traditional retailers, pop-ups, public markets, restaurants and cafés, light manufacturing and production facilities, and community gathering or service-delivery spaces. The stoa concept, which allows spaces to shift seamlessly between uses, would occupy 400,000 square feet in Quayside or 15 percent of the total development program.

At any given time, Sidewalk Labs anticipates that stoa space would accommodate retail (40–80 percent); other commercial uses (15–45 percent); schools, health clinics, and other forms of social infrastructure (5–10 percent); and production uses (1–5 percent).

As is typical, retail is expected to occupy at least half of Quayside's ground-floor space. Flexible floor plates and reduced fit-out costs would allow for a mix of retailers of all sizes and ambitions. The stoa plan also incorporates production spaces for light manufacturing. An outcome-based building code system would ensure that such uses remain compatible with a mixed-use environment and are respectful of neighbours.

Social Infrastructure

The Quayside plan would integrate space for social infrastructure from the start, creating opportunities for community organizations and local service providers to activate these spaces, strengthen the community, and help community members thrive. The Quayside plan allocates approximately 4 percent of floor space, or up to 100,000 square feet, to social infrastructure, including approximately 60,000 square feet for a co-located elementary school and daycare facility and 30,000 square feet of stoa spaces for evolving community uses. The plan allocates community space for health care and community service delivery alongside proactive health programming as well as for participation in civic and cultural activities and the development of digital skills. The Quayside Plan would also provide space for ongoing education programs, such as pop-up libraries and community mentorships.
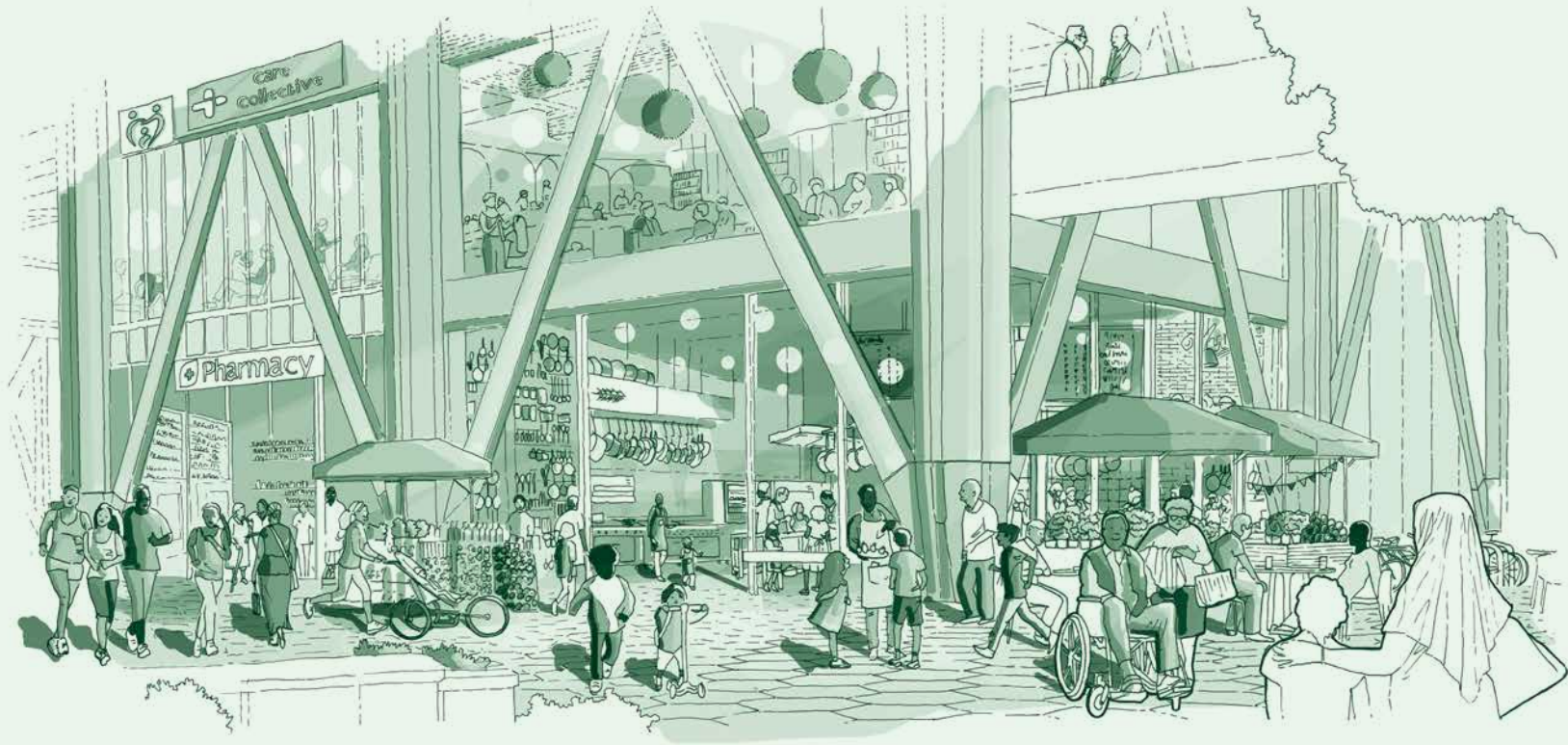
The Quayside Plan would deliver on Waterfront Toronto's priority outcomes, employing innovative strategies to enhance the quality of urban life.

Public Realm

Sidewalk Labs' proposal for Quayside includes roughly 4 hectares of public open space and a range of spaces designed to appeal to different user groups, from traditional parks, to reclaimed street space made possible by a series of street design changes, to new opportunities for enjoying Toronto's lakefront. The public realm program includes four major anchors: Parliament Slip (6,000 square metres), Parliament Plaza (6,000 square metres), Queens Quay (7,500 square metres), and Silo Park (5,000 square metres).

Supporting infrastructure

Sidewalk Labs' proposal calls for the development of new advanced systems (see Page 114).

Build program summary

The build program for Quayside deviates from the existing precinct plan, zoning bylaws, and a business as usual (BAU) development approach. In some cases this results from the development of a detailed plan. In most cases, this results from deliberate decisions to prioritize the shared objectives of Waterfront Toronto and Sidewalk Labs.

The table that follows summarizes these departures, with a description of the underlying rationale.

The Quayside program has been distributed across five development parcels, subject to further refinement through the approvals and implementation processes.

Fig. 2.2
Quayside BAU and Sidewalk Labs comparison

Program Components	Business as Usual Quayside Approach	Sidewalk Labs' Quayside Plan	Rationale / Impact
Buildings and Housing			
Total Build Program	3.2M sq ft (GFA)	2.65M sq ft* (GFA)	The Quayside plan establishes a model for achieving Waterfront Toronto's priority outcomes and incorporating the approaches and advanced systems described in the MIDP. A critical element of the plan is factory-built tall timber construction, which is more sustainable and speeds up construction times. Currently, a height limitation constrains the density achievable with tall timber.
Residential	2.7M sq ft of residential GFA; 20% Affordable Housing	1.8M sq ft of residential GFA; 20% Affordable Housing and 20% additional below-market housing	The Quayside plan creates a mixed-income community, offering 40 percent of housing units at below-market rates and outpacing recent development on the waterfront and downtown. To create a complete, mixed-use community, the Quayside plan reduces residential space to allow for more commercial, retail, and social infrastructure space.
Commercial	300K sq ft of commercial GFA	550K sq ft of commercial GFA	To catalyze economic development opportunities and create jobs, the Quayside plan nearly doubles the amount of commercial space to create a mixed-use environment and increase job creation. Quayside alone is projected to create 3,900 permanent full-time jobs.
Stoa (the lower two floors)	A BAU plan would not include stoa space type.	400K sq ft of stoa GFA includes retail, social infrastructure, and office	Sidewalk Labs' flexible stoa spaces are designed to accommodate retail, commercial, production, and social infrastructure uses, creating vibrant, adaptable public spaces and streets.
Social Infrastructure			
Social Infrastructure	A BAU build plan would not include social infrastructure.	90K sq ft of social infrastructure GFA	Quayside's proposed community spaces include the Care Collective, a space for the co-location of health care and community services, as well as the Civic Assembly, a hub for community, arts, and cultural gatherings, and for an elementary school. These spaces would exist near cultural and recreational areas to nurture the interactions that build relationships and forge a healthy, vibrant, and engaged community.
Public Realm			
Public Realm	Roughly 3.6 hectares of public open space	Roughly 4 hectares of public open space and a range of spaces designed to appeal to different user groups	Sidewalk Labs' Quayside plan features an expansive public realm designed to bring together residents, workers, and visitors of all ages and abilities and to remove traditional barriers between indoors and outdoors, public space and private space, and land and water.
Digital Innovation			
Digital Communications Network	Standard broadband services available in Toronto	Ubiquitous internet connectivity	Sidewalk Labs plans to catalyze digital innovations that help tackle urban challenges and establish a new standard for the responsible collection and use of data.

Program Components	Business as Usual Quayside Approach	Sidewalk Labs' Quayside Plan	Rationale / Impact
Sustainability			
Advanced Building Systems	Buildings account for roughly 60 percent of Toronto's greenhouse gas (GHG) emissions, primarily due to burning natural gas for heat and hot water.	Buildings feature ambitious energy-efficient construction, meeting Toronto Green Standard Tier 4 for GHG intensity.	To reduce greenhouse gas emissions and strive towards a climate-positive neighbourhood, Sidewalk Labs' plan: ⮑ Reduces buildings loads: heating, cooling, ventilation, and other systems needed for comfort ⮑ Recycles every source of "waste" heating or cooling created in its own buildings
Infrastructure Systems	Primary reliance on gas infrastructure	Thermal grid; advanced power grid using solar energy and battery storage; smart disposal chain; underground pneumatic tube system; active stormwater system	To reduce GHG emissions and strive towards a climate-positive neighbourhood, the plan: ⮑ Shifts from gas infrastructure to cleaner electricity and proposes to use new digital tools to help manage energy consumption ⮑ Features a series of technological and policy advances to exceed Toronto's goals for landfill diversion and waste removal
Mobility			
LRT	LRT is built through traditional public funding and financing, but construction does not begin until 2030 (or later).	Credit support accelerates financing for segments within the IDEA District, and construction begins in early 2020s.	LRT extension would connect residents to employment hubs, draw workers and visitors to the waterfront from all over the city, and enable greater density and growth in the eastern waterfront.
Parking	2,400 car spots on-site; 3,169 short- and long-term bicycle spots	1,250 car spots (500 on-site below grade; 750 off-site); 3,778 short- and long-term bicycle spots	Sidewalk Labs designed a mobility approach that reduces the need to own a car by providing safe, convenient, connected, and affordable options for every trip. Limiting parking improves the quality of the pedestrian experience on the sites by freeing up potential space for plazas, sidewalks, and other public uses.
Roads	Challenges from congestion less safe for pedestrians/cyclists	Mobility management system; dynamic curbs; adaptive traffic signals; "people first" street design	Sidewalk Labs' innovations would reduce traffic congestion and encourage shared trips, provide passenger loading zones during rush hour that could be used as public spaces in off-peak times, and prioritize pedestrians and cyclists.
Freight	Challenges from congestion and less convenient delivery	A neighbourhood freight "logistics hub" connected to an underground package delivery system	Sidewalk Labs' plan would dramatically reduce truck traffic on surface streets and improve convenience for residents and businesses.
Pedestrian / Cycle	Less accessible	Pedestrian / cycling network with wider sidewalks, heated bike lanes, and accessibility elements	Sidewalk Labs' plan would encourage walking and cycling and support people using wheelchairs or other assistive devices; Sidewalk Labs estimates that its street designs could provide 91 percent more pedestrian space than a business as usual scenario.

* If Sidewalk Labs can increase the density in Quayside without impeding the innovation agenda, Sidewalk Labs may seek to utilize a greater share of the 3.2 million square feet allowable in the as-of-right zoning.

The Quayside Plan is designed to create a complete community that integrates space for social infrastructure from the start.

Implementation

Sidewalk Labs proposes to enter into an agreement with Waterfront Toronto to acquire Quayside and undertake the design, financing, delivery, and operation of the Quayside development. Such an agreement would be memorialized in detailed Implementation Agreements between the parties following approval of the MIDP.

Roles and responsibilities.
Sidewalk Labs proposes to serve as the lead developer of the vertical buildings in Quayside to prove the technical and economic market viability of the urban innovations core to achieving Waterfront Toronto's overall objectives. These objectives would require connecting the Quayside vertical development to advanced systems and integrating with them. To realize the innovation agenda and desired outcomes, Sidewalk Labs would need to invest disproportionately in the development and implementation of these systems.

To benefit from local knowledge, relationships, and expertise and to ensure that the Canadian development community can fully participate in and learn from the project, Sidewalk Labs is committed to seeking one or more local development partners, working with the public administrator, and is also open to seeking outside equity capital.

Waterfront Toronto would perform a number of functions. Consistent with terms to be finalized in the Implementation Agreements, Waterfront Toronto would sell its Quayside land holdings to Sidewalk Labs. Waterfront Toronto, or the public administrator, would assist Sidewalk Labs in pursuing the necessary approvals, financial contributions, or other actions from the city or other orders of governments; would monitor the performance of Sidewalk Labs; and would fulfill the various governance roles incumbent upon it as the public administrator of the IDEA District.

In addition to potential real estate development partners, Sidewalk Labs anticipates entering into partnerships to facilitate the detailed design, construction, and management of specific elements of the Quayside plan. The inventory of partners ultimately engaged in implementing the Quayside plan is likely to include corporate entities, non-profit organizations, civic institutions, public sector entities.

Upfront permissions.
The Quayside plan incorporates new construction techniques, alternative approaches to curb design, utility tunnels under public rights of way, and a range of other proposed modifications to standard development approaches needed to carry out the MIDP and achieve Waterfront Toronto's priority outcomes. As is common with real estate development projects, particularly for large-scale projects such as the one proposed, Sidewalk Labs would require a number of regulatory and planning permissions to proceed and implement the proposed innovations.

The integrated strategy detailed in the MIDP — and the extent to which it relies on advanced systems and solutions that are new to Toronto — requires an added degree of certainty and predictability concerning the applicable rules and constraints. This certainty can be accomplished through upfront permissions that can be embodied in legislation, regulations, or contractual arrangements with government agencies or that can be secured through planning approvals.

A few examples of required upfront permissions include:

Permission to construct tunnels under rights of way to enable the underground freight management system, the pneumatic waste system, and the thermal grid;

Reductions in parking and loading zoning requirements as part of an overall plan to reduce traffic congestion and increase mobility options;

Permission to put heating and LED lights into pavement to allow "green waves," melt snow, and otherwise improve mobility; and

Permission to apply certain innovative building techniques, including a flexible interior wall system that speeds up construction times and allows spaces to adapt quickly to a variety of uses.

The expectation is that these upfront permissions — after being validated through the experience in Quayside and, later, in Villiers West — will inform and become standard for the IDEA District as a whole. Indeed, this is fundamental if the district is to implement the MIDP and achieve Waterfront Toronto's priority outcomes.

Land-use approvals process and timeline.
Upon approval of the MIDP, Sidewalk Labs would prepare a detailed development plan, an infrastructure and transportation master plan, and a site remediation plan for Quayside, all subject to approval by Waterfront Toronto as spelled out in the Implementation Agreements. The development plan would reflect the revision of all elements of the development program, site plan, and business plan to provide sufficient detail to proceed with the relevant approvals processes, finalize financing, commence detailed design and construction, and inform occupancy strategies.

Sidewalk Labs anticipates that Waterfront Toronto would assess the Quayside plan to confirm that it meets the requirements of the IDEA District. Entitlements for the plan would require City Council approval and would otherwise proceed through the traditional development application processes. Sidewalk Labs estimates that construction on a portion of Quayside could commence as early as 2021 and that the entirety of Quayside could be completed by the end of 2026.

Economics

The Quayside plan is only feasible if all parties recognize that the risk profile associated with forging new development models and proving the effectiveness and financial viability of innovative solutions is fundamentally different from that of a market standard project. This is precisely the obstacle that limits meaningful innovation in the urban environment. Sidewalk Labs' proposal offers a roadmap for overcoming this obstacle, while ensuring that the interests of Sidewalk Labs and the public sector remain aligned as the project progresses.

Sidewalk Labs is prepared to work with partners, lenders, and other market participants to finance the development of Quayside. This requires a willingness to pursue a new but worthy development model and to delay the realization of financial upside. Second, Sidewalk Labs is prepared to bear the cost of the research and development embedded in the Quayside development program.

Under terms to be detailed in the Implementation Agreements, Sidewalk Labs and its local development partners would be responsible for funding — including through borrowing — the development of Quayside at an estimated total cost of approximately $2 billion. This total cost reflects the higher-than-market costs of the innovation agenda at Quayside, such as higher build costs to prove a new model of advanced timber construction, higher soft costs to integrate innovations like Shikkui plaster and digital electricity into a single building design for the first time and obtain the necessary approvals, and extra investment to make ground-floor spaces flexible to enable more community uses and diversity of retail spaces. It also results in a program with greater-than-standard revenue risk because features such as residential units with less parking and more buildings that combine both residential and commercial uses could contribute to lower condo prices.

The innovation agenda proposed in Quayside is designed to deliver on Waterfront Toronto's programmatic priorities. Scale is necessary for many of the innovations initiated in Quayside to become financially viable and to maximize their ability to help achieve Waterfront Toronto's priority outcomes around economic opportunity, new mobility, housing affordability, sustainability, and urban innovation, which is why the Quayside development in isolation (without the Villiers West development and other project elements) is not likely to achieve market-rate returns.

In taking responsibility for delivering this program, Sidewalk Labs and its local partners would take the traditional risks and receive the traditional revenue streams associated with a real estate project, including rental income, unit and asset sales, developer fees, and income from capital events.

In transacting for the Quayside properties, Sidewalk Labs would propose to pay Waterfront Toronto a price that places the cost and risk of the innovation agenda on Sidewalk Labs, while recognizing that Waterfront Toronto would receive some of the value for its land in a direct payment and some by achieving the policy objectives it laid out in the Quayside RFP and prior precinct planning.

Fig. 2.3
Quayside detailed timeline
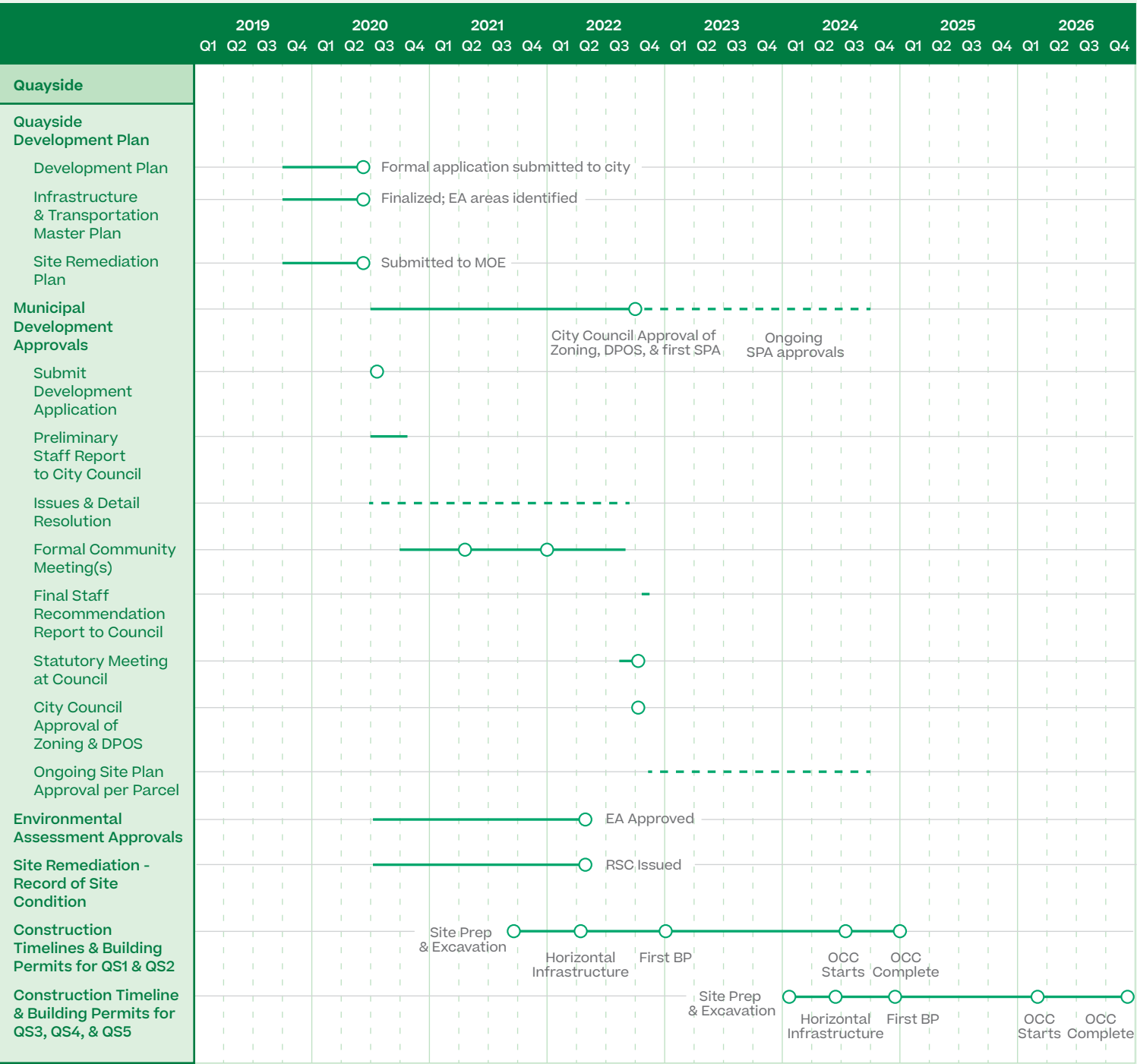
DPOS = Draft Plan of Subdivision; MOE = Ministry of Environment; EA = Environmental Assessment; RSC = Record of Site Condition; BP = Building Permit; OCC = Occupancy; SPA = Site Plan Approval; see Volume 1 for details on Quayside sites 1 through 5.

Villiers West urban innovation campus

In 2012, Waterfront Toronto and all three levels of government jointly began the Port Lands Acceleration Initiative, one of the most ambitious urban infrastructure improvement projects in decades: a long-term flood protection plan that would renaturalize the mouth of the Don River.[59] The completion of the project will protect large swaths of the Port Lands from flood risk, create a more naturalized and resilient environment, and transform a portion of the Port Lands into Villiers Island, a distinct development area.

The Port Lands Planning Framework calls for developing Villiers Island as a "destination or catalytic use that would spawn and support regeneration efforts and bring people to the Island in early stages of its development."[60] The Villiers Island Precinct Plan expanded on this vision and called for a catalytic use of Villiers Island to reinforce its potential as a regional destination.[61] Sidewalk Labs assessed numerous sites for a new economic hub and concluded that the western end of Villiers Island was ideal in several respects. Most importantly, it can accommodate the scale and footprint required for a mixed-use community centred around a new catalytic use: an urban innovation campus.

Sidewalk Labs proposes to build the Villiers West Urban Innovation Campus, which would extend the innovations begun at Quayside and co-locate a series of economic development assets, including a new Canadian headquarters for Google and the Urban Innovation Institute, a new applied research institution. The proposal would represent the first phase of implementation of the River District concept plan described in Volume 1. By increasing density throughout Villiers West and supporting a wider mix of uses and spaces, Sidewalk

Labs would further prove out the solutions pioneered at Quayside and spur economic activity on the waterfront. Rather than serving solely as new live-work communities, Villiers West would function as an extension of the city — serving as an expanded downtown area and building on the work of Waterfront Toronto and governments to drive economic activity eastward along the waterfront.

Upon completion of the Don River Naturalization work, the government would need to combine the parcels proposed for the new campus with parcels owned by the City of Toronto and Ports Toronto. To enable the creation of these new economic development assets and realize the catalytic potential of Villiers West sooner, Sidewalk Labs proposes to execute a land transaction to vertically develop the area, with development partners.

Objectives

Under the proposed development plan, Sidewalk Labs would serve as an economic catalyst — accelerating the development of Villiers Island.[62] By advancing this proposal, Sidewalk Labs would integrate Villiers West into the innovative urban plan started in Quayside, advancing the objectives of the RFP into the River District and creating jobs and employment opportunities in the Port Lands. The Villiers West proposal would create an ecosystem of growth and employment-generating activity at Villiers West, with the potential to spark similar growth at broader scales. Without the addition of the urban innovation campus on Villiers Island, establishing the IDEA District as a vibrant centre of commerce is unlikely.

Map
Villiers West

- - - IDEA District
— River District

Fig. 2.4
Villiers West proposed program mix

Total GFA	Residential (GFA)	Commercial (GFA)	Retail (GFA)	Social Infrastructure
2,750,000 sq ft	1,150,000 sq ft	1,400,000 sq ft	150,000 sq ft	50,000 sq ft
(100%)	(42%)	(51%)	(5%)	(2%)

Build program

Villiers West is a 7.8-hectare parcel of publicly owned land, representing approximately a third of the development area of the Villiers Island Precinct Plan. Consisting of six new sites, Villiers West would straddle the new Cherry Street alignment and would be served by the proposed LRT extension. The parcels are currently bounded by Promontory Park to the west and south, the Keating Channel to the north, and new mixed-use development parcels to the east.

The table above outlines the initial proposed program mix across the six blocks in Villiers West, which plans for 1.6 million square feet of employment-generating activity within a total development of 2.75 million square feet. Intended to advance the program begun at Quayside, the mix would continue to develop as Sidewalk Labs and Waterfront Toronto advance the project post-approval of the MIDP.

The build plan for Villiers West — less developed than the detailed plan for Quayside, which would be built first — centres on three core components: a new Canadian headquarters for Google; the Urban Innovation Institute, a new non-profit academic institution; and a network of mixed-use surrounding spaces. Together, these components would form the Villiers West urban innovation campus.

This plan reflects Sidewalk Labs' early thinking about the design of Villiers West and how its design would integrate a connected, publicly accessible campus and economic hub with the surrounding parks and neighbourhoods.

It would likewise advance new approaches to housing, mobility, and public realm, including those spelled out in the MIDP. The expectation is to refine and further develop the plan with stakeholders through a collaborative process similar to the approach taken for Quayside.

Building design

As with Quayside, all the buildings in Villiers West would be built with mass timber to further demonstrate the benefits of the construction approach for reducing project costs, including by speeding up project timelines and increasing sustainability. This construction would be paired with other innovations first proven at Quayside, including mist-based fire suppression, environmentally friendly Shikkui plaster, and low-voltage energy systems.

The Villiers West project, together with the development of Quayside, would establish a mass timber pipeline sufficient to justify an Ontario wood construction factory. As part of a holistic transaction and alongside local partners, Sidewalk Labs would catalyze an investment of up to $80 million in this Ontario-based factory as an important new economic development project. As noted in the Quayside plan, the combination of off-site prefabrication and use of mass timber is expected to reduce labour and materials costs versus traditional development by approximately 20 percent. It will also create meaningful value for developers by accelerating project timelines by approximately 35 percent and improving predictability in regard to schedule and cost for any given development.

Google's Canadian headquarters

As part of an agreed-upon transaction within the IDEA District, Alphabet commits to establish a new Canadian headquarters for Google on the western edge of Villiers Island. 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). The Google headquarters would be situated within a connected, mixed-use public campus of approximately 2 million square feet. Adjacent to a planned LRT stop and Promontory Park, the new headquarters would serve as an anchor, drawing talent and companies to Villiers West to support a new business and innovation campus at the waterfront.

Following the successful approach taken in other cities where the company operates, the Google Canadian headquarters would be integrated into a connected campus with spaces for other businesses, cultural space, retail, and community uses. Areas designated as Google workspaces would be complemented with flexible areas designed to support a range of community uses and flexible enough to accommodate changing uses over time. Overall, this campus would include about 1.5 million square feet of commercial space.

Urban Innovation Institute

As a second economic engine for Villiers West and the broader eastern waterfront, Sidewalk Labs would provide physical space and $10 million in initial seed funding for a new, cross-disciplinary Urban Innovation Institute. Bringing together urbanists and technologists, the new academic institution would serve as a focal point for a new urban innovation cluster.

The Institute is envisioned as an independent, non-profit organization located within the innovation campus. Sidewalk Labs envisions that local academic institutions would collaborate in the design and implementation of the Urban Innovation Institute, which would serve as a centre for applied research, policy development, and skills training.

Employment: A campus for urban innovation

In Villiers West, Sidewalk Labs would allocate nearly 60 percent of the total development program (approximately 1.6 million square feet) to non-residential uses. Departing from the existing precinct plan, this approach would enable more complete and widespread mixed-use planning, capable of supporting a wider range of businesses and employment opportunities, including more commercial, retail, and community space.

Specifically, the Villiers West urban innovation campus would form a cluster for businesses and industries working on ideas and exploring technologies to improve the quality of urban life, co-locating resources, expertise, and physical scale to support economic growth and drive advancements in the emerging field. This mirrors the approach taken with the MaRS Discovery District for medical advancement.[63]

The Villiers West urban innovation campus would attract a range of design and technology-oriented tenants. The development could also potentially include any of the visionary and iconic educational, cultural, or institutional projects that have been identified by the City of Toronto, Waterfront Toronto, and others as appropriate for this location. There is no requirement or expectation that additional tenants have any connection to Google or Alphabet.

Ground-floor stoa

Together, the new Google Canadian headquarters and Urban Innovation Institute would occupy less than 50 percent of built space at Villiers West. To enable a connected, active campus surrounding these two anchors, the Villiers West program allocates a significant portion of the lower two floors of buildings to widespread application of the stoa space typology. The large-scale application of Sidewalk Labs' adaptable "Loft" spaces, interior wall systems, and ground-floor stoa spaces would create a dynamic and flexible network to support a wider range of uses, allowing an amenity-rich environment for all who live and work in Villiers West.

Key Term
Loft spaces
(found on upper floors) are designed with flexible floor plates to accommodate a range of residential and non-residential uses.

Ground-floor stoa spaces would integrate community and cultural facilities alongside commercial and retail space instead of isolating them in separate, standalone structures. Co-location of different experiences and space types would enable businesses and entrepreneurs of all sizes to find the necessary resources and spaces for their work. Retailers would benefit from new foot traffic and a customer base drawn from the commercial real estate throughout the neighbourhood. Rather than developing Villiers West as a primarily residential area, the mixed-use development would create an area active throughout the week and is flexible enough to adapt to meet the changing needs of the community over time.

Housing

The economic success of the innovation campus would depend, in part, on developing a residential base in close proximity, such that businesses locating in Villiers West can readily access their labour force. Villiers West has the potential to support thousands of new housing units — designed to support a mixed-income community — interlaced with retail, social infrastructure, and cultural spaces, which would draw new residents and businesses seeking a high quality of life for their employees. While the Villiers Island Precinct Plan calls for a primarily residential

community at Villiers West (80 percent residential across the full precinct), Sidewalk Labs' proposal would dedicate 42 percent of its total program on Villiers West to residential uses as part of a more diverse mixed-use plan.

Sidewalk Labs would deliver the same 40 percent below-market housing program for residential units in Villiers West (with 20 percent affordable housing units and 20 percent middle-income housing units). Of the 1,700 projected residential units, approximately 700 would be offered as below-market housing.[64]

Social Infrastructure

Like Sidewalk Labs' proposed development plan for Quayside, the proposal for Villiers West incorporates a range of social infrastructure uses from the onset, totalling approximately 2 percent of the total build plan.[65] While Sidewalk Labs expects the programming for many of these spaces would be devised with local partners and service providers following approval of the MIDP, Sidewalk Labs envisions setting aside stoa space specifically for public programs, such as a workforce training centre. Social infrastructure spaces and programming at Villiers West would also benefit from the adjacent Promontory Park, which Waterfront Toronto is developing as a resource for all Torontonians, especially families with children.

Mobility

As part of the first phase of development, Villiers West would serve as a physical and economic bridge connecting the waterfront to the rest of the city. The development plan proposed for Villiers West includes a series of new connections to make it easier to access the waterfront by foot, bike, or public transit. Within Villiers West, a network of internal streets designed to prioritize the pedestrian would support a more walkable, multimodal mobility system.

Creating connectivity to Villiers West begins with a new centrally located LRT stop, which follows from the waterfront LRT extension. Two new bridges — one dedicated to pedestrians and a second created as part of an extensive bike network — would connect Quayside directly to Villiers West, further improving access and creating a safer system for all modes of transit.

Through the centre of the site, Sidewalk Labs has proposed a wide public walkway to the west of New Cherry Street, lined with commercial activity. This street would connect the residential community to the east with the public parks to the west. Sidewalk Labs proposes a one-way "shared streets" path with pick-up and drop-off areas instead of parking, which would also improve safety by decreasing the number of crossings between different modes of transit.

Public Realm and adaptive reuse of heritage structures

Existing planning documents for Villiers Island include a 16-hectare park that would curve around the southern edge of the island, connecting to Promontory Park — a dynamic public space located along the western edge of the island.[66] Sidewalk Labs' development plan for Villiers West prioritizes connections to the park through an expanded public realm and street design that maximizes walkways and bike paths throughout the island.

In addition to creating a connected, mixed-use campus at Villiers West, Sidewalk Labs is proposing a new vision for Keating Channel, which today is lined with industrial buildings, including a number of designated heritage sites. Sidewalk Labs imagines Keating Channel as a dynamic new zone — a water-focused spine programmed with art and cultural uses, restaurants, and production spaces — and envisions Villiers West as a core hinge designed to enable physical and programmatic connections from Quayside through Villiers West to the 6-hectare neighbourhood at Keating Channel.

Build program summary

The build program for Villiers West deviates from the existing precinct plan and a business as usual development approach, due in large part to deliberate decisions to reflect Waterfront Toronto and Sidewalk Labs' shared objectives for the site and for the future potential of the waterfront.

The following table summarizes these departures with a description of the underlying rationale.

The Villiers West plan is designed to spur an urban innovation cluster, anchored by a new Google Canadian headquarters and an Urban Innovation Institute.
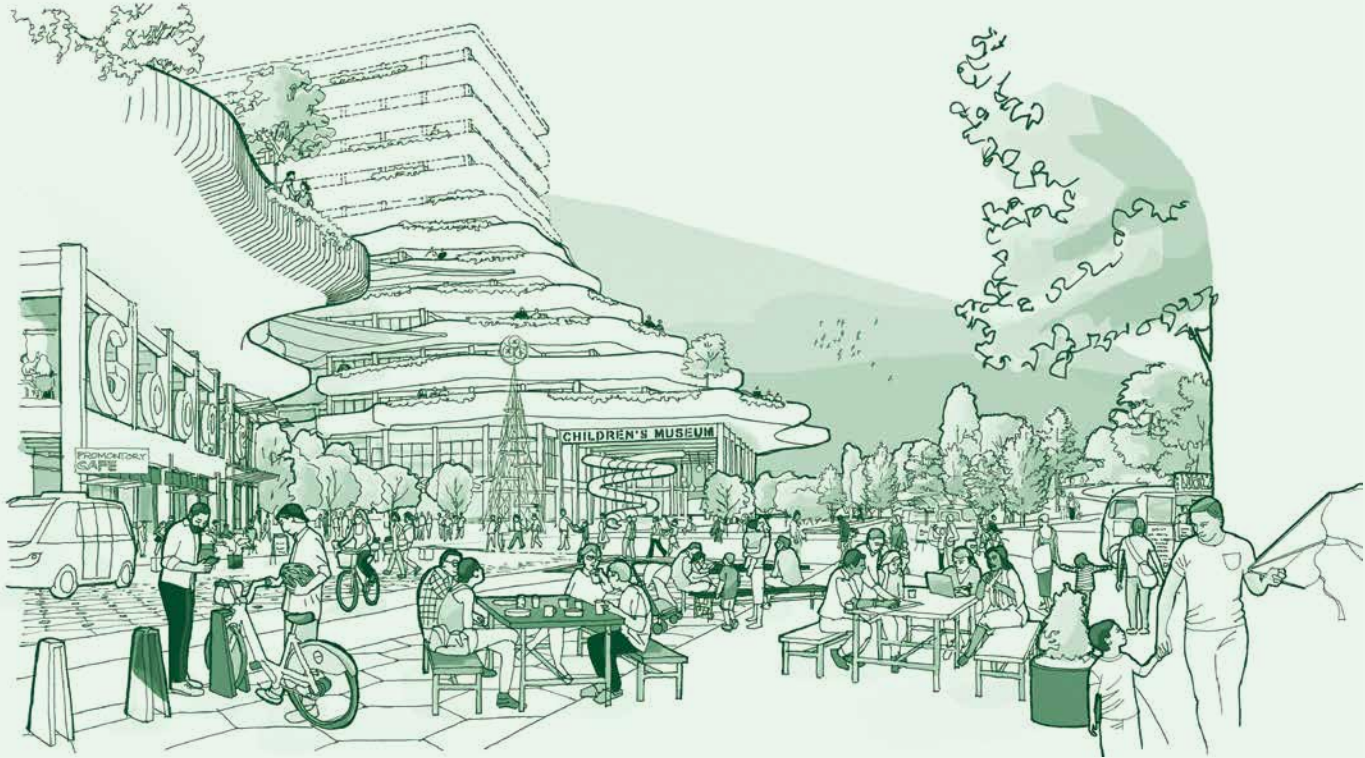
Fig. 2.5

Villiers West BAU and Sidewalk Labs comparison

Program Components	Business as Usual Villiers West Approach	Sidewalk Labs' Villiers West Plan	Rationale / Impact
Buildings and Housing			
Total Build Program	2.46M sq ft (GFA)	2.71M sq ft (GFA)	The Villiers West plan furthers the model for achieving Waterfront Toronto's priority outcomes, incorporating the approaches and advanced systems described in the MIDP. This includes the use of mass timber to improve sustainability and lower costs, including by speeding up construction timelines. Additionally, this neighbourhood will be home to a new urban innovation campus, including a Google Canadian headquarters and the Urban Innovation Institute.
Residential	1.97M sq ft of residential GFA; 20% Affordable Housing	1.15M sq ft of residential GFA; 20% Affordable Housing and 20% additional below-market housing	Similar to Sidewalk Labs' Quayside plan, Villiers West will create a mixed-income community, offering 40 percent of housing units at below-market rates. In total, this plan will create a neighbourhood that will be home to 2,700 residents.
Commercial	380K sq ft of commercial GFA	1.39M sq ft of commercial GFA	The Sidewalk Labs' Villiers West plan more than triples the amount of space devoted to commercial compared to business as usual. This space will be the foundational anchor of the IDEA District's economic development, home to a new Google Canadian headquarters and an Urban Innovation Institute, core components of an overall innovation campus within the neighbourhood.
Stoa	A BAU plan would not include the stoa space type.	290K sq ft of stoa GFA includes retail, social infrastructure, and office	Sidewalk Labs' flexible stoa spaces (found on the lower two floors) are designed to accommodate retail, commercial, production, and social infrastructure uses, creating vibrant, adaptable public spaces and streets.
Social Infrastructure			
Social Infrastructure	30K sq ft of social infrastructure GFA	50K sq ft of social infrastructure GFA	Totalling approximately 2 percent of the total build plan, the proposal for Villiers West incorporates space for a range of social infrastructure uses. While programming for these spaces would be devised with local partners and service providers, Sidewalk Labs envisions setting aside stoa space specifically for public programs, such as a workforce training centre.
Public Realm			
Public Realm	N/A	To be planned	Existing Villiers Island plans include a 16-hectare park curving around the southern edge of the Island and connecting to Promontory Park. The plan for Villiers West, which would be advanced through a public engagement process, will prioritize connections to the park through expanded public realm and street design that maximizes walkways and bike paths.

Implementation

Sidewalk Labs proposes to enter into an agreement with Waterfront Toronto and the City of Toronto for the acquisition of the Villiers West parcels in order to undertake the planning and design, construction, operation, and financing of the project. Although Villiers West was not specifically identified in the RFP, the city's 2006 MOU with Waterfront Toronto contemplates circumstances such as this one where an important economic development opportunity arises outside of the context of a traditional request for proposal.[67] In such circumstances, including where a business seeks to move to or establish operations in Toronto, the MOU provides that "flexibility is required." This reasonably applies to the proposed transaction, which would deliver a major economic development project, bringing a new Google Canadian headquarters and a new applied research institution to Toronto.

Roles and responsibilities.
Sidewalk Labs would serve as the lead developer for the Villiers West project, with responsibility for the horizontal infrastructure and vertical development, to ensure the delivery of the Google facility consistent with the company's expectations and specifications; execution of the project's economic development objectives; and the continuation of the systems, techniques, and innovations initiated in Quayside. Sidewalk Labs would seek to implement the project in collaboration with local development partners.

Upon approval of the MIDP and the relevant Implementation Agreements, Sidewalk Labs would lead a collaborative planning process with Waterfront Toronto, the City of Toronto, Google, and other stakeholders to further advance the creation of a detailed development plan for the campus. This would include further development of the build program, site planning, and design requirements.

Sidewalk Labs would also solicit institutions interested in co-locating with the Urban Innovation Institute and other tenants. Sidewalk Labs is committed to engaging local development partners in the project and, working with Waterfront Toronto, would solicit appropriate partners. Waterfront Toronto would collaborate with Sidewalk Labs in completing the development plan so that it can serve as the basis for approvals and advance the achievement of the IDEA District goals. Waterfront Toronto would also work with the City of Toronto and, if appropriate, Ports Toronto to facilitate the land assemblage (combination of parcels) and to determine the optimal transactional construct.

Approvals process and timeline.
Sidewalk Labs is proposing that the approvals process for projects within Phase 2 of the IDEA District follow the Community Planning Permit process that the city is developing. Where precinct planning is complete, the administrator may allow for a development application to proceed ahead of the adoption of an implementing bylaw. Sidewalk Labs proposes that the Villiers West proposal proceed through a standard rezoning if it precedes the adoption of a Community Planning Permit Bylaw (CPPB) for Villiers Island. Should a CPPB be in place ahead of a development application, then Villiers West would proceed through that process.

As depicted on the timeline on the following spread, based on current estimates, the development application process for Villiers West would commence in 2022 with approvals by 2024 and occupancy anticipated by 2027.

Economics

Sidewalk Labs' proposal envisions a similar approach to the transaction for Villiers West as for Quayside, with Sidewalk Labs and its local partners bearing the development risk, Sidewalk Labs bearing the innovation risk, and Waterfront Toronto and its government stakeholders providing the underlying land. Sidewalk Labs has developed detailed economic projections based on concept plans for Villiers West. Under terms to be detailed in the Implementation Agreements, Sidewalk Labs and its local partners would be responsible for funding, including through borrowing, the development of Villiers West at an estimated total cost of approximately $1.9 billion.

Sidewalk Labs will continue to work with its government counterparts to further define the Villiers West project. Critically, Sidewalk Labs believes the Google tenancy as a part of the project is fundamental to the accelerated viability of a commercial office market in the proposed IDEA District and broader eastern waterfront. Without the Google Canadian headquarters, Sidewalk Labs is not confident that the proportion of commercial space proposed in either its own plans or the Port Lands Planning Framework is economically viable.

As such, the Google Canadian headquarters and broader innovation campus would better enable the city to:

achieve the "catalytic use that would spawn and support regeneration efforts and bring people to the Island in early stages of its development" that is noted in the Port Lands Planning Framework

accelerate the development of new commercial space that the city recognizes is vital for a downtown core that currently has one of the lowest commercial vacancy rates in the world

Land purchase price, along with the evolution of the proposed program, will be negotiated with Waterfront Toronto and its government stakeholders. Sidewalk Labs is committed to fairly compensating Waterfront Toronto and / or the City of Toronto for Villiers West for the acquisition of the land, regardless of the form of the transaction, while reflecting the value Sidewalk Labs will create as an economic development catalyst.

The proposed transaction would be governed by detailed Implementation Agreements to be developed once the MIDP has been approved. The details of the transaction — including the form of the transaction (such as land-lease versus sale, profit-sharing, joint-venture, or otherwise) and the value of the land — would be incorporated in an Implementation Agreement.

Fig. 2.6
Villiers West detailed timeline
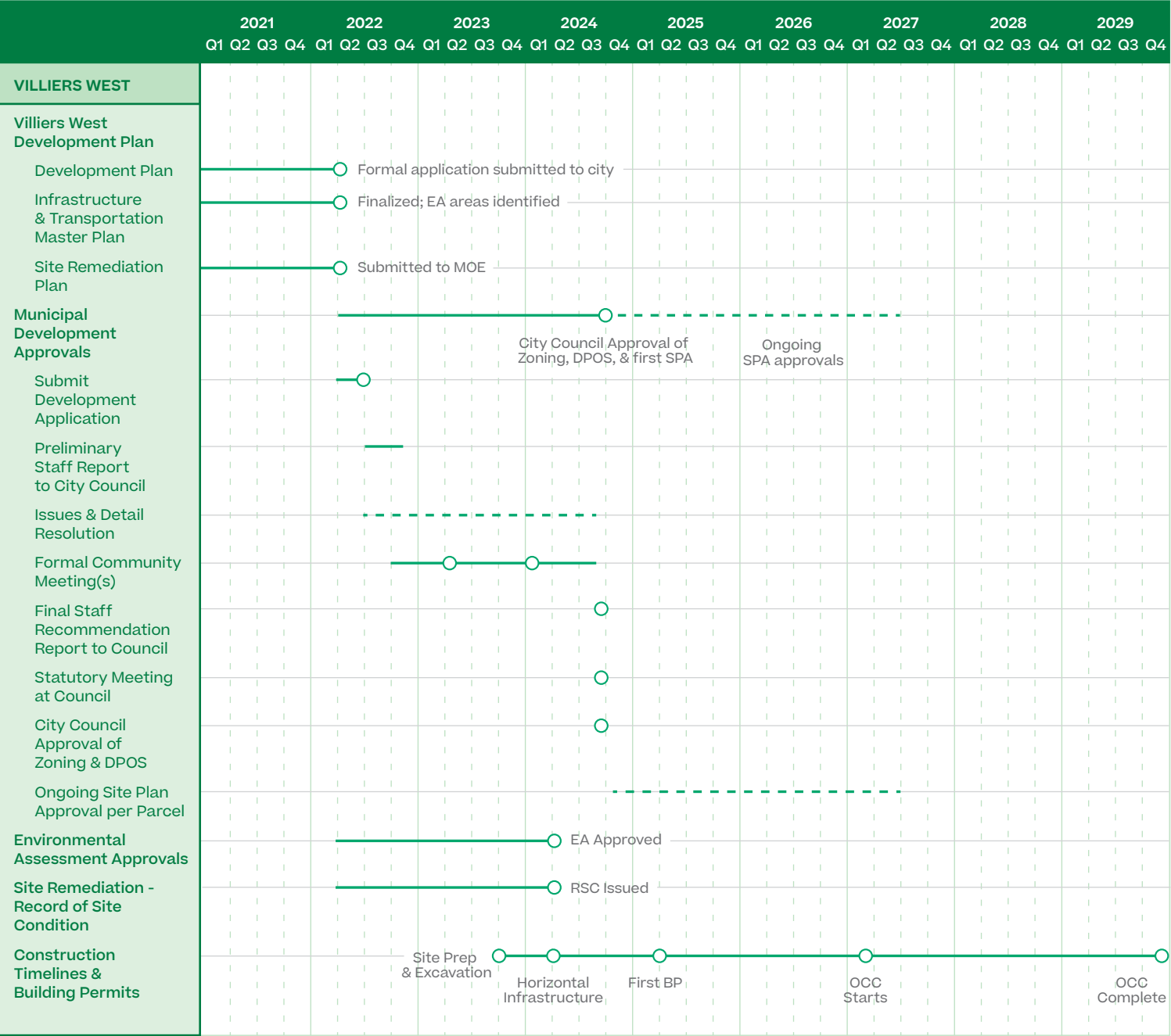
DPOS = Draft Plan of Subdivision; MOE = Ministry of Environment; EA = Environmental Assessment;
RSC = Record of Site Condition; BP = Building Permit; OCC = Occupancy; SPA = Site Plan Approval

Advanced systems

Waterfront Toronto's RFP for an Innovation and Funding Partner identified significant sustainability, urban innovation, and mobility objectives that are only achievable through the development of advanced systems capable of outperforming business as usual approaches and traditional systems.[68] To date, no other comprehensive, large-scale project has integrated all these components. Their combined effect would be dramatic, enabling the IDEA District to materially improve mobility, deliver ubiquitous internet connectivity to residents and workers, and advance outsized sustainability objectives, including the establishment of a climate-positive community.

Sidewalk Labs proposes to serve as lead developer of a range of advanced systems for Quayside and Villiers West. These systems are essential to achieving Waterfront Toronto's priority outcomes, to delivering the innovative real estate model called for in the MIDP, and to proving the practical and financial viability of these advanced systems in the broader marketplace.

The success or failure of the vertical real estate development at Quayside and Villiers West is inextricably tied to the availability and effectiveness of these advanced systems, some of which are not available on the market. For example, the ability to achieve more than incremental reductions in GHG emissions in Quayside requires an advanced power grid, a thermal grid, mobility improvements, and a host of building-specific innovations — all working together.

Given the critical importance of these systems, Sidewalk Labs would play a hands-on role in the early stages of their development and operation. It would prepare designs,

identify or partner with operators, and refine and stabilize the operations to achieve efficiency and deliver the promised performance outcomes. This section is intended to describe the role that Sidewalk Labs would play as the lead developer of advanced systems to best manage the pursuit of innovation and create a platform for expansion across the broader IDEA District.

Objectives

The advanced systems proposed are necessary to achieving the Waterfront Toronto objectives for the IDEA District. Advanced systems would also allow the city and province to advance other policy goals, including those set forth in TransformTO, TOcore, Resilient City, the Toronto Green Standard, and the New Toronto Official Plan.

Developing these advanced systems for a neighbourhood offers several specific benefits:

Neighbourhoods are small enough to innovate yet big enough to leverage meaningful investment and cost savings from scale. For example, the waste management system at Quayside has a large enough user base to justify the investment in the neighbourhood collection facility, as well as centralized operation, which will ultimately yield a more cost effective and less disruptive way to remove waste from the site while improving diversion rates.

Project-based standards tailored to district performance allow for systems that

apply the most effective technologies for the site characteristics. For example, the advanced power grid allows for each neighbourhood to develop the appropriate balance of generation and storage depending on the load profile relative to varying uses and generation potential relative to available rooftop space and shading.

Operating sustainability systems at a neighbourhood or district scale rather than applying them to an individual building creates efficiencies and space savings by balancing peak demands across the system. For example, because thermal demand for specific uses varies at different times of day, a district thermal grid improves efficiency by transferring energy between buildings based on their localized needs.

Layering complementary systems in a single geography enables cross-platform efficiencies that amplify the overall benefit. For example, energy efficiency can be optimized by coordinating the activities and combining the controls for electricity (the advanced power grid) and heating (the thermal grid).

Integrating horizontal infrastructure systems, municipal and advanced, allows for coordinated design, cost-effective construction, and the ability to establish a comprehensive district-wide operational governance structure. Integrating advanced systems into the design approach — particularly for infrastructure in the public right of way, such as dynamic streets — facilitates coordination and reduces the potential for space conflicts during installation that occur where advanced systems are treated as add-ons.

Isolating systems at a neighbourhood scale enhances resiliency. For example, the district-level stormwater management system offers a holistic upstream approach that reduces stress on downstream treatment facilities during significant rainfall events, while expanding local green spaces.

Program

The MIDP proposes advanced sustainability systems (including an advanced power grid, a thermal grid, a waste management system, and a stormwater management system), advanced mobility systems (a freight management system, dynamic streets, district parking management, and mobility subscription package), and an advanced digital communications network (see table on Page 92).

The advanced sustainability systems, the freight management system, and the digital communications network would be operated by private companies, except where Toronto Hydro is involved with the operation of the advanced power grid. The advanced mobility systems would be operated by the WTMA. Dynamic streets, the only advanced system that replaces publicly operated municipal infrastructure, would be owned by the city as a public right of way.

All of the other systems are traditionally private services and represent novel approaches.

The advanced systems would deliver a range of sustainability and mobility benefits and direct quality of life benefits to residents, workers, and visitors to the district, including those listed in the table on Page 111.

The set of systems proposed for the IDEA District, which is described in the following table, is designed to enable a wide range of developers to participate in the future while ensuring the long-term sustainability of the waterfront. To ensure a high degree of flexibility, Sidewalk Labs intends to evaluate alternative approaches — to expand opportunities for a wide range of service providers and facilitate easy, inexpensive maintenance and upgrading of systems. Sidewalk Labs is specifically considering models that would encourage service providers of all sizes to access shared building space, with easy access to complementary systems and to users.

Fig. 2.7
Descriptions and benefits of advanced systems

Note: Certain systems may require a strategic partnership due to existing jurisdictional authority, regulatory considerations, or availability of service in the Project Area, such as Toronto Hydro on the advanced power grid.

System	MIDP Goals	Existing Service	Description
Advanced Power Grid	Climate-positive	Private	An advancement to the typical Toronto Hydro electric service, which incorporates rooftop photovoltaic generation, battery storage, possible electric vehicle charging stations and islanding capabilities, and behind-the-meter demand management capabilities utilizing hardware, software, and dynamic real-time rates.
Thermal Grid	Climate-positive	Private	A thermal energy grid at either the neighbourhood or building scale that could incorporate geothermal heat exchange, building heat recovery, sewage heat recovery, and other clean energy sources.
Waste Management	Improved waste diversion and reduced impact	None	A pneumatic waste collection system with dynamic pay-as-you-throw rate structure managed through a user interface at the chute and downstream monitoring of contamination that helps improve waste separation habits.
Stormwater Management	Enhanced performance and green infrastructure	None	A district scale management of stormwater through green infrastructure that uses continuous monitoring and active controls to reduce the infrastructure needs of individual buildings and enhance performance in the public realm.
Freight Management	Reduced impact and climate-positive development	Private	A freight delivery system allowing Quayside buildings to rely on a single on-site urban consolidation centre (UCC) for receiving most kinds of deliveries. Deliveries would be sorted at the UCC using both labour and machines and delivered to residents and on-site businesses using self-driving delivery dollies travelling through tunnels. The freight system would also offer an on-site storage service and transport recyclable cardboard to the UCC for outbound pickup.
Dynamic Street Infrastructure	Enhanced mobility	Public	Innovative hex paving, dynamic lighting and signage, heated pavements for snow melt, and digital infrastructure for traffic management.
District Parking Management	Enhanced mobility	Private	A system offering space-efficient parking both on-site and off-site using equipment allowing high-density parking, attendant-based retrieval of vehicles, and electric-vehicle charging.
Mobility Subscription Package	Enhanced mobility	Private	A specialized, app-enabled mobility service bundle spanning public transit, ride-hail, parking, shared services, and micro-mobility programs.
Digital Communications Network	Ubiquitous connectivity	Private	A robust, fibre-optic internet network using Super-PON technology that would support ubiquitous connectivity throughout the project area.

System	Benefits
Advanced Power Grid	Two points of connection to Toronto Hydro distribution grid and ability to island for resiliency Demand management incorporating photovoltaic generation and battery storage and dynamic hourly rates to reduce peak demand and GHG emissions Possible electric-vehicle charging
Thermal Grid	Fully electrified district hot water, heating, and cooling through a thermal grid using geothermal energy and other clean energy resources to reduce GHG emissions
Waste Management	Innovation provides user feedback to improve diversion and limit waste contamination Efficiencies gained and local traffic and vehicle emissions reduced through centralized collection
Stormwater Management	Reduced stormwater discharge to municipal infrastructure systems Efficiencies gained by operating at a district scale Enhanced greenscape benefits in public realm
Freight Management	Fewer truck trips reduce GHG footprint, congestion, and air pollution Fewer loading docks enable provision of pedways between buildings Dramatic reduction in delivery trucks parking and double-parking on the streets enables more space for sidewalks and other uses
Dynamic Street Infrastructure	Reduced congestion and travel times, safer streets, and more public space for public realm
District Parking Management	Eliminates incentive for residents to use personal vehicles when more sustainable alternatives are equally attractive Allows parking rates for those who must own a car to be lower by using off-site land
Mobility Subscription Package	Enables residents and on-site employees to make better use of mobility options other than the private vehicle by bundling options ranging from public transit, to shared bikes, to hailed rides in ways that encourage the optimal choice for each trip
Digital Communications Network	High-performance internet network based on Super-PON standard enables flexible operation of advanced technologies and supports multiple carriers

Implementation

Following a determination by Waterfront Toronto to proceed with the approach in the MIDP, Waterfront Toronto would enter into detailed Implementation Agreements with Sidewalk Labs to serve as lead developer of the advanced systems proposed for Quayside and Villiers West. This approach mirrors similar agreements Waterfront Toronto has entered with other system developers, including its broadband internet partner. Pursuant to the agreement, Sidewalk Labs would design, construct, procure, and stabilize the operations of the advanced systems. The Implementation Agreements would incorporate various terms and conditions, including specific performance requirements, user-rate constraints, and a requirement of adequate security.

Roles and responsibilities.
Sidewalk Labs proposes to serve as the lead developer of the advanced systems in Quayside and Villiers West to prove the technical and economic market viability of the urban innovations core to achieving Waterfront Toronto's overall objectives. The success of vertical development in Quayside and Villiers West also depends on the systems existing and performing up to expectations. These objectives would require connecting the developments to and integrating with advanced systems.

With the exception of the digital communications network (which would be implemented directly by Waterfront Toronto's broadband internet partner with Sidewalk Labs' technical advisory support), Sidewalk Labs would be responsible for the following implementation framework for all of the advanced systems, including:

Preparing preliminary designs supplemental to the ITMP to be used as bridging documents in the form of plans and specifications issued during the procurement of operators for certain systems

Managing the procurement process and selecting operators based on their merits, including qualifications, rate structure, strength of financing, and cost

Providing design and construction oversight

Working with operators to ensure the systems meet the IDEA District objectives

Working alongside the public administrator to ensure that operators maintain an acceptable level of performance

Wherever practical, Sidewalk Labs would seek to utilize third-party partners and products to develop the advanced systems.

Acting through the Waterfront Transportation Management Association and the Waterfront Sustainability Association, the public administrator would manage and oversee the advanced systems, including by monitoring operator compliance with their master service agreements on performance, rates, and other key obligations.

Procurement.
The Implementation Agreements would provide Sidewalk Labs with the flexibility to procure operators that, in its judgment, offer the best solution for Quayside and Villiers West. While relying heavily on joint development agreements with third-party operators, Sidewalk Labs would retain the ability to develop solutions internally, participate in operations, and iterate and adjust those operations.

As described below, certain principles and constraints would dictate when Sidewalk Labs, either directly or as part of a joint venture, would participate in operations.

Principles and conditions for advanced systems deployment.
As the advanced systems developer for Quayside and Villiers West, Sidewalk Labs would follow several principles for advanced systems deployment.

First, Sidewalk Labs would seek external partners where available to diversify risk and incorporate expertise from others into the project. Second, Sidewalk Labs would limit its provision of products and services to situations when its involvement is needed to achieve the necessary outcomes of each

Key Terms

Project milestones — a series of contractual commitments set out in the Implementation Agreements that Sidewalk Labs must satisfy to proceed to successive project stages.

Performance target — a type of project milestone, in which Sidewalk Labs is required to achieve a specific outcome based on Waterfront Toronto's priority outcomes (e.g. reducing greenhouse gas emissions by a particular amount).

system. This means it would not participate in operations where an existing provider is willing and able to deliver the operational approach and performance outcomes and to do so cost effectively. Third, in its role as Innovation Partner, Sidewalk Labs would transfer knowledge to the public administrator to enable it to take over the advanced systems development role after Quayside and Villiers West.

An advanced system, or a component thereof, must meet one or both of two conditions before Sidewalk Labs would provide the solution directly. First, the solution calls for significant iteration or ongoing management after the initial installation. Specifically, no suitable turnkey approach exists, and the system requires active management to stabilize its operations or optimize its performance to deliver the desired outcomes. For example, the advanced power grid combines distinct elements, including a dynamic rate structure, that may need to be calibrated to achieve optimal results. This may require an extended period of refinement to modify and replace system components, educate users, and adjust system operating parameters to improve the results. Second, the approach represents a technological solution that has no suitable alternative available in the market based on the methodology established for classifying purposeful solutions (see Page 123 for more details).

With respect to advanced systems, Sidewalk Labs would notify the relevant administrative unit within the public administrator if it intends to utilize a product or service in which it holds a financial interest within Quayside or Villiers West. At a minimum, the notification would identify which of the applicable conditions applies and evaluate its application to such product or service. Sidewalk Labs would submit the notification and completed evaluation within a reasonable timeframe.

To the extent that Sidewalk Labs, as lead developer, elects to participate as an operator of an advanced system, directly or through a joint venture, Sidewalk Labs may be compensated through operating revenue in place of, or in addition to, advanced system development fees, subject to the terms of a master service agreement to be negotiated with either the Waterfront Sustainability Association or the Waterfront Transportation Management

Association, as applicable. (See Page 128 for further detail on Sidewalk Labs' proposal related to financing advanced systems.)

Advanced systems beyond Quayside and Villiers West

As lead developer of advanced systems at Quayside and Villiers West, Sidewalk Labs must establish the effectiveness, commercial viability, and ability of those systems to deliver on key project milestones, specifically a series of negotiated performance targets. As discussed in further detail in Chapter 6, unless Sidewalk Labs satisfies its project milestones, the advanced systems would not extend beyond Quayside and Villiers West.

Assuming Sidewalk Labs achieves the relevant project milestones, its role in advanced systems would shift to serving as an advisor to the public administrator. Consistent with its responsibilities as an advisor to the public administrator (see Role 2), Sidewalk Labs would support the public administrator — which would assume the role of lead developer for advanced systems outside of Quayside and Villiers West — in procuring operators and partners; working with the operators to integrate the systems in the IDEA District to achieve the envisioned technologically enabled outcomes; and working alongside the public administrator to ensure the operators achieve and maintain acceptable performance levels. The public administrator would take on the ultimate responsibility for procuring operators, with the option to continue with existing operators from Quayside and Villiers West.

Sidewalk Labs would also advise the public administrator on the design of the systems for integration with completed infrastructure and vertical development and assist with preparation of procurement documents. Based on its practical experience developing Quayside and Villiers West, Sidewalk Labs would work with the public administrator to refine and expand the standards and guidelines incorporated in the IDSG.

Innovation and Funding Partner Role 2: Innovation Planning, Design, and Implementation

The second role for Sidewalk Labs as Innovation and Funding Partner would be to provide technical advice, innovation planning, and project-management services to the public administrator. In this capacity, Sidewalk Labs would support the public administrator in devising and implementing a comprehensive innovation and development strategy, where the company can augment its capacity or resources, or has special expertise, particularly with respect to the technical specifications, deployment, iteration, and integration of advanced systems as well as to performance outcomes. The public administrator will have the authority to terminate these advisory services in the event the IDSG is not extended beyond Quayside and Villiers West.

A core element of this role is building the capacity of public-sector partners and engaging in knowledge transfer. Over time, this would reduce the need for, and the scope of, Sidewalk Labs' responsibilities.

Planning phase

At the planning phase, Sidewalk Labs would propose to partner with the public administrator to provide technical advice and otherwise support the innovation strategy for the IDEA District across three interrelated categories:

Technical advice and systems integration for precinct planning.
Sidewalk Labs would advise the public administrator on the development requirements associated with advanced systems and MIDP objectives, technical integration, and the district-specific land-use strategies proposed in the MIDP (such as stoa requirements and outcome-based code). This role would not apply to Quayside and Villiers West, where Sidewalk Labs intends to serve as the developer of vertical real estate and advanced systems.

Planning services for municipal and advanced systems.
Sidewalk Labs would partner with the public administrator in preparing the IDEA District Infrastructure and Transportation Master Plan (ITMP) documents, with special emphasis on the technical specifications and related considerations attendant to advanced systems and their integration with traditional municipal infrastructure.

See Chapter 6 for a detailed discussion of project milestones.

Technical specifications and content development for the Innovation Framework.
Sidewalk Labs would partner with the public administrator in developing the requirements and technical specifications for development that are needed to achieve the sustainability, affordability, and related objectives of the IDEA District. This would include developing and refining the IDEA District's initial Innovation Design Standards and Guidelines (IDSG). Sidewalk Labs would update the IDSG from time to time, in partnership with the public administrator, based on experience gained in the early phases of the project and technological advances that become available over time.

See Chapter 3 for further details about the proposed financial terms.

Initially, the IDSG would apply only to Quayside and Villiers West. The extension of the IDSG to other parts of the IDEA District, and the ability of Sidewalk Labs to submit modifications and additional specifications, would rely on their adoption by the public administrator and Sidewalk Labs first achieving project milestones and demonstrating that the proposed standards and guidelines advance Waterfront Toronto's priority outcomes in a manner that can prove economically viable. Sidewalk Labs would thereafter propose refinements and expansions to the IDSG to better achieve the priority outcomes, drawing on its practical experience as lead developer of Quayside, Villiers West, and the advanced systems for those two vertical developments.

The following table reflects how Sidewalk Labs would support the public administrator of the IDEA District at the planning phase in carrying out its responsibilities.

Financial and other key terms. Sidewalk Labs proposes to deliver these advisory planning services to the public administrator at cost and estimates the total value of these resources to be in the range of $3 million dollars annually over approximately the first 15 years of the project, the time during which the relevant planning deliverables for the IDEA District would be completed.

Fig. 2.8

Sidewalk Labs' role in relation to public administrator planning deliverables

Administrator Planning Deliverable	Sidewalk Labs' Role
Precinct Plans and Implementing Bylaws	Advise on issues related to IDSG and integration with advanced systems, as it relates to planning and proposed bylaws; utilize digital planning tools to assist precinct planning and develop outcome-based code where necessary.
Infrastructure and Transportation Framework Plan (ITFP)	Advise on ITFP, including guidance on analysis and design of mobility, sustainability, and public realm; support for estimation of population and employment; and provide a framework for proposed advanced systems networks.
Infrastructure and Transportation Master Plan (ITMP)	Support the public administrator on overall planning, including engineering support for advanced systems within each precinct and preparation of ITMP for Quayside and Villiers West as part of the Development Plan Application.
Innovation Development Standards and Guidelines (IDSG)	Develop the technical specifications needed to achieve sustainability, affordability, and related objectives of the IDEA District, including the drafting and later refinement of the IDSG.

Implementation and operation phases

At the implementation and operations phases, Sidewalk Labs proposes to advance the work of the public administrator of the IDEA District in the following ways:

Design of municipal infrastructure in Quayside and Villiers West.
Sidewalk Labs would provide different levels of support to the public administrator for different types of proposed horizontal infrastructure based on the technical needs associated with the project. Apart from site-work and shoreline-related work, Sidewalk Labs proposes to manage the design of traditional municipal infrastructure (such as water mains, sewers, and parks) for Quayside and Villiers West. Quayside and Villiers West represent the first attempt at integrating the innovations proposed in the MIDP, which would raise complex integration challenges associated with several of the newly created advanced systems (such as the proposed dynamic streets) and strategies (such as ground-floor stoa space). The public administrator would manage the construction of the municipal infrastructure.

Integration of municipal infrastructure with advanced systems.
Outside of Quayside and Villiers West, the public administrator would manage the design and construction of all municipal infrastructure, as it does normally. Sidewalk Labs, however, would serve an integration role to coordinate municipal infrastructure designs prepared by the administrator with buildings and advanced systems infrastructure. These systems are multi-layered, require careful physical layout, and oftentimes are interconnected where one serves the other (such as electric service for a sanitary sewer-pumpstation).

Design, management, and improvement of advanced systems.
The MIDP proposes several advanced sustainability systems (such as advanced power grid, thermal grid, waste management, and stormwater management), advanced mobility systems (such as freight management, dynamic streets, district parking management, and mobility subscription packages) and an advanced digital communications network. (The attributes of these systems are detailed on Page 108.)

In Quayside and Villiers West, Sidewalk Labs would serve as lead developer of advanced systems (other than the digital communications network). As lead developer, Sidewalk Labs would be responsible for delivering advanced systems based on agreed-upon performance standards and would procure and select appropriate partners and operators to prepare designs, obtain construction permits, and stabilize operations.

For parts of the IDEA District outside of Quayside and Villiers West, the public administrator would act as lead developer of advanced systems. Sidewalk Labs would provide support in procuring operators and partners; work with the operators to integrate the systems in the IDEA District to achieve the envisioned technologically enabled outcomes; and work alongside the public administrator to ensure that the operators achieve and maintain acceptable performance levels.

As noted earlier, Sidewalk Labs would not develop or manage the procurement of the Super-PON digital communications network proposed for the IDEA District. Instead, Sidewalk Labs would provide technical advice to the public administrator and Waterfront Toronto's broadband internet partner, which is expected to deliver the digital communications network.

See Chapter 1, on Page 50, for a table of the management entities and their relationship to the public administrator.

Further details related to financial terms for municipal infrastructure and advanced systems are included in Chapter 3.

During buildout of the advanced systems infrastructure, the operators would employ their own management entities for constructing their respective systems under the observation of the design team, including Sidewalk Labs as Innovation Partner. The public administrator would serve as the master site construction manager to coordinate the various advanced systems construction projects with other site construction activities. The lead developer of advanced systems — Sidewalk Labs at Quayside and Villiers West and the public administrator in the remainder of the IDEA District — would provide construction oversight and operational-stabilization support to the operators.

Support for management entities.
In addition to its role in connection with infrastructure development, Sidewalk Labs would offer technical assistance and advice to the public administrator to support the management entities administering new district systems. These include the proposed entities focused on Mobility (Waterfront Transportation Management Association), Public Realm (Open Space Alliance), and Sustainability (Waterfront Sustainability Association).

Technical advisory services related to vertical development.
After Quayside and Villiers West, Sidewalk Labs would serve in an advisory capacity to assist the public administrator upon request with its oversight of the developer call and application processes, where technical expertise may be required, for instance, in the need to evaluate plans for fidelity to the Innovation Framework.

The following table reflects how Sidewalk Labs would support the public administrator in carrying out its responsibilities as the public administrator of the IDEA District at the implementation phase.

Financial terms for municipal infrastructure.
Sidewalk Labs proposes to receive a flat market-rate percentage fee (8 percent) for managing the design of certain municipal infrastructure at Quayside and Villiers West. Sidewalk Labs would receive a lower percentage (2 percent) of related soft costs for supporting the public administrator in integrating municipal infrastructure with advanced systems infrastructure. These fees are based on Waterfront Toronto's typical management fees of 6 percent, with the additional 2 percent for the extra work required to coordinate with advanced systems.

Financial terms for advanced systems. Third-party operators would compensate Sidewalk Labs directly for its responsibilities as lead developer of advanced systems at Quayside and Villiers West. When the public administrator assumes the role of lead developer of advanced systems in later phases, the operator would similarly compensate the public administrator for its work.

Fig. 2.9

Sidewalk Labs' role in relation to public administrator implementation responsibilities

Administrator Implementation Responsibility	Sidewalk Labs' Role
Development Call and Land Disposition Management	No role (optional advisory services related to proposed impact of proposed development on Innovation Framework and advanced systems).
Certification of Development and Building Permit Applications	Advise on the compliance of development proposals with the IDSG and integration with advanced systems.
Light Rail Transit Development	Optional financing role (see Role 4 for more information).
Management of Municipal Infrastructure Development	Manage the design of public realm (such as parks and streetscape areas), bridges, and municipal underground infrastructure (such as domestic water, sanitary sewer, and storm drain conveyance) in Quayside and Villiers West. Thereafter, Sidewalk Labs would support the public administrator in the integration of municipal infrastructure with advanced systems.
Management of Advanced Systems	Digital Communications Network: Sidewalk Labs would provide technical advisory support to the public administrator and Waterfront Toronto's broadband internet partner (procured separately by the public administrator) for development of a Super-PON network to achieve the objectives of high-speed ubiquitous internet connectivity in accordance with specifications in the IDSG.
	Advanced Systems: For all other advanced systems, Sidewalk Labs would serve the following roles:
	For Quayside and Villiers West, Sidewalk Labs would serve as lead developer of advanced systems based on agreed-upon performance standards and would procure and partner with independent operators to prepare designs, obtain construction permits, and stabilize operations.
	For the areas where the public administrator would serve as the lead developer of advanced systems, beyond Quayside and Villiers West, Sidewalk Labs would advise on design and assist with preparing procurement documents.
Oversight of New Management Entities	Sidewalk Labs would advise in the establishment and operation of various new management entities and the advanced systems they would manage. As Innovation and Funding Partner, Sidewalk Labs would provide advisory support on strategies to achieve public objectives.
Annual Public Reports on Progress of IDEA District	No role, except as advisor.

Sidewalk Labs would support the public administrator with technical advice, innovation planning, and project-management services to advance a comprehensive innovation and development strategy.

Innovation and Funding Partner Role 3: Technology Deployment

The third role Sidewalk Labs proposes to fill as Innovation and Funding Partner is to identify or develop key technological solutions for advancing Waterfront Toronto's priority outcomes in the project area. The MIDP draws on a range of technological solutions, including software, hardware, and other products and services that target urban priorities, from sustainability to affordability. These include commercially available technologies and systems, incremental improvements to existing approaches, and products and services that do not yet exist in the market in a usable form.

The MIDP seeks to foster an urban innovation ecosystem open to entrepreneurs and inventors from across Canada and around the world. This ecosystem is critical to the project achieving its economic growth and job-creation goals, to its financial success, and to its goal of creating a testbed for how to harness new technological insights to improve urban life.

Leveraging Sidewalk Labs' substantial technological resources, the technology deployment role incorporates two related responsibilities.

Evaluate the existing marketplace for necessary innovations.
First, to realize the vision of the MIDP and implement its components, Sidewalk Labs would survey and evaluate the innovations currently in research, development, or in the marketplace to determine their relevance and applicability to the project. Constituting an important part of formulating the MIDP, this process is already well underway. Because technology advances rapidly, however, the process calls for an ongoing assessment of available technologies to determine whether the project could benefit from emerging solutions. Based on this work, Sidewalk Labs would advise the public administrator on product road maps, which would survey all plausible market sources.

In the vast majority of circumstances, the technologies recommended for advancing the project would be purchased, commissioned, or licenced from existing vendors. For these solutions, Sidewalk Labs' responsibilities would be limited to those encompassed within Roles 1 and 2, as an advisor to the public administrator and as lead developer of advanced systems at Quayside and Villiers West.

Develop a necessary innovation if none exists.
Second, where a key solution does not yet exist in the market, Sidewalk Labs is committed to developing it by identifying appropriate technology partners to carry out the work, by integrating and enhancing existing solutions, or by undertaking the research and development itself to create and test the solution for deployment as part of the project.

As one example, Sidewalk Labs has proposed to work with Waterfront Toronto's broadband internet partner to develop the first Super-PON internet network in Canada (see the "Digital Innovation" chapter of Volume 2), which would power ubiquitous connectivity in the project area. Sidewalk Labs would bring the technical expertise needed to roll out a system that supports substantially more users per fibre-optic strand than other approaches, incorporate managed Wi-Fi to optimize speed and coverage even during periods of heavy usage, and create software-defined networks that enhance security.

Sidewalk Labs anticipates that the total number of solutions it would develop itself represents a tiny fraction of the thousands of products to be deployed in connection with the project.

Ubiquitous connectivity in the IDEA District and digital innovations, such as universal mounts, would help support a range of industries, such as film.
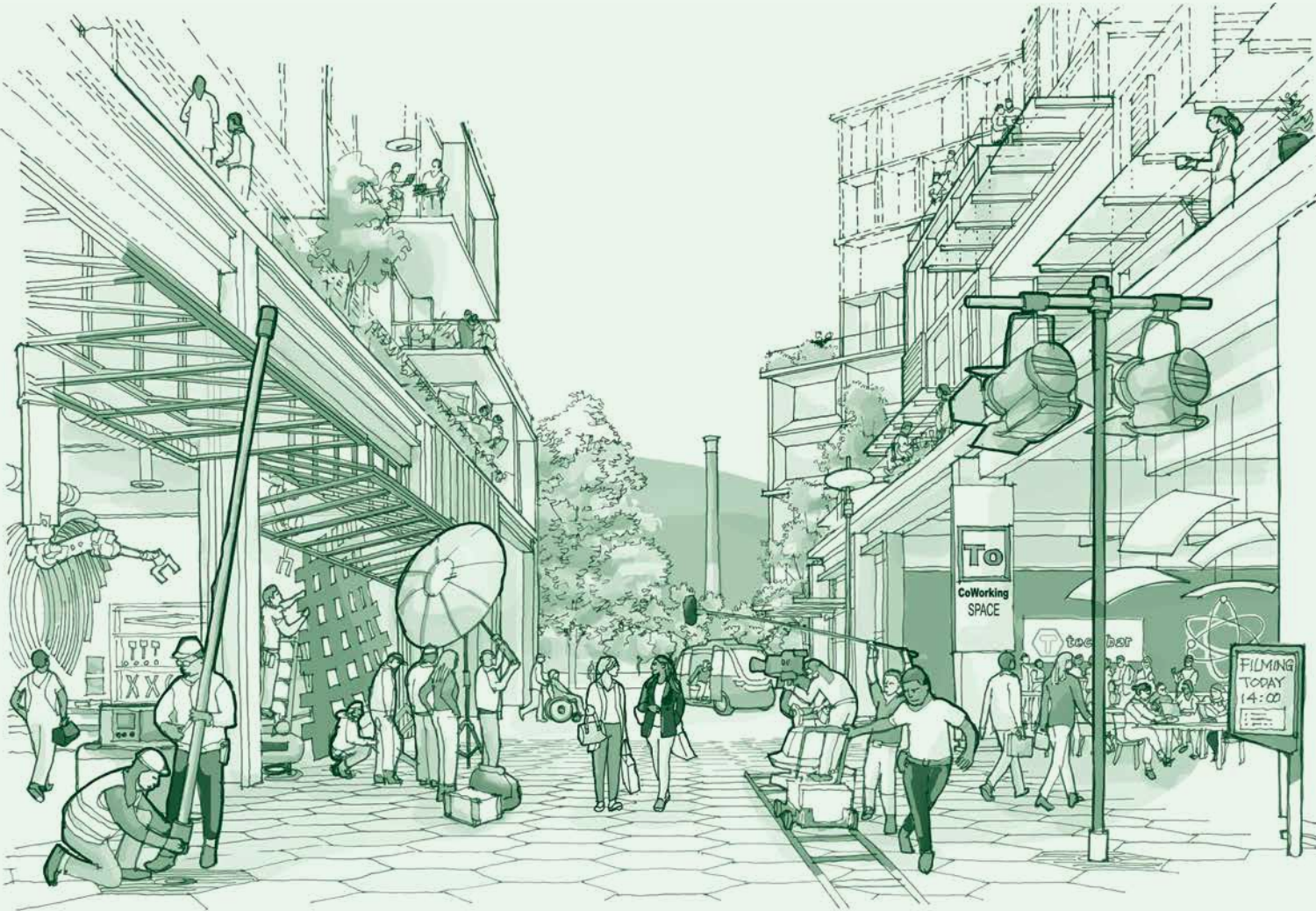
Regardless of whether it provides a given technology or sources it from the market, Sidewalk Labs would apply several important principles:

1

Support collaboration with third parties.

First, as an integral part of creating an urban innovation ecosystem, Sidewalk Labs would support collaboration with third parties, particularly local players. The Implementation Agreements would consider and include specific terms for cases in which Sidewalk Labs would partner with a third party, such as Canadian firms or researchers, to develop or deploy a product or solution. Consistent with Sidewalk Labs' approach to economic development, and to the spirit of both Waterfront Toronto's initial RFP and the PDA, the Implementation Agreements would include a structure designed to support Canada's capacity to build and retain IP locally. Moreover, Canadian firms and researchers would not be expected to relinquish ownership of their IP just for providing their products and services in the project area and could negotiate various approaches to IP development, ownership, and commercialization.

2

Incorporate privacy from the start.

Second, Sidewalk Labs would integrate privacy considerations from the outset. All digital innovations deployed that involve the collection or use of urban data in the IDEA District — whether by Sidewalk Labs or any third party — would be subject to approval by the Urban Data Trust (UDT). Among other roles, the UDT would establish Responsible Data Use (RDU) Guidelines that incorporate globally recognized Privacy by Design principles. These proposed RDU Guidelines would call for all digital innovations involving urban data to apply Canadian values of diversity, inclusion, and privacy; use data minimization to ensure the collection of urban data is limited to what is needed; employ up-to-date de-identification techniques to reduce the collection of

personal information; restrict the use of personal data to sell or advertise without explicit consent; and employ responsible AI practices. Above all, Sidewalk Labs has committed never to sell people's personal information.

3

Promote open standards.

Third, Sidewalk Labs would promote open technology standards and modularity. Too often, technology firms employ closed, siloed systems, which lock out competition and slow down innovation. They also sell non-modular systems, which can only be operated, maintained, and augmented by a single vendor. This increases operating and maintenance costs.

In its technology deployment role, Sidewalk Labs would not only develop products that adopt open technology standards and modularity but recommend and source products from third parties that conform to the same standards.

As a further means of advancing openness and innovation by third parties, Sidewalk Labs is making a "patent pledge," that it would not assert its digital innovation hardware or software patents issued in Canada against any third party who develops and sells an innovation relying on those patents, with narrow exceptions (see Page 127).

4

Promote transparency and open-data access.

Fourth, Sidewalk Labs would actively promote transparency and foster a vibrant ecosystem of new applications using urban data. Subject to the rules of the Urban Data Trust, as more fully described in Volume 2, Sidewalk Labs would promote the use of standardized, publicly accessible application programming interfaces (APIs) to make urban data sets publicly available and usable by third-party developers and the public at large.

Purposeful Solutions

Purposeful Solutions

A limited set of innovations that are necessary to achieve agreed-upon project goals and for which there is no suitable alternative on the market.

One notable category of the technology Sidewalk Labs would develop in-house is "purposeful solutions." These solutions — which Sidewalk Labs proposes to provide at cost to the public administrator and the management entities in the IDEA District — would proceed through a project-specific, direct award process. This designation would last for 10 years, after which the solution would be subject to ordinary procurement processes and market prices.

The proposal for purposeful solutions originated with the RFP, which anticipated that its Innovation and Funding Partner would need to deliver certain "solutions" or "solution areas." The RFP provided that:

"For solution areas where the Partner has technologies or methodologies that could benefit the Project, a review process will be enacted wherein Waterfront Toronto can be assured of the degree of innovation and the cost-competitive nature of the Partner's proposed solutions prior to the initiation of additional downstream procurement processes."

The PDA directs Sidewalk Labs to identify purposeful solutions in the MIDP and calls for a process for designating purposeful solutions over the life of the project:

"As contemplated by A1.c of the RFP and RFP Submission Materials, the MIDP will identify technological innovations that at the time of their development can objectively and impartially be shown to have no suitable alternatives available in the market ('Purposeful Solutions'), and the Implementation Agreements will generally contemplate competitive procurement

processes, with limited exceptions allowing for Sidewalk Labs or its affiliates to provide Purposeful Solutions, but only on a fair and demonstrably arms'-length basis."

Purposeful solutions are procured through a direct award, rather than a competitive procurement, for several reasons. By definition, purposeful solutions do not exist in a mature form in the marketplace. This requires that Sidewalk Labs develop them. In addition, the MIDP offers an integrated vision, which relies on the existence of key technologies. Unless Sidewalk Labs commits to delivering these solutions, the entire vision could be jeopardized.

Sidewalk Labs is developing a range of digital innovations, which are described in detail in Volume 2. Most of these technologies are not being proposed for designation as purposeful solutions. At the outset, Sidewalk Labs is proposing three technologies for designation as purposeful solutions: dynamic curbs, standardized mounts, and Perform, a real-time energy modelling tool. Sidewalk Labs believes that these solutions are critical to achieving aspects of the MIDP; that there are no suitable alternative solutions available in the marketplace; and that these products therefore constitute purposeful solutions and should be designated as such in the Implementation Agreements.

Dynamic curb.

The static and unchangeable nature of traditional curbs represents a barrier to the more efficient use of urban street space. The dynamic curb can repurpose its space — for example, serving as drop-off or pick-up zones during peak traffic times or open space at off-peak periods — enabling more flexible uses of the street and helping to provide more open space for residents, visitors, and workers.

The dynamic curb would incorporate real-time, historical, and projected demand for curbside pick-ups and drop-offs to optimize curb space, dynamically price the curb, assign rates, and set other rules, including pick-up and drop-off locations. The system would rely on physical infrastructure (availability sensors, dynamic and lighted pavement, digital signage, and payment systems) and digital tools (such as navigation apps) to communicate and enforce regulations responsive to dynamic conditions. For example, the dynamic curb system could adjust curb pricing, the location of pick-up and drop-off locations, or even the space in the right of way allocated as curb space or sidewalk.

Standardized mounts.

Today, cities (and the private vendors they hire) install thousands of devices on public infrastructure, from Wi-Fi access points to traffic cameras. But installing these devices often requires significant disruption to street life, creates risks to workers in bucket trucks, and costs thousands of dollars, because light poles and other street fixtures were never designed to host digital hardware. As a result of this onerous process, cities tend to invest in high-priced, ultra-reliable devices that are expensive to repair and upgrade.

Sidewalk Labs has designed a standardized mount called "Koala" that would make it fast, inexpensive, and safe to install a device on a light pole or other street fixture by providing a sturdy physical mount, power, and network connectivity. Just as USB ports made it easier to connect external devices with computers, this new type of urban USB port would create a standard connection point for cities that drives down the cost of installing and maintaining digital hardware. Sidewalk Labs

estimates its mounts would reduce the time of installation by roughly 92 percent — down from 30 hours today to 2 hours.[69]

Additionally, by facilitating installation in an inexpensive way, Koala enables cities to buy much less expensive technology, replace the small fraction of devices that fail, and provide some redundancy of devices to improve reliability around things like Wi-Fi networks. Cities would also be able to upgrade technology on a much more rapid timeline and have more resources to conduct pilots or explorations for new services.

Koala also serves as a platform for other urban innovations. For example, by lowering costs, Koala makes commercially feasible the sensing technology for the dynamic curb (as discussed previously).

Perform.

The existing Toronto Green Standard (TGS) sets sustainability requirements based on expected energy usage and greenhouse gas (GHG) emissions. But there is no real-time monitoring of energy performance after construction, nor is there any meaningful opportunity to adjust performance accordingly. As a result, energy usage in buildings often exceeds the sustainability targets, contributing to a less sustainable built environment than otherwise possible.[70]

To address this shortcoming, Sidewalk Labs is developing a real-time modelling tool called "Perform." The software would compare a building's near real-time energy usage with an energy budget that adjusts dynamically based on occupancy, the weather, and other factors. Used to advance a new outcome-based code, the tool would convert the TGS energy, thermal energy, and GHG intensity targets from static targets based on a building's modelled energy use to dynamic targets for comparison against a building's actual energy use.

Future Purposeful Solutions

Consistent with the PDA, Sidewalk Labs recognizes that further technological needs are likely to arise as the project progresses. Sidewalk Labs proposes a review process to designate additional purposeful solutions at other times in the life of the project.

In this review process, Sidewalk Labs would identify a purposeful solution to advance the project goals, either on an unsolicited basis or in response to a request from the public administrator. In a submission to the public administrator, Sidewalk Labs would outline the proposed solution, detail how it meets project objectives, and provide an analysis demonstrating the absence of comparable solutions from the marketplace.

Upon receipt of such a proposal, the public administrator may initiate either or both of the following two processes to validate a future purposeful solution against predefined criteria:

Advance contract award notice.

The public administrator (including a management entity, such as WTMA) could issue an advance contract award notice (ACAN) regarding its intention to procure a solution on a non-competitive basis. The ACAN will state a deadline for responses ensuring a reasonable period of time is given for the market to respond. The public administrator would review all responses to the ACAN. Alternatively, the procurer may designate that an independent reviewer consider all responses to the ACAN. If the procurer (or the independent reviewer) determines that no response to the ACAN presents a suitable alternative to the proposed solution, the proposed solution would then be designated as a purposeful solution. In contrast, if the public administrator determines that any response to the ACAN presents a suitable alternative to the proposed solution, then the public administrator would proceed to procure such a solution only through its standard procurement process.

Independent reviewer.

The public administrator could engage an independent reviewer to research the availability of alternative solutions that represent a suitable alternative to a proposed solution, and compile that research into a report. That report would identify the range of potential alternatives and assess their suitability. If the report concludes that there is no suitable alternative to the proposed solution, the proposed solution would then be designated as a purposeful solution. If the report concludes that there is one or more suitable alternatives to the proposed solution, the public administrator would then proceed to procure such a solution only through its standard procurement process. If the report is unable to conclude whether alternatives are suitable, then the ACAN process would be invoked.

The processes relating to the form of purposeful solution proposals, relevant criteria, and the execution of either of the two review paths would be spelled out in Implementation Agreements. In the case of these and any subsequently designated purposeful solutions, the public administrator and Sidewalk Labs would negotiate the agreed-upon terms related to deployment on a case-by-case basis. (As discussed in the section that follows, any given purposeful solution may or may not be considered Testbed-Enabled Technology and subject to a profit-sharing agreement.)

Profit-sharing for Waterfront Toronto from Testbed-Enabled Technology

Sidewalk Labs is committed to entering a first-of-its-kind profit-sharing agreement, in which the public sector would receive a portion of the profits arising from certain technologies deployed in the project area.

The PDA contemplates and addresses three categories of IP: Non-MIDP Site IP, Co-Created IP, and Site-Specific IP. The PDA states that "the Implementation Agreements will set out what use rights Waterfront Toronto will have in Sidewalk Labs' Non-MIDP Site IP utilized at the MIDP Site, and what use rights either Party will have in Co-Created IP and Site-Specific IP."

As planning work on the MIDP progressed, it became clear that these categories of IP were inadequate for resolving a question that has been the subject of a great deal of the feedback that Waterfront Toronto and Sidewalk Labs received over the life of the project so far: How will the public share in the value of intellectual property enabled through implementation of the project? Because neither Waterfront Toronto nor the public sector is primarily a technology developer, co-created technology is not likely to emerge over the life of the project. Correspondingly, co-ownership of the intellectual property associated with those technologies is not likely to arise.

There are other ways, however, for the public to benefit when the project enables a new solution developed by Sidewalk Labs. Specifically, Sidewalk Labs is committed to sharing with the public sector proceeds from certain products or other solutions that would not have been developed but for the opportunity created by the project. Sidewalk Labs proposes that such solutions be referred to as Testbed-Enabled Technology and be subject to a profit-sharing agreement.

A product or other solution developed and commercialized by Sidewalk Labs, which meets the following criteria, would be considered eligible for classification as Testbed-Enabled Technology:

1 The Toronto project geography is used in the first deployment of the product or other solution at scale.

2 The relevant public stakeholders must create the conditions for innovation that Sidewalk Labs needs to effectively pilot and scale the new product or solution, specifically by providing all of the following (as applicable):

access to mount or deploy the technology in physical spaces (such as on lampposts, in roads, as part of new private developments, and so on);

a mandate to use common software standards that enable compatibility and interoperability (such as building access systems using a common open standard);

approvals in place up front and regulatory conditions in place that support the physical, digital and operational conditions required, either directly or through negotiation with the appropriate regulator;

sufficient scale for efficacy or to otherwise achieve desired outcomes; and

an ecosystem that provides the opportunity to integrate all the physical, software, and regulatory conditions simultaneously, as necessary for a successful pilot.

The Implementation Agreements would establish a process through which Sidewalk Labs and the public administrator would jointly determine, in advance of the deployment of any product or other solution by Sidewalk Labs, whether the criteria have been met — including agreement around the provision of necessary innovation conditions — and whether the product or solution is thereby considered Testbed-Enabled Technology. As part of a transparent process, Sidewalk Labs would provide a rationale for the scale needed to establish the efficacy of the proposed solution. Sidewalk Labs would also be open to negotiating value sharing for products if the public administrator provides testbed conditions beyond the IDEA District.

Sidewalk Labs proposes that the public sector receive 10 percent of Sidewalk Labs' profits from Testbed-Enabled Technology for a 10-year period. This period only begins with the sale of the solution to a second customer after its initial deployment (i.e. when the product has been effectively commercialized). The overall approach is structured to align the interests in a successful deployment, with both Sidewalk Labs and the public sector profiting from technologies that prove viable. Additional specificity for profit-sharing terms would be negotiated as part of the Implementation Agreements.

Sidewalk Labs believes that this framework would align the interests of public and private sectors in service of nimbly piloting new technologies and innovations as part of this project.

Finally, as a point of clarification, the designation of Testbed-Enabled Technology is a separate and distinct matter from the designation of a purposeful solution. A purposeful solution may or may not be considered Testbed-Enabled Technology, and any given piece of Testbed-Enabled Technology may or may not be designated a purposeful solution. The tests and goals attendant to these two designations are different.

Patent pledge

Through the public consultation process, Sidewalk Labs heard the fear of losing access to the technology and inventions deployed and tested on the waterfront for other Canadian cities. To ensure that the technology innovations created in Toronto remain available, Sidewalk Labs would pledge not to assert Sidewalk Labs' digital-innovation-related hardware or software patents issued in Canada ("Canadian Patents") against third parties who develop and sell innovations that utilize such patents, subject to the defensive termination described later in this section. For example, if Sidewalk Labs obtains a Canadian patent for digital mounts, a third party could build and sell a product that practices the claims in the patent without concern that Sidewalk Labs would bring a patent infringement related to those claims against the party.

Sidewalk Labs is making this pledge to enable any startup, non-profit, government agency, or independent entrepreneur to build on Sidewalk Labs' Canadian Patents without fear of litigation or other assertion of patent infringement. These patents would consist of those patents filed by Sidewalk Labs in Canada during development of Sidewalk Toronto and that cover software or hardware that enable digital innovations related to Sidewalk Toronto. Sidewalk Labs is in the early stages of product development and will list the patents included in the pledge over time.

Sidewalk Labs would publish the full content of this pledge on the Sidewalk Toronto website. The only condition is that those taking advantage of the pledge not assert their Canadian patents against Sidewalk Labs or its affiliates. Thus, in the event of any such assertion against Sidewalk Labs or its affiliates, the pledge is immediately null and void as to the party causing or making the assertion, including that party's affiliates. While Sidewalk Labs hopes that other innovators will join this pledge over time, it would not be required of technology providers for the Sidewalk Toronto project.

Innovation and Funding Partner Role 4: Optional Infrastructure Financing

In general, Waterfront Toronto and its stakeholder governments have had to identify public sources to finance this infrastructure at the outset or contend with a timing mismatch — where the development charges, tax revenues, or other funding needed to pay for infrastructure comes years after construction. To bridge this funding gap, Sidewalk Labs proposes to provide or facilitate optional financing to enable or accelerate the development of the infrastructure needed to achieve the economic development and innovation objectives of the IDEA District.

The next three sections address each of the categories of infrastructure, describing the program scope and costs as well as the proposed financing approach.

Key financing terms

The proposal relies on the following key concepts to describe how infrastructure might be financed.

Advanced system operator. The company that the lead developer selects to operate the advanced systems, including delivering service to end users and collecting user rates. In certain cases, the operator may also design and construct the system.

Avoided costs. Refers to standard expenses not incurred, either because of a replacement or supplemental system (such as dynamic streets replacing standard roads).

Business as usual (BAU). Used to refer to standard infrastructure, building systems, and operations, as compared with the advanced systems and approaches proposed in the MIDP (such as BAU gas distribution replaced by the thermal grid).

City fees and development charges. Fees the city collects from vertical developers to fund municipal infrastructure, such as roads, transit, utility infrastructure, parks, social infrastructure and other services.

Local infrastructure contributions (LIC). Payments from vertical developers to the public administrator where an advanced system replaces a BAU horizontal or vertical system that is typically funded by the vertical developer in an amount equivalent to the avoided costs (such as not installing gas systems).

Municipal infrastructure contributions (MIC). Payments from vertical developers to the public administrator up to the amount of credit for city fees and development charges that the public administrator receives in exchange for delivering municipal infrastructure and services, including dynamic streets in place of traditional streets.

Tax-increment financing (TIF). A "value capture" approach relying on borrowing against the future increase in property tax revenue to fund large-scale public infrastructure (such as as transit).

The MIDP seeks to answer the challenges set out in Waterfront Toronto's Quayside RFP and deliver on Waterfront Toronto's priority outcomes: job creation and economic development, sustainability and climate-positive development, housing affordability, new mobility, and urban innovation (including robust data privacy and digital governance).

These objectives cannot be achieved exclusively through the construction of innovative buildings. Instead, they require substantial investments in horizontal infrastructure — including both traditional municipal infrastructure, like sewers, and advanced systems that are new in Toronto — to serve the entirety of the IDEA District.

Accordingly, as Innovation and Funding Partner, Sidewalk Labs proposes to support the financing of horizontal infrastructure critical to the success of the IDEA District. The specific financing role that Sidewalk Labs proposes to play would vary based on the category of horizontal infrastructure.

This financing is optional, and offered in the event alternative financing is not available at comparable or better rates. The plan incorporates optional financing associated with three primary categories of horizontal infrastructure:

Extension of Light Rail Transit (LRT), which would be TTC owned and operated

Expansion of municipal infrastructure, which would be city owned and operated

Development of advanced systems, which would be privately owned and operated (except dynamic streets, which is city owned and WTMA operated)

Sidewalk Labs is prepared to offer optional financing for infrastructure systems that are critical to development throughout the IDEA District.

Role 4A: LRT financing

Extension of the LRT into the eastern waterfront is critical to achieving the objectives spelled out in Waterfront Toronto's RFP, most importantly to accelerate economic growth; establish the eastern waterfront as a vibrant mixed-use, mixed-income community; and achieve extraordinary levels of mobility, sustainability, and affordability. Access to rapid transit is similarly essential to achieve the targeted levels of population density for the IDEA District and, more broadly, for the eastern waterfront. As more fully explained in the "Mobility" chapter of Volume 2, a link to the rest of Toronto's rapid transit system is integral to advancing waterfront development at scale and necessary to the vision set out in the MIDP.

The city's Waterfront Transit Network Plan and other local and regional transportation plans have identified light rail extension to the eastern waterfront as a priority.[71] As shown on the map on the opposite page, the city's plan for the district calls for improving the underground transit link from Union Station to Queens Quay to connect to an exclusive light rail right of way running east from the western waterfront (Legion Road and Lake Shore Boulevard) along Queens Quay to Cherry Street, and ultimately to the intersection of Leslie and Commissioners Streets further east, with new north-south connections at Cherry Street and at a newly extended Broadview Avenue.

Until now, however, this project has not been funded. The MIDP proposes to change that — to secure financing to construct the LRT extension, connect the eastern waterfront to the rest of the city, and catalyze development.

The proposal below, including the program and financing strategy, follows the recommendation of the Central Waterfront Secondary Plan for a "staged implementation schedule and accompanying financial plan for the construction and operation of transit facilities."

Program

To develop its thinking about rapid transit on the eastern waterfront, Sidewalk Labs established a Mobility Advisory Working Group, consisting of mobility experts and thought leaders in the Toronto community, to review and help refine the proposals. Sidewalk Labs also retained the consulting services of the former head of TTC's planning department. Based on their advice, Sidewalk Labs concluded that the best approach to rapid transit in the eastern waterfront is the City of Toronto's approved LRT plan that underwent the Environmental Assessment process in 2010. This proposal is reflected on the following map.

Bridges and temporary turnarounds associated with the LRT segments on the opposite page are included in the LRT program. In addition, upgrades of two underpasses at Cherry and Parliament Streets are required to support the LRT extension and related mobility improvements.

The light rail extension to the eastern waterfront consists of two parts. The first part, which includes Segments 1 and 2, connects Union Station, via a rebuilt tunnel, to Queens Quay, via a new surface portal near Bay Street, and provides service east to Cherry Street. According to the city's analysis from March 2019, the cost to deliver these segments is
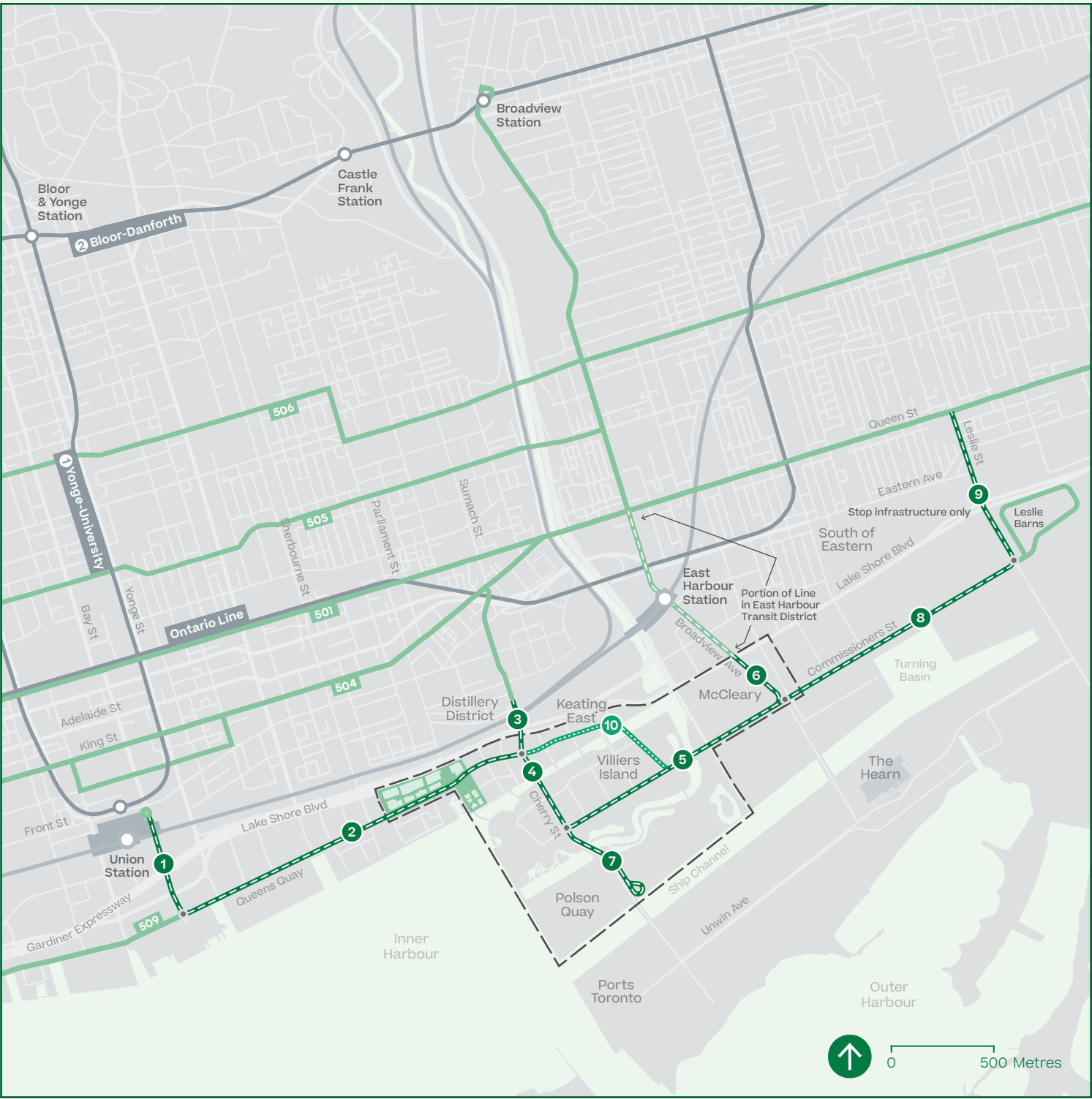
Proposed LRT extension by phase

Legend:
- GO Transit / SmartTrack
- Subway (existing and proposed)
- Existing — Light rail
- Approved extension — Light rail
- Optional — Light rail
- IDEA District
- Quayside

approximately $650 to $700 million. These segments are important for the eastern waterfront LRT but equally important to the city's overall rapid-transit network.[72]

The LRT segments running through the IDEA District include the portion of Segment 2 east of Bonnycastle Street, the portion of Segment 3 south of Lakeshore Boulevard, and Segments 4 through 7, as described in the next section. Based on an analysis conducted by WSP Global, a Canadian engineering firm, these segments will together cost approximately $406 million.[73] That sum is made up of $167.7 million to complete the portions of Segments 2 through 4 within the IDEA District, including certain improvements to the Cherry Street underpass, and $238.3 to complete Segments 5 through 7.

Optional LRT financing

Rapid transit is critical to the development of the eastern waterfront and to implementation of the MIDP. The eastern waterfront is projected to experience faster growth in the near term than most other areas of the city. Connecting the area to Toronto's rapid transit is vital to meet this demand, attract commercial tenants, and create jobs. As reflected in a recent economic impact study from the Waterfront Business Improvement Area, accelerating the development of the LRT along the eastern waterfront would increase productivity, decrease private car use, raise property values, and yield more tax revenue.[74]

Some key conclusions of this study include:

Productivity gains. In total, delaying the accelerated build of the LRT from 2025 to 2045 would cost about 100 million person-hours through commute time savings. That monetizes to productivity losses of about $1.8 billion.

Mode-share shift. Conversely, accelerating the LRT's arrival would lead to a 44 percent decrease in automobile use by incoming workers and residents, and a 15 percent increase in public transit ridership.

Tax revenue uplift. The cumulative cost of delaying the LRT project is $22.8 billion in tax revenue to the federal ($9 billion), provincial ($3.8 billion), and municipal ($10 billion) governments over the period 2025 and 2045.

Property value uplift. According to research done on previous comparable LRT projects, property values along the Waterfront East LRT corridor could rise to a cumulative $4.5 billion by 2045 if LRT service is provided.

Sidewalk Labs would welcome more traditional public sector funding for the Waterfront East LRT project. Timely funding for this project through traditional means, however, is not considered likely, given the number of high-priority transit projects across the region. Although the City of Toronto affirmed the project as a transportation priority as recently as Spring 2019, no government funds have been allocated to extend the Waterfront LRT to the planned East Harbour transit station.[75] In fact, the TTC capital budget through 2028 does not allocate funding to even design the project, let alone build it, and therefore the most optimistic estimates do not expect rapid transit in the eastern waterfront until at least 2034.[76] Accordingly, without an intervention, the availability of rapid transit in Quayside, Villiers Island, and the adjacent Film Studio District is likely to lag behind development by many years.

Because rapid transit is the linchpin for waterfront growth and for achieving Waterfront Toronto's priority outcomes, Sidewalk Labs is prepared to assist with financing to accelerate the project. Sidewalk Labs' financing support, if needed, could take various forms depending on what the governments want, from pulling together a consortium to finance the entire extension to playing more targeted roles in addressing specific gaps in public-sector financing mechanisms that could prevent the project from moving ahead.

One possible approach is for Sidewalk Labs to offer credit support to facilitate the financing of the LRT extension, as part of a "value capture" strategy. In particular, the segments of the LRT in the IDEA District offer a potential use case for TIF. 📖

With TIF, the public sector borrows against the future increase in property tax revenue expected from construction of new large-scale infrastructure, such as transit. Typically, this involves the establishment of a government-sponsored special purpose vehicle to issue debt, with the proceeds paying to construct growth-producing infrastructure. The resulting increase in property tax revenues after construction — the tax increment — is earmarked to repay the bonds. Thus, TIF is considered a form of self-financing, where vital infrastructure pays for itself through the tax revenue it generates.

TIF has been effectively employed to fund numerous major transit and urban development projects, including in Calgary and Edmonton. For example, the Rivers District Community Revitalization Plan used TIF (referred to in Alberta as a Community Revitalization Levy) to finance $396 million in infrastructure funding for downtown Calgary, attracting nearly $3 billion in planned private development and causing residential property assessments to increase from $328 million to about $1.2 billion and non-residential property assessments to increase from $647 million to $1.8 billion.[77]

Importantly, the proposed LRT segments outside of the IDEA District — Segment 1, the portion of Segment 2 west of Bonnycastle Street, and the portion of Segment 3 north of Lakeshore Boulevard — are in areas that are already well developed and do not appear suitable for TIF. Accordingly, Sidewalk Labs believes these segments should be funded and financed in the traditional manner, through a partnership between the relevant orders of government. The segments are nevertheless critical to the viability of the project. Sidewalk Labs is therefore open to discussing how it could assist financially, particularly if a TIF approach proves feasible.

Assuming funding is secured for those segments, Sidewalk Labs proposes to extend credit support to accelerate the financing of the segments traversing the IDEA District. This offer seeks to address one of the traditional barriers to the broader use of TIF. Because the TIF special purpose vehicle has no cash or credit, investors typically require that government serve as a "backstop" to pay the cash interest owed to lenders during the period before development generates enough new property tax revenue to cover those costs. By serving as the initial backstop for financing these segments, Sidewalk Labs is prepared to relieve the public sector of a significant portion of this responsibility.

Sidewalk Labs would offer up to $100 million of credit support—up to $50 million for the portions of Segments 2 through 4 within the IDEA District and up to $50 million for Segments 5 through 7, to be repaid at a fixed rate of return. The financing would be offered at market rates to be negotiated — with a commitment from Sidewalk Labs to work with governments, pension funds, and other institutional investors to develop transaction structures to reduce the rate as much as possible while still attracting the necessary financing.

Notably, Sidewalk Labs has sized its credit support offer based on initial financial modelling of the potential TIF structure. The preliminary analysis, which would be refined with the assistance of public-finance experts and lender feedback, suggests that the credit support offered would be more than sufficient to address the timing gap discussed earlier.

📖

Because rapid transit is the linchpin for waterfront growth and for achieving Waterfront Toronto's priority outcomes, Sidewalk Labs is prepared to assist with financing.
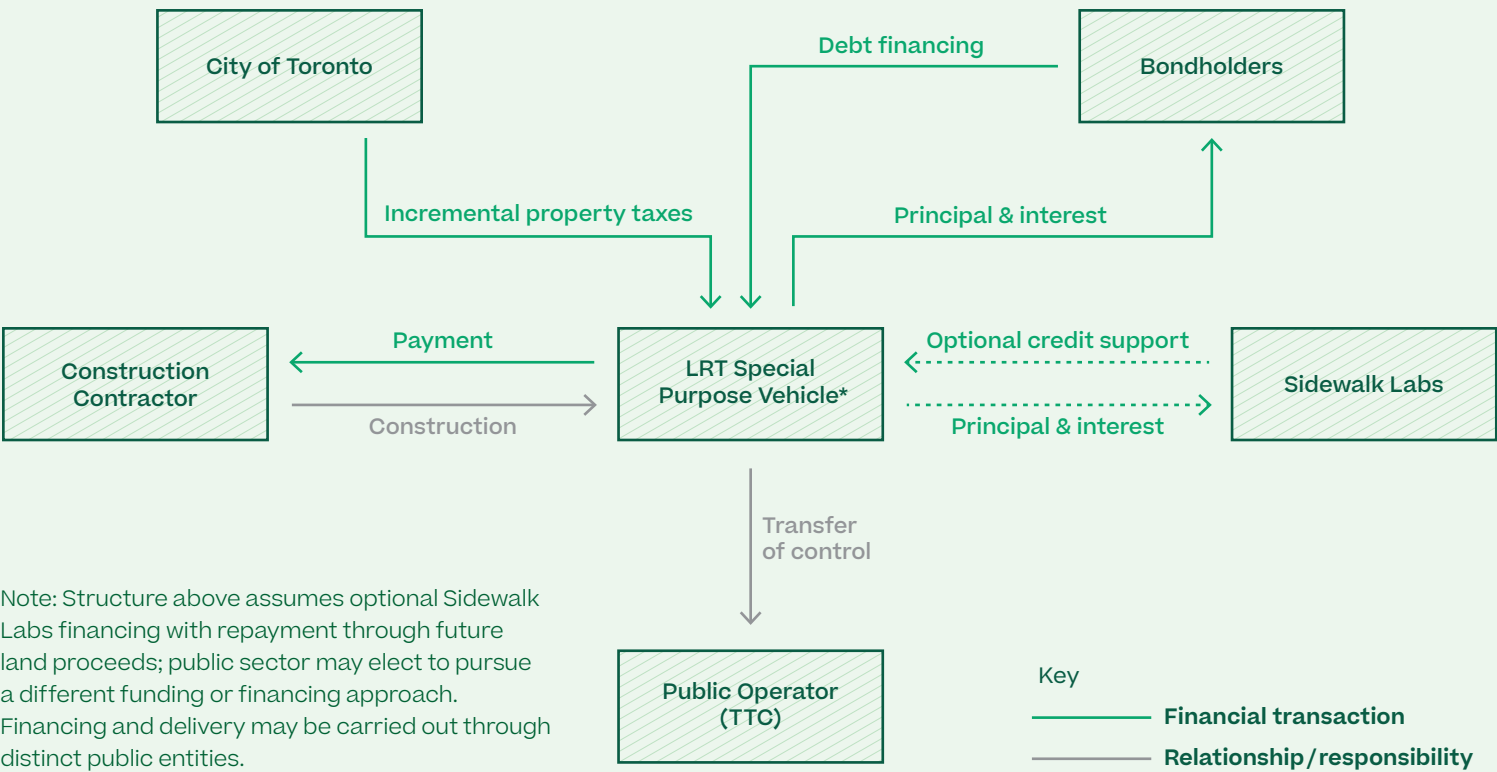
Based on this initial model, lenders under-writing a conservative downside scenario for financing the portions of Segments 2 through 4 within the IDEA District would require an interest backstop estimated at $15 to $25 million (as compared to Sidewalk's offer of $50 million in credit support for these segments). A preliminary analysis of the financing of Segments 5 through 7, meanwhile, suggests that a backstop may not be required at all.

While the financial offer assumes that the public sector decides to employ a TIF approach, Sidewalk Labs recognizes this is not the only option for financing. Sidewalk Labs stands ready to engage with Waterfront Toronto and the stakeholder governments on a mutually agreeable structure for accelerating the financing of the Waterfront East LRT through other means as well.

Of course, no financial support would be needed if the government funds the project itself or secures an alternative financing source. Regardless of how the light rail extension is financed, Sidewalk Labs does not seek to diminish the TTC's role as provider of public transit in Toronto, and expects that the TTC would own, operate, and maintain the LRT extension, and would collect and retain all fares.

Fig. 2.10

How tax-increment financing could fund the LRT

Note: Structure above assumes optional Sidewalk Labs financing with repayment through future land proceeds; public sector may elect to pursue a different funding or financing approach.
* Financing and delivery may be carried out through distinct public entities.

Role 4B:
Municipal infrastructure

Sewers, roads, public spaces, and other traditional forms of municipal infrastructure have been the backbone of city building for centuries. Upgrading this municipal infrastructure is necessary for economic progress in the eastern waterfront and is a prerequisite for the advanced systems and strategies called for in the MIDP. With little funding for this crucial infrastructure in the city's five-year Development Charge Background Study, which identifies Toronto's future growth forecast and associated growth-related infrastructure needs and costs, Sidewalk Labs is prepared to finance certain infrastructure, as necessary, to accelerate development, as detailed below.

Program

Municipal infrastructure consists of horizontal systems and facilitating sitework that follows city standards, connects to a larger city grid or network of facilities, and is operated and maintained by the city. Municipal infrastructure falls into the following categories:

Sitework. Includes demolition, ground improvement, remediation, and grading in future areas of public right of way, parks and open space.

Underground utilities. Systems include domestic water, sanitary sewer, and storm-drain conveyance, including downstream grey infrastructure and outfalls.

Public realm (surface and above). Refers to improvements within parks, plazas, promenades, and streetscape areas, including finish grading, trees, landscape planting, paving, stormwater treatment, furnishings, lighting, site civil, digital infrastructure, audio / visual equipment, security, and signature features like structural canopies and floating elements.

Shoreline. Includes lakefill, dockwall replacement and repair, and revetments.

Bridges. Includes pedestrian and vehicular bridges exclusive of bridges associated with LRT improvements covered separately in the LRT program.

The table below provides estimated total costs based on preliminary designs to construct municipal infrastructure for Quayside, Villiers West, and the IDEA District overall. Importantly, these cost estimates are presented for completeness, but are expected to change during design and development and based on new information. In addition, they exclude BAU horizontal avoided costs and do not account for financing costs or inflation.

When this volume went to print, Sidewalk Labs and Waterfront Toronto were engaged in active discussions about the actual costs associated with particular cost categories. These discussions could lead to revised cost estimates.

Fig. 2.11

Estimated costs for municipal infrastructure

	Quayside (Millions ±15%)	Villiers West (Millions ±15%)	IDEA District (Millions ±15%)
Estimated Cost	$240	$180	$1,860

Note: Figures in 2019 dollars; the equivalent total cost is adjusted for inflation when it is presented in Chapter 3.

Financing

In standard practice, the city levies development charges (DCs) on developers to fund municipal infrastructure and related work to support the increased services necessitated by new development citywide, including transit, life-safety facilities, parks and recreation, roads, utility infrastructure, educational facilities, public arts, and civic improvements. In accordance with the Development Charges Act (Ontario), the city conducts a five-year background study identifying priority projects. It then amends its DC rates based on the 10-year forecast for municipal infrastructure projects in the DC Background Study and the amount of new development expected to fund the work.

Historically, Waterfront Toronto would use land proceeds and infrastructure contributions, such as one in the East Bayfront zoning bylaw,

to fund a phased buildout. Some of these infrastructure costs would be recouped from later developers through front-ending agreements. This financing approach has a significant drawback: the capital needed to fund municipal infrastructure is often not available at the pace or scale required, causing horizontal development to proceed in a piecemeal fashion. The city approach to completing non-local infrastructure has similar drawbacks, proceeding in sporadic bursts based on a plan designated years earlier. These traditional approaches to financing and building municipal infrastructure would prevent or slow development and delay Waterfront Toronto in achieving its policy objectives.

The MIDP proposes constructing municipal infrastructure in phases ahead of the vertical development it supports. Accordingly, the project would incur infrastructure costs before developer contributions from those

vertical developments are available to pay for that infrastructure. Sidewalk Labs anticipates that Waterfront Toronto would deliver needed shoreline and sitework through traditional mechanisms within Quayside and Villiers West. For the rest of the municipal infrastructure needed for the IDEA District, Sidewalk Labs proposes front-end financing, to bridge the gap between when funds are needed to begin construction and when Waterfront Toronto realizes the revenue to pay for it.

Any optional financing for municipal infrastructure Sidewalk Labs arranges would carry a market rate of return to be negotiated. Sidewalk Labs is committed to working with government, pension funds, and other institutional investors to develop transaction structures that can reduce the rate as low as possible, while still attracting the capital necessary to finance the investment.

Because the public administrator would deliver substantial amounts of municipal infrastructure — infrastructure of a type typically funded by DCs — the public administrator would seek a reduction in the DCs developers would pay to the city. Specifically, the project would seek a full credit to the public art fee and a partial credit to the city standard DCs for district and citywide facilities it would deliver. This credit would be negotiated as part

of the Implementation Agreements. Future developers would then be obligated to pay for remaining city fees and DCs discounted by the amount of the credits.

Developers would then pay the public administrator a municipal infrastructure contribution (MIC) in the amount of the negotiated credits.

Thus, vertical developers would pay the same amount for municipal infrastructure as before: the combined cost of the reduced city fees and development charges plus the MIC would equal the standard city fees and DCs. The MIC funds collected would be applied to paying the outstanding costs of municipal infrastructure.

Based on current projections, after vertical developers make their infrastructure contributions there would be a funding shortfall of approximately $300 million (+/- 15%) at the completion of the IDEA District that could be funded through various sources, including the proceeds from the future public land sales.

As reflected in the table that follows and more fully described in the next section, vertical developers in the IDEA District would also make a local infrastructure contribution (LIC) equivalent to their avoided costs due to certain advanced systems.

Fig. 2.12
Financing municipal infrastructure
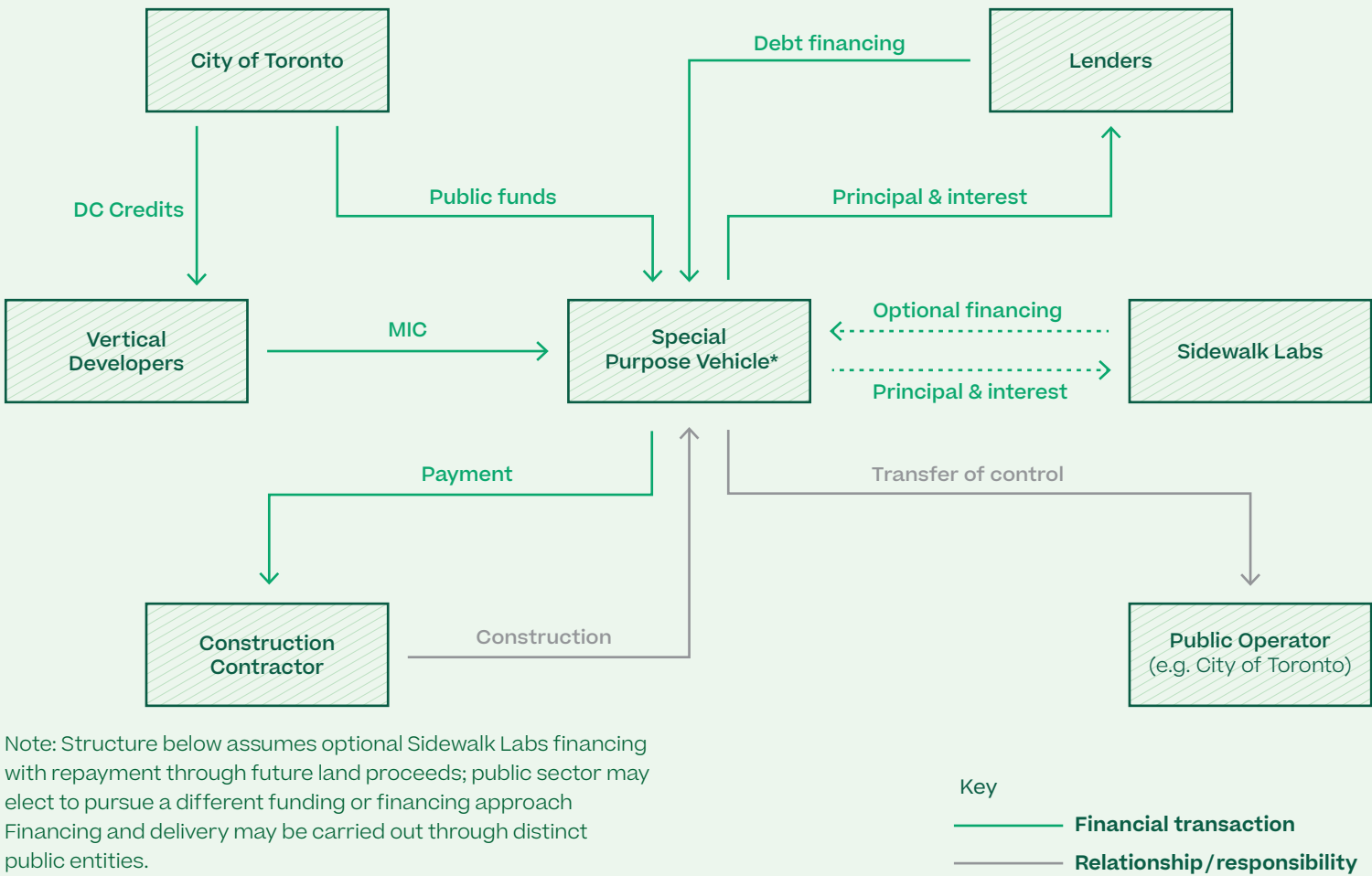
Note: Structure below assumes optional Sidewalk Labs financing with repayment through future land proceeds; public sector may elect to pursue a different funding or financing approach
* Financing and delivery may be carried out through distinct public entities.

Key
— Financial transaction
— Relationship / responsibility

A vision of the future Polson Quay neighbourhood in the River District.

Fig. 2.13

City fee & development charge credits and developer infrastructure contributions

Fee	Use	Payment	Source	Applicable To
Discounted City Fees and Development Charges	Citywide projects to support growth associated with new development	Developer to City of Toronto	Developer payment of published city fees and development charges discounted by amount of credits	Separate rates for residential and non-residential, discounted rate for affordable
Municipal Infrastructure Contribution (MIC)	Municipal infrastructure work delivered by project in lieu of fees and DC payment to city BAU horizontal avoided cost payment* to WTMA to subsidize dynamic streets in lieu of standard roads	Developer to public administrator	Developer payment in an amount equal to the credits	Separate rates for residential and non-residential, discounted rate for affordable
Local Infrastructure Contribution (LIC) (see Page 140)	BAU horizontal avoided cost payment* to advanced systems operators to subsidize advanced power grid and thermal grid in lieu of standard electric and gas distribution, including service connections BAU vertical avoided cost payment to cover capital costs of advanced systems that replace traditional building systems	Developer to public administrator	Contribution based on estimated avoided cost for standard electric and gas distribution, and other traditional building systems replaced by advanced systems	Market-rate residential only

* Sidewalk Labs may provide front-end financing.

Role 4C: Advanced systems

Advanced Systems consist of three categories:

Mobility. Advanced mobility systems that would be operated by WTMA. These include dynamic streets, the freight management system, the mobility subscription package, and the district parking management system

Sustainability. Advanced sustainability systems, which include privately operated horizontal infrastructure implemented at a district scale, to be overseen by the WSA. This encompasses privately operated horizontal infrastructure implemented at a district scale, such as the advanced power grid, thermal grid, waste management system, and stormwater management system

Digital Innovation. The digital communications network, which would be coordinated by the public administrator through Waterfront Toronto's broadband internet partner

Program

The table on the following page reflects preliminary cost estimates based on preliminary designs for the advanced systems in 2019 dollars, excluding District Parking Management and Mobility Subscription Package, for which estimates are not yet available. Importantly, these cost estimates are presented for completeness, but are expected to change during design and development, and do not account for financing costs or inflation. (See Page 92 for a complete description of the proposed systems.)

Financing

Prospective operators of advanced systems would commit to privately fund the design, construction, and operation of the advanced systems for a specified period. Funding for the capital costs of the systems would come from three sources:

Vertical developers

Assistance from Sidewalk Labs in the early phases

Future user rates

To ensure that user rates remain consistent with prevailing BAU rates, a key term of the master services agreement with the advanced system operator would be to cap user rates. In its financial models, Sidewalk Labs assumed that aggregate utility bills for end users could not exceed BAU rates by more than 5 to 10 percent.

Capital cost funding from vertical developers. Advanced systems would replace various horizontal and vertical systems that developers would pay for in the normal course. These include municipal infrastructure, which developers ordinarily pay for through development charges or deliver directly. The advanced systems also replace certain standard private systems that developers typically pay for directly — such as the thermal grid replacing traditional gas mains and service connections — and avoid the need for certain building systems, such as boilers and chillers.

Fig. 2.14
Preliminary cost estimates for advanced systems

Advanced System	Quayside & Villiers West (Millions ±15%)	Remainder of River District (Millions ±15%)	Total Cost (Millions ±15%)
Advanced Power Grid	$100	$510	$610
Thermal Grid	$90	$370	$460
Waste Management*	$10	$50	$60
Stormwater Management	$30	$120	$150
Freight Management*	$50	$370	$430
Dynamic Streets	$70	$290	$360
Total	**$350**	**$1,710**	**$2,070**

* Includes distribution infrastructure systems only. Building systems included in vertical proforma.
Note: Figures in 2019 dollars; the equivalent total cost is adjusted for inflation when it is presented in Chapter 3.

As discussed earlier with respect to municipal infrastructure financing generally, vertical developers would make a payment — referred to as a MIC — that is equivalent to the reduction in certain DCs for municipal infrastructure. A portion of the MIC would cover the dynamic streets that replace standard roads.

Similarly, where an advanced system replaces a BAU horizontal or vertical system that is typically funded by the vertical developer, Sidewalk Labs proposes that the vertical developer make a payment, referred to here as a local infrastructure contribution (LIC), equivalent to the avoided costs. In the case of BAU horizontal systems, specifically gas and power, these would be equivalent to the connection fees paid to Toronto Hydro or Enbridge. For replaced BAU vertical systems, these would be the building costs avoided, such as saving on the standard waste rooms, compactors, loading docks, and waste-operation staff due to the consolidated pneumatic waste system. The public administrator would then provide the LIC funds to cover a portion of the capital costs for the replacement system.

The total cost of discounted DCs plus district-specific MIC and LIC fees would equal the BAU cost of the standard DCs plus traditional developer costs for local infrastructure and building systems. The proposed approach therefore would not increase the size of the outlay for a developer or have a negative impact on residual land value. While the proposed distribution of infrastructure payments differs from BAU, the total outlay from a developer would remain the same.

Because MIC and LIC funds are only applicable to certain land uses, and the distribution of land uses varies by neighbourhood, these charges would be estimated for the entire district in advance and allocated accordingly. The estimate would be revised at the start of each new precinct to allow for incremental adjustments as the project progresses.

User rates and supplemental innovation investments.
Advanced system operators would also utilize user rates to recover capital costs and fund operational expenses. Operators

Fig. 2.15
Private funding for advanced system

The chart below details how advanced systems would be funded. The availability of the various funding streams varies by system.
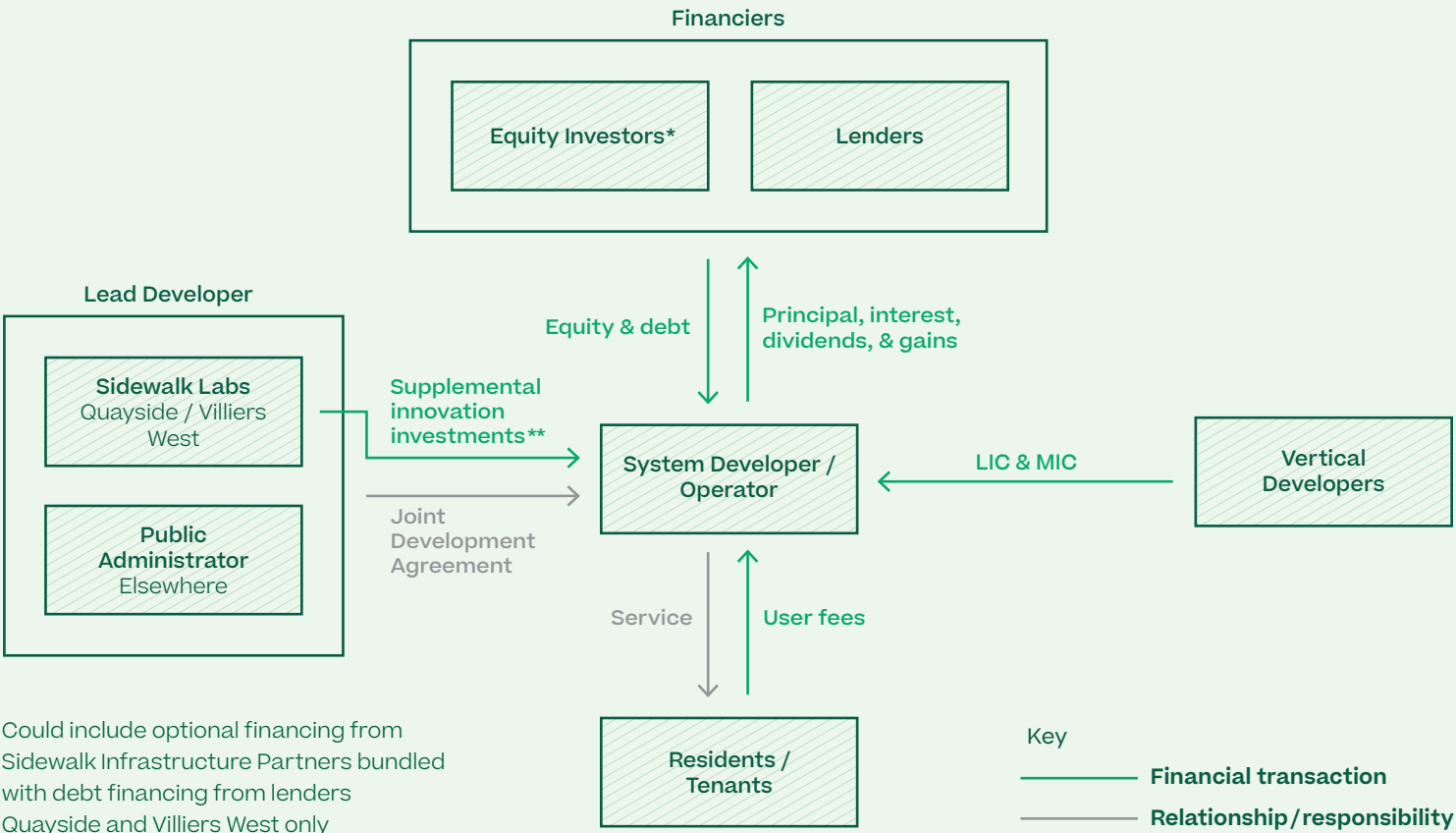
* Could include optional financing from Sidewalk Infrastructure Partners bundled with debt financing from lenders
** Quayside and Villiers West only

Key
Financial transaction
Relationship/responsibility

Fig. 2.16
Estimated supplemental innovation investments

Advanced Systems (Quayside and Villiers West)	Advanced Power Grid (Millions ±15%)	Thermal Grid (Millions ±15%)	Total Cost (Millions ±15%)
Total system capital costs*	$102	$90	$192
Capital costs recoverable through user rates and developer contributions**	$83	$64	$147
Supplemental innovation investment (difference)	**$19**	**$26**	**$45**

* System capital costs reflect preliminary estimates, which are subject to change.
** End user rate target of no greater than 10 percent higher than BAU utility rates.

would be contractually required to keep the rates charged to residents and businesses in line with prevailing BAU rates. Sidewalk Labs has completed financial modelling for each proposed system targeting utility bill costs for end users of no more than 5 to 10 percent higher than current BAU rates. This deviation reflects the premium service, which is expected to be less volatile than BAU utilities. (As referenced later, in certain instances, aggregate utility rates are expected to fall.)

The modelling indicates that developer contributions (i.e. the MIC and LIC) together with acceptable user rates could not cover the full capital costs of two advanced sustainability systems: the advanced power grid and the thermal grid. To cover this shortfall in the early stages and make these systems market viable, Sidewalk Labs is prepared to make "supplemental innovation investments." As reflected in the table table on the previous page, Sidewalk Labs estimates that supplemental innovation investments of about $45 million would be needed. Subsequent phases are not anticipated to require supplemental innovation investments due to economies of scale.

Sidewalk Labs commissioned a preliminary cost-of-living analysis to determine how utility costs in the IDEA District would compare with other neighbourhoods in Toronto. This analysis

found that, depending on household composition and unit size, average utility costs in the IDEA District would be between 1.4 percent lower and 4.9 percent higher than standard rates. This is despite delivering a level of sustainability unavailable in other areas of the city.

In the event that a proposed system requires funding that materially exceeds the anticipated investment, Sidewalk Labs would work with Waterfront Toronto to bring down capital costs or identify alternative approaches that accomplish the project objectives.

The avoided cost contributions (i.e. MIC and LIC) would defray a portion of the capital costs for advanced systems. While user rates would be available to cover other capital costs, these revenues only accrue after the advanced system is operational. The result is that the advanced system operators would likely require financing to deliver a working system.

Due to the timing gap between when the payment is due and when the developer payment is available, Sidewalk Labs is proposing to provide front-end financing for avoided cost contributions to advanced systems operators. This financing would be reimbursed through MIC and LIC by the public administrator, subject to the rate of return associated with municipal infrastructure.

Summary of funding sources for advanced systems

The table below describes three types of private capital cost funding available to advanced system operators — two from charges for vertical developers and one from Sidewalk Labs. Combined with user rates, these constitute the primary sources of revenue for advanced system operators.

Contribution	Applied To	Payer	Timing
BAU Horizontal Avoided Cost Payment* (MIC or LIC)	Costs that a horizontal developer would have incurred in a BAU development to deliver enabling infrastructure	Vertical developer to operator via the public administrator MIC for roads LIC for gas and electrical distribution	Issuance of building permit
BAU Vertical Avoided Cost Payment* (LIC only)	Costs that a vertical developer would have incurred in a BAU development to deliver building services	Vertical developer to operator via the public administrator	Issuance of building permit
Supplemental Innovation Investments	Additional contribution needed to make the system economically viable in early phases due to higher cost of first installation and lesser economies of scale prior to expansion across the IDEA District	Sidewalk Labs to operator	At operator's notice to proceed for construction

* Only available for specific systems. For further detail, see Page 144.

Fig. 2.18

BAU horizontal systems compared with advanced systems

The table below compares BAU horizontal systems — the conventional systems that deliver services, such as heating and electricity, to multiple development sites — to the advanced systems proposed to replace them.

System	BAU Horizontal Payment	BAU Horizontal System Replaced	Horizontal Advanced System
Advanced Power Grid	Yes	Electric distribution and system-wide improvements	Electric distribution and system-wide improvements, master meter, Distributed Energy Resource Management Systems, photovoltaic battery storage, predictable billing
Thermal Grid	Yes	Gas distribution for heating and hot water, electric distribution for cooling, system-wide improvements	Thermal loop that could include neighbourhood energy plants, geoexchange, and / or heat recovery
Waste Management	No	N/A (curbside pickup)	Pneumatic waste collection tubes to a central collection facility with user feedback on community recycling
Stormwater Management	No	N/A (stormwater management in park parcels carried separately)	District green infrastructure with continuous monitoring and active control (CMAC)*
Freight Management	No	N/A	Network of tunnels, centralized neighbourhood logistics hub and fleet of delivery robots
Dynamic Streets	Yes (MIC)	Standard pavement section, traffic signals, static striping, signage	Modular paving with heating, traffic management, dynamic lighting, signals, and signs
District Parking Management	No	On-street parking available	Short-term visitor parking managed through shared off-street parking facility
Mobility Subscription Package	No	N/A	A subscription for transit, bike-share, car-share, and other services that provide discounts and other incentives to use modes other than private car
Digital Communications Network	Not included in advanced system procurement		

* Stormwater management in parks treated as part of the municipal infrastructure cost. Green infrastructure provides incidental benefit to street right-of-way (ROW).

Fig. 2.19

BAU in-building systems compared to advanced building systems

The table below provides a detailed comparison of the BAU vertical systems — the elements inside a conventional building necessary to deliver heating, electricity, or other services — to the advanced building systems that would replace them.

System	BAU Vertical Payment	BAU In-Building System	Advanced Building System
Advanced Power Grid	Yes	Building meters, unit submetering, building transformers and switchgear	Advanced submetering and automation
Thermal Grid	Yes	Boilers for heating and hot water, chillers for cooling, building pumps	May include neighbourhood or building waste-heat recovery, building energy plants, building energy transfer stations, or similar strategies
Waste Management	Yes	Vertical chutes, waste rooms, compactors, loading docks, and waste-operations staff	Vertical chutes, pay-as-you-throw interface and valve rooms
Stormwater Management	Yes	Stormwater management infrastructure, such as detention tanks and rainwater treatment for reuse	Addition of green infrastructure with CMAC to offset stormwater infrastructure in buildings
Freight Management	No	Individual loading docks and building-operations staff	Smart containers and delivery robots
Dynamic Streets	Yes	Standard pavement section, street lights, striping, signage, and traffic signals	Modular paving with heating, traffic management, dynamic lighting, signals, and signs
District Parking Management	No	Number of parking spaces for each building dictated by bylaw	Pooled on-site and off-site shared parking facilities, managed by attendants, and pricing and regulation strategies
Mobility Subscription Package	No	N/A	N/A
Digital Communications Network	Not included in advanced system procurement		

Additional expenses

Each advanced system operator would be responsible for certain fees, including compensation of the lead developer for advanced systems (i.e. initially Sidewalk Labs and later the public administrator) and covering the costs of the Waterfront Sustainability Association to maintain ongoing operational oversight of advanced systems.

Preliminary design fees.
The operators would reimburse the lead developer of advanced systems — Sidewalk Labs at Quayside and Villers and the public administrator elsewhere in the IDEA District — for the costs of preparing any preliminary designs, issued with the procurement documents, required to supplement the ITMP for certain systems. As applicable, the procurement documents will identify the preliminary design fees as a lumpsum amount, and payment will be due at the time of construction notice to proceed.

Advanced system development fees.
Third-party operators would compensate Sidewalk Labs directly for its responsibilities as lead developer of advanced systems at Quayside and Villiers West. This includes reimbursement for the costs of preparing the preliminary designs, plans, and specifications issued with the procurement documents for certain systems, as needed. Any applicable preliminary design fees would be identified in the procurement documents as a lump-sum amount and payment would be due at the time of construction notice to proceed. 📖

The operators would also pay advanced system development fees applied as a percentage of project costs specified up front in the procurement documents. This fee would vary based on the degree of Sidewalk Labs' participation required. Where the operator is responsible for a turnkey design-build-operate approach, and where Sidewalk Labs' participation would be limited to coordination of design and delivery, the advanced system development fee is expected to be in the range of 2 percent of system costs. Where Sidewalk Labs serves as program manager in a co-development role with the operator, a fee of up to 7 percent would be negotiated with the operator on a system-by-system basis.

In later phases, when the public administrator assumes the lead developer role for advanced systems, the operator would similarly compensate the public administrator for its work, including preliminary design fees, as applicable, and a program management fee of up to 7 percent of system costs. The public administrator would negotiate these fees directly with operators.

Public administrator sustainability fees.
The Waterfront Sustainability Administrator's general and administrative expenses and the cost of financial, technical, and legal consultants would be charged to the operators on a prorated basis relative to their revenues. The amount of these fees would vary depending on the costs incurred and the nature and extent of the operations. Legal fees associated with any failure to perform, arbitration, or termination would be borne by the operator at fault. See Chapter 1 for further details about the WSA.

Optional financing from Sidewalk Infrastructure Partners

Sidewalk Labs is on the frontlines of the design and implementation of new advanced systems that would enable communities to achieve aspirational sustainability and mobility goals. But a gap currently exists in the ability to fund these systems; because the risk-return profile of advanced infrastructure systems differs from traditional infrastructure investments, traditional infrastructure investors may shy away from the investment. Sidewalk Labs has created Sidewalk Infrastructure Partners (SIP) — a company uniquely focused on technology-enabled infrastructure — to fill this gap and create a path for infrastructure delivery that both proceeds at a rapid pace and achieves ambitious goals for mobility, sustainability, and other public objectives. By helping to close the infrastructure funding gap, this approach would lower the cost of capital and thereby reduce costs for those who use advanced systems.

The MIDP proposes a series of advanced systems that are less familiar to the market and may therefore be more difficult to finance at reasonable rates. SIP financing could

be instrumental to addressing this financing challenge — and to identifying the lowest possible cost of capital to fund the design, construction, and operations of the proposed systems. Working with potential lenders, including those with an interest in advancing Canadian infrastructure, SIP would seek to reduce certain risks associated with the new systems, such as absorption risk (i.e. the risk that buyers or renters might be more hesitant to move to a unit with an advanced system). This could attract investors who might not otherwise participate. SIP could then structure a transaction that bundles debt financing negotiated with lenders with equity financing offered by SIP for multiple advanced systems.

The SIP investment and financing package would be offered as an option for the advanced system operator and described in the request for proposals or other procurement documents. This eliminates the need for an operator to provide its own capital, expanding the pool of potential respondents. The financing would therefore enable the best potential partners to respond, ensuring not only world-class infrastructure development but also reducing costs for the users of advanced systems.

Importantly, SIP would not privatize or operate Toronto's existing traditional infrastructure, or affect expansions of traditional infrastructure systems (such as roads, highways, and transit) by the public or private sector. Moreover, procurement respondents who wish to control the financing or retain ownership of the asset as part of their long-term business model may use their own source of capital. In this event, SIP would serve as a market maker, setting a benchmark for procurement respondents with their own capital in a competitive process with other respondents.

Sidewalk Infrastructure Partners

Sidewalk Labs has created Sidewalk Infrastructure Partners (SIP), a unique company backed by Sidewalk Labs and Alphabet that seeks to bring together world-leading partners to focus on catalyzing technology-enabled infrastructure. Emerging technologies such as autonomous vehicles, distributed renewable energy, real-time controls, robotics, and machine learning are poised to both disrupt and enable infrastructure. Historically, infrastructure as an asset class has been resistant to innovation, resulting in many traditional infrastructure investors mispricing the risks of technology disruption and failing to capitalize on new infrastructure opportunities enabled by technology. SIP hopes to help close this gap.

SIP aims to catalyze innovation in both companies applying technologies to enhance infrastructure performance and underlying advanced infrastructure projects utilizing such technologies. SIP will focus on verticals including advanced mobility and energy, water and waste, and digital and social infrastructure throughout North America, including providing the option of financing for advanced systems. Bringing together an experienced team with world-leading partners, SIP will seek to facilitate the application of technology to enable more sustainable, distributed and intelligent urban infrastructure, creating jobs, improving mobility, and advancing cleaner water and waste and more environmentally friendly and renewable energy.

Transaction Economics

Introduction

Overall, the transaction structure seeks to reflect Sidewalk Labs' final transaction principle: to align the interests of Sidewalk Labs, Waterfront Toronto, its stakeholders, and the public.

The proposed transaction meets that goal, delivering substantial economic value to the public sector while enabling Sidewalk Labs to earn a reasonable and fair return for its multiple roles (as detailed fully in Chapter 2), and providing flexibility to government in how the project is implemented — particularly related to infrastructure financing. This chapter, which includes the transaction's forecasted economics, addresses Sidewalk Labs' investments, the investments by third parties, the costs for all parties, and the project's expected impact for the public sector, Sidewalk Labs, and the people of Toronto.

The project would deliver billions in new investment dollars, initially from Sidewalk Labs and partners, and spurring many times that from others — establishing a new model for sustainable city building and achieving the priority outcomes of Waterfront Toronto. The transaction and the economic activity it would generate would deliver enormous value to the City of Toronto, the Province of Ontario, and the people of Canada — as shown in analyses by Sidewalk Labs and urbanMetrics, a third-party economic impact consultancy — at a scale far greater and a pace far faster than the baseline scenario.

In its entirety, the proposal contemplates leveraging private-sector resources to deliver over 30 percent more square feet of development on a timeline at least 10 years faster than the current plan. Under a baseline scenario — developed by urbanMetrics and based upon the Portlands Planning Framework — the IDEA District geography would see 24.4 million square feet of development by 2050. By contrast, implementing the MIDP would produce 32.8 million square feet of development a full decade ahead of schedule, by 2040.

This accelerated development would include a significantly (almost two times) larger commercial component — catalyzed and made economically viable by the relocation of Google's Canadian headquarters to an Innovation Campus on Villiers Island — that employs more people, generates greater tax revenue, and adds more to the Canadian GDP than would a more single-use, residential neighbourhood.

According to the analysis by urbanMetrics, in total, the project would generate approximately $4.3 billion in annual municipal, provincial, and federal tax revenues; add $14.2 billion annually to the Canadian gross domestic product (GDP); and create a total of 44,000 permanent jobs (93,000 total direct, indirect, and induced) by 2050.[78] To construct a baseline for comparison purposes, urbanMetrics assumed that baseline development would proceed based 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). As shown on the table below, the project would generate $2.8 billion more in annual tax revenues (including personal tax, corporate tax, property tax, and other taxes), a $9 billion increase in GDP, and 27,000 more jobs than the baseline scenario.

Fig. 3.1

Summary of economic impact over baseline in 2050

	Baseline Scenario	IDEA District	Improvement Over Baseline
Total Tax Revenues (Annual)*	$1.5 billion	$4.3 billion	+$2.8 billion (187% increase)
GDP (Annual)	$5.1 billion	$14.2 billion	+$9.0 billion (178% increase)
Direct Job Growth (Total)	17,000 jobs	44,000 jobs	+27,000 jobs (159% increase)

Note: The above figures are from an economic analysis and report provided by urbanMetrics to Sidewalk Labs, and are presented in 2019 dollars.[79]

* Other taxes include: Federal Trading Profits, Federal Gas Tax, Federal Excise Tax, Federal Duty Tax, Federal Environmental Tax, Federal Air Transportation Tax, Federal Sales Tax, Import Duties, Federal Taxes on Production, Provincial Environment Tax, Provincial Gallon Tax, Provincial Trading Profits, Provincial Gas Tax, Provincial Amusement Tax, Other Provincial Consumption Taxes, Provincial Sales Tax, Provincial Harmonized Sales Tax, Provincial Taxes on Production, Municipal Amusement Tax, Municipal Sales Tax and Municipal Taxes on Production.

Fig. 3.2

Increase in City of Toronto revenue streams through 2050

Revenue Stream	Baseline Scenario	IDEA District	Improvement Over Baseline
City Property Taxes (Cumulative)	$1.6 billion	$2.8 billion	+$1.2 billion (+75%)
Development Charges (Cumulative)	$2.1 billion	$3.8 billion	+$1.7 billion (+81%)
Total Proceeds From the Sale of Public Land	$0.9 billion	$2.4 billion	+$1.5 billion (+167%)
Total	**$4.6 billion**	**$9.0 billion**	**+$4.4 billion (+96%)**

Note: The above figures are adjusted for inflation.

Beyond these broader benefits, Sidewalk Labs' analysis suggests that the project would increase and accelerate the receipt of three major municipal revenue streams: property taxes, city fees and development charges, and land proceeds from the sale of public land within the project area.

The value created for the public sector on this accelerated timeline results from a series of upfront investments in innovation from Sidewalk Labs, and the implementation of the robust public-private partnership described in the previous two chapters.

In aggregate, Sidewalk Labs and its partners would invest an estimated $900 million in the four roles described in Chapter 2, in addition to reinvesting over $2 billion of proceeds received as the project progresses. This total does not include an additional $400 million of potential financing that Sidewalk Labs would offer as an option to the public sector as part of the broader transaction for the LRT expansion and municipal infrastructure delivery, nor the almost $1.2 billion in total capital (equity and debt) that Sidewalk Labs expects to enable for the delivery of advanced systems. It also does not include construction financing that Sidewalk Labs would secure as part of its proposed real estate development at Quayside and Villiers West.

The chart on the following page summarizes the sources and uses of funds for the entire $39 billion project, identifies where Sidewalk Labs is providing funding or financing (including optional financing offered to the public sector), and shows the estimated third-party real estate investment expected to follow — over $29 billion, which Sidewalk Labs projects will be the total amount of money invested by others to develop the entirety of the IDEA District beyond Quayside and Villiers West.

The project would generate more revenue for the City of Toronto, and on an accelerated timeline, from three sources: property taxes, city fees and development charges, and land proceeds.

Fig. 3.3

Sources and uses of funds

Uses (Preliminary Analysis for Indicative Purposes)	Uses ($M)	Sources (Preliminary Analysis for Indicative Purposes)	Sources ($M)	Sidewalk Labs (and Partners) Funding & Financing Support ($M)
Real Estate (Quayside + Villiers West ONLY)				
Hard Costs[A]	2,840	Sidewalk Labs (and Partners) Equity Investment[B]	595	595
Soft Costs (incl. design, contingency, G&A, land payment, taxes, interest, and fees)[C]	1,090	Sidewalk Labs (and Partners) Equity Investment in Below-Market Housing[B]	110	110
		Construction Financing	735	
		Reinvested Proceeds (Reinvested Equity)	2,405	
		Government Affordable Housing Grants[D]	85	
Total Real Estate Uses	**3,930**	**Total Real Estate Sources**	**3,930**	**705**
LRT				
Total Capital Costs[E]	430	Debt Financing (backed via value capture mechanism)[F]	430	
		Traditional Government Funding[G]		
Total LRT Uses	**430**	**Total LRT Sources**	**430**	
		Optional Sidewalk Labs Credit Support to Fill Timing Gap in Funding[H]		100
Municipal Infrastructure (IDEA District)[I]				
Total Capital Costs	2,340	Traditional Government Funding[G, I]	150	
		Municipal Infrastructure Contribution - Muni (excludes Roads)[J]	1,860	
		Additional Public Sources	330	
Total Municipal Infrastructure Uses	**2,340**	**Total Municipal Infrastructure Sources**	**2,340**	
		Optional Sidewalk Labs Credit Facility to Front-End Infrastructure[H]		300

Uses (Preliminary Analysis for Indicative Purposes)	Uses ($M)	Sources (Preliminary Analysis for Indicative Purposes)	Sources ($M)	Sidewalk Labs (and Partners) Funding & Financing Support ($M)
Advanced Infrastructure (IDEA District)				
Total Capital Costs	2,670	Third-party Financing, incl. Equity + Debt (potentially SIP)	1,165	
		Local Infrastructure Contribution - BAU Horizontal Costs	330	
		Local Infrastructure Contribution - BAU Vertical Costs	645	
		Municipal Infrastructure Contribution - Roads	485	
		Sidewalk Labs Equity (Supplemental Innovation Investment)[K]	45	45
Total Advanced Infrastructure Uses	**2,670**	**Total Advanced Infrastructure Sources**	**2,670**	**45**
Additional Investments				
Tall Timber Factory	80	Sidewalk Labs (and Partners) Equity[B]	90	90
Venture Fund	10			
Total Additional Investments Uses	**90**	**Total Additional Investments Sources**	**90**	**90**
Additional Investments without Direct Return				
MIDP Investment	65[L]	Sidewalk Labs Equity	75	75
Urban Innovation Institute	10			
Total Additional Investments without Direct Return Uses	**75**	**Total Additional Investments without Direct Return Sources**	**75**	**75**
Total Uses	**9,535**	**Total Sources**	**9,535**	**915 (1,315 with optional financing)**
Third-Party Real Estate (IDEA District, excluding Quayside and Villiers West)				
Real Estate Uses[M]	29,130	Third-Party (Non-Sidewalk Labs) Equity + Debt	29,130	
Total Third-Party Real Estate Uses	**29,130**	**Total Third-Party Real Estate Sources**	**29,130**	
Total Uses with Third-Party Real Estate	**38,665**	**Total Sources with Third-Party Real Estate**	**38,665**	

Note: The above figures are adjusted for inflation.
A Inclusive of above-standard costs incurred by Sidewalk Labs as part of the innovation agenda.
B "Sidewalk Labs (and Partners) Equity" refers to equity from Sidewalk Labs and potential local development/capital partners.
C Additional density, which would increase all costs related to the project, could also enable a larger land payment.
D Reflects existing government affordable housing programs.
E Total capital cost for LRT includes the portions of Segments 2 and 4 within the IDEA District, as well as Segments 5 through 7, as defined in Chapter 2.
F Third-party debt (or government bonds) could be repaid by incremental property taxes or other source identified by the public sector.
G Use of traditional government funding could decrease or eliminate reliance on value capture mechanisms.
H Credit support to be provided in exchange for a fixed market-rate return, to be negotiated.
I Includes sitework and shoreline for Quayside and Villiers West.
J Municipal infrastructure contributions are paid by vertical developers to fund the project's municipal infrastructure, in an amount up to the credit received against city fees and development charges; if municipal infrastructure contributions are not sufficient to fund the entirety of the required infrastructure, additional sources such as land proceeds or traditional government funding would need to be utilized; excludes municipal infrastructure contribution to roads.
K Size of innovation investment reflects current equity injection necessary at Quayside and Villiers West to achieve business as usual user utility rates.
L MIDP Investment reflected in CAD; equivalent to stated commitment of USD $50M.
M Third-party real estate costs reflect Sidewalk Labs' internal projection of the third-party real estate catalyzed in the broader IDEA District by the project; at this geography, Sidewalk Labs will not have development rights or control over vertical development.

Sources and Uses of Funds

Real estate at Quayside and Villiers West

In accordance with the transaction principles, Sidewalk has designed a comprehensive transaction framework that would ensure public sector control, deliver needed infrastructure, and, alongside local partners, utilize Sidewalk Labs' private-sector capital in targeted ways to fund an ambitious innovation agenda (and take the associated risk) and accelerate the delivery of the overall project. The result is a holistic, estimated $39 billion dollar project that achieves Waterfront Toronto's priority outcomes.

Sidewalk Labs' role as developer of real estate and advanced systems at Quayside and Villiers West is core to both achieving the project's objectives and its commercial viability. This role includes partnering to deliver two early-phase real estate development projects at Quayside and Villiers West at an estimated combined total cost of $3.9 billion. These two projects, totalling approximately 5.4 million square feet (approximately 16 percent of the IDEA District's proposed 33 million square feet, and approximately 7 percent of the eastern waterfront by land area) would be the proving ground, where Sidewalk Labs would make special investments in order to demonstrate the impact and prove the financial viability of its innovations.

To deliver the combined program at Quayside and Villiers West, Sidewalk Labs would bring together funding from several sources, including an equity commitment from Sidewalk Labs and its partners, construction loans, certain existing affordable housing programs, and the reinvestment of proceeds received as the project progresses (such as proceeds from condo sales), each of which are standard sources of funds in traditional real estate projects. But Sidewalk Labs' approach includes two unique aspects. The first is an additional equity investment to increase the amount of below-market housing at Quayside and Villiers West from the currently mandated 20 percent to 40 percent. This affordable housing investment totals $110 million for Quayside and Villiers West.

The second is accepting as part of its equity commitment the above-standard costs required to implement the innovation agenda at Quayside and Villiers West, which may reduce returns.

Volume 1 and Chapter 2 of this volume provide more detail on the program and innovation agenda proposed in Quayside and at Villiers West to deliver on Waterfront Toronto's priority outcomes.

Because many of the innovations initiated in Quayside only become (1) financially viable, (2) effective in advancing Waterfront Toronto's priority outcomes, or (3) both, when extended to a broader geography, Quayside in isolation is anticipated to result in subpar returns. However when considered in aggregate with the proposed development at Villiers West, Sidewalk projects the combined real estate project to result in a blended return in line with market expectations for real estate development, in large part due to the value the Google Canadian headquarters brings to the Villiers West site.

Quayside real estate

The Quayside plan is only feasible if all parties recognize that the risk profile associated with forging new development models and proving the effectiveness and financial viability of innovative solutions is fundamentally different than the risk profile of a market-standard project. This is precisely the obstacle that limits meaningful innovation in the urban environment. Sidewalk Labs' proposal offers a roadmap for overcoming this obstacle, while ensuring that the interests of Sidewalk Labs and the public sector remain aligned as the project progresses.

First, Sidewalk Labs is prepared to work with local partners, lenders, and other market participants to finance the development of Quayside. Second, Sidewalk Labs is prepared to bear the cost of the research and development embedded in the Quayside development program. Chapter 6 discusses a range of strategies Sidewalk Labs proposes to mitigate the risk of innovative solutions for the governments and Waterfront Toronto.

Under terms to be detailed in the Implementation Agreements, Sidewalk Labs and a Sidewalk Labs-led consortium of local development partners would be responsible for funding (via debt, equity, and other sources, such as pre-sales) the development of Quayside, at an estimated total cost of approximately $2 billion. This total cost reflects the higher-than-market costs of the innovation agenda, such as higher build costs to prove a new model of advanced timber construction; higher soft costs and contingencies to integrate innovations like Shikkui plaster and digital electricity into a single building design for the first time and obtain the necessary approvals; and extra investment to make ground-floor spaces flexible to enable more community uses and a diversity of retail spaces. It also results in a program with greater-than-standard revenue risk, such as residential units with less parking and more buildings that combine both residential and commercial uses, each of which could contribute to lower condo prices and lower rents.

In taking responsibility for delivering this program, Sidewalk Labs and its local partners would take the risks and receive the traditional revenue streams associated with a real estate project, including rental income, unit and asset sales, developer fees, and income from capital events.

Approach to valuation and payment to Waterfront Toronto.
Sidewalk Labs proposes to use the following methodology to agree upon a purchase price with Waterfront Toronto for the Quayside properties. This methodology relies upon identifying the value of that land under three scenarios utilizing a "residual land value" approach. This approach involves estimating the expected revenues and costs of the project and then applying a standard developer

return to obtain the fair market value of the development (the residual).

The first scenario used to analyze the value of Quayside would be a "highest and best use" scenario, in which a real estate developer would deliver a project that generated the highest returns possible under the existing zoning and other requirements, such as Waterfront Toronto's 20 percent affordable housing mandate. This scenario would result in the highest potential land payment to Waterfront Toronto and a development that primarily consists of condos, with minimal retail or commercial space. This scenario assumes the developer delivers condo buildings that reflect a unit-type mix (more studios and one-bedrooms), level of finish, and build cost that maximize its profit.

The second scenario used to analyze the value of Quayside would be a "policy proposal" scenario, in which a real estate developer would deliver a project that had additional requirements from Waterfront Toronto that reflect the organization's stated objectives. This project might have more rental housing, more commercial space, more sustainable buildings, more community uses, and less density to match the vision in the East Bayfront and Keating Channel Precinct plans. This scenario would result in a discounted land payment to Waterfront Toronto because these additional requirements would decrease the price that a developer could pay to Waterfront Toronto while still achieving a market return. For example, certain sustainability requirements lower the land value by increasing construction costs without a matching revenue offset (such as passive house facades, which are more expensive but may not command a sufficient market premium to cover the higher costs). Other requirements lower the land's value by reducing its revenue potential. For example, dedicating a higher percentage of units to below-market housing would lower the revenue to a developer without changing its cost basis. Similarly, shifting residential square footage to less profitable retail space, as is necessary to create a true mixed-use community, would decrease the value of the land to a developer. This valuation approach is commonly utilized for the disposition of publicly held land — including by Waterfront Toronto in its disposition of the West Don Lands.

The third scenario used to analyze the value of Quayside would be an "innovation" scenario, which factors the additional costs and requirements of the proposed innovation agenda into the valuation. As detailed in Volume 1 and earlier in this document, this project would include 40 percent below-market housing, use tall timber for all buildings, and employ a flexible ground-floor program with increased community and retail space. This scenario would result in further reductions to land value because the additional prototyping costs and decreased revenue potential would further diminish a developer's ability to achieve a market return. As previously noted, these higher-than-market costs are due to many of Sidewalk Labs' innovations not reaching market viability until they are deployed across a larger geography.

After aligning on these three valuations with Waterfront Toronto and reviewing them with neutral, third-party market experts, Sidewalk Labs would propose to pay Waterfront Toronto a price that reflects the second scenario — the "policy proposal" valuation — while agreeing to bear the cost to deliver the program outlined in the "innovation" scenario. This construct places the innovation risk and cost on Sidewalk Labs while recognizing that Waterfront Toronto would receive some of the value for the land in a direct payment and some by achieving the policy objectives it laid out in the Quayside RFP and prior precinct planning.

In its internal analysis, Sidewalk Labs projects that the difference between the value of the Quayside lands in the second and third scenarios is approximately $115 million. This $115 million discount, realized through foregone profit, represents the investment that Sidewalk Labs is making at Quayside to pilot the innovation agenda and the reason for Sidewalk Labs' anticipation of subpar returns for that initial phase of the project. Specifically, Sidewalk Labs projects approximately 50 percent of the $115 million would be used to fund the additional 20 percent below-market housing units, bringing the total below-market program in Quayside to 40 percent, since many of Sidewalk Labs' proposed affordability innovations can only be realized at scale. The remaining 50 percent would fund a series of other innovations, such as the flexible ground-floor stoa, increased soft costs, and additional

commercial space, included in Sidewalk Labs' proposed plan.

A note on density.
Sidewalk Labs' proposed 2.65 million-square-foot program for Quayside is lower than the approximately 3.2 million square feet allowable in the current zoning.[80] When crafting the Quayside plan, Sidewalk Labs made the decision to utilize less than the maximum available density to prioritize the innovation agenda — namely, the implementation of an entirely tall timber program designed to meet Waterfront Toronto's sustainability and affordability goals, as well as decisions regarding building form, cultivating a mix of uses, and prioritizing community and retail space.

Initial study suggested that engineering constraints limited tall timber construction to 30 storeys, and Sidewalk Labs created a plan that reflected that limitation. Over the past 18 months, new work undertaken by Sidewalk Labs' buildings team in conjunction with a team of tall timber experts suggests that, by the time Quayside is developed, wood buildings of up to 35 storeys may be possible. If Sidewalk Labs can increase the density in Quayside without impeding the innovation agenda, Sidewalk Labs would seek to increase the amount of residential space on the site while maintaining the same housing mix, including the 40 percent below-market program, and staying within the existing zoning envelope. In that scenario, the higher density would increase the expected value of both the second and third scenarios described above, enabling a larger payment to Waterfront Toronto for the Quayside lands, pending the larger transaction structure.

Scenario analysis and risk management.
The adjusted land price is designed to account for factors limiting the profit potential of the project. To protect Waterfront Toronto if Quayside's returns are higher than anticipated, Sidewalk Labs proposes to pay Waterfront Toronto an earnout — a share of upside value above an agreed-upon return threshold — from the Quayside proceeds. This would ensure that both parties benefit if Quayside as a stand-alone project exceeds that threshold.

Villiers West real estate

By successfully advancing the plan for Quayside, Sidewalk Labs would earn the right to lead development of the Villiers West urban innovation campus, along with local development partners, to serve as a major economic catalyst for the IDEA District and broader Toronto, anchored by a new Google Canadian headquarters.

Sidewalk Labs' proposal envisions a similar approach to the transaction for Villiers West as for Quayside, with Sidewalk Labs and its local partners bearing the development and innovation risk, and the City of Toronto and PortsToronto providing the underlying land. Sidewalk Labs has developed detailed economic projections based on concept plans for Villiers West. Under terms to be detailed in the Implementation Agreements, Sidewalk Labs and its local partners would be responsible for funding (through equity, debt, and other sources) the development of Villiers West, at an estimated total cost of approximately $1.9 billion.

Sidewalk Labs would continue to work with its government counterparties to further define the Villiers West project. Critically, Sidewalk Labs believes the Google Canadian headquarters is fundamental to the accelerated viability of a commercial office market in the proposed IDEA District and the broader eastern waterfront. Without the Google Canadian headquarters, Sidewalk Labs is not confident that the proportion of commercial space proposed in the MIDP or even the Port Lands Planning Framework is economically viable. As such,

the Google Canadian headquarters and the broader innovation campus would enable the city to better (1) achieve the "catalytic use that would spawn and support regeneration efforts and bring people to the Island in early stages of its development" that is noted in the Port Lands Planning Framework and (2) accelerate the development of new commercial space that the City recognizes is vital for a downtown core that currently has one of the lowest commercial vacancy rates in the world. The Google Canadian headquarters would also help prove the viability of the broader eastern commercial office market in Toronto, including the proposed East Harbour development.

Land purchase price, along with the evolution of the proposed program, would be negotiated with Waterfront Toronto and its government stakeholders. Sidewalk Labs is committed to compensating the City of Toronto and PortsToronto fairly for the acquisition of Villiers West, regardless of the form of the transaction, while reflecting the value Sidewalk Labs would create as an economic development catalyst.

The proposed transaction would be governed by detailed Implementation Agreements to be developed once the MIDP has been approved, including the details regarding the form of the transaction (such as land-lease versus sale, profit-sharing, joint-venture, or otherwise) and the value of the land.

Infrastructure finance

More detail on Sidewalk Labs' optional role in infrastructure finance can be found in Chapter 2, on Page 128.

Sidewalk Labs has proposed financing mechanisms for each of the three categories of necessary project infrastructure: the LRT extension, municipal infrastructure, and advanced systems. In aggregate, Sidewalk Labs projects an approximate cost of $5.4 billion to deliver these three categories of infrastructure to the entire IDEA District (figures include inflation to reflect the proposed timeline of delivery).

Sidewalk Labs has proposed that Waterfront Toronto and the governments leverage the value created by the project itself to fund a significant portion of this infrastructure, and has included a way by which Sidewalk Labs' capital could provide benefits to the proposed funding mechanism for each category of infrastructure, either through front-ending agreements to fill a gap in the timing of available funds or through offering financing for innovative systems that address Waterfront Toronto's sustainability and mobility goals, which would otherwise be difficult to finance through traditional markets.

The potential role of Sidewalk Labs in financing, as well as the overarching funding concept for each system, are included in this proposal as one potential option to enable infrastructure development to proceed at the pace and scope necessary to deliver on the project's objectives, without placing undue burden on the City's current budget. Sidewalk Labs recognizes that governments could choose to utilize alternative methods to finance this infrastructure.

LRT financing

Through its optional LRT financing role, Sidewalk Labs could provide financing support for the accelerated delivery of the waterfront LRT extension. Sidewalk Labs is prepared to offer up to $100 million of credit support — up to $50 million for the portions of Segments 2 through 4 within the IDEA District and up to $50 million for Segments 5 through 7 — to be repaid at a fixed rate of return. The financing would be offered at market rates, to be negotiated — with a commitment from Sidewalk Labs to work with government, pension funds, and other institutional investors to develop transaction structures to reduce the rate as low as possible while still attracting the necessary financing.

The structure of this financing offer is based upon the use of a tax-increment financing approach for a portion of the extension and would require the participation of one or more other public authorities engaged in funding and financing infrastructure. The size of Sidewalk Labs' credit support offer is based on initial financial modelling of the potential TIF structure. While this preliminary modelling would be refined with the assistance of public finance experts and lender feedback, the analysis suggests that — if a TIF approach is taken — the support offered would be sufficient to provide the credit support necessary in advance of the generation of incremental taxes.

If governments choose to pursue a wholly different method of funding to deliver the LRT but still desire to accept the offer of optional financing, Sidewalk Labs would seek to work with government to craft a mutually agreeable structure.

Municipal infrastructure financing

As part of Sidewalk Labs' optional municipal infrastructure financing role, Sidewalk Labs could provide financing support to "front-end" municipal infrastructure to bridge the gap between when funds are needed to begin construction and when Waterfront Toronto realizes the revenue to pay for it. This front-ending solution is one way to solve the timing issue created when municipal infrastructure contributions are used to pay for the infrastructure needed to support the development that generates those revenues, without needing to either delay the project or require the City to find separate sources of funds in its capital budget to bridge that gap.

Sidewalk Labs estimates the total cost of this infrastructure to be approximately $2.3 billion for the entirety of the IDEA District (including inflation). In Sidewalk Labs' proposed structure, a majority of the necessary funding would be supplied through municipal infrastructure contributions, made by real estate developers, and for which those real estate developers would receive a credit against the standard city fees and development charges. (In total, developers would pay the same amount of development charges for projects within and outside the IDEA District because the municipal infrastructure contribution would be equal to a credit received by the developer against standard development charges.)

In its analysis, Sidewalk Labs projects that if government, in its sole discretion, elected to accept its offer of financing (subject to terms to be agreed upon), a single Sidewalk Labs' credit facility — in essence, a line of credit with a maximum outstanding balance — of approximately $300 million would be sufficient to provide the necessary funds to begin construction of each phase of municipal infrastructure on an accelerated timeline, without having to delay until municipal infrastructure contributions have been received or having to allocate additional funds from the city or Waterfront Toronto's budget.

Any optional financing for municipal infrastructure Sidewalk Labs arranges would carry a market rate of return. Sidewalk Labs is committed to working with government, pension funds, and other institutional investors to develop transaction structures that can reduce the rate as much as possible while still attracting the capital necessary to finance the investment.

Advanced systems financing

Sidewalk Labs' offer for optional advanced systems financing proposes a series of Advanced Systems that are critical to achieving the project's sustainability and mobility objectives. These advanced systems include: advanced sustainability systems (includes an advanced power grid, a thermal grid, a waste management system, and a stormwater management system), advanced mobility systems (includes a freight management system, dynamic streets, district parking management, and mobility subscription package), and an advanced digital communications network.

Sidewalk Labs estimates the total cost of these systems to be approximately $2.7 billion (including inflation). In Sidewalk Labs' proposed structure, approximately $1.5 billion of the necessary funding would come from local and municipal infrastructure contributions.

Third parties would supply the remaining $1.2 billion needed to fund the advanced systems. However, because these innovative systems are less familiar to typical infrastructure financers, the systems may be more difficult to finance at reasonable rates.

Sidewalk Labs has created Sidewalk Infrastructure Partners (SIP) — a company uniquely focused on technology-enabled infrastructure — to fill this gap and create a path for infrastructure delivery that both proceeds at a rapid pace and achieves ambitious goals for mobility, sustainability, and other public objectives. SIP would work with potential lenders to reduce certain risks associated with the new systems and attract investors who might otherwise not participate. SIP could then structure a transaction that bundles debt financing from lenders and equity financing from SIP for multiple advanced systems.

The SIP investment and financing package would be offered as an option for the advanced system operator and described in the request for proposals or other procurement documents, eliminating the need for an operator to provide its own capital. The financing would therefore enable the best potential partners to respond, ensuring not only world-class infrastructure development, but reducing costs for the users of advanced systems.

Supplemental innovation investment.
Sidewalk Labs is also prepared to make supplemental innovation investments, currently estimated to cost $45 million for Quayside and Villiers West, to render certain advanced systems market-viable in their early phases. According to Sidewalk Labs' initial financial modelling, these would be needed for the advanced power grid and thermal grid systems to enable third-party financing and keep end-user rates on par with business as usual rates. Sidewalk Labs believes that these initial deployments in Quayside and Villiers West would prove the viability of the systems and would not be required at scale. If a proposed system requires funding that materially exceeds the anticipated investment, Sidewalk Labs would work with Waterfront Toronto to bring down capital costs or identify alternative approaches that accomplish the project objectives, without necessitating a greater supplemental innovation investment.

The supplemental innovation investments are funds that Sidewalk Labs is willing to put at risk in the first phase of the project to prove the effectiveness and commercial viability of its approach. This investment has no direct method of return. Rather, this type of investment is part of why Sidewalk Labs is seeking future performance payments if its approach achieves project milestones, including growth and performance targets, and the project proceeds to scale.

Sidewalk Labs would work with governments and institutional investors to reduce the cost of optional infrastructure financing as much as possible, while ensuring sufficient funds are available.

Additional Sidewalk Labs investments

Third-party real estate catalyzation

To achieve Waterfront Toronto's priority objectives for the project, Sidewalk Labs' proposal also includes $165 million in additional Sidewalk Labs investments. $90 million of this funding is for investments that have the potential to increase the overall economic impact of the project and to generate their own returns. These include an investment in an Ontario-based tall timber factory, towards which Sidewalk Labs is prepared to make an investment of up to $80 million alongside partners, and an investment in a venture fund that would invest in local startups focused on urban innovation, towards which Sidewalk Labs is prepared to commit $10 million (side-by-side with other institutional funding partners, including one or more local venture firms).

An additional $75 million in funding would be, or has already been, used for purposes that do not have the potential to generate their own returns. This includes the $65 million at-risk investment Sidewalk Labs made to create the MIDP (MIDP Investment reflected in CAD; equivalent to stated commitment of USD $50 million), as well as a $10 million grant for a proposed, cross-disciplinary Urban Innovation Institute, to be located within the IDEA District.

The Urban Innovation Institute is proposed as an independent, non-profit organization, located within the innovation campus on Villiers West. The institute would bring together urbanists and technologists, serving as a focal point for a new urban innovation cluster. Sidewalk Labs envisions that local academic institutions would collaborate in the design and implementation of the Urban Innovation Institute, which would serve as a centre for applied research, policy development, and skills training.

Sidewalk Labs' internal analysis suggests that beyond Quayside and Villiers West, the IDEA District could generate an additional $29 billion in real estate investment, enabling a diverse set of local developers to deliver the additional nearly 28 million square feet of mixed-use development. Sidewalk Labs would have no involvement in this additional vertical development.

Core to Sidewalk Labs' approach to the project is the belief that the innovations piloted at Quayside and Villiers West by Sidewalk Labs would enable third-party developers to adopt the most successful innovations in their future developments. And because the most successful innovations would have proven to be financially viable, government would be able to ask more of private developers — more affordable housing, more community space, more sustainable buildings — without asking those developers to compromise their bottom lines.

Sidewalk Labs would enable third-party developers to adopt the most successful innovations by demonstrating their financial viability and effectiveness at Quayside and Villiers West.

Public Sector Impact

Sidewalk Labs projects that the IDEA District, at scale, would be home to more than 44,000 jobs, 27,000 more than the baseline scenario, and add $28 billion annually to Canada's GDP. These economic impacts are discussed at length in the "Economic Development" chapter of Volume 1.

Beyond these broader benefits, Sidewalk Labs estimates that the proposed transaction, by 2050, would produce $9 billion in city revenues through three major public revenue streams generated from the project: property taxes, city fees and development charges, and proceeds from the sale of public land within the IDEA District. Based on its internal analysis, this is almost double what would be produced in a baseline scenario.

To perform this analysis Sidewalk Labs quantified the proceeds for the public revenue streams in an IDEA district scenario and a baseline scenario. The baseline scenario for the IDEA District was developed by urbanMetrics, Sidewalk Labs' third-party economic impact consulting firm, and based upon the Portlands Planning Framework, and market participant real estate assumptions.

Sidewalk Labs' proposal for the IDEA District includes 32.8 million square feet of development (GFA), an increase of 34 percent above a baseline scenario of 24.4 million square feet of development. Sidewalk Labs has assumed that its development would be accelerated compared to the baseline due to the creation and acceleration of the LRT, the relocation of the Google Canadian headquarters

within Villiers West and creation of an urban tech cluster, and the increased quality of life enabled through Sidewalk Labs' innovation agenda. This acceleration would mean a faster absorption rate, or the rate at which residents and tenants move to the development. Sidewalk Labs projected absorption rates for both a traditional market development and for the IDEA District as proposed, utilizing both external analysis from Altus, a Toronto-based global real estate analytics firm, and its own internal analysis. The accelerated absorption would mean that more construction would proceed, and full occupancy would be achieved faster than a traditional market development, providing government with more proceeds in total and over a shorter time horizon.

Increase in City of Toronto revenue streams through 2050

Revenue Stream	Baseline Scenario	IDEA District	Improvement Over Baseline
City Property Taxes (Cumulative)	$1.6 billion	$2.8 billion	+$1.2 billion (+75%)
Development Charges (Cumulative)	$2.1 billion	$3.8 billion	+$1.7 billion (+81%)
Total Proceeds from the Sale of Public Land	$0.9 billion	$2.4 billion	+$1.5 billion (+167%)
Total	**$4.6 billion**	**$9.0 billion**	**+$4.4 billion (+96%)**

Note: The above figures are adjusted for inflation.

Property tax generation

Property tax proceeds from the IDEA District between 2025 and 2050 are expected to be significantly higher than the baseline due to the acceleration of development timelines owing to Sidewalk Labs' involvement in the development and the greater density proposed for the IDEA District. Sidewalk Labs' analysis projects that property tax proceeds to the City would be approximately $2.8 billion compared to just $1.6 billion in the baseline scenario.

The property tax figures are presented in total through 2050. In 2050, the City would receive $200 million in annual property tax revenues from the IDEA District, $70 million more than in the baseline scenario (a 55% increase).

The projected property tax proceeds are based upon the proposed build program for the IDEA District, property tax calculations that use the prevailing market tax rates for commercial and residential use types, and other real estate assumptions fundamental to the IDEA District, such as rezoning, rents, and expected absorption rates. These proceeds are projected on a quarterly basis by parcel. While projected here through 2050, the proceeds from property tax would continue indefinitely.

As is noted in Chapter 2, Sidewalk Labs hypothesizes that a tax-increment financing structure could be used to assist in funding of the LRT. In the scenario that is modelled as part of the Sidewalk Labs proposal included here, a portion of incremental City of Toronto property tax revenues generated by the project would be used to help fund the LRT extension through that TIF structure. Sidewalk Labs' proposal includes utilizing future incremental property tax revenue to fund public transit, but no other necessary infrastructure.

Provincial property taxes.
A portion of property taxes, separate from the City property taxes noted earlier, is allocated to the Province for education funding. Property taxes to the Province are projected to be approximately $1.7 billion compared to $0.9 billion in the baseline scenario. These projected proceeds use the same methodology as described in the preceding section.

Fig. 3.5

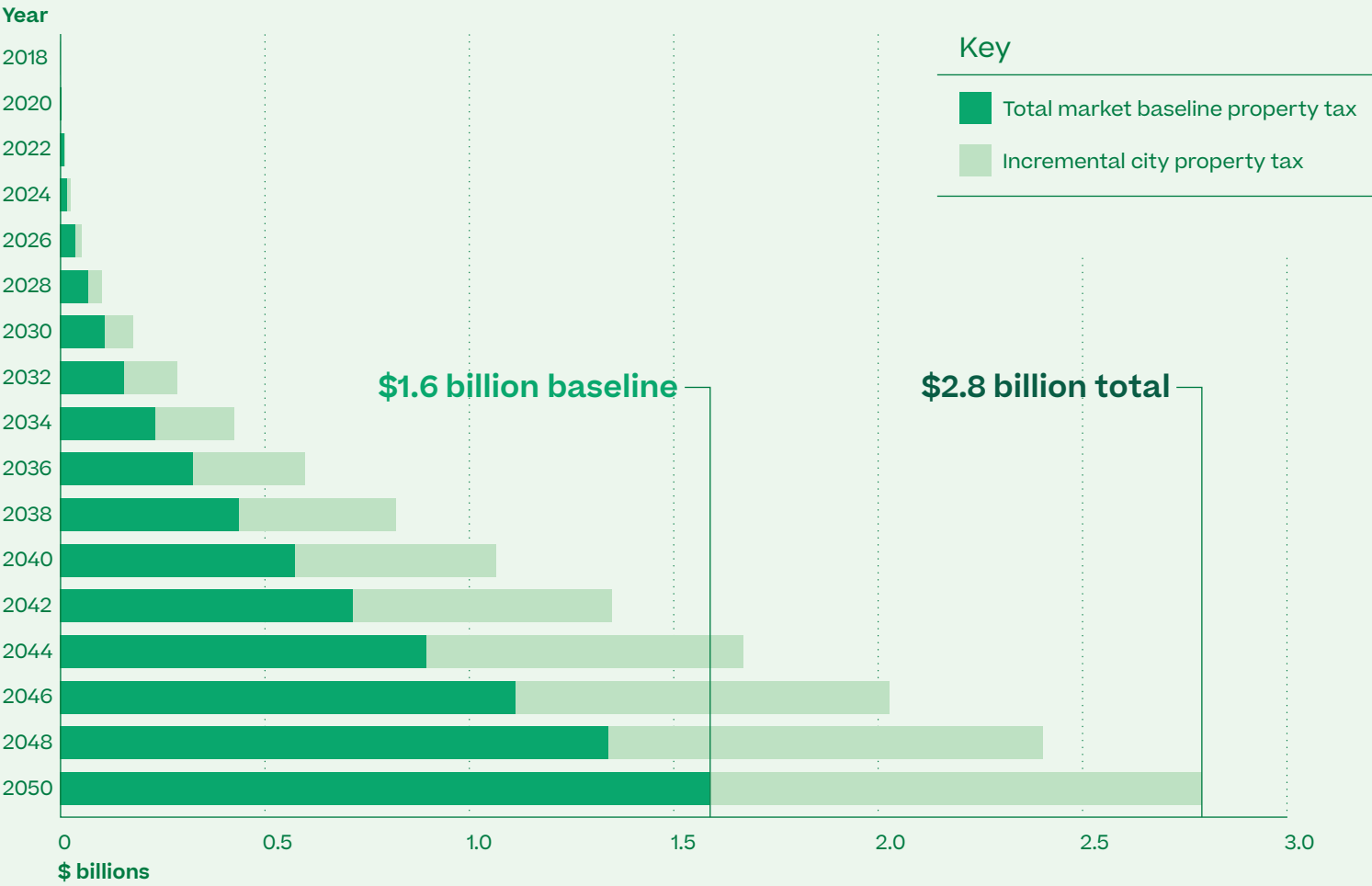# Cumulative property taxes to the City of Toronto through 2050

Year

Key
- Total market baseline property tax
- Incremental city property tax

$1.6 billion baseline

$2.8 billion total

$ billions

Fig. 3.6

Total city fees and development charges by district

	District	Baseline Scenario	IDEA District
1	Quayside	$200 million	$200 million
2	Keating West	$300 million	$400 million
3	Keating East	$300 million	$400 million
4	Villiers West	$200 million	$200 million
5	Villiers East	$300 million	$500 million
6	Polson Quay	$100 million	$1,400 million
7	McCleary	$700 million	$700 million
	Total	$2,100 million	$3,800 million

City fee and development charge generation

City fees and development charges are paid by vertical real estate developers to the City of Toronto. The City then uses these funds to reinvest in infrastructure and other city services resulting from population and employment growth. Typical investments related to infrastructure include roads, parks, transit, site improvements, social infrastructure, and other services. Developers pay city fees and development charges at the start of vertical construction, which has historically presented funding challenges for the City and Provincial governments when they are seeking to invest in projects that need substantial service improvements to enable vertical development. City fees and development charges are critical to the development of the IDEA District. Absent a substantial city fee and development charge contribution, the project would be financially infeasible.

As is described more fully in the Chapter 2 section on optional municipal financing on Page 135, Sidewalk Labs estimates that the project would generate approximately $3.8 billion in city fees and development charges. This estimate is $1.7 billion greater than the $2.1 billion in city fees and development charges in the baseline scenario. Sidewalk Labs developed these estimates using the published 2020 city fee and development charge rates and the corresponding build plans and timelines for the IDEA District and the baseline scenario.

The city fee and development charge is built using a line-item approach which designates a cost for each line item (including standard city development charges, public art contribution, education charges, miscellaneous municipal fees) to arrive at a fee for each residential unit (specific to unit size), and per square metre of non-residential space. These charges are inflated over time at rates that reflect both the historical escalation of city fees and development charges in the City of Toronto and Sidewalk Labs' analysis of what the market could bear while still enabling third-party developers to reach market rate returns on vertical development. In the transaction framework that Sidewalk Labs modelled, approximately 50 percent of these city fees and development charges would be utilized to fund IDEA District infrastructure.

City fees and development charges vary when comparing the baseline scenario to the project due to differences in density, use-type mix, and inflation (as a result of different timelines).

The project would generate $1.2 billion more in property taxes for the City of Toronto over the baseline scenario.

Land proceeds generation

The public sector owns approximately 80 percent of the land in the IDEA District. While Sidewalk Labs is not proposing to develop any IDEA District land beyond Quayside and Villiers West, its investment in those first two developments and its carrying out the broader strategy in the MIDP would create significant value for the City across that portfolio of public lands above the baseline scenario.

Sidewalk Labs would also spur value creation through its commitment to upfront infrastructure investment, including transit, municipal infrastructure, and advanced systems; the relocation of Google's Canadian headquarters; and the other programmatic investments detailed throughout the MIDP. This value creation and acceleration would yield greater proceeds to the public sector than the baseline scenario when it sells publicly owned lands for development.

The value that government could receive for its publicly owned land was calculated assuming the following: (1) The completion of the Don Mouth Naturalization Project on schedule, which will open hundreds of hectares for development; (2) The IDEA District build program matching the plan described in Volume 1; and (3) All third-party vertical real estate developers target a market return. The projected value also depends upon basic real estate economics and delivery assumptions, such as building costs, rents, absorption, operating expenses, and financing costs.

For comparison purposes, this process was then replicated for the baseline scenario using urbanMetrics baseline program and market baseline fundamental real estate assumptions.

In total, Sidewalk Labs projects that the sale of public lands within the IDEA District could generate $2.4 billion in proceeds, $1.5 billion more than the $900 million in proceeds generated in a market baseline scenario. Government could use these proceeds to fund additional infrastructure investments, pay down any upfront financing debt, fund other expenses, or achieve desired public policy outcomes such as increased affordable housing.
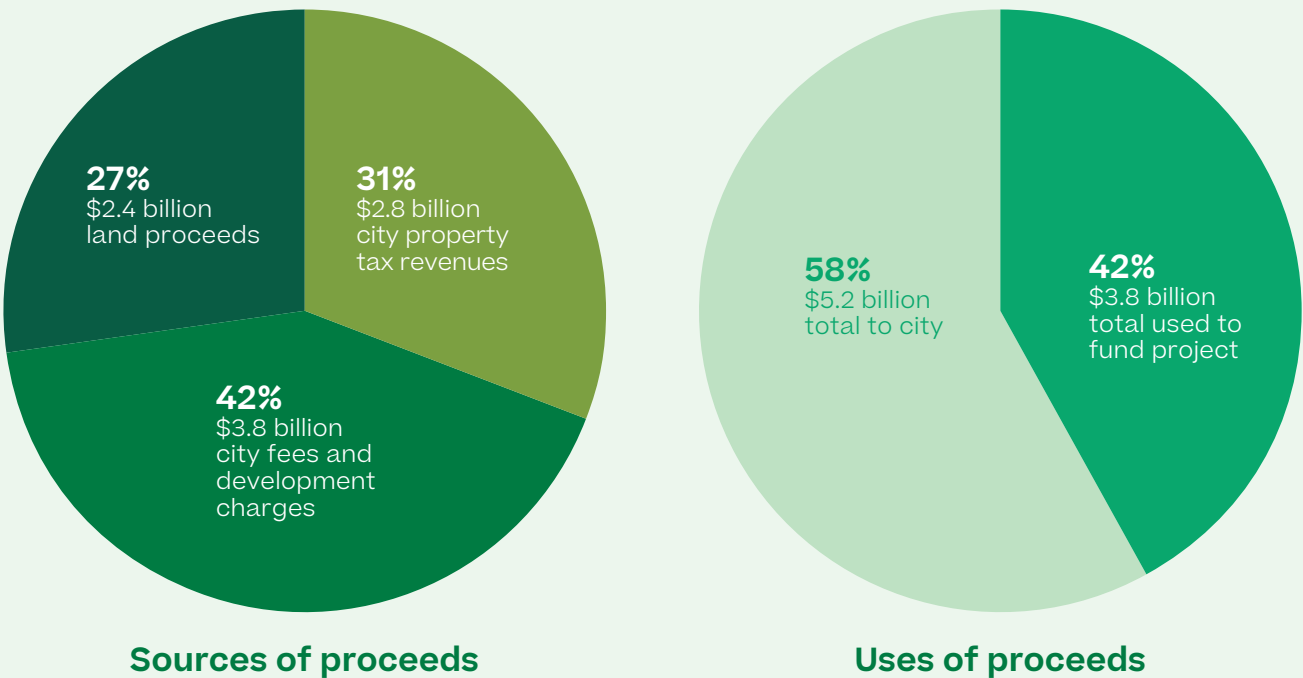
Use of City of Toronto proceeds

In total, the project would generate 96 percent more proceeds for the City overall than the market baseline scenario, increasing expected proceeds over the 30-year project timeline from $4.6 billion to $9.0 billion.

In Sidewalk Labs' proposed deal structure, in the scenario in which the public sector accepts Sidewalk Labs' offer of optional infrastructure financing for both the municipal infrastructure and the LRT, $3.9 billion of the $9.0 billion total proceeds would be dedicated to IDEA District infrastructure (including the repayment of Sidewalk Labs' infrastructure financing) and $5.1 billion would be returned to government coffers. It is important to note that if the public sector elects not take Sidewalk Labs' offer of infrastructure financing it would still need to fund enabling infrastructure.

In the chart on the opposite page, the $2.8 billion in property tax revenue represents the total City portion of the property taxes in the IDEA District, excluding Keating East, for which incremental property tax revenues have already been pledged to other projects. In comparison, a market baseline scenario would expect $1.6 billion in property taxes for the City.

The scenario represented in the chart includes using property tax revenue to fund the Waterfront East LRT extension and the fixed return on Sidewalk Labs' optional credit facility, through a TIF structure, and with the remaining proceeds directed to the City. The provincial portion of property taxes are neither utilized as part of the LRT financing district, nor included in the chart.

Fig. 3.7
Sources and uses of $9 billion in City of Toronto revenues

27%
$2.4 billion
land proceeds

31%
$2.8 billion
city property
tax revenues

42%
$3.8 billion
city fees and
development
charges

Sources of proceeds

58%
$5.2 billion
total to city

42%
$3.8 billion
total used to
fund project

Uses of proceeds

City fees and development charges in the Sidewalk Labs scenario total $3.8 billion, compared with a market baseline scenario total of $2.1 billion. This total includes the full IDEA District. In the Sidewalk Labs scenario, these city fees and development charges would be split between proceeds used to fund the principal balance for the project's municipal infrastructure and the remaining proceeds would go to the City of Toronto. Sidewalk Labs estimates that nearly 50 percent of these proceeds would be returned to the City with approximately 50 percent invested in municipal infrastructure.

The expected total land proceeds are $2.4 billion, which is 167 percent higher than the $900 million in total land proceeds expected in a market baseline scenario. In the Sidewalk Labs scenario, a portion of these proceeds would be needed to fund the principal balance for the project's municipal infrastructure above what is covered by city fees and development charges in the model and the fixed return on the optional municipal infrastructure financing. The City would retain all remaining land proceeds.

In addition, the project would also receive funding from a local infrastructure contribution across all neighbourhoods in the IDEA District. This is a city fee and development charge fee that is levied on vertical developers to support the development of the IDEA District's advanced systems. The total local infrastructure contributions are approximately $300 million and are 100 percent dedicated to investing in the project's infrastructure systems. Ultimately, a vertical developer would pay market rate city fees and development charges or the same total charges as they would if developing outside of the IDEA District.

Fig. 3.8
Total net proceeds to the City of Toronto

Proceeds to City of Toronto	Notes	Total	Percent of Proceeds
Land Proceeds	Increased land proceeds	$1.7 billion	33%
City Fees and Development Charges	Portion of city fees and development charges not necessary to fund the project; 42.9% of total city fees and development charges	$1.6 billion	31%
Property Tax	Portion of total property taxes not used to fund LRT TIF financing (excludes Keating East, which is in a TIF zone)	$1.9 billion	35%
Total Proceeds to City of Toronto		**$5.2 billion**	**100%**

Fig. 3.9
Total net proceeds to the Province of Ontario

Proceeds to Province	Notes	Total	Percent of Proceeds
Property Tax	Provincial portion of total property taxes (education tax rate) through 2050 (excludes Keating East, which is in a TIF zone)	$1.7 billion	32%
Net Harmonized Sales Tax (HST)	HST net of provincial rebates	$3.7 billion	66%
Land Transfer Tax (LTT)	Includes provincial portion (50%) of total LTT	$0.1 billion	2%
Total Proceeds to Province		**$5.5 billion**	**100%**

Summary of City of Toronto economics

In the Sidewalk Labs scenario, in which government chooses to utilize the optional infrastructure financing offers from Sidewalk Labs, the project generates $9.0 billion in total proceeds for the City of Toronto. After funding project costs of $3.8 billion, $5.2 billion would be returned to government coffers, as shown in the table above.

In the market baseline scenario, even if all necessary infrastructure is paid for through other means, the total proceeds generated would be only $4.6 billion, far less than even the net proceeds remaining after infrastructure is funded in the Sidewalk Labs scenario.

In the Sidewalk Labs scenario, the City would receive $1.9 billion in property taxes (excluding Keating East, as previously noted) after funding the LRT and the fixed return on the optional credit support.

Additionally, the City would retain $1.6 billion in excess city fees and development charges after funding the IDEA District's municipal infrastructure. The City would also receive $1.7 billion in increased land proceeds beyond the funds needed to pay for IDEA District infrastructure.

In addition to the three revenue streams available to fund the project, the City would also receive $100 million in land transfer taxes (LTT), which are taxes that are paid upon the transfer of real estate. The proceeds from LTT are not included in the table above, nor does Sidewalk assume any LTT proceeds are necessary to fund project infrastructure in its proposed structure.

Summary of provincial economics

The Sidewalk Labs model expects the project to generate $5.5 billion in taxes for the Province of Ontario. Sidewalk Labs assumes that none of the provincial taxes are used to fund the project. The three types of tax revenue are shown in the table above and include $1.7 billion in property tax, which is 89 percent more than the $0.9 billion in property tax revenues expected in a market baseline scenario. The Sidewalk Labs scenario also includes $3.7 billion in harmonized sales tax (HST) net of rebates, and $100 million in land transfer tax.

In total, including property taxes, net HST on the vertical development, and LTT, the $5.5 billion in provincial taxes generated by the Sidewalk Labs scenario would be 90 percent greater than the $2.9 billion in proceeds to the Province in a market baseline scenario. The HST projected is exclusively for the vertical development of the real estate within the IDEA District.

Sidewalk Labs' Returns

While providing extraordinary value to the public sector, the proposed transaction would also enable Sidewalk Labs to have an opportunity to receive a reasonable return for the holistic value it would bring to the project. This return is best addressed in its component parts.

Real estate returns.

Sidewalk Labs believes that the combined real estate project at Quayside and Villiers West may be able to achieve market-level returns. The underwriting relies on the assumption that Sidewalk Labs' residential units would obtain a premium on rents and sales values observed for other properties in the area because of the provision of rapid transit. The market risk of not achieving the underwritten rents would be borne by Sidewalk Labs and its local partners. In the event the achieved values are significantly above underwriting, Waterfront Toronto stands to receive an earnout payment on Quayside.

At Quayside, the build program has been optimized to achieve Waterfront Toronto's objectives rather than financial returns, and the proposed land purchase price would not enable Sidewalk to obtain market-level returns even with the assumed rent and sales premia.

At Villiers West, Sidewalk has incorporated into its underwriting the effect of a pre-leasing agreement with Alphabet for part of the office space. This would have positive financial effects for the development, including an increased ability to obtain construction debt for the office element as well as making the surrounding office space more attractive to other tenants. Due to the additional value that a Google tenancy would bring to the site, the underwriting reflects improved returns at Villiers West.

The combined projected return for the two developments is projected to be in line with market expectations, as measured by the projected pre-tax internal rate of return and based on the preliminary costing analysis. The internal rate of return (IRR) is a standard method used to estimate the potential profitability of an investment—as measured by the projected annual return generated by the equity invested in the project. While this IRR is generally comparable to other Toronto real estate development projects, it does not account for other significant investments Sidewalk Labs is making in the overall project — the provision of advisory services and technology products at cost, the cost of creating the MIDP (and the underlying research and development involved to develop the plans), the supplemental innovation investment to make the advanced systems at Quayside and Villiers West commercially viable, and a series of economic development initiatives. Nor does the IRR account for added risk embedded in the innovation agenda, which is structured around Waterfront Toronto's priority outcomes.

Non-real estate returns "at market."

Apart from the real estate transaction at Quayside and Villiers West, Sidewalk Labs expects to have an opportunity to receive market returns if the public sector elects to use its optional financing of infrastructure and in connection with several of its project-related investments. Specifically, Sidewalk Labs would expect to negotiate market terms for any financing it extends, and would work with institutional lenders and others to deliver the lowest cost of capital possible.

Sidewalk Labs would also commit to investing in an Ontario-based tall timber factory, likely undertaken with partners, which would have stand-alone economics and the same potential upside and risks as other investments in manufacturing. Similarly, Sidewalk Labs would also commit to investing in a venture fund targeting Canadian startups, also likely to be undertaken with partners, which would have stand-alone economics and the same potential upside and risks as typical venture capital investing.

Sidewalk also expects to receive market-rate fees for implementation services it would provide to Waterfront Toronto and advanced infrastructure operators.

Implementation services – municipal infrastructure implementation: As is further described on Page 135 of Chapter 2, in its role related to innovation planning, design, and implementation, Sidewalk Labs proposes to receive a flat market-rate percentage fee (8 percent of costs) to manage the design of municipal infrastructure it is responsible for in Quayside and Villiers West, including the preparation of drawings and permitting for public realm, bridges, and municipal underground infrastructure. For work managed by the public administrator in Quayside and Villiers West and thereafter, Sidewalk Labs would receive a lower percentage (2 percent) of related soft costs for supporting the public administrator in integrating municipal infrastructure with advanced systems infrastructure. These fees are based on Waterfront Toronto's typical management fees of 6 percent, with the additional 2 percent for the extra work required to coordinate with advanced systems.

Implementation services – advanced systems implementation: As is further described on Page 108 of Chapter 2, in its role related to development of real estate and advanced systems, Sidewalk Labs would be compensated directly by third-party operators for its role as lead developer of advanced systems in Quayside and Villiers West. This would include reimbursement for the costs to prepare the preliminary designs, plans, and specifications issued with the procurement documents for certain systems, if required. Any applicable preliminary design fees would be identified in the procurement documents as a lump-sum amount, and payment would be due at the time of construction notice to proceed.

In Quayside and Villiers West, third-party operators would also pay Sidewalk Labs an advanced system development fee applied as a percentage of project costs specified upfront in the procurement documents. This fee would vary based on the degree of Sidewalk Labs participation required. Where the operator is responsible for a turnkey design-build-operate approach, and where Sidewalk Labs' participation would be limited to coordination of design and delivery, the advanced system development fee is expected to be in the range of 2 percent of system costs. Where Sidewalk Labs serves as program manager in a co-development role with the operator, the fee would be up to 7 percent of system costs, as negotiated on a system-by-system basis. This includes the dynamic streets, which would be operated by the Waterfront Transportation Management Association.

In later phases, when the public administrator assumes the lead developer role of advanced systems, the operator would similarly compensate the public administrator for its work, including preliminary design fees, as applicable, and a program management fee of up to 7 percent of system costs. The public administrator would negotiate these fees directly with operators.

Non-real estate investments without direct return.
Sidewalk is also prepared to make a series of investments and commit resources without an expectation of a direct return. These include Sidewalk Labs' original MIDP investment and its grant funding for the Urban Innovation Institute.

This category also includes its provision of advisory services to Waterfront Toronto and its provision of a limited number of technologies to the project. For both roles, Sidewalk Labs proposes to be paid back at cost, with no profit margin. The proposed transaction constructs are discussed in more detail below.

Advisory services: Under its innovation planning, design, and implementation role, described fully on Page 114 of this volume, Sidewalk Labs proposes to provide technical advice, innovation planning, and project management services to the public administrator. In this capacity, Sidewalk Labs would support the public administrator in devising and implementing a comprehensive innovation and development strategy, in areas where Sidewalk Labs can augment the public administrator's capacity or resources, or has special expertise, particularly with respect to the technical specifications, deployment, iteration, and integration of advanced systems.

Sidewalk Labs proposes to deliver these resources at cost to the public administrator and estimates the total value of these resources would be in the range of $3 million dollars annually over approximately the first 15 years of the project, the time during which the relevant planning deliverables for the IDEA District would be completed. These expenses would be submitted to the public administrator and reimbursed at cost on an annual or other periodic basis. The proposed reimbursement covers Sidewalk Labs' services, not the

costs for functions undertaken by the public administrator, directly or via contractors.

The Implementation Agreements would set out the exact fee schedule, scope, performance expectations, and process for review and extension of the advisory services relationship. The Implementation Agreements would also include provisions for termination, cancellation, or extension through the completion of all precinct plans, ITMPs, and stage gates.

Specifically, the public administrator would not be obligated to contract for the entirety of these services at the signing of Implementation Agreements. These services would only be provided to the extent that Sidewalk Labs achieves the agreed-upon project milestones. Chapter 7 provides more detail on proposed stage gates.

Sidewalk Labs would provide advisory services entirely at cost, with no additional return. This structure is part of why Sidewalk Labs is seeking performance payments if the project achieves its objectives, proceeds to scale, and satisfies each of the proposed stage gates.

Technology deployment: Sidewalk Labs proposes to develop a limited number of key technological solutions for advancing Waterfront Toronto's priority outcomes (explained in detail on Page 120 in the section on Sidewalk Labs' role in relation to technology deployment). Sidewalk Labs would provide these "purposeful solutions" to the public administrator and management entities in the IDEA District at cost.

Sidewalk Labs also proposes that the public sector receive 10 percent of Sidewalk Labs' profits from certain Sidewalk Labs technologies — Testbed-Enabled Technologies, as defined on Page 126 — for a 10-year period. This period would begin with the sale of the solution to a second customer after its initial deployment (i.e. when the product has been effectively commercialized). Overall, the approach is structured to ensure that both Sidewalk Labs and the public sector profit from certain tech solutions first piloted in the IDEA District. More specific profit-sharing terms would be negotiated as part of the Implementation Agreements.

Proposed performance payments

Sidewalk Labs proposes to receive performance payments to fairly compensate the company for its role in accelerating development on the eastern waterfront and advancing Waterfront Toronto's priority outcomes, generating billions of dollars of economic activity for the city, province, and country and producing substantial revenue for the governments that would otherwise go unrealized.

These payments would recognize the overall risk and resulting upfront costs assumed by Sidewalk Labs and would be conditioned on Sidewalk Labs' completion of all stage gates, which require it to achieve a series of growth and performance targets demonstrating the success of the overall project. These growth and performance targets would be negotiated for inclusion in the Implementation Agreements and would reflect Sidewalk Labs achieving the economic acceleration and public priorities sought in Waterfront Toronto's priority outcomes.

By the time Sidewalk Labs earns its first performance payment, in approximately 2028 — when Sidewalk Labs estimates it would achieve the project milestones associated with its final stage gate — the project would have begun yielding significant results for Toronto, Ontario, and Canada and placing a new frontier of the city on a trajectory for continued growth. This would result in gains well beyond what would be possible otherwise, including:

Tens of millions of square feet of development in the pipeline, without burdening the city's balance sheet, decades ahead of schedule;

A major economic engine and thousands of new jobs, with the new Google Canadian headquarters on Villiers Island anchoring a new tech ecosystem alongside existing industries, such as film and television production, adjacent to the IDEA District;

The advancement of a vibrant centre of commercial activity on the eastern waterfront, where little exists today, bringing in additional property tax revenue to city and provincial coffers;

Thousands of units of affordable housing built with sustainable economic models that do not exist today;

Made-in-Canada and scaled-in-Canada innovations that reduce the cost of constructing and operating buildings and which, therefore, enable the City to ask more of private developers; and

Major reductions in greenhouse gas emissions, proving the value of scaling new sustainable infrastructure across the IDEA District and paving the way to climate-positive development at a reasonable cost.

The concept of a performance payment is logical for this project not only because of its uncertain outcome but because Sidewalk Labs has structured the business model, in response to feedback from a range of stakeholders, in ways that limit its opportunity for upside elsewhere. These include forgoing revenue streams not as directly tied to the public interest or which other firms would seek in the normal course of business. Sidewalk Labs' proposal limits the amount of real estate the company would develop to two pieces of the overall project; seeks no real estate interest in the vast majority of the IDEA District; puts urban data under the control of an independent entity; makes a number of constraining unilateral commitments with regard to the commercialization of data; and does not seek special tax subsidies.

It also reflects the unusual nature of certain early investments Sidewalk would make in the success of the project with no direct return, including its spending to develop this plan ($50 million USD, as seed funding for the project), to subsidize advance systems at the Quayside/ Villers West scale to demonstrate their viability while maintaining business as usual user rates, with a supplemental innovation investment worth an estimated $45 million, and the provision of advisory services and certain technology products entirely at cost.

In short, this financial structure is designed to align the interests of Waterfront Toronto, Sidewalk Labs, and the public; to compensate Sidewalk Labs for serving as a catalyst for a new approach to urban development; and to account for the special challenges underlying the project, such as an extended repayment timeline and complexities associated with integrating next-generation systems that are new to Canada or the market.

Proposed approach.
Sidewalk Labs proposes to be eligible for three performance payments. Sidewalk Labs would receive an initial payment in 2028 and additional payments in 2032 and 2035, if it achieves additional project milestones. To earn these performance payments Sidewalk Labs must meet growth and performance targets related to the acceleration of development and the achievement of Waterfront Toronto's priority outcomes.

Under this construct, Sidewalk Labs would only be eligible to receive even the first of the three performance payments after completing all milestones related to its sixth and final stage gate.

For the first performance payment in 2028, the development acceleration target would turn on the delivery of the new Google Canadian headquarters. For the second and third payments, in 2032 and 2035, respectively, the development acceleration target would turn on increased development activity within the IDEA District, as measured against a baseline, to be negotiated.

At each of the three dates, in order to earn the performance payment, Sidewalk Labs will also have to demonstrate the success of its innovation agenda, as demonstrated through progress against Waterfront Toronto's priority outcomes. In advance of signing Implementation Agreements, the parties would negotiate metrics and target thresholds tied to each priority outcome — job creation, sustainability, mobility, affordability, and urban innovation — for each performance payment.

The exact terms and magnitude of the performance payments would be determined in future negotiations with Waterfront Toronto and its government stakeholders in advance of approval of the project. Although the proposal does not depend on a particular source of payment, all or a portion of the performance payments could come from economic activity the project generates, including increased land proceeds and other incremental revenues.

Summary of Sidewalk Labs' potential sources of revenue

To provide clarity and transparency regarding Sidewalk Labs' business model in Toronto, the following table identifies each potential Sidewalk Labs revenue stream related to the project.

See Chapter 6 for a detailed explanation and estimated timeline of proposed stage gates.

Fig. 3.10

Sidewalk Labs' potential sources of revenue

	Role / Revenue Opportunity	Description
1	Real Estate	In delivering Quayside and Villiers West, Sidewalk expects to receive revenue from the sources traditionally associated with real estate projects: rental revenue, income from the sale of condominiums, and income from the sale of individual buildings.
2	Technology Deployment	The limited number of its own technology products that Sidewalk Labs deploys in the project would be provided at cost. For technologies that Sidewalk Labs develops and deploys at scale in Toronto that meet the testbed criteria described in Chapter 2, Sidewalk Labs proposes that the public sector would share 10 percent of the profits for ten years when that product is sold in other cities.
3	Advisory Services	Advisory services provided to Waterfront Toronto by Sidewalk Labs in its role as Innovation and Funding Partner are proposed to be paid back, at cost, to Sidewalk Labs.
4	Implementation Services (Municipal Infrastructure)	Sidewalk Labs proposes to receive a flat market-rate (8 percent) percentage fee of the related costs to manage the design of municipal infrastructure it is responsible for in Quayside and Villiers West. For work managed by the public administrator in Quayside and Villiers West, and thereafter, Sidewalk Labs would receive a lower percentage (2 percent) of related soft costs for supporting the public administrator in integrating municipal infrastructure with advanced systems infrastructure. These fees are based on Waterfront Toronto's typical management fees of 6 percent, with the additional 2 percent for the extra work required to coordinate with advanced systems.
5	Implementation Services (Advanced Systems)	For work managed by the public administrator in Quayside and Villiers West, and thereafter, Sidewalk Labs would receive a lower percentage (2 percent) of related soft costs for supporting the public administrator in integrating municipal infrastructure with advanced systems infrastructure.
6	Venture Fund Seed Funding	This investment, likely to be undertaken with partners, would have stand-alone economics and the same potential upside and risks as typical venture investing.
7	Tall Timber Factory	This investment, likely to be undertaken with partners, would have stand-alone economics and the same potential upside and risks as other investments in manufacturing.
8	Optional LRT Financing	In the event government elects to utilize Sidewalk Labs' optional LRT financing, Sidewalk Labs would receive revenue that reflects a market return for the magnitude and risk associated with the agreed-upon financing structure.
9	Optional Municipal Infrastructure Financing	In the event government elects to utilize Sidewalk Labs' optional municipal infrastructure financing, Sidewalk Labs would receive revenue that reflects a market return for the magnitude and risk associated with the agreed-upon financing structure.
10	Optional Advanced Systems Financing	In the event a Sidewalk Infrastructure Partners financing package was utilized to implement an advanced infrastructure system, Sidewalk Infrastructure Partners (SIP) would receive revenues related to the operation of that system, to provide SIP an opportunity to achieve a standard market return associated with the financing of a project of such magnitude and risk.
11	Performance Payment	In the event Sidewalk Labs satisfies the final stage gate and achieves the performance and growth targets incorporated in the Implementation Agreements, Sidewalk Labs would receive performance payments. These payments would compensate Sidewalk Labs for its overall catalyzation of the acceleration of development within the IDEA District and advancing Waterfront Toronto's priority outcomes.

Achieving Waterfront Toronto's Priority Outcomes

Introduction

Waterfront Toronto's objectives — first spelled out in the RFP and later articulated as "MIDP targets" in its Plan Development Agreement (PDA) with Sidewalk Labs — define the core mission for this project.

Relying on those objectives, as further refined in the PDA, Waterfront Toronto devised evaluation criteria for reviewing the MIDP centred on it achieving five priority outcomes: job creation and economic development; sustainability and climate-positive development; housing affordability; new mobility;and urban innovation (including robust data privacy and digital governance).

Sidewalk Labs considered what is achievable for each priority outcome in Quayside alone and across a larger geography. A summary of that analysis is reflected in the following five tables.

Job creation and economic development impacts

Goal: Catalyze economic growth for Toronto and Canada and create a thriving urban innovation cluster, including by bolstering Toronto's innovation ecosystem, providing opportunities for Canadian firms to scale, and expanding jobs across the socio-economic spectrum.

Topline impact: Catalyzing 93,000 total jobs, $14 billion in annual economic output (GDP), and $4.3 billion in annual tax revenue (2050 dollars) — all delivered years faster than existing baseline plans.

Proposed innovation or initiative

Impact at IDEA District scale

1 **Proposed Economic Anchors**
The proposed economic anchors include a new Google Canadian headquarters on Villiers Island as part of an agreed-on transaction within the IDEA District, and an applied research centre called the Urban Innovation Institute.

2 **Venture Fund**
A new venture fund would support early-stage local enterprises working in urban innovation-related fields.

3 **Sidewalk Works Jobs Program**
The Sidewalk Works jobs program would bring employers and educators together to identify real-time needs; partner with educators and trainers on skills development to meet demand; and identify opportunities to further develop a diverse and talented workforce.

4 **Community Benefits Commitments**
Community benefits commitments are designed to ensure more equitable access to employment opportunities.

5 **Mass-Timber Construction**
Mass timber construction in an Ontario-based factory would catalyze a new industry that taps into Canada's vast sustainable forests.

6 **Library of Building Parts**
A library of building parts created in a mass timber factory would reduce costs related to materials procurement, design, assembly, and shipping efficiency; reduce waste; and reduce regulatory approval timelines for developers.

Together, a new Google Canadian headquarters and the Urban Innovation Institute (seeded with $10 million by Sidewalk Labs) would form the foundation of a 2.7 million square foot innovation campus on Villiers Island, catalyzing an urban innovation cluster.[81]

Sidewalk Labs' $10 million initial seed investment (coupled with commitments from other local funding partners) would help startups and small businesses scale and support the region's capacity to retain talent and intellectual property.[82]

Realized at a district scale and over time, the Sidewalk Works jobs program could support the development of an inclusive talent pipeline and foster a culture of inclusion in the workplace.[83]

In alignment with the Waterfront Toronto Employment Initiative, at least 10 percent of newly created jobs over time would be designated for low-income youths, women, and Indigenous people.[84]

The creation of a local factory would support an estimated 2,500 person-years of full-time employment over a 20-year period and catalyze an estimated 5.2 million total work hours for all factory-related trades.[85]

A library of factory-made mass timber building parts would accelerate construction by up to 35 percent and enhance project predictability — savings that could be applied towards below-market housing. It could also help reduce project costs by up to 20 percent.[86]

Proposed innovation or initiative

Impact at IDEA District scale

7 **Sidewalk Digital Fabrication**
A digital coordination system called Sidewalk Digital Fabrication would build on existing building information modelling (BIM) tools to help coordinate every part of the proposed mass timber supply chain, from the off-site factory to on-site assembly.

8 **Adaptable "Loft" Spaces**
Adaptable Loft spaces are designed with flexible floor plates to accommodate residential, commercial, and light manufacturing uses, enabling a true live-work community.

9 **Flexible Wall Systems**
Flexible wall systems enable renovations to Loft and residential spaces to occur much faster than normal, reducing vacancies and helping the neighbourhood adapt to market conditions.

10 **Outcome-Based Building Code System**
An outcome-based building code system could monitor noise and other nuisances in real time to help a mix of residential and non-residential uses thrive while protecting public safety.

11 **"Stoa" Spaces**
Ground-floor "stoa" spaces are designed to accommodate a wide range of uses beyond traditional retail, ensuring that the community has a lively mix of shops and restaurants, community spaces, maker studios, pop-ups, and small businesses.

12 **Small Business Incubator**
A small business incubator would be designed to help those without access to capital open up shop.

13 **Seed Space**
A digital leasing platform called Seed Space would help small businesses and other retailers book a wide range of stoa sizes for short- or long-term uses, making it easier for small businesses to establish a physical retail presence.

Use of this tool by the entire construction pipeline — developers, architects, contractors, landlords, and others — has the potential to create an unprecedented degree of clarity across the entire development ecosystem, enabling all parties to reduce costs related to uncertainty.[87]

Broad development of Loft spaces could accommodate the full range of live-work needs and respond nimbly as those needs change over time, decreasing vacancy periods by 50 percent compared to traditional spaces and attracting the workers and companies necessary for an innovation cluster to thrive.[88]

These systems accelerate renovations through features such as low-voltage digital power (which travels over ethernet cables rather than electrical wires) and mist-based sprinkler systems (which are equally effective as traditional sprinklers but need not be embedded in walls).[89]

Realized throughout the IDEA District, an outcome-based building code system could unlock new local economic opportunities by safely enabling a broader mix of uses at both the building and district scales, including production spaces and small-scale industries.[90]

Sidewalk Labs estimates that the costs associated with renovation, such as moving walls and electrical wiring, would decline by roughly 50 percent in stoa compared to traditional ground-floor spaces — making it easier for businesses of all sizes to launch or expand.[91]

Sidewalk Labs plans to work with partners to help launch this program and would reserve a portion of stoa stalls for this incubator, enabling the cohort to test ideas and sharpen business skills in a low-risk environment.[92]

Seed Space services would make it possible for landlords to take risks on more dynamic tenants who might not be equipped or willing to sign up for a five- or 10-year contract, and to reduce short-term space vacancies and downtime between leases.[93]

Sustainability and climate-positive development impacts

Goal: Create neighbourhoods with below-zero annual greenhouse emissions and otherwise advance sustainability, including through improved waste management, environmentally friendly building practices, and advanced stormwater management.

Topline impact: A sustainability vision that enables the IDEA District to give back 0.69 annual tonnes of clean energy per capita — becoming the largest climate-positive district in North America and the third-largest in the world.[94]

Proposed innovation or initiative

1 Low-Energy Buildings
Low-energy buildings — inspired by the Passive House movement — would feature highly insulated building envelopes, airtight exteriors, and balanced ventilation systems designed to reduce energy needs while improving interior comfort.

2 Active Energy Management Tools
Digital active energy management tools called "Schedulers" would optimize energy systems for residents, businesses, and building operators, ensuring that buildings operate in the most efficient way possible.

3 Advanced Power Grid
An advanced power grid would use solar energy, battery storage, and time-based energy pricing to reduce reliance on the main Toronto Hydro grid during periods of peak demand and make an all-electric community affordable.

4 District Energy System
A district energy system called a thermal grid would provide heating, cooling, and domestic hot water by drawing on clean energy sources such as geothermal (underground) energy, building "waste" (or excess) heat, and wastewater heat.

5 Innovative Utility Bill
An innovative utility bill structure would enable residents and businesses to set monthly budgets for energy costs.

Impact at IDEA District scale

Low-energy building designs would reduce GHG emissions by 0.96 annual tonnes per capita (or 15.2 percent) from the city's current average. They would also achieve the Toronto Green Standard Tier 3 rating for energy efficiency and Tier 4 for greenhouse gases.

Schedulers would enable low-energy building designs to achieve their full potential and reduce GHG emissions by 0.03 annual tonnes per capita (or 0.5 percent) from the city's current average.

The advanced power grid would reduce GHG emissions 0.05 annual tonnes per capita (or 0.8 percent) from the city's current average, while maintaining comparable utility costs.

The thermal grid would reduce GHG emissions by 1.6 annual tonnes per capita (or 25.1 percent) from the city's current average. With support from the city, this advanced infrastructure system could also tap a vast reserve of clean energy from the Ashbridges Bay Wastewater Treatment Plant, removing 70,444 annual tonnes of CO2 per capita from areas outside the IDEA District.

When combined with other strategies to enable affordable electrification, such as Schedulers, innovative bill structures enable customers to have more predictable utility bills with much cleaner energy consumption.

Proposed innovation or initiative

6 Smart Disposal Chain
A smart disposal chain would feature real-time feedback to improve waste sorting and "pay-as-you-throw" chutes to reduce household and business waste.

7 Pneumatic Tube System
A pneumatic tube system would separate waste streams underground, reducing contamination and centralizing trash hauling.

8 Anaerobic Digestion Facility
An anaerobic digestion facility can convert organic (food) waste into a clean energy source called biogas.

9 Active Stormwater System
An active stormwater system would rely on green infrastructure to capture water and on digital sensors to empty storage containers in advance of a storm.

10 Electric Vehicles
A plan to encourage electric vehicles includes a variety of strategies, such as deploying electric ride-hail services, creating charging incentives, and adopting electric self-driving vehicles.

11 Mass Timber
An emerging building material called mass timber is just as strong and fire-resistant as steel or concrete yet far more sustainable.

12 Shikkui Plaster
A sustainable material called Shikkui plaster would provide fire protection equivalent to drywall with a fraction of the waste.

Impact at IDEA District scale

The smart disposal chain would reduce GHG emissions by 1.08 annual tonnes per capita (or 17.1 percent) from the city's current average. It would also result in a landfill diversion rate of 80 percent.

In addition to helping achieve the greater emissions savings of the smart disposal chain, the pneumatic tube system would remove truck traffic from local streets. Further, it could reduce the need to truck waste to a materials recovery facility for sorting, which currently adds 28 percent to processing costs.

In addition to helping achieve the savings of the smart disposal chain, an anaerobic digestion facility could achieve a carbon offset of 0.1 annual tonnes per capita through the creation of biogas, helping the district become climate positive.

The active stormwater system would reduce GHG emissions by 0.01 annual tonnes per capita (or 0.2 percent) from the city's current average. It would also achieve Toronto Green Standard Tier 3 for stormwater retention and reduce stormwater moving into municipal systems by 90 percent.

When combined with public transit, walking, cycling, and new mobility options, this electric vehicle plan would reduce transportation-related GHG emissions by 1.86 tonnes per capita from the city's current average.[95]

Mass timber traps 1 tonne of carbon dioxide in every cubic metre of timber, storing carbon that otherwise would have been released back into the air through decomposition. The timber required to build the whole IDEA District would remove the equivalent of roughly 150,000 annual cars from the road.[96]

The Shikkui system would result in a waste stream that can be recycled as plant-beneficial fertilizer, a far more sustainable alternative to the use of drywall, which generates nearly 12 million tonnes of debris every year.[97]

Housing affordability impacts

Goal: Exceed Waterfront Toronto's affordable housing minimum requirement (20 percent) with minimal reliance on public-sector funding — and create sufficient purpose-built rental housing and market ownership units to enable access to housing for all income groups.

Topline impact: A vision for a 40 percent below-market housing program, with the potential to create more than 13,600 below-market units, supported by $1.4 billion in new private funding sources along with additional government support.[98]

Proposed innovation or initiative

Impact at IDEA District scale

1 **Below-Market Housing Program**
An ambitious below-market housing program would feature 20 percent affordable housing units (a quarter of which would go towards "deep" affordability needs) and 20 percent middle-income housing units.

2 **"Purpose-Built" Rentals**
Half of the total proposed housing vision would consist of "purpose-built" rentals that are critical to improving long-term affordability.

3 **"Shared Equity" Units**
Middle-income housing options would include "shared equity" units designed to help households build value in their home without the high upfront cost of a traditional mortgage down payment.

4 **"Affordability By Design"**
An "affordability by design" approach reduces unit footprint while enhancing efficiency, flexibility, and community to enable the creation of more below-market units when compared to traditional development.

5 **Factory-Based Construction**
Factory-based construction can accelerate project timelines and enhance cost certainty, enabling an increase in land value, with such premiums directed towards below-market housing.

6 **Condo Resale Fee**
A condo resale fee of 1 percent would enable market ownership units to support rental economics, which would create an additional source of funding for below-market housing.

In Quayside, Sidewalk Labs commits to achieving this 40 percent below-market vision, which would create roughly 1,000 below-market units. If applied at the full IDEA District, with additional government support, this vision has the potential to create 13,600 below-market units by 2048 (including 6,800 affordable housing units).

In Quayside, Sidewalk Labs commits to purpose-built rental for half of its housing program, amounting to roughly 1,300 units. If applied at the full IDEA District with additional government support, this program has the potential to create 17,000 purpose-built rentals by 2048, improving long-term affordability.

In Quayside, Sidewalk Labs commits to having 5 percent of all units be shared equity units. If this initiative is extended across the full IDEA District, it could increase adoption of an alternative tenure model that can increase affordability for middle-income households.

In Quayside, affordability by design can generate an estimated $37 million towards below-market housing. If a 40 percent below-market vision is applied at the scale of the IDEA District, it could generate an estimated $475 million in value towards below-market housing.

In Quayside, factory-based construction would be tested and refined but would require an estimated 6 million square feet to drive value. If a 40 percent below-market vision is applied at the scale of the IDEA District, factory-based construction could generate $639 million in value towards below-market housing.

In Quayside, a condo resale fee would be implemented but would not yet drive value. If a 40 percent below-market vision is applied at the scale of the IDEA District, a condo resale fee could generate $321 million in value towards below-market housing.

Proposed innovation or initiative

Impact at IDEA District scale

7 **Waterfront Housing Trust**
A proposed Waterfront Housing Trust would "lock-box" new private funding sources — including land value from factory-based construction and the condo resale fee — for below-market housing.

8 **Efficient and Ultra-Efficient Units**
Efficient and ultra-efficient units of reduced size would enable affordability while remaining livable through thoughtful design features that make the most of their space.

9 **Co-Living Units**
Co-living units would feature shared building amenities, such as communal kitchens, to enhance community for a range of residents.

10 **Family-Sized Units**
Family-sized units of at least two bedrooms or more would expand housing options for households of all sizes.

11 **Care Collective**
A Care Collective would provide community space dedicated to enhancing health and well-being by co-locating the delivery of health care and community services alongside proactive health programming.

12 **Civic Assembly**
A Civic Assembly would provide neighbourhood access to spaces for community programs, civic engagement, and cultural events to bolster community.

13 **Elementary School and Daycare Centre**
Plans for an elementary school and daycare centre would ensure that downtown families have access to basic education and childcare needs.

14 **Toronto Public Library (TPL)**
A proposed collaboration with the Toronto Public Library (TPL) would explore ways to integrate the library's presence, resulting in potential pop-up lending services or TPL-developed classes on digital literacy.

The Waterfront Housing Trust (not administered by Sidewalk Labs) could assemble and disburse funding from a variety of sources for below-market housing within the IDEA District, increasing the predictability and certainty of funding for developers.

Efficient units of all sizes — up to four bedrooms — would create an affordable option for single-person households, families, seniors, and other groups looking for high-quality downtown living with access to community services, public spaces, and neighbourhood amenities.

Integration of co-living spaces could improve affordability while creating more community-focused housing options for seniors, families, and others seeking a stronger sense of community from downtown living.

In Quayside, Sidewalk Labs commits to creating 40 percent of units at family size. If applied at the full IDEA District, this approach could help make downtown living affordable and possible for families that might otherwise leave the city.

To support residents and ensure a complete community, the Quayside plan sets aside a central space for the Care Collective, which would be activated by local partners. If these partners choose, the Care Collective could demonstrate a forward-looking model that could extend throughout the IDEA District.[99]

To support residents and ensure a complete community, the Quayside plan envisions the Civic Assembly as a place to connect with neighbours, access local services, and participate in community decisions. If extended across the IDEA District, it could further enhance social interaction and community engagement.[100]

To support residents and ensure a complete community, the Quayside plan proposes to work with the Toronto District School Board to plan for an elementary school; a portion of the space could also be allocated for a childcare facility. Beyond Quayside, this approach would demonstrate the viability of planning a neighbourhood with families in mind from the start.[101]

While Sidewalk Labs has not yet proposed such collaborations beyond Quayside, the scale of the IDEA District provides the opportunity to enable new learning experiences for a broader population.[102]

New mobility impacts

Goal: Reduce the cost and climate impact of transit options while maintaining or increasing convenience for travellers and goods-movement, including by strengthening connections to the city's public transit network, relying more heavily on electric vehicles, and leveraging the future potential benefits of self-driving vehicles.

Topline impact: A safe, affordable, and fully accessible mobility system in which 77 percent of all trips are made by public transit, cycling, or walking; pedestrian street space increases by 91 percent; and households can save $4,000 a year in mobility costs.[103]

Proposed innovation or initiative

1 **Self-Financing Light Rail Transit Extension**
A light rail transit extension would connect residents to job hubs and draw workers and visitors to the waterfront from all over the city.

2 **Pedestrian and Cycling Infrastructure**
A network of pedestrian and cycling infrastructure features wider sidewalks, wider and heated bike lanes, and accessibility elements to encourage walking and cycling and support people using wheelchairs or other assistive devices.

3 **New Mobility Services**
New mobility services such as ride-hail, bike-share, electric vehicle car-share, and e-scooters would provide affordable alternatives to private car trips.

4 **Integrated Mobility Subscription Package**
An integrated mobility subscription package would establish a new pricing model that enables residents and workers to see all their trip choices in real time and pay in one place.

5 **"People-First" Street Types**
"People-first" street types are designed for different speeds and primary uses, including Boulevards and Transitways for public transit and vehicle traffic, Accessways for cyclists, and Laneways for pedestrians.

6 **Accessibility Initiatives**
A wide set of accessibility initiatives would include curbless street design, wider sidewalks, heated pavement, wayfinding beacons, and accessible ride-hail vehicles.

Impact at IDEA District scale

At the full scale of the IDEA District, roughly 77 percent of all trips would occur by public transit. The light rail could serve more than 72,900 riders and make 36 percent of jobs accessible across Toronto within 30 minutes — while demonstrating the viability of the self-financing approach.[104]

At the full scale of the IDEA District, more than 16 percent of all trips would occur by foot, bike, or other low-speed vehicles. Cyclists would be able to reach 100 percent of buildings on a dedicated bike lane or cycling street, compared to roughly 15 percent in a typical downtown Toronto neighbourhood today.[105]

With the arrival of self-driving technology, applied at the full scale of the IDEA District and coordinated with the city, roughly 7 percent of all trips would occur by ride-hail options, reducing the need to own a car.[106]

Adopting this package — which would include access to public transit, bike-share, ride-hail, car-share, and other services — would save two-person households an estimated $4,000 a year if they choose to go car-free.[107]

These street types would serve as the foundation for the suite of mobility options and innovations proposed by Sidewalk Labs. At the full IDEA District scale, this network would enable people to fulfill all their daily needs within a 15-minute walk while still ensuring that people can get where they need to go.[108]

These initiatives would ensure that every street meets or exceeds all the requirements of the 2005 Accessibility for Ontarians with Disabilities Act (AODA), making it easier for everyone to get around.[109]

Proposed innovation or initiative

7 **Freight "Logistics Hub"**
A freight "logistics hub" would feature a consolidated shipping centre (housed alongside on-demand storage and a borrowing library) with underground delivery, reducing truck traffic on local streets and improving convenience.

8 **Mobility Management System**
A mobility management system would use real-time information to coordinate travel modes, traffic signals, and street infrastructure, and to apply pricing to curb and parking spaces — reducing congestion and encouraging shared trips.

9 **District Parking Management System**
A district parking management system would incorporate high-density on- and off-site parking, on-demand retrieval of vehicles, and electric-vehicle charging.

10 **Dynamic Curbs**
Dynamic curbs are flexible street spaces that provide passenger loading zones during rush hour and public spaces at off-peak times.

11 **Adaptive Traffic Signals**
Adaptive traffic signals have the ability to prioritize pedestrians who need more time to cross a street or public transit vehicles running behind schedule.

12 **Modular Pavement**
Modular pavement consists of hexagonal pavers that can be replaced or repaired quickly, dramatically reducing the amount of time streets spend closed down for road or utility work and increasing the flexibility of street uses.

Impact at IDEA District scale

In Quayside alone, this system would reduce truck trips into the neighbourhood by 72 percent, along with reducing disruption to local roads and surrounding areas — benefits that would increase considerably at the full IDEA District scale.[110]

Such a system could coordinate the entire street network to help achieve transportation goals established by a public entity, such as prioritizing modes that carry the most people, striving towards Vision Zero safety, reducing curbside traffic, and providing cyclists with "green waves" for faster and safer travel.[111]

Such a system could dramatically reduce the need for on-site garage or curbside parking, enabling this space to be used for housing, parks, or other uses and encouraging adoption of electric vehicles.

Dynamic curbs would have the capacity to process six times as many curbside pick-ups and drop-offs as a typical one-hour metered curb and would greatly expand the diversity of uses that could be supported in the public realm.

Adaptive traffic signals could optimize their systems across a wider area, enabling the mobility management system to achieve its transportation objectives.

Over a 30-year period, modular pavement coupled with open access channels would be 13 percent less expensive per square metre than the standard waterfront streetscape in Toronto today by reducing maintenance costs and accelerating utility repair.[112]

Urban innovation impacts

Goal: Tackle complex urban problems, from traffic congestion to energy use, using emerging physical and digital tools, incorporating a series of requirements, such as making data open by default to ensure equitable access by third parties, avoiding vendor lock-in and ensuring competition, and enhancing data security and privacy.

Topline impact: Catalyzing urban innovation through the implementation of flexible physical conditions and open digital conditions that together enable third parties to create new solutions using urban data in a responsible way.[113]

Proposed innovation or initiative

1   **Ubiquitous Connectivity Internet Network**
A ubiquitous connectivity internet network — powered by a new Super-PON technology that reaches faster speeds with less equipment — could provide households and businesses with a secure personal network across an entire neighbourhood.

2   **Standardized Physical Mounts**
Standardized physical mounts connected to power would reduce the cost of deploying digital innovations, serving as an "urban USB port" of sorts.

3   **Open, Published Standards**
Open, published standards would make properly protected urban data accessible to the community in real time.

4   **Urban Data Trust**
A proposed Urban Data Trust would build on existing Canadian privacy laws to oversee the review and approval of all digital innovations that propose to use or collect urban data.

5   **Responsible Data Use**
Clear Responsible Data Use Guidelines (such as making de-identified or non-personal data publicly accessible by default) and a publicly transparent Responsible Data Use Assessment would help ensure responsible innovation.

6   **Security and Resiliency**
A best-in-class approach to security and resiliency would be designed to prevent disruptions, rapidly detect them, and rapidly restore functionality.

Impact at IDEA District scale

Deployed across the IDEA District, this advanced connectivity would provide the foundation for countless new services and solutions to emerge within the urban innovation cluster. It would also create momentum to deploy lower-cost Super-PON technology, improving the equitable growth of key digital infrastructure.[114]

The proposed standardized mount system could cut the amount of time it takes to install a device from 30 hours today to two hours, a 92 percent savings of time and cost, enabling a wide array of third parties to deploy urban innovations and preventing vendor lock-in.

At the scale of the IDEA District, open standards enable a broad range of third parties to build new services or competitive alternatives to existing ones, establishing a core condition for the urban innovation cluster to thrive.[115]

Over the longer term, once this publicly-accountable entity has benefited from many use cases in Quayside, it could have broader coverage — enabling an urban innovation cluster to grow while protecting inclusion, privacy, and the public good.

Established by an independent entity such as the Urban Data Trust, RDU Guidelines and Assessments would help ensure that urban innovation has a beneficial purpose — not falling into the trap of being tech for tech's sake — and that it remains publicly accountable.

This approach would ensure that urban innovations that use urban data or connectivity remain protected from intentional actions, inadvertent disruptions, or environmental events that could disrupt digital services or infrastructure.[116]

Proposed innovation or initiative

7   **Open Access Channels**
Open access channels located under removable pavers allow for easy utility access and greater flexibility to incorporate new systems as they are developed over time.

8   **Shared Programming Infrastructure**
Shared programming infrastructure, such as projectors and lighting options, would enable communities to program open spaces themselves.

9   **Outdoor-Comfort System**
A proposed outdoor-comfort system (featuring Raincoats to shelter sidewalks, Fanshells to cover open spaces, and Lanterns to block wind) could dramatically increase the amount of time it is comfortable to be outside.

10   **Real-Time Map of Public Realm Assets**
A real-time map of public realm assets — including park benches and landscaped gardens — would enable proactive maintenance and keep spaces in good condition.

11   **Generative Design**
A digital planning tool called "generative design" could help planners identify opportunities to achieve development objectives, such as increased daylight, open space access, or density.

Impact at IDEA District scale

In addition to facilitating utility access, open access channels would provide communities with greater flexibility to respond to changing needs, enabling infrastructure transformations (such as installing a new community garden) or new utility systems (such as a new communications network with higher performance capabilities) to be implemented faster and at a lower cost.[117]

In Quayside and across the greater geography of the IDEA District, shared public realm infrastructure would empower the community to program public spaces, democratizing placemaking.[118]

In Quayside, this system would help to increase comfortable hours by 35 percent. Applied throughout the IDEA District, this weather-mitigation system has the potential to double the number of hours it is comfortable to be outdoors each year across key spaces, drawing more people outdoors, together.[119]

This map would serve as a single repository for information about open spaces and related infrastructure, enabling open-space managers to run operations software on top of it, improving maintenance, issue response, and proactive repairs. For instance, a water pipe sensing system paired with this map could ultimately save up to $200,000 a year in preventing quotidian water leaks.[120]

Such a tool could help ensure that the wide array of developers, architects, and designers who would be responsible for building out the IDEA District over time would maintain flexibility and creativity in developing new ideas, while at the same time ensuring that their proposals achieve key public interest objectives.[121]

Implemen-tation

Approval Process, Transaction, and Implementation Timeline

On October 16, 2017, Sidewalk Labs and Waterfront Toronto entered into a Framework Agreement that put forth a set of basic terms and fundamental principles to structure their working relationship.[122] Sidewalk Labs committed up to $50 million (USD) to fund the over a year-long joint planning process and development of the MIDP and committed to a robust public consultation process to inform all proposals.

Key Term
Framework Agreement

The Framework Agreement, entered following Sidewalk Labs' designation as Innovation and Funding Partner, defined the scope of its relationship with Waterfront Toronto and their shared vision for the MIDP.

The Framework Agreement was the first step in aligning on shared values and goals for the project and contemplated a series of core programmatic components, including the establishment of the Urban Innovation Institute, a waterfront Canadian headquarters for Google, and more.

On July 31, 2018, Sidewalk Labs and Waterfront Toronto entered into a second phase agreement — the Plan Development Agreement (PDA) — which superseded the Framework Agreement and provided further detail on the roles and responsibilities of both parties in the planning process and production of the MIDP.[123] The PDA included a detailed budget for Sidewalk Labs' $50 million commitment and began to consider key themes that will govern the implementation of the MIDP once it is approved.

In December 2018, Waterfront Toronto introduced a series of goals and objectives as well as a set of priority outcomes for the MIDP: job creation and economic development; sustainability and climate-positive development; housing affordability; new mobility; and urban innovation (including robust data privacy and digital governance).[124]

Waterfront Toronto developed these priority outcomes through a process which built on the objectives laid forth in the RFP, Waterfront Toronto's own corporate objectives, and key government policy objectives. Waterfront Toronto identified priority outcomes as the basis for the ultimate evaluation of the MIDP, rather than preemptively identifying prescriptive strategies to achieve the outcomes. To accompany the goals, objectives, and priority outcomes, Waterfront Toronto shared a list of process-focused requirements for the implementation of proposals included in the MIDP, with particular focus on an approach to data privacy and governance.

Waterfront Toronto is currently developing a framework and process that will be used to evaluate the MIDP. This evaluation framework is expected to be based largely on the priority outcomes and will also include more specific frameworks and processes for evaluation of each volume of the MIDP. Sidewalk Labs anticipates that Waterfront Toronto's evaluation of the complete MIDP itself will also involve consultation by Waterfront Toronto with independent external experts and the public. Waterfront Toronto's evaluation of the plan is expected to inform the potential revision of the draft MIDP, a final decision on approval by Waterfront Toronto's board of directors, and the review of the MIDP by the governments.

These actions laid the groundwork for the draft MIDP, which details both a plan and a path for implementation. It depends on a series of approvals from Waterfront Toronto and the three orders of government.

Approval of the MIDP and Establishment of IDEA District / CIP

Sidewalk Labs anticipates that Waterfront Toronto will undertake additional public consultation and analysis as part of its formal review and assessment of the draft MIDP. This assessment will likely inform further revisions to the MIDP by Sidewalk Labs. Waterfront Toronto's assessment will also inform any actions by the Waterfront Toronto Board of Directors and its shareholder governments. The MIDP proposes a complex project that would unfold over multiple years. Numerous elements of the project would evolve through negotiation as the project advances through implementation, but the level of detail in the MIDP has been developed to inform a wide-ranging series of upfront agreements and actions. As outlined in the PDA, approval of the MIDP by both Waterfront Toronto and Sidewalk Labs is required in order for the project to proceed.

A vote by Waterfront Toronto's board of directors to approve a term sheet based on the MIDP would become the basis for the negotiation and completion of detailed implementation agreements (the "Implementation Agreements") which would then have to be formally approved in subsequent actions by the Waterfront Toronto Board of Directors. The Implementation Agreements would govern all aspects of the relationship between Sidewalk Labs and Waterfront Toronto. In some cases, Implementation Agreements may be required between Sidewalk Labs and other parties, most notably the orders of government.

Implementing the MIDP would also require government action to establish the boundaries of the IDEA District and approve a policy framework and implementation timetable, potentially through a CIP under Section 28 of the Planning Act, sufficient to ensure that reforms are considered by government and enacted in time for their application to this project.

An endeavour of this magnitude raises complex issues for government, and risks and opportunity costs for investors. Sidewalk Labs further requests the three orders of government take the steps necessary to establish the IDEA District with all deliberate speed. Based on this assumption, Sidewalk Labs estimates that the initial approvals for the project could be completed by Q1 2020.

Fig. 5.1
Actions necessary for implementation

Category	Actions
Approval of the MIDP by Waterfront Toronto	Waterfront Toronto Board of Directors vote to: Approve a term sheet reflecting the MIDP as the innovation roadmap for Waterfront Toronto's revitalization strategies for Quayside and the proposed project area. Authorize management to complete detailed Implementation Agreements with Sidewalk Labs, pursuant to the project and broad terms outlined in the MIDP and subject to additional approvals by the Waterfront Toronto Board of Directors. Recommend to governments the creation of the IDEA District.
Sidewalk Labs and Alphabet Approval	Alphabet and Sidewalk Labs to approve final MIDP, per the PDA.
Implementation Agreements Between Waterfront Toronto, Sidewalk Labs, and Governments	Implementation Agreements to be drafted and executed as the governing documents for all aspects of the transaction between Waterfront Toronto and Sidewalk Labs. Where necessary, Implementation Agreements to be drafted and executed between Sidewalk Labs, Waterfront Toronto, and other governmental entities, as warranted by specific programmatic initiatives. Approval of the Implementation Agreements by the Waterfront Toronto Board of Directors.
Enabling Actions by Government	City Council vote to request a Staff Report and/or establish negotiation between the City and Sidewalk Labs. Submission of a Staff Report from the Waterfront Secretariat to the Toronto City Council. Government actions in support of the establishment of the IDEA District.

Implementation Agreements between Waterfront Toronto, Sidewalk Labs, and the governments

Following the approval of a term sheet reflecting the MIDP as a blueprint for the transaction, Sidewalk Labs and Waterfront Toronto would enter into Implementation Agreements that would set forth, at a level of detail sufficient to enable the implementation of the project to commence, the terms for governance, economics, roles and responsibilities, risk management, performance requirements, off-ramps, and all other transactional requirements of all involved parties. The Implementation Agreements would include the definitive documents to support the transaction, enabling investment to proceed, and would have to be formally approved by both Waterfront Toronto and Sidewalk Labs. The specific set of Implementation Agreements and responsible parties would be negotiated with Waterfront Toronto and city, provincial, and federal government partners after formal review of the MIDP has been completed. As the project progresses, Sidewalk Labs also expects Waterfront Toronto to prepare Business Implementation Plans (BIPs), and seek other necessary authorizations, which would be required before advancing to future phases.

Ongoing project development

Concurrent with the process to finalize the Implementation Agreements, Sidewalk Labs would advance work in four areas in order to further refine the implementation pathway for all plans and projects that will be subject to subsequent government approval processes. Each of these workstreams is critical in translating the MIDP from its current form as a proposal to an actionable plan that takes into account the ongoing de-risking and continued development of specific initiatives, and the path forward for implementation.

1

Refine the program.
First, Sidewalk Labs would continue to develop and refine the program in Quayside and for Villiers West. The development program would be amended and refined based on ongoing analysis as well as feedback received from critical stakeholders, government partners, and the public as it is solicited during government and Waterfront Toronto-led review processes.

2

Advance core innovations.
Second, Sidewalk Labs would advance the urban innovation agenda and the development of specific new technologies. For example, to further test and refine the application of Sidewalk's tall timber kit of parts, Sidewalk Labs would begin designing a roughly 30-storey protomodel building (called Proto Model X or "PMX"). PMX will test the viability of integrating various technologies in one building, within the constraints of Quayside, and will help Sidewalk Labs and government partners identify the necessary policies and regulations required to support delivery of a system of timber buildings in the coming years.

This approach and other solutions would advance Sidewalk Labs' plans for Quayside to a point where there is sufficient information and proof of feasibility to receive regulatory approvals (such as permitting tall timber above six storeys). For each technology or planning solution proposed for Quayside, Sidewalk Labs would further refine the roadmap for implementation that can be executed against once all approvals and permissions are in place.

3

Engage third parties.
Third, Sidewalk Labs has begun to engage and will continue to engage third parties, including from the local real estate development community, as potential partners to execute plans in Quayside and Villiers West.

4

Prepare for planning and development.
Fourth, Sidewalk Labs would prepare for, in coordination with Waterfront Toronto, the pursuit of the planning and development permissions necessary for Quayside. Though the approval process for development plans would be finalized once the Implementation Agreements have been completed, Sidewalk Labs would continue to refine the plans for Quayside in anticipation of the submission of a development application.

Planning and development approvals process

Upfront approval of the overall transaction would not substitute for the subsequent pursuit of incremental approvals, wherever appropriate. With the Implementation Agreements in place, it is expected that project delivery would begin with a series of public planning processes whereby planning and development permissions are established to implement the MIDP.

Notwithstanding the planning roles and functions proposed within the IDEA District, all planning approvals and related development rights would be sought through established provincial legislation for regulating land and infrastructure development — most notably the Planning Act and the Environmental Assessment Act — and would require City Council approval. These would be public processes that continue the consultation efforts involved in preparing the MIDP as Sidewalk Labs commits to fair, transparent, and meaningful engagement that exceeds established statutory requirements.

Generally, the approvals required for project delivery to begin would proceed as follows:

Vertical development would proceed through the City of Toronto's formal development application process and would be subject to City Council approval. The public administrator would be responsible for certifying that all development applications going to City Council are consistent with the established principles and objectives for the IDEA District.

Horizontal development approval would be coordinated through the public administrator and would undergo Environmental Assessment approval where required. All municipal infrastructure components would need to be approved by Toronto's City Council.

All site remediation and preparatory work would undergo Ministry of Environment review and approval and would be the responsibility of the vertical developers.

Geographic areas within the IDEA District have undergone varying degrees of planning efforts to date. As required in the Central Waterfront Secondary Plan, land use and infrastructure development on the Waterfront would be guided by and regulations would be established through a precinct planning process. To date, precinct plans have been established for Quayside (a combination of two precinct plans: The East Bayfront Precinct Plan and the Keating Channel Precinct Plan), Keating, and Villiers Island. Regulatory controls through a Zoning Bylaw have been established for Quayside and Keating West, but not for Keating East or Villiers Island.

Future Precinct Plans would be required for McCleary and Polson Quay. With regard to infrastructure development, Environmental Assessment approvals are complete for Quayside but additional assessments would be required for other areas.

Given the varying level of existing planning across the IDEA District and given the different proposed roles for Sidewalk Labs within those phases, the specific paths to project delivery would be slightly different. At Quayside, the approvals process would be akin to a traditional development application process and would be led by Sidewalk Labs as vertical developer. As zoning and Environmental Assessments for Quayside are already in place, the approval process would be based on modest modifications consistent with the MIDP and detailed in a Quayside Development Plan Application, which would address land uses, densities, built form, and associated requirements, and through a related Infrastructure and Transportation Master Plan, which details the horizontal infrastructure required to support and service the precinct.

In the River District, while Precinct Plans have been established for Keating and Villiers Island, no Zoning Bylaw or Community Planning Permit Bylaw has been adopted for Keating East or Villiers Island. McCleary and Polson Quay have yet to undergo precinct planning processes. As a result, those areas would undergo sequential but overlapping planning processes led by the IDEA District public administrator.

As noted in Chapter 2, Sidewalk Labs would be proposing adjustments to the precinct plans for Quayside (see table on Page 92) and Villiers West (see table on Page 104).

The project will evolve through negotiation and ongoing public consultation as it advances to government approval and implementation.

Phase 1 project delivery timeline: Quayside Plan

Sidewalk Labs, in coordination with Waterfront Toronto, would prepare three formal documents for Quayside:

the Development Plan Application,

the Infrastructure and Transportation Master Plan (ITMP), and

a site remediation plan.

These interrelated workstreams, all necessary to facilitate the implementation of the project, would be developed in parallel in order to finalize the build plan for Quayside and to prepare the site for development.

Upon execution of the Implementation Agreements, a formal Development Application would be submitted to the City of Toronto in early 2020 and it is expected that zoning approvals would be in place by early 2022, with building permits for the first buildings issued prior to year-end 2022. In the interim, in 2021, Sidewalk Labs anticipates that site preparation work on the initial Quayside sites (likely Sites 1 and 2, per plans shown in Volume 1), would commence, in parallel with the pursuit of final zoning approvals.

The Quayside Plan would provide the basis for all other documents, and the ITMP would detail all horizontal infrastructure required to support and service the proposed development. Working with Waterfront Toronto, Sidewalk Labs would identify all amendments or new Environmental Assessment approvals required and Waterfront Toronto would work with appropriate public agencies to seek approval. The ITMP would also be used by Sidewalk Labs to support a Draft Plan of Subdivision. It is expected that Environmental Assessment approvals and the Draft Plan of Subdivision approval would be complete in 2022, commensurate with initial development.

Sidewalk Labs would be responsible for ensuring that all Ministry of Environment guidelines for site remediation are met. A site remediation plan would be prepared and submitted in early 2020. It is expected that preliminary site work could begin as early as 2021, with anticipation of excavation and construction in 2022.

Based on the projected timeline, initial occupancy of the first building in Quayside would occur in mid-2024, with full occupancy across the entire Quayside site achieved by the close of 2026. The following timeline summarizes the anticipated delivery schedule for Quayside.

Fig. 5.2
Quayside timeline
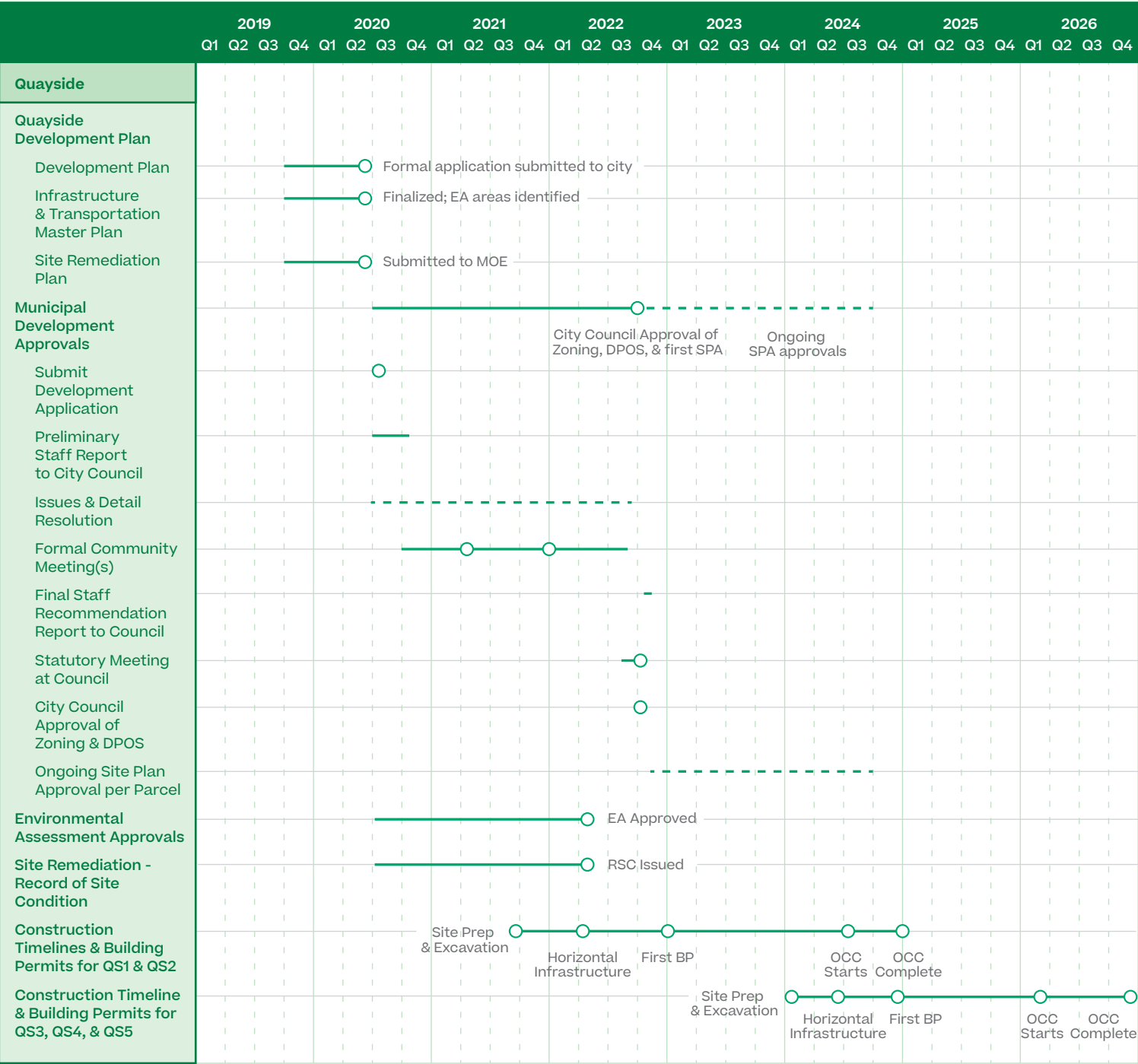
DPOS = Draft Plan of Subdivision; MOE = Ministry of Environment; EA = Environmental Assessment; RSC = Record of Site Condition; BP = Building Permit; OCC = Occupancy; SPA = Site Plan Approval; see Volume 1 for details on Quayside sites 1 through 5.

# Phase 2 project delivery timeline: Villiers West urban innovation campus

Sidewalk Labs proposes to create an urban innovation campus at the western end of Villiers Island as part of an overall economic development strategy. The City's MOU with Waterfront Toronto specifically contemplates circumstances, such as this one, where an economic development project justifies the disposition of land outside the context of a traditional request for proposal. Indeed, the MOU specifically notes that "some flexibility is required," for example, when "responding to a business that is interested in looking to move to or establish itself in Toronto."

The Villiers West urban innovation campus would provide an opportunity for a wide cross-section of researchers, designers, engineers, and producers to co-locate and collaborate on ideas and technologies that drive urban innovation. As part of this proposal, Sidewalk Labs has worked with Alphabet to commit to establish a new Google Canadian headquarters that would serve as a major tenant and initial anchor for the campus. Accordingly, Sidewalk Labs proposes to undertake the vertical development role for this campus.

Sidewalk Labs would prepare a Villiers West development plan, in parallel with the Quayside development plan, with a formal development application submitted to the City of Toronto by early 2022. It is expected that zoning approvals would be in place by 2024 with building permits for the first building (or buildings) by the start of 2025, consistent with the timeline for completion of the Port Lands Flood Protection and Enabling Infrastructure construction.

Sidewalk Labs would also prepare an ITMP detailing all horizontal infrastructure required to support and service the proposed Villiers West development, including local roads and servicing. This plan would be coordinated with the Infrastructure and Transportation Framework Plan prepared for the entire River District. The ITMP would be used by Sidewalk Labs to support a Draft Plan of Subdivision, and in collaboration with Waterfront Toronto, any necessary Environmental Assessment approvals would be identified. It is expected that Environmental Assessment approvals and the Draft Plan of Subdivision approval would be complete by 2024, commensurate with initial development. Sidewalk Labs would also be responsible for ensuring that all Ministry of Environment guidelines for site remediation are met. The site remediation approval process would follow the municipal approval process and would be undertaken between 2022 and 2024. Occupancy by Google, the Urban Innovation Institute, and other tenants is anticipated by 2028.

Fig. 5.3

Villiers West timeline
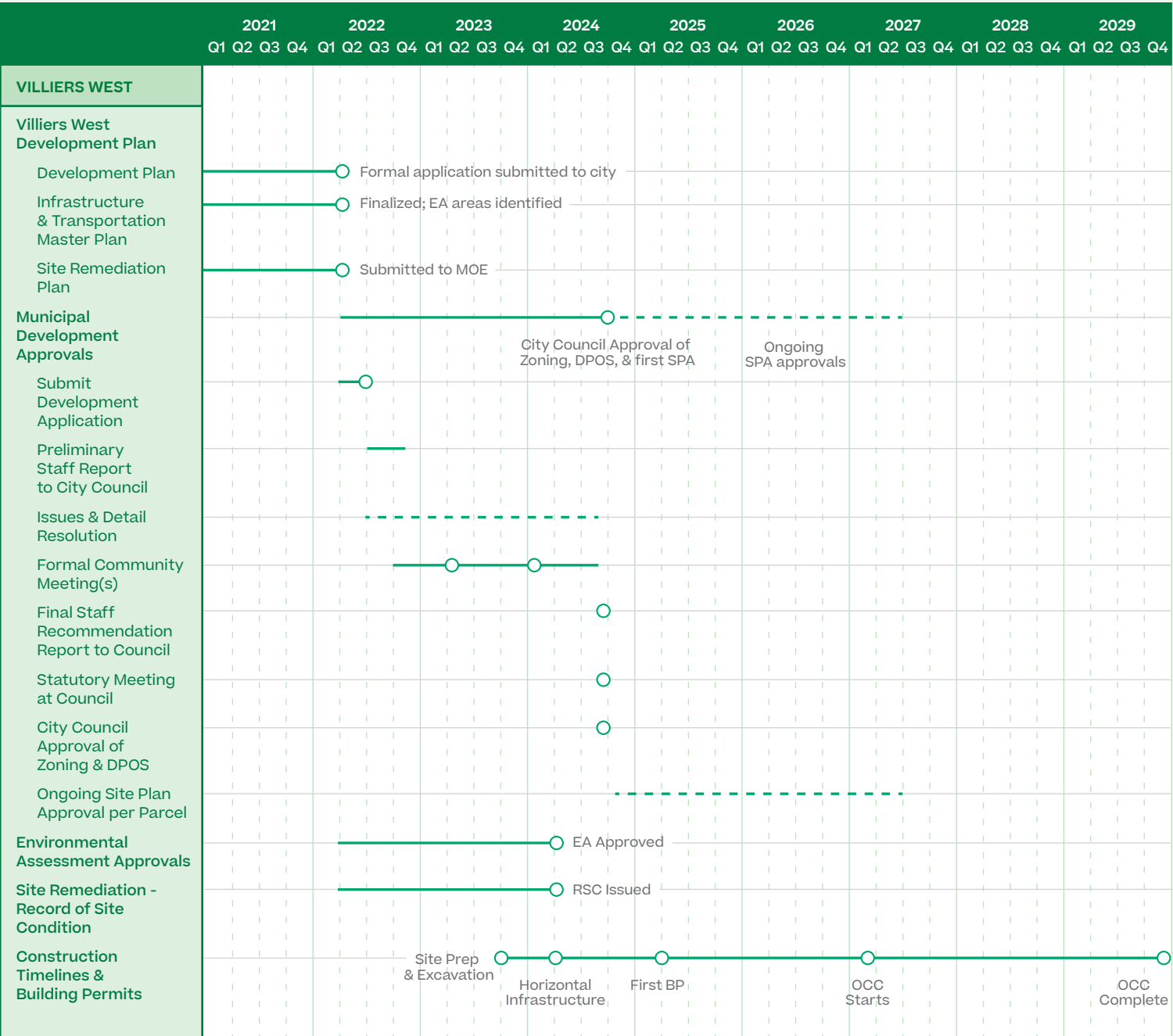
DPOS = Draft Plan of Subdivision; MOE = Ministry of Environment; EA = Environmental Assessment; RSC = Record of Site Condition; BP = Building Permit; OCC = Occupancy; SPA = Site Plan Approval

Stage Gates and Risk Mitigation

Introduction

Sidewalk Labs proposes a phased implementation approach and a series of risk mitigation strategies that together seek to ensure that the project advances incrementally, protects the public sector and third parties, and has the greatest opportunity for success. Most importantly, the overall transaction is structured around a series of stage gates.

The stage-gate approach requires Sidewalk Labs to earn the right to proceed to successive project stages, rather than receiving the contractual right to complete the project at the outset. At each stage, Sidewalk Labs must satisfy key project milestones set out in the Implementation Agreements, and, in the process, prove the effectiveness and commercial viability of its innovation strategy before applying it to third parties.

As reflected in the table at the end of this section, the proposed stage gates track the key planning, construction, and expansion phases of the project. Sidewalk Labs must satisfy milestones before moving from planning development of Quayside (Stage 1) to construction of Quayside (Stage 2), to planning development of Villiers West (Stage 3), to construction of Villiers West (Stage 4), and, later, before the IDSG applies to the broader IDEA District (Stage 5), and before Sidewalk Labs becomes eligible for performance

payments (Stage 6). Initially, Sidewalk Labs' role would be restricted to Quayside, where it would serve as lead developer of real estate and advanced systems. To pass through the Quayside stage gates and undertake similar responsibilities for Villiers West, Sidewalk Labs must satisfy a series of project milestones. At the planning stage, these include submitting a development application that matches the MIDP vision, including for affordable housing, sustainability, and other key elements, and securing the promised investment in a tall timber factory. At the construction phase, these include Sidewalk Labs delivering on its LRT financing commitment if required and preparing the initial set of standards and guidelines constituting the IDSG. If Sidewalk Labs is unable to achieve these project milestones, the company would not be entitled to vertically develop Villiers West and the public administrator would not apply its innovation strategy to the IDEA District overall.

For the final stage gates, the proposed project milestones include key performance targets. These specific quantitative targets would track Waterfront Toronto's priority outcomes and would be negotiated as part of the Implementation Agreements. By satisfying these performance targets (such as reducing greenhouse gas emissions to a particular extent), Sidewalk Labs would demonstrate the effectiveness of its overall approach. In the event that Sidewalk Labs does not deliver, the public administrator would not apply the IDSG beyond Quayside and Villiers West, where Sidewalk Labs would serve as lead developer of real estate and advanced systems. Moreover, Sidewalk Labs would not earn a performance payment.

The following table reflects the proposed milestones that define each stage gate, the obligations that Sidewalk Labs must fulfill to move beyond the stage gates, the obligations of Waterfront Toronto and its government stakeholders for Sidewalk Labs to proceed with its investment, and the implications for achieving or failing to achieve at each stage. The table provides an estimated date for completion of each stage gate, although these are subject to change as the project proceeds. The timing also depends on the timeframe for approvals needed from Waterfront Toronto and the governments to advance the different

project elements, which are necessary conditions for Sidewalk Labs to fulfill its obligations. After Waterfront Toronto approves the MIDP as a basis for transaction, the parties would endeavour to supplement and refine the stage gates through negotiation, and to memorialize them as contractual terms in the Implementation Agreements.

Separate and apart from the stage gates described in the following table, Sidewalk Labs would not proceed with construction on Quayside absent key government actions. These include:

    Government approval of IDEA District boundaries, potentially as a Community Improvement Project Area, with an approved policy framework and implementation timeline

    A government commitment to advance the LRT, which could proceed in phases

    The assembly of lands constituting Villiers West, and a commitment to sell such lands to Sidewalk Labs in accordance with the Implementation Agreements

In addition to stage gates, the Implementation Agreements would incorporate a series of off-ramps for each party, providing fair financial and contractual remedies should the project not proceed as planned. These off-ramps would relate to milestones in the project timeline and to the delivery of contractual commitments by all parties.

To protect the public sector, Sidewalk Labs must achieve performance milestones at every stage to earn the right to advance to successive project stages.

Fig. 6.1

Proposed stage gates

	Stage Gate	Project Milestone for Sidewalk Labs	Needed Action by Waterfront Toronto and Public Sector	Implications if Stage Gate Not Achieved
1	**Sidewalk Labs submits Quayside development plan** (**Estimated completion of stage gate before 2021**)	A. Submission of Development Plan Application for Quayside reflecting the development plan in the MIDP and the innovation guidelines, including as related to: i. Use mix ii. Minimum percentage of affordable housing iii. Sustainability requirements iv. Economic development v. Public realm B. Submission of ITFP to Waterfront Toronto, aligned with MIDP proposal. C. Investment in timber factory.	A. Approval of development plan, per standard process (including any necessary Sidewalk Labs revisions). B. Granting of initial legal adjustments and permissions needed for Quayside plan (legislative, contractual, or regulatory). C. Upon approval of development plan, Quayside "closing" as per terms in the Implementation Agreements. D. Utilization of Sidewalk Labs as Innovation Partner to advise in planning efforts underway within IDEA District/CIP geography.	The project will not proceed unless and until the stage gate is satisfied.
2	**Sidewalk Labs begins construction on Quayside** (**Estimated completion of stage gate before 2022**)	A. Commitment of equity necessary to begin construction of vertical development and advanced systems on first parcel. B. Submit draft IDSG to Waterfront Toronto, reflecting final Quayside plan. C. Delivery of credit facility or alternative financing tool consistent with optional LRT financing commitment.	A. Granting of building permits and additional approvals needed to begin construction. B. Initiating financing structure/approach for LRT with timeline and clarity as to delivery path. C. Construction of municipal infrastructure underway.	If Sidewalk Labs does not commit equity to begin Quayside construction, it cannot proceed with the formal submission of the Villiers West development plan.
3	**Sidewalk Labs submits Villiers West development plan** (**Estimated completion of stage gate before 2023**)	A. Delivery of Google Toronto occupancy agreement. B. Submission of Development Plan Application for Villiers West reflecting the development plan in the MIDP and the innovation guidelines, including as related to: i. Use mix ii. Minimum percentage of affordable housing iii. Sustainability requirements iv. Economic development v. Public realm C. Completion of ITFP for Villiers West.	A. Approval of development plan, per standard process (including any necessary Sidewalk Labs revisions). B. Granting of additional legal adjustments and permissions needed for Villiers West plan (legislative, contractual, or regulatory). C. Upon approval of development plan, Villiers West "closing" as per terms in the Implementation Agreements. D. Utilization of Sidewalk Labs as Innovation Partner to advise in planning efforts underway within IDEA District/CIP geography.	The Villiers West project will not proceed unless and until the stage gate is satisfied.

	Stage Gate	Project Milestone for Sidewalk Labs	Needed Action by Waterfront Toronto and Public Sector	Implications if Stage Gate Not Achieved
4	**Sidewalk Labs begins construction on Villiers West** (**Estimated completion of stage gate before 2024**)	A. Commitment of equity necessary to begin construction of Villiers West vertical development and advanced systems. B. Submission of an updated IDSG to Waterfront Toronto, reflecting final Villiers West development plan.	Granting of building permits and regulatory approvals needed to begin construction.	The Villiers West project will not proceed unless and until the stage gate is satisfied.
5	**IDSG applies to broader IDEA District** (**Estimated completion of stage gate before 2025**)	A. Achievement of a minimum of 50% occupancy for Quayside, consistent with approved development plans. B. Satisfying performance targets of Implementation Agreements.	Public administrator to elect to adopt revised IDSG for remainder of IDEA District.	If Sidewalk Labs does not meet the project milestones, Waterfront Toronto and governments do not adopt IDSG requirements for future developments.
6	**Sidewalk Labs becomes eligible for performance payments** (**Estimated completion of stage gate before 2028**)	A. Achievement of a minimum of 50% occupancy for Villiers West, consistent with approved development plans. B. Satisfying performance terms of Implementation Agreements for Villiers West. C. Achievement of a minimum of 75% occupancy for Quayside, consistent with approved development plans. D. Satisfying performance targets of Implementation Agreements for Quayside. E. Achievement of the accelerated growth targets for the IDEA District.	A. Public administrator to elect to update IDSG for future development within the IDEA District. B. Government initiates performance payments process as described in the Implementation Agreements.	If Sidewalk Labs does not meet the project milestones, Sidewalk Labs is not eligible for any performance payments, and Waterfront Toronto and the governments do not update IDSG requirements for future developments.

Additional strategies for managing the risks of innovation

The implementation plan and overall transactional structure are designed to mitigate and manage the risks of implementing the MIDP for Waterfront Toronto, the City of Toronto, the Province of Ontario, the Government of Canada, and the public. By definition, the risk profile for new strategies and technologies is higher than for standard approaches. These costs and risks range from a given technology not performing as intended, to a failure to budget for the operating expenses of bespoke elements.

The proposal calls for Sidewalk Labs and its local partners to shoulder certain upfront financial risks. Most notably, this includes the risks associated with vertically developing Quayside and Villiers West as an urban development model and as a catalyst for innovative growth. Before the public administrator would adopt the IDSG, and require other developments to meet the additional standards and guidelines, Sidewalk Labs and its partners would be required to demonstrate the effectiveness of the new strategies in Quayside and Villiers West, their cost feasibility, and their operating implications.

The transaction structure also incorporates several de-risking strategies. These begin with the stage gates for Sidewalk Labs and the off-ramps for both parties described earlier. They also include an incremental approach to testing and deploying innovations; a clear accounting methodology for project investment (in the event costs need to be recouped before project completion); and funding supplemental innovation investments to support the development of advanced systems before they reach scale and efficiency.

Incremental approach to innovation research and development.

Sidewalk Labs would utilize an incremental and iterative process to deploy innovative project elements. This process of testing and refinement began well in advance of the MIDP release. The approach includes ongoing investments in incremental design improvements, prototyping, and active consultation to improve and enable concept elements with an ecosystem of regulators, insurers, lenders, and technical providers. In preparation for constructing buildings with cross-laminated timber, for example, Sidewalk Labs has begun to develop a prototype and to engage leading professionals in all aspects of the building design, delivery, and operations. Sidewalk Labs is working with the real estate arm of Google to test and refine specific building elements; with a major insurance carrier to develop new policy and coverage strategies; and with architects to refine the approach to design. Moreover, because the project is organized into discrete elements, the parties can compartmentalize aspects of the plan, determine their viability, and adjust accordingly — without jeopardizing the rest of the program.

Accounting for downside risks.

Sidewalk Labs has accounted for the operating costs associated with the innovative aspects of the public realm within the overall project economics, including the maintenance of public realm or dynamic streets. For example, the IDSG requires new developments in the IDEA District to contribute to the operation of the OSA, which manages parks and other publicly accessible spaces. Moreover, by tying the performance milestones and stage gates for the Innovation Framework to outcomes, the public sector can manage the risk associated with failure to achieve the desired outcomes. And until achieving those outcomes, Sidewalk Labs would not earn any performance payments.

Supplemental innovation investments.

Sidewalk Labs has proposed to make certain supplemental innovations investments to support the advanced power grid and thermal grid in their early phases and to keep user rates consistent with prevailing rates while these systems achieve sufficient scale and efficiency. 📖

Risk mitigation strategies.

The table on the following page summarizes several of the primary areas of risk attributable to the unique aspects of the proposed partnership. The assorted risk mitigation strategies, while summarized here, are detailed throughout this volume.

Risk management strategies include extensive testing and prototyping; ongoing consultation with regulators and others; and project milestones that demonstrate the solutions are effective before being applied beyond Quayside and Villiers West.

Fig. 6.2

Risk mitigation strategies

Risk	Mitigation Strategies
The MIDP proposes a number of advanced systems and programmatic elements that are novel, creating the risk that they could fail or need to be modified prior to, or after, initial deployment.	An incremental approach to developing technological solutions enables Sidewalk Labs to work through the challenges before deployment. Through prototyping, early partnerships, and other research and development techniques, the programmatic elements would be ready for deployment at Quayside and Villiers West. The initial deployment of advanced systems would take place at Quayside and at Villiers West (assuming Sidewalk Labs achieves applicable project milestones). As lead developer of vertical real estate at Quayside and Villiers West, Sidewalk Labs, not the public, would bear certain financial risks if the advanced systems do not perform as expected. Sidewalk Labs would work to manage and control risks as lead advanced systems developer, including through the oversight of system design, selection of operators, and iteration and refinement of new systems that directly impact the vertical development. In these initial stages, Sidewalk Labs would monitor, adjust, adapt, and optimize solutions to achieve Waterfront Toronto's priority outcomes. The proposal factors in the cost of this necessary iteration process. For example, establishing predictable and affordable rates for users of the advanced power grid is likely to require iteration on the data collection and device control technologies used in homes, as well as the pricing and mechanics of selling community-sited solar and battery energy to offset exposure to peak time rates. The development program for Quayside and Villiers West would provide incremental opportunities for testing and refining programmatic elements. This practical experience would inform the improvement of system designs and the development of IDSG for the IDEA District. Sidewalk Labs would continue to conduct research and development as technology evolves to ensure that the development of Quayside and Villiers West and the IDSG benefit from the most up-to-date understanding available of evolving capabilities.
Innovative infrastructure and programmatic elements could outlast the project and leave governments with operating costs for unique systems or assets.	The project's economics factor in long-term operating expenses for the new systems and approaches, therefore ensuring that underwriting for the project accounts for those costs. For example, the WTMA incorporates various revenue streams, such as curb financing and parking fees, that would, among other things, finance the maintenance costs for the dynamic streets. The incremental product development approach is designed to prove out operating models, to establish that any new programmatic elements or systems are market-viable before their adoption outside of Quayside and Villiers West. The development plan and land-use approvals processes for Quayside and Villiers West and the approvals process for the advanced systems serve as a further check on and oversight for the innovative solutions.

Risk	Mitigation Strategies
Developing new systems could result in higher user rates before systems achieve efficiencies and scale.	Sidewalk Labs is prepared to support the systems financially in their early phases until they reach financial viability. For example, Sidewalk Labs has proposed to make a supplemental innovation investment, at an estimated cost of $45 million, to support the development of a thermal grid and an advanced power grid before they achieve sufficient scale and performance levels. Advanced system operators would be required to enter into master services agreements with the management entities that would dictate allowable user rates.
By enabling the development and deployment of technology products within the IDEA District, Waterfront Toronto and the governments provide value to Sidewalk Labs without compensation.	Sidewalk Labs has offered to share 10 percent of profits from certain technologies so that the public sector participates in the upside when providing unique opportunities to develop, test, and deploy technologies.
Sidewalk Labs neglects to deliver on the intended project objectives and requirements, or Waterfront Toronto or the governments do not provide the required commitments.	The proposed system of off-ramps, performance milestones, and stage gates is designed to enable all parties to mitigate exposure should the other not perform.

Note: Sidewalk Labs has engaged Marsh & McLennan, who are the world's leading Insurance Broker and Risk Advisor, to support and advise Sidewalk Labs throughout the life of this development. Marsh will assist Sidewalk Labs with the identification of key risks to the Waterfront Toronto development during the planning, construction, and operational phases. It will also facilitate the most appropriate risk allocation and insurance solutions, engaging with underwriters and specialists around the globe.

Overview of the Participants in IDEA District Development

Fig. 7.1
Participants in the development of the IDEA District

The MIDP anticipates significant participation and collaboration across the public and private sectors in the operation and success of the project. Waterfront Toronto, the public administrator, and Sidewalk Labs would play leading roles. But the success of the IDEA District does not rest solely with them.

The City of Toronto, the real estate development community, the construction industry, the tech sector, and the public all would contribute meaningfully to the IDEA District and the ability to deliver on Waterfront Toronto's priority outcomes. The table below summarizes the roles and responsibilities of various participants in the project.

Note: All public and private entities in the IDEA District must adhere to the Urban Data Trust data protection standards in addition to Canadian privacy law.

	Role	Waterfront Toronto or Public Administrator	City, Province, and Government of Canada	Sidewalk Labs	Real Estate Developers	Third-Party Vendors (i.e. technology, construction, and consultants)
1	IDEA District Oversight and Administration	Public administrator of the IDEA District with oversight for district management entities.	Enabled by government. Relevant city agencies would be core stakeholders of management entities.	Not applicable	Not applicable	Not applicable
2	Land Use and Development Planning (Precinct Plans, Infrastructure and Transportation Master Plans, Precinct-Level Infrastructure Plans, Bylaw and OPA)	Lead planning entity	Traditional roles - IDEA District planning documents would require the standard set of approvals.	Contracted to provide technical expertise and implementation services related to planning and advanced systems, including the IDSG.	No change from current (except for potential application of IDSG to public parcels sold for private development).	Not applicable
3	Infrastructure Financing	Contribute to municipal infrastructure funding, including through land proceeds, in structure laid out in the 2006 MOU.	Enable city fee and development charge credits, municipal infrastructure contributions, and local infrastructure contributions; enable LRT financing through TIF or identify alternate funding source.	Provide optional financing for municipal infrastructure (as front-end agreements). Provide optional credit support for LRT. Enable optional financing for advanced systems through newly formed company.	Pay (1) reduced DCs; (2) additional municipal infrastructure contributions (combined with (1), that roughly equal standard city fee and development charge obligations); and (3) local infrastructure contributions, equal to the cost of avoided systems (like traditional gas).	Participate in normal course of business.
4	Infrastructure Delivery	Manage construction of municipal infrastructure. Co-lead LRT delivery, in coordination with TTC.	Co-lead LRT delivery, in coordination with Waterfront Toronto.	Partner with public administrator to play various roles. In Quayside and Villiers West, this would include serving as lead developer of a range of advanced systems and leading the design of certain municipal infrastructure. No role in the design, delivery, or operation of the LRT.	Shoulder a reduced infrastructure burden for vertical development due to public administrator's comprehensive infrastructure program.	Contractors would compete to construct municipal infrastructure. Operators would compete to deliver advanced systems.
5	Real Estate Development	Lead RFP process for publicly-owned parcels, subject to IDSG.	Traditional roles — IDEA District would require standard set of approvals and permissions.	Lead vertical development of Quayside (for R&D purposes) and Villiers West (for economic development purposes), working alongside local partners. Prepare the IDSG.	Partner with Sidewalk Labs in delivery of vertical development in Quayside and Villiers West. Bid on, or proceed with, development of the 83.6% of IDEA District not vertically developed by Sidewalk Labs.	Contractors would compete to deliver vertical real estate. Other vendors would compete to deliver products and components.
6	Technology Deployment	Establish Innovation Framework.	Traditional roles (where applicable).	Identify technical solutions for use in connection with the project. Develop and deploy a limited number of solutions that do not yet exist in the market.	Conduct business as usual. No obligation to purchase or use Sidewalk Labs' products.	Third-party technology firms would compete to deliver the vast majority of technology products used in the project area.

Supplemental Tables

I. Management Entities

The following table summarizes the five management entities the MIDP proposes to advance Waterfront Toronto's priority outcomes in the IDEA District, their relationship to the public administrator, their method of formation, and their funding mechanism.

Fig. ST.1

Summary of management entities

Entity Name	Description / Scope	Proposed Relationship to Administrator	Method of Formation	Funding Mechanism
Open Space Alliance (OSA)	Serving as a steward of publicly accessible spaces, with community input, the OSA would pursue the following objectives: i. A dynamic, well-programmed, well-maintained public realm that benefits the community and city; ii. A seamless public realm experience that creates a unique sense of place and generates value for the neighbourhood; iii. The conditions to explore technology to improve access, programming, operations, and maintenance of open space; and iv. A viable mechanism for long-term operations, including sustainable funding and public-private sector knowledge-sharing.	An independent non-profit operating within the geography of the IDEA District.	Established as an independent non-profit, the OSA would enter collaborative management agreements with the City and third-party landowners to manage open space programming, operations, and maintenance.	Operations and capital expenses will be funded through private financing from landlords or tenants in the IDEA District; traditional city parks funding; and revenue from sponsored events, special elements, and concessions.

Entity Name	Description / Scope	Proposed Relationship to Administrator	Method of Formation	Funding Mechanism
Urban Data Trust (UDT)	The UDT would govern the collection and use of urban data in the IDEA District. This new governance entity would promulgate responsible data use guidelines, review applications for collecting and using urban data, and ensure non-sensitive urban data is publicly available by default to spur innovation. All entities would need to apply to the UDT and receive approval before collecting or using urban data in or from the IDEA District.	An independent non-profit operating within the geography of the IDEA District.	Established as an independent non-profit, the UDT would enter into agreements that govern the collection, use, disclosure, and storage of urban data.	Each applicant seeking to collect or use data in the IDEA District would pay a data collection and use administration fee to cover the costs of the UDT.
Waterfront Housing Trust	The Waterfront Housing Trust would be a public-private financing entity that administers below-market housing program in the IDEA District. The trust would improve funding predictability for developers and harness new private affordable housing funding sources.	A private trust; the IDEA District public administrator would serve as sole trustee.	Established at the discretion of the IDEA District public administrator.	One initial source of funds for the trust would be a fee paid for condo resales.
Waterfront Sustainability Association (WSA)	The WSA would oversee the operation of four advanced sustainability systems in the IDEA District: the thermal grid, waste management system, advanced power grid, and stormwater management system. This includes monitoring compliance with master service agreements (MSA), including user rates, seeking MSA enforcement where required, and compiling and reviewing key operator performance metrics.	An administrative unit of the IDEA District public administrator.	Established with the creation of the IDEA District.	Operational expenses funded by fees paid by system operators.
Waterfront Transportation Management Association (WTMA)	The WTMA, in conjunction with the City's Transportation Services Division and the Toronto Transit Commission, would: i. implement mobility policy objectives for the IDEA District; ii. oversee planning, operations, and maintenance of new mobility-related infrastructure, such as dynamic streets; and iii. manage the district's four advanced mobility systems, including the mobility subscription package.	An administrative unit of the IDEA District public administrator.	Established with the creation of the IDEA District.	Capital and operating expenses would be funded by revenue from on-site parking garages, curb pricing, and the sale of mobility packages.

II. Regulatory Adjustments

The following four tables discuss the regulatory adjustments the MIDP proposes to advance Waterfront Toronto's priority outcomes in the IDEA District, describing the legislation, regulation, or policy implicated and the authorization or requirement needed.

Fig. ST.2
Proposed regulatory adjustments and reforms related to Mobility

MIDP Proposal	Applicable Legislation, Regulation, or Policy	Proposed Authorization or Requirement
Dynamic curb and curb pricing	Ontario Highway Traffic Act City of Toronto Act City of Toronto Municipal Code	Amendment to the Highway Traffic Act and Municipal Code to permit the features of the dynamic curb. Amendment to the City of Toronto Act to permit curb pricing and assigning management responsibility to WTMA.
Ride-hail pick-up, drop-off, and staging zones	City of Toronto Zoning Bylaw City of Toronto Municipal Code	Zoning Bylaw amendment and amendment to the Municipal Code to designate adaptive passenger pick-up/drop-off (PPUDO) areas in the IDEA District and empower the WTMA to modify and work with law enforcement to ensure compliance.
Adaptive traffic signals	Ontario Highway Traffic Act City of Toronto Municipal Code	Amendment to the Highway Traffic Act and Municipal Code to permit adaptive traffic signals.
Modifying speed limits	Ontario Highway Traffic Act City of Toronto Municipal Code	Amendments to the Municipal Code to permit modifications to the speed limits for certain separated streets.
Delivery truck permits	City of Toronto Municipal Code	Amendment of Municipal Code to require courier/delivery vehicle parking permits within the IDEA District and assigning management responsibility to WTMA.

Fig. ST.3
Proposed regulatory adjustments and reforms related to Public Realm

MIDP Proposal	Applicable Legislation, Regulation, or Policy	Proposed Authorization or Requirement
Shared rights of way	City of Toronto Municipal Code	Municipal Code amendment to create a more streamlined process for granting permits for the use of part of a street between the edge of the roadway and street line for a range of uses.
Outdoor comfort system	City of Toronto Municipal Code	Municipal Code amendment to allow a more significant set of encroachments with or without a requirement to enter into an Encroachment Agreement with the City of Toronto.

Fig. ST.4
Proposed regulatory adjustments and reforms related to Buildings and Housing

MIDP Proposal	Applicable Legislation, Regulation, or Policy	Proposed Authorization or Requirement
Mass timber buildings and related advances	Ontario Regulation 332/12 (Division B) of Ontario Building Code	New regulation from the Government of Ontario permitting 30-storey timber building, alternative glazing, internal wall materials, and adaptable Loft spaces; OR Determination by City Building Department that the proposed timber construction and related advances achieve the same or better level of performance to currently permitted materials.
Outcome-based building use permissions	City of Toronto Noise Bylaw City of Toronto Zoning Bylaw City of Toronto Building Permit Process	Amendment of Zoning Bylaws to allow wider range of uses in connection with the use of alternative outcome-based building use permissions in the IDEA District. Developer requirements to employ building systems to implement outcome-based building code.
Power over ethernet	OEB Act; Electricity Act; Regulation 89/99; Ontario Building Code Act and Building Code	Provincial approval to deploy power-over-ethernet, including the use of direct current, under the Ontario Building Code and section 113 of the Electricity Act and associated regulations.
Efficient units	City of Toronto Affordable Rental Housing Guidelines Ontario Building Code	Authorization to build units smaller than indicated in the Affordable Rental Housing Guidelines of the City of Toronto Affordable Housing Office, when providing a mix of housing options, including larger-sized units of two-, three-, and four-bedrooms.
Affordable housing portfolio funding		Approvals from the Government of Canada and the City of Toronto to receive housing funding for a portfolio of properties, rather than development by development.

Proposed regulatory adjustments and reforms related to Sustainability

MIDP Proposal	Applicable Legislation, Regulation, or Policy	Proposed Authorization or Requirement
Advanced power grid	Ontario Energy Board	Amendment to Standard Supply Service Code OR amendment to O. Reg. 95/05 to no longer require compliance with Standard Supply Service Code to authorize advanced power grid.
Dynamic Rate Structure (monthly power budget)	Ontario Energy Board	Ontario Energy Board approval of a regulated customer rate based on joint application with Toronto Hydro or through an alternative structure.
Stormwater Management/Billing for Infrastructure	City of Toronto Act	Permissions to allow stormwater management infrastructure at the scale of the IDEA District and City reduction to the portion of the Toronto Water billing attributable to stormwater in the Port Lands.

III. Initial Innovation Design Standards and Guidelines

The following five tables discuss the Innovation Design Standards and Guidelines (IDSG) the MIDP proposes that the public administrator implement to advance Waterfront Toronto's priority outcomes in the IDEA District.

Fig. ST.6

Proposed IDSG requirements related to Mobility

MIDP Proposal	Proposed IDSG Requirement
Dynamic curb	Requirement to establish the features of the dynamic curb in connection with new developments.
Bike access to all buildings via dedicated lanes or bike priority streets	Requirement to ensure bike access to all new developments within the IDEA District through priority streets or dedicated lanes.
Underground delivery tunnels and a neighbourhood logistics hub	Requirement that new developments connect to the underground delivery tunnel system for deliveries and sanitation.
Bicycle parking and amenities	Requirement that new developments in the IDEA District exceed the bicycle parking and amenity requirements of the applicable zoning bylaw.
Rooftop landing pads	Requirement that new developments permit access for aerial drones and provide rooftop landing pads.

Fig. ST.7

Proposed IDSG requirements related to Public Realm

MIDP Proposal	Proposed IDSG Requirement
Development contributions to open space management	New requirement that developments pay an ongoing fee to partially cover operational expenses of public spaces.

Proposed IDSG requirements related to Buildings and Housing

MIDP Proposal	Proposed IDSG Requirement
Condo resale fee	New requirement that condos in the IDEA District pay a percentage of the sale price as a fee to the Waterfront Housing Trust to fund affordable housing.

Fig. ST.9
Proposed IDSG requirements related to Sustainability

MIDP Proposal	Proposed IDSG Requirement
Heightened sustainability and active energy management	Requirement that new buildings utilize sustainable building materials and energy management systems that enable users to conserve energy.
Outcome-based energy performance standards	Requirement that new developments meet new outcome-based energy performance standards.
Use of autonomous building management solutions	Requirement that new buildings utilize an autonomous building management system that communicates to the central grid in a standard, published format called "Brick."
Thermal Grid: Requirement to connect to the thermal grid	Requirement that new developments connect to the thermal grid.
Pneumatic Waste: Connection and use of system	Requirement that new developments connect to, and use, the pneumatic waste system.
Pneumatic Waste: Charging for waste	Requirement that new developments opt out of city sanitation services and pay sanitation fees for pneumatic waste system.
Stormwater Management: Credits and Green Infrastructure Fund; coordination with private buildings and active controls	Requirement that new developments cover the costs of stormwater management and coordinate with the administrator on stormwater management measures and a system of purchasing proposed credits.
Smart Waste	Requirement that new buildings provide three waste chutes consistent with City of Toronto requirements: organics (food), recyclables (glass, metal, plastic, and paper), and landfill garbage.

Fig. ST.10
Proposed IDSG requirements related to Social Infrastructure

MIDP Proposal	Proposed IDSG Requirement
Healthy design and construction	Requirement that the design of all new developments promote and enable physical and mental health and community well-being.
Advancing health, education, and civic engagement	Requirement that all new developments incorporate planning for community service spaces and coordinate with service delivery partners.
Health facilities planning	Requirement to explore opportunities to incorporate appropriate, flexible spaces for delivering health care services in new developments if deemed a priority by the province.
Community benefits in construction	Requirement that all new developments commit to providing specific community benefits during planning and construction phases of development.
Sustainable funding for Neighbourhood Association	Potential requirement for area residents or businesses to contribute to an independent non-profit neighbourhood association.

IV. Upfront Permissions

The following five tables list upfront planning approvals and permissions required initially to develop Quayside and, later, to develop Villiers West.

Fig. ST.11
Upfront permissions related to Mobility

MIDP Proposal	Applicable Legislation, Regulation, or Policy	Proposed Authorization or Requirement
Reduced parking Requirements	City of Toronto Zoning Bylaw	Zoning Bylaw amendment or Development Permit Bylaw to reduce parking requirements within the IDEA District.
Underground delivery tunnels	City of Toronto Zoning Bylaw	Zoning Bylaw amendment (or variance) to revise the loading requirements. Permissions in the form of encroachment agreements, easements, or other related agreements are required to locate tunnels in the city's right of way.
Green waves	Toronto Guidelines for Pavement Design, Lane Widths, Development Infrastructure Policy and Standards	City of Toronto approval permitting LED lights in pavement to signal green waves.
Dockless bike-share vehicles	City of Toronto Zoning Bylaw	Zoning Bylaw amendment to designate formal parking areas for dockless vehicles.
Heated sidewalks and bike lanes	Toronto Guidelines for Pavement Design, Lane Widths, Development Infrastructure Policy and Standards	City of Toronto approval to permit heated sidewalk and bike lanes.
People first street network	City of Toronto Lane Width Guidelines Ontario Traffic Manual	City of Toronto approval to deviate from existing lane width standards.
Eliminate curbside parking and curbed streets	City of Toronto Municipal Code City of Toronto Zoning Bylaw City of Toronto Complete Streets Guidelines	Amendment to the Municipal Code and applicable Zoning Bylaw to ease on-street parking require-ments and to designate certain streets as flexible, curbless streets.

Fig. ST.12
Upfront permissions related to Public Realm

MIDP Proposal	Applicable Legislation, Regulation, or Policy	Proposed Authorization or Requirement
Waterbound-spaces, including floating barges	Navigation Protection Act Canadian Environmental Protection Act, Fisheries Act, 1985 Canada Shipping Act, 2001, Small Vessel Regulations (SOR 2010-91)	Determination by the Minister of Transport that programmed barges (if deemed a "work" under the Navigation Protection Act) are not likely to substantially interfere with navigation.

Fig. ST.13
Upfront permissions related to Buildings and Housing

MIDP Proposal	Applicable Legislation, Regulation, or Policy	Proposed Authorization or Requirement
Flexible interior wall system (including low voltage power system)	Ontario Regulation 332/12 (Division B) of Ontario Building Code City of Toronto Zoning Bylaw	New regulation from Ontario Cabinet to permit alternative flexible interior wall system; OR Determination by City Building Department that the alternative flexible interior wall system achieves the same or better level of performance to currently permitted materials.
Stoa and Loft spaces	Provincial Land Use Compatibility D-6 Guidelines City Zoning Bylaw Environmental Protection Act ss. 9 and 14 City of Toronto Noise Bylaw	Amendment to the Zoning Bylaw to expand the range of space uses without additional permissions.

Upfront permissions related to Sustainability

MIDP Proposal	Applicable Legislation, Regulation, or Policy	Proposed Authorization or Requirement
Stormwater Management: Features in the right of way	Ontario Water Resources Act Planning Act City of Toronto Wet Weather Management Guidelines (2006)	Permissions in the form of encroachment agreements, easements, or other related agreements are required to locate facilities and stormwater monitoring equipment in the city's right of way.
Pneumatic Waste: System in Public Right of Way (Open Access Channels)	City of Toronto Act	Council authorization permitting the IDEA District administrator to build the pneumatic waste system through city-owned rights of way; OR Encroachment agreement or easement from the city permitting the pneumatic tubes.
Pneumatic Waste	Planning Act City of Toronto Zoning Bylaws	Amendment to City of Toronto Zoning Bylaws to reduce the number of loading spaces required for city sanitation pickup and to allow for waste pick-up at mixed residential and commercial properties.
Thermal Grid: Extending pipes into right of way	Toronto District Heating Corporation Act Public Utilities Act City of Toronto Act	Absent an agreement with the existing thermal grid operator, amendment to Public Utilities Act to allow pipes under the right of way. Consent from the City of Toronto under the City of Toronto Act may be required.

Fig. ST.15

Upfront permissions related to Social Infrastructure

MIDP Proposal	Applicable Legislation, Regulation, or Policy	Proposed Authorization or Requirement
School Site	Planning Act	Agreements with the Toronto District School Board on the size, location, and configuration of a new school.

By harnessing cutting-edge technology and forward-thinking urban design, the partnership proposal seeks to answer the RFP's call for a "globally-significant community" and dramatically improve the quality of urban life.

Endnotes

1. See in particular E.L. Cousins, *Toronto Harborfront Development 1912–1920*. Toronto Harbor Commissioners, 1912.

2. For a thorough examination of the waterfront's history from the mid-19th century through to the creation of Waterfront Toronto in 2001, see Gene Desfor and Jennifer Laidley, editors, *Reshaping Toronto's Waterfront*. University of Toronto Press, 2011.

3. Megan Hogan, "Waterfront Toronto: a legacy of achievement, an exciting future." *On the Waterfront* blog, April 9, 2019.

4. The case for the three orders of government (Canada, Ontario and Toronto) to create a "Toronto Waterfront Revitalization Corporation" was most notably put forward in the Fung Report, formally titled *Our Toronto Waterfront: Gateway to the New Canada*. Report of the Toronto Waterfront Revitalization Task Force, 2000.

5. Waterfront Toronto, *Past Present Future: Rolling Five-Year Strategic Plan 2019/20 - 2023/24*. December 6, 2018. 26, 10.

6. Waterfront Toronto and Beanfield Metroconnect, *Toronto's fastest broadband internet is coming to new waterfront neighbourhoods*. Joint press release, October 20, 2014; Waterfront Toronto, *Annual Report 2017/2018*. June 28, 2018. 16; Waterfront Toronto, *2015-17 Corporate Social Responsibility & Sustainability Report*. 2018.

7. Waterfront Toronto, *Annual Report 2017/2018*. 16; Hogan, "Waterfront Toronto: a legacy of achievement, an exciting future." *On the Waterfront* blog, April 9, 2019.

8. Housing costs are the biggest driver of affordability, with a recent report from RBC concluding that "affordability remains at crisis levels." See RBC Economic Research, *Housing Trends and Affordability*. March 2019.

9. Sanjana Varghese, "The cold hard truth about Toronto's transport network." *CityMetric*. January 12, 2018.

10. *Parkland Strategy: Growing Toronto Parkland*. City of Toronto, November 2017; *Parks and Recreation Facilities Master Plan, 2019-2038*. City of Toronto, October 2017.

11. Waterfront Toronto, *Request for Proposals: Innovation and Funding Partner for the Quayside Development Opportunity*. RFP No. 2017-13, issued March 17, 2017.

12. Ontario Ministry of Finance, *2016 Census Highlights Factsheet 8: Immigration*. Office of Economic Policy, Labour Economics Branch. November 2017.

13. Ontario Ministry of Finance, *Ontario Population Projections Update, 2017–2041 Table 4: Historical and projected population by census division, selected years — reference scenario*. www.fin.gov.on.ca/en/economy/demographics/projections/table4.html (accessed April 12, 2019).

14. CBRE, *Scoring Tech Talent in North America 2018*. Report released July 23, 2018. See also the CBRE online *Tech Talent Analyzer*: mapping.cbre.com/maps/Scoring-Tech-Talent-2018/Analyzer/ (accessed April 11,2019).

15. Details on each of the programs, meetings and milestones held as part of Sidewalk Toronto's participation plan can be found on the *Get Involved* page of Sidewalk Toronto's website: sidewalktoronto.ca/get-involved/.

16. For more details about 307's exhibits, programs and partners, visit the 307 Landing Page on the Sidewalk Toronto website atsidewalktoronto.ca/get-involved/307-landing/.

17. To estimate the potential impact of Google's relocation to Toronto's waterfront, Sidewalk Labs, in partnership with the consulting practice of real estate services firm JLL, conducted case-study research on the impact of Google's prior relocations in five other cities around the world: New York, Chicago, Austin, Los Angeles, and London. Each of these cities has between 1,000 and 10,000 Google employees, a range commensurate with the proposed campus.

18. See the "Buildings and Housing" chapter of Volume 2 for more information on these building techniques. Additional information on mass timber construction is available in the relevant sections of the MIDP Technical Appendix.

19. See the "Outdoor Comfort Development Standard" section of the MIDP Technical Appendix for more details on weather mitigation systems.

20. See the "Mobility" chapter of Volume 2 for more details on proposed street types, mobility subscriptions, and freight systems. For details on the cost savings associated with mobility in Quayside, consult the "New Mobility" section of the MIDP Technical Appendix.

21. See the "Sustainability" chapter of Volume 2 for more details on thermal grids and stormwater management. If realized as proposed in this MIDP, the River District would become the biggest, densest climate-positive district in North America and the third largest in the world, after announced projects in Jaipur, India, and Seoul, South Korea. Sources: C40 Cities Climate Leadership Group, "Mahindra World City Jaipur becomes world's largest project to receive C40 Climate Positive Development Stage 2 Certification." *National Geographic,* June 4, 2015; The Future City: Magok Urban Development Project. http://www.i-sh.co.kr/e_mgk/index.do (accessed April 2, 2019); "Spotlight on the C40 Climate Positive Development Program." *C40 Cities C40 Blog*, July 17, 2013.

22. See the "Buildings and Housing" chapter of Volume 2 for more information on all the MIDP's development, affordable housing, and complete-community commitments.

23. See the "Economic Development" chapter in Volume 1vfor more details on the Google headquarters, Urban Innovation Institute, and venture fund proposals.

24. For more details on the proposal to assist with financing the LRT expansion, consult the "Mobility" chapter in Volume 2, as well as the "Enabling Rapid Transit" section of the MIDP Technical Appendix.

25. For details on job creation, see the "Sidewalk Toronto Economic Impact Analysis" section of the MIDP Technical Appendix.

26. See the "Buildings and Housing" chapter of Volume 2 for more details on total housing and affordable housing units.

27. See the "Sidewalk Toronto Greenhouse Gas Model - Path to Climate Positivity" section of the MIDP Technical Appendix for details on GHG emission reductions.

28. See the "Active Transportation" and "New Mobility" sections of the MIDP Technical Appendix for trip mode projections in Quayside and the River District.

29. For a more in-depth description of how key infrastructure investments and advanced systems achieve scale, see "The River District" chapter in Volume 1.

30. Consult the "Economic Development" chapter of Volume 1 for more information on the proposed Sidewalk Works program.

31. Andrea Hopkins, "Toronto condo speculation risk curbed by pre-sales: federal agency." *Reuters,* July 16, 2019.

32. *History of the Bloor West Village BIA*. Bloor West Village Business Improvement Area, 2019.

33. Matt Meuse, "How Granville Island Changed the Course of Vancouver Urban Design History." *CBC News British Columbia,* March 12, 2017.

34. Yonge-Dundas Square: History. https://www.ydsquare.ca/history (accessed May 15, 2019).

35. See the "Sidewalk Toronto Economic Impact Analysis" section of the MIDP Technical Appendix for more information on the Two Kings redevelopments.

36. David L.A. Gordon, *The crash and rebound of Canary Wharf*. Philadelphia: Samuel Zell & Robert Lurie Real Estate Center, Wharton School, University of Pennsylvania, 2001.

37. HafenCity Hamburg, *HafenCity: The Genesis of An Idea*. /www.hafencity.com/en/overview/hafencity-the-genesis-of-an-idea.html (accessed May 15, 2019).

38. *Ontario Planning Act,* Revised Statutes of Ontario 1990, c. P13. Retrieved from Ontario e-Laws website //www.ontario.ca/laws on May 15, 2019.

39. Office of the Auditor General of Ontario, *Annual Report 2018*. Queen's Printer for Ontario, fall 2018. See "Section 3.15: Waterfront Toronto," 648.

40. Office of the Auditor General of Ontario, *Annual Report 2018*. Queen's Printer for Ontario, 2018. 665.

41. *Toronto Waterfront Revitalization: Memorandum of Understanding between the City of Toronto, City of Toronto Economic Development Corporation and Toronto Waterfront Revitalization Corporation*. www.toronto.ca/legdocs/2006/agendas/council/cc060131/pof1rpt/cl027.pdf (accessed May 15, 2019).

42. Innovation, Science and Economic Development Canada, *Canada's Digital Charter in Action: A Plan by Canadians for Canadians*. May 21, 2019.

43. Mayor John Tory, *Housing Now*. Report to City Council, December 6, 2018; approved by Council December 13, 2018.

44. *Ontario Planning Act,* Revised Statutes of Ontario 1990, c. P13. Retrieved from Ontario e-Laws website //www.ontario.ca/laws on May 15, 2019.

45. See the Ontario Building Code, O. Reg 332/12 under the *Building Code Act 1992*. Statutes of Ontario 1992, c. 23.

46. For more information, see Ontario Ministry of Natural Resources and Forestry and Ontario Ministry of Municipal Affairs, *Ontario's Tall Wood Building Reference: A Technical Resource for Developing Alternative Solutions Under Ontario's Building Code*. Toronto: Queen's Printer, October 2017.

Endnotes

47. A building's actual energy use in operation can be far greater than shown by a model submitted for energy code compliance. This disconnect is known as the "performance gap." In a study of nearly 100 buildings in Toronto, Sidewalk Labs found the performance gap to be 13 percent, meaning buildings use more energy when actually up and running than when modelled prior to construction. See the "Sidewalk Labs Toronto Multi-Unit Residential Buildings Study" section of the MIDP Technical Appendix for more details.

48. City of Toronto, "Downtown Plan." Chapter 41 of the *City of Toronto Official Plan.* Policy 3.1 states: "Growth will be accompanied by the community service facilities, parkland, green infrastructure and physical infrastructure required to support complete communities and the health of residents, workers and visitors."

49. *City of Toronto Official Plan and Amendments.* Chapter 5, page 16.

50. For details on the East Bayfront Local Infrastructure Charge, see Waterfront Toronto, *East Bayfront and West Don Lands Stormwater and East Bayfront Sanitary Servicing Infrastructure: Request for Supplementary Capital Approval.* Report to the Board of Directors, June 13, 2017.

51. Greg Spafford and David Gordon, *Toronto's Harbourfront: the Harbourfront Corporation.* Canadian Institute of Planners / Association of Canadian University Planning Programs Case Study Series. 2001.

52. City of Calgary. *Rivers District Community Revitalization Plan.* April 2007.

53. City of Edmonton. *Capital City Downtown Plan.* July 2010.

54. City of Toronto, Toronto *Official Plan and Amendments.* Consolidated June 2015. Chapter 5, page 15.

55. For details on the innovation campus, consult the "Economic Development" chapter in Volume 1.

56. Details on each of the programs, meetings and milestones held as part of Sidewalk Toronto's participation plan can be found on the Get Involved page of Sidewalk Toronto's website: sidewalktoronto.ca/get-involved/

57. For more information on the proportions of residential and non-residential use in this proposal compared to city bylaws, see the accompanying "Planning Policy Justification Report" in the MIDP Technical Appendix.

58. For background and details on factory-based mass timber construction, consult the "Buildings and Housing" chapter of Volume 2, as well as the "Buildings" sections of the MIDP Technical Appendix.

59. For details see Waterfront Toronto, *Port Lands Acceleration Initiative.* Report to the Board of Directors, September 5, 2012.

60. *Port Lands Planning Framework.* Section 3, page 60.

61. Urban Strategies Group, City of Toronto and Waterfront Toronto, *Villiers Island Precinct Plan.* September 2017. 25-26.

62. The following pages provide a summary of Sidewalk Labs' proposals and commitments for Villiers West. For more details about the urban innovation campus, consult the "Economic Development" chapter in Volume 1. For more on the build program for Villiers West, see "The River District" chapter in Volume 1.

63. MaRS Discovery District, *Place Matters.* Report, December 2017.

64. See the "Buildings and Housing" chapter in Volume 2 for details on the proposed below-market housing program.

65. See "The Quayside Plan" chapter of Volume 1 for more details on the proposed allocation of non-residential space.

66. Waterfront Toronto, *Breaking Down the Port Lands Flood Protection Project.* portlandsto.ca/project-map/ (accessed March 31, 2019).

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75. John Lorinc, "Delaying delivery of waterfront transit." *Spacing,* April 10, 2019.

76. See the *TTC 15-Year Capital Investment Plan & 2019 – 2028 Capital Budget & Plan.* Report to the TTC Board, January 24, 2019.

77. City of Calgary. *Rivers District Community Revitalization Plan.* April 2007.

78. The urbanMetrics study is available in the "Sidewalk Toronto Economic Impact Analysis" section of the MIDP Technical Appendix.

79. This analysis from urbanMetrics includes Keating East in the total tax revenue calculations, while Sidewalk Labs' property tax analysis excludes Keating East, for which incremental property tax revenues have already been pledged to other projects.

80. For more information on the proportions of residential and non-residential use in this proposal compared to city bylaws, see the accompanying "Planning Policy Justification Report" in the MIDP Technical Appendix.

81. For more details on Google's proposed campus in the IDEA District and the creation of an Urban Innovation Institute, see the "Economic Development" chapter in Volume 1.

82. For more details on the venture fund proposal, see the "Economic Development" chapter in Volume 1.

83. For more on the Sidewalk Works program, see the "Economic Development" chapter in Volume 1.

84. Waterfront Toronto, *Waterfront Toronto Employment Initiative.* July 2013. See the "Economic Development" chapter for more on Sidewalk Labs' commitment to employment for equity-seeking groups.

85. For more on the proposal to establish a mass timber factory, see the "Buildings and Housing" chapter in Volume 2.

86. For more on the accelerated timelines resulting from factory construction, see the "Buildings and Housing" chapter in Volume 2. For more on the library of parts, see "The Quayside Plan" chapter in Volume 1, as well as the Buildings section of the MIDP Technical Appendix.

87. For more on Building Information Modelling, see the "Buildings and Housing" chapter in Volume 2.

88. For more details on the Loft space concept, see the "Buildings and Housing" chapter in Volume 2.

89. For more on flexible wall systems, see the "Buildings and Housing" chapter in Volume 2.

90. For more on the proposed outcome-based building code system, see the "Digital Innovation" chapter in Volume 2.

91. For more on the flexibility of stoa space, see the "Buildings and Housing" chapter in Volume 2.

92. For more details on the proposed small business incubator, see the "Public Realm" chapter in Volume 2.

93. For more on the Seed Space platform, see the "Public Realm" chapter in Volume 2.

94. Unless otherwise noted, each of the initiatives in this table are further detailed in the "Sustainability" chapter of Volume 2. For background information on projected greenhouse gas reductions, consult the "Sidewalk Toronto Greenhouse Gas Model - Path to Climate Positive" section of the MIDP Technical Appendix.

95. For more on the role of electric vehicles in Quayside and the IDEA District, see the "Mobility" chapter in Volume 2.

96. For more details on the use of mass timber in Quayside and the IDEA District, consult the "Buildings and Housing" chapter in Volume 2. Calculations on the carbon benefits of mass timber courtesy the Canadian Wood Council's online Carbon Calculator: /cwc.ca/design-tools/carbon-calculator/ (accessed April 17, 2019).

97. For more on the benefits of Shikkui plaster, see the "Buildings and Housing" chapter in Volume 2.

98. Unless otherwise noted, each of the initiatives in this table are further detailed in the "Buildings and Housing" chapter of Volume 2.

99. For more on the proposed Care Collective, see "The Quayside Plan" chapter in Volume 1.

100. For details on the proposed Civic Assembly, see "The Quayside Plan" chapter in Volume 1.

101. For more on the Quayside elementary school, see "The Quayside Plan" chapter in Volume 1.

102. For more on the proposed collaboration with the Toronto Public Library, see "The Quayside Plan" chapter in Volume 1.

Endnotes

103. Each of the initiatives in this table is further detailed in the "Mobility" chapter of Volume 2. Where endnoted in this table, additional information is also available in other chapters or in the MIDP Technical Appendix.

104. For more information on light-rail ridership and its employment accessibility benefits, consult the "Enabling Rapid Transit" section of the MIDP Technical Appendix.

105. Consult the "Active Transportation" and "Modelling and Transportation Analysis" sections of the MIDP Technical Appendix for details on active modes of transportation.

106. To understand projections regarding the use of ride-hailing services and their associated cost savings, consult the "New Mobility" section of the MIDP Technical Appendix.

107. Consult the "New Mobility" section of the MIDP Technical Index for pricing and savings information regarding mobility as a service.

108. Consult the "Streets for People" section of the MIDP Technical Appendix for more details on street types.

109. More information on accessibility initiatives are available in "The Quayside Plan" chapter of Volume 1 and the "Public Realm" chapter of Volume 2.

110. Consult the "Freight" section of the MIDP Technical Appendix for more details on the logistics hub.

111. Consult the "Mobility Management" section of the MIDP Technical Appendix for more details on active traffic management.

112. Consult the "Public Realm" chapter of Volume 2, as well as the "Cost Comparison of Modular Pavement vs. Typical Waterfront Streetscape" section of the MIDP Technical Appendix, for more details on modular pavement.

113. Each of the initiatives in this table are further detailed in the "Digital Innovation" chapter of Volume 2. Where endnoted in this table, additional information is also available in other chapters or in the MIDP Technical Appendix.

114. Consult the "Building the Backbone of Connectivity" section of the MIDP Technical Appendix for additional details on super-PON technology and ubiquitous connectivity.

115. See also the "Catalyzing Digital Services" section of the MIDP Technical Appendix for more on open standards for data.

116. See the "How Quayside Will Make Data Work for Toronto - And Protect It" section of the MIDP Technical Appendix for more on open data resiliency and security.

117. See the "Public Realm" chapter in Volume 2 for more on open access channels.

118. See the "Public Realm" chapter in Volume 2 for more on shared public infrastructure.

119. Turn to the "Public Realm" chapter in Volume 2, as well as the "Outdoor Comfort Development Standard" section of the MIDP Technical Appendix, for more on weather-mitigation systems.

120. Consult the "Public Realm" chapter in Volume 2 for more on real-time maps.

121. See the "Public Realm" chapter in Volume 2 for more on generative design.

122. Waterfront Toronto, *Innovation and Funding Partner Framework Agreement Summary of Key Terms For Public Disclosure.* November 1, 2017.

123. *Plan Development Agreement Between Toronto Waterfront Revitalization Corporation and Sidewalk Labs LLC.* July 31, 2018.

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