City of Brampton

Central Area/ Queen Street East

Employment-Based Intensification Study

Final Report

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Acknowledgement

Embark Planning + Design would like to thank Mr. Alex Taranu and the City of Brampton for providing resources, information, and guidance for the Central Area/Queen Street East Employment-Based Intensification Study. This has been a valuable experience contributing to our academic and professional careers, providing us with the opportunity to evaluate real-world problems in culmination of our Planning studies. In addition, we would like to acknowledge the continuous support and mentorship of Professor Kevin Curtis and Professor Mark Seasons from the University of Waterloo, especially for their flexibility in response to the COVID-19 pandemic.

It has been a pleasure to work on this project and we look forward to seeing the City of Brampton continue to grow.

April 15th, 2020

Alex Taranu
Senior Advisor, Design
City of Brampton
2 Wellington Street W
Brampton, ON, L6Y 4R2

RE: Central Area/Queen Street East, Brampton - Employment-Based Intensification Study

Dear Mr. Alex Taranu,

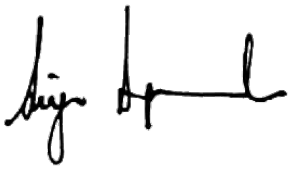
Embark Planning + Design is pleased to submit our Final Report compiling four months of research, analysis, and ideation for the Employment-Based Intensification Study ("Study") of the Central Area/Queen Street East ("Site"). Embark is a land use planning and urban design consulting firm, with an approach focused on diverse ideas, community collaboration, and human-centric innovation. After a thorough investigation into this Site and Brampton's changing context, we are proud to propose an innovative new development plan.

It is our understanding that this report will be a part of a range of intensification centres and corridor studies undertaken by the City of Brampton to help prepare Brampton's new Official Plan. Investigation into this Site has revealed a unique opportunity to create a vibrant employment hub that blends traditional industrial uses with new knowledge-based employment uses. We are excited to propose a vision for the Site that leverages this opportunity using complete community principles and emerging urban technologies to meet the City's 2040 Vision employment intensification targets.

Finally, it is pertinent to note the ongoing impact of the COVID-19 pandemic on this Project. The pandemic has had a significant impact both our key project deadlines and the lens with which we designed the final development scenario. Despite all setbacks, it has been an absolute pleasure working with a forward-thinking client such as the City of Brampton, and our team sincerely thanks you for your time and feedback. Should you have any questions, comments, or concerns, do not hesitate to contact me at s25agarw@uwaterloo.ca or 519-729-8602.

Respectfully,

Embark Planning + Design



Siya Agarwal
Project Manager

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Executive Summary

The Central Area/Queen Street East Employment-Based Intensification Study represents the City's efforts to assess opportunities for redevelopment—in a highly industrialized neighbourhood—east of Highway 410.

The Study rests on comprehensive background research, conducted through local and regional policy scans, spatial data analysis, and literature reviews of comparable sites for inspiration. An understanding of the existing conditions is vital to assess the Site's potential for redevelopment, especially in terms of its opportunities and constraints. The Site is well situated near major transit corridors and benefits from a growing demand for office space[48], which can be accommodated by redeveloping existing underutilized lands. By developing the area into a pilot project for industrial land conversion, the Site presents itself as a unique opportunity to introduce new mixed-use office spaces, public amenities, and enhanced mobility for central Brampton.

Vision statement development directs the design concepts, while goals and objectives outline specific steps to successfully develop a vibrant employment hub attracting new and emerging talent. Two development scenarios were designed, compared against each other and a Business as Usual scenario to evaluate the best option for the future. Evaluation criteria were categorized as one of the following, each selected to capture the broad range of opportunities within the Site: Transportation, Social & Natural Environment, Existing Conditions, and Economic Contribution.

Our final scenario, *Transitional Communities*, reflects a potential future that redevelops and intensifies part of the Site to combine the strongest components of the evaluated scenarios. Given the physical constraints of the Site and limitations with respect to heavy industrial uses south of Orenda Road, the goal was to capitalize on the lands available. *Transitional Communities* is rooted in four goals for development: Connectivity, Culture & Art, Sustainability, and Employment.

The following study is separated into three main sections which reflect the major project milestones that lead to the creation of Transitional Communities and subsequent implementation measures: Part I – Background Research, Part II – Scenario Development, and Part III - Moving Forward. This project represents the cumulative efforts to address the Site's current challenges, to best prepare the Site for future growth.

1.0 Introduction

The City of Brampton is located approximately 32 kilometres northwest of the City of Toronto and is the second-fastest growing—and ninth largest—city in Canada.[9,59,108] Brampton was officially established as a City in 1974[9] and saw rapid economic development with the introduction of the Grand Trunk Railway in 1858, horticulture industries in the 1860s, and manufacturing facilities soon after.[108] Today, the City houses more than 8,000 businesses, 75% of which are service-oriented.[9, 59] According to Brampton's 2040 Vision[32] the City is set to grow to more than 1,000,000 people, bringing 185,000 new jobs.[32]

The Central Area/Queen Street East **("Site")** in the City of Brampton is approximately 115 hectares[60], bounded by Eastern Avenue and Clark Boulevard to the Northwest, the CN railway tracks to the South, Heart Lake Road South and Highway 410 to the East, and Kennedy Road to the West (found in Appendix A). It is located between Brampton's major employment centres, New Town Bramalea and Downtown Brampton, in the upcoming "Central Area"[32,41] and presents a ripe opportunity for employment intensification. This Employment-Based Intensification Study **("Study")** facilitates a new development plan for the area that focuses on creating a complete community for the Site while encouraging knowledge-based employment uses. It is divided into two major sections:

- **Part I: Background Research:** This includes background research on: the Site's internal and surrounding land uses; a complete analysis of its current policy context; a review of existing and proposed transportation networks; an analysis of real estate and economic development both in Brampton and its wider economic context, and; a review of upcoming development applications. It will then synthesize this research to identify key strengths, weaknesses, opportunities, and threats, and summarize a number of case studies that may be used to leverage these opportunities.
- **Part II: Scenario Development:** Stemming from the analysis of the Site's existing conditions, this section forms a comprehensive Vision and relevant employment targets for the Site and crafts three major development scenarios;

    1. *Business as Usual*: Assuming no changes implemented to the Site,
    2. *Innovation District*: Focusing on innovative employment uses, and
    3. *Health + Wellness District*: Focusing on community benefits and amenities.

    These are then evaluated against comprehensive evaluation criteria to develop a final scenario, entitled *Transitional Communities*.

- **Part III: Implementation Measures:** The report concludes by identifying a myriad of specific implementation measures that will feed into the Official Plan update to make this vision a reality

As a disclaimer, information has been identified and categorizations based on an observational analysis and estimation of the Site's features using tools such as Google Earth[60] to provide a general overview. This does not replace accurate data depicting the exact categorization of features and uses. Base maps used are drawn from the City of Brampton's Open Data portal.[19]

Part I

Background Research

2.0 Background Research

2.1 Land Uses

2.1.1 Internal Land Uses

This Site contains a large portion of brownfield land dedicated to industrial or processing-intensive uses, such as factories or manufacturing plants[60]. These have been further categorized as heavy- and light-industrial uses. Additional land uses are office-employment, retail/commercial, institutional, and open space uses. There are no residential uses on-site given its industrial nature[60]. The following land uses have been categorized by our team and described, as follows:

Heavy Industrial Uses

Categorized by nature of industry and level of externalities, this includes warehousing facilities, self-storage and outdoor containment facilities, manufacturing, and any processing plants. Uses which are large in scale and require additional materials storage are also considered heavy industrial, such as IKO Industries Ltd.,[65] Maple Leaf Poultry Farm,[76] Wasteco,[17] and Access Self Storage.[1]

Light Industrial Uses

Relatively smaller in scale, this includes automobile repair facilities, auto storage, and traditional industrial warehousing uses. This broad categorization is flexible and can include uses such as the Clark Boulevard Carpool Lot.

Office/Employment Uses

Broadly categorized for corporate uses or offices, such as the head office of Peel Plastic Products Ltd.[89]

Retail/Commercial Uses

Includes everyday shops with storefronts or retail components, an example of this use would include Plato's Closet.[91]

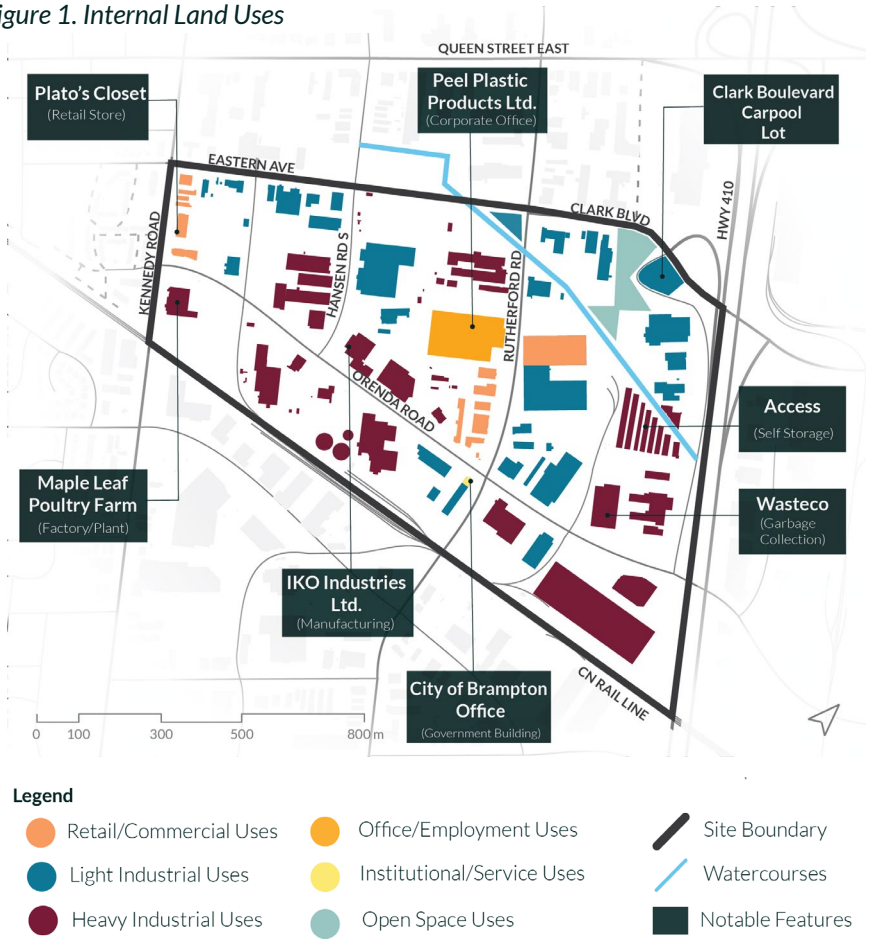
Institutional

Institutional uses are those occupied by services or amenities which are supportive of the community or public facilities, such as the City of Brampton's government office.[33]

Open Space Uses

This refers to the open green space and parks on the Site.

Figure 1. Internal Land Uses



There is a disconnect between Eastern Avenue and Clark Boulevard in the northern portion of the Site due to a large truck and outdoor storage area. [60] The northeast portion contains a small watercourse, the most prominent on-site environmental feature.[60] Building heights are predominantly low-rise, with most buildings containing no more than two-storeys. [60] Internal land uses with notable features are illustrated in Figure 1.

2.1.2 Surrounding Land Uses

The Site's surrounding land uses based on ordinal direction (depicted in Figure 2) are as follows:

Figure 2. Surrounding Land Uses

North/North West

A mix of small- and large-scale retail, commercial, and institutional uses border Queen Street, with a high-rise at the intersection of Hansen Road and Queen Street. [60] Notable features, such as the City of Brampton's Fire Station 201, hotels, educational institutions, and restaurants are present.[60] Brampton's 2040 Vision imagines the northern Queen Street Corridor with mid-rise residential developments, integrated high-rise, and townhouse residential developments.[32]

South

Multiple industrial land uses border the CN rail tracks, including warehousing, manufacturing uses, and automobile rental companies (including outdoor truck and vehicular storage commercial retail uses present at the Kennedy Square Mall. [60]

East

Several large industrial and employment uses are present, including the Rogers Brampton Campus and the Brampton Dixie Chrysler dealership, with some larger retail uses (i.e. a grocery store). [60] The Peel Board of Education North Field Office serves as the only institutional use to the immediate east. [60]

West

Immediately west of the subject lands are a mix of different residential uses, between two-storeys (low-rise) to six+ storeys (high-rise); housing types include apartments, townhouses, and single-detached dwellings. [60] There are local retail and institutional uses, including small shops, a nursing home, and a religious institution.[60]

Given the contrast between on-site and the surrounding uses, the Site is not conducive to, nor does it support, residential communities in the surrounding neighbourhood. This presents a unique opportunity for

the intensification of office uses and mixed-use development—creating links between the Site and the adjacent areas.

2.2 Policy Review

2.2.1 A Place to Grow

A Place to Grow, 2019 discusses development principles for identified growth areas in southern Ontario, including the City of Brampton.[94] Alongside encouraging complete communities, intensification, and protection of natural heritage features, the policies support adaptation to new economic opportunities while maintaining support for traditional industries.[94] Additional visioning targets a healthy environment, vibrant urban centres, and well-integrated multimodal transportation networks; emphasis is placed on providing staples such as shelter, education, healthcare, food, cultural facilities, and information technology.[94]

2.2.2 Region of Peel Official Plan (ROP)

The Region of Peel's Official Plan guides regional growth until 2031, with policies to be implemented at regional and municipal levels.[98] The ROP identifies the need to protect water quality, to encourage sustainable development with energy-efficient water systems, to contribute to local quality of life, and to promote a strong economy and arts culture.[98] It supports the designation of Urban Growth Centres (UGCs) and Regional Intensification Corridors that encourage active transportation, are linked to public transit networks, combine residential and employment opportunities, and target a minimum gross density of 200 residents and jobs per hectare.[98] The Region of Peel further identifies Brampton's employment areas as Office, Industrial, and Business Corridor lands, which are to be protected and supported instead of replaced.[98]

2.2.3 Brampton 2040 Vision

The City envisions a future celebrating the diversity of people and culture, with the following goals:

- Revitalization of the Uptown and Downtown areas;
- Creation of new job nodes;
- Neighbourhood revitalization and 'complete street' development along central Queen Street;
- Connecting multimodal networks (including technology and digital access);
- Emphasis on sustainable growth and development; and
- Support for creativity, innovation, and healthy lifestyles.[32]

Brampton aims to create a stronger street network, enhance transit, and connect uptown and downtown centres to strengthen employment potential and introduce amenities in designated UGCs.[32] By 2040, the City projects the following downtown changes:

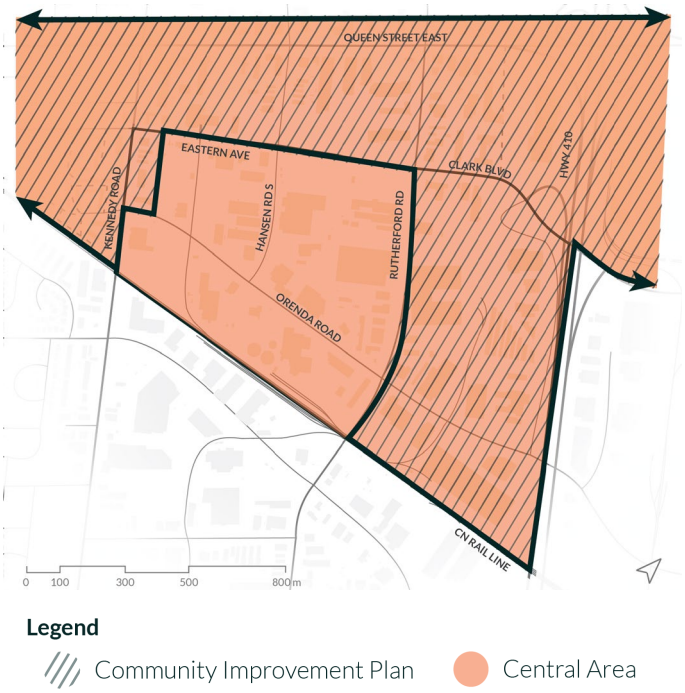
- 20,000 Dwelling Units;
- 55,000 People; and
- 26,000 Jobs (with 1.3 jobs expected per household).[32]

While the Site is located within the Vision's Health + Wellness District, below planned intensification of high- and mid-rise residential buildings along the Queen Street Corridor; the current industrial use of the Site is

unaltered.[32] Notably, it indicates that residential development will occur between the Clark-Eastern connection and Queen Street.[30]

2.2.4 City of Brampton Official Plan (BOP)

Figure 3. Official Plan and CIP Designations



The City of Brampton is currently developing a new BOP[10] in place of the existing 2006 plan used today.[11] As such, the City acknowledges its need to update policy and plans currently guiding its development. While details about the current Plan are outlined below, the Brampton 2040 Vision report[32] will be used to represent the City's present goals and will have greater significance than the current BOP, which is soon to be retired.

Currently, the Site is designated as part of the Central Area[41] and is located just south of the designated UGC (Figure 3).[28] Surrounding land to the East and to the South is largely industrial, with some 'Business Corridor' designation, while areas to the West and the North are primarily residential.[23]

An excerpt of the BOP relating to the Central Area underlines the desire to shift industrial and manufacturing land uses to office development locations.[22] Moreover, the economic development section emphasized promotion of the Central Area and UGC as a key location for business, culture, and living.[26] Promoted developments include sustainable employment opportunities; transportation facilities meeting economies of scale and suitable movement for goods and people; and green businesses or eco-zones to promote healthy communities.[26] These developments should be serviced by well-integrated multi-modal transportation systems.[26]

The current OP also outlines the City's desire to meet the needs of live-work-play lifestyles by being sustainable, having strong infrastructure, and having integrated public participation processes in place.[26] Brampton's desire to contribute to significant economic and cultural growth within the GTA is a strong response to projected population increases.[26] Sustainability, commercial corridors, heritage conservation, and urban design are all additional key principles in the Central Area.[11]

2.2.5 Environmental Master Plan (EMP)

Alongside other innovative steps, Brampton has taken the initiative to develop their first EMP to identify goals and directions for future developments, aiming to lead by example in the area.[114] The EMP addresses short- and long-term objectives, where implementation of the long-term goals can help contribute to the Brampton 2040 Vision.[32] These include increasing community transit use, increasing jobs density, sourcing more energy from on-site renewable resources, and naturalizing waterways.[114]

The EMP makes recommendations to expand the number of electric vehicle charging stations for businesses and communities, support sustainable retrofitting and green roof implementation, expand community garden

space, encourage reduced parking for Sites serviced by transit, and prioritize transit use.[114] The objectives and recommendations showcase the green lens desired by the City of Brampton for future developments.

2.2.6 Cultural Master Plan (CMP)

The CMP aims to enhance Brampton's economic development by enlivening their arts and culture sector, emphasizing the intrinsic value of culture.[74] This Plan was developed to provide a direction towards arts and cultural resources as part of the wider Brampton 2040 Vision.[32, 74] Downtown Brampton, of the Central Area, is considered a key cultural "landing spot", particularly due to strong transit links; this is integral for future developments.[74]

A municipal tax incentive is proposed to facilitate making existing space available to culture, particularly for commercial and industrial properties.[74] While Ryerson University's proposed satellite campus lost provincial funding,[70] Brampton still has potential to become a higher-education node in the future. Introducing innovative audiences could contribute to partnerships and creative entrepreneurship;[74] this must be considered, should funding be re-established in the next 20 years and in support the of the Brampton U initiative.[55]

2.2.7 Development Design Guidelines

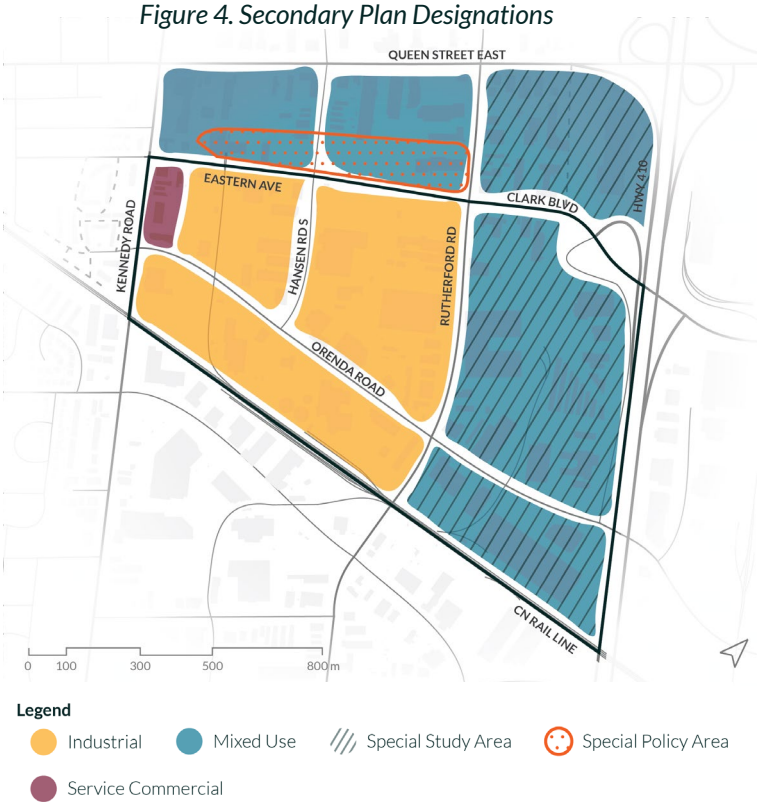
Development of industrial and employment areas are to be founded on the same principles as the surrounding community.[20] Notably, pedestrian access should be facilitated both within and around the Site, with other forms of active transportation—such as cycling—promoted through modal accessibility.[20] The impact of parking in industrial areas should also be mitigated through configuration, landscaping, and grading.

2.2.8 Queen Street Corridor Secondary Plan (SP36)

The City of Brampton identifies Industrial, Commercial, and Central Area Mixed Use designations in SP36 (Figure 4).[25] A Special Policy Area (SPA) is identified above Eastern Avenue and Clark Boulevard,[25] which is a location previously in a flood plain that is now susceptible to flooding; Site-specific policies are required to support existing uses.[26] To the south of the Site, grade separation is also identified;[25] this is primarily to accommodate for the CN rail line with street underpasses. The portion of the Site between Rutherford and Heart Lake Road South is slated as a Site, while the area above Clark Boulevard is noted as a Primary Office Node.[25]

Among other initiatives, SP36 targets streetscape improvements including, but not limited to, street furniture, street lighting, surface treatment, planting and floral displays, and flags, banners, and fountains.[38]

Figure 4. Secondary Plan Designations



2.2.9 Community Improvement Plan (CIP)

The CIP aims to enhance Brampton's Central Area into a mixed-use, vibrant hub that is well-served by transportation and focuses on the users.[24] Within this, the Queen Street Corridor is envisioned to have a commercial concentration and a better transportation link, while becoming competitive with greenfield developments.[24] Additionally, the CIP emphasizes the need to recognize and protect continuation and expansion of existing industrial operations and details the need to find compatible land use neighbours.[24] Maintenance and rehabilitation of existing buildings is encouraged instead of redevelopment.[24]

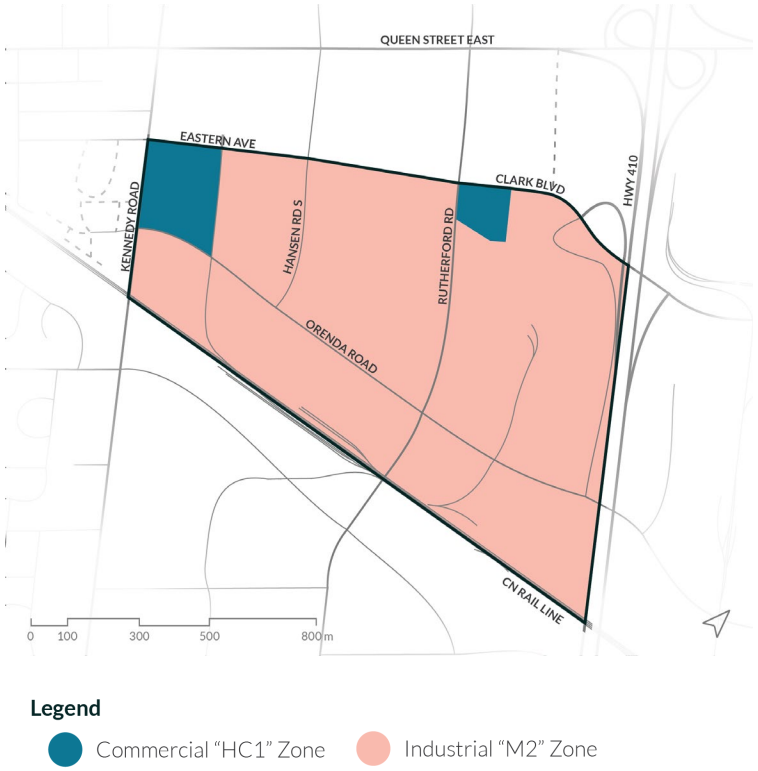
2.2.10 Zoning

The Site is predominantly zoned Industrial "M2" and Commercial "HC1", as per the City of Brampton Zoning By-law 270-2004.[21] The existing zoning breakdown of the Site is depicted in Figure 5.

The By-law limits the maximum building height to three-storeys in Commercial "HC1" Zone.[21] The Industrial "M2" Zone, which occupies a majority of the Site, does not contain height restrictions unless the lot abuts a residential use.[21] Furthermore, Section 30.2 of the By-law states that industrial uses may not be of "obnoxious" nature to the environment.[21]

Due to the homogenous zoning designations within the Site boundaries, the uses on Site are primarily industrial. This poses a threat to the Site as it may be difficult to integrate new uses and convert existing industrial uses.

Figure 5. Existing Zoning Designations



2.2.11 The Sustainable Neighbourhood Action Program (SNAP)

The Sustainable Neighbourhood Action Program (SNAP) generates opportunity for environmental improvements and urban renewal through the design of roads, parks, and stormwater management infrastructure.[112] It has been piloted in Bramalea and focuses on five themes areas of sustainability including stormwater management, water use and conservation energy, and natural heritage.[112] In addition to environmental sustainability, SNAP considers themes of health, transportation, waste management, community identity, and culture.[112]

2.2.12 Council Agenda Recommendation Report

This report amends the BOP guidelines to permit office space in designated employment areas, including mixed-use contexts; in particular, emerging businesses—such as start-ups—are considered target stakeholders.[42] The recommendation is approved due to compliance with economic growth, alignment with smart growth principles, facilitation of a stronger live-work balance, and conformity with the Brampton 2040 Vision.[32, 42]

2.3 Transportation Context

2.3.1 Street Network

The Site maintains a coarse-grained street network with limited north-south connections to Queen Street and a fragmented east-west connection, as Eastern Avenue and Clark Boulevard are not presently connected. The street network[19] within and surrounding the Site is further described below and illustrated in Figure 6.

Figure 6. Road Classification within Site

Highway 410

An 8-lane cross-section highway, with 4-lanes in each direction and a posted speed limit of 100km/hr. As part of the larger 400-series highway network, it connects Highways 401 and 402 to Brampton.

Queen Street East

A major arterial road that serves as one of the City's major east-west corridors just north of the Site. It has a 6-lane cross-section, with 3-lanes in each direction and centre left turn lanes at key intersections. The posted speed limit is 50 km/hr.

Kennedy Road

A major arterial road that serves as one of the major north-south corridors. It is under the jurisdiction of the Region of Peel and has a 4-lane cross-section, with 2-lanes in each direction and a centre left turn lane at key intersections. The posted speed limit is 50km/hr.

Clark Boulevard

A major arterial roadway that serves as the northern boundary of the Site. It has 4-lane cross-section, with 2-lanes in each direction and a posted speed limit of 50 km/hr.

Orenda Road

A collector road that provides an east-west connection in the City and begins within the boundary of the Site at Kennedy Road and terminates at Dixie Road. The road has a 4-lane cross-section, with 2-lanes in each direction and a posted speed limit of 50 km/hr.

Hansen Road South

A local road that provides a north-south connection within the City and runs through the Site. The road has a 2-lane cross-section, with one lane in each direction and a posted speed limit of 50 km/hr.

Eastern Avenue

A local road that provides an east-west connection within the Site. It has a 2-lane cross-section with one lane in each direction, and a posted speed limit of 50 km/hr.

2.3.2 Area Transit Network

Located in central Brampton and adjacent to the Kitchener GO Line, the Site is situated near major transit routes and stations. The Site is located between Brampton GO Station and Bramalea GO Station, along the Kitchener GO Line.[61] The Site is currently served by several local bus routes operated by Brampton Transit and Züm.[34] The routes within the vicinity of the Site are further described below and illustrated in Figure 7.

GO Transit

GO Transit offers regional rail service within the vicinity of the Site along its Kitchener Line. The service operates every half hour during peak hours from Kitchener to Union Station in Toronto. During off-peak hours, a bus from Kitchener runs to Bramalea GO where
a transfer is required to connect to Union Station.[61]

Brampton Transit

Several local bus routes operate within the vicinity of the Site, including:[37]

- **7, 7A Kennedy:** This bus route operates along Kennedy Road from Courtneypark Drive to Mayfield Road. The route runs on approximately 15-minute headways, from Monday to Friday and on 20-25-minute headways on Saturday and 30-minute headways on Sundays and holidays.
- **10 South Industrial:** This bus route operates from First Gulf Boulevard to Bramalea Terminal and passes through the southeastern part of the Site along Rutherford Road and Orenda Road. The route runs on 25-minute headways from Monday to Friday until 7:30 p.m. and there is no service on weekends or holidays.
- **1, 1A Queen:** This bus route operates along Queen Street, connecting Mount Pleasant GO Station to Hwy 50 and stops at Bramalea Terminal. The route runs on 20-30-minute headways 7 days a week.
- **8 Centre:** This bus route operates along Queen Street and Rutherford Road just north of the Site and connects the Brampton Gateway Terminal to Bramalea Terminal. The route runs on 20-minute headways from Monday to Friday, 45-minute headways on weekends and holidays.

Züm Bus Rapid Transit

Route 501, 501A Züm Queen operates along Queen Street and connects the Downtown Brampton Terminal to Vaughan Metropolitan Centre and York University Terminal.[37] This route runs on 15-minute headways from Monday to Friday and 30 minutes on weekends and holidays.[37]

2.3.3 Specialized Transit

The Region of Peel currently offers TransHelp, a specialized public transit service, to eligible Brampton, Caledon, and Mississauga residents.[101] Those who qualify are able to receive door-to-door shared transit service across the region; this service is intended to fill the gap for those with accessibility needs to create a fully integrated transit network across the Region.[101]

2.3.4 Cycling Network

There are no existing cycling routes or facilities within the Site boundary.[60] Beyond the Site, several bike facilities are located, predominantly along local streets; major cycling facilities include the bike lanes along Rutherford Road, north of Queen Street, and the Esker Lake Recreational Trail, accessible from Laurelcrest Street, east of Highway 410 (Figure 8).[35] Several proposed infrastructure improvements planned for the future including multi-use paths on Eastern Avenue, Clark Boulevard and Rutherford Road; and protected bike lanes on Queen Street and Orenda Road.[35]

Figure 7. Existing Area Transit Network

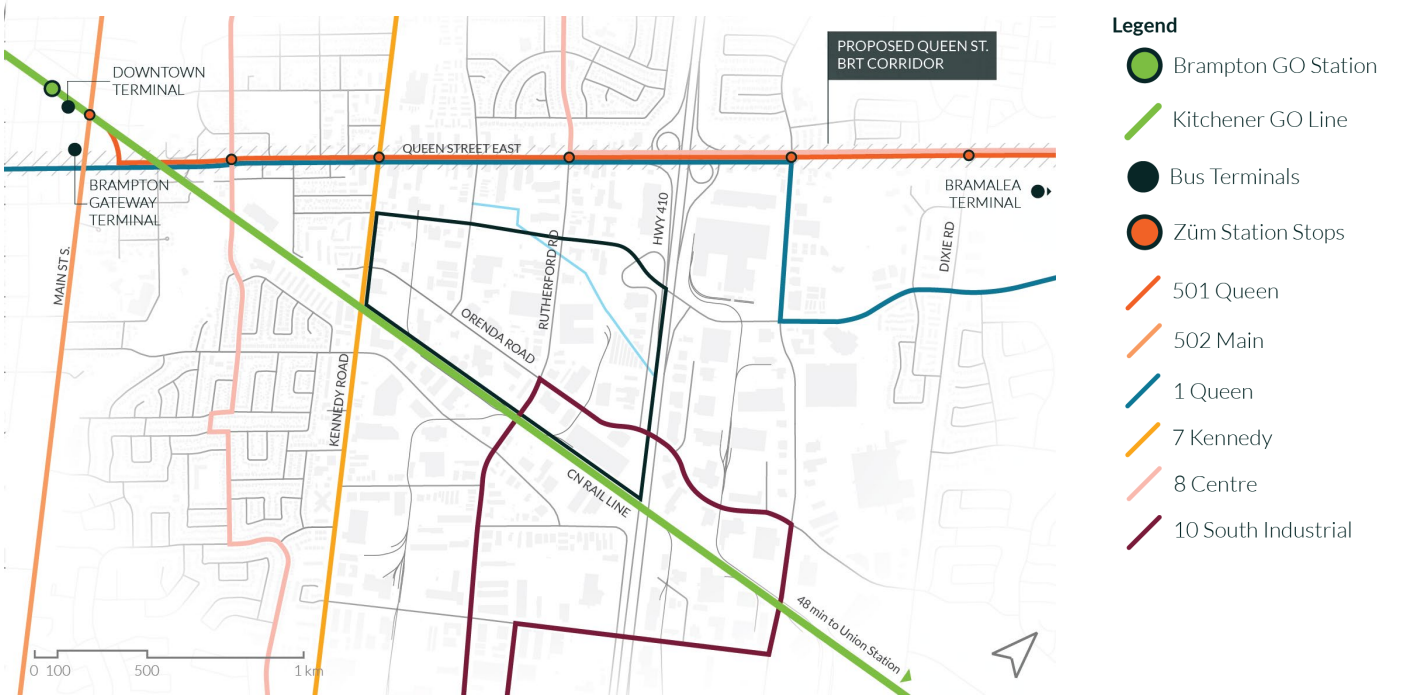
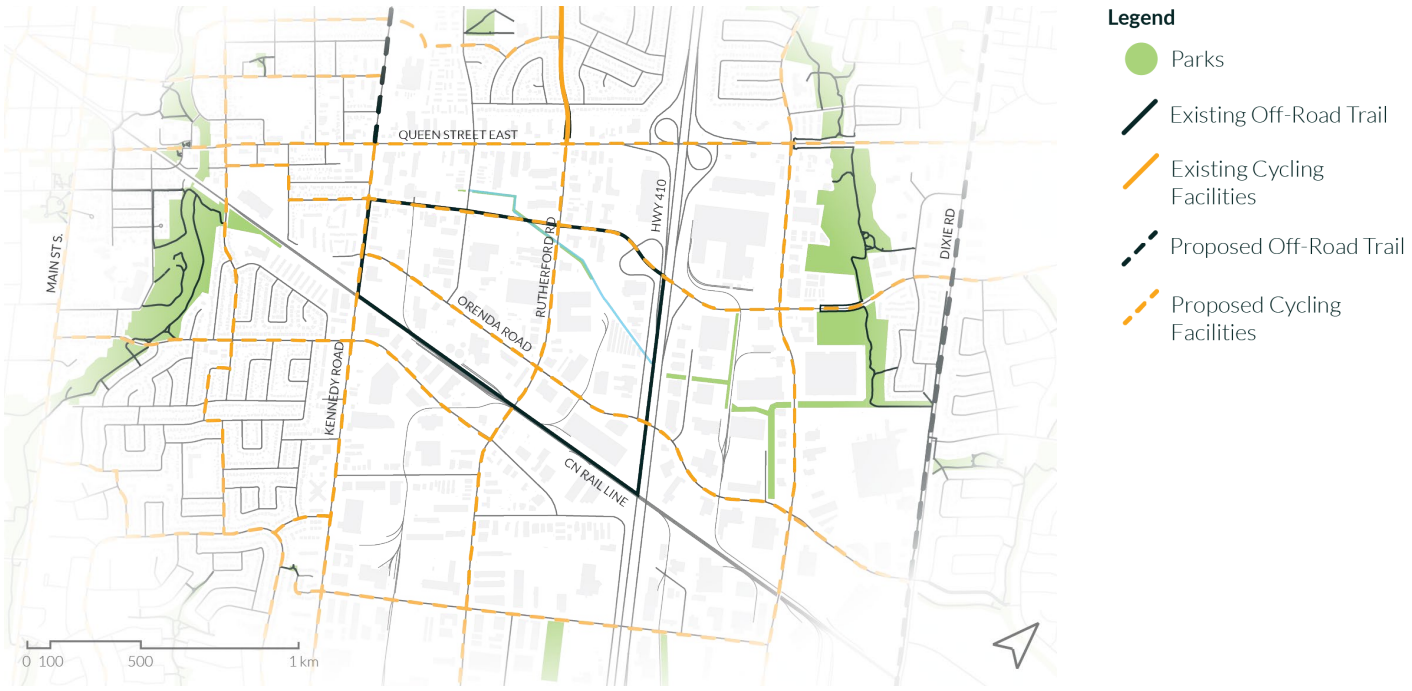


Figure 8. Cycling Network and Trails



2.3.5 Rail Context

The City of Brampton is connected to major goods movement corridors in Canada through the Canadian National (CN) and Canadian Pacific (CP) Railways; the largest CN Intermodal Terminal is in east Brampton and supports the transfer of goods from rail to trucks which ultimately get distributed across Southern Ontario (Figure 9).[97] The CN railway is also used by GO Transit for its Kitchener Line which connects downtown Toronto's Union Station to downtown Kitchener.[61] Metrolinx is in the process of developing its Regional Express Rail (RER) service which will mean all-day, two-way regional service along all of its lines to better connect residents across the GTHA.[78] The Site is well positioned to the north of the CN railway and though it is not currently serviced by any stations, it provides opportunities to increase regional transit connections due to its proximity to Brampton and Bramalea GO Stations.

Figure 9. Rail and Truck Routes

2.3.6 Provincial Plans

2041 Regional Transportation Plan for the Greater Toronto & Hamilton Area 2018

In 2018, Metrolinx released the 2041 Regional Transportation Plan (RTP) building on The Big Move (2008), the GTHA's first regional transportation plan.[78] The recently updated plan specifies a series of planned local and higher order public transit projects, a number of which will provide immense benefits to the Site and broader City context.[78] Within the vicinity of the Site, the Brampton Queen Street BRT/LRT plans to upgrade the existing Züm service to better connect downtown Brampton and York Region.[78]

2.3.7 Regional Plans

Let's Move Peel: Long Range Transportation Plan 2019

The Region of Peel's 2019 Long Range Transportation Plan (LRTP) is intended to guide transportation planning and infrastructure to 2041.[100] Employment and jobs are expected to grow by roughly 500,000 and 250,000, respectively, and morning travel trends have predicted approximately 300,000 new trips – all of which will place a greater strain on the existing transportation network.[100] The LRTP aims for a balanced approach to maintain the current level of service by shifting travel modes to more sustainable options.[100] The main recommendation is a 50% sustainable mode share target which includes walking, cycling, transit, and carpooling.[100]

Peel Region Goods Movement Strategic Plan 2017 - 2021

The Goods Movement Strategic Plan serves as an update to the 2012-2016 Goods Movement Plan and addresses the impact of technological advancements that have changed industry needs in terms of freight movement in the Region.[97] The Plan highlights the importance of goods movement and identifies action items relating to new e-commerce trends, good movement education and outreach, and its role in freight in both the regional and national context.[97]

Vision Zero Road Safety Strategic Plan 2018 - 2022

The Region of Peel's 2018 Vision Zero Road Safety Strategic Plan supports a larger initiative which began in Sweden and focuses on reducing traffic-related fatalities and injuries within Peel.[99] The Plan identifies "countermeasures", which are specific actions relating to road safety in the following categories: engineering, enforcement, education and empathy.[99]

2.3.8 Municipal Plans

Brampton 2040 Vision: Living the Mosaic 2018

The City of Brampton developed this document to address the City's 2040 Vision and outlined ten transformations supported by lenses and actions for success.[32] One of the transformations, "everything connected", describes the vision to seamlessly integrate transit, walking, and cycling networks with existing uses.[32] This transformation is addressed in the City's fourth Vision: "In 2040, Brampton will be a mosaic of safe, integrated transportation choices and new modes, contributing to civic sustainability, and emphasizing walking, cycling, and transit."[32]

City of Brampton Transportation Master Plan Update 2015

The City's Transportation Master Plan was updated in 2015 and provides a 2041 vision for growth.[27] The Plan places emphasis on sustainable transportation modes—transit, walking, cycling, and carpooling; the Plan includes several technical documents describing future transit provisions, active transportation, transportation demand management, and goods movement.[27]

Let's Connect Active Transportation Master Plan 2019

The City of Brampton's Active Transportation Master Plan (ATMP) is the first of its kind, providing a network plan for active transportation and outlining policies and programming to support the City's 2040 Vision regarding sustainable mode choices.[35] The Plan focuses on cycling and pedestrian network implementation to encourage more residents to take safer, more convenient travel modes as well as providing adequate facilities for both recreational and functional uses.[35]

Queen Street Transit Master Plan

Metrolinx is working with several stakeholders on implementing bus rapid transit (BRT) along Queen Street in Brampton and integrating it with the existing BRT along Highway 7 in York Region.[39] Several major transit station areas (MTSA) were identified in the study conducted including Kennedy and Rutherford in the context of the Queen Street Central Area.[40]

Toronto-Waterloo Innovation Corridor

In the Regional Transportation Plan by Metrolinx, the connection between Toronto and the Waterloo Region is described as the "Toronto-Waterloo Innovation Corridor."[78] The Plan identifies the importance of strengthening the connection between these two growing employment centres in the hopes of becoming a leading technology cluster in North America.[78]

The CN railway is the primary regional transit route connecting Union Station in Toronto to Kitchener GO. The City of Brampton is one of several municipalities located within the innovation corridor and the rail line conveniently makes up the southern boundary of the Site.[78] As the areas along the corridor continue to see more technology, manufacturing, and finance companies, the City of Brampton—along with other municipalities along the corridor—hope to attract new talent to encourage long-term growth.

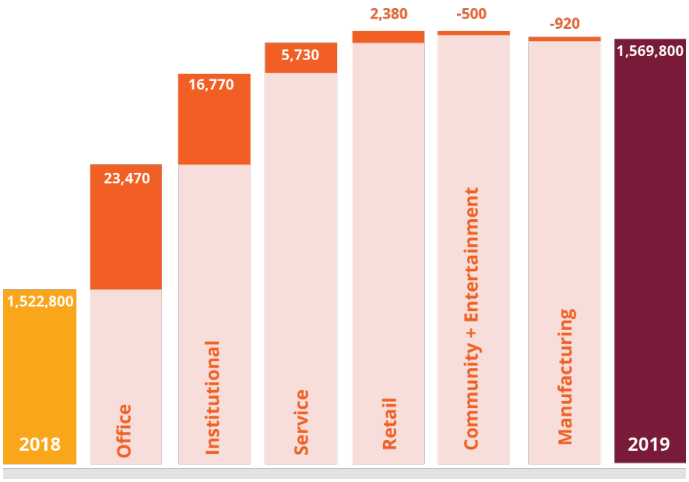
The City of Brampton is the second fastest growing city in Canada,[14] playing an important role in the economic well-being of southern Ontario. Its proximity to major goods movement hubs—like the Toronto International Airport and CN Intermodal Terminal—makes it ideal for companies.[97] Canon Canada, Hudson Bay Company, and Loblaw Companies are some of the larger corporations based out of the City and serve as key indicators for Brampton's economic success.[12]

2.4 Employment & Real Estate

2.4.1 GTA Employment Trends

The Greater Toronto Area (GTA) accounts for 18% of Canada's population and 20% of its GDP.[82] The GTA economic growth trend has slowed steadily over the past two years, following four years of robust expansion.[82] The GTA is Canada's fastest growing region, estimated to have grown 2.7% between 2011 to 2018; this outpaces the annual growth rates of Ontario (2.2%) and Canada (2.1%).[46] Stable economic growth is forecasted for the GTA.[48]

Figure 10: 2018-2019 Employment Growth Share by Category[46]



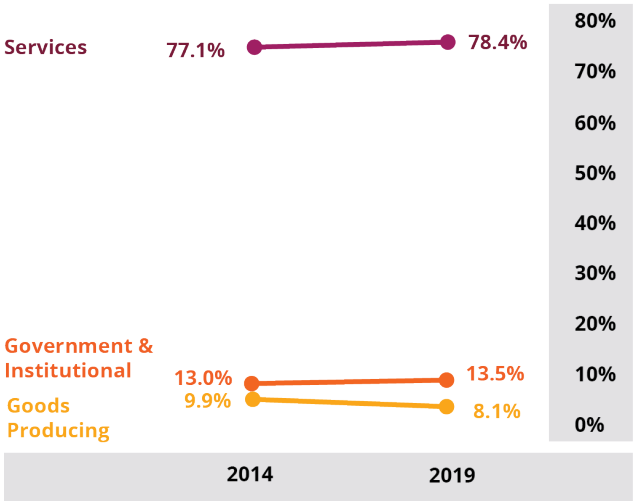
Employment in Toronto is dominated by offices, accounting for half of all net new jobs; additional, but less notable, growth was present in institutional, service, and retail employment sectors (Figure 10).[46] Within the office category, Business and Technical Services grew the most in 2019; Business Services growth was driven by computer services, management consultants, and personnel services.[46] Technical Services growth is driven by tenants of co-working spaces, architects and planners, and interior decorators.[46]

The North American Industry Classification System (NAICS) breakdown of employment identified three major industries that make up the employment shares of Toronto's economy; serviced based industries (78.4%), government and institutional industries (13.5%), and goods producing industries (8.1%).[46] While There has been growth in the first two sectors, there has been employment losses in goods production (-6.9%) (Figure 11).[46]

2.4.2 GTA Real Estate Trends

Economic drivers have strengthened the forces of spatial clustering, and restructuring has brought about the hyper-concentration of economic activity in and around downtown Toronto.[4] In 2019, most new Toronto establishments were located in employment areas (27%), Downtown, (3.9%), and employment Centres.[46]

Figure 11. Employment Share by Major NAICS Sector, 2014-2019 [46]



Stemming from the growth in office employment (Figure 10), in 2019, the new office supply was insufficient to meet demand. In Q4 of 2019, the office sector in the GTA saw a surge in absorption rate and a very low vacancy rate (4%) indicating strong overall demand for office spaces.[48] Brampton has a higher vacancy rate than Downtown Toronto (1.1%) but a lower rate than the GTA North/East Area (4.9%).[48] This rate is likely to ease with the introduction of the 8.7M square feet of office space under construction (majority in the tight Downtown market). [48] At the same time, Brampton has the highest rental rate growth in the GTA, with a Q4 increase of 16%.[48] Both low office vacancy rates and an increase in rental growth rates indicate a growing demand for office space in Brampton.

Two trends likely to impact the office real estate market is the entry of tech tenants and rise of coworking spaces. In 2018, GTA tech tenants jumped 203% from the previous year.[47] Analysis indicates that the access to a talented labour force, proximity to transit, and proximity to amenities are dominant drivers shaping the location of the technology sector in Toronto today.[47] Between 2014-2019, employment in co-working spaces in Toronto has expanded by 327%.[46] Key players in the market are WeWork, IQ Office, and Regus/Spaces and they are largely found in the downtown core.[46]

2.4.3 Brampton Employment Trends

Currently, over 60% of working people leave the city every day for their jobs, and the Brampton 2040 Vision[32] aims to change this, such that 60% of individuals work in Brampton itself.

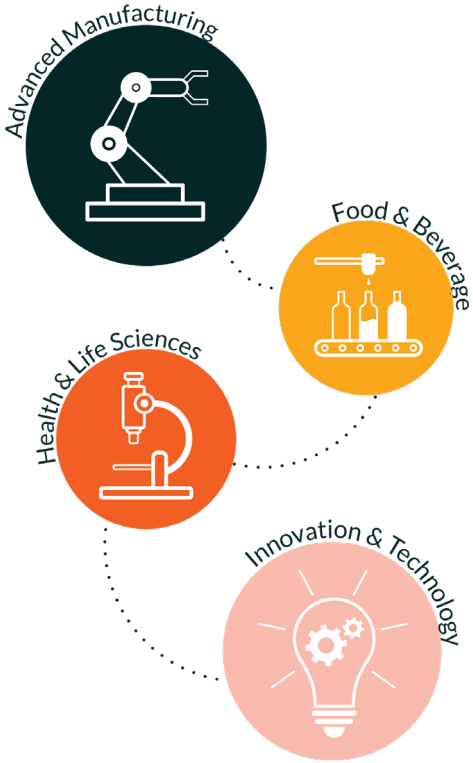
Currently, a majority (75%) of employment in Brampton is related to the service producing industry and its largest employers include Roger Communication, Brampton Civic Hospital, FCA Canada Inca, Loblaws Companies Ltd., and the City of Brampton; this sector is anticipated to expand by 2040.[29] Brampton's 2040 Vision states that the clusters of businesses and services around existing employment hubs have not formed as the type of jobs suiting the education and interests of the residents are not available.[32] It aims to transform Brampton into a "mosaic of vibrant centres with quality jobs, a range of activities and integrated living" (p.5). There is a new opportunity to integrate this growing service producing industry with new knowledge-based employment uses missing from this immediate environment.

Finally, there are a multitude of higher education institutions located in Brampton including Sheridan College and Algoma University.[60] These institutions play a pivotal role in nurturing Brampton's young demographic and have the potential to be a breeding ground for innovation.

2.5 Economic Development

2.5.1 Brampton's Economy

Brampton's proximity to major goods movement hubs—like the Toronto International Airport and CN Intermodal Terminal—make it ideal for companies to develop.[97] Being home to the largest support of vacant land adjacent to the airport makes Brampton an attractive opportunity for economic development, currently shown by the number of national headquarters located in the City.[14]



2.5.2 Key Sectors

Much of the economic development and business growth can be categorized into four key sectors, described below, which have become common. These include: Advanced Manufacturing; Food & Beverage; Health & Life Sciences; and Innovation & Technology.[12] The City's Economic Development Office provides additional resources for locating a business in Brampton and provides information on incentives for each sector.

Advanced Manufacturing

This sector accounts for 30% of Brampton's economic output and accounts for a quarter of the City's workforce, making it the largest industry by employment.[14] The manufacturing sector contributes to both the local and national economy with approximately $4 billion going to the national GDP. There are currently 900 companies and 35,000 employees in the advanced manufacturing sector in Brampton.[14]

Food & Beverage

This sector is less focused on restaurants and more related to the 'behind the scenes' of food production.[15] The sector is referred to as the 'one-stop-shop' with companies operating in food testing, processing and packaging, transportation, packaging design, and equipment and refrigeration storage.[15] All industries in this sector are supported by leading technology, top-quality products and rich agricultural tradition.[15]

Health & Life Sciences

This sector has a consistent annual growth and employs over 13,000 people directly and indirectly to over 2,000 companies.[16] Located within North America's third largest biotechnology cluster, the City hopes to continue its growth by marketing its diverse population, supportive government and access to talented youth.[16] This sector has accelerated growth since the development of the world-class Peel Memorial Centre, located west of the Site.[16] This sector is particularly unique because of the range of work which make up sub-sectors, including businesses and health services.[16]

Innovation & Technology

This sector capitalizes on the City's location within the Toronto-Waterloo Innovation Corridor and is the foundation for collaboration, partnerships, and innovation across all industries.[17] This industry had begun to thrive because of the talent in Brampton, the education programs available and the proximity to North American accelerators at Ryerson and Communitech.[17]

Rogers Cybersecurity Catalyst

Within this sector is the Rogers Cybersecurity Catalyst- a national centre for innovation and collaboration in cybersecurity.[18] The centre provides training and certification, commercial acceleration and support for applied research and development, as well as public education.[18] Globally, the cybersecurity industry is expected to reach $2 billion by 2023 and Canada is on the leading edge in this field, having had the fourth most venture capital deals in the world.[18]

2.6 Development Activity

2.6.1 Development Applications On-Site

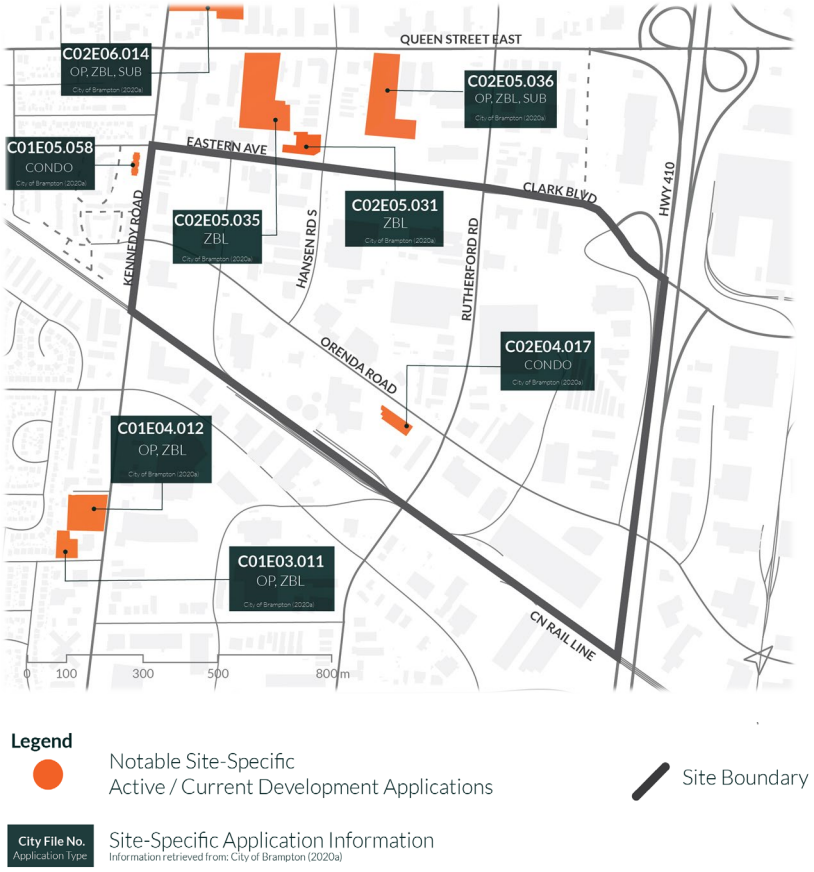
Within the boundaries of the Site, there is currently one active development application at the southern end (C02E04.018).[36] This application is for the conversion of tenureship of several properties into a condominium with common elements.[36]

2.6.2 Surrounding Development Applications

Surrounding development applications are for a number of purposes such as changes to the Official Plan (OP), Zoning By-law (ZBL), and Plans of Subdivision (SUB) or Plans of Condominium (CONDO).[36] Much of the proposed activity around the Site includes high-rise residential development along Kennedy Road, or mixed-use developments along the Queen Street corridor to contain commercial and medical-related uses.[36] These development applications could serve as immediate precedent for the potential redevelopment of the Site. Key internal and surrounding development applications on-site are seen in Figure 12.

Additional to the site-specific applications, there is a City-initiated development application (CI19.001) for the Central Area Community Improvement Plan (CIP), particularly for Wards 1, 3, and 7. [13]

Figure 12. Key Development Applications



2.7 SWOT Analysis

A thorough investigation of the existing site conditions in 2.1 - 2.6 has revealed several key strengths, weaknesses, opportunities, and threats for the Site. These will be vital in crafting a vision and development plan for the Site and have been summarized in Table 1 to Table 4 below.

Table 1. Strengths

Strengths	Details
Diverse and Fast-Growing Population	Brampton is anticipated to grow to 1,000,000 residents by 2040.[32] There is an opportunity to create new knowledge-based jobs that can leverage this growing talent.
Transportation Accessibility	The Site is easily accessible by multiple modes of transportation including Brampton Transit and Züm Rapid Transit on Queen St, via Highway 410, and through the Brampton GO Station.
Limited Height Restrictions on Industrial "M2" Zones	This indicates that there is no limitation to intensify on the Site and there are opportunities for stacked mixed-use development (e.g. IntraUrban Evolution project in Vancouver[85]).
Increasing Demand for Office Space	Brampton has the lowest office vacancy rates in the North/East GTA, and most new office construction is taking place Downtown.[48] This indicates that Brampton is well posed for new office construction.
Declining Goods Production and Increasing Service Sectors	The GTA, while enjoying overall positive economic growth, has seen a slight decline in its goods manufacturing industry and an increase in its service sector.[46] There is the potential for Brampton to replace certain declining manufacturing zones (as our Site) with growing uses in the service industry.
Prime Location for New Development	The Site is located between Downtown Brampton and Bramalea, along the Toronto-Waterloo Innovation Corridor; both locations are intended to be major knowledge-based employment zones according to the Brampton 2040 Vision.[32] Developing this area as an employment zone will strengthen the linkages between the two centres; given the lack of activity occurring on Site, and the range of development applications surrounding the Site, there is an opportunity for character-sensitive infill development.

Table 2. Weaknesses

Weaknesses	Details
Continuing Industrial Uses	There will be the continuation of traditional industrial, manufacturing, and warehouse uses on the Site. These uses may not be compatible with the proposed community and office uses.
Sprawling Urban Pattern	The area features segregated land uses and many low-density, sprawling developments. This may be an impediment to encouraging transit uses to access the Site and increasing parking requirements.
Heavy Truck Traffic	Heavy truck traffic exists along major arterial roads due to the presence of manufacturing uses on-site.[60] There will be a need to strike a balance with goods movement and active transportation uses to encourage 'complete street' development.
Land Use Designations Supporting Employment	The Site is currently not targeted as an employment centre in the new Brampton 2040 Vision. [32] Thus, there is a lack of supporting policy encouraging the transition from industrial to employment uses. It is designated as part of the "Health + Wellness District" in Brampton 2040 Vision,[32] however, the existing uses do not align with this designation.
Existing Zoning Categorization	The Site is currently primarily zoned Industrial "M2." This includes opportunities for innovative employment identification and will require rezoning.

Table 3. Opportunities

Opportunities	Details
Creek Network	Expand and enhance the creek on Site such that it connects to Brampton's existing greenspace network and provides recreational space for employees.
Pilot Project	Treat the Site as a 'pilot' project for a new kind of live-work urban development that balances employment with adequate and creative supplementary uses for residents and visitors to enjoy after work hours. This includes the introduction of new types of retail, restaurants, and cultural uses that benefit the surrounding areas as well.
Transitional Area	Integrate the heavy-industrial uses along the southern portion of the Site with new 'Ancillary Centres.' This Site has the potential to serve as a transitional area between the heavy industrial uses in the south and retail uses to the north.
Finer Grid Network	Introduce a series of new collector and local roads to further break up the Site and increase permeability.
Encourage Active Transportation	This includes enhancing the existing cycling and pedestrian networks and introducing new Transportation Demand Management (TDM) measures to provide residents with more sustainable travel options. There is the opportunity to expand the existing cycling network by introducing new cycling infrastructure (e.g. bike lanes, cycle tracks, and multi-use trails) and cycling facilities (e.g. bike parking). Pedestrian walkability may be enhanced by creating effective, well-designed walkable streets. These multimodal travel options will attract new businesses, residents, and visitors to the Brampton area and reduce the amount of required parking.

Opportunities	Details
Growth of Technology Companies and Co-working Spaces	Since 2014, there has been more than 200% increase in technology tenants in the GTA.[47] These industries are increasingly looking for C-class, flexible spaces, that are in close proximity to talent, transit, and amenities.[47] Brampton has the opportunity to prepare such transit-friendly spaces to attract technology companies from the expensive downtown core.
Leveraging University Connections	As previously stated, Brampton houses many colleges and universities including a branch of the Sheridan College, Algoma University, and Evergreen College in close proximity to the Site. There is the opportunity to strengthen these connections with the surrounding community.
Redevelop Existing CIP	Enhance the existing CIP with the inclusion of grants and land investment incentives to encourage more companies to choose to locate on the Site.
Stormwater Management	Implement innovative stormwater-mitigating open space design to reduce the effect of the nearby SPA outlined in the Secondary Plan.[25]

Table 4. Threats

Threats	Details
Site Remediation and Demolition	The Site contains many brownfield areas and any potential redevelopment may need to undergo assessment to determine if remediation measures is required.
Physical Constraints	This includes Highway 410 and the CN Rail Corridor which extends along the entire eastern and southern portion of the Site, respectively.
Traffic	Increased intensification coupled with Brampton's sprawled pattern may result in higher automobile congestion and increased parking requirements. This may limit possible intensification and the sense of community on Site.
Affordability	The establishment of knowledge-based employment uses and neighbourhood amenities are likely to increase land prices on Site. This may lead to unaffordability for certain land uses and must be accommodated for.
Access to Talent	While technology companies do prioritize access to cheaper, flexible office spaces, they also have an imperative to locate near talent.[47] Technology workers often prefer to live downtown,[46] and this may be a detriment in attracting tech uses to the Site.

3.0 Precedents + Case Study Selection

3.1 Precedents

The following precedents describe regional, national, and international sites inspiring our vision and development proposals. Innovator and co-working spaces, sustainability and stormwater best practices, and former-industrial land use redevelopments are emphasized to address the City's current vision. See Appendix B for additional precedent images.

Figure 13. Precedent Locations [109]

3.1.1 IntraUrban Evolution, Vancouver, BC, Canada

This industrial hub is being designed for a strong work-life balance near a cultural core,[88] and promotes innovative solutions to address higher-density industrial projects in response to increasing e-commerce demands.[53] The project Site is located approximately 25 minutes commute from Downtown Vancouver but has a direct transit connection. Although targeted for industrial adaptation, one third of the new construction is intended for offices of forward-thinking businesses.[88] Suggested owners of the Site include distribution facilities, tech innovators and makerspace, fashion, showrooms, and brewing/distilleries.[88] By reimagining vertical industrial buildings, the project retrofits old concepts and uses to the present day.[85] The project is ongoing, with expected occupation in 2021.[86]

3.1.2 99 Atlantic Avenue, Toronto, ON, Canada

Toronto's Liberty Village site redevelops the former brownfield site into a high-tech, live-work community that fosters intensification.[68] The Atlantic Avenue project incorporates old warehouse and manufacturing buildings into the urban landscape with infill developments for mid-rise intensification.[71] The proposed development will transition to an 8-storey office building, with commercial uses in the first and second storey's, and a 2-storey commercial building.[115] This development is currently under construction.[71]

3.1.3 Benthemplein, Rotterdam, Netherlands

This surface-level stormwater collection feature was designed for the previously empty space between a diversity of high- and medium-rise buildings, of different uses, in an area that remained stagnant and unused before its redevelopment.[5] To meet environmental initiatives, the development collects rainfall, diverting it from the water systems until it is no longer stressed from a storm event, and prevents potential flooding.[5] The development of this feature was completed in 2014.[5]

3.1.4 Time Out Market, New York, United States of America

This is a food + office complex that repurposes a former warehouse.[58] The redevelopment spans 24,000 square-feet and targets a dining, culture, and retail experience in response to successful Time Out markets in Lisbon and Miami.[110] Historically, the neighbourhood was home to warehouses and factories, and the former industrial area is slowly transitioned into an artistic and cultural centre; currently, the neighbourhood is a tech hub.[57] This development opened in 2019.[58]

3.1.5 Catalyst 137, Kitchener, ON

This site provides companies knowledge and resources to become economically competitive in a global market.[8] With 475,000 square-feet of space, the development provides a space for engineering services, tech talent, and upcoming start up's.[8] Formerly a warehouse for Dominion Tire—and later a distribution centre, the project lays adjacent to a rail line and connects companies to a wider network while emphasizing the live-work-play relationship for Kitchener's growing tech scene.[90] Tenant move-in began in 2017 – 2018.[7]

3.1.6 Grand Innovations, Cambridge, ON, Canada

This 50,000 square-foot innovation centre is part of the Cambridge downtown Galt revitalization, and offers co-working space, event space, WiFi, and kitchen access.[62] Conestoga College occupies the main floor of the development as a centre for research and development in smart manufacturing and new technologies, waste recycling opportunities, and cybersecurity research.[77] The incubator developer intends the hub to be economically sustainable, with investors supporting start-ups, existing businesses, law and accounting services, and other services integral for the businesses to succeed.[77] Tenant move-in began in 2018.[77]

3.1.7 Okanagan College Expansion, Kelowna, BC, Canada

This development integrates a renovated 485,000 square-foot trades workshop with the construction of a three-storey addition featuring classrooms, offices, labs, trade shops, a café, and public social space.[52] The allows for the expansion and cohesion of Okanagan College's Kelowna campus and produces a new public face—or gateway—between the main road and the institution.[52] The design focuses on sustainability measures to minimize energy use through building orientation, footprint, and massing; this maximizes the captured solar energy and minimizes the requirement for conventional electrical and mechanical systems.[52]

3.1.8 – Sherbourne Common Stormwater Treatment Facility, Toronto, ON, Canada

This water feature uses ultraviolet water disinfection to treat runoff water from a formerly industrial site, treating it to become a suitable addition to Toronto's water systems.[116] This process is designed to be chemical-free and is to meet stormwater harvesting and reuse standards.[116] In terms of process, the water is collected in underground storage tanks, conveyed to a pumping station and UV facility in the park, then conveyed through a channel into three publicly-accessible 9-metre tall cascading water sculptures doubling as lighting and public art.[116]

3.1.9 – David Braley Health Sciences Centre, Hamilton, ON, Canada

McMaster University's downtown campus combines health services with education space, combining student classes, events, and a family health centre.[50] Emphasizing stronger community relationships, the site looks to service locals without existing family doctors, provide public meeting and lounge space, and a café.[50] In addition to health sciences innovation brought near an urban centre, the building is designed to support forward-thinking initiatives and to reflect LEED sustainability practices.[50]

3.1.10 – West Don Lands, Toronto, ON, Canada

This 80-acre former brownfield redevelopment integrates commercial, residential, and institutional space inside 23 acres of parks and open space[117]. The development contains multiple affordable housing buildings and pushes the envelope for sustainable urban design in Toronto.[117] Notably, the area includes a recreational facility and a student residence for George Brown College to support the needs of younger stakeholders.[117] Amenities include pedestrian-oriented woonerfs, enhanced connections with right-of-way streetcar transit, a community-scale art master plan, and a local broadband network,[117] pushing the realms of traditional design with innovation.

3.2 Opportunities + Constraints

Table 5. Opportunities and Constraints of Selected Precedents

Precedent	Opportunities	Constraints
3.1.1 IntraUrban Evolution	• Combines office space and innovation hubs with warehousing and lighter-industrial uses, compatible with the northern portion of the project site • Economic growth instead of replacement	• Creates new buildings instead of retrofitting to existing buildings
3.1.2 99 Atlantic Avenue	• Precedent for heritage conservation, should it apply to the Site • Addresses building retention/site infill	• The liberty village precedent completely alters land use instead of incorporating and retrofitting industrial uses
3.1.3 Benthemplein	• Provides precedent for designs around new buildings to create active space • Addresses environmental compatibility with intensification, particularly relevant given the SPA above the Eastern-Clark connection and climate change projections	• Land was not previously industrial; this only addresses the improvement potential of the site once intensification and redevelopment is planned and is not a whole site comparable
3.1.4 Time Out Market	• Re-thinking industrial architecture with an artistic and creative lens • Using food and culture to support adjacent residential uses	• The precedent would require scaling to be suitable for the site • May benefit from more emphasis on the office-restaurant relationship

Precedent	Opportunities	Constraints
3.1.5 Catalyst	• Successful precedent for revitalization of similar former industrial lands into knowledge hub	• Redevelopment of a single site instead of a neighbourhood; Brampton Site is 23-times larger than precedent • Missing adjacent residential focus
3.1.6 Grand Innovations	• Successful incubator-institution partnership, using post-secondary institution to support innovative development in new technologies	• Development is at a much smaller scale; this concept may be difficult to implement at the scale of a secondary plan
3.1.7 Okanagan College Expansion	• Opportunities for connection with post-secondary institutions • Infill building development designed to maximize sustainability features • Creates building additions supportive to existing land uses • Mid-rise contributes to a height gradient between planned high-rise and existing low-rise developments	• Public space may need to serve a wider audience because of proximity to proposed residential buildings (harder to program) • Contaminated lands may reduce viable biologic surface treatments • Additions for existing land uses may not be advantageous to the Site; new uses should be considered
3.1.8 Sherbourne Common Stormwater Treatment Facility	• Using functional public art to support wayfinding, adjacent uses, and the Health + Wellness District • Potential to treat runoff from contaminated lands in and around site, expanding feature impact • Existing Site size can accommodate treatment space requirements.	• Large space requirements may reduce intensification potential of the Site
3.1.9 David Braley Health Sciences Centre	• Integrate innovation space that fits local health and wellness priorities • Partner with potential incoming universities to support innovation • Support community needs, partnering to fund a public library and public meeting space	• May compete with other initiatives to bring post-secondary institutions in the 2040 Vision University District[32]
3.1.10 West Don Lands	• Integrate pedestrian-oriented woonerfs to connect areas within the Site and enhance pedestrian realm • Integrate high-speed community network to service education and innovation, connecting the Site to be a stronger technology node • Better connectivity with right-of-way transit servicing • Design a linear park to connect the Site to the Queen Street Corridor	• Not all streets should become a woonerf due to length and street network connections • Queen Street Corridor residential expansions may reduce suitability of condominium and affordable housing developments • Watercourse on Site is not large enough to be a main Site feature

3.3 Case Studies

This section highlights three cases from the literature review for a more in-depth understanding of implementation measures, funding, strategies, and purposes. Following each case is a summary of lessons learned from the project, which can be applied to proposed developments.

Figure 14. Case Study Precedent Images

IntraUrban Evolution
Vancouver, BC, Canada[87]

Grand Innovations
Cambridge, ON, Canada[63]

West Don Lands
Toronto, ON, Canada[6]

3.3.1 – IntraUrban Evolution, Vancouver, BC, Canada [Under Development]

Intraurban developments, including IntraUrban Evolution, provide the opportunity for businesses to lease or own commercial spaces in response to changing market demands.[64] IntraUrban Evolution has light-industrial uses on the first, second, and third floors, with office use on the third and fourth floor.[64] This strategy promotes intensification and mitigates the negative effects of high land prices.[64]

The development is a partnership between PC Urban Group and Nichola Wealth Real Estate, begun in the third quarter of 2019 and expected completion by the end of 2020.[64] The design is flexible for adaptation to individual business needs.[85] The ownership model aims to avoid rent escalations and control occupancy, allows equity to grow with the principal paid, and reduces operating expenses and mortgage interest.[85] The developer has prepared several sample financing scenarios with mortgages of 70%-100%, at 10% increments; these allow the principal payment ($90,623 - $129,461, depending on financing option) to be paid in 5 years.[85]

Lessons Learned

- Innovation centres can benefit from ownership instead of rental space
- Stacked light-industrial uses can be combined with offices to optimize land use and price, adapting to downtown-adjacent locations
- This model is appropriate for locations with high rental prices, including Toronto and GTA

3.3.2 – Grand Innovations, Cambridge, ON, Canada [Developed]

Grand Innovations, in Cambridge's new gaslight district, is a collaboration between the City of Cambridge, HIP Developments, Grand Innovations, and Conestoga College.[49] The developer self-selected incoming businesses likely to succeed to promote longer-term establishment of the node, including the City of Cambridge and Conestoga College.[77] Additional service providers were selected to support emerging businesses, such as law and accounting services, helping create a sustainable economic and innovator hub.[77] Significant funding came from investor sponsorship, providing furnishings and equipment in exchange for use of meeting and event space.[77]

Other sustainability comes from the rental model. Established companies have the option of setting up satellite offices at the hub for $3,000 per month, while start-ups and pre-start-ups can lease space at a price of $100 per desk, per month.[69] This allows new companies to get the support they need, while letting larger companies act like a start-up to facilitate innovation outside of corporate culture.[69] Instead of drawing from Kitchener-Waterloo companies, the hub has seen clients from Toronto and Brantford.[69] Additionally, Grand Innovations holds equity for successful client companies to enhance the business model's sustainability.[69]

Lessons Learned

- Include supportive services in the incubator, creating an economic cluster
- Provide rental space at different tiers to accommodate different user's needs
- Trade services or amenities in exchange for investors contributions
- Partner with public or private groups to determine (and develop solutions for) local needs

3.3.3 – West Don Lands, Toronto, ON, Canada [Under Development]

The West Don Lands development, particularly the Pan-American athletes' Village, was funded through a fixed-price contract covering design, construction, and project financing.[67] The development was significant, requiring new transit routes, the construction of local streets, and requiring new municipal services.[67] Funding was provided through an innovative public-private partnership to reduce taxpayer costs and transfer the risk onto the developer—additional funding was provided by federal, provincial, and municipal governments.[67] Partnerships with universities and colleges were made to further optimize land use.[117]

The developed lands are primarily owned by the provincial government, remediated and protected from flood risks before development.[117] The planning process consulted public stakeholders for nearly two years, using a sustainability audit to identify possible improvements.[117] A week-long charrette process created designs and concept plans.[117]

Lessons Learned

- Include diverse perspectives when producing charrette visioning to include all (or most) stakeholder perspectives for optimal design
- Consider local initiatives, events, or institutions that could be leveraged to gain additional government funding for the development
- Utilize public-private partnerships to best serve taxpayers and mitigate risk

Part II

Scenario Development

4.0 Vision

4.1 Vision Statement

The Vision for the future Site was developed through a series of collaborative exercises, background information synthesis, and data analysis. Reviewing the opportunities and constraints of the existing Site along with researching precedents, a concise vision meant to guide future development was created:

"The Queen Street/Central Area will bridge the gap between Downtown Brampton and the Bramalea neighbourhood, establishing a vibrant ***employment node*** *that will serve as a pilot project and integrate* ***traditional industrial uses*** *with* ***new knowledge-based offices****. The project will leverage the revitalization of the main Queen Street Corridor to create an* ***attractive hub for new and emerging talent****."*

4.2 Goals & Objectives

In order to achieve the vision, a series of goals have been developed as guiding themes for future Site design which include: Connectivity, Culture & Art, Sustainability, and Employment. Each goal aims to provide guidance on how future development will look like and is supplemented with a series of objectives, outlining specific, measurables actions required for each goal to materialize.

Goal One: Connectivity

Create new opportunities to introduce physical and digital links to connect the Site to the broader City context. Introduce new technologies and infrastructure improvements to enhance Site circulation and support a modal shift towards active transportation.

Objectives:

- Introduce intelligent transportation solutions including intelligent signals, dockless electric scooters, modular pavements, and autonomous shuttles.
- Support the trucking industry and goods movement by using modular pavement to create designated lanes during specific hours. Re-direct existing truck routes to Orenda Road in order to alleviate other roads for active transportation and vehicular use.
- Minimize parking requirements through demand responsive parking rates, designations for car sharing vehicle spots, and increased underground parking.
- Recognizing the increasing use of ride share services, designate pick-up/ drop-off areas within large employment complexes.

- Implement site-level public Wi-Fi to target information and data-driven connectivity.
- Improve Site permeability through the introduction of new collector and local roads including the connection between Clark Boulevard and Eastern Avenue.
- Install wayfinding and signage that is in line with the City's existing framework and establishes a sense of unity with the broader City context.

Goal Two: Culture & Art

Support the addition of various community amenities and public art features to promote the Site as a diverse destination within the City that may be utilized year-round. Introduce urban design practices, such as streetscape revitalization measures, to develop a community with a sense of place.

Objectives:

- Create public amenities, including bike servicing stations and parklets, to support neighbouring residential buildings and other Site users.
- Design makerspaces to run tech competitions and hackathons.
- Develop social amenities to attract new talent, including shops, restaurants, and entertainment.
- Utilize building facades as a canvas to promote public art.
- Design outdoor spaces, programming, and artworks to celebrate community diversity.

Goal Three: Sustainability

Introduce elements of sustainable development and design to create a resilient community that mitigates environmental externalities, both in and around the Site. Provide neighbourhood amenities for all groups and support regenerative economy principles to balance social, economic, and environmental needs for an overall healthy and connected community.

Objectives:

- Emphasize Site sustainability through watercourse treatment, surface-level stormwater collection, landscaping, and the introduction of more environmentally friendly buildings/green roofs.[111]
- Provide on-site electric vehicle charging stations and cycling storage facilities to reduce required CO_2 emissions when travelling to the Site.
- Retrofit existing buildings with energy efficiency features including LED lights, double paned windows, and PV roofing.
- Increase energy microgrid efficiency, redirecting surplus energy from industrial uses elsewhere on-site.[51]
- Revitalize on-site waterbody through landscaping and the introduction of riparian vegetation.

Goal Four: Employment

Develop a dynamic local economy that attracts new talent to the City and encourages a transformation of the existing industrial employment uses to more knowledge-based opportunities.

Objectives:

- Target employment intensification of 55 jobs/hectare by 2041.
- Transform the ratio of industrial to knowledge-based uses for the area bounded by Orenda Road to the south and Eastern Avenue to the north from 0.9 to 0.2.[12]
- Enhance the employment potential of the Site by integrating innovators and new technology stakeholders with existing industrial contributors through Site infill.
- Continue to provide opportunities for entrepreneurial support in the form of incubators & accelerator centres.
- Support the development of flexible (in space and lease terms) office spaces that can be transformed with Brampton's rapidly changing employment context.

4.3 Intensification Targets

A Place to Grow[94] sets the broad intensification targets for municipalities in the GTA; this contains an intensification target for the Region of Peel of **970,000 jobs** and **1,970,000 persons** by **2041**.[94]

By 2040, the Central Area/ Queens Street East Site will have an employment density of **55 jobs/hectare** that will be achieved through the creation of 3,800 new jobs, which is more than double the current employment density of 22 jobs/hectare; these densities have been calculated using GIS analysis of the City of Brampton's Business Directory[12] that indicates the location and number of employees of every registered business in Brampton. There are several assumptions that have helped establish this density target:

1. The Brampton 2040 Vision[32] projects 185,000 new jobs in Brampton by 2040. This represents a 90% growth in employment from 2018 to 2040.[32]
2. The Brampton 2040 Vision[32] designates this growth to three major employment centres; Uptown, Downtown, and Bramalea; it projects Downtown to have 26,000 new jobs by 2040. This is equivalent to a 265% growth in employment between 2018 to 2040.[32]
3. A consideration of Site uses; it is likely that the industrial area south of Orenda Road will see little change. The new uses introduced to the north of Orenda Road are likely to be knowledge-based uses that do not employ a large number of employees.

Thus, considering an average growth of 90%, and employment area growth of 265%, and the likely future uses on the site, this report proposes a 150% increase in employment density of the site to 55 jobs/hectare.

5.0 Development Scenarios

The existing Site conditions analysis and visioning process had led to the development of three different development scenarios. The first, "Business as Usual" represents the Site without any changes to its current policies and incentives. It intends to provide a base scenario that all other scenarios can be compared against. The second, *Innovation District*, focuses on introducing knowledge-based employment uses to the Site and was chosen to further Brampton's employment-intensification imperative as promoted in the Brampton 2040 Vision.[32] The last, *Health + Wellness District*, focuses on creating a 'complete community' for a diverse range of users, and was chosen in response to the Site's "Health and Wellness District" designation in the Brampton 2040 Vision.[32]

5.1 "Business as Usual"

This scenario reflects the existing conditions presently on the Site, henceforth referred as "Business as Usual". The existing road network has limited east-west connectivity across the Site and features trucking corridors along most roads, although a Clark-Eastern connection is currently under development.[25] Land uses reflect a moderate to heavy industrial focus and are not well-integrated with each other or the surrounding lands; especial dissonance is found with the proposed residential densification along the Queen Street Corridor.[32] The existing transit connections are also limited and currently only include one local bus route that travels within the Site.[60] Major transit corridors exist along Kennedy Road and Queen Street, although minimal transit permeates the Site.[60] The existing Site is lacking in social amenities and open space, which is not expected to improve given the high industrial nature of the Site.

5.2 Innovation District

In order to emphasize the goals and objectives as outlined in the Brampton 2040 Vision,[32] the proposed scenario is regarded as the "Innovation District". It capitalizes on the knowledge-based sector by providing a mix of uses that support incubator space, cyber-security hubs, and other technological sectors; some of these objectives are also seen in Toronto-based projects proposed by Sidewalk Labs Infrastructure Partners.[105] The scenario is supported with an interconnected road network, linking the Site from all ordinal directions, while maintaining a focus on multi-modal transit. Specifically, it proposes truck-dedicated routes, 'complete streets' for local traffic, new cycling routes, a dedicated autonomous shuttle route, and pedestrian-oriented improvements.

In order to maintain the character of the Site, the scenario ensures that the existing heavy-industrial uses to the south of the Site are adequately buffered, while the community-scale uses, public art feature, and open space networks are located closer the central and northern parts of the Site, in close proximity to the residential uses planned for the Queen Street Corridor.[32] The lighter-industrial uses to the east of the Site, adjacent to Highway 410, are designed to be 'industrial mixed-use'; these uses will maintain the façade and architecture of a warehousing building, while incorporating office space into the interior, similar to that in the IntraUrban case study.[85]

Preliminary development concepts for this scenario are found in Appendix C.

5.3 Health + Wellness District

To support the Brampton 2040 Vision, which designates our Site as part of the proposed "Health and Wellness District,"[32] this scenario emphasizes supportive amenities and services for the proposed residential intensification along the Queen Street Corridor.[32] Key elements include community-oriented businesses and services—such as a library, a nursing home (in proximity to the hospital), and a community centre. Physical health is promoted by creating a finer transportation network through the addition of a local east-west street, by designing a strong pedestrian network linking major nodes to larger transit stations, and by proposing additional greening and open-space programming for year-round activities and use.

Environmental wellness is implemented through the introduction of water features—one to collect surface-water runoff and mitigate strain on stormwater management systems – and the other to treat contaminated runoff from formerly-industrial locations with UV technology. Watercourse treatment will support the creek's ecology and reduce pollution entering the groundwater, while emphasis on open-space greening initiatives will help treat formerly industrial lands and increase overall air quality. Finally, better public-transit service provision within the Site will provide high mobility with less dependence on automobiles, promoting shared transportation to reduce overall CO_2 emissions.

In combination with initiatives for physical and environmental health and wellness, economic wellness is introduced by integrating light-industrial land uses with innovative offices and makerspace, working to meet site employment targets and contribute to an active live-work-play neighbourhood. Innovative land uses will seek to partner with Brampton's proposed university initiatives, contributing to further job growth and making Brampton a larger node in the Toronto-Waterloo Innovation Corridor.

Preliminary development concepts for this scenario are found in Appendix C.

5.4 Scenario Evaluation

The three scenarios were placed in a matrix to compare and evaluate their strengths and weaknesses across a range of evaluation criteria (Appendix D). Our team used a three-tiered ranking system (low, medium and high) and utilized the highest scores to develop the final scenario. The matrix was subdivided into five parts including: Transportation, Social Environment, Natural Environment, Existing Conditions, and Economic Contribution.

Transportation

The transportation criteria include the traffic network/block pattern, transit service to and within the Site, active transportation opportunities, and goods movement routes. The *Innovation District* scored highest of the proposed scenarios, with the *Health + Wellness District* appearing moderate throughout, and the *Business as Usual* largely lacking. The final scenario combines the fine-grain block pattern and the autonomous shuttle, with a re-routed bus service and designated multimodal pathways integrated within stronger pedestrian and cycling networks. The final scenario will designate truck routes to minimize on-site traffic.

Social Environment

Social environment criteria include how it supports intensification, community building, public health and safety, and inclusivity for its diverse users. The *Innovation District* and *Health + Wellness District* scenarios ranked equally strong but showed strength in different indicators; 'Business as Usual' was lacking in five of

the six indicators. The proposed scenario balances an array of land uses. Pathways will be retrofitted to improve the pedestrian experience through 'complete street' principles, noise mitigation, and Crime Prevention Through Environmental Design (CPTED) principles.[84, 113] A public square with art murals will function as a unique gathering space for community members. This scenario will be able to attract diverse talent through the introduction of technology driven industries while supporting its older population through various social amenities.

Natural Environment

The natural environment criteria include watercourse treatment, stormwater management, and open space inclusion. The *Health + Wellness District* ranked highest, although the *Innovation District* also provided two of three strong solutions. The 'Business as Usual' future was lacking in environmental considerations. The final scenario combines vegetated buffers, watercourse revitalization, modular pavements and other Low Impact Development (LID) measures, [111] and water features targeting UV water treatment and runoff collection. Additionally, park-sized open spaces will be added to the Site for year-round active programming.

Existing Conditions

The existing conditions evaluation criteria include includes demand on utilities, integration with existing infrastructure, and support from policy framework. The *Innovation District* and *Health + Wellness District* scenarios ranked equally strong but showed strength in different indicators. The 'Business as Usual' scenario was lacking in three of the four indicators. The final scenario mitigates the impact on existing infrastructure through sustainable retrofitting and energy distribution strategies. Sustainable initiatives include watercourse treatments, ample community and green space, and emphasis on non-motorized travel modes. To enable this scenario, updates to existing municipal policy is required, with key consideration to municipal sustainability policies, the Brampton 2040 Vision,[32] and Provincial policy objectives.

Economic Contribution

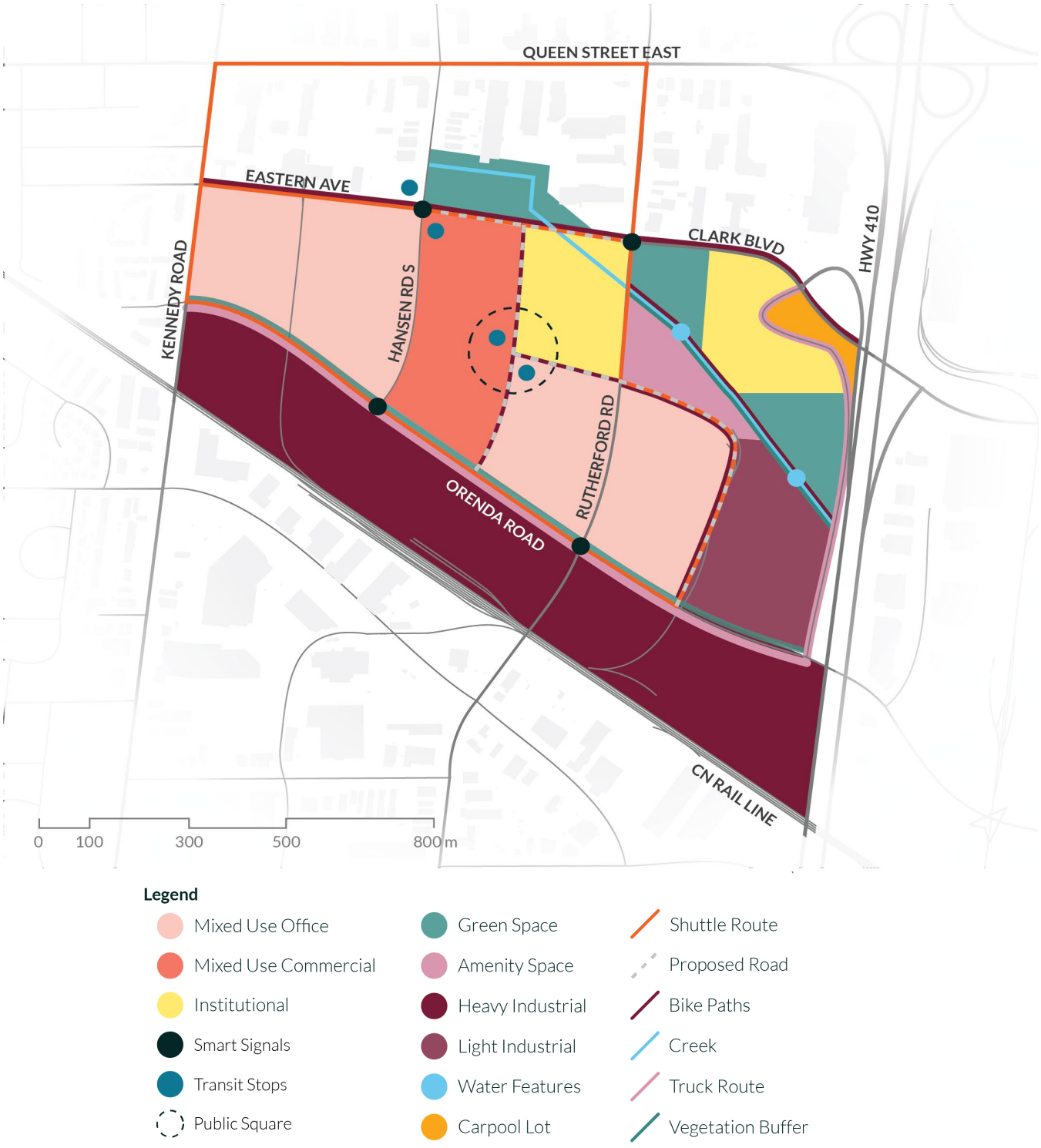
The economic contribution evaluation criteria include progress towards employment targets, diversity in employment mix, and potential future growth. The *Innovation District* scenario ranked highest by one indicator, although the *Health + Wellness District* scenario also improved upon the 'Business as Usual'. The proposed scenario includes intensification of knowledge-based jobs to meet provincial targets, designates research areas and mixed-use spaces, and identifies the opportunity for the study to serve as a pilot project for innovative employment.

6.0 Final Concept: Transitional Communities

6.1 Final Scenario

The ideal scenario blends the strongest features of the envisioned options, creating a future centered around innovation, while simultaneously mindful of wellness and quality of life implications. Figure 15 details this final development scenario.

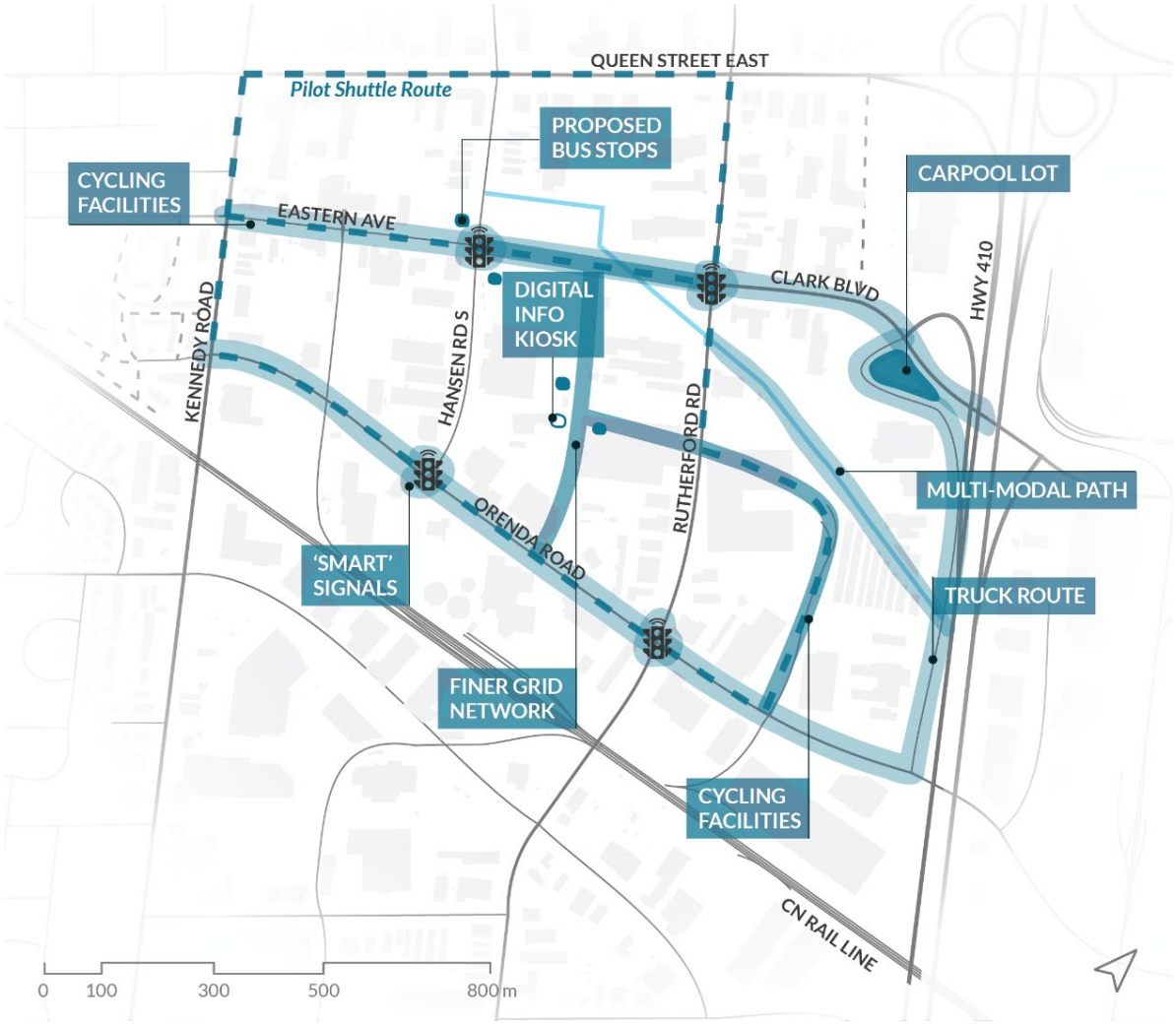
Figure 15. Final Scenario Plan



6.2 Connection to Goals + Objectives

The following description and map (Figure 16) illustrate how the Connectivity goal was achieved on-site.

Figure 16. Connectivity Goal



Goal One: Connectivity

This goal strives to leverage the Site's location to improve physical and digital connections to adjacent land uses and the broader, regional context.

The Site will improve the physical connections by proposing a fine-grain local street network that allows better access to existing buildings, supports intensification, and creates a more pedestrian-friendly environment.

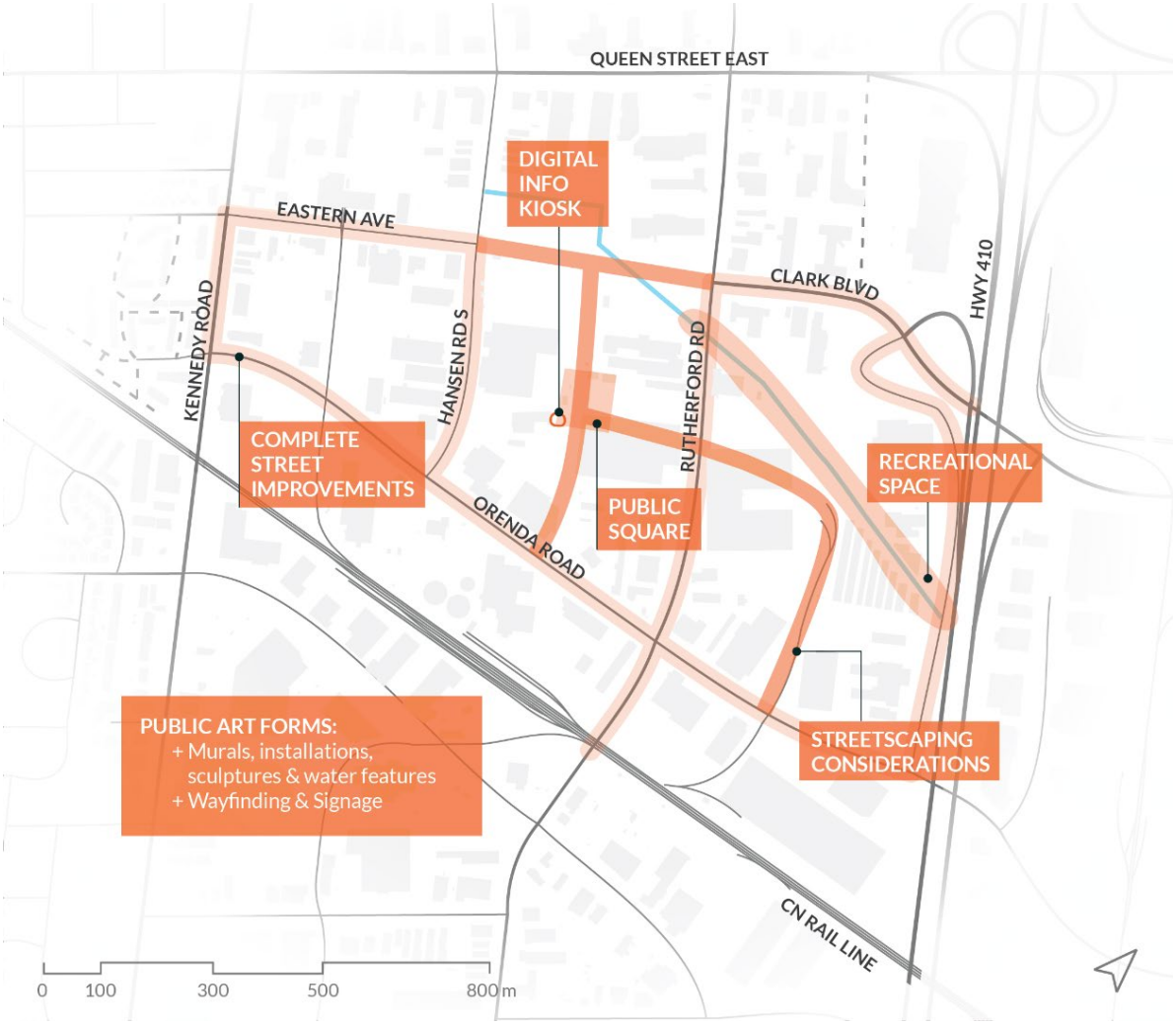
An autonomous shuttle will facilitate internal mobility, while cycling lanes will be a target component of the complete-street design.

The Site also poses digital connections through the introduction of digital information kiosks, public Wi-Fi, and new technology in the form of intelligent transportation signals for improved information sharing.

6.2 Connection to Goals + Objectives

The following description and map (Figure 17) illustrate how the Culture & Art goal was achieved on-site.

Figure 17. Culture & Art Goal



Goal Two: Culture & Art

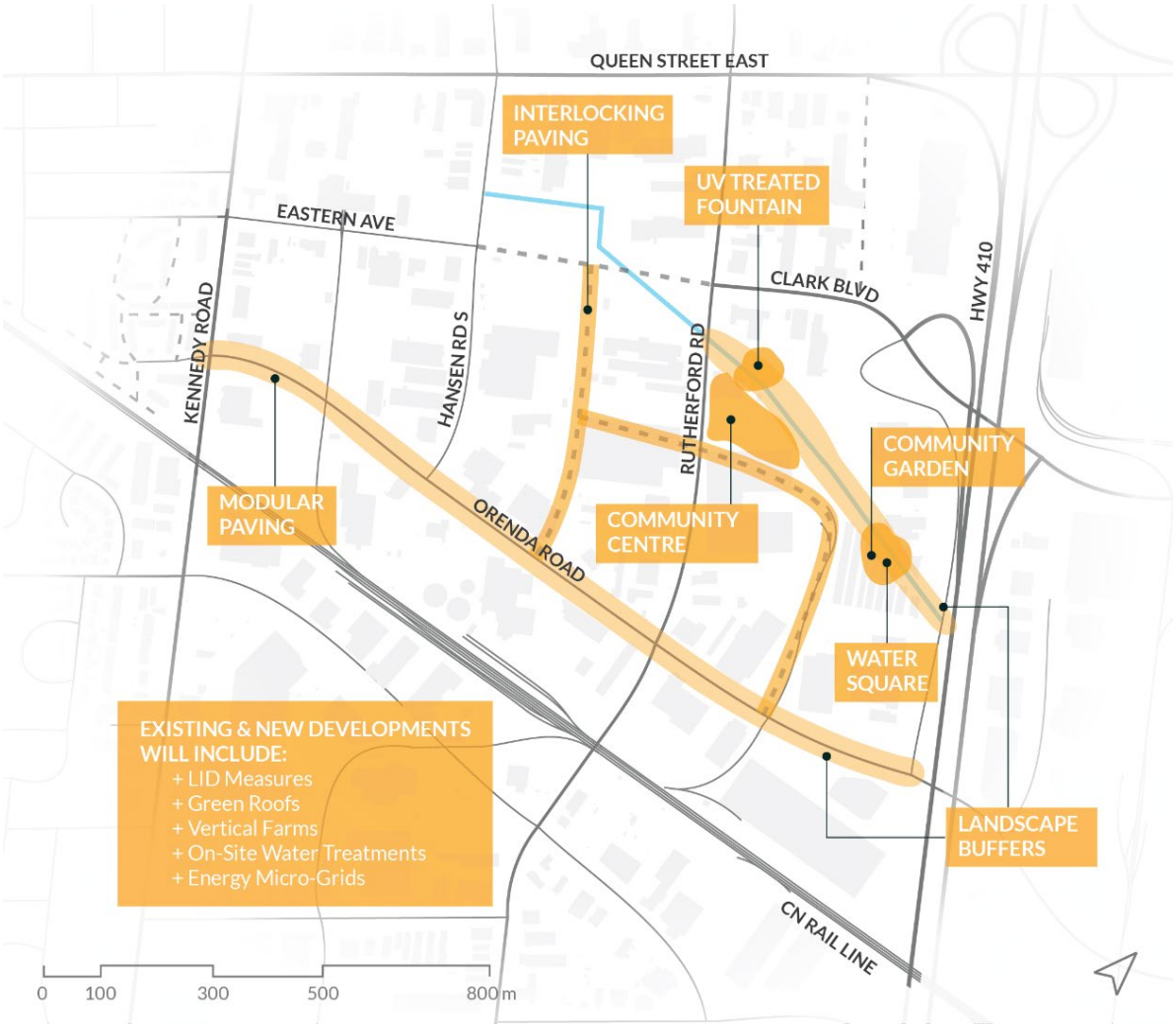
This goal recognizes the existing diversity within Brampton and seeks to provide the appropriate level of cultural programming and public art throughout the Site. Urban design is also recognized as a key component necessary to achieve a 'live-work-play' community that attracts all groups and balances user needs.

Along with best urban design practices, the Site includes new public art initiatives in the form of water features, murals, and a new wayfinding system. Public space, in the form of community services, a public square, and a looped multi-modal recreational trail, is proposed to attract future users to the Site.

6.2 Connection to Goals + Objectives

The following description and map (Figure 18) illustrate how Sustainability goal was achieved on-site.

Figure 18. Sustainability Goal



Goal Three: Sustainability

This goal supports an adaptable and resilient community and considers environmental well-being and innovation to be at the forefront of this development.

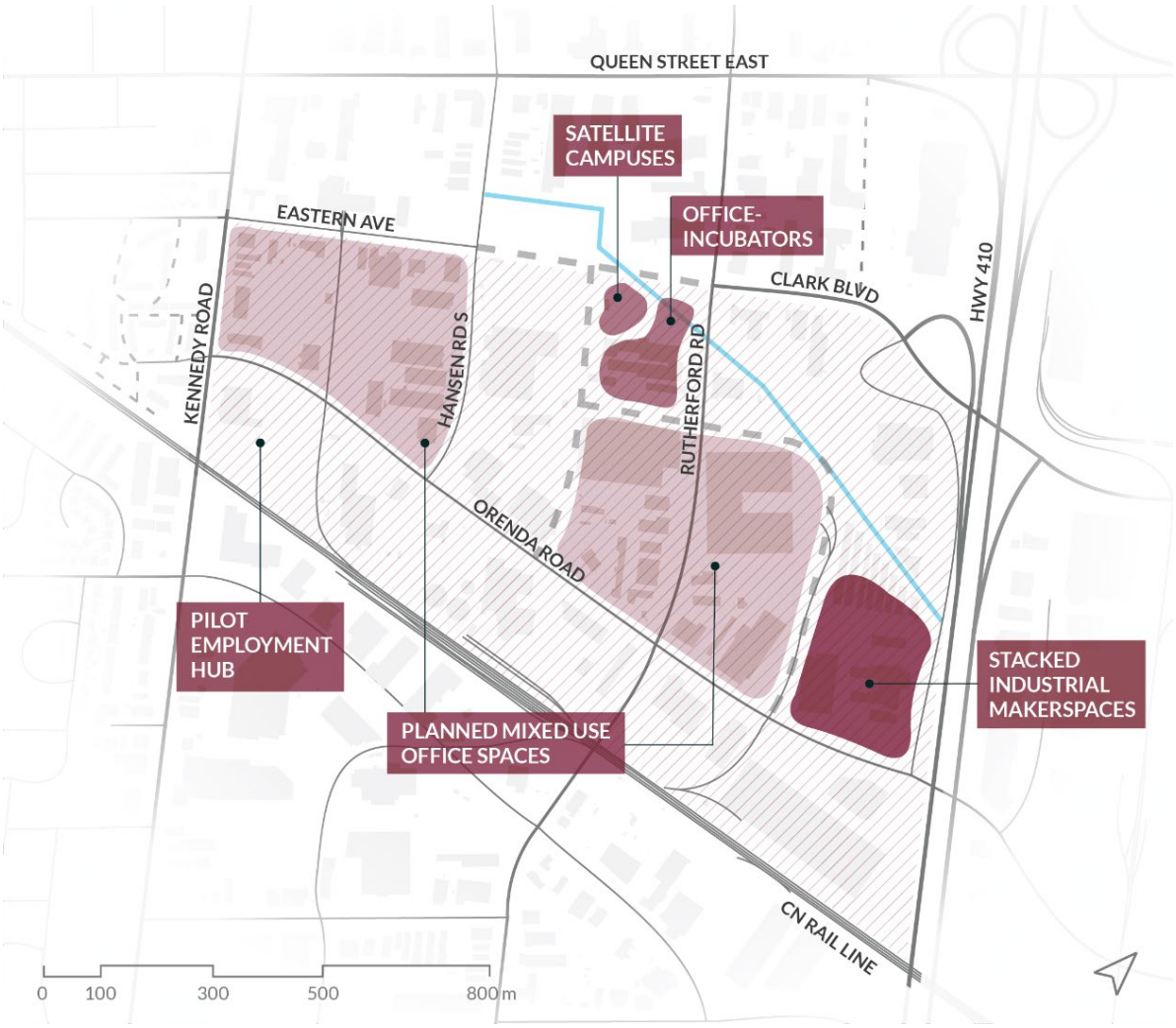
The Site provides several measures to reduce the adverse impacts on the environment. A water square doubles as a rainwater collection pond during extreme storm events and a public space otherwise to provide an innovative approach to solving the need for both stormwater management[111] and increased community amenities.

Other actions include LID measures[111], diverse vegetation for year-round landscaping, a UV treatment fountain that will contribute to the environmental well-being in an aesthetic and engaging way.

6.2 Connection to Goals + Objectives

The following description and map (Figure 19) illustrate how the Employment goal was achieved on-site.

Figure 19. Employment Goal



Goal Four: Employment

This goal introduces new knowledge-based employment opportunities to the area by retrofitting and intensifying the existing lands. The Site strives to become a pilot project for industrial land conversion both locally and, more broadly, across southern Ontario.

Leveraging its proximity to major goods movement corridors and transit accessibility, the Site's revitalized design hopes to attract new educational uses such as a cybersecurity research centre, office-incubator spaces, as well as stacked office - industrial makerspaces. Ancillary uses, such as restaurants, banks, public plazas, and grocery stores, will be provided to support the increased number of workers and nearby residents stemming from the Queen Street Corridor intensification.[32]

6.3 Building Resilience

How we plan our cities is a reflection of prevailing cultural and technological trends. Just as the cholera epidemic in the 19th century sparked the introduction of modern urban sanitation systems, the COVID-19 pandemic is set to alter the lens with which we view and design for public spaces.[3] There is the need to build localized, complete communities that enable urban areas to be resilient to external shocks and stresses. The proposed development scenario enhances urban resilience in a number of ways:

1. Enhancing **green and blue infrastructure** that supports health, enhance storm water management, and mitigate climate change.[3] One of the few places that have seen an increase in visits during the pandemic have been urban parks. Recognizing their importance, the proposed scenario enhances the existing creek network, introduces stormwater features such as a UV fountain and water square, and introduces new green spaces on Site.
2. Creating **localized food networks** that supplement and replace food supply in the case that food networks are disrupted. In urban settings, the food is distributed using a just-in-time delivery model from centralized warehouses.[54] This precarious supply could be made more resilient through the introduction of urban food production pockets. The proposed scenario aims to build partnerships with rooftop hydroponic companies to leverage vacant rooftops for local food production.[75]
3. Enabling **accessibility through active transportation modes** in the case that traditional modes are disrupted. The integration of residential-employment land uses and introduction of pedestrian and cycling facilities is vital to ensure access through non-motorized means. The proposed development reduces truck traffic on major roads, introduces several new cycling routes, and recommends significant streetscape improvements to enable accessibility.
4. **Flexible employments spaces** are crucial to adapt to rapid changes in the economy. With the economic restructuring stemming from the pandemic (e.g., closure of small businesses, increasing remote work, etc.), there is a need to create spaces that can be adapted to changing trends. The proposed development encourages multi-use amenities spaces, incubator spaces, and co-working spaces to improve employment flexibility.

Figure 20. Visualized Massing

Looking West along Eastern Avenue

Eastern Avenue and Queen Street intensification

Creek and trail from Heart Lake Road South

Part III

Implementation Measures

7.0 Implementation Measures

7.1 Policy Updates

7.1.1 Region of Peel Official Plan (ROP)

As one of the goals of the ROP is to add value to planning and development while simultaneously not infringing on municipal planning efforts, the policy is very high level.[98] Additionally, the consolidation of the ROP in 2018 indicates that the policy is recent, thus supporting current planning perspectives and ideologies.[98]

The policy largely directs the municipality to distinguish intensification areas, which is already achieved in the Brampton Official Plan.[40] In particular, the ROP addresses one major policy relevant to the Site: the accommodation of **intensification within urban growth centres**, intensification corridors, and other appropriate areas.[98] The most applicable supportive policy in Section 5.5.3—Intensification include:[98]

- Intensification of development on underutilized lands,
- Reduction of automobile dependence and encouragement of mixed-use, transit-supportive and pedestrian-friendly urban environments,
- Intensification of employment areas to optimize lands for future growth, and
- Encouragement of diverse land uses.

Transitional Communities introduces intensification in existing built-up areas and is thus supported by the ROP.

7.1.2 City of Brampton Official Plan (BOP)

The Brampton Official Plan is currently under review;[10] these proposed updates will inform the new Official Plan development in the following ways:

- Revise Economic Development Objectives to include innovation accelerators as permitted developments in the Central Area,
- Update the Site area within the existing Secondary Plan; this is further described in Section 7.1.3,
- Include general office uses in the Light-Industrial land use definition, or create an Office-Industrial definition to accommodate the economic use,
- Revise Office definition to include co-working spaces, and
- Distinguish between Light-Industrial and Heavy-Industrial land-use definitions.

7.1.3 Queen Street Corridor Secondary Plan

There will be an update to the existing Queen Street Corridor Secondary Plan (SP36) to ensure the implementation of this vibrant intensification-employment node. The plan currently focuses on the lands north of Eastern Avenue/Clark Boulevard, and this update will bring a renewed focus on the Site. [38, 39] The Plan will establish a new employment intensification target of 55 jobs/hectare and aim to transform the ratio of industrial to other uses for the area bounded by Orenda Road to the south and Eastern Avenue to the north from 0.9 to 0.2 by 2041.[12] Table 6 outlines the land uses designations proposed for the site.

Table 6. Proposed Secondary Plan Land Use Permissions

Land Use Designation	General Permissions
Mixed Use	Permits the development of new and the retrofitting of existing buildings to create mixed-use developments such as stacked retail-office and office-light-industrial spaces. These will be complemented with 'complete streets', intended to be multi-modal, pedestrian-oriented, and supported with open space linkages.
Industrial	Maintains the retention of current heavy- and light-industrial uses on- Site, while promoting the integration of lighter-industrial uses with new office uses. These industrial spaces are to be serviced by truck-only routes.
Institutional	Permits incubator spaces and research facilities, including those for knowledge-based projects or higher-education facilities. Community-oriented facilities, such as libraries or recreation centres, are permitted since they are conducive to supporting employees in, and visitors to, these Institutional uses.
Open Space	Protects water features, trail connections, vegetated landscape buffers, park space, and areas for outdoor programming that will enhance the health, aesthetic, and environmental impact of the Site for all residents, employees, and visitors.

Transportation Improvements

The existing secondary plan identifies a series of provisions to guide the road network development, public transit use, and active transportation within the area.[39] The following are a series of considerations to be included to ensure the "Connectivity" theme of the site vision is met:

- Update the Schedule of Transportation Elements to include all newly proposed roads to increase Site access and permeability (Figure 16).
- Introduce a new transportation sub-section to address Goods Movement, specifically designating Orenda Road and Heart Lake Road as the only trucking routes within the Site. Further analysis must be conducted to determine additional roadways needed to support trucking traffic during specified off-peak hours.
- Contrary to the proposed objectives in the ATMP, Orenda Road will remain vehicle-oriented to support goods movement and reduce conflict points with active transportation users.
- Recognize active transportation as a viable mode of travel and provide enhanced cycling infrastructure along major corridors within the Site (Figure 16).

Urban Design Guidelines

In addition to the Urban Form policies set out in the existing Secondary Plan, the following considerations should be addressed to ensure good design principles are met:

- Update the District Design Guidelines to consider new employment and industrial uses not previously considered in the Secondary Plan,
- Support the community character of the Site by introducing complete street principles along newly proposed local roads,

- Enhance the liveliness of the community through public art installations, murals, open space programming, and the implementation of a vibrant public square,
- Introduce elements that are durable and may be used year-round to facilitate winter use,
- Connect to the Queen Street Corridor and other major destinations, using clear wayfinding strategies to help users navigate in and around the Site.

7.1.4 Zoning

In order to encourage balance and land use gradient within the Site, an amendment to the Zoning By-law is required to incorporate the following designations: Mixed Use Office "MU-O", Mixed Use Commercial "MU-C", Institutional "IN", Institutional Amenity "IN-A", Open Space "OC", Light Industrial "I-L", and Heavy Industrial "I-H".

In addition to re-designating the Site, minimum and maximum height restrictions will be increased to encourage intensification.

The proposed height permissions and permitted land uses are detailed in Table 7.

Figure 21. Proposed Zoning

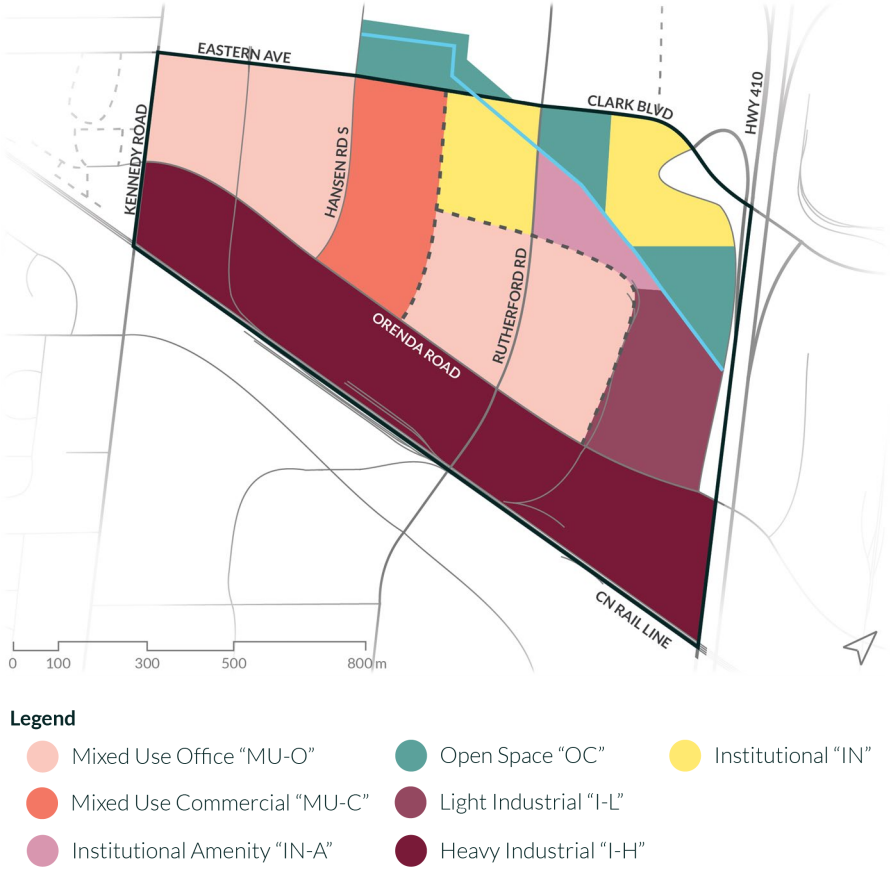


Table 7. Proposed Zoning Permissions

Land Use Designation	Subcategory	Permitted Uses	Minimum Height	Maximum Height
Mixed Use "MU"	Commercial "MU-C"	Joint retail/neighbourhood and office uses	4 Storeys	6 Storeys
	Office "MU-O"	Joint warehousing and office uses, traditional offices, co-working spaces	4 Storeys	6 Storeys
Industrial "I"	Light "I-L"	Warehousing, self-storage, automobile repair, carparks	4 Storeys	6 Storeys
	Heavy "I-H"	Existing industrial, warehousing, manufacturing, factories, processing plants, container and material storage	4 Storeys	6 Storeys

Land Use Designation	Subcategory	Permitted Uses	Minimum Height	Maximum Height
Institutional "IN"	Institutional "IN"	Research Parks, incubator space, higher-education facilities, cyber-security uses	4 Storeys	6 Storeys
	Amenity "IN-A"	Community centres, libraries	4 Storeys	6 Storeys
Open Space "OS"	-	Greenspace, vegetation/landscaping, sewage/stormwater, management infrastructure	-	-

Finally, the updated Zoning By-law will outline an exception to allow existing industrial uses in the Site to continue to operate as a legal use rather than a legal non-conforming use. This will ensure limited opposition from property owners in response to this re-zoning.

7.2 Policy Creation

7.2.1 Economic Cluster Plan

Economic Cluster Plans are recommended and supported by the Provincial government to bolster economic productivity and growth.[92] Intended for interconnected business clusters, including research and post-secondary institutions, municipalities, innovation and accelerator centres, and other businesses,[92] this action is an appropriate next step for the proposed development. The cluster plan will cover 5 years, or increments of 5-years, and will include

- A cluster description,
- An assessment of challenges and opportunities related to cluster development (some of which are outlined in this study),
- Objectives and intended outcomes of the cluster plan, such as emphasis on intensification, sustainability, and quality of life,
- Description of actions to be taken by the Minister, business, or other entities forming the cluster to achieve objectives, and
- Performance evaluation measures.[92]

The preparation of this report is beneficial to the site as it will provide a clear vision for future growth, opportunities, constraints, and performance metrics.

7.2.2 Community Improvement Plan (CIP)

Supplement existing the Community Improvement Plan with new economic incentives to encourage brownfield development. Due to the added costs of brownfield development, developers may be hesitant to build on this Site. The following incentives have been used in our chosen case studies and have worked effectively to reduce the risks and costs associated with brownfield development.

Table 8: Grants and Incentives

Grant/Incentive	Description
Tax Increment Financing	This is a 10-year financial incentive using tax phasing. The first year no tax is charged. Every year after, additional 10% increments are paid until 100% is paid by the developer or owner.[103] The City of Brampton will thus forego taxes in the short term to receive a larger amount of taxes in the long term.
Reducing Development Charges	This involves reducing development charges for accelerator centres or research hubs, university-owned buildings, and general brownfield developments.
Grants	Introduction of new grants to ease the cost of brownfield development. One example is to issue grants to developers to help cover the cost of Environmental Assessments required for brownfield sites.[44] Another example is the Startup Landing Pad Program used by the City of Kitchener that provides grants for property owners and start-ups to transform the use of underutilized buildings.[45]

The CIP will also provide guidelines for the successful implementation of incubator spaces. These include:

- Including supportive uses such as food halls (e.g. Time Out Market[58]), law services (e.g. Grand Innovations[62]), and public libraries (e.g. David Braley Health Sciences Building[50]).
- Provide a mix of ownership and rental tenures as in IntraUrban Evolution[85]. When rental spaces are provided, offer different tiers to accommodate different user needs.
- To secure sponsorships by offering free or discounted amenities (e.g. meeting rooms) as done in Grand Innovations[77].
- Build partnerships with local private and public groups to determine local needs.

7.2.3 Sustainable Building and Development Guidelines

Region of Peel's Healthy Development Assessment (HDA)

To ensure that sustainable built form principles are incorporated into development applications, the Region of Peel has an established HDA tool, which scores development applications based on the provision of healthy development and sustainable built-form tools.[96] Each of the local municipalities in the Region has adopted a version of the HDA; in the City of Brampton, this is the Sustainable Community Development Guidelines (SCDGs).[96] This applies to all development applications with the exception of Secondary Plans, which are evaluated using the Region's HDA.[96]

Development Guidelines & CPTED Principles

The City of Brampton could consider the creation of Development and Sustainability Guidelines for new urban innovations to provide standards for which innovative development tools are designed; for example, this is implemented in the City of Burlington.[43] This document may include guidelines for the inclusive and safe deployment of autonomous shuttles, or guidelines to implement CPTED principles.[84, 113] These CPTED guidelines could include establishing clear demarcations between the public and private sphere, creating regular street lighting patterns, enabling high visibility of spaces for communal activities.[84, 113] This reduces

both the physical and psychological feelings of isolation, ultimately enhancing the sense-of-place and creating a sense of safety.[84, 113]

Green Initiatives and Infrastructure

The city must invest in several LID measures[111] for the site to ensure the compatibility with the Sustainability goal. This includes increased vegetative cover through provision of open space, on-site treatment for the quality and quantity of stormwater, and permeable paving along sections of the Site.[111] Furthermore, investment into the establishment of energy microgrids across the Site's network would centralize energy sources, and would allow the Site to operate in the most effective manner possible.[51]

7.3 Funding & Partnerships

7.3.1 Funding

There are many tools available to the City of Brampton to gain funds required to implement the proposed development scenario. Table 9 summarizes all several tools available.

Table 9. Funding Tools for Implementation of Proposed Development

Tool	Description
S.37 Bonusing*	This section of the *Planning Act* permits the City to authorize increases in permitted height and/or density through the zoning by-law in return for community benefits.[95] In this case, S.37 bonusing may be granted in return for contributing to programs around the Site such as the autonomous shuttle and modular pavers.[95]
S.42 Parkland Dedication*	This section of the *Planning Act* enables the City to harness growth by requiring all new development to contribute to the expansion of the city's parks and open space system.[95] This can be substituted with a cash-in-lieu payment equivalent to a proportion of the value of land. These payments can be used to buy land surrounding the creek and convert it to open space.[95]
Development Charges (DCs)	These charges constitute a large proportion of revenue received by a municipality and are intended to cover the cost of new infrastructure provision.[93] While revenue from DCs will be reduced due to the use of tax increment financing, over the long run, this will be an important source of financing.
Provincial Government Grants	Various provincial grants, ranging from the Public Transit Infrastructure Fund and the Green Infrastructure Fund, are available to help fund the myriad of components on the Site (e.g. energy microgrids, autonomous shuttle pilot).[66]

**S.37 and S.42 will be combined into one 'Community Benefits Charge' pending the next Planning Act update.*

7.3.2 Partnerships

The successful implementation of the proposed development scenario requires building robust public and private sector partnerships. As seen in the West Don Lands Case Study[117], such partnerships can best serve taxpayers and mitigate risk. These are outlined in Table 10.

Table 10: Partnerships for Implementation of Final Development

Partnerships	Description
Sidewalk Labs	The City of Brampton may partner with Sidewalk Labs to facilitate the transfer of smart-city technologies considered for the Quayside, Toronto development to the Site;[104] this includes the creation of a neighbourhood assistant and use of modular pavements[81]
SKA Design	The site would benefit from partnerships with wayfinding companies, such as SKA Design.[106] This partnership would aim to provide the necessary infrastructure design and app-development to help users navigate the amenities on Site.
Lime Micromobility	There is the potential to partner with dockless scooter companies such as Lime Micromobility.[73] Our Site would serve as a pilot project for this new technology which would both help mitigate the "last mile problem" for the users of the Site, and also help attract knowledge-based employers and workers to the Site.[73]
ZipCar	A partnership between the car-sharing company ZipCar[120] and the City of Brampton may increase carpooling to and from the Site, reducing parking needs. This involves establishing ZipCar-only parking spaces, offering reduced parking rates for ZipCar vehicles, and reducing parking requirements when developers include ZipCar lots.
Ryerson University	This involves enhancing partnerships with higher education institutions. The City of Brampton has an existing partnership with Ryerson University with a plan to invest $5 million into a new innovation hub and cybersecurity catalyst.[55] There is the potential to locate the cybersecurity catalyst in the Site on the designated institutional land use. The excellent transit connectivity and knowledge-based uses make the Site the perfect location for this hub.[55]
Miovision	A partnership with the intelligent signals company Miovision[80] could enable the implementation of such signals at various intersections alongside the Site. This enables real time signal time changes and data analysis to ensure the seamless movement of vehicles across the Site. Miovision is currently being used on King Street in Toronto.[80]
Local Artists	Creating partnerships with local artists to introduce public art murals alongside various buildings on Site would help create a unique sense of place and provide diverse employment to Brampton's residents.
WeWork	Partner with co-working companies such as WeWork[119] to incentivize transformation of industrial uses to commercial-office uses. Co-working spaces can act as a catalyst for innovation and provide flexible working environments for emerging businesses.[119]
Lufa Farms	Partner with vertical farming companies such as Lufa Farms[75] to transform underutilized warehouse rooftops and storage spaces into vertical farms. [72] This has the potential to add additional economic activity on Site, provide the users of the space with additional green space, and have a cooling effect to the buildings.[75]

8.0 Next Steps

In conclusion, the above noted research, analysis, ideation, and evaluation conducted for Employment-Based Intensification Study of the Central Area/Queen Street East area explores the Site's current potential; this is shown through an detailed analysis of the Site's current features as well as a review of precedents/case studies drawn from various localities. Furthermore, this Project has ensured that the Site is aligned with the goals and objectives of provincial, regional, and local plans/policies from both a qualitative and quantitative lens, and is committed to showcasing the Site's potential using innovative and communal tools to fosters a sense -of-place and forward-thinking patterns of development. To ensure that this development plan is implemented, it is recommended that the City take the following next steps:

- Topographic Analysis: More detailed surveying of the Site and its topographic, built form, and natural features could establish more accurate data on the developable limits and potential. Stemming from this surveying, there may be the need for additional plans and studies.
- Public Participation Measures: As a follow up to our initial Proposal, the development of a public engagement strategy could help solicit feedback on the final development concept, the implementation of smart technologies on various portions of the Site, and the extent to which communal elements facilitate a 'complete community'. This could include the following measures:
    - ***Statutory Public Meetings*** scheduled as per the statutory requirements of the *Planning Act*.[95]
    - ***Charette Activities*** as an interactive measure to allow participants to add or remove components of the development plan as they envision the space to function and feel.
    - ***Surveys and Calls*** as a method of contact to reach out to local citizens unable to attend time-intensive meetings, for input and feedback on the scenarios proposed.
    - ***Partnership Outreach*** could occur once the details of the Site are finalized, to determine how the Public-Private-Partnerships would be managed and implemented at the site-specific scale.
- Evolving Context: Throughout the redevelopment process, it is imperative that continued work on the Site occurs to ensure that the changing context both internal and external to the City of Brampton is accounted for, such as evolving market statistics or development trends. This would ensure that the development concept caters to current demand, while simultaneously piloting innovative tools for the future of Brampton.

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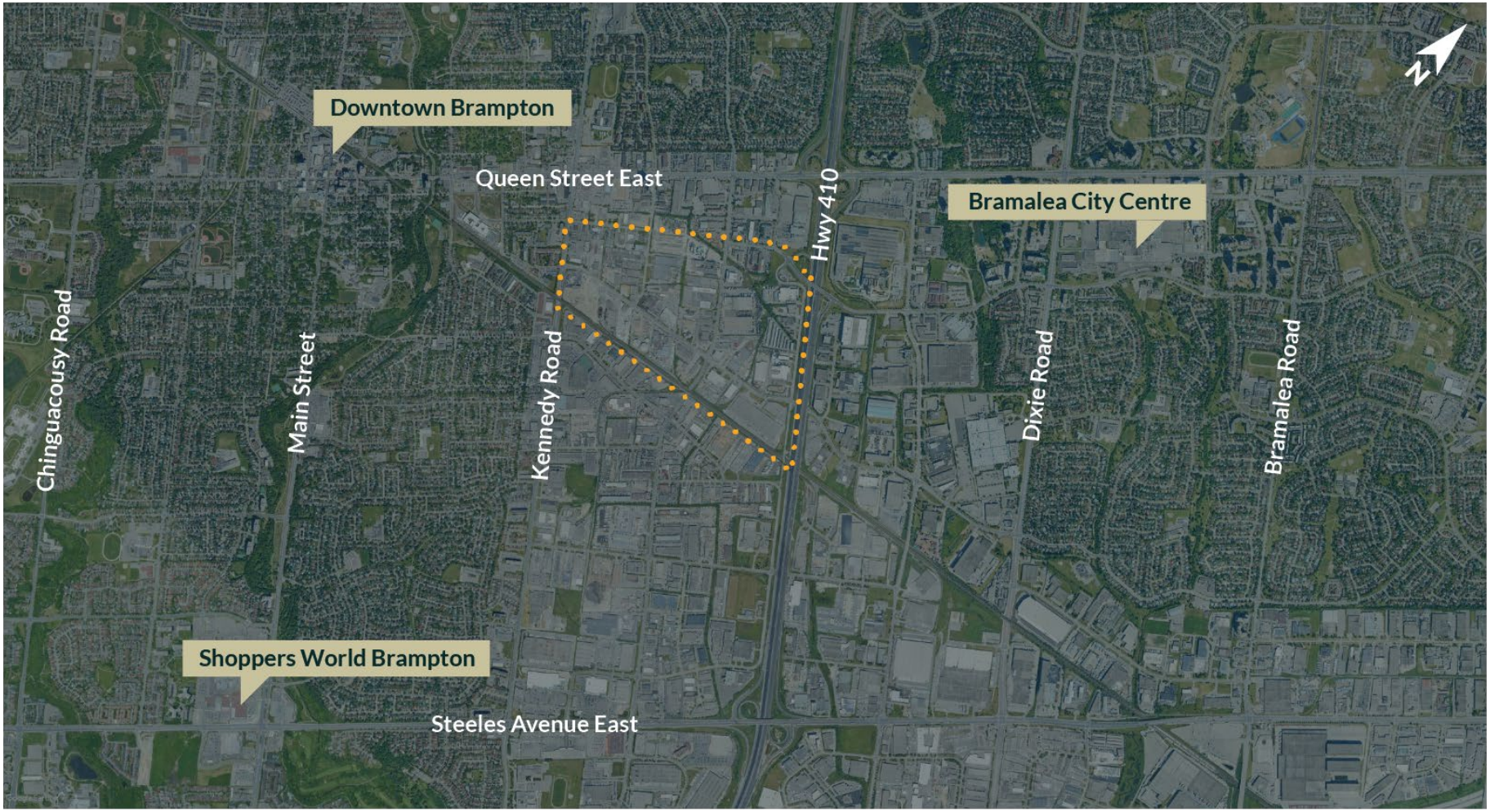
Appendices

Appendix A: Site Context Map



Site Boundary

Basemap: Google Earth[60]

Appendix B: Precedent Images

The following images showcase precedent features for sites not featured in the Case Studies (Section 3.3).

3.2.2. 99 Atlantic Avenue[71]

3.1.3. Benthemplein[83]

3.1.4. Time Out Market[102]

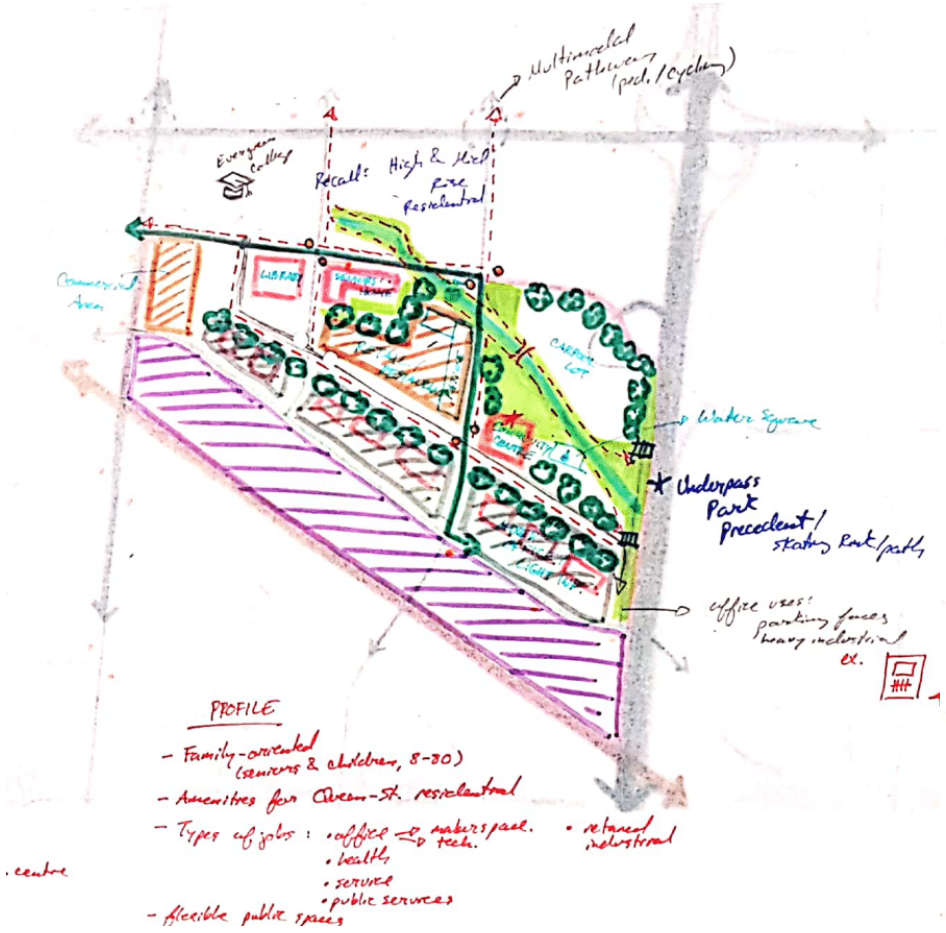
3.1.5. Catalyst 137[107]

3.1.7. Okanagan College Expansion[52]

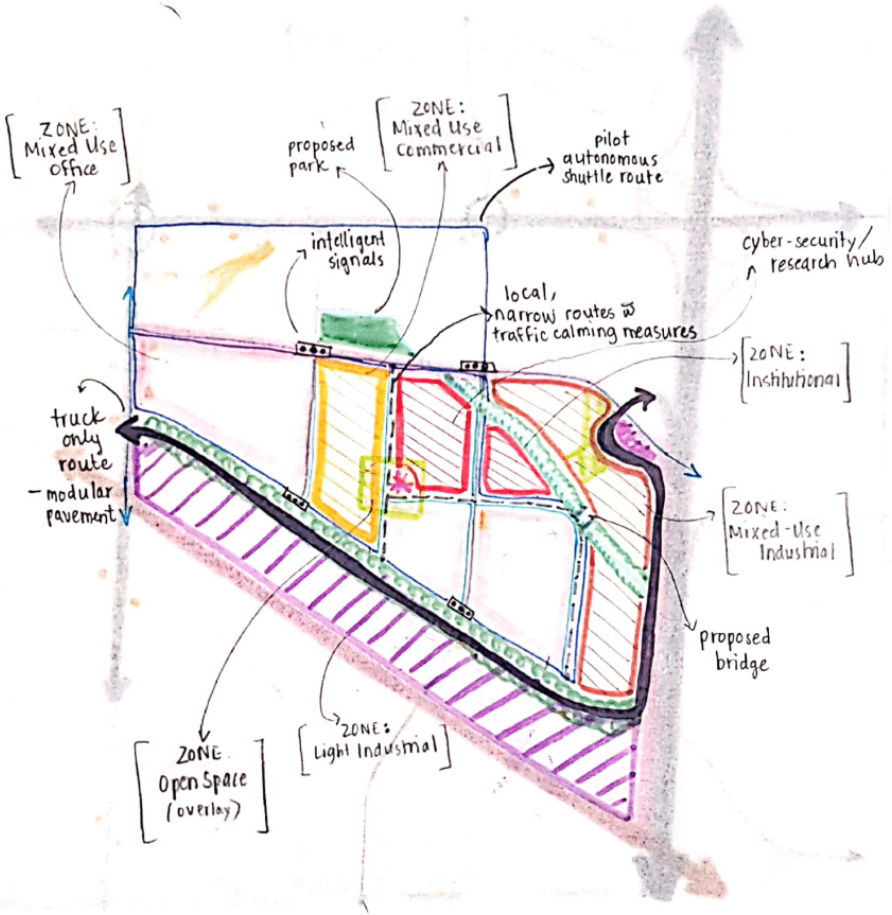
3.1.8. Sherbourne Common Stormwater Treatment Facility[2]

3.1.9. David Braley Health Sciences Centre[56]

Appendix C: Scenario Development Drawings



Health + Wellness District Concept



Innovation District Concept

Appendix D: Evaluation Criteria

Criterion	Indicator	Option 1: Business as Usual	Option 2: Innovation District	Option 3: Health + Wellness District	Proposed Scenario + Justification
Transportation					
Traffic Network	*Enhances access and movement on major roads*	Inadequate Clark-Eastern connection. Large blocks with limited vehicle and pedestrian connections.	Supporting the proposed Clark-Eastern connection as an east-west route. Proposing new local routes with traffic calming measures from Clark-Eastern to Orenda Road, connecting with Rutherford. Intelligent signals are planned for new and existing intersections to manage traffic flow.	Clark-Eastern connection will be enhanced with a new road from Kennedy Road to Heart Lake Road South.	Will include traffic network proposed in Option 2 due to a finer-grain 'grid-network', considerations for traffic calming, and intelligent signals.
Transit Service & Network	*Improves transit routes for better connections and increased user access*	Various existing transit stops along Queen Street and Kennedy Road. Queen Street Corridor to be transformed into BRT route.	Proposed autonomous shuttle loop to provide additional transit connectivity.	New stops connect proposed destinations and amenities with direct access for various demographic groups will implement a finer-grain transit grid.	Proposed scenario will include a hybrid of both options to maximize transit options with the Site. This involves the new autonomous shuttle loop as well as new proposed stops.
Active Transportation	*Improves active mobility choices in the area*	No cycling routes currently on the Site. Limited pedestrian connectivity through sidewalks along major routes.	Expanding active transportation networks across the Site including cycle tracks along Clark-Eastern and sharrows on newly proposed roads. Proposed cycling and pedestrian routes will enhance connections to major destinations within and around the Site.	Increased multimodal pathways branch from the watercourse, connecting different active destinations such as plazas, parks, and well-being amenities to MTSAs.	Proposed scenario will connect different active destinations such as plazas, parks, and well-being amenities via appropriately designed cycling and pedestrian facilities (cycle tracks, sharrows, sidewalks).
Goods Movement	*Integrates routes for moving goods across major corridors*	Significant truck traffic along all major arterial routes due to the presence of heavy industrial uses.	Designating Orenda Road and Heart Lake Road South as the only truck routes within the Site which still maintain access to Highway 410 and goods-moving industries, predominantly located south of Orenda Road.	Proposed road supports local traffic from Orenda Road to facilitate movement of goods and truck traffic.	Proposed scenario will designate Orenda Road and Heart Lake Road South as truck routes within the Site. Additional provisions can be made to accommodate more truck traffic during designated 'off-peak' hours.
Social Environment					
Supports Intensification	*Supports growth through land use designations*	Site is currently zoned Industrial (M2) and Commercial (HC1) as per Brampton Zoning By-law 270-2004.[24] This limits its growth potential to knowledge-based employment uses.	Concept will introduce mixed-use industrial, institutional, mixed-use commercial, and mixed-use office uses to the Site which will support a growing City.	Land-use gradient to transition between heavy industrial to the south and community amenities/open space to the north. Between the two extremes, stacked light-industrial/office land uses will complete the transition.	Proposed scenario will introduce a land use gradient between heavy industrial to the south and open spaces, mixed-use office, and community amenities to the north.
Community Building	*Implements 'complete street' corridors*	Limited streetscaping and use of 'complete street' principles. Some use of landscape buffers along sidewalks.	Enhancements made to existing and planned roads will utilize 'complete street' principles to adequately address safety for all types of users.	Proposed multimodal pathway with streetscaping along creek that provides direct access to proposed nearby senior's home and community centre.	Enhancement of current and existing pathways with 'complete street' principles and sophisticated streetscaping/street furniture to enhance safety for all users, including special streetscaping on proposed new roads.
	Provides appropriate social amenities	No social amenities currently on Site. Some limited open space alongside creek and on-ramp along Heart Lake Road South.	Planned public spaces, parks and commercial amenities will provide nearby residents and visitors to the Site with various options. A newly proposed public square will function as a unique gathering space within the Site.	Community centre, shops, and open space will provide a plethora of social amenities for nearby residents. Proposed murals, designed by local artists and residents, will become place-markers of key community buildings	Proposed scenario will include the introduction of planned public spaces and commercial amenities to nearby residents and employees on Site. This includes a new proposed public square coupled with public art murals that will function as a unique gathering space.
Public Health & Safety	*Mitigates unwanted pollution, odour, and noise*	Channelized creek will provide opportunity for groundwater infiltration, and will mitigate unwanted pollution, odour, and noise from industrial uses.	Channeling goods movement traffic to designated corridors will reduce the noise and pollution across the Site. Planned landscape buffers around Orenda	Proposed stacked industrial and office development north of Orenda Road mitigates nuisance and creates a gradient between retained heavy industrial uses on the south end of the Site.	Proposed scenario will be a hybrid of both options and will mitigate noise and pollution through designated trucking corridors, landscape buffers, and UV-treating fountain technology.

Criterion	Indicator	Option 1: Business as Usual	Option 2: Innovation District	Option 3: Health + Wellness District	Proposed Scenario + Justification
			Road will further reduce noise produced by remaining heavy-industrial uses to the south of Orenda Road.	UV-treating fountain technology located along the creek system will mitigate pollution from surface runoff.	
	Incorporates CPTED principles[84, 113]	Adequate street lighting across the Site that creates a sense of public safety. Direct Site lines along Orenda Road, Rutherford Road, and Hansen Road.	Implementing design principles throughout the Site that encourage appropriate street lighting, clear sight lines, and land use mixes to improve public safety through natural surveillance. [84, 113] Introducing information systems such as wayfinding signage and a "neighbourhood assistant" type information kiosk as additional safety resources.	Promoting pedestrian and bicycle traffic along the creek with maximized street lighting to allow visibility.	Proposed scenario will enhance safety through CPTED principles [84, 113] including enhanced street lighting, clear sightlines, a mix of uses, wayfinding signage, and a "neighbourhood assistant." This neighbourhood assistant is a digital kiosk that will include safety information and contacts.
Demographics	*Fosters an inclusive environment for diverse users*	Proposed land uses attract industrial, warehouse, and storage uses that do not attract a young and diverse population.	Proposed land uses will be geared towards attracting young multicultural talent to the City's new employment node centred around innovative and technology-driven industries.	Proposed uses and paths builds a people-centric community suitable for all ages through the introduction of a senior's home, community centre, and multimodal path	Proposed scenario will attract Brampton's young multicultural talent through the introduction of technology driven industries while supporting its older population through various amenities.
Natural Environment					
Watercourses	*Minimizes negative impacts to creeks and groundwater*	Creek is buffered with riparian vegetation on either side providing a degree of protection from surrounding uses.	Plans to create a vegetative buffer around creeks, in addition to proposing an integrated cycling and trail system which will protect and enhance on-site features.	Establishing protected "creek buffers" to improve water quality and provide open space recreational areas to mitigate surface runoff.	Proposed scenario will protect and enhance the function of the creek through creating a multimodal trail loop system and vegetated "creek buffers". This will provide both recreational space and improve water quality with the Site.
Stormwater Management	*Reduces adverse impacts of rainfall events*	Largely impermeable concrete pavement throughout the Site. Some green space is available along the creek and Heart Lake Road South.	Introduction of modular paving features on-site, in conjunction with vegetative buffers and LID measures would enhance infiltration and management of stormwater throughout the Site. [111]	Water square design would provide rainwater retention in the case of heavy rainfall events, reducing strain on stormwater management systems. UV fountain will treat collected rainwater to provide grey water for use on-site.	Enhance rainwater infiltration and stormwater management through the following design elements: modular pavers, vegetative buffers, LID measures [111], a water square, and a UV fountain.
Open Space	*Provides natural amenities for active and passive programming*	Some existing provision of natural amenities through green space along creek and Heart Lake Road South.	Proposed open space in the central portion of the Site will allow for flexible amenity space and a range of programming to occur. A potential location for a future park is designed above the Site boundaries to help envision future open space connections.	Creek will be surrounded by open park space to be utilized by the community centre, nursing home, and surrounding residents. Community gardens will be established to support local residents. The water square will remain active year-round, with the potential to be an outdoor sports court, a rainwater collection pool, or an ice rink in the winter months.	Introduce new open spaces across the Site with a particular focus around the creek. This space will include community gardens and a water-square that will double as an outdoor sports court, rainwater collection pool, or an ice rink. Vertical hydroponic farming practices[75] will be introduced to new developments.
Existing Conditions					
Utilities	*Minimizes demand on existing utilities*	Existing servicing likely adequate for projected growth in this scenario as the introduction of new high-density uses are unlikely to occur. Development is instead likely to continue in a low-rise, sprawled manner.	Retrofitting large-scale industrial buildings with mixed uses will place more pressure on existing utilities. Maximizing the jobs per hectare of space would require additional hydro/utility demands, however, it is accompanied with long-term benefits to the residents utilizing the services.	Community buildings will take precedent from sustainable building practices to mitigate the lighting/heating requirements. For intensification areas, more demand may be placed on hydro requirements, but these are mitigated by on-site water treatment, producing grey water for building use.	The proposed development will place additional stress on existing utility infrastructure as a result of intensification. This impact will be mitigated using a variety of strategies including embedding sustainable architectural features in new buildings, economic incentives for retrofitting existing buildings with energy efficiency appliances, on-site water treatment, and an energy microgrid for energy redistribution. [51] The proposed scenario will aim to balance utility needs with long term benefits to the Site.

Criterion	Indicator	Option 1: Business as Usual	Option 2: Innovation District	Option 3: Health + Wellness District	Proposed Scenario + Justification
	Incorporates energy alternatives and sustainability initiatives	Limited alternative energy and sustainability initiatives available. Currently, several unpaved areas are used for storage - this may result in soil erosion and degradation.	Proposed sustainable practices on Site including increased vegetative coverage, trail linkages, and introduction of green space. These upgrades will enhance physical well-being while reducing the negative effects of climate change, which is generated by existing heavy-industrial uses within the Site.	A community centre is proposed for the Site, with ample space for community gardens, lending to environmental and food sustainability practices. Watercourse treatment is proposed to meet the City of Brampton's initiatives, while the emphasis on transit aims to reduce CO_2 emissions. Additional greening of the Site is proposed.	Proposed development scenario will include sustainability initiatives including ample green space, a community garden, watercourse treatments, and a focus on non-motorized travel modes.
Infrastructure	*Integrates existing buildings into proposed development*	Existing buildings and uses remain. Any new development would be limited in nature and be integrated with existing buildings.	By maintaining the heavy-industrial buildings south of Orenda Road and retrofitting the existing industrial uses to the east with high-tech office spaces, the character of the Site is enhanced to create a unique environment within Brampton.	Existing heavy-industrial buildings will be retained, with some of the light-industrial north of Orenda Road. New construction is proposed near the watercourse, the newly proposed roads, and close to the hospital.	The proposed scenario will maintain the heavy industrial buildings south of Orenda road while adapting all other industrial uses in the east to high tech office spaces. The new developments will be integrated with existing buildings to maintain the character of the Site while creating a unique environment.
Policy Framework	*Supports existing municipal, regional and provincial policy directions*	The continuation of the existing development pattern does not conform with the employment- residential density targets in the Brampton 2040 Vision[32]. It further does not encourage transit-supported development, nor Brampton's 2040 Vision to have 60% of its population work in the City.[32]	The innovative upgrades provided by this scenario align with a forward-looking concept for the City, as articulated throughout Brampton's 2040 Vision.[32] While this scenario promotes goals of intensification, transit-supportive mixed-used development from a Provincial policy direction, changes to the policy regimes at the local level would be required to facilitate Brampton's 2040 Vision objectives.[32]	Environment and sustainability policy and initiatives will be addressed, with some intensification. Proposed land uses are partially covered by the official plan/secondary plan as well as zoning regulations; however, some amendments would be required to support additional community amenities.	This forward-looking scenario will address municipal sustainability policies, the Brampton 2040 Vision,[32] and provincial policy objectives to enable transit supportive employment intensification. It will require some amendments to the existing official plan, secondary plan policies, and zoning regulations in order to be implemented.
Economic Contribution					
Employment Targets	*Supports provincial employment targets*	Limited intensification of the Site is supported. Infill is limited to low density industrial and commercial uses that do not significantly contribute to the Provinces employment targets.	Intensification of the Site will be prioritized with a heavy investment in knowledge-based jobs to support the Provincial employment targets. This will ensure appropriate jobs and persons per hectare is also in keeping with Brampton's desired employment objectives.	Light-industrial office-innovator land uses are planned to contribute to job intensification, while makerspace connections to local colleges and universities provide future job-growth potential.	Proposed scenario plans to encourage intensification of knowledge-based jobs, development of office-innovator land uses, and connections to local colleges and universities. This will support provincial and municipal employment targets aimed at ensuring appropriate jobs and persons per hectare are met.
Employment Mix	*Provides diverse employment opportunities*	Employment opportunities limited to existing industrial and commercial (storage, warehousing, automotive) uses. Little diversity in employment opportunities.	Within the knowledge-based economy, a variety of employment sectors are planned in the proposed scenario - including incubator/ co-working space for technology firms, institutional space for potential cybersecurity research, existing heavy and light industrial space, and a variety of mixed-use office and commercial space. The proposed scenario would offer a variety of employment opportunities.	Proposed developments will include a mixture of office-innovator, light-industrial, community amenity, and open space land uses. Heavy industrial uses will be retained and incorporated in the land-use gradient.	The proposed scenario will include a variety of employment sectors including incubator/co-working spaces, institutional spaces for research, existing heavy and light industrial space, and a variety of mixed-use office and commercial spaces.
Potential Growth	*Potential to attract future investment*	Limited potential to attract new investments as the current uses are traditional employment. This is a declining sector in Brampton and is not attracting the investment needed to transform the City into a vibrant hub.	This Site will serve as a pilot project for an innovative employment hub in the City of Brampton. This will attract significant investment in the form of public private partnerships from technology firms, developers, and research institutions.	Opportunity to retrofit existing industrial buildings into stacked industrial-office-makerspace mixes that will serve as a precedent for southern Ontario. Proposed public Wi-Fi integration around the Site will further support a creativity hub for the future community.	The proposed scenario will serve as a pilot project for an innovative new employment hub in the City of Brampton. It will leverage partnerships with technology firms and research institutions alike to implement the newest urban technologies. It will set the precedent for retrofitting industrial buildings into stacked industrial -office makerspaces in Southern Ontario.

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Appendix F: RFP/Revised Proposal Specifications

Component	RFP Requirement	Requirement Revisions	Met/Not Met/Exceeded
Deliverables (Content/ Format/Size)	A report illustrated with maps, drawings and images including the initial chapters (existing condition, regional context analysis, case studies, key planning issues, vision/goals/objectives/success criteria), a brief summary of the alternatives and a complete but concise description of the final scenario and its advantages (brief business case) as well as implementation measures and actions.	Chapters are renamed, although overall content remains unchanged.	Exceeded - report is more readable as a result of the chapter change. More graphics are included than required, emphasizing readability.
	Maps required will include at minimum an existing situation (context and area), proposed scenario (context and area land use map indicating main transportation features). The consultant may develop potential built form models (optional) or draw from the City's concepts. Case studies and example relevant photos and renderings are encouraged with credits. The report will be concise and to the subject, estimated to be a maximum of 40 pages with appendices (e.g. data, tables) if needed.	The client expressed in personal communications (on file) that the 40 page maximum acts as a guideline. The report can be longer to better convey the information, if needed. The 40 pages does not include the references or appendices.	Exceeded - many additional maps created, in addition to charrette sketches, massing sketches, and images/ renderings of the selected precedents/case studies.
	An Interim Draft Report including the first tasks (up to Task 4) is required. A presentation summary with samples of work in progress (e.g. data, report, maps) is also acceptable for the interim discussion and meeting.	N/A	Exceeded - Final Report adjusted in response to comments made on the mid-project submission. Both a presentation slide deck and a report were submitted
	Final product will be in higher resolution PDF format with selected pages for the final presentation. One bound colour copy will be provided as well as the original file (e.g. InDesign or similar) and printable resolution pdf (the city could help cover printing costs)	`Due to COVID-19, a hardcopy submission is no longer required. The presentation was sent digitally with speaker notes instead of delivered in-person. The final report was also	Met - deliverables completed and submitted on time.

		adjusted to follow presentation comments. A PDF file, MS Word file, and InDesign file are submitted.	
Timing	March 27/April 3 - Project Presentation (UW or Client Office)	Due to COVID-19, the presentation was delivered digitally as a slide deck with speaker notes. The deadline was extended to Monday April 6th, 2020, to accommodate for the pandemic.	Met - deliverables completed and submitted on time.
	Client to receive Final Deliverables 1 Week after presentations	Due to COVID-19, deadlines were extended until Wednesday April 15th, 2020, slightly beyond a week following presentations.	Met - deliverables completed and submitted on time.

Prepared by:

Siya Agarwal
Michelle Groisman
Nazish Khan
Anna Maria Levytska
Rachael Wu

embark
planning + design.