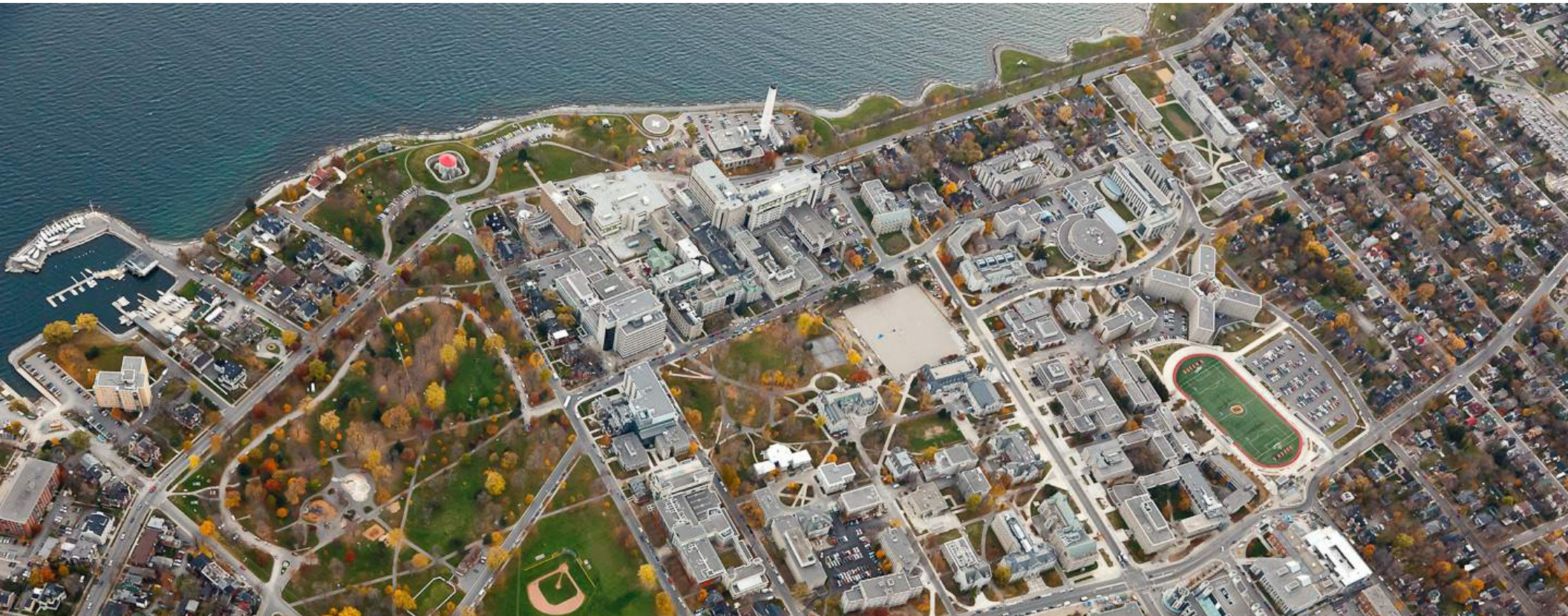
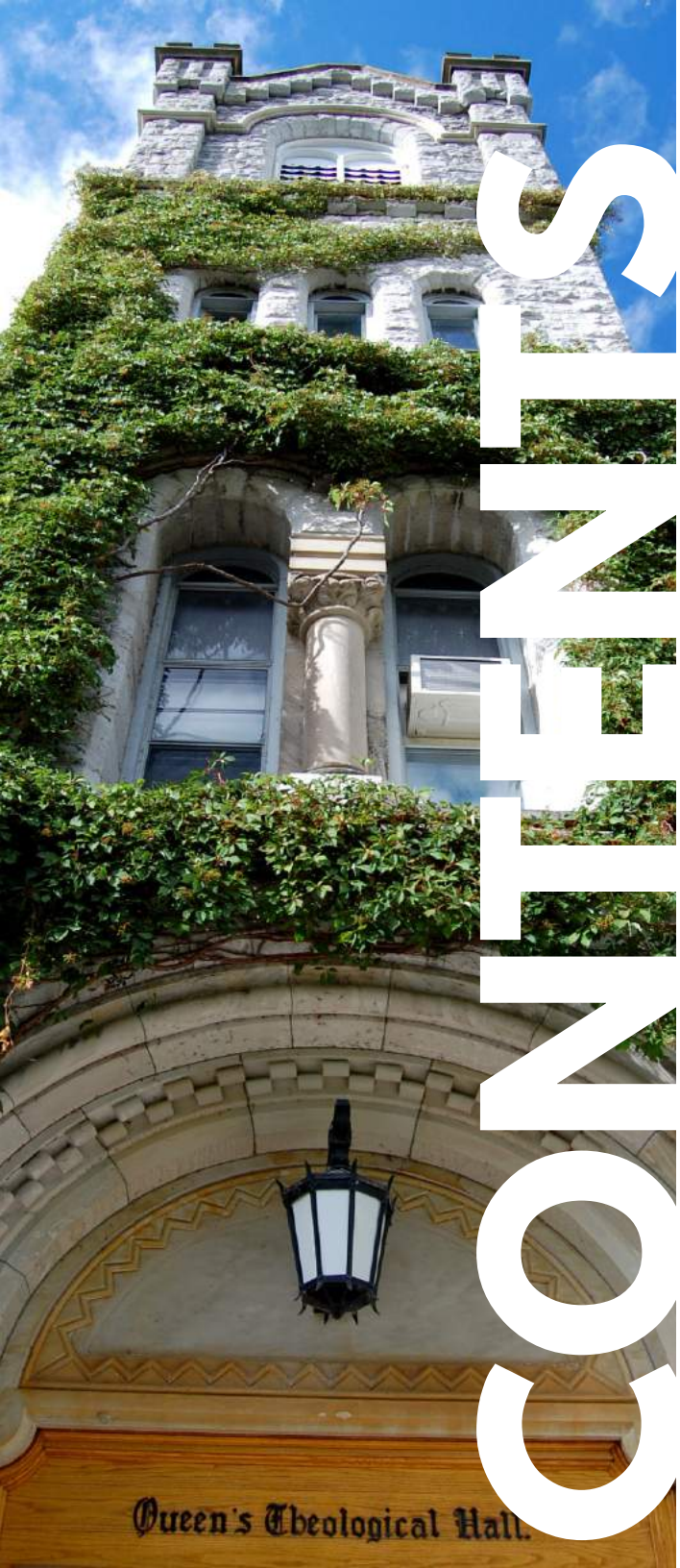
A COMPREHENSIVE GUIDE TO

CREATING AN INTEGRATED UNIVERSITY CAMPUS

QUEEN'S UNIVERSITY SCHOOL OF URBAN & REGIONAL PLANNING





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STANDARD LIMITATIONS

This report was prepared for Queen's University by graduate students at Queen's University in the School of Urban and Regional Planning enrolled in SURP 823: Health and Social Planning Project Course. The recommendations put forward in this report were produced by the project team and have not been reviewed or endorsed by Queen's University.

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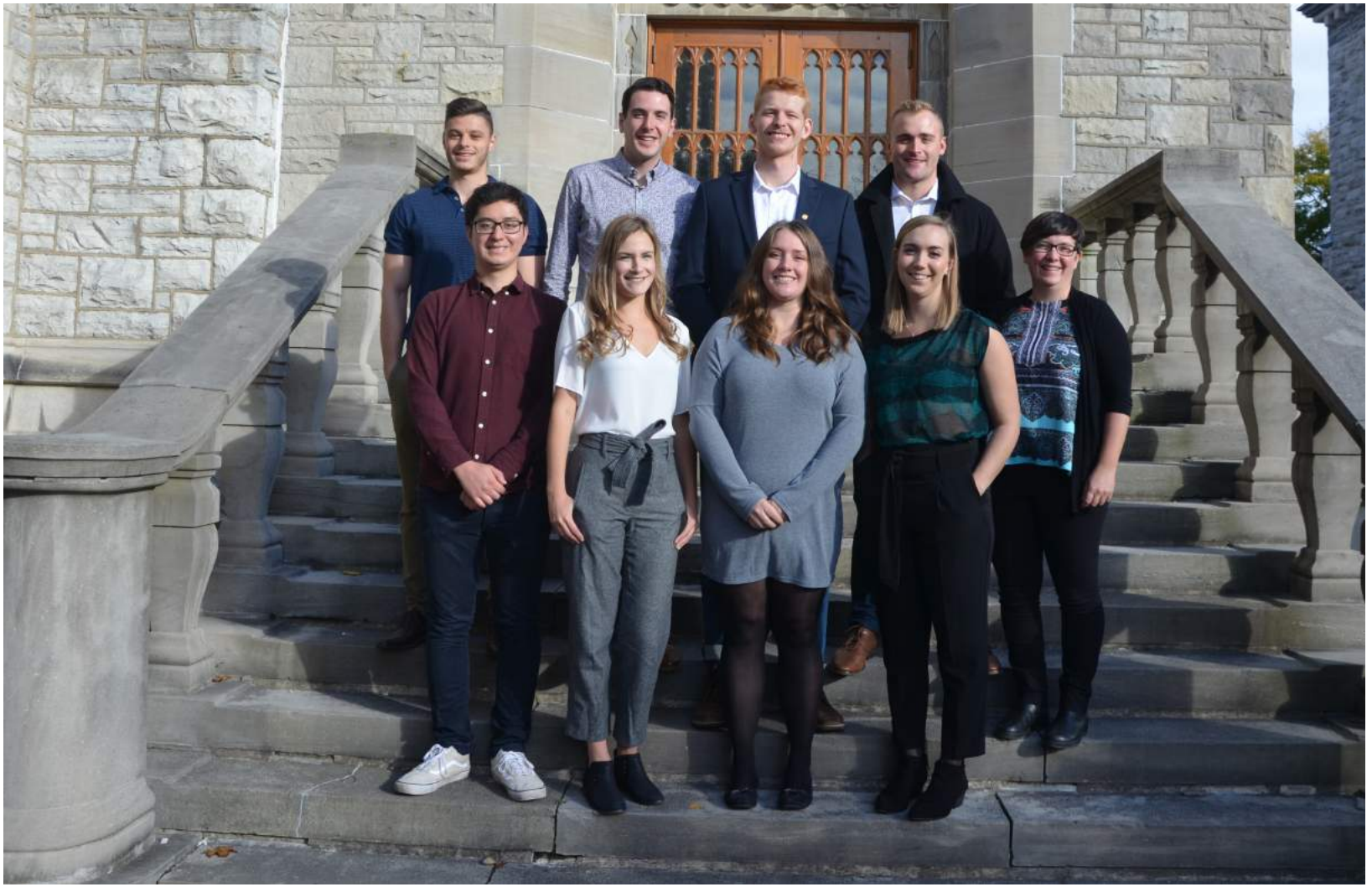
THE PROJECT TEAM



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PROJECT OBJECTIVE

The purpose of this report is to provide an informational document for reference in future decision making for campus planning at Queen's University. Toward this objective, two key research components are carried out: investigating best practices in integrated university campus design and conducting an analysis of local conditions. First, integrated university campus planning is examined to explore the opportunities available to Queen's University as a campus embedded in an urban and residential context. Then, in the second component, attention is focused on establishing a near-campus community profile for the St. Mary's of the Lake site given its recent acquisition. Here, a better understanding of the neighbourhood context is established through a socio-demographic analysis and an analysis of assets and gaps within the community (including a land use inventory). To this extent, the information provided in this report will be informative when considering future updates to the Campus Master Plan, last updated in March 2014.

THE FORMER ST. MARY'S OF THE LAKE HOSPITAL

In November 2017, Queen's University purchased the St. Mary's of the Lake property, formerly a hospital owned by Providence Care. Located between Queen's main and west campus sites, adjacent to Queen's Isabel Bader Centre for Performing Arts on King Street, and in close proximity to the Donald Gordon Conference Centre, this new property is ideally located to serve as a third campus for the Queen's University community. With one existing building that was constructed in four stages and considerable surface parking and greenspace, future planning efforts will be challenged with envisioning how this 12-acre property will be used in the years ahead. Given the site's status as a relatively new and undeveloped property for Queen's, yet situated in an established neighbourhood, this report investigates the greater university-community context of the site.

SECTION 1: INTEGRATED UNIVERSITY CAMPUS DESIGN

Aerial view of Bader Ln. Queen's University, n.d.

CHAPTER ONE

WHAT IS AN INTEGRATED UNIVERSITY CAMPUS AND WHY BUILD THEM?

CHAPTER AT A GLANCE

University Avenue on Main Campus. Queen's University, n.d.

This chapter is an introduction to integrated university campus planning and campus planning as a whole. It looks to provide a lens in which university campus planners should utilize when planning a campus that is integrated with its neighbouring community and city as a whole . The chapter defines the two prominent schools of thought regarding campus planning:

- The thought that universities should not be integrated with their surrounding communities (non-integrated university campuses); and
- The thought that universities should be integrated with their surrounding communities (integrated university campuses).

While non-integrated university campuses are examined to provide context, a central goal of this chapter is to demonstrate why integrated university campus design should be pursued.

To provide context, the chapter contains a brief history of university planning, describes both non-integrating university campuses and integrated university campuses, providing examples of both, and then delves into explaining the benefits of IUC design. The chapter concludes with a brief discussion of why Queen's University should incorporate IUC design when it acquires new properties.

DEFINING NON-INTEGRATED AND INTEGRATED UNIVERSITY CAMPUSES

University campus planning can manifest itself through a diverse set of philosophies. Globally, universities have witnessed change regarding design elements and design philosophy. While these design philosophies vary greatly among universities, two overarching yet polarized schools of thought seem to prevail. These design philosophies revolve around campus-community integration. On one side of the spectrum, design philosophies have placed an emphasis upon establishing and maintaining campus-community integration, while in contrast with other universities, campus-community integration has been undermined and avoided. An academic institution often struggles between the “imposing pull of the city that often defines an institution, and the ideal of an academic refuge sheltered from the city’s hustle and bustle." [1] This divide denotes the split between the two philosophies.

A non-integrated university campus (NIUC) is defined as a campus that is separated from its surrounding community and works to deliberately discourage and exclude those who are not a part of its academic community from entering the campus grounds. This is achieved through the use of physical design elements which contain restrictive characteristics that are unwelcoming to the public, such as gates, ring roads, and inward-facing walls. Through the use of restrictive characteristics, a university campus can be seen as an ivory tower. [2] In contrast, an integrated university campus (IUC) is defined as a university campus that is embedded within the fabric of its neighbouring community. This design philosophy involves physical characteristics at the campus edge that enable both social and perceptive qualities which collectively work to invite users of all kinds onto university grounds. This sense of welcoming is manifested within urban design techniques that work to stitch the edges of the university campus with its surroundings, developing a seamless transition between campus and community interfaces.

With these definitions in mind, the following chapter will explore the differences between the two and demonstrate why an IUC design should be pursued.

A BRIEF HISTORY OF UNIVERSITY CAMPUS PLANNING

In the past, the campus and the city were closely connected, with most universities adopting their names from their parent cities. [3] In ancient Europe, colleges and faculties were threaded through the streets of the town and campuses were intricately inseparable from the cities that embedded them. This changed, however, in the twentieth century when transportation and information technology began to offer escape routes from the city to rural areas that contained large landscapes. [4] The idea of designing the campus on a rural landscape became popular due to the rejection of urban universities and through idealized images of embedding campus design within spacious, peaceful landscapes, [5] as seen with Trinity College, 1873 (Figure 1.1).

Figure 1.1: Trinity College, Hartford, Connecticut
Image source: Turner, 1984

Evident within this figure, an enclosed campus is surrounded by vast greenspace. By the mid-twentieth century, a steady increase occurred among postsecondary enrolments due to the return of war veterans and the maturation of the baby boom generation. [6] There became a focus on spacious settings of parkland that were thought to be more conducive to creative thinking than urban street-blocks. [7] Industrial development was seen as disruptive to higher education and, therefore, siloed universities were seen as "intrinsically advantageous for a university." [8] Also notable is the simplicity of acquiring an open space for the purposes of developing a university campus. The large greenfield provides extra space in the event of university expansion, with little constraints to growth in comparison to building within an urban environment.

Due to these existing benefits of developing a university on the city limits, many universities were moved from the heart of their cities to more remote locations such as Université Laval (Figure 1.2) and Stockholm University. [9]

Figure 1.2: Université Laval, Quebec City, Québec
Image source: Université de Bordeaux, 2017

For some universities, size constraints did not allow for relocation, and instead urban renewal was utilized to expand existing university properties. [10] When shops, businesses, and low-income homes had been cleared, the newly expanded campus was marked by fences, blank walls, or landscaped buffers such as greenspace, shrubs, and trees. [11] Ideas behind both the siloed campus and the Modernist campus embody the same underlying ideology: to be separated from the disorder and turmoil thought to be in the city. Despite strong ideals, this movement of university and city separation did not lead to the desired outcomes. The hope was that physical separation would encourage the sharing of knowledge and interdisciplinary connections; [12] however, due to the sporadic placement of buildings, many disciplines were confined to their respective buildings, with little room for the “cross fertilization of people and ideas." [13] A major issue with university campuses that were planned in this way was that there was no macroscale campus design in place, where planning emphasized the placement of individual buildings which created “drive-through, sprawling, fragmented, and isolated campuses." [14] Campus planning in this respect was more focused on the design of a single building, rather than the creation of an entire university community with the surrounding environment. [15] One way to improve the quality of life for students, staff, and faculty as well as the surrounding neighbourhood of the campus is to develop a university campus that is integrated with its surroundings.

Integration among campus and community mirrors the recent movements towards developing complete communities. Complete communities possess walkable and vibrant neighbourhoods that contain a diversity of land uses. [16] This includes a full range of housing as well as community infrastructure including employment, schools, recreational facilities, and open spaces for residents. [17] Campuses that are integrated with their surrounding community help to build on the idea of complete communities by allowing nearby residents to have access to the services, amenities, recreational spaces, and employment that the campus offers in a way that promotes the health and walkability of the entire community.

CAMPUS IN CONFINEMENT: A NON-INTEGRATED UNIVERSITY CAMPUS

Many campuses today remain unintegrated with their surroundings. For these higher education institutions, the design philosophy supports the idea that campuses should be oriented inwards to create a place of refuge, which enables spaces for learning and reflection. [18] Through the use of design techniques, a NIUC presents an unwelcoming aura to those who do not belong to the university's academic community. These techniques are readily identifiable by physically defined campus edges and design structures such as walls, ring roads, and closed gates as well as other design approaches such as differences in building composition and scale. Different types of NIUCs include campuses as citadels, garden campuses, and embedded campuses. Other NIUCs may be situated in isolating environments which discourages any access and interaction with campus surroundings.

CITADEL CAMPUSES

The notion that the campus is a citadel is seen in campuses that are strategically placed to appear fortified, with defensive building design and building location to represent a dramatic landscape and a citadel for learning. [19] This is exemplified by Simon Fraser University (Figure 1.3) and Georgetown University (Figure 1.4), both of which are situated on a raised and remote landscape surrounded by vast tree coverage, with Georgetown embodying a fortified appearance.

Figure 1.3: Simon Fraser University, Burnaby, B.C.
Image Source: SFU, 2018

Figure 1.4: Georgetown University, Washington D.C.
Image source: Stern, 2010

GARDEN CAMPUSES

Garden campuses are campuses that may be in close proximity to their surroundings yet are still distinct from the urban environment through design techniques. [20] This is seen with Princeton University campus (Figure 1.5), whose buildings are distinguished with large setbacks to separate the campus from its surroundings.

Figure 1.5: Nassau Hall, Princeton University, Princeton, New Jersey
Image source: Stern, 2010

EMBEDDED CAMPUSES

Similar to garden campuses are embedded campuses, which are ones that exist within the core of a city yet pursue a clear distinction between their spaces and the rest of the city. [21] This is seen with Brown University (Figure 1.6), located within the eart of Providence, which deters public access onto its campus grounds through the use of large and closed gates.

Figure 1.6 Brown University, Providence, Rhode Island
Image source: Goetsch, 2015

Another example of an embedded campus is the University of Waterloo (Figure 1.7). The University's campus is situated in close proximity to residential neighbourhoods yet it remains non-integrated through the use of a large ring road that circles the campus. Notably, however, is that the University's Campus Master Plan discusses its efforts to expand outside of this ring road, highlighting that the university is a "key engine for economic vitality, as an educational institution, a technology driver, a social and cultural resource for Waterloo... [and] a key landowner for one of the largest remaining undeveloped parcels in the region and neighbour to many." [22]

The plan also notes that strong linkages to the surrounding community are important and that development at the urban edges offers many opportunities for strengthening the University's relationship with the city. [23] The University of Waterloo is realizing its role in the City of Waterloo and the benefits of integrating its campus with its surroundings in order to create a better relationship with the city. The campus' efforts to improve integration can be seen in Figure 1.8, highlighting gateways and transit links.

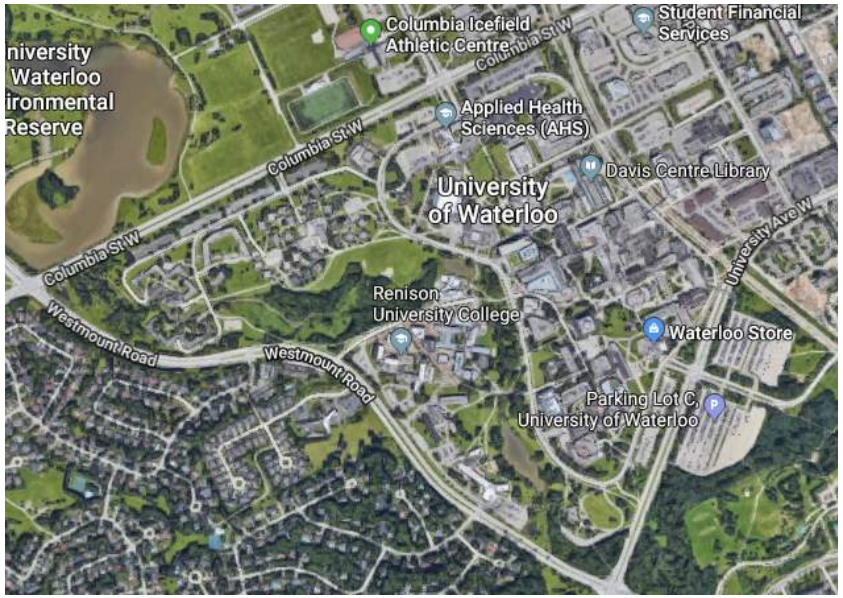


Figure 1.7 University of Waterloo, Waterloo, ON
Image source: Google, 2018

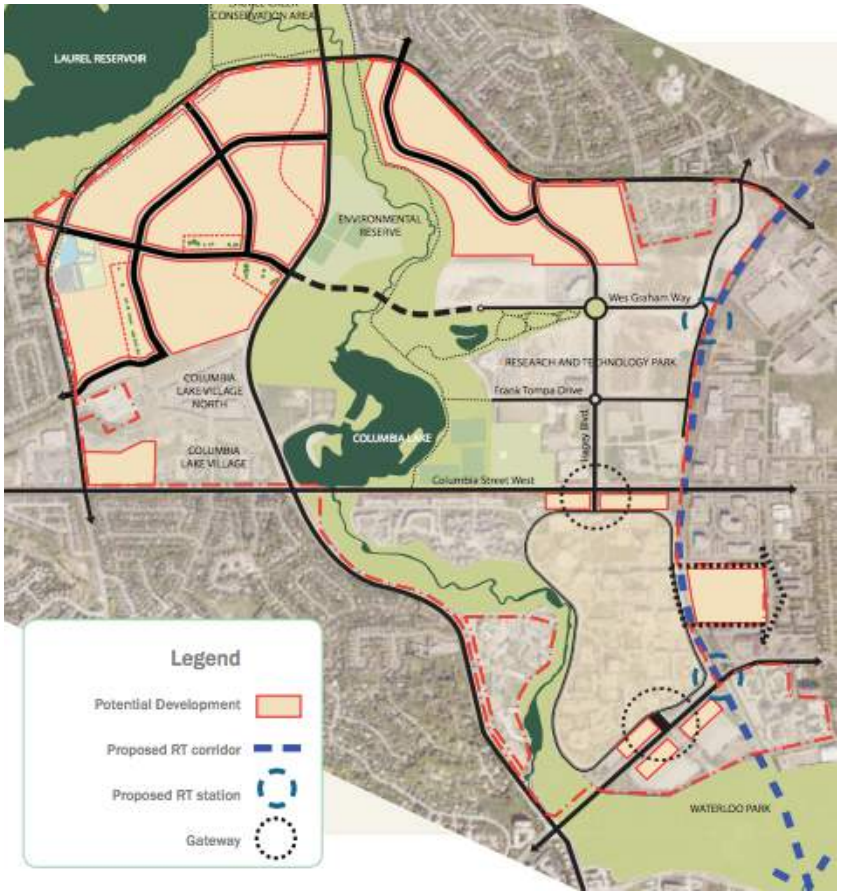


Figure 1.8 University of Waterloo campus integration plan
Image source: Urban Strategies, 2009

ISOLATED CAMPUSES

NIUCs such as garden and embedded campuses which are situated within urban environments may employ small-scale large-scale design techniques to deter public access. These

campuses wish to distinguish themselves from their surrounding urban environments. Isolated campuses are ones that are situated outside, but in close proximity, to the city as a way to separate themselves from their surroundings and deter any access by the nearby urban area. This idea requires a re-visit to the previous discussion on campuses situated within vast landscapes. Similar to the examples of Simon Fraser University and Georgetown University, Laurentian University (Figure 1.9) is a NIUC, as it is surrounded by three different lakes and a vast number of trees which separates the campus from the rest of the City of Greater Sudbury. Likewise, the University of Regina campus (Figure 1.10) is situated in an area that is separate from the city, creating an isolated environment, with virtually no infrastructure in its nearby surroundings.

The physical presence of exclusionary design techniques coupled with isolated settings works to discourage any public access to a university campus. NIUCs often lack a sense of place, purpose, and civic life, as well as tend to have edges that are cold and lack public utility. [24] By excluding those from the surrounding community, the university is denying the potential benefits that may be established from synergies between campus and community. These campuses lack vibrancy, connectivity, and engaging design, elements which are present in integrated university campuses.

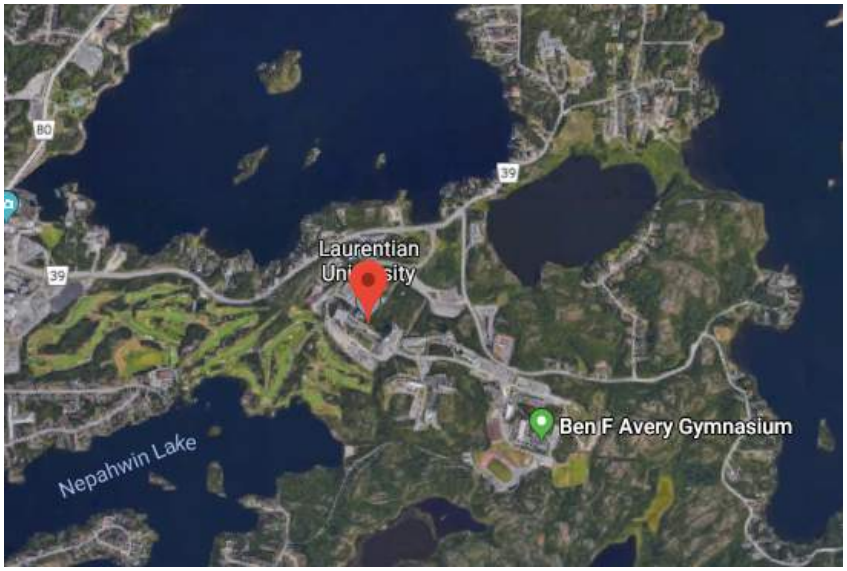


Figure 1.9: Laurentian University, Sudbury, Ontario
Image source: Google, 2018


Figure 1.10: University of Regina, Regina Saskachewan
Image source: StockAerialPhotos, 2017

CAMPUS IN COHESION: AN INTEGRATED UNIVERSITY CAMPUS

An integrated university campus (IUC) is embedded within the philosophy that campuses are places that should welcome the outside community and exist as a hub for both academic and community use. These types of campuses embody a welcoming environment and exemplify both the physical and perceived notions that the university campus and surrounding neighbourhood are connected as one, providing mutual benefits for both the campus and the city.

Neighbourhoods should be permeable and well-connected to their surroundings, emphasizing the integration of places and services across geography. [25] The philosophy of an IUC denotes that university spaces should not be exclusive for private use, but are key institutions within a community as well as an entire city. A critical tenet of an IUC is that the university should communicate, through both physical and social characteristics, that the outside community is welcome onto the campus, emphasizing both the teaching and public purposes of a university. [26] This communication can be done through the use of both soft and active edges. Soft edges establish a seamless transition between the campus and city by lacking any physical barriers to integration. A pathway network that is free of obstructions that works to connect the campus edges to its surroundings is a soft edge. A simple design attribute such as a pathway can communicate to those in the surrounding community that they are welcome onto the university grounds. Active edges are ones that encourage the public to use the campus spaces by situating uses such as restaurants, cafes, sports fields, and cultural venues on the edges of campus.

IUC design incorporates both microscale and macroscale measures that collectively work to integrate the campus as a whole with the surrounding city. Therefore, it is important to demonstrate different strategies that can be used at both scales. The university campuses presented in this chapter are all examples of embedded campuses, or ones that are situated within the core or close to the core of their surrounding city. These examples have been chosen for the purposes of demonstrating best practices in IUC design.

INTEGRATION AT A MICROSCALE

Universities can develop many different design measures in order to integrate their campus(es) better with their surroundings. Small scale design measures are critical to enable overall campus integration. While there are many different ways that this design can be implemented, several different integration efforts will be presented through the use of the University of Ottawa, Dartmouth College, University of Illinois at Chicago, and the University of Kentucky.

The University of Ottawa's Campus Master Plan (Figure 1.11) highlights the campus' relationship and connections to its nearby neighbourhoods and stresses the importance of the neighbourhoods' roles to the activities that take place at the university. [27] In contrast to non-integrated university campuses, integrated university campuses seek to construct their buildings to the property line, with soft urban edges that celebrate the building's use at street level. [28] This is seen with buildings such as Academic Hall (Figure 1.12), which is situated on the property line in close proximity to the surrounding residential neighbourhood. Academic Hall is a performing arts theatre and its location at the edge of campus encourages nearby residents to use the space.

Figure 1.11: University of Ottawa campus map in Campus Master Plan
Image source: Urban Strategies, 2015

Figure 1.12: Academic Hall (left) with residential homes to the right at the University of Ottawa
Image source: Google, 2018

The plan notes that there are opportunities to accommodate non-academic uses on university land or to dispose of strategic sites for private development that complements and supports both the university and community. [29] Depending on the site context, residential, office and/or retail uses could be either integrated with or separated from institutional activities. Whether these uses are integrated or not, the presence of these amenities on university land will encourage public use.

Since IUCs contain a welcoming environment for all users, those within the surrounding community may benefit from utilizing campus spaces. It is critical that IUCs consider what the surrounding community desires in development and land use. IUCs need to plan amenities, services and events that will serve far more than merely their direct constituents of students, faculty, and staff. [30] These types of land uses work to create a community hub for the university, inviting both campus and community users. An example of this is seen with Dartmouth College, which has a variety of shops and restaurants situated on the edge of campus. Ranging from the Campus Bookstore (Figure 1.13) to numerous shops, a welcoming atmosphere has been established along Main Street. The Dartmouth College Campus Green is located adjacent to Main Street, which provides a large open space with a pathway network to provide a smooth transition for users entering the campus space.

Figure 1.13: Campus Bookstore on commercial strip on Main Street, Dartmouth College, Hanover, New Hampshire
Image source: Gumprecht, 2009

Similar to the opportunities noted in the University of Ottawa plan, a way for a campus to establish stronger integration with its surroundings is to contain non-university uses on campus. This can be done through stand alone buildings containing non-university uses or through mixed-use developments within academic buildings. [31] An integrated university campus should have a mix of uses situated on the urban edges, which allows for a more seamless fusion with the surrounding environment. By bringing these uses to the edges of campus, peripheral boundaries become stitched into the urban fabric of the city and the campus can become an active commercial,

cultural, and community hub. An example of integration through mixed-use development can be seen at the University of Illinois at Chicago. The University's Campus Master Plan contains a public realm focus (Figure 1.14), with goals to better integrate the campus with the city. The plan notes that "the quality and character of campus edges, streetscapes, and other externally facing frontages need to be enhanced to maximize connections with the city and elevate campus identity," [32] and the presence of these mixed-use buildings strengthens this connection at the campus edges. The campus contains an array of mixed-use buildings that contain public services, retail stores, academic facilities, and student residences (Figures 1.15 and 1.16). The campus also incorporates the use of internal courtyards where the outward facing buildings of the courtyards successfully integrate services and amenities to the property line and ultimately to the city.

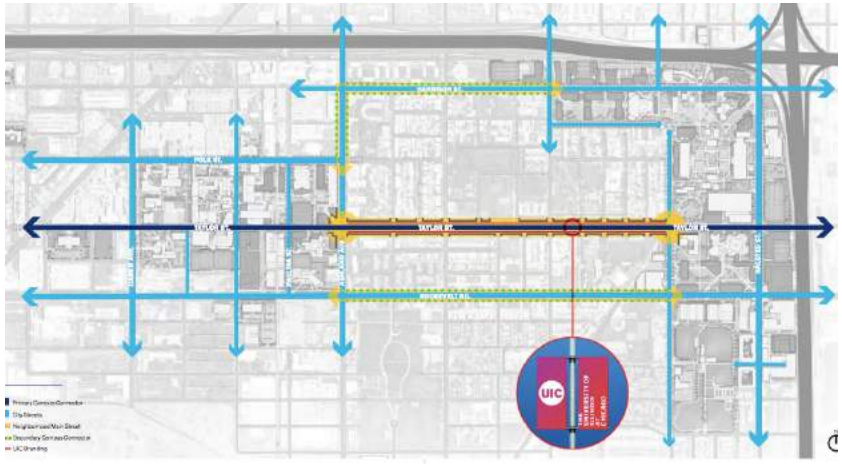


Figure 1.14: University of Illinois at Chicago Public Realm Plan
Image source: UIC, 2018

Figures 1.15 and 1.16: Street level view (top) and aerial view (bottom) of mixed-use buildings at the University of Illinois at Chicago
Image sources: Google, 2018

In addition to locating amenities and services on the edges of campus, integrated universities may develop their sports fields on the edge of campus to encourage recreational use by the surrounding community and city as a whole. The University of Kentucky (Figure 1.17) locates its baseball and football fields at the edge of campus in close proximity to a nearby residential neighbourhood. For contextual purposes, the sports fields can also be seen in the north of the campus map in the Campus Master Plan (Figure 1.18).

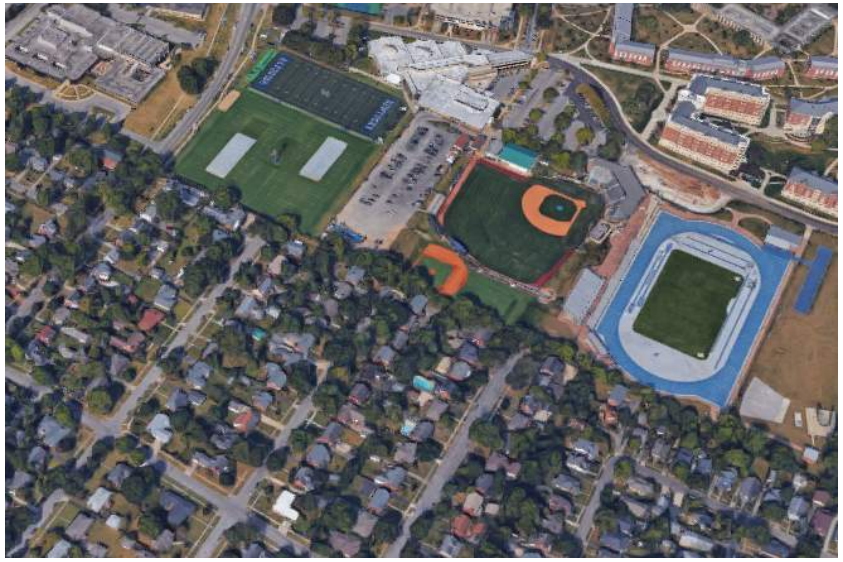


Figure 1.17: University of Kentucky Sports Fields, Lexington, KY
Image source: Google, 2018

Figure 1.18: University of Kentucky campus map in Campus Master Plan
Image source: Sasaki, 2017

INTEGRATION AT A MACROSCALE

Aside from small scale integration design measures, many campus master plans highlight greater integration overall with surrounding neighbourhoods. This involves a focus on the overall edge context of the entire campus. Here, the University of Pennsylvania, the University of Washington, the University of Syracuse, and Dalhousie University demonstrate how an entire campus may integrate itself better with its surroundings.

In 2006, the University of Pennsylvania acquired many nearby postal properties which provided the University with the opportunity to expand and transform its campus. The acquisition of this land enabled the university "to create new gateways to the campus from Center City, and to establish

new connections with the surrounding communities." [33] Planned within three phases, the Penn Connects Master Plan is currently in its last phase and establishes a vision for connectivity and public usage. With integration being one of the main themes of the strategy, the Penn Connects Master Plan introduces "Bridges of Connectivity" (Figure 1.19) which is a framework for organizing major land uses and development zones proposed for land acquired along its surrounding Schuylkill River. [34] Despite being seemingly isolated within its river context, the University of Pennsylvania strategically overcomes this physical barrier to integration through a plan that works to expand the university and integrate its edges better with the surrounding city to further the university's role as a part of the public realm. Architectural guidelines have been set in place to ensure that any new campus buildings present active frontages onto public thoroughfares and are designed for external campus viewing. [35]

A campus with a focus on the public realm is also seen with the University of Washington (Figure 1.20). Similar to the University of Illinois at Chicago, the University of Washington's Campus Master Plan contains a public realm framework and describes a vision where multiple pedestrian connections stitch together the university's four campus sectors into a comprehensive and connected network and are part of a larger, integrated street grid that seamlessly connects with the broader community. [36] The university's

Figure 1.19: University of Pennsylvania's Penn Connects Master Plan, with the "Bridges to Connectivity" on the right, integrating the campus edges with residential areas across the Schuylkill River
Image source: Sasaki, 2018

master plan analyzes the school's current edge conditions and develops ways that the campus can actively integrate itself better with the broader neighbourhood (Figure 1.21). [37] The university is situated close to ten different neighbourhoods as well as two bodies of water on the northern side. Like the University of Pennsylvania, the University of Washington integrates its campus beyond its surrounding water context. The Campus Master Plan notes that its waterfront edge is perhaps one of the most defining and unique campus features, and that within this setting, the University "hopes to create more welcoming and permeable edges to campus." [38]

Figure 1.20: University of Washington aerial view
Image source: University of Washington, 2017

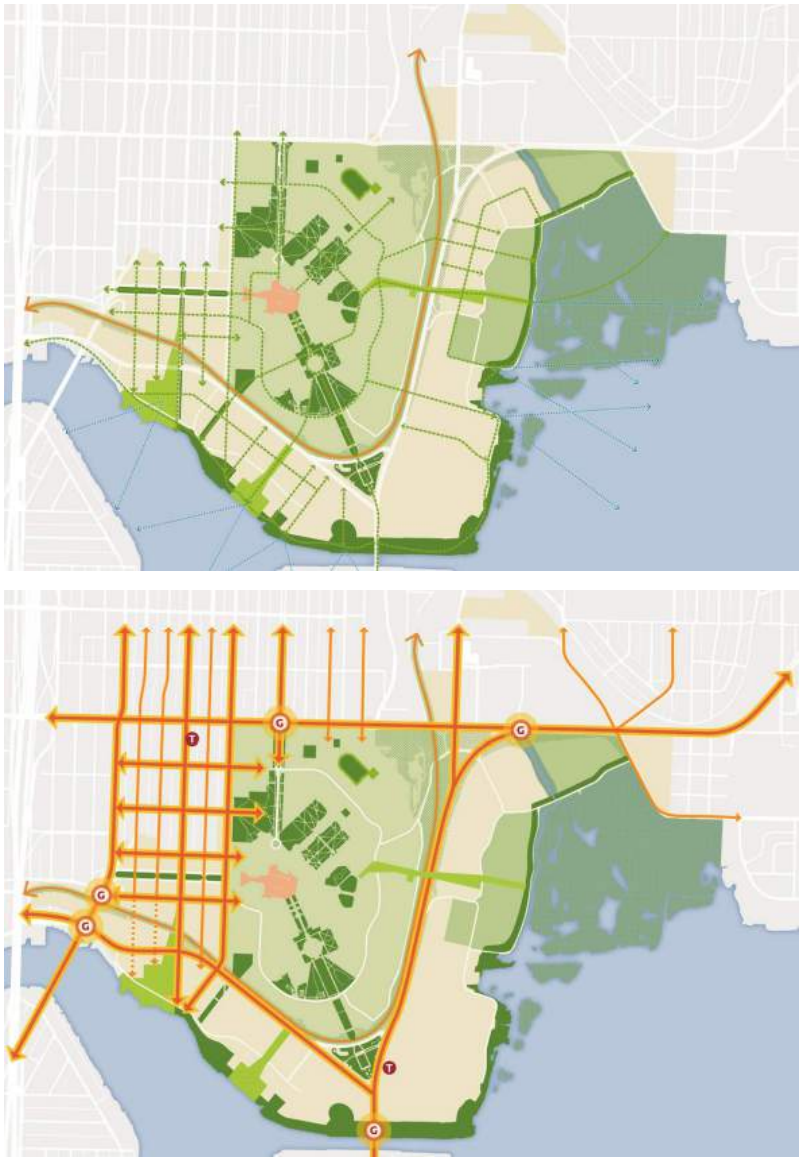


Figure 1.21: University of Washington campus integration plan
Image source: University of Washington, 2017

Similar to the efforts towards integration seen at the University of Ottawa and the University of Illinois, an example of campus and city integration through the use of amenities can be seen with the city-wide initiative at Syracuse University. Led by the Office of Engagement at Syracuse University with support from the city and state, the Connective Corridor (Figure 1.22) is a 1.5-mile connector with many amenities, cultural venues, and services developed along it. The Connective Corridor "brings together urban planning, art, architecture and design, along with principles of smart growth" [39] in order to improve the quality of life for both the university community as well as the city of Syracuse as a whole. Syracuse University embodies some of the design elements of a complete community and works to improve connectivity and walkability of the campus to the downtown core of Syracuse by providing easy access onto the campus for the university and city alike.

Figure 1.22: Connective Corridor, Syracuse University
Image source: Syracuse University, 2018

Many universities contain several campuses. Typically, a university with more than one campus contains a central campus with additional campuses spread throughout the city. These universities often struggle to integrate their campuses together, especially if the distance between the campuses do not allow for integration, leaving many campuses in isolated settings. For universities that have campuses situated in close proximity to each other, the location of the campuses can present an opportunity to allow for seamless integration with each other as well as the surrounding city. The Dalhousie University (Figure 1.23) contains three campuses: the central campus, Studley, located in the western part of Halifax, the Carleton Campus located just east of Studley, and the Sexton Campus located just east of Carleton. With the strategic placement of all three campuses, the University has an ideal opportunity to integrate itself with the neighbourhoods that immediately surround the campus as well as with Halifax as a whole.

In Dalhousie's Campus Master Plan, the University prioritizes strengthening the connections of its university to the surrounding community at large. The plan notes that the "advantages most certainly outweigh the issues that complicate co-existence: student surveys illuminate the attraction of a nearby vibrant downtown; stable property values and access to university facilities benefit neighbours." [40] The University highlights its goal to meet community expectations of partnering to address mutual urban issues as well as its overall objective to lead in excellence of building and civic design. The University looks to work collaboratively with the neighbourhood and the Halifax region to improve their shared environment and to take advantage of shared resources such as services, residential and employment opportunities, shared recreation and cultural facilities, and more. [41]

Figure 1.23: Dalhousie University, Halifax, NS campus map in Campus Master Plan
Image source: IBI Group, 2010

THE BENEFITS OF INTEGRATED UNIVERSITY CAMPUS DESIGN

An integrated university campus can create a symbiotic relationship between both campus and city. Depending on the relationship, the two parties can possess a mutual dependence that ultimately works to improve the quality of life for the university and city at large. Integrated university campus design can realize the benefits of a close relationship with the university's neighbouring community through both tangible and intangible elements. [42] An IUC allows for benefits regarding the university-campus relationship, the academic and community missions, and overall community development. Further, the mitigation of issues can occur regarding future university campus expansion.

UNIVERSITY-CITY RELATIONSHIP

The relationship between a university and its surrounding city is context-sensitive. Universities that are embedded within an urban environment can realize the benefits of a positive town-gown relationship. Physical proximity and integration with the neighbouring community can improve town-gown relations between the university and the city. This improvement is based upon the ability of the community to access and utilize campus spaces [43] as well as the university's better understanding of what the community wants in comparison to NIUCs. An IUC has the opportunity to include non-university uses on its campus as a way to not only encourage community users to enter the campus, but as a method to improve the overall perception that the community has of the university. If a community is able to access and use campus spaces such as the services, amenities, open spaces, and recreational features that a university has, then the relationship between the university and the community will become closer, in both tangible and intangible ways. This close relationship will enable the university to gain a better understanding of what the surrounding community desires in land use and development, regarding both desired and undesired uses. This understanding gives the university the opportunity to mitigate many possible tensions that arise relating to land use.

ACADEMIC AND COMMUNITY MISSIONS

Collaboration is the lifeblood of successful community building. [44] Partnerships between a university and its surrounding city can lead to the realization of many opportunities for both parties. Universities often offer opportunities for students to gain practical experience

within their field of study at areas within the surrounding community. This enables a trade-off between the university and city. For the university, practicums and placements provide students with hands-on experience to enable their professional development, reinforcing the academic mission of a university. For the city, the retainment of students helps to progress community missions by having extra helping hands within community organizations. An IUC strengthens this trade-off due to the close relationship that the university has with the city, allowing for more professional opportunities for its students and enabling the ability of community organizations to fulfill their missions at serving the city at large. In addressing and strengthening both academic and community missions, successful collaboration between town and gown can be achieved. Through the use of integrated design, a symbiotic partnership can occur.

COMMUNITY DEVELOPMENT

A university and its surrounding city are both situated in a shared environment, where collaboration among the two groups can help develop convivial and vibrant cities by collectively filling gaps in a given community. IUCs provide the opportunity to develop complete communities that allow for both tangible and intangible elements enabling community development. Mentioned earlier in this chapter, complete communities are areas that are designed to:

> *"...meet people's needs for daily living throughout an entire lifetime by providing convenient access to an appropriate mix of jobs, local services, public service facilities, and a full range of housing accommodate a range of incomes and household sizes. Complete communities support quality of life and human health by encouraging the use of active transportation and providing high quality public open space, adequate parkland, opportunities for recreation, and access to local and healthy food." [45]*

IUC design in the creation of complete communities allows for resource-sharing between the university and the city. For the university, complete communities strengthen the accessibility of employment, housing, services, and amenities that the city provides. Integrated design enables students to have close access to community amenities such as bars, restaurants, cultural venues, and nightclubs, all of which are typically located in the downtown core of a city. Universities may also draw on municipal resources such as the police force to aid with public safety in university-related events. Further, cities typically contain numerous open spaces and large amounts of parkland and IUC design can allow the academic community to easily access these spaces for additional recreation.

For the city, a university possesses assets that are accessible to the surrounding neighbourhoods. In both small and large cities, universities exist as major employment hubs for residents. A campus that is integrated well within its

surroundings makes employment opportunities for those outside of the academic community more accessible. Moreover, universities typically offer a vast amount of open spaces, parkland, and recreational facilities that could be used by both the academic as well as surrounding communities. Universities also typically contain many amenities such as shops and cultural venues, as well as services that can serve far more than students, faculty, and staff, but may also support the community at large. When universities possess public spaces on their campus, mutual benefits for both the university and the surrounding neighbourhoods exist. [46]

The intangible elements that are enabled within complete communities in an IUC context are the improvement in the quality of life for individuals that reside both within the university and the city. Furthermore, by having increased access to university and community assets for both parties, walkability of the city will be strengthened, creating overall healthier and more vibrant communities.

UNIVERSITY EXPANSION

University expansion can be a sensitive issue that typically requires an update in campus master plans as well as extensive community consultation. [47] Campuses that are situated within a city are often required to acquire new land in order to expand their university space. Land acquisition can be a sensitive topic as many areas surrounding universities have well-established residential neighbourhoods [48] and university development through the acquisition of nearby lands can disrupt the stability of these nearby areas as well as increase the potential of town-gown-related tensions. [49] Capitalizing on the close relationship that has been established with the neighbouring communities, IUCs have a better understanding of how the residents use their community spaces and potentially what existing assets are important to a community as well as the city at large. [50] This can better inform how universities should develop newly acquired lands in order to provide spaces that the community will use and mitigate many tensions that could arise, making the overall development process smoother. Further, if the university is providing spaces that the surrounding community may use, nearby residents may be more willing to have new university uses developed in their neighbourhoods.

A SYMBIOTIC RELATIONSHIP

An overarching goal within IUC design is to establish a symbiotic relationship between the university and the surrounding city. Many universities have numerous residents living in areas that surround their campuses that cannot be overlooked in campus planning. [51] A university needs a city the same way a city needs a university. IUCs enable the realization of the mutual benefits that can exist within the partnerships between the two parties, in the hopes of creating healthy, functional, and vibrant cities overall.

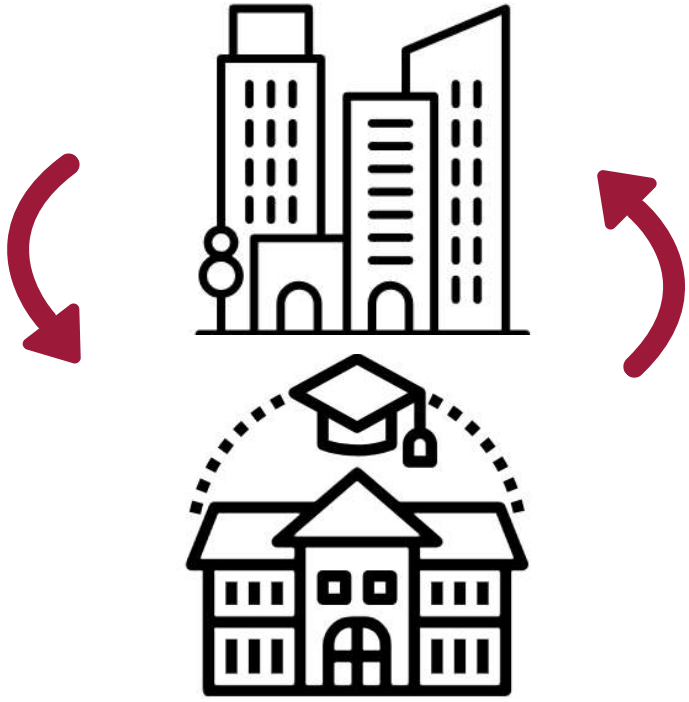
WHY QUEEN'S SHOULD USE AN IUC APPROACH

Queen's University, like many of the examples given in this chapter, is embedded within the core of a city. The university currently possesses an integrated campus design with the City of Kingston; however, if it were to expand its campus while remaining integrated, it would need to acquire existing properties that are located in close proximity to both Main and West campuses. With its recent acquisition of the former St. Mary's of the Lake Hospital site, Queen's has the opportunity to become better integrated with its surroundings by developing this site in a way that incorporates an integrated design. In the City of Kingston Official Plan, Queen's University is noted as forming a "distinct community of interest." [52] The St. Mary's site is strategically located between both of Queen's campuses as well as near other Queen's landholdings such as the Isabel Bader Centre for the Performing Arts. The St. Mary's site has the opportunity to act as a link that can better integrate not only the two existing campuses together, but to weave the entire Queen's University Campus into the urban fabric of the city, establishing a community of common interest in the future. Queen's University's campus is most similar to the example given of Dalhousie University, which is a campus that is very well integrated with its surroundings and contains further direction in its Campus Master Plan to better integrate the edges at its three campuses by creating gateways into the surrounding region. Queen's University may use Dalhousie as an example moving forward to provide direction on how to become more integrated.

A guiding principle of the Queen's University 2014 Campus Master Plan is to integrate the campus with its settings. It is noted that the plan looks to "promot[e] synergies between Main and West Campus," [53] with Main Campus existing as the heart of campus. In contrast, West Campus is perceived as isolated from the rest of the campus as well as disconnected from the central part of Kingston. The plan notes that there has been some growth at West Campus, but that there is still a lot more progress to be done. Within its vision for integration, the plan states the possibility of introducing non-university uses and new public spaces on West Campus, both of which will better integrate the campus better with its surrounding neighbourhood. The addition of these uses coupled with the strategic position of the St. Mary's site presents numerous possibilities to better integrate West Campus as well as the Queen's campus as a whole to the surrounding community. Queen's can utilize this new acquisition to further incorporate IUC design within its overall campus planning framework.

CHAPTER SUMMARY

This chapter has explored two approaches to university campus design: NIUCs and IUCs. By examining the benefits of integrated campus design, it is clear that integrated universities campuses hold positive outcomes and mutual benefits for both the university and the surrounding community in comparison to non-integrated campuses. Through physical and social design approaches, integrated universities prove fruitful within the urban-campus setting. Ultimately, an IUC design can allow for the realization of a symbiotic relationship between both the university and the surrounding community. Queen's University should consider incorporating an IUC design when developing newly acquired properties in order to become further integrated within its surrounding community.



Professor's Walk on Main Campus. Queen's University, n.d.

CHAPTER TWO

WHAT ARE THE ELEMENTS OF AN INTEGRATED UNIVERSITY CAMPUS?

CHAPTER AT A GLANCE

Queen's University. Image source: Saavedra, 2018

This chapter explores the elements of an integrated university campus. As universities emerge from the longstanding focus on separating campuses in North America in the post-WWII era, their planning efforts provide a blueprint for reversing sprawling, fragmented and isolated campuses [54] and blending the transition between campus and community. With reference to recent trends in campus master planning, it becomes possible to identify areas of focus for developing an integrated university campus and to prescribe actions for improving integration within these areas.

This chapter first presents an IUC framework to organize these actions into a working toolkit. Informed by recent efforts to distill the essential components of an integrated campus from campus master planning literature, three principle objectives of IUC planning are identified: enhancing connectivity and permeability to the neighbouring community, ensuring that the built environment is walkable and built to pedestrian scale, and creating destinations and activity hubs that incorporate a mixing of uses. For each objective a series of actions and recommendations are presented for moving towards a more integrated campus. These ideas are supported by photos of Queen's University spaces that detract from or contribute to the integration of the university. As integration efforts should be tailored to the local university context, this structure reflects a desire to ensure the actions put forward are responsive to the Queen's context. The examples and recommendations provided establish a foundation for informing and prioritizing future integration efforts.

This chapter assembles actions for increasing campus integration into three core objectives:

- Connectivity & permeability;
- Walkability & pedestrian-oriented design; and
- Destinations & activity hubs.

DEVELOPING AN IUC FRAMEWORK

While a truly integrated campus requires a cohesive set of developments and policies working in tandem to strengthen their respective impacts, establishing a toolkit for improving campus integration involves separating these efforts into discrete actions. With the proper organizational framework, these actions are informative to understanding best practices in integrated university campus planning. This is inclusive of both positive and negative examples, as, for some features, showcasing examples of actions that impede campus integration is the most indicative. Developing such a framework is challenging as campus integration occurs in a variety of on- and off- campus spaces, is both physical and social, and is context sensitive. Fortunately, two frameworks have recently been put forward by Hajrasouliha (2017) and Hebbert (2018), for conceptualizing the central components of an integrated university campus. As key reference points for validating our own conceptualization of an integrated university campus, they are introduced here briefly.

The first framework, by Hajrasouliha, is derived from a content analysis of 50 randomly selected campus master plans from universities in the United States. The author identifies four design strategies based on their analysis of principal goals and actions of the master plans. The second design strategy, transitioning from an isolated to a “contextual campus," describes many essential efforts for creating an integrated university campus. Hajrasouliha defines a contextual campus as “a campus that is integrated well into the surrounding socioeconomic and built environment fabric.” [55] And, while Hajrasouliha acknowledges that few master plans are prescriptive about how to develop a contextual campus, they do put forward a highly informative concept diagram of the most common approaches, reproduced in figure 2.1. This diagram not only captures many essential features of an integrated campus, it also locates these features spatially in relation to the soft boundaries of campus and neighbourhood.

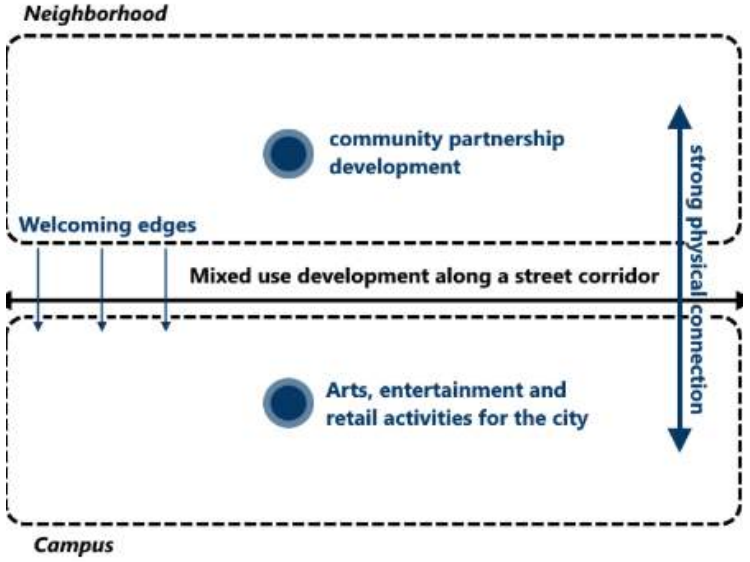


Figure 2.1. Concept diagram of a contextual campus. Reproduced with permission from Hajrasouliha, A. H.

The second framework, put forward by Hebbert, organizes their findings regarding the contemporary shift in campus planning towards integration into three scales: neighbourhood scale, street scale, and building scale. At each of these respective scales, Hebbert is primarily focused on the surrounding urban context, the internal layout and landscape of the campus, and the mixing of uses in university buildings. [56] Our conception of an integrated university campus is compatible with both Hajrasouliha's and Hebbert's frameworks. We build on Hajrasouliha's conception by describing the core objectives for developing integration that largely occur at each of the scales put forward by Hebbert. We define these objectives as enhancing neighbourhood connectivity and permeability, designing streets and landscapes that are walkable and built with pedestrian-oriented design, and creating destinations and activity hubs that incorporate a mixing of uses. Figure 2.2 further illustrates this framework by adapting Hajrasouliha's original concept diagram. In the proceeding sections we operationalize this framework, identifying positive and negative actions for contributing to these central IUC objectives.

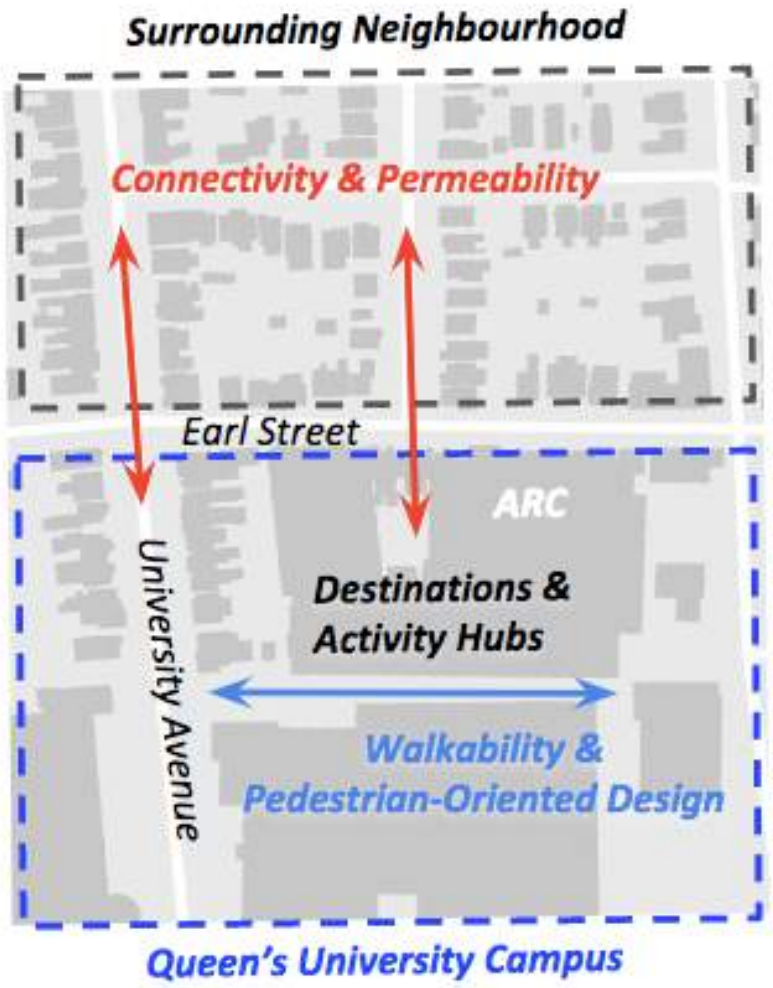


Figure 2.2. Concept diagram of an integrated university campus, exemplified by Queen's University's northern border with Earl St.

IUC ELEMENT 1: CONNECTIVITY & PERMEABILITY

An integrated university campus is connected to the surrounding neighbourhood and permeable to public access. Here, connectivity is best understood as the provision of structural links between the campus and surrounding environment. Likewise, permeability describes the absence of apparent barriers and the openness of campus to the neighbouring community. To move towards an integrated university campus, efforts to enhance connectivity and permeability between the campus and surrounding neighbourhood predominantly occur at the edges of these two realms. Through successful actions to improve connections and permeability, this edge between campus and community can become porous and less abrupt. At best, campus edges may be made indistinguishable in select areas, maximizing integration through community-oriented mixed-use developments. To achieve this aim of creating a welcoming transition area for the surrounding community, the following paragraphs outline the essential elements of a connected and permeable campus edge.

OPENING THE EDGES

Shifting from boundaries that are designed for impenetrability to soft and welcoming campus edges is an ongoing process that is responsive to the established built form of the campus and surrounding neighbourhood.

While universities may have numerous segments of poorly connected and impermeable edges, opportunities to redevelop a campus edge are limited by the university's strained resources that are often required for other competing projects. In the long term, however, a connected and permeable campus edge can be established when guided by proper forethought. Universities should seize these opportunities for new and redevelopments at the campus edge as an opportunity to enlarge the public and quasi-public realms and create bridges of connectivity. [57] Here, the concept of the public realm is inclusive of quasi-public spaces such as university-owned parks and open spaces, community-orientated buildings, and pathways that invite public use. On Queen's Main Campus, this is accomplished by the pathway between the BioSciences Complex and Abramsky Hall (Figure 2.3). This pathway provides a direct link for the public to the network of campus walkways and greenspace surrounding Summerhill and Founder's Row from City Park, punctuating the relatively impermeable boundary of Barrie Street to open an important connection at the eastern edge of campus.

Figure 2.3. View of the path between BioSciences and Abramsky Hall from inside of campus (left) and the entrance to campus from City Park and Barrie Street (right)

When constructing these spaces at the edge of campus to expand the public realm it is important to consider how their design may work against this objective, conveying a space that is unwelcome to the public. For instance, small scale design features such as hedges, closed gates, and fences may communicate that the spaces they enclose are not welcome for community use. This is illustrated by the fence encircling the lawn in front of Goodes Hall (Figure 2.4) which prevents access from the city sidewalk on both sides. Removing and punctuating these existing physical barriers is an important step in reversing campus impenetrability. In their place, new developments should be built to the edges of plots: meeting the city grid and interacting with the existing public realm to provide an active frontage onto the street. [58] [59]

Figure 2.4. Concrete ledge and fence surrounding lawn in front of Goodes Hall

PROVIDING VISUAL CONNECTIONS

A drastic change in building height and composition, landscaping, or setbacks signals to individuals that they may be entering a new place. In the university context, such a divergence from the scale and character of the surrounding neighbourhood, creates a hard and identifiable boundary between the campus and community. This visual divide works against other efforts to integrate the campus and community, reinforcing perceptions of the campus as an isolated entity and a disruption to the typical built form of the surrounding neighbourhood. In order to blur the distinction between campus and community, future developments should mimic the surrounding environment, incorporating design elements from the community and building to a scale that is compatible with neighbouring structures. [60] A local example of providing visual connections between the neighbourhood and the campus is the medical buildings on Barrie Street (Figure 2.5). These buildings maintain the neighbourhood character of Barrie Street, stepping down from the taller campus buildings that they back onto. They also incorporate shared uses, another key feature of an integrated campus edge. Transitions to taller campus buildings are also achieved through stepbacks in the design of single buildings. This is demonstrated on University Avenue, where the north-eastern edge of Stauffer Library is attuned to the heights of the surrounding residential buildings, with greater heights achieved in the building's core (Figure 2.6).

Figure 2.5. Abramsky House at 80 Barrie Street maintains the neighbourhood character and scale of Barrie Street

Figure 2.6. Stauffer Library provides transition in scale from surrounding neighbourhood. Street level view from University Avenue

COMMUNITY USES AT THE EDGE

Beyond establishing a visual sense of integration between campus and community are efforts to promote community interaction at the campus edge. Carl Reed describes this as campus-community interface planning, where edges are designed to incorporate activity patterns that physically combine the spaces of campus and community: including community-orientated housing, services, cultural activities, commercial areas, and recreational uses. [61] Not only does this increase permeability to the neighbourhood environment, but it also encourages vitality at the campus edge. [62] Local context is important when constructing community-oriented uses at the edge of campus, with the greatest potential for connections when providing uses that fulfill a gap in the amenities available to the community. Especially in more rural and suburban settings, the desire for a vibrant and productive space for the community and student body, has led to the construction of mixed-use campus towns along a street corridor at the campus edge. [63] A positive example of bringing community uses to the boundary at Queen's is the Day Care Centre at the western edge of Main Campus (Figure 2.7). This location of the daycare centre provides an important opportunity for developing further connections with the community. Here, we also see the importance of taking a cohesive approach to integration, as the surface parking lot adjacent Albert Street serves to detract from the connection between the university campus and the daycare centre.

Figure 2.7. View of the Queen's Day Care Centre (top) and relative location of the centre next to the surface parking lot at the western edge of Main Campus (bottom)

IUC ELEMENT 2: WALKABILITY & PEDESTRIAN-ORIENTED DESIGN

In Hajrasouliha's content-analysis of recent campus master plans, walkability was found to be the single most-cited goal, appearing in all 50 plans. [64] However, while walkability may be a ubiquitous goal of contemporary campus planning, it still plays an important role in integrated campus planning. Walkable campuses provide connections to desirable campus amenities, with pathways and spaces that reinforce the connectivity and permeability established at the campus edge. When efforts to improve walkability are united with pedestrian-oriented design, a more welcoming impression of campus can be established. As Hajrasouliha elaborates, the "layout of the campus, the quality of open spaces, the accessibility of parking lots, and the design of buildings, [...] can shape initial attitudes in subtle ways." [65] At the scale of the campus, efforts to improve integration should focus on increasing walkability by building over void spaces and creating a network of pathways. Likewise, pedestrian-oriented design should be pursued, diminishing the campus walls created by stark and massive buildings.

BUILDING OVER VOID SPACES

Void spaces are an unattractive barrier to campus walkability and integration. Hence, the infill and the redevelopment of former parking lots becomes an important undertaking for improving campus integration, especially in urban environments where university-owned land for new developments is more limited. While a sufficient supply of parking is essential for mitigating community conflicts, which have the potential to be exacerbated by parking demand that has spilled over onto the surrounding neighbourhood streets, [66] the oversupply of parking is also a major concern, as sprawling surface parking lots reduce campus connectivity and hinder walkability by lengthening the distance between campus destinations. Consider the case of the surface parking lot beside Tindall Field (Figure 2.8), where this barren paved space sets pedestrians back a considerable distance from more vibrant campus spaces. This issue of void spaces is also salient on West Campus, where Union Street provides the greatest opportunity for connection between the public sidewalk and the central campus buildings, but is lined with a surface parking lot (Figure 2.9). Meanwhile, the hedgerow further prevents visual access to the building and internal courtyard from the street. Creating a walkable environment requires that these void spaces, when acting as barriers to pedestrian movement, be replaced with buildings, landscaping, and pathways that meet and interact with the city grid. [67]

Figure 2.8. Surface parking lot adjacent Tindall Field on Main Campus
Image source: Google, 2018

Figure 2.9. Surface parking lot divides Duncan McArthur Hall on West Campus from the pedestrian realm on Union Street with the building and internal courtyard placed behind a hedge wall

EXTENDING THE CITY STREET NETWORK

An integrated university campus is responsive to the existing street network, while threading pathways throughout the campus to create a walkable campus environment. However, this melding of the campus and city walkways can take on various forms. First, some segments of the pedestrian network can be developed through a direct continuation of the city grid, framed by buildings that continue to have an active frontage to the street and trees and lighting details to blend with the existing streetscape. [68] However, integrated walkways are still achievable beyond the termination of the street grid. For instance, the pathway between Chernoff Hall and Chernoff Auditorium extends St. Lawrence Avenue beyond the campus edge, creating a link between campus and the waterfront (Figure 2.10). Even placing a building at the terminus of municipal road can be done in a welcoming way that preserves a walkable environment indoors. This is demonstrated by the Athletics and Recreation Centre, with the north entrance to the building opening onto a wide pathway extending from Aberdeen Street (Figure 2.11).

Figure 2.10. Walkway between Chernoff Hall and Chernoff Auditorium, extending St. Lawrence Avenue

Figure 2.11. View of the entrance to the Athletics and Recreation Centre from Aberdeen Street

BREAKING UP CAMPUS WALLS

Large buildings that are closed to the public or possess few features to relate to their surrounding environment may present themselves as walls to the community. Consider, for instance, the Queen's student residence buildings on Collingwood Street. With Gordon-Brockington House adjoined to Leonard Hall by a shared loading area, these buildings close access to the campus for almost an entire block of Collingwood from just north of King Street to Queen's Crescent. A wall is created by Leonard Hall, which presents a blank wall to the street on the west side of the building (Figure 2.12). Developing an integrated campus requires that building design be more pedestrian-oriented. This includes ensuring that new buildings are designed for both external and internal campus viewing, incorporating features such as windows and entrances on outward-looking as well as inward-looking faces of the building, to present an active frontage onto public walkways. [69] Acknowledging that not all campus buildings, and especially residence buildings, can be open to the public, creating an open and integrated campus involves breaking up the massing of future developments to provide walkable access around the buildings when public access through the buildings can not be provided. [70] This focus on providing pathways helps to ensure that new developments are pedestrian-oriented and built at a neighbourhood scale, while also shortening the distances between key destinations.

Figure 2.12. View of Leonard Hall from Collingwood Street

IUC ELEMENT 3: DESTINATIONS & ACTIVITY HUBS

When pursuing an integrated university campus, integration can also be achieved within campus buildings. While previous sections have expressed the importance of bringing community-orientated uses to the campus edge, the creation of destinations and activity hubs is instead focused on grouping these uses together to create more vibrant communal spaces. In some cases, this involves the agglomeration of a set of compatible uses into centres of activity, designing buildings that primarily serve the university's needs, while also offering benefits to the wider community. An integrated campus finds opportunities to unlock the potential of these uses to strengthen a civic bond. [71] Lastly, community destinations can be established by providing amenities that address gaps in the adjacent neighbourhood. These efforts in creating desirable destinations coalesce to create activity hubs, and are the main attractors for bringing the community onto campus.

MIXING OF COMPATIBLE USES

As universities seek to integrate their campuses, new developments are blurring building typologies to house multiple compatible uses under the same roof. Hebbert draws a parallel between this shift in building types to the smartphone era, with discrete building types being substituted for buildings that incorporate multiple amenities and are adaptable to suit a variety of functions. [72] Mixing office, retail, cultural, recreational, residential and academic spaces creates an inviting destination, capable of serving multiple needs. At the heart of a mixed-use building designed for integration with the community, beyond the finishing touches such as a café and moveable furniture, is a building that incorporates a number of services that are open to community use. One example of this is the Athletics and Recreation Centre which blends retail with recreation: incorporating a pharmacy, grocery store, and food court into a recreational facility (Figure 2.13 and 2.14). This facility also offers community access to entertainment through tournaments, special events, and varsity athletics.

Figure 2.13. Photo of the main gymnasium in the Athletics and Recreation Centre

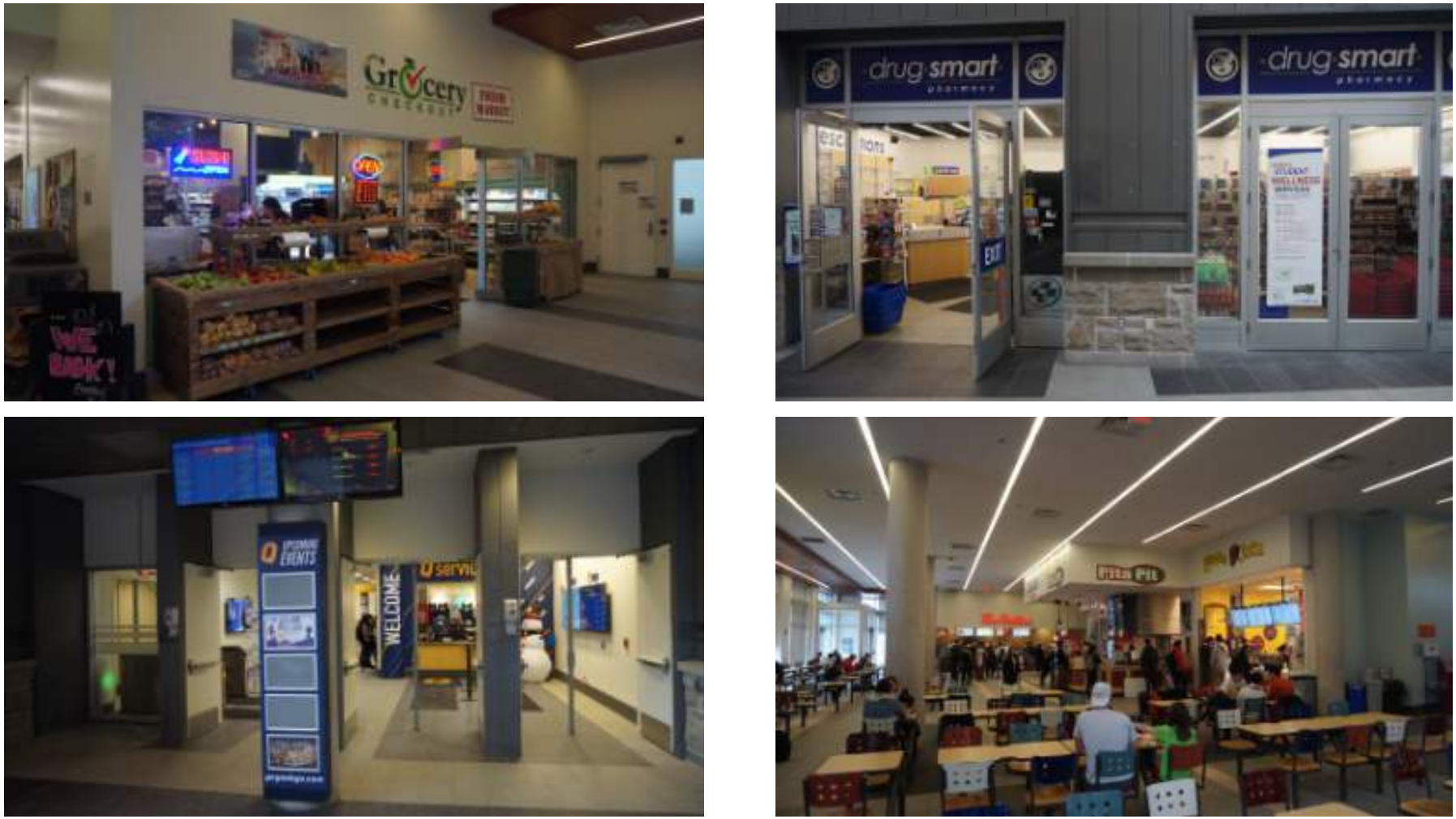


Figure 2.14. Photos of the amenities available in the Athletics and Recreation Centre: grocery store (top left), pharmacy (top right), recreation centre (bottom left), and food court (bottom right)

CIVIC CULTURE & COMMUNITY LIFE

Museums, galleries, theatres, libraries, recreation facilities have a history of being important spaces for civic culture. [73] Traditionally, and today, they act as important settings for enriching the quality of community life. When made open and inviting to the public, these amenities foster key cultural bridges between town and gown. [74] The Isabel Bader Centre for the Performing Arts is an exemplary case of creating this space for civic culture and blending town and gown. Situated just beyond the edge of Main Campus, this performing arts centre hosts numerous performances that are open to the community. However, the building's real strength is its compatibility with the Tett Centre for Creativity and Learning next door, including a similar design and composition (Figure 2.15), while establishing an arts and cultural hub by incorporating complementary artistic uses. For community members, continued use of these spaces, provides a greater sense of affiliation with the university.

Figure 2.15. The Tett Centre for Creativity and Learning (left) and Isabel Bader Centre for the Performing Arts (right)

FILLING COMMUNITY GAPS

The challenge for the university planner when striving to reach greater levels of campus integration is that creating destinations requires that these spaces be unique and identifiable from the surrounding environment. As universities continue to establish spaces that are open for community use, future developments need not duplicate the purpose of existing developments. While the importance of leveraging traditional community-orientated uses, such as arts and recreation centres, has been stressed. Continuing to rely on these archetypal uses would lead to a campus saturated with gymnasiums and art galleries and with fewer and fewer distinguishable destinations. Instead, new developments should be built to target community gaps and provide important amenities to the neighbourhood, weaving the university into the community fabric. As part of this trend towards integration, universities are looking to the surrounding neighbourhoods to evaluate and determine the extent to which they can address gaps in amenities such as housing, schools, daycare, elder care, counseling, retail, and dining. Developing these deeper layers of shared campus-community services requires a solid understanding of neighbourhood characteristics and what is already in the community. This type of analysis is initiated in the proceeding component for the neighbourhood surrounding the St. Mary's of the Lake property and should be considered for the remaining Queen's campuses.

CHAPTER SUMMARY

Queen's University Image source: World University Rankings, n.d.

This chapter presented the three principle objectives of IUC planning: enhancing connectivity and permeability to the neighbouring community, ensuring that the built environment is walkable and built to pedestrian scale, and creating destinations and activity hubs by incorporating a mix of uses and offering benefits to the wider community. Integrating an embedded campus into the surrounding neighbourhood was illustrated by presenting existing barriers and assets in moving toward these objectives within the Queen's context.

Going forward, these examples provide a reference point for ensuring future development by the university reinforces and builds on existing levels of integration. However, while these objectives are essential for guiding decision-making towards developing an integrated university campus, acting on them and maximizing the integration of developments requires a solid understanding of neighbourhood characteristics and what is already in the community. Hence, the subsequent section focuses on establishing a near-campus community profile for the St. Mary's of the Lake site.

SECTION 2: ESTABLISHING A NEAR-CAMPUS COMMUNITY PROFILE

The Grand Theatre, n.d.

CHAPTER THREE

SOCIODEMOGRAPHIC ANALYSIS OF NEAR-CAMPUS COMMUNITY

CHAPTER AT A GLANCE

Kingston Grand, n.d.

This chapter delves into a descriptive socio-demographic analysis, revealing the composition of permanent residents living in the study area, surrounding the site. In performing a thorough analysis, a study area representative of the surrounding community and in proximity to the site was chosen.
These physical boundaries aligned with Statistics Canada's 0003.00 census tract boundaries, allowing the following indicators to be explored:

- Population
- Ethnocultural Diversity
- Household Composition
- Education
- Labour and Occupation
- Household Incomes
- Dwelling
- Housing Tenure

Following the practices of IUC planning, the indicators explored in this chapter begin to identify trends and gaps within the community. Baseline conditions for the study area are created through the creation of a socio-demographic profile, revealing interests that may be held by community members about the future development of the St. Mary's of the Lake site.
Finally, this chapter explores how socio-demographic profiles can be used over time to reveal changes in trends.

DEFINING THE STUDY AREA

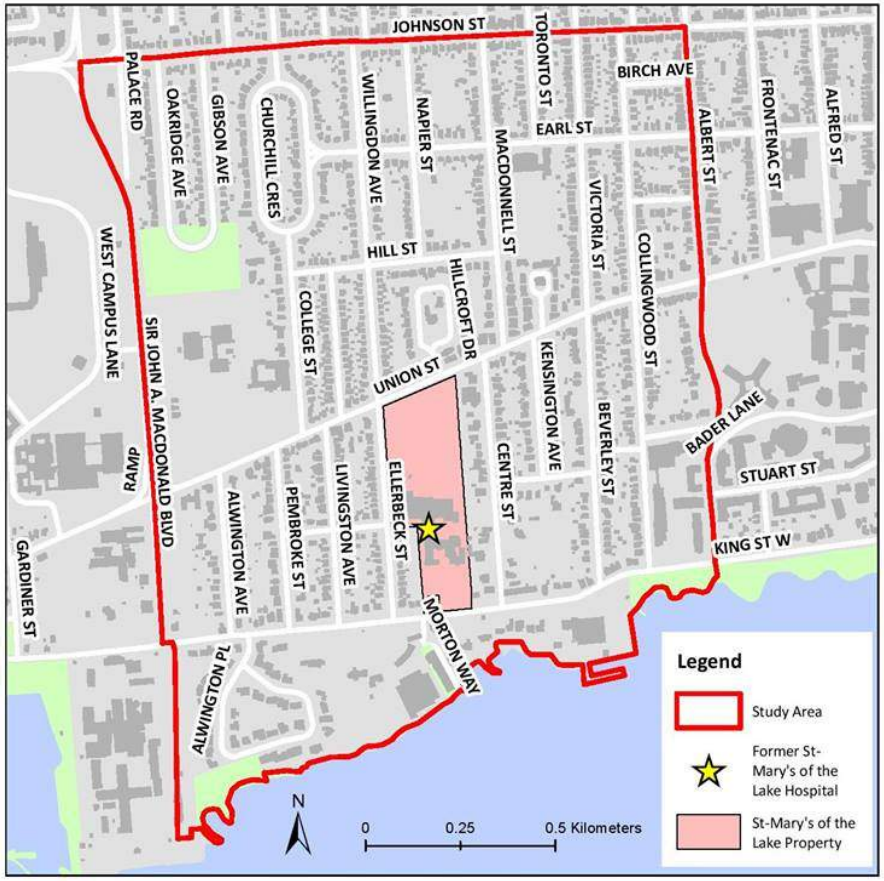


Figure 3.0: Map of site and study area boundaries

Situated within Kingston's Alwington neighbourhood, the former St. Mary's of the Lake Hospital site is located directly between Queen's University Main Campus and Queen's University West Campus. The study site is bounded by Union Street to the north, Ellerbeck Street to the west, Centre Street to the east, and King Street West to the south (Figure 3.0). In order to complete a thorough socio-demographic analysis, a more comprehensive study area needed to be selected. This involved the selection and delineation of geographic boundaries for the immediate neighbourhood. To determine these boundaries, the neighbourhood surrounding the study site was explored through neighbourhood site visits and analyzed virtually through Google Maps. The construction of neighbourhood boundaries became challenging due to the regional draw of the study site and the amenities in the surrounding neighbourhood (discussed in Chapter 4). Therefore, it was important to choose a study area that was representative of the surrounding community and their proximity to the study site. In exploring the neighbourhood, the following streets were identified as reasonable boundaries for the study area: Johnson Street to the north, Sir John A. Macdonald Boulevard to the west, Albert Street to the east, and the Lake Ontario waterfront to the south (Figure 3.0). These physical boundaries also aligned with Statistics Canada's 0003.00 census tract boundaries. As such, a detailed socio-demographic analysis of the study area's population of permanent residents was easily performed by drawing from the Census of Canada's population from 2016, as well as previous years.

INDICATORS


Population


Ethnocultural Diversity


Household Composition


Education


Labour + Occupation


Household Income


Dwelling Type


Dwelling Tenure

Following the practices of integrated university campus (IUC) planning, it is important to perform a thorough socio-demographic analysis for the study area. A socio-demographic analysis establishes a summary of baseline conditions and trends within the study area, creating a context from which to assess potential impacts of future developments. The indicators explored in this chapter help to identify gaps in terms of the needs and opportunities within the community, revealing how the newly acquired St. Mary's of the Lake site can provide mutual community-university benefits through the application of IUC best practices. This chapter explores the socio-demographic analysis through the analysis of individual indicators at the census tract (CT) level, introducing recent and historical data, with comparative analysis to Kingston at the census metropolitan area (CMA) level where appropriate. The analysis is based on data collected by Statistics Canada from the 2016 short- and long-form census. Historical inquiries were performed between the years of 2001 and 2016, allowing the socio-demographic analysis to reveal changes that have occurred within the neighbourhood. This 15 year time period was chosen due to census question consistency and data availability.

The following indicators were informed by the 2016 short form census: Population, Ethnocultural Diversity, Household Composition and Marital Status, Education, Labour and Occupation, Household Income, Dwelling, and Housing Tenure. In 2016, 25% of Canadian households received the long-form census, resulting in statistics representative of a sample population. The following indicators were based on estimates formed by this sample population: Ethnocultural Diversity, Education, Labour and Occupation, and Housing Tenure. It is also important to note that the 2016 Census was not representative of students living in the study area due to the census being distributed in May of 2016. Students who had returned to live with their parents during the year would have been represented at their parent's address, including those who lived away from home while attending school. Students who did not receive the census are not permanent residents of the study area, and are therefore not the target demographic of interest with regards to creating an IUC at the former St. Mary's of the Lake site.

POPULATION

POPULATION COMPOSITION IN 2016

An analysis of the study area's 2016 population incorporated both age and gender related data (Figure 3.1). The statistics revealed that the study area's largest age groups were 20-29 year-olds and 10-19 year-olds. Furthermore, gender composition within the study area was found to be balanced; with 48% male and 52% female residents. The analysis of 2016 age and gender data provides a contextual baseline from which to develop a thorough socio-demographic profile.

POPULATION DYNAMICS

The study area's population distribution by age and sex was further compared between 2016 and 2001 (Figure 3.2). In 2001 the largest age group was found to be the 50-59 year-old category, followed by the 20-29 year-old cohort. The shape of the population pyramids from 2001 and 2016 reveal that the 'peaks' of the largest population groups were less pronounced in 2001 than in 2016. As with the 2016 population gender distribution, the overall gender ratio in 2001 was found to be largely symmetrical.

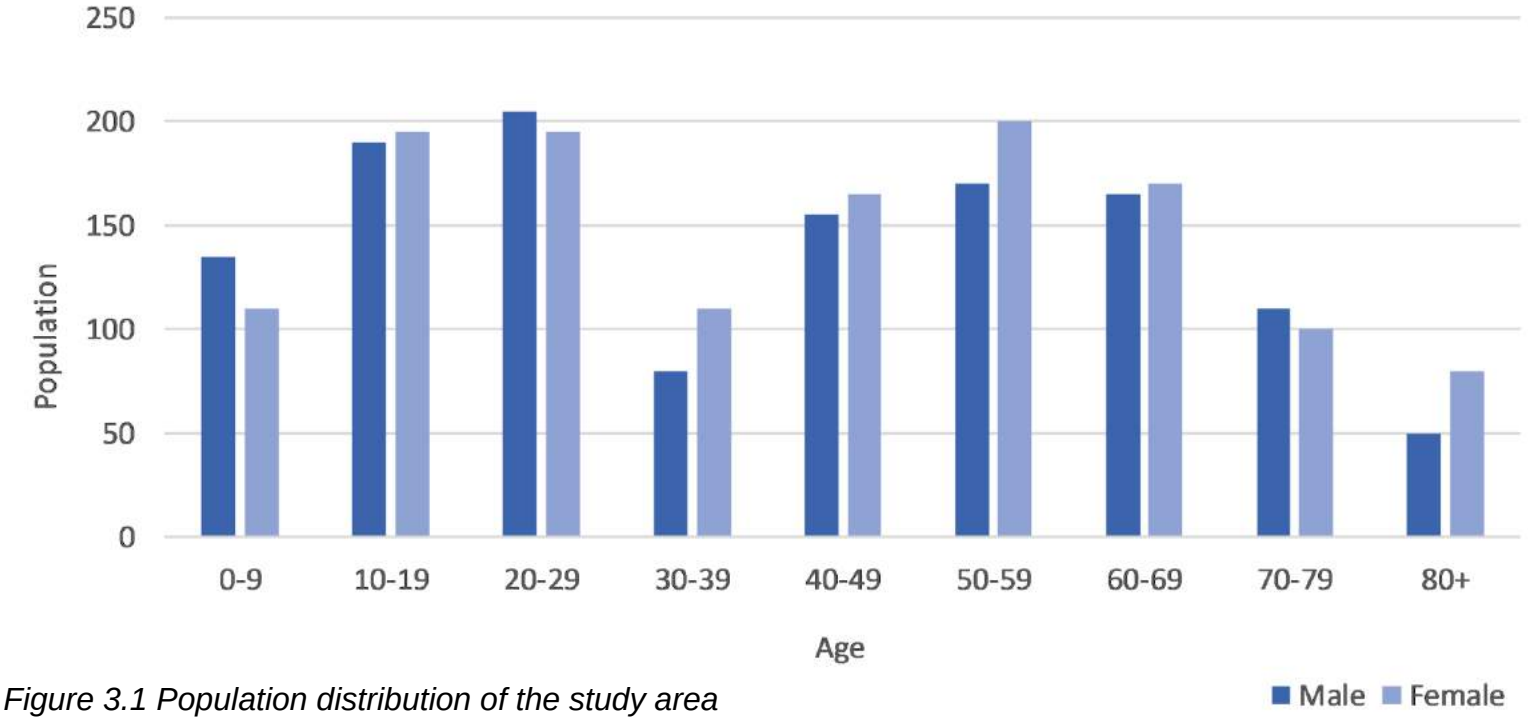


Figure 3.1 Population distribution of the study area

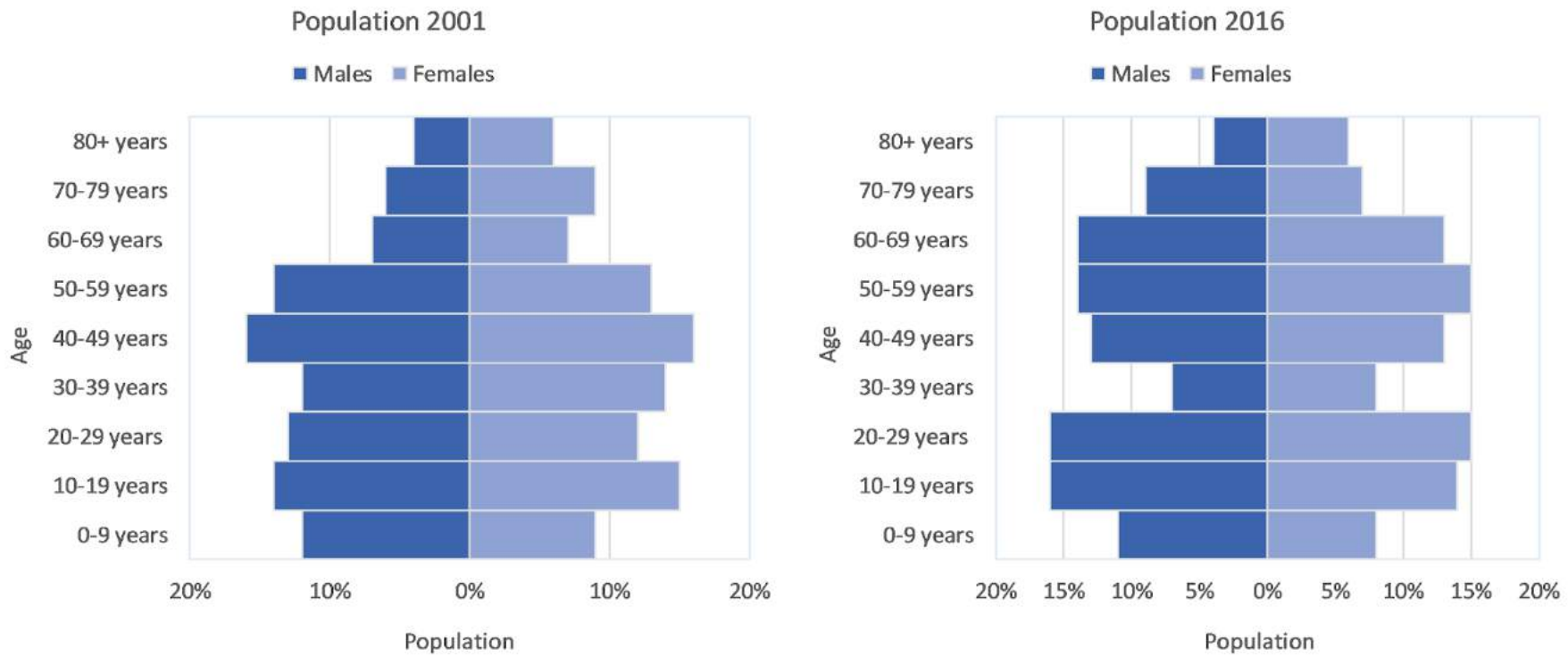


Figure 3.2: Study area population pyramids depicting changes between 2001 and 2016

The population growth rate for the study area was found to be in a process of gradual decrease since 2001 (as indicated by the red, dotted trend line in Figure 3.3); where the population percentage change from 2001 to 2016 was -15.4%. This decrease did not correlate to Kingston's population growth rate, which increased at a steady rate of 6.7% from 2001 to 2011 [76]. Population decline in the study area was relatively modest between 2006 and 2011 (2895 and 2825 respectively).

The decline in population between 2001 and 2016 may be due to an increasing number of students moving into the study area. As previously mentioned, students living in the study area are poorly represented by the census, with an increase in students potentially contributing to the perceived population decline.

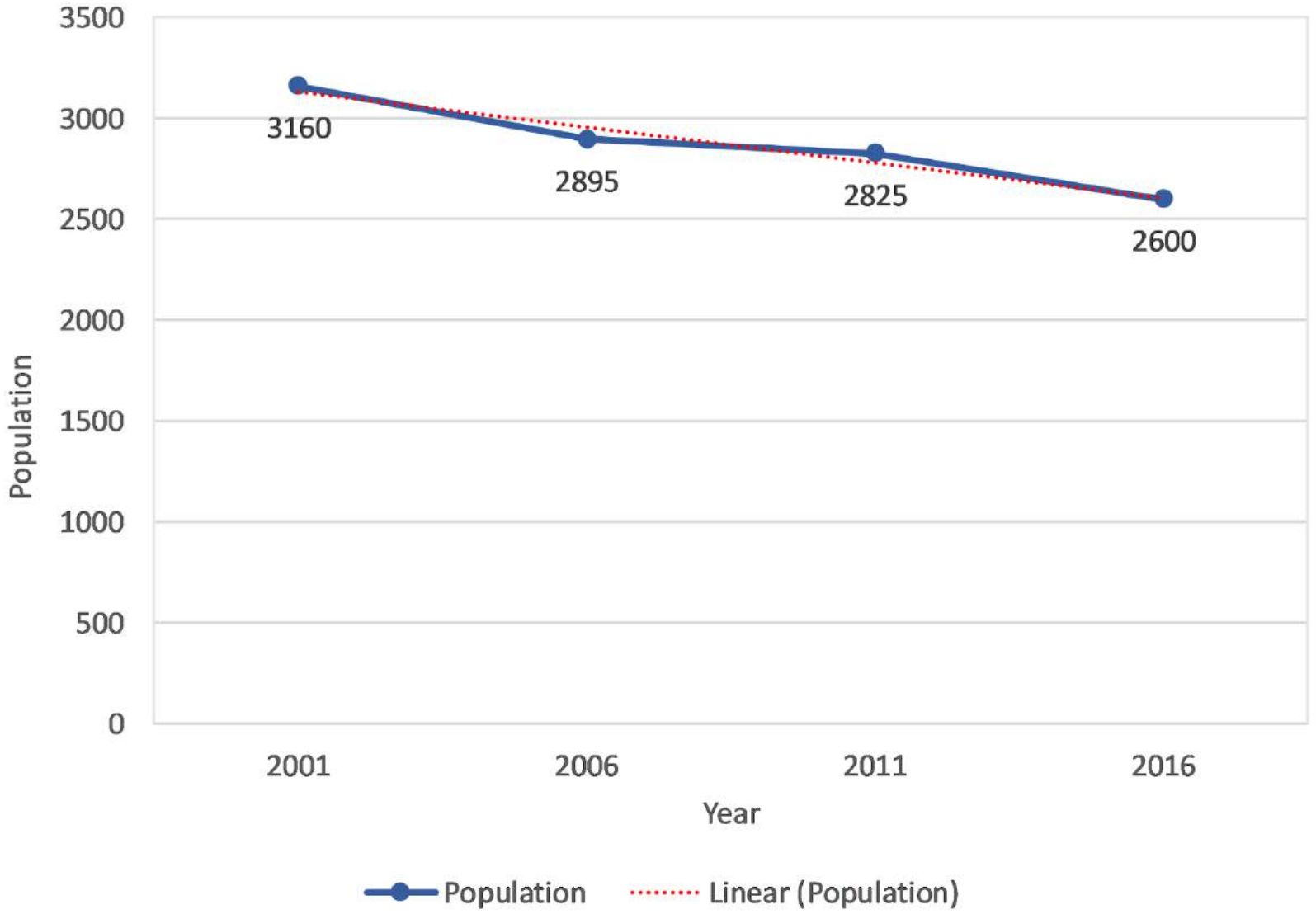


Figure 3.3: Historical analysis of study area population (2001-2016)

ETHNOCULTURAL DIVERSITY

Immigration data was considered in order to factor in the ethnic composition of the study area, captured as immigrants and all foreign-born individuals in the census data. The 2016 immigration levels showed that the study area was characterized by a relatively high rate of immigrants and non-permanent residents when compared to Kingston (Figure 3.4). At the time of the last census, the study area had a combined rate of 21% immigrants (430 individuals) and non-permanent residents (75 individuals). This marks a continuation of the relatively high levels of immigration and non-permanent residency in the ten years leading up to the 2016 census.

Both the 2006 and 2011 census data revealed that the study area had comparable, albeit slightly lower, combined immigrant and non-permanent resident rates, with 18% in 2006 and 16% in 2011 (Figure 3.4). During this period, rates of immigration and non-permanent residency in Kingston remained stable at 13%. The observation that immigration in the study area has been considerably higher than the city average may indicate that the neighbourhood has been more appealing to recent immigrants and non-permanent residents than many of Kingston's other neighbourhoods.

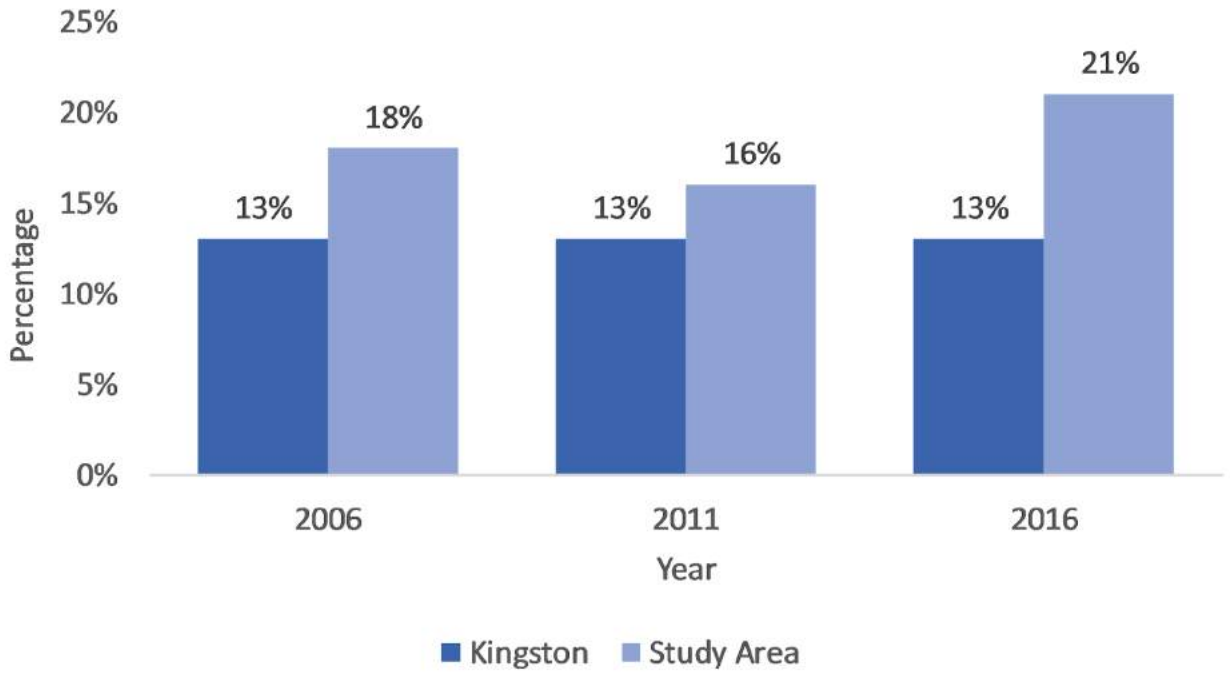


Figure 3.4: Historical and comparative analysis of study area and Kinston immigrant and non-permanent residents, 2006-2016

Indigenous identity was explored for the study area and Kingston, reflected in the census data as those residents who identified as First Nations, Metis or Inuit and/or those who were Registered or Treaty Indians and/or had membership in a First Nation or Indian band. Aboriginal population in the study area was found to have been stable at 1% since 2001. During this time, Aboriginal identity in Kingston held stable at 4%.

HOUSEHOLD COMPOSITION

The study area's family and household compositions were analyzed to identify notable changes in household and family dynamics. Household type was explored to differentiate between census family households and non-census-family households within the study area. Census family households are those that contain one-census families. The study area's household type variable was analysed historically, revealing little change between 2001 (68%) and 2016 (67%). Compared to Kingston, there was also found to be little differentiation and change between 2001 (68%) and 2016 (67%). The majority of one-census family households consisted of 2 people (Figure 3.5). This may have included a married couple, a couple living in common-law, or a lone parent living with one child. Through further analysis of the data, it was found that 24% of one-census families, consisting of 2 persons, were comprised of a lone parent with one child (Table 3.0). Of the lone-parent families, the majority were female mothers with one child (Table 3.1).

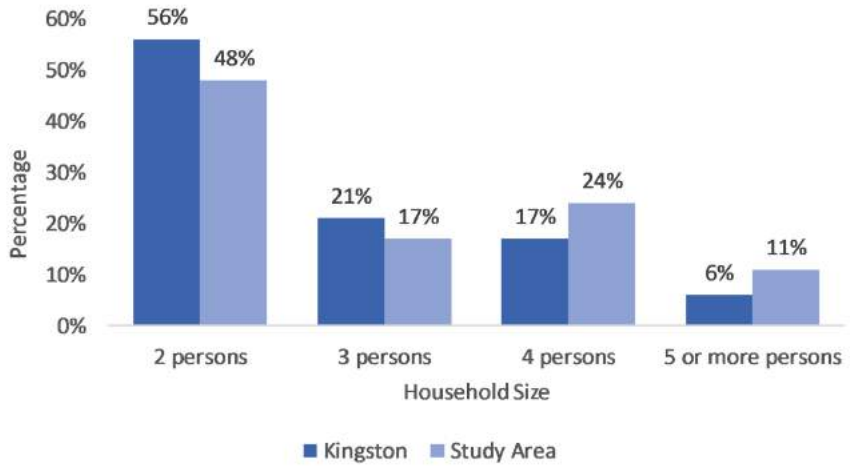


Figure 3.5: Comparative analysis of study area and Kingston one-family household sizes, 2016

Table 3.0: Comparative analysis of study area and Kingston one-census family characteristics, 2016

Kingston	One-Census Families with 2 Persons	28385	100%
	Couples Without Children	20865	74%
	Total Lone-Parent Families	7520	26%
Study Area	One-Census Families with 2 Persons	350	100%
	Couples Without Children	265	76%
	Total Lone-Parent Families	85	24%

Note. Data retrieved from Statistics Canada, 2016

Table 3.1: Comparative analysis of study area and Kingston lone-parent family characteristics, 2016

Kingston	Total Lone-Parent Families	7520	100%
	Female Parent	5890	78%
	Male Parent	1625	22%
Study Area	Total Lone-Parent Families	85	100%
	Female Parent	60	71%
	Male Parent	25	29%

Note. Data retrieved from Statistics Canada, 2016

Marital status was explored to determine whether or not residents were living in a common-law unions or were of legal marital status (married, separated, divorced, widowed). Figure 3.6 reveals that the study area was closely representative of Kingston's population in terms of marital status.

Between 2001 and 2016 there was a slight decrease in the number of couples in the study area having children (Figure 3.7). This decrease was also seen when compared to Kingston. In 2016 it was revealed that 46% of the study area did not have children. Of the 54% of couples that did have children, 51% had two (Figure 3.8). When compared to Kingston, it is interesting to note that a larger number of couples had only one child (Figure 3.8).

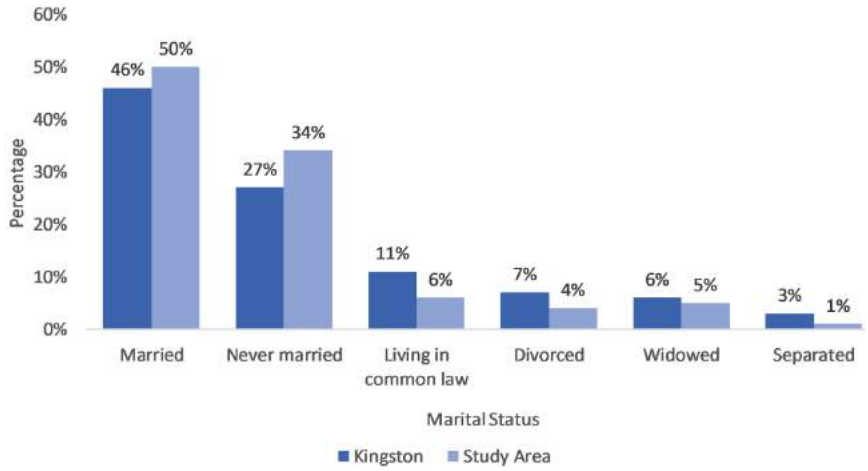


Figure 3.6: Comparative analysis of the study area and Kingston marital status, 2016

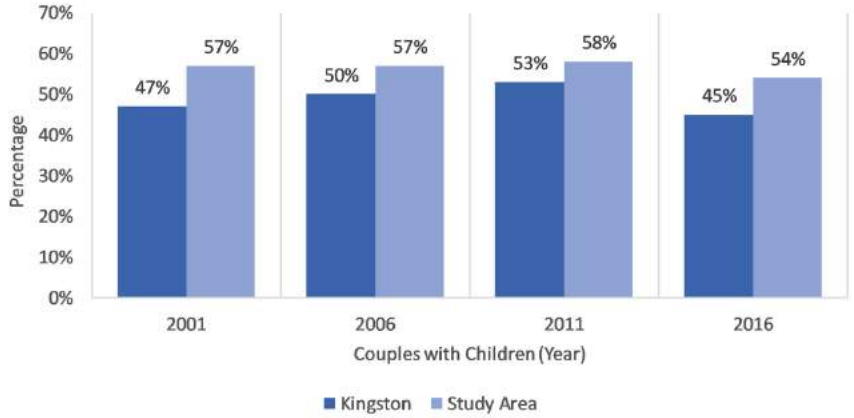


Figure 3.7: Historical and comparative analysis of the study area and Kingston couples with children, 2001-2016

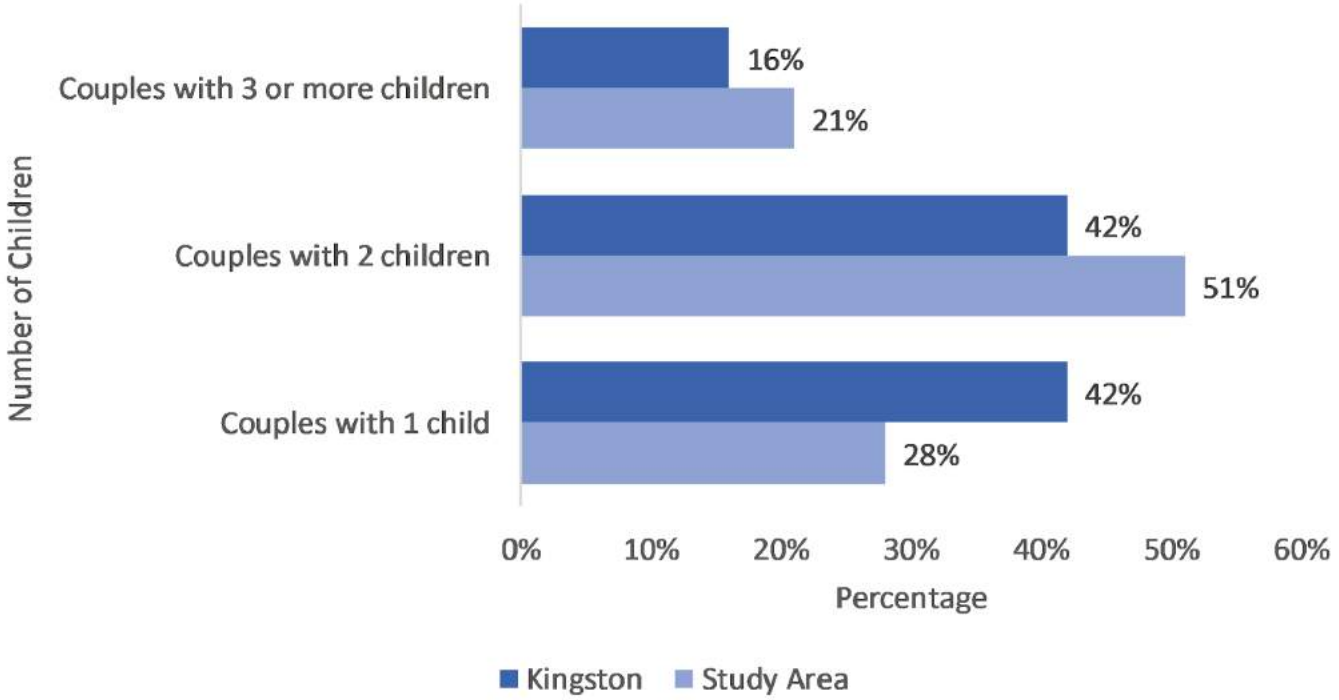


Figure 3.8: Comparative analysis of study area and Kingston couples with children, 2016

EDUCATION

Highest level of educational attainment, for persons aged 15 years and older, was analyzed for study area residents and compared to Kingston. Educational attainment reveals important information in terms of knowledge and skills, helping to draw comparisons and conclusions between the variables of education, occupation, and income.

From 2006 and 2016 there was an increase in the number of residents with a university certificate, diploma or degree at the bachelor level or higher; and a decrease in the number of residents with a secondary school diploma or equivalent as their highest level of education (Figure 3.9). This indicates that over time the study area has become increasingly educated. In 2016, 62% of residents held a university certificate, diploma or degree at the bachelor level or above (Figure 3.10).

In Kingston, only 25% of residents held a university certificate, diploma or degree at the bachelor level or above in 2016.

Therefore, the neighbourhood was found to be highly educated when compared to Kingston. This may be a result of the neighbourhood's close proximity to Queen's University.

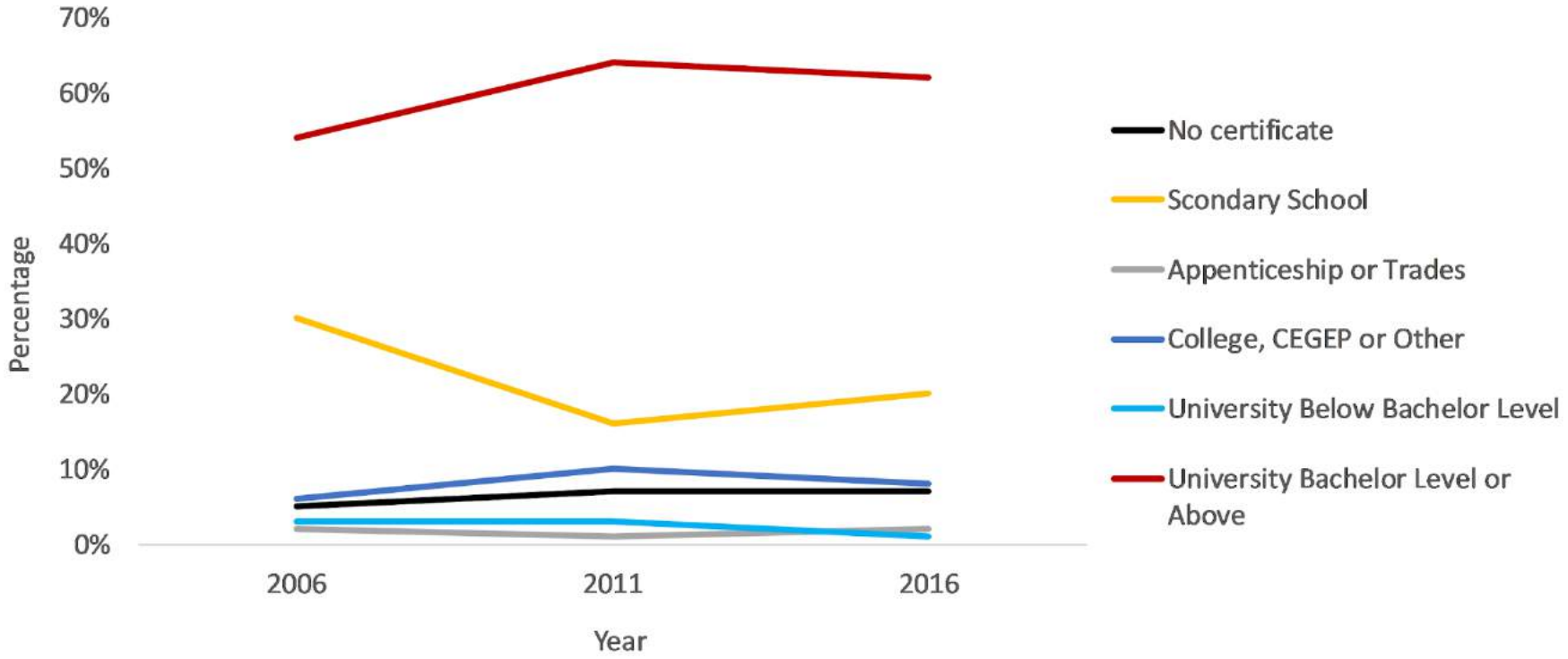


Figure 3.9: Historical analysis of study area educational attainment, 2006-2016

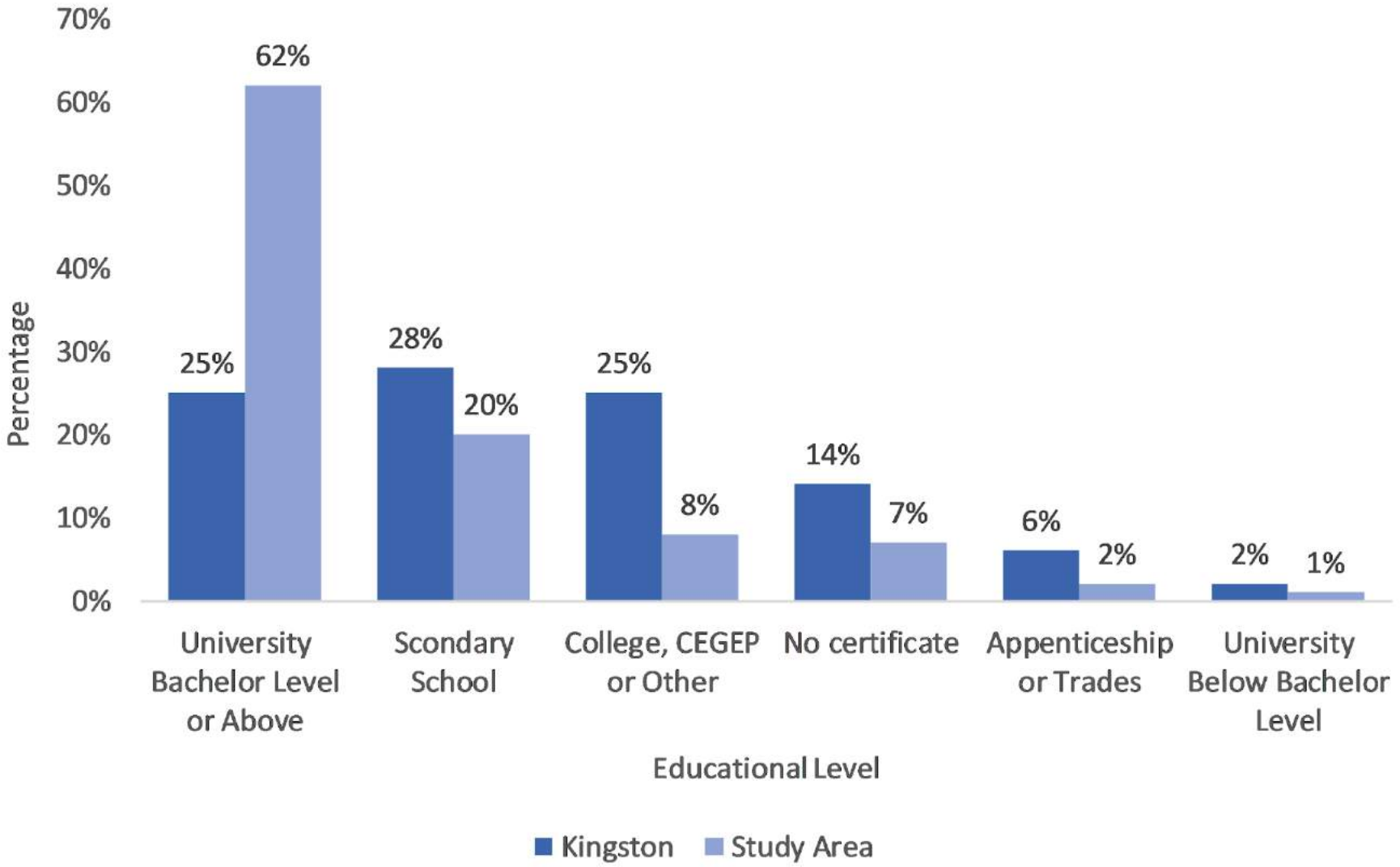


Figure 3.10: Comparative analysis of study area and Kingston educational attainment, 2016

LABOUR + OCCUPATION

Labour and occupational statistics were analyzed to reveal application of knowledge and skills in the labour market. Employment rate statistics were considered to reveal the percentage of study area residents, 15 years of age and over, who were employed. Through a historical analysis, it was found that the employment rate had not fluctuate drastically between 2001 and 2016 (Figure 3.11). When compared to Kingston, it was found that the study area had a higher employment rate in 2016.

Occupation refers to the kind of work performed in a job, for persons 15 years of age and older, living in private households. The most prevalent occupational category for study area residents was 'education, law & social, community & government services' (30%), followed by 'health' (18%) (Figure 3.12). These statistics are likely attributable to study area residents' close proximity to Queen's and to multiple hospital and medical offices in downtown Kingston. By contrast, the most prevalent occupational category for Kingston was 'Sales & service' (25%).

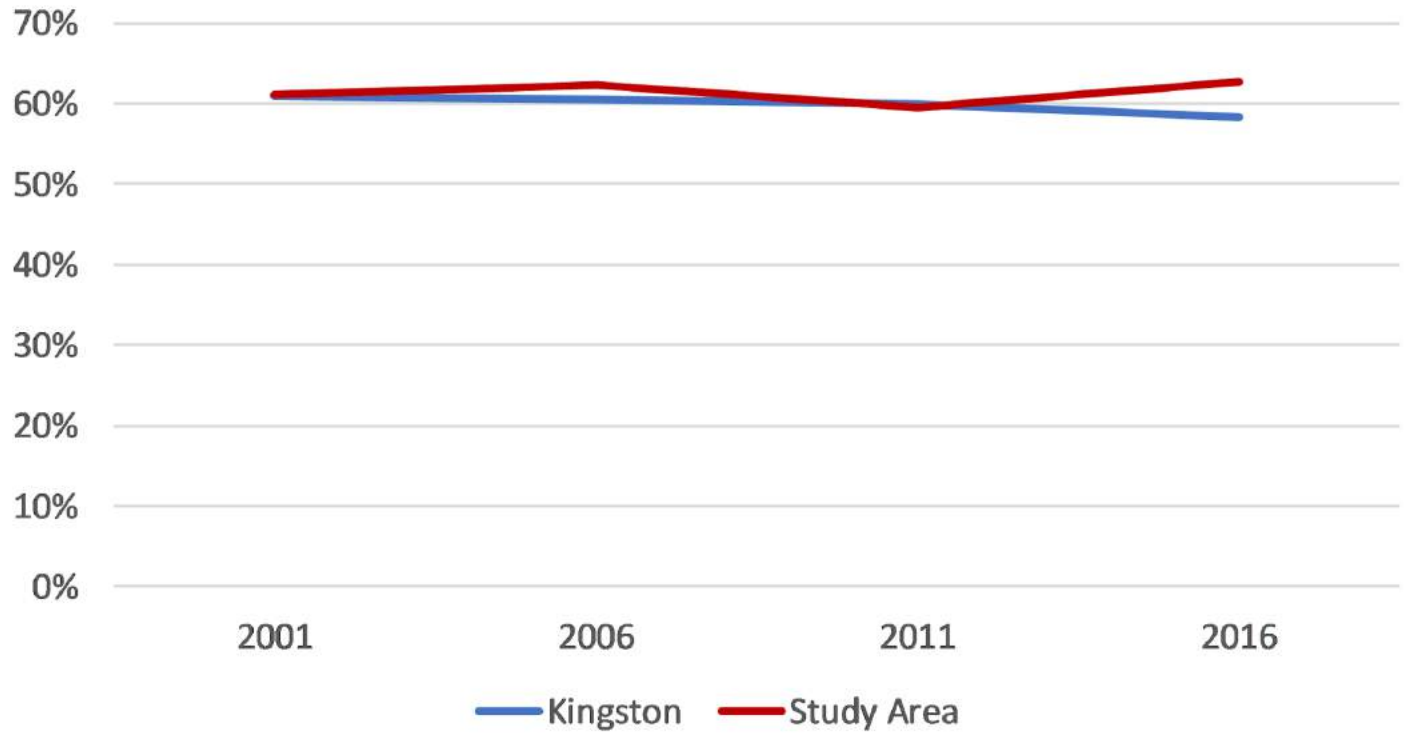


Figure 3.11: Historical and comparative analysis of study area and Kingston employment rates, 2001-2016

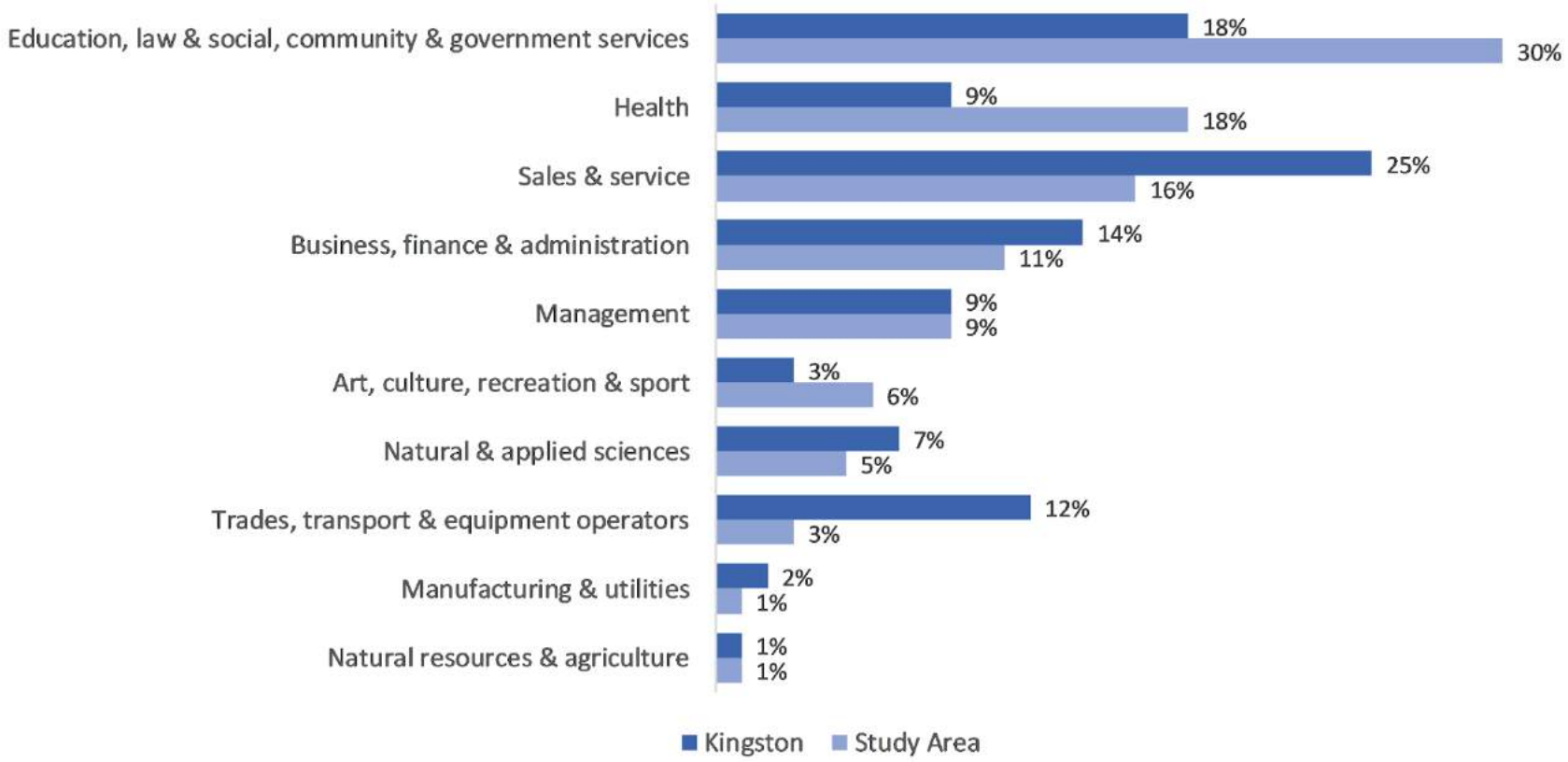


Figure 3.12: Comparative analysis of study area and Kingston occupations, 2016

In addition to census-derived occupation data, the employment connections of study area residents to Queen's were derived from data provided by the Office of Institutional Research and Planning at Queen's University. Of the total working age population (20 to 64 years of age) that resided in the study area according to the 2016 census (N=905), 42% (N=382) worked for Queen's University. Of that 42%, 48% worked as full time staff and faculty and 17% worked as part time staff and faculty (Figure 3.13). It was also found that 6% of Queen's University employees lived in the study area.

In terms of journey to work, there was an increase from 2001 to 2016 in the proportion of study area residents that used active modes to get to work, along with a decrease in the proportion that commuted by private vehicle (Figure 3.14). In 2016, 47% of the study area's working age population used active transportation to get to work (30% walked and 17% biked) (Figure 3.15). This was substantial when compared to the rest of Kingston, where 12% used active transportation to get to work (9% walked and 3% biked). It was also found that 54% of the study area's residents had a commute time of less than 15 minutes, compared to Kingston at 39% (Figure 3.16).

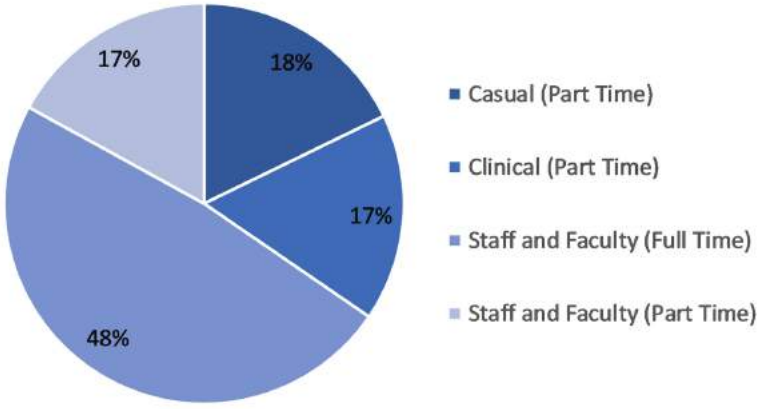


Figure 3.13: Study area residents between the ages of 20 and 65 employed by Queen's University, 2016

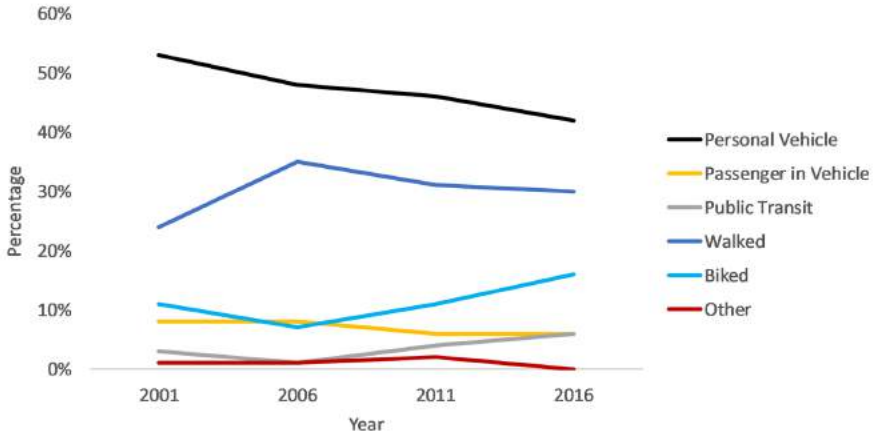


Figure 3.14: Historical analysis of study area commuting modes of transportation, 2001-2016

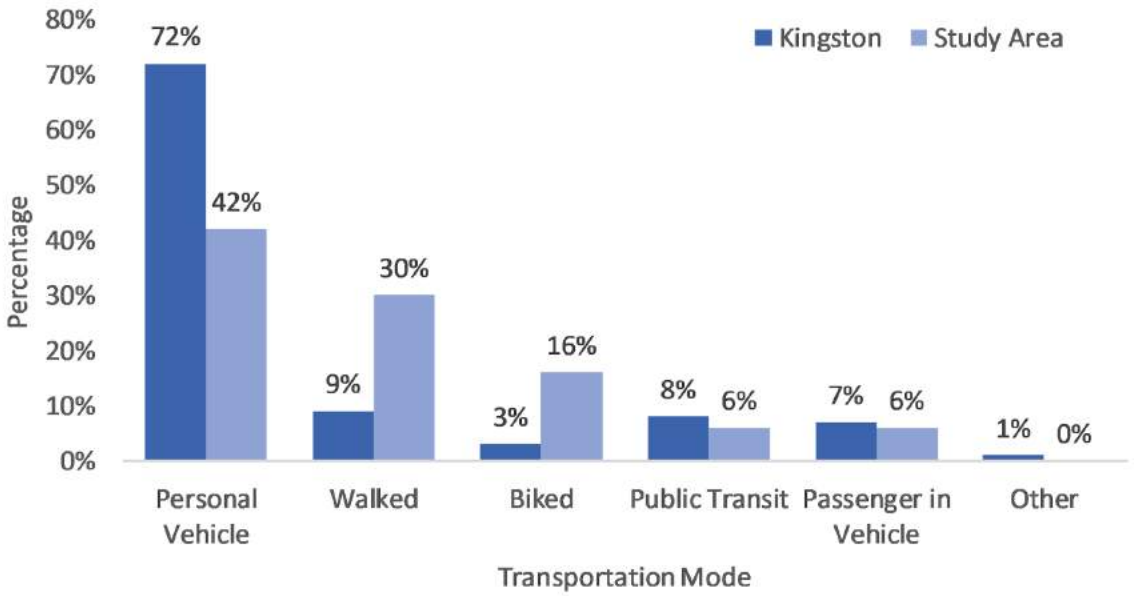


Figure 3.15: Comparative analysis of study area and Kingston commuting modes of transportation, 2016

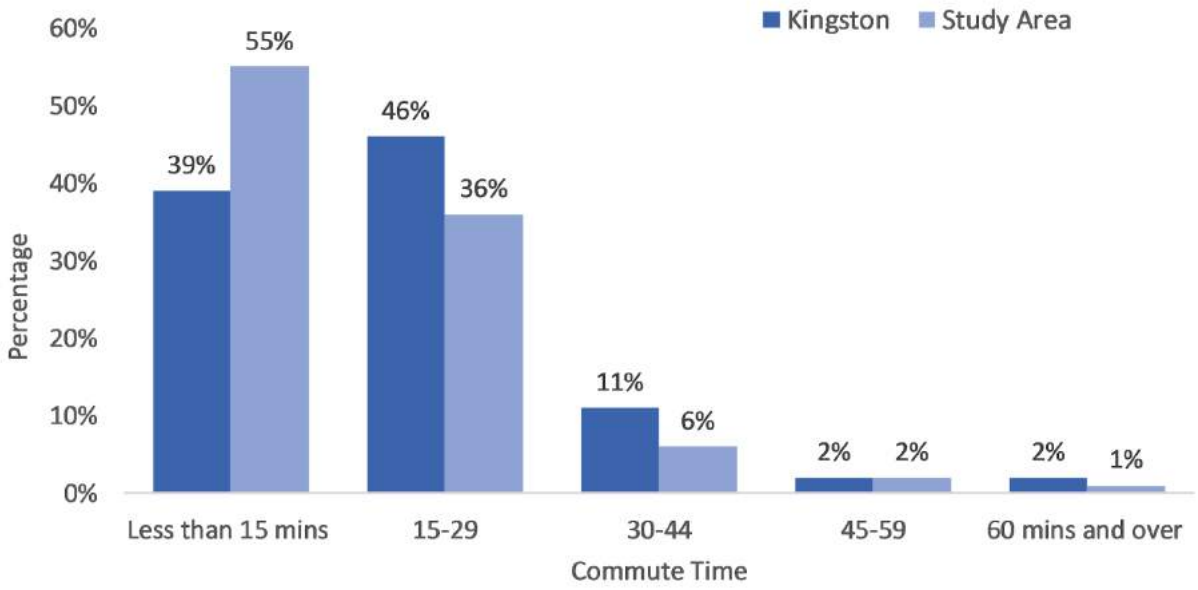


Figure 3.16: Comparative analysis of study area and Kingston commuting times, 2016

HOUSEHOLD INCOME

Income rates in the study area were analyzed by using income groups from the latest census (which employed 2015 data) for the population aged 15 years and over, living in private households. In 2015, the study area had a median total income for private households of $121,472 before tax. This figure was significantly higher than Kingston's median total income levels of the same year, which were $71,195 before tax. Income earning populations can be further classified into three major groups: under $60,00; $60,000 to $100,000, and; over $100,000 (Figure 3.17; Figure 3.18). Based on these income groupings, incomes over $100,000 were far higher among study area households (26%) compared to households in Kingston (8%). However, like Kingston, the majority of households in the study area earn under $60,000/year.

The study area's higher than municipal average income levels can be partially explained by considering the high-earning occupations of residents, with many having worked as full-time faculty members of Queen's University. Furthermore, as previously discussed, many residents were employed in the education, law and social, community, and government occupations which are typically higher earning positions than the sales and service sector held positions more common amongst Kingston residents.

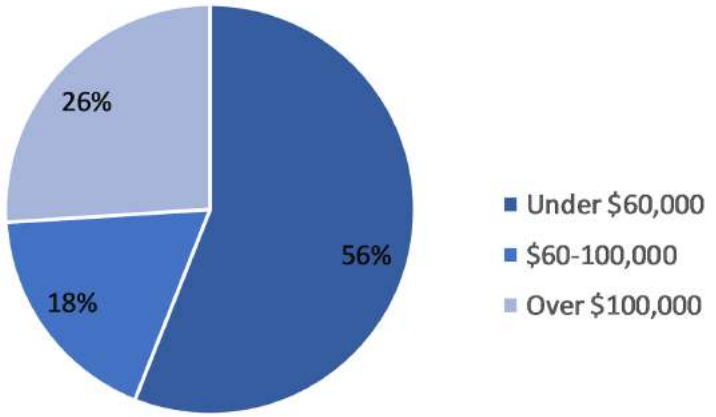


Figure 3.17: Study area income groupings, 2016

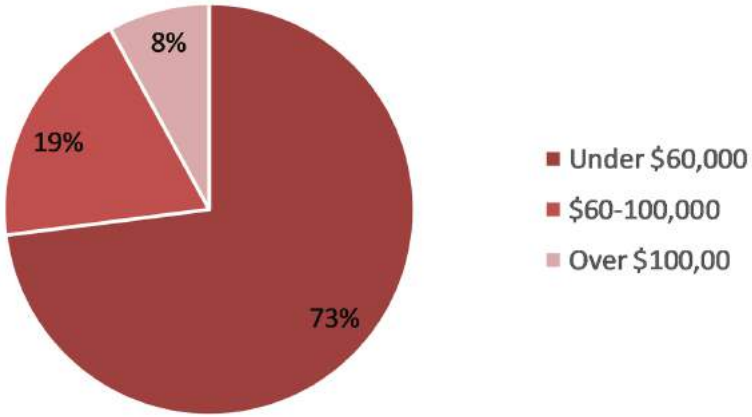


Figure 3.18: Kingston income groupings, 2016

DWELLING TYPES

Dwelling types in the area describe the housing form residents occupy. The 2016 census accounted for single-detached housing, semi-detached housing, row houses, apartments or flats in duplexes, and apartments within condo complexes. In the study area, housing in all categories excluding apartment dwellings in buildings over five storeys was found. A large majority of private properties in the study area were comprised of single-detached homes, with 77% of dwellings characterized by this dwelling type in 2016 (Table 3.2). Other dwelling types comprised much smaller proportions of dwelling units in the area. Apartments under 5 storeys (9%) and duplexes (8%) were the next most common dwelling types in the study area in 2016. By contrast, in 2016 only 58% of dwelling types in the Kingston were single-detached homes, and 13% were apartments over 5 storeys (Table 3.2). The large intake of single-detached units in the study area correlates with the indicator of income, where the study area's residents were found, on average, to be significantly higher compared to Kingston. Since 2001, the mix of dwelling types has changed very little within the study area, with duplexes showing the greatest change over a 5 year period, from 3% in 2001 to 9% in 2016.

Table 3.2: Historical and comparative analysis of study area and Kingston dwelling types, 2001-2016

	Year	Single-Detached	Semi-Detached	Row House	Duplex	Apartment Under 5 Storeys	Apartment Over 5 Storeys
Study Area	2001	77%	5%	2%	3%	13%	
	2006	74%	4%	2%	9%	11%	
	2011	77%	4%	2%	7%	10%	
	2016	78%	3%	2%	8%	9%	
	Year	Single-Detached	Semi-Detached	Row House	Duplex	Apartment Under 5 Storeys	Apartment Over 5 Storeys
Kingston*	2016	58%	6%	6%	3%	13%	13%

Note. Data retrieved from Statistics Canada, 2001-2016
*Kingston data only available in 2016

Single-detached homes along Union St.
Image source: Elphick, 2018

HOUSING TENURE

Housing tenure in the study area was chosen for analysis to consider the ratio of private versus rented housing. Since 2001, home ownership rates have been consistently higher in the study area (80-84%) compared to Kingston (64-67%) (Figure 3.19). The high rate of home-ownership in the study area is also in line with its higher than municipal average income levels.

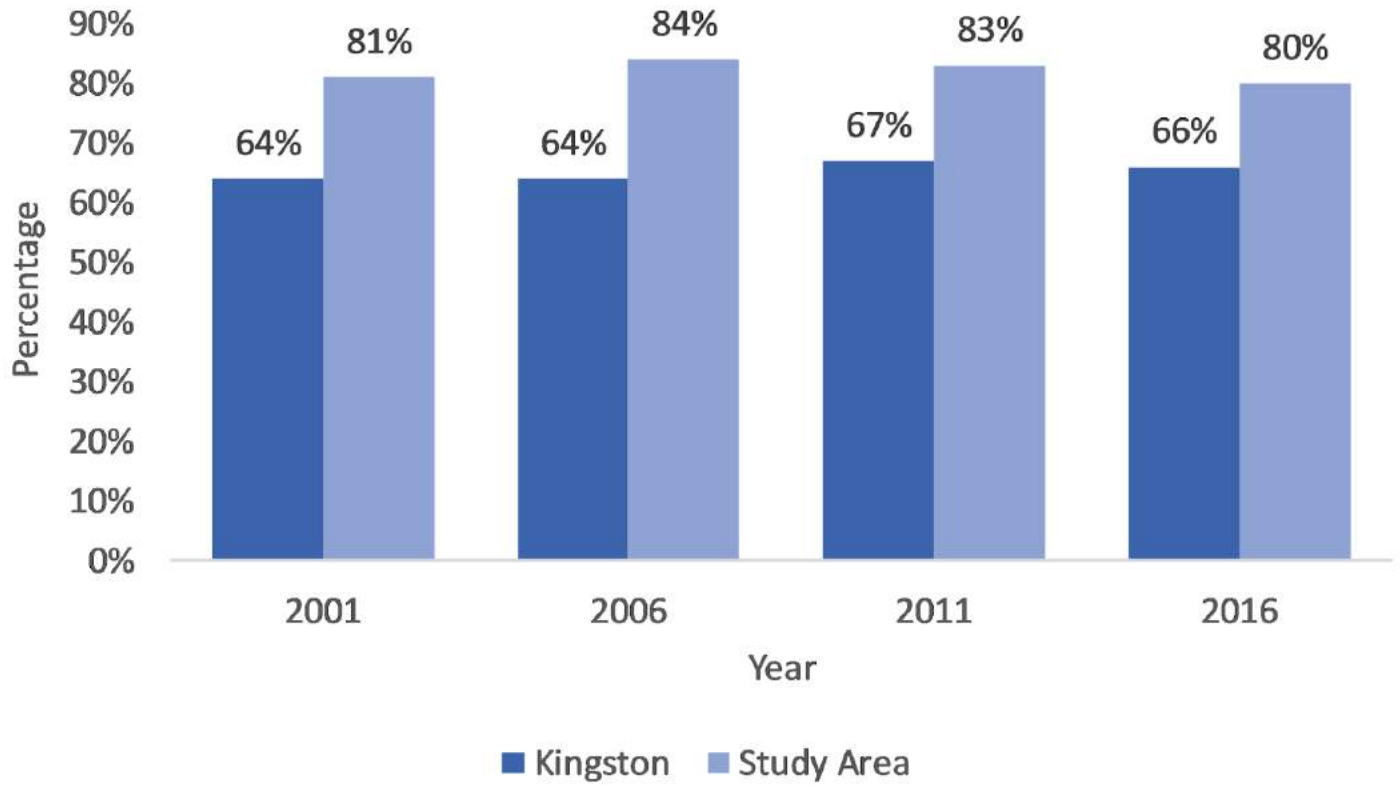


Figure 3.19: Historical and comparative analysis of study area and Kingston home owners, 2001-2016

CHAPTER SUMMARY

Developing deeper layers of shared campus-community services requires a solid understanding of the surrounding neighbourhood socio-demographic characteristics. Through the analysis of census data it was revealed that residents living in the study area in 2016 were highly educated and employed. A noticeably high level of the study area's residents (aged 20-64) were employed by Queen's, with a notable number of Queen's employees living in the study area.

30%

Education + Law, Social, Community, Government Services

42%

Queen's University

18%

Health Sector

62% Hold a Bachelor's degree or above

63% have a full-time, part-time, or casual job

The majority of residents also lived within close proximity of their place of work, represented by the use of active transportation (AT) to commute to work and short commute times.

47% use AT in their commute

54% spend 15 min or less commuting

Finally, annual household incomes were found to be high, when compared to Kingston, reflecting the study area's high number of single detached homes and home ownership rates. Based on the analysis of this chapter, it can be determined that residents living in the study area are more educated and affluent on average than the rest of Kingston. Hence, they will likely have great interest in the future development of the former St. Mary's site due to the potential threat to the identity of the neighborhood [77].

26%

Earn Household Income $100K +

78%

Live in a Single Detached House

80%

Own the Home they Occupy

Private residence on King St. W. Elphick, 2018.

CHAPTER FOUR

MAPPING THE NEIGHBOURHOOD'S ASSETS + GAPS

CHAPTER AT A GLANCE

Aerial view of Queen's University. Image source: Google, 2018

Undertaking a thorough analysis of the physical context surrounding the site, as well as the assets and gaps in how the community is served, is a valuable exercise for a number of reasons:

- Aligning future planning on the site with the City's vision for land in the study area in order to envision how Queen's University might fit within the fabric of the neighbourhood.
- Following the best practices of integrated university campus planning, understanding how future planning on the site can build upon community assets and fill gaps in how the community is currently served, for mutual university-community benefit (including health social, economic, and environmental benefit).
- Framing future redevelopment on the site in the context of the Leadership in Energy and Environmental Design Neighbourhood Development framework (LEED®-ND) framework ultimately positions the university to earn LEED®-ND certification, which could bolster the university's reputation locally and nationwide.

As such, this chapter begins by introducing the guiding principles set by the 2014 Queen's University Campus Master Plan (CMP). Following the 'Campus at the City Scale' theme identified in the 2014 CMP, this chapter analyzes the physical context that surrounds the former St. Mary's of the Lake Hospital site through an exploration of the City's land use designations within the study area, and the relevant City of Kingston Official Plan (OP) policies impacting future planning on the site.

Next, the chapter uses the LEED®-ND framework to describe and map assets and gaps in how the community surrounding the site is currently served. The criteria found within the LEED®-ND framework are representative of principles of Smart Growth and New Urbanism and closely align with the underlying principles of building an integrated university campus. Recommendations to fill gaps identified by this framework are made for the neighbourhood surrounding the site and are aligned with priorities set in the 2014 Queen's Campus Master Plan (CMP). Areas for further consideration where gaps are not prioritized in the 2014 CMP are flagged for future updates of the Campus Master Plan.

ANALYSIS OF LOCAL PLANNING TOOLS

Queen's University Campus Master Plan

The 2014 Queen's Campus Master Plan is supported by policies and strategies that aim to enhance research and learning experiences, reinforce the strategic and academic goals of Queen's, and influence where and how students, faculty, and staff learn and interact.
As such, the guiding principles set by the 2014 Campus Master Plan are as follows:

01 Support Queen's academic mission

- The exceptional quality of undergraduate and graduate students and programs in the arts, sciences and professions;
- The intellectual power and value of research and scholarship by faculty members and students;
- The exemplary service of the University and that of its graduates to the community and the nation and the community of nations [78]

02 **Enhance the campus experience**

03 Promote good facilities management

04 Foster a more sustainable campus

05 **Integrate the campus with its settings**

06 Create a campus that supports health + wellness [79]

Although all six guiding principles reflect the principles of an integrated university campus to varying degrees, guiding principle numbers 2 and 5 are particularly important to the scope of this project. Enhancing the campus experience and integrating the campus with its surrounding relates directly and explicitly to the overall goal of an Integrated University Campus (IUC).

Campus at the City Scale

Integrating the campus with its surroundings first requires some discussion of the physical context that surrounds the former St. Mary's of the Lake Hospital site. The following discussion of the City of Kingston Official Plan (OP) and current land use designations highlights areas of agreement between the City and the University where joint collaboration could greatly benefit future redevelopment.

City of Kingston Official Plan s.3.5.A

Both the OP and the University's 2014 CMP speak to the importance of coordinated planning measures that simultaneously benefit both Queen's University as well as the City of Kingston. The recommendations set forth in the 2014 Campus Master Plan reflect the University's desire to create mutual community-university benefit with established initiatives from the City of Kingston and Queen's University.

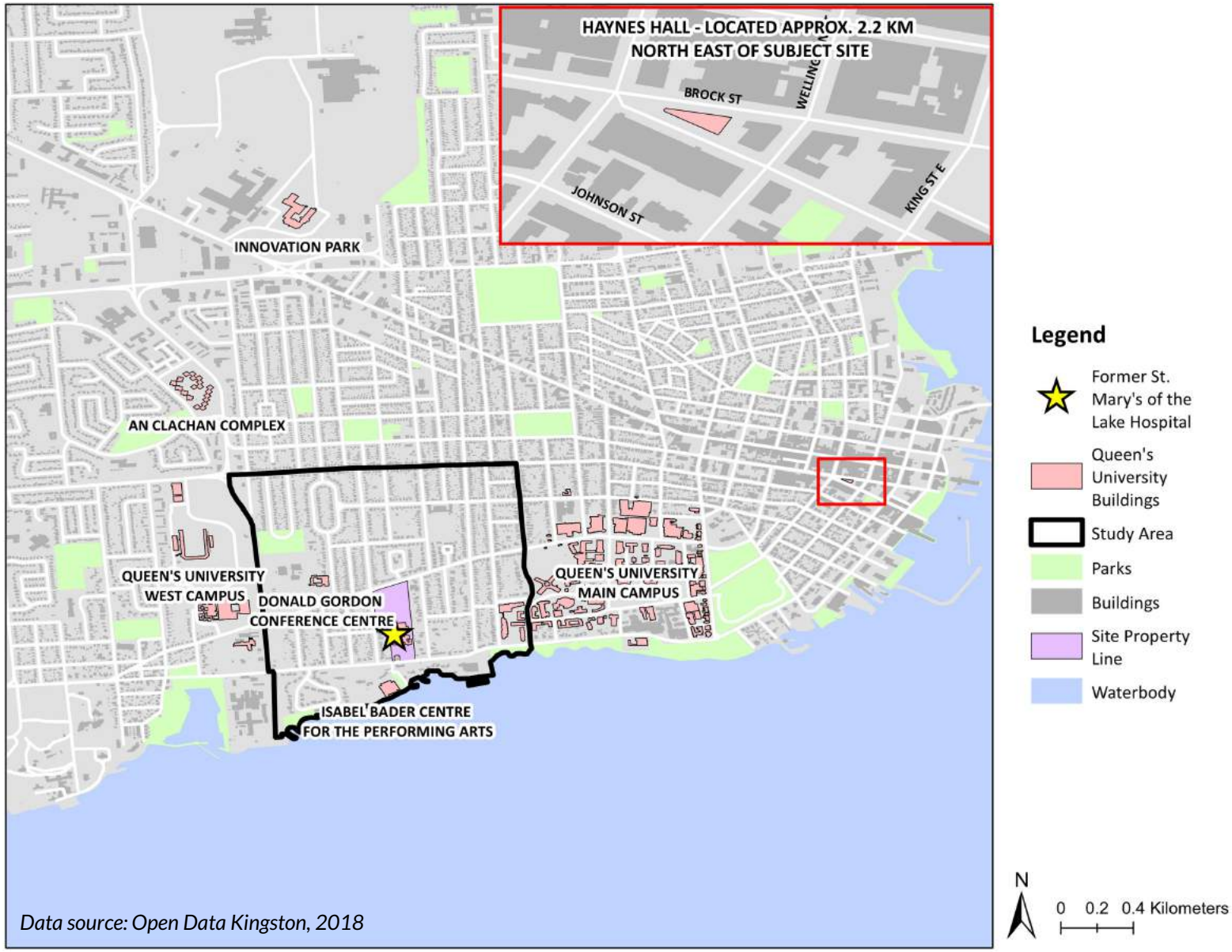
Section 3.5.A of the City's OP (entitled 'Queen's University') recognizes that the University, along with its landholdings throughout the City, forms a "distinct community of interest."[80] More specifically, five principal areas of facilities are recognized within the city. These are: Main Campus, West Campus, the Donald Gordon Conference Centre, the Isabel Bader Center for the Performing Arts, and Innovation Park. In addition to these principal facilities, Queen's University also owns the An Clachan Complex, a graduate student residence, and Haynes Hall, a facility for the University's Family Medicine department (see Map 1). The recently acquired former St. Mary's of the Lake Hospital is located directly between Main and West Campus and is also in very close proximity to both the Donald Gordon Centre and the Isabel Bader Centre for the Performing Arts. As such, the site has the potential to become an embedded part of this distinct community of interest in the future.

Satellite image of the site and Queen's University Main Campus. Google, 2018.

Other objectives with respect to Queen's University within this Official Plan policy are as follows:

(a) to recognize Queen's University as a distinct community of interest that is dispersed throughout the City;
(b) to foster co-operation between the City, the community, and the University in terms of such matters as the provision of parking, student housing, servicing, campus accessibility, active transportation and linkages, conservation of heritage buildings and areas, public access and development proposals; (c) to support the growth and development of the University and to encourage its long term vitality within the City;
(d) to minimize any adverse effects the University may have as a major activity centre on adjacent and surrounding neighbourhoods;
(e) to support the efforts of Queen's University to continue to cooperate with Kingston General Hospital in the provision of services, the development of facilities and the provision of appropriate access and parking;
(f) to recognize the various University areas as having different land use mixes, land use characteristics, locational factors, and different surrounding uses;
(g) to recognize that any development proposal for University-owned lands may be reviewed by the City in relation to the particular characteristics of the affected principal facilities area; and,
(h) to encourage Queen's University to protect and conserve their various heritage properties whether designated or not under the Ontario Heritage Act." [81]

MAP 1: QUEEN'S UNIVERSITY LANDHOLDINGS IN THE CITY OF KINGSTON



While this policy as a whole serves to inform the relationship the City has with Queen's University (and vice versa), subsections (a) and (c) are particularly relevant to the site and this project, especially in the context of an integrated university campus (IUC). Subsection (a) explicitly states the importance of fostering cooperation and collaboration between the City, the community and the University, while subsection (c) further reinforces that minimizing the adverse effects that the University may have on surrounding neighborhoods is an important part of this collaboration between Queen's University and the City of Kingston. Furthermore, drawing on the core concepts of integrated university campus planning and reflecting on the demographic makeup of the neighbourhood's population ultimately serves to ensure not only that adverse effects on neighbouring residents are minimized, but also that any and all development on the site is in the spirit of mutual community-university benefit.

City of Kingston Official Plan: 2.3.5

Future Planning Study Areas are sometimes added to Official Plans in order to address issues that may be present locally that could potentially contribute negatively to growth and development in specific areas.[82] Both the identified study area and site are located within the planning area of Near Campus Neighbourhoods (Planning Area 13). [83] It is named as such due to its proximity to both Queen's University and St. Lawrence College campuses. The City of Kingston has identified the goal of increasing the overall net residential and non-residential density within the urban boundary of the city through intensification that is both complementary and compatible, some of which will target both under-utilized sites and brownfield sites. [84] In that respect, the City of Kingston has begun an intensification study in order to determine potential locations within the Near Campus Neighbourhoods planning area that could support appropriate residential development such as larger-scale medium and high density residential developments .[85] As the site is located within the Near Campus Neighbourhoods planning area and is also an under-utilized site, it is important to acknowledge the potential outcomes that may arise from the conclusions of the intensification study.

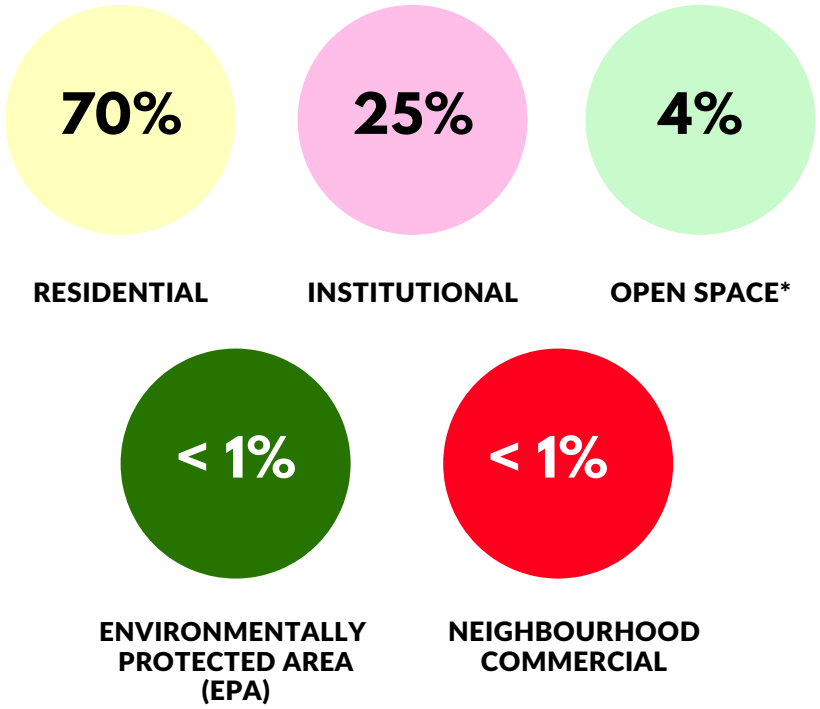
City of Kingston Current Zoning of the Site

The current zoning of the site is "E2" - Special Education and Medical Uses Zone and "A" Residential - One Family Dwelling and Two-Family Dwelling Zone. The site has two addresses, 355 King St. West to the south and 340 Union Street to the north. A minor Zoning By-Law Amendment (ZBA) is currently in Appeal Period for 355 King St W. [86] This ZBA involves a site-specific (E2-XX) rezoning of the site in order to allow the additional uses of universities, colleges and clinic uses as well as a reduction in parking stall size to 5.2m x 2.6m. [87] The current permitted uses will remain and there will be no changes to the footprint of the building within the context of this specific minor Zoning By-Law Amendment. [88] However, this does not indicate that things will not change in the future as the building footprint could very well change as the planning process moves further along.

Land Use Designations within the Study Area

The defined study area and its surroundings are largely designated as Residential (A, A2, A4, A5, B1 and B2), followed by Institutional (E, E1 and E2), Parks, Open Space and Environmental Protection Area (P, P1, OS2 and OS3) and finally, Neighbourhood Commercial (C1).

Land Use Breakdown



*open space includes both publicly-owned and privately owned open space

These land use designations not only provide direction for future development principles, but they also state how areas will function and what types of uses are permitted and help to manage the character of these areas. However, land use designations maps do not always accurately represent the real use of the land within a given area. For instance, certain institutional and neighbourhood commercial uses are permitted within residential designations (see Maps 2 and 3 for comparison).

This is the case for:

1. **Winston Churchill Public School** - institutional use permitted within residential designation

2. **Beth Israel Congregation** - institutional use permitted within residential designation

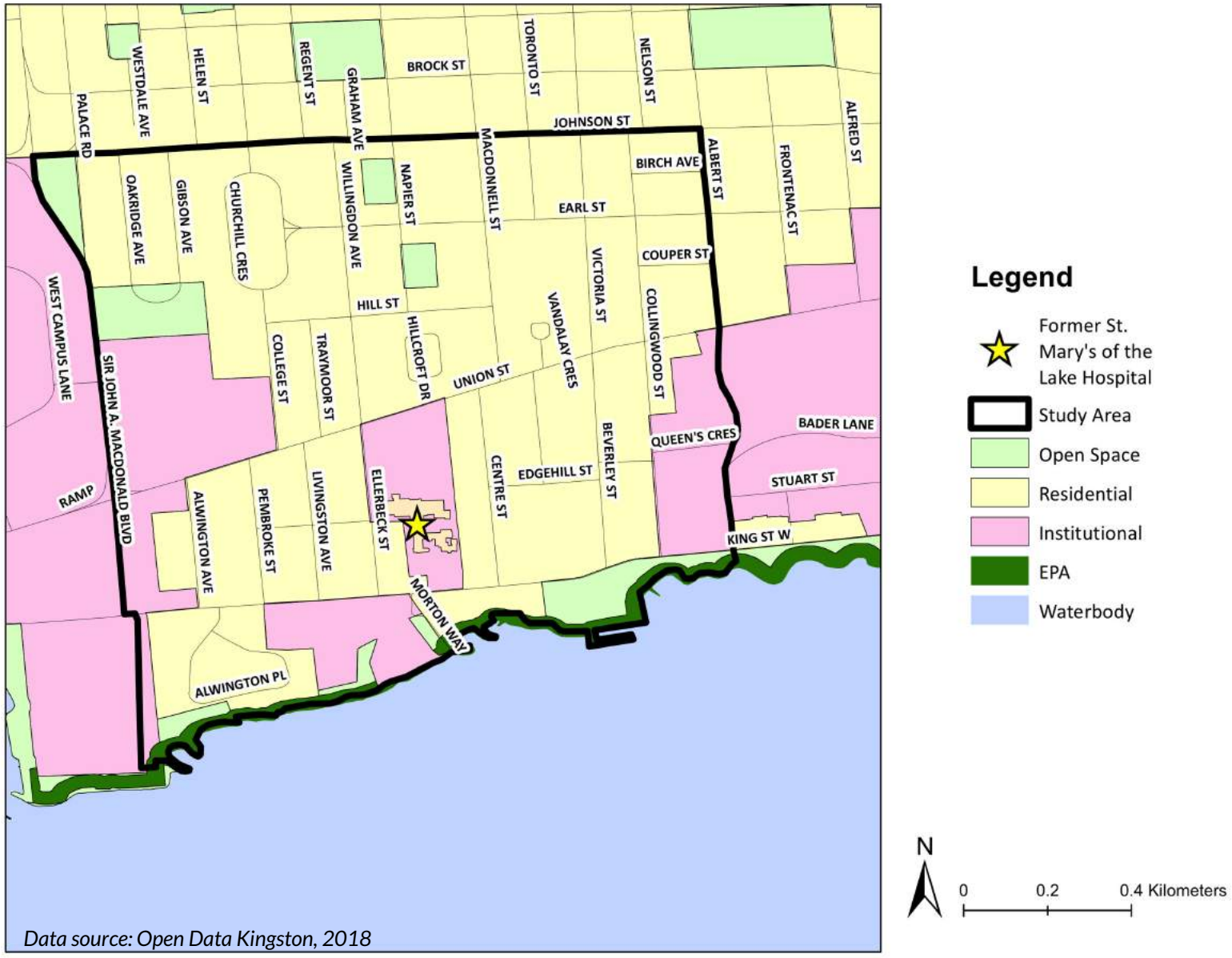
3. **St. Mark's Lutheran Church** - institutional use permitted within residential designation

4. **Bearance's Grocery** - neighbourhood commercial use permitted within residential designation

5. **Queen's Day Care Centre** - neighbourhood commercial use permitted within residential designation

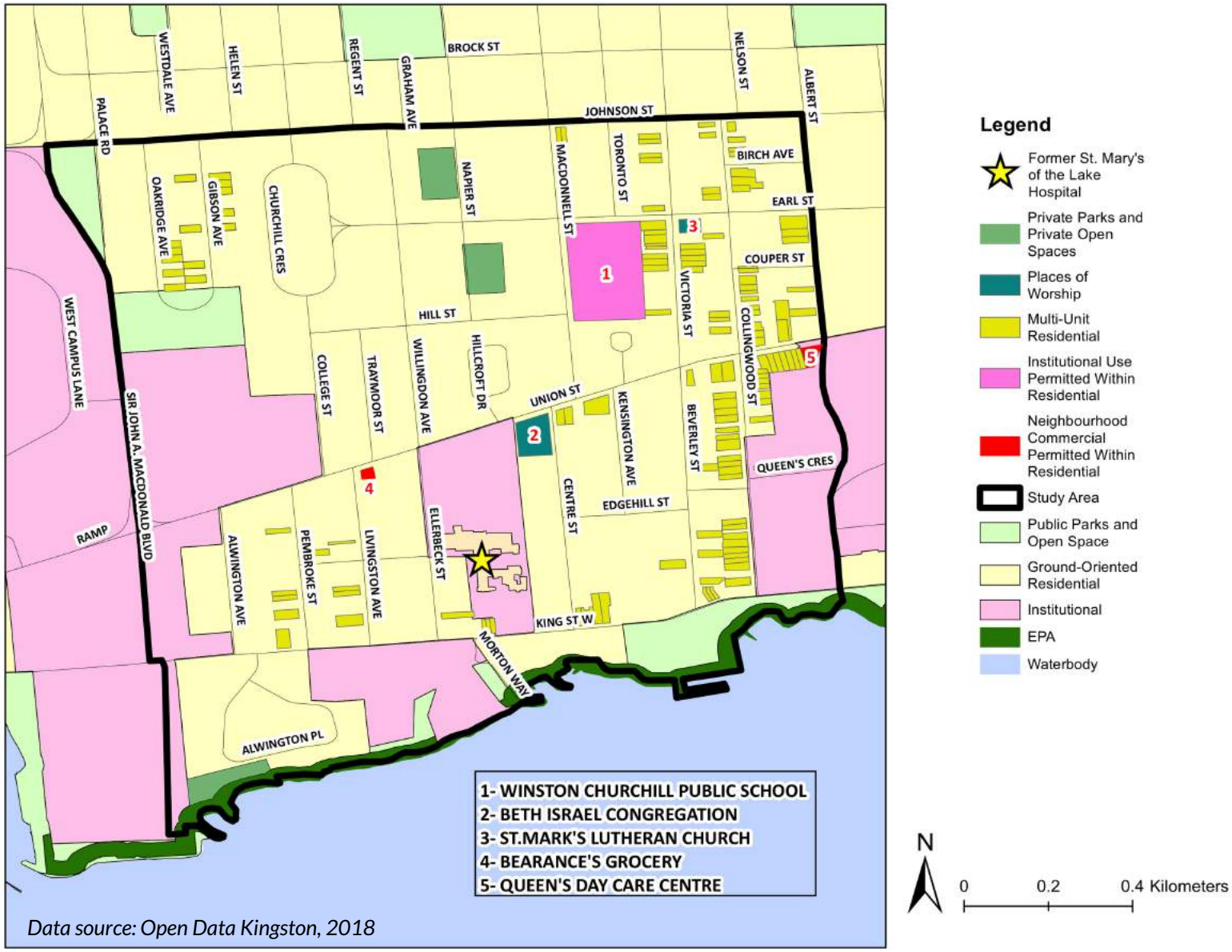
The following maps show the City's designation of land uses, as well as the on-the-ground reality of land use, within the study area.

MAP 2: CITY OF KINGSTON LAND USE DESIGNATIONS



Data source: Open Data Kingston, 2018

MAP 3: EXISTING LAND USES WITHIN STUDY AREA



Data source: Open Data Kingston, 2018

LEED® FOR NEIGHBOURHOOD DEVELOPMENT

The Canada Green Building Council (CGBC), in conjunction with the United States Green Building Council, offers certification for projects that positively contribute to neighbourhood development. These criteria are representative of principles of Smart Growth and New Urbanism developed in collaboration between The U.S. Green Building Council (USGBC), the Congress for the New Urbanism (CNU), and the Natural Resources Defence Council (NRDC). [89]

Green neighbourhood developments are beneficial to both the individuals living within a community and the community itself. The essential components of how a neighbourhood is designed, ranging from the way a street network is laid out to where employment is located, contribute to an overall sense of community that leads to a wide variety of environmental, social, and health benefits. [90] Using a comprehensive, objective assessment tool like LEED®-ND gives a sense of how well a neighbourhood is functioning for the community members that live within it, albeit with certain strengths and limitations.

Strengths: Designing green neighbourhoods is not only reflective of good planning principles, but is also reflective of the basic underlying principles of integrated university campus planning discussed in Chapters 1 and 2. If the site is to be an accessible, welcoming space built for mutual community-university benefit, then the planning team should consider both the criteria of green neighbourhood design that are already reflected in its current state and also the missing pieces of green neighbourhood development that future planning on the site could fulfill. Using a comprehensive objective tool like LEED®-ND allows the planning team to systematically identify strengths and areas for improvement that future planning on the site can build upon.

Limitations: Since the LEED®-ND is an objective tool, the criteria that it identifies as 'satisfied' or 'unsatisfied' are reflective of only the technical prescriptions LEED®-ND sets, and doesn't necessarily capture the community's day-to-day experience of the neighbourhood. To mitigate this limitation, this chapter supplements the LEED®-ND assessment of each criteria with the authors' own qualitative assessment.

For each section of the LEED®-ND framework, Smart Location + Linkage, Neighbourhood Pattern + Design, and Green Infrastructure + Buildings, there are a number of criteria that are discussed, each with at least one point awarded to meeting the standard set by LEED®. All together, these points sum to give a project a total score out of 100. Depending on the total points awarded, a project may be able to earn one of the following LEED® for Neighbourhood Development certifications:

How was the LEED®-ND framework applied?

In order to determine the degree to which the site and the study area meet the principles of green neighbourhood design, this chapter assesses both against LEED® for Neighbourhood Development criteria of relevance to the site and the early stage of planning in which Queen's University is currently engaged. As such, only discussions of criteria within the 'Smart Location + Linkage' and 'Neighbourhood Pattern + Design' sections that are relevant are included. For each criteria of relevance, the chapter describes the underlying principle, assesses the site and/or study area against the LEED® standard, and makes recommendations for how the future site can fill any gaps identified by the LEED® audit.

For each LEED®-ND criteria that is not fulfilled in its current form, the recommendations made are situated within the context of the priorities set by the 2014 Queen's University Campus Master Plan (CMP). As such, the recommendations are broken down into those that are captured in the 2014 CMP and those that should be explored in depth in a future update to the CMP.

At future stages in the planning and development process (for example, when site design and configuration is under consideration), the planning team should also take note of those criteria that are outside of the scope of this report (i.e. those remaining under 'Smart Locations + Linkages' and 'Neighbourhood Pattern + Design', as well as all criteria in the 'Green Infrastructure + Buildings' section).

Overview of LEED®-ND Criteria Assessed:

- Smart Location
- Tree-Lined + Shaded Streets
- Locations with Reduced Automobile Dependence
- Transportation Demand Management
- Access to Public Spaces + Recreation Facilities
- Neighbourhood Schools
- Transit Facilities
- Reduced Parking Footprint
- Visitability + Universal Design
- Local Food Production
- Walkable Streets
- Compact Development
- Mixed Use Neighbourhood Centres
- Bicycle Network + Storage
- Housing + Jobs Proximity
- Connected and Open Community
- Mixed-Income Diverse Communities

Front lawn facing Union St.
Elphick, 2018

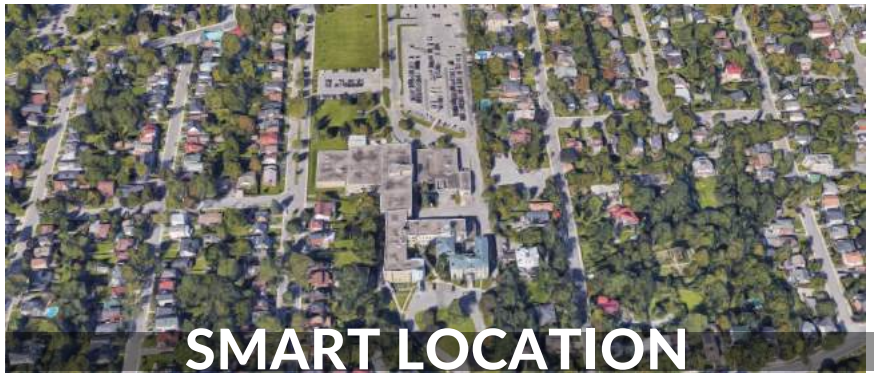
Transit Facilities on King St. W.
Elphick, 2018

Satellite image of parking footprint
Google, 2018

Entrance to site from King St. W.
Elphick, 2018

Cyclist riding along Johnson St.
Elphick, 2018

Pedestrian walking along Union St.
Elphick, 2018



SMART LOCATION

TREE-LINED + SHADED STREETS

Aerial view of site,(left), Google, 2018. Street trees on Davidson St. (left) and Union St. (right). Elphick, 2018.

Choosing a smart location "encourage[s] development within and near existing communities and public transit infrastructure … and encourage[s] improvement and redevelopment of existing cities, suburbs, and towns while limiting the expansion of the development footprint in the region to appropriate circumstances." [91]

Given Queen's University's intent to redevelop the former St. Mary's of the Lake Hospital site, if fulfills the 'smart location' criterion by locating the project on a site served by existing water and wastewater infrastructure and by locating the project on an infill site. By choosing a location that is previously developed in its entirety and that borders on an established Kingston neighbourhood on all sides, Queen's University foregoes the need to expand Kingston's development footprint, and instead relies on existing municipal infrastructure within the neighbourhood.

Tree-lined and shaded streets "encourage walking, bicycling and transit use, discourage excessive motoring speeds … reduce urban heat island effects, improve air quality, increase evapotranspiration, and reduce cooling loads in buildings." [92]

Both the neighbourhood and the site in their current forms already shade sidewalks, inner walkways, and streets well with mature tree coverage. To integrate the site seamlessly with its surroundings and realize the benefits of shaded streets, the planning team should ensure that internal streets and walkways, wherever they may be placed on the site, feature street trees along their borders. Doing so will not only provide the environmental benefits of shading, but will also help to create a soft boundary between community and university property. When tree coverage is explored in further depth in later planning stages, encouraging biodiversity should be of prime concern so as to avoid the damaging effects of invasive species, like the Emerald Ash Borer.

Pedestrian walking along Union St. (left). Transit stop on King St. W. (middle). Cyclist riding along Johnson St. (right). Elphick, 2018

Choosing a location that reduces automobile dependence means "encourag[ing] development in locations shown to have multimodal transportation choices ... thereby reducing greenhouse gas emissions, air pollution, and other adverse environmental and public health effects associated with motor vehicle use." [93]

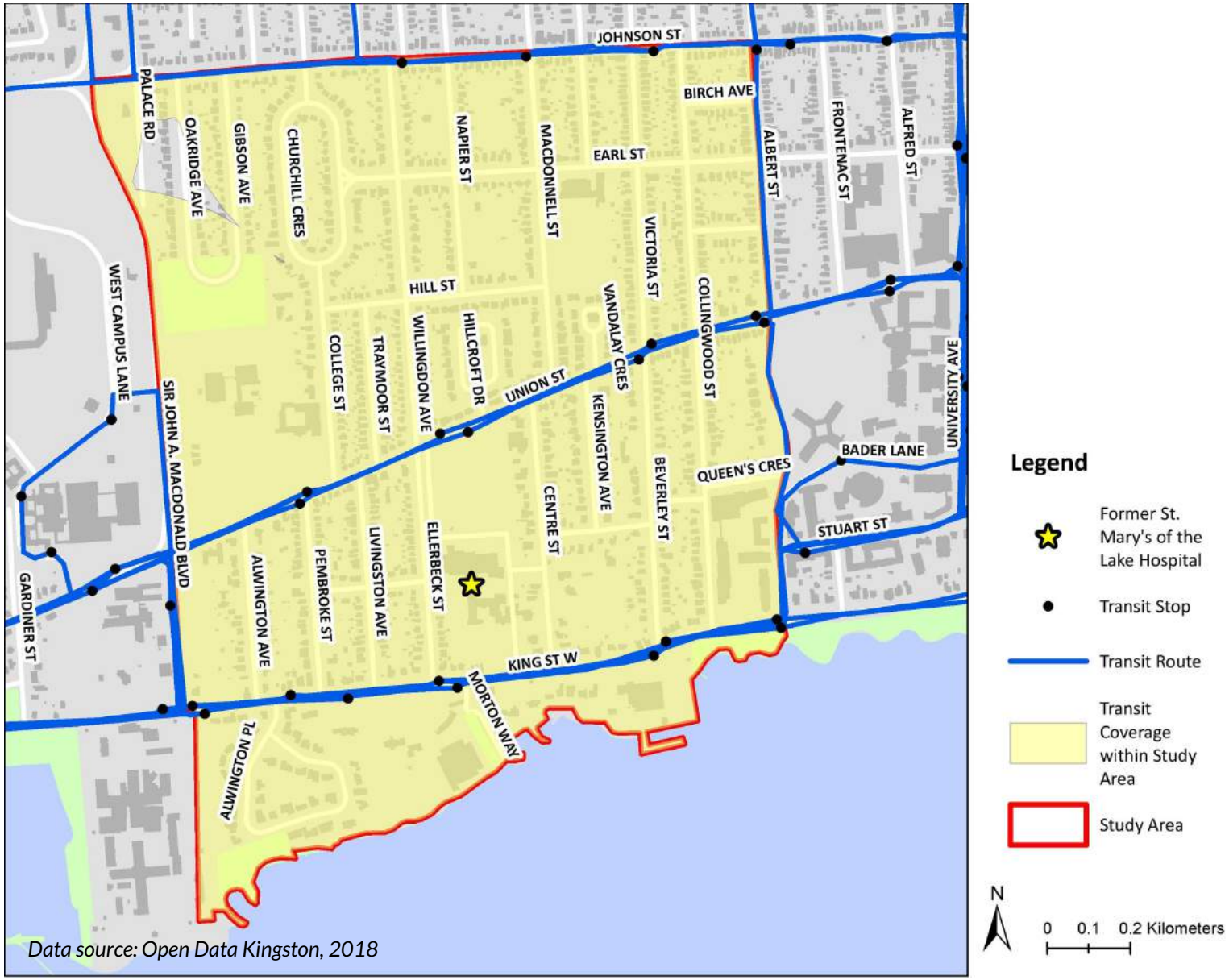
The site is located within a neighbourhood that is currently well served by transit infrastructure, thus reducing automobile dependence for those that live within it. In total, there are 18 transit stops within the boundaries of the neighbourhood, with 99% of the neighbourhood within walking distance (defined as 400m from a transit top, shown in yellow on Map 4). The only portion of the neighbourhood that is not within walking distance to a transit stop is a small part of Oakridge Avenue, in the northwestern corner of the study area.

The routes that serve these stops include both regular and express bus service along King St. W. and Johnson St., as well as regular bus service along Union Street. The following table shows the different routes that operate on these three streets and the service frequency of each. With the number of routes that operate within this neighbourhood and the high service frequency of each route, the neighbourhood scores highly in this criterion.

Table 4.0 Transit routes that serve the three collector streets within the study area and their service frequency.

Street	Routes	Service Frequency
Union St.	1 - St. Lawrence College / Montreal St. 2 - Kingston Centre / Division St. 18 - Train Station Circuit	Regular Service (30 min.) Regular Service (30 min.) Regular Service (30 min.)
King St. W.	3 - Kingston Centre / Downtown 502 - Express to Cataraqui Centre	Regular Service (30 min) Express Service (10 min.)
Johnson St.	12 - Highway 15 / Kingston Centre 702 - Express to King's Cross Centre	Regular Service (30 min.) Express Service (10 min)

MAP 4: TRANSIT COVERAGE WITHIN THE STUDY AREA



Data source: Open Data Kingston, 2018


TRANSPORTATION DEMAND MANAGEMENT (TDM)

Kingston Transit TransPass (left), City of Kingston, n.d. View of site from Union St. (middle), Elphick, 2018. View of Tindall Field (right), Google, 2018

Transportation demand management "reduce[s] energy consumption, pollution from motor vehicles, and adverse public health effects by encouraging multimodal travel." [94]

Queen's University, as both an employer and a post-secondary institution, has a positive working relationship with Kingston Transit. Currently, Kingston Transit offers a reduced rate for monthly transit passes to Queen's University faculty and staff, and Queen's University includes the reduced cost of a monthly transit pass in all students' tuition. These incentives make transit within Kingston more accessible to the Queen's University community and increase the likelihood that members of the Queen's University community will choose transit over driving. This also increases the connectivity between the site and Main and West Campuses.

Although having a TransPass program is not the only determinant of transit behaviour, it is one positive step the University is taking towards reducing reliance on the private automobile.

To further strengthen transportation demand management in future site planning, the University could consider implementing a vehicle sharing program. LEED®-ND prescribes that access to vehicle sharing should be located such that 50% of building entrances are within a 400m walking distance. Currently, the University does offer vehicle sharing on its Main Campus through its partnership with VirtuCar in the Tindall Field parking lot; however, this lot is approximately 700m away from the site, making it too far for commuters to walk.

ACCESS TO PUBLIC SPACE + RECREATION

Front lawn of site (left), Fitzgerald, 2018. Breakwater Park (middle), Cormier, n.d. Oakridge Park (right), Therrien, 2018.

Access to public spaces & recreation facilities "improves physical and mental health and social capital by providing a variety of open spaces close to work and home to facilitate social networking, civic engagement, physical activity, and time spent outdoors." [95]

One of the site's current assets is its large lawn on its western border with Ellerbeck St. Although a privately-owned space, it has been long used by the community for play and recreation and is likely to be an asset that the community desires to maintain in the future site's configuration. There are several features of the site that make this open space ideal for the neighbourhood's access to recreation, namely its central location within the study area, its permeability and ease of access for residents along its borders, the sightlines to the open space that increase its perceived safety, its location along a major corridor and access via transit, and its adjacency to the Isabel Bader and Tett Centres.

Beyond the site itself, there are two parks that are publicly owned for the neighbourhood to access: Oakridge Park in the neighbourhood's northwestern corner and Breakwater Park in the neighbourhood's southeastern corner. Breakwater Park is located approximately 350m east of the site along the shoreline of Lake Ontario. It is a public park within an environmentally protected area. Features of the park include the Gord Edgar Downie Pier and pedestrian bridge, multiple pebble and sand beaches, a sculpture, picnic amenities, and a redesigned multi-use pathway for pedestrians and cyclists. Given its water orientation, this park is generally only heavily used in summer months, with the exception of the multi-use pathway that is generally used year-round.

Located in the northwestern corner of the study area, Oakridge Park offers parkland and open space for residents of the Alwington neighbourhood. With access limited to Sir John A. Macdonald Boulevard and Gibson and Oakridge Avenues, this park is only accessible to a small portion of the neighbourhood's overall population. Its internal focus and lack of permeability makes the public park less accessible to the neighbourhood beyond Oakridge Ave. and less safe for parents and children using the space for play. The play equipment in the park lacks recent investment, making the park unattractive to members of the neighbourhood.

In addition to the neighbourhood's public parks, there are also several privately owned recreational facilities within the neighbourhood boundaries, including Alwington Park, the Kingston Tennis Club, and the Kingston Lawn Bowling Club. These recreation facilities require paid membership and as such, are not accessible to all members of the neighbourhood.

Satellite image of Oakridge Park and its proximity to Sir John A. Macdonald Blvd. Google, 2018

Alwington Park (left), Therrien (2018). Kingston Tennis Club (middle), Therrien, 2018. Kingston Lawn Bowling Club (right), Therrien, 2018.

The neighbourhood also features three prominent arts & culture hubs, including Bellevue House, the Isabel Bader Centre for the Performing Arts, and the Tett Centre for Creativity & Learning.



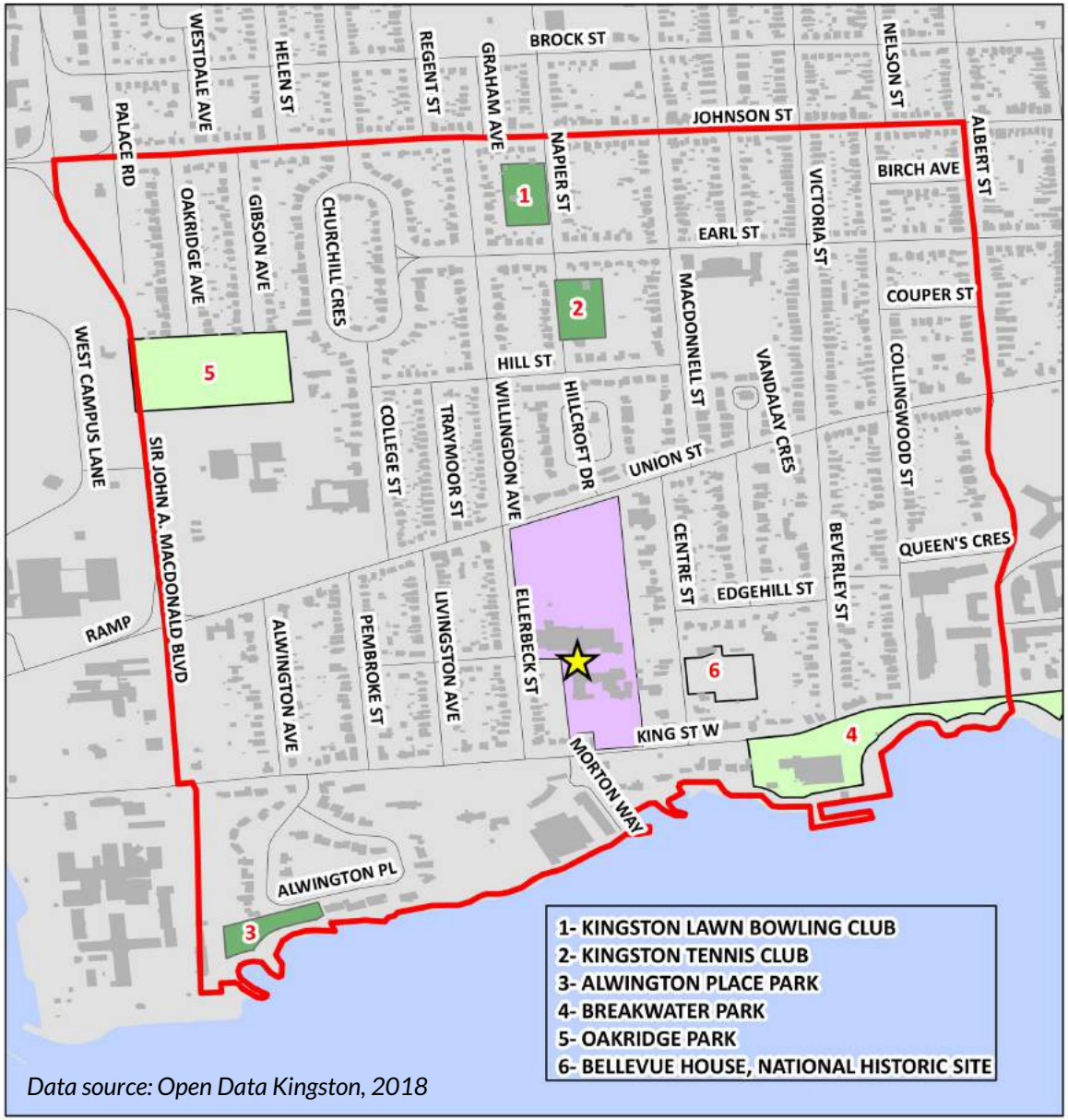
Bellevue House (left), Wikimedia, 2009. Isabel Bader Centre for the Performing Arts (middle), Fitzgerald, 2018. The Tett Centre (right), Fitzgerald, 2018.

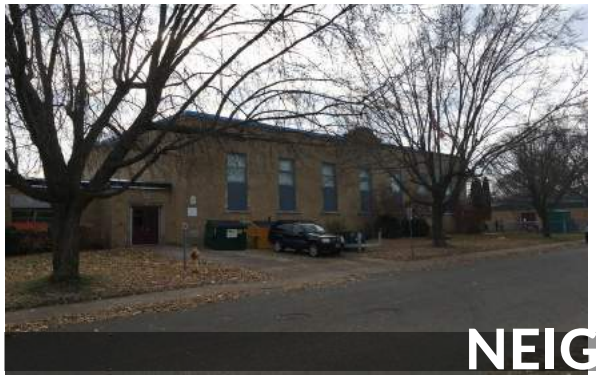
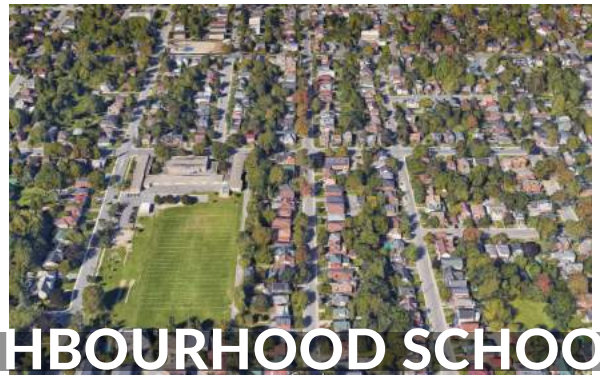
Bellevue House is located directly east of the former St-Mary's of the Lake Hospital site. Once home to Canada's first Prime Minister, Sir John A. MacDonald, the Bellevue House is now designated as a National Historic Site. This site serves as a Visitors' Centre known for scenic garden tours.

Situated along the shoreline of Lake Ontario, the Isabel Bader Centre for Performing Arts is located approximately 100m SW of the site. Home of Queen's University's Film & Media Department, this state-of the art performance theatre includes a performance hall, a studio theatre, a screening room, a rehearsal hall, and a media lab.

Alongside the Isabel Bader Centre for the Performing Arts, the Tett Centre for Creativity and Learning is an arts collective. It is located within the JK Tett heritage building and is situated directly east of the Isabel Bader Centre for the Performing Arts. Inside the Tett Centre is the Kingston School of Dance, the Juniper Cafe, the Kingston Potters' Guild, and many more local arts & culture groups.

MAP 5: PARKS AND OPEN SPACES WITHIN STUDY AREA




NEIGHBOURHOOD SCHOOLS

View of Winston Churchill Public School from Earl St. (left), Therrien, 2018. Satellite view of Winston Churchill Public School (middle), Google, 2018. Play equipment at Winston Churchill Public School (right), Limestone District School Board, n.d.

Neighbourhood schools "promote community interaction and engagement … and support students' health by encouraging walking and bicycling to school." [96]

In order to support the presence of schools within the neighbourhood's overall fabric, LEED® prescribes residential development that constitutes "at least 30% of the the project's total building square footage" and that locates the project within walking distance (800m) of a new or existing elementary, middle, or high school. [96]

Whether or not the site includes residential development for families of elementary, middle, or high school students, it does have the potential to fulfill this criteria based on its close proximity to Winston Churchill Public School,

FRASER INSTITUTE

Winston Churchill Public School

8.7 / 10

a neighbourhood elementary school. Fraser Institute ranks Winston Churchill as one of the top elementary schools in Kingston, alongside Lancaster Drive Public School and École Élémentaire Publique Madeleine-De-Roybon, each with a rating of 8.7 out of 10. [97] This high praise by a prestigious Canadian think-tank is likely to influence parents' decision to move to this neighbourhood in search of quality public education for their school-aged children.

TRANSIT FACILITIES

Transit stop on King St. W. (left), Elphick, 2018. Transit stop on Union St. (middle), Elphick, 2018. Transit stop on King St. W. (right), Elphick, 2018.

Transit facilities "encourage transit use and reduce driving by providing safe, convenient, and comfortable transit waiting areas and safe and secure bicycle storage facilities for transit users." [98]

Given the site's former use as a hospital, it is well connected to transit routes that serve the near-campus neighbourhood and beyond. There are two bus stops (east and westbound) on the site's northern border with Union St. and another two stops (east and westbound) within 100m of the site's southern border with King St. W. Both of the stops on King St. W. have shelters with signs that display transit schedules and route information, while the two stops on Union St. lack facilities that would make waiting for transit more comfortable and convenient (for example, a shelter with accompanying maps and schedules, as seen on King St. W.). Currently, the eastbound transit stop on Union St. has only a bench and signpost to indicate the stop and routes that serve it, and the westbound transit stop has only a signpost, with no bench or shelter to allow riders to rest while they wait.

Recommendations:

- Consider advocating to the City for improved transit facilities on Union St., mirroring those on King St. W., to support and encourage transit use to and from the site.

Movement to and from Main and West Campus, as well as movement between campuses, is a primary point of focus for the 2014 Campus Master Plan. As one way to encourage transit use over reliance on a personal automobile, improving transit facilities should be a point of greater discussion in future updates of the Campus Master Plan. Although there is rich discussion of the quality of transit service and the transportation system that the City provides for students and employees of Queen's University, there is little discussion of the transit facilities that make using transit safer, more convenient, and more comfortable.

Satellite view of site's parking footprint (left), Google, 2018. View of site from Union St. (middle), Elphick, 2018. Street view of parking (right), Elphick, 2018.

Reducing the site's parking footprint "increase[s] the pedestrian orientation of projects and minimize[s] the adverse environmental effects of parking facilities [and] public health risks by encouraging daily physical activity associated with walking and bicycling." [99]

With the site's current configuration, it has quite a large parking footprint. At the site's northern boundary (Union St.) is a large off-street surface parking lot that encourages automobile dependence and substantially sets back the site's buildings from passing pedestrians and transit stops. Although not currently fulfilled, this criterion should be revisited at later stages of the planning and development process so that the future configuration of the site can reduce its parking footprint.

Recommendations:

- Consider what an appropriate parking footprint would look like for the site's future configuration based on what uses are located on the site and how many people are likely to commute to and from the site on a daily basis.
- If the appropriate parking footprint is less than what the site's current configuration allows for, consider the infill of excess parking to accommodate other uses.

In the 2014 Campus Master Plan, there is substantial emphasis placed on movement between campuses and the university's parking strategy. The 2014 CMP notes that many spaces with development potential on Main Campus are currently used for surface parking. [100] The same is true of the vast surface parking footprint on the former St. Mary's of the Lake Hospital property, and attention should be paid in future updates to the Campus Master Plan to devise strategies to redevelop these void spaces and manage parking demand.

Ontario
ACCESSIBILITY FOR ONTARIANS WITH DISABILITIES ACT 2005 (AODA)

GAATES
Global Alliance on Accessible Technologies and Environments

VISITABILITY + UNIVERSAL DESIGN

Ontario Accessibility for Ontarians with Disabilities Act (AODA) (left), Government of Ontario, n.d. Site accessible parking footprint (middle), Google, 2018. Global Alliance on Accessible Technologies and Environments (right), GAATES, n.d.

Visitability & universal design enables the "widest spectrum of people, regardless of age or ability, to more easily participate in community life by increasing the proportion of areas usable by people of diverse abilities." [101]

Assessing visitability and universal design requires consideration of recommendations of the LEED® for Neighbourhood Development and the minimum accessibility standards set out by the Accessibility for Ontarians with Disabilities Act (AODA). Of all standards set by the AODA, the design of public spaces is of most relevance to the site. As such, this section supplements the recommendations of LEED® for Neighbourhood Development with those found within the Illustrated Technical Guide to the Accessibility Standard for the Design of Public Space, written by the Global Alliance for Accessible Technologies and Environments.

Since the current stage of planning is not concerned with site or building layout, instead of focusing attention on the functional entries to the existing buildings of the site, this section focuses only on the inner walkways and pathways that connect to the municipal street network, including:

- The site's northern border with Union St.
- The site's western border with Ellerbeck St.
- The site southern border with King St. W.
- The site's easement through the Bellevue House parking lot to Centre St.

NORTH ENTRANCE TO THE SITE - UNION ST.

The pathway that connects the site to Union St. has several accessibility features that make it easy for people with diverse abilities to access the site from this side. This entrance to the site is especially important, since the transit stop is just steps away.

For one, the pathway is level and of appropriate width, and meets the sidewalk exactly, with no need for steps, a ramp, or a grade to make it accessible for people of all abilities to traverse it safely.

Image source: Elphick, 2018

A painted edge between the pathway and the grassy lawn signals to those with low vision where the pathways ends and where the lawn begins. However, the paint is quite old and is not nearly as vibrant and bright as it should be.

Image source: Elphick, 2018

The pathway features benches at regular intervals to accommodate visitors who may need a place to sit and rest, but keeps them off the path in an amenity strip to maintain the right of way for other pedestrians or cyclists.

Image source: Elphick, 2018

WEST ENTRANCE TO THE SITE - ELLERBECK ST.

Image source: Elphick, 2018

On the west side of the site, the connection between Ellerbeck St. and the site features a small ramp to accommodate the change in grade between the sidewalk and the parking lot. The following features make it more accessible for visitors with diverse abilities:

- The ramp has a curved railing, allowing those with mobility impairments added support while they're maneuvering along the ramp.
- The ramp is graded gently and of appropriate width for a visitor using a mobility device, like a walker or a wheelchair. However, the ramp only accommodates users travelling the same direction at once; there is insufficient room for two visitors using mobility aids to pass one another.
- The ramp uses a textured surface that is different from both the sidewalk and the parking lot to signal a change in slope for visitors with low vision, and to add extra grip for visitors with mobility impairments.
- The ramp opens up into the parking lot, with plenty of room for visitors using wheelchairs or scooters to safely turn should they need to; however, the sidewalk is not quite wide enough for a safe turning radius for visitors travelling up the ramp.

EAST ENTRANCE TO THE SITE - CENTRE ST.

Image source: Elphick, 2018

Although not a formal entrance to the site, on the east side there is an easement that allows access from the site to Centre St. through a parking lot for Bellevue House. The opening in the fence to allow this passage of pedestrians is not wide enough to accommodate visitors using mobility aids, nor is it properly paved as a smooth, level surface.

SOUTH ENTRANCE TO THE SITE - KING ST. W.

On the south side of the site is a very problematic connection to the sidewalk, with a set of stairs used to bridge the gap between King St. W. and the site. That said, there are features of the street that make the side of the site more accessible.

Since the driveway of this entrance is graded quite steeply and there is no accompanying ramp with the staircase, any visitor with a mobility impairment would likely face a great challenge accessing the site from this side.

Image source: Elphick, 2018

The pedestrian crossing on King St. W. across from the Isabel Bader Centre for the Performing Arts features a countdown, auditory tones, and a curb cut with a textured surface. Since this crossing is where the two bus stops are located along King St. W., it is very important that all of these features have already been incorporated into the City's design.

Image source: Elphick, 2018



LOCAL FOOD PRODUCTION

Community Garden on West Campus (left), Wianecki, 2018. Farmers' Market on Main Campus (middle), Queen's Gazette, n.d. AMS Food Bank (right), Queen's University, 2014.

Local food production "promote[s] community-based food production, improve[s] nutrition through increased access to fresh produce, support[s] preservation of small farms producing a wide variety of crops, reduce[s] the negative environmental effects of large-scale industrialized agriculture, and support[s] local economic development that increases the economic value and production of farmlands and community gardens." [101]

Although the site in its current form does not feature community gardening spaces, the future configuration of the site could incorporate local food production in order to realize a wide variety of social and environmental benefits for the community. Queen's University has community gardening spaces on both its Main and West Campuses and offers seasonal market space to local food vendors to sell their produce. Given the University's proven commitment and capacity to support local food production on its other campuses, it would be reasonable to also incorporate community gardening spaces or other forms of support for local food production (for example, a local farmers' market or community-supported agriculture initiative) on this site as well.

Recommendations:

- Consider how community gardening spaces or other forms of support for local food production could be incorporated into the future site's configuration.

Although the university's support for local food production is present on both its Main and West campuses, there is no formal direction for community gardening, or farmers' markets in its 2014 CMP. Since local food production is something that the university has taken steps to address on its two campuses (albeit perhaps at a grassroots level), senior administration should consider implementing more formal direction to including gardening or market space for local food production in any future updates to the Campus Master Plan.

Proud food producer at a Farmers' Market, Memorial Centre Farmers' Market, 2017.

Proud food producer at a Farmers' Market, Memorial Centre Farmers' Market, 2017.

WALKABLE STREETS

Union St. (left), Elphick, 2018. Pedestrian crossing on King St. W (middle), Elphick, 2018. Shaded sidewalks along Davidson St. (right), Elphick, 2018

Walkable streets "promote transportation efficiency, including reduced vehicle miles traveled (VMT) (vehicle kilometres travelled – VKT) [and] promote walking by providing safe, appealing, and comfortable street environments that support public health by reducing pedestrian injuries and encouraging daily physical activity." [102]

The project has the potential to contribute to the walkability of streets in the neighbourhood. On the borders of the site, there are already continuous sidewalks on both sides of the street; however, contingencies in satisfying this criterion exist as meeting it will depend on the future site's configuration (for example, considerations of minimum building height-to-street-width ratio, and proportion of building frontage with a principal functional entry facing the street) and should be revisited at later stages of the planning and development process.

Recommendation:

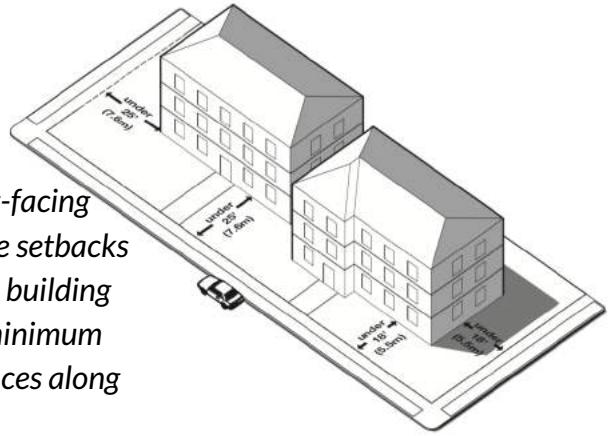
- Refer to LEED® standards for walkable streets when designing the site's future configuration. See following recommendations, drawn from LEED® for Neighbourhood 2009 with Canadian Alternative Pathways, for examples of some of the components of walkable streets prescribed by the Canadian Green Building Council.

This principle is also reflected in the 2014 Campus Master Plan, as an aspect of the "traditional campus" that is modelled on Main Campus. [103] The plan prioritizes building "iconic architecture and picturesque open spaces situated on a compact, walkable street and pathway pattern," [104] in line with features of site design that LEED®-ND prescribes. Exploring in greater depth the components of site design that enable walkability would be beneficial in an update to the Campus Master Plan to ensure that future planning on the site conforms with the principles of green neighbourhood development and integrated university campus planning.

Recommendation:

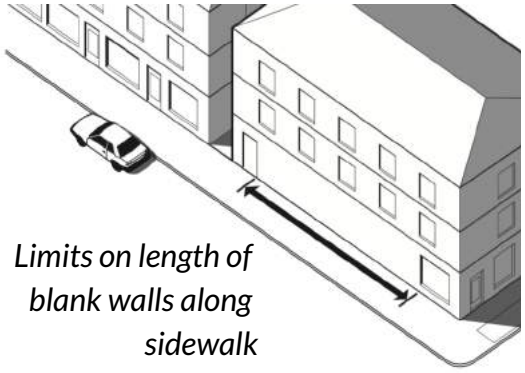
- Refer to LEED® standards for walkable streets when designing the site's future configuration. See figures below, drawn from *LEED® for Neighbourhood 2009 with Canadian Alternative Pathways*, for examples of some of the components of walkable streets prescribed by the Canadian Green Building Council.

Ground-level retail and service uses with minimum amounts of clear glass facades

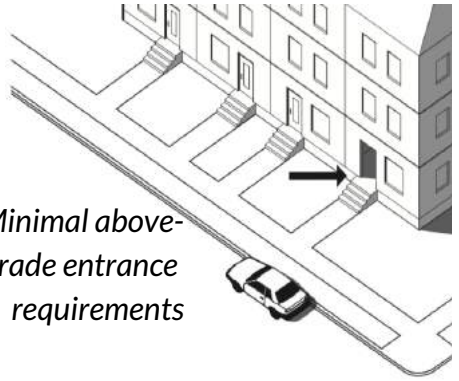


Minimal street-facing building facade setbacks and functional building entrances at minimum average distances along blocks.

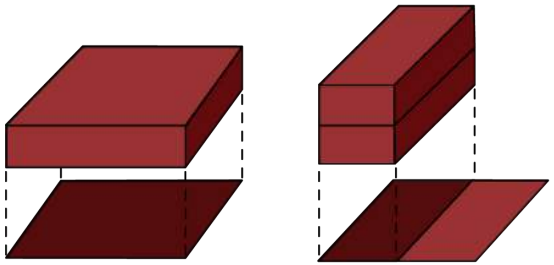
On-street parking requirements



Limits on length of blank walls along sidewalk



Minimal above-grade entrance requirements



COMPACT DEVELOPMENT

Aerial view of site footprint (left), Google, 2018. Building facing King St. W. (middle), Elphick, 2018. Concept diagram of floor-area-ratio (right), DC Zoning Handbook, 2018

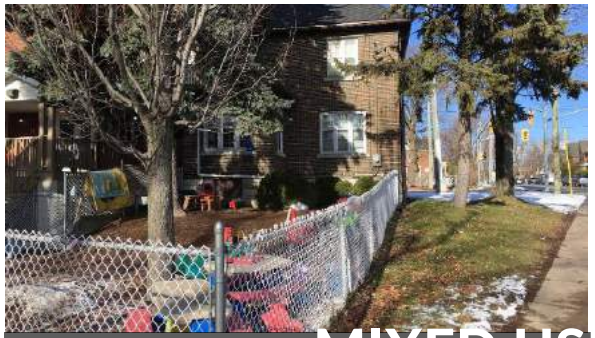
Compact development "conserve[s] land [and] promote[s] liveability, walkability, and transportation efficiency, including reduced vehicle miles traveled (VMT) (vehicle kilometres travelled – VKT)." Compact development also "leverage[s] and support[s] transit investments [and] reduce[s] public health risks by encouraging daily physical activity associated with walking and bicycling." [105]

The project has the potential to meet this criteria given its location along a transit corridor, so long as it builds to a density of 0.80 floor-to-area ratio (FAR) or greater of "buildable land available for non-residential uses". As such, this criterion should be revisited in later stages of the planning and development process as a standard to meet within 5 years of the site's initial occupancy by Queen's University.

Recommendation:

- Consider building to density standards prescribed by LEED® (0.80 FAR) when designing the site's future configuration.

Building to a minimum density compatible with walkability and transportation efficiency is also a principle addressed in the 2014 Campus Master Plan. As previously discussed, the vision for Main Campus set in the plan is that of "iconic architecture and picturesque open spaces situated on a compact, walkable street and pathway pattern." [106] Since walkability, transportation efficiency, and compact development all go hand in hand, maintaining priority for appropriate density in future updates of the Campus Master Plan is of vital importance.



MIXED USE NEIGHBOURHOOD CENTRES

Queen's Day Care Centre (left), Fitzgerald, 2018. Isabel Bader Centre for the Performing Arts (middle), Bearance's Grocery (right), Elphick, 2018.

Mixed-use neighbourhood centres "cluster diverse land uses in accessible neighbourhood and regional centres to encourage daily walking, biking, and transit use, reduce vehicle miles traveled (VMT) (vehicle kilometres travelled – VKT) and automobile dependence, and support car-free living." [107]

Given the site's proximity to very few diverse uses, the site scores very low on this criterion. There are 5 diverse uses located within the boundaries of the study area - residential (70%), institutional (25%), open space (5%), environmentally protected area (< 1%), and neighbourhood commercial (< 1%). The lack of diversity in land use means that residents of the neighbourhood are more likely to travel further distances to meet their daily needs. One of the exceptions to this observation is the independently owned and operated Bearances Grocery store located at 115 Livingston St. This local grocery store has been in existence since 1918 and is considered to be a vital community amenity.

Recommendation:

- Consider locating a mix of uses upon the site in order to increase the cluster of diverse land uses and promote walking, biking, and transit use to and from the site.

Prioritizing mixed-use development is also a priority identified within the 2014 Campus Master Plan. In its discussion of existing campus conditions and needs, the 2014 CMP identifies the need to prioritize "flexibility, mixed and overlapping uses, multiple loci of activity, and the convergence of functions and services." [108] As such, planning the site to incorporate a mix of uses will not only integrate the campus better with its surroundings and provide spaces for potential community benefit, it will also uphold the strategic vision of the 2014 Campus Master Plan. Moving forward in future updates to the CMP, mixed use neighbourhood development should be maintained as a priority focus for the university.

BICYCLE NETWORK + STORAGE

The current site configuration lacks any bicycle storage for users who cycle to the site. Elphick, 2018.

Choosing a location within an embedded bicycling network with adequate bicycle storage "promote[s] bicycling and transportation efficiency, including reduced vehicle miles traveled (VMT) (vehicle kilometres travelled – VKT) […] and support[s] public health by encouraging utilitarian and recreational physical activity." [109]

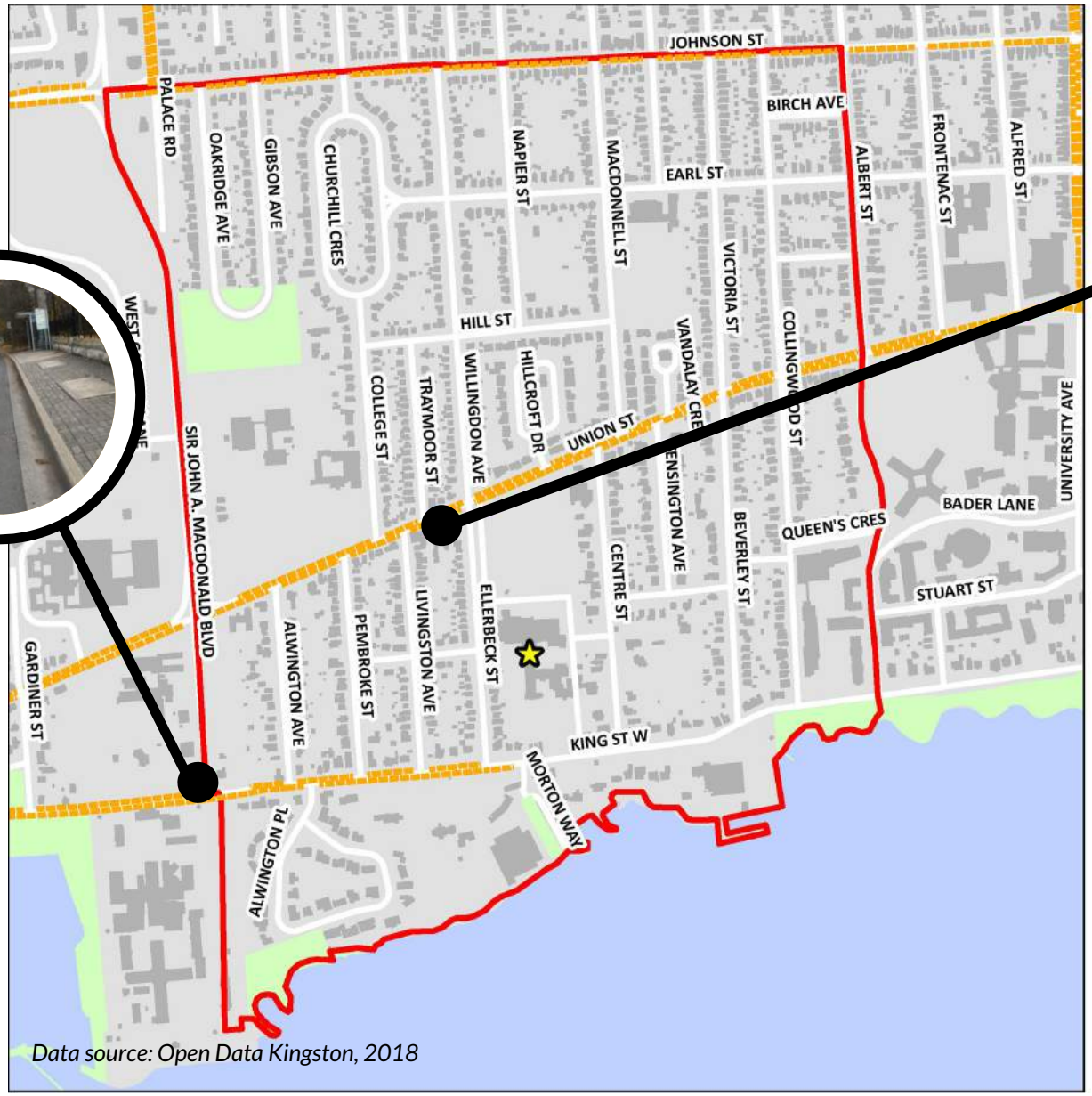
Along collector streets in the study area, there is some municipal infrastructure to support cycling (as shown in Map 6).

- At the northern boundary of the site (Union St.) are east and westbound paved shoulder cycling lanes that begin at Union's inception at King St. W. and continue to Union St.'s termination at Barrie St., a continuous distance of approximately 2.5 kilometres.
- At the southern boundary of the site (King St. W.) are east and westbound paved shoulder cycling lanes that begin on Front Rd. at Bayridge Dr. and continue along King St. W. until Ellerbeck St., a continuous distance of approximately 6 kilometres.

Although there is some cycling infrastructure present along streets in close proximity to the site (within 400m), none of the cycling lanes span a distance long enough to meet the LEED® standard of 8 kilometres. Of particular concern is the lack of separation between cyclists and other road users. Improvements in physical infrastructure for cyclists along these busy collector streets are likely to increase cyclists' perception of safety and increase the proportion of cyclists using active transportation in their commute. [110]

Also missing from the site is bicycle storage and on-site shower and changing facilities. LEED® prescribes "at least one secure, enclosed bicycle storage space per new occupant for 10% of planned occupancy, … at least one bicycle space per 10,000 square feet (930 square metres) of new commercial non-retail space, … at least one on-site shower with changing facility for any development with 100 or more new workers, and at least one additional on-site shower with changing facility for every 150 new workers thereafter." [111]

MAP 6: CYCLING INFRASTRUCTURE WITHIN STUDY AREA



Paved shoulder along King St. W

Therrien, 2018

Paved shoulder along Union St.

Elphick, 2018

Recommendations:

- Consider advocating to the City for improved cycling infrastructure (i.e. a higher degree of separation between cyclists and other road users) along streets in close proximity to the site, in line with the City's neighbourhood network approach. [112]
- Consider including bicycle storage facilities in the site's future configuration.
- Consider incorporating on-site shower and changing facilities for employees of Queen's University that are located at the site.

Taking action towards implementing these recommendations aligns with the priority set in the 2014 Campus Master Plan to support active transportation. Section 4.3 of the 2014 Campus Master Plan explores the idea of expanding the City's cycling network to better support cycling to and from the university's Main and West campuses. Growing the existing cycling network requires improving on- and off-street cycling infrastructure (i.e. cycling lanes, barriers to protect cyclists from automobile traffic, bicycle parking infrastructure, and on-site shower and changing facilities), as well as developing a strategy to mitigate conflict between pedestrians and cyclists on internal walkways and pathways. Achieving these goals requires close collaboration between the planning team and the City of Kingston, and should be maintained as a priority in future updates of the Campus Master Plan.

Cyclist riding along a paved shoulder on Johnson St. Elphick, 2018.

HOUSING + JOBS PROXIMITY

CSC National Training Academy (left), MacAlpine, 2017. Donald Gordon Conference Centre (middle), Irving, 2018. Kingston General Hospital (right), KGH, n.d.

Having adequate housing and jobs in close proximity to one another "encourage[s] balanced communities with a diversity of uses and employment opportunities." [113]

Under one kilometre from the site are many employment hubs, including Queen's University's Main & West Campuses, the Isabel Bader Centre for the Performing Arts, Kingston Health Sciences Centre, Donald Gordon Conference Centre, Correction Services Canada National Training Centre, and the Tett Centre for Creativity & Learning. The site has the potential to fulfill LEED® criteria for housing and jobs proximity, so long as:

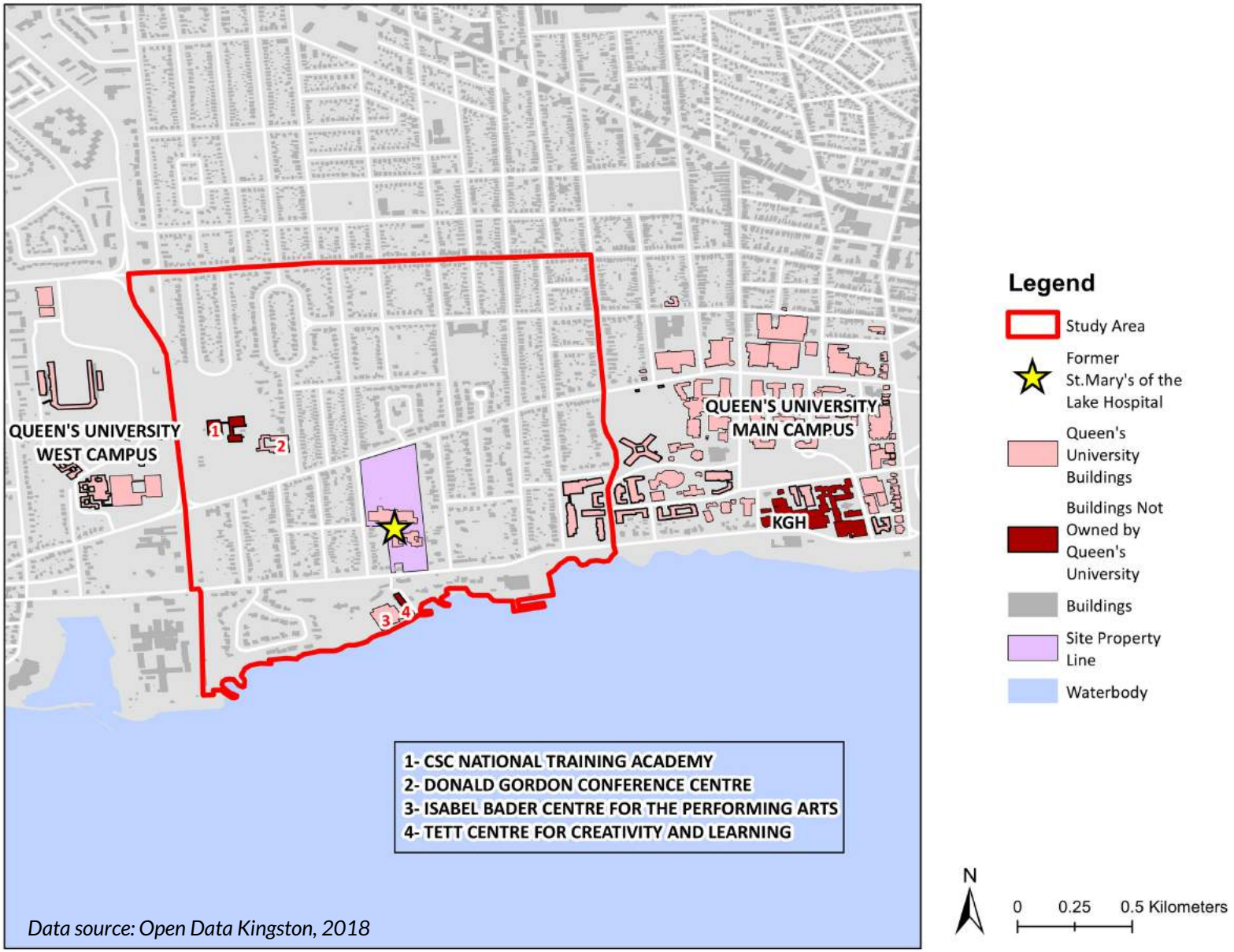
- More than 30% of the project's total building(s) square footage are non-residential;
- The project is within 800m of existing dwelling units whose number is "equal to or greater than 50% of the number of new full-time equivalent jobs created as part of the project." [113]

Recommendations:

- Develop a strategy for mitigating any adverse effect of university growth on housing availability.
- Consider the number of new full-time equivalent jobs that are created as part of the project and ensure there is adequate dwelling units within walking distance to accommodate them.

The 2014 CMP recognizes that a "lack of appropriate housing in adjacent neighbourhoods" places stress on near-campus neighbourhoods and has a detrimental effect on the quality of available housing. Given that much of the housing surrounding the site is owner-occupied (see Chapter 3 for a thorough discussion), there may be concern on behalf of current residents that locating university uses on the site might drive demand for housing in this neighbourhood to unsustainable levels. In line with recommendations made in the 2014 CMP, future updates to the Campus Master Plan should include a housing strategy for the neighbourhood surrounding the site to ensure that the university's growth does not comprise or displace permanent residents living within this community.

MAP 7: EMPLOYMENT HUBS WITHIN STUDY AREA



Data source: Open Data Kingston, 2018

CONNECTED + OPEN COMMUNITY

Aerial view of the site and its embedded location within the municipal street network, Google, 2018.

A connected and open community consists of "projects that have high levels of internal connectivity and are well connected to the community at large ... [which] encourage development within existing communities, … promote transportation efficiency through multimodal transportation [and] improve public health by encouraging daily physical activity." [113]

In order to support physical connectivity between the site and its surroundings, LEED® prescribes that the connectivity of existing streets within 400m of the project be at least 35 intersections/km2. As shown in Map 8, the intersection density within 400m of the site is 22 intersections/km2, slightly below the LEED® standard. Since connectivity is of great importance to integrating the campus with its surroundings, meeting this criteria should be a priority for the planning team in later stages of the planning and development process.

Recommendation:

- Consider exploring the treatment of Union St. and King St. W. and its connections to the site's internal street network in the future planning stages.
- Consider exploring how the site could better connect to Centre St. through a more formal easement and pathway through the Bellevue House parking lot. Desire lines indicate that this is a well-travelled route for passing pedestrians.

View of site from King St. W., Elphick, 2018

The 2014 Campus Master Plan prioritizes connectivity in its discussion of the role that the municipal street network plays in carrying people and traffic between Queen's Main and West Campuses and the rest of the City.

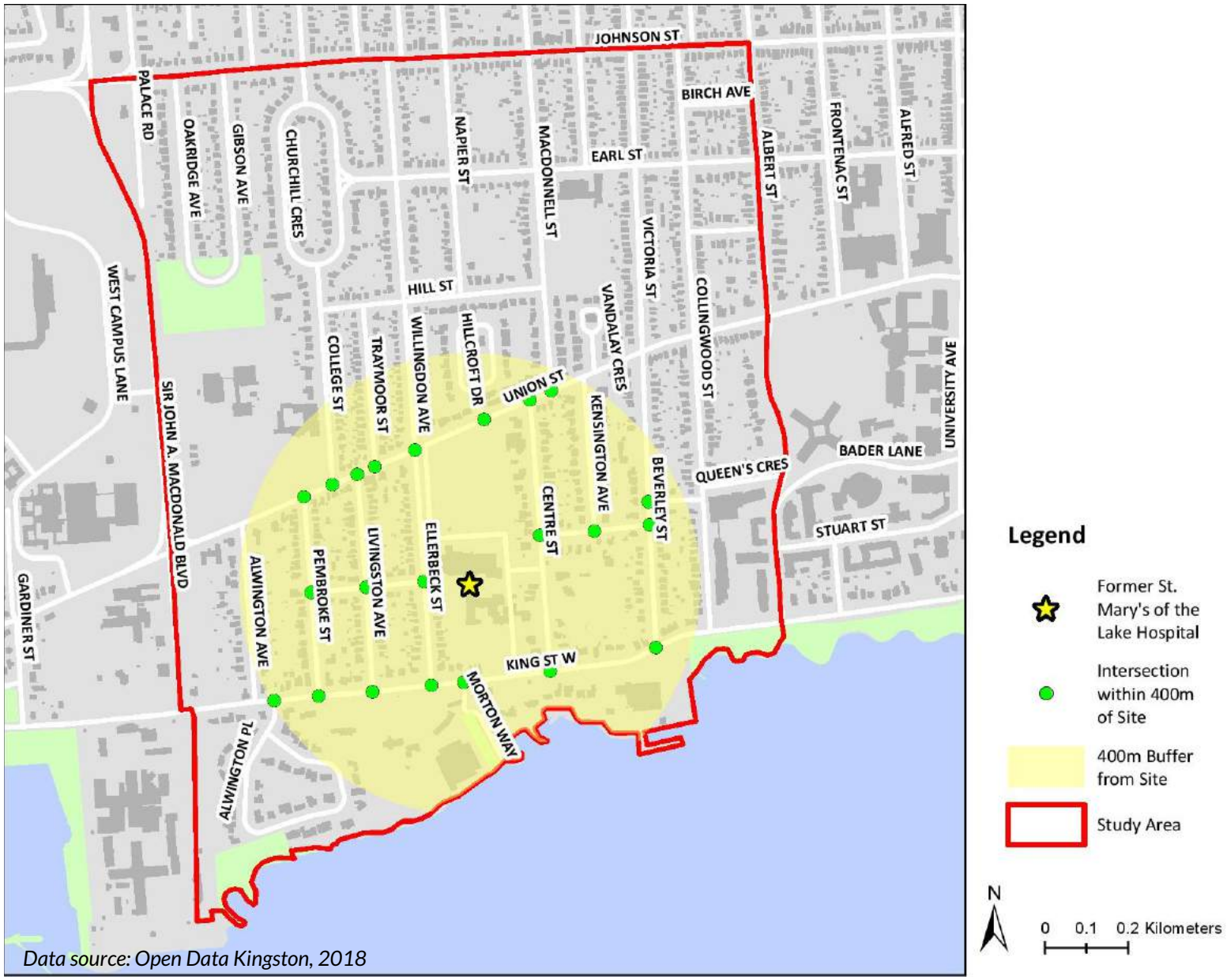
The main connectors that are the focus of the 2014 CMP include Union St., as the primary connector between Main and West Campus, University Ave., as "Queen's ceremonial avenue", Sir John A. Macdonald Blvd., as the entrance to Queen's from Highway 401, and King St. W., as the connection to the Isabel Bader Centre for the Performing Arts. [114]

In future updates to the Campus Master Plan, greater attention should be paid to the treatment of Union St. and King St. W., as well as the connections between the site's internal street network and that of the surrounding municipal street network in order to support a high level of integration between the university and its surroundings.

Aerial view of easement through Bellevue House parking lot to Centre St. Google, 2018.

Easement through Bellevue House parking lot (left), Elphick, 2018. Desire lines at edge with Union St. (middle) and internally (right), Chabot, 2018.

MAP 8: STREET CONNECTIVITY WITHIN 400M OF SITE



Data source: Open Data Kingston, 2018

MIXED INCOME DIVERSE COMMUNITIES

Mixed-income diverse communities "promote socially equitable and engaging communities by enabling residents from a wide range of economic levels, household sizes, and age groups to live in a community." [115]

One of the ways to achieve mixed-income diverse communities is to promote diversity of housing types as well as housing sizes. As previously mentioned in Chapter 3, the predominant dwelling type in the study area is single-detached.

78% single detached

13% semi detached, or row house

9% within apartment < 5 storeys

One way to quantify the diversity of housing types within a neighbourhood is the Simpson score:

Score = 1 - Σ (n/N)^2 where 'n' represents the number of dwelling units of a particular dwelling type, and 'N' represents the total number of dwelling units of all housing types (see Appendix A for calculation).

Single detached house on Union St., Elphick, 2018.

Based on these proportions of housing types within the Alwington neighbourhood, the Simpson score for housing diversity is 0.36. This result indicates that the study area does not currently have a diversity of housing types that is conducive to a mixed-income neighbourhood.

This finding is also reflected in observations made in a visual analysis of housing types conducted on a representative sample of streets within the study area (see Appendix B and C). Out of the 19 streets analyzed, 10 were considered to have exclusively single detached residential structures, 8 other streets were considered predominantly single-detached residential structures and only 1 street, Pembroke St. was considered truly mixed with both single detached and semi-detached residential structures. Through further analysis, the most common number of storeys for the sample of streets is 2 storeys. Out of the 19 streets selected, 14 are considered as mostly 2 stories.

Recommendations:

- Consider advocating to the City of Kingston for an increased mix of housing types and tenures within the Alwington neighbourhood in order to create income-diverse communities.

Mixed-income diverse communities is currently not a priority of the 2014 Campus Master Plan. In its discussion of housing in the near-campus neighbourhoods, there is no mention of mixing housing types or tenures to allow for people from diverse socioeconomic backgrounds to live alongside one another in a cohesive neighbourhood. Although creating a housing strategy for the neighbourhood surrounding the site is of primary concern for the City, not the university, it should be a priority focus for collaboration in future updates to the Campus Master Plan. As previously discussed, the majority of housing surrounding the site is comprised of single-detached houses occupied by mid- to high-income households (see Chapter 3 for a more thorough discussion of household makeup). Prioritizing mixed income housing in the community surrounding the site promotes social equity and may increase the accessibility of near-campus housing for employees of the university as permanent residents of the City. Already nearly half of the study area's population works at Queen's, however, the majority of those that live within the neighbourhood surrounding the site are employed as part- or full-time teaching and research faculty members (see Chapter 3 for a more thorough discussion).

Top to bottom: Single detached houses on Ellerbeck St., Union St., Alwington Pl., and Vandalay Cres., Google, 2018

CHAPTER SUMMARY

As a whole, the information contained within this chapter gives a sense of the assets and gaps that already exist within the community surrounding the site to be redeveloped. Framing the site redevelopment within an understanding of relevant City of Kingston Official plan policies and the current land uses that occupy the area surrounding the site shows that the site is situated within a heavily residential area, and one where the City intends to eventually introduce intensification measures.

Since it is known that residential uses dominated the land use within the community surrounding the site, it is important to look to the amenities and infrastructure that currently serve the residents of this area in order to understand how future planning on the site could serve both university and community benefit. To evaluate the assets and gaps in how the community is served, the planning team used the LEED for Neighbourhood Design evaluative framework to ascertain the neighbourhood components that currently function well to deliver the environmental, health, and social benefits that green neighbourhood design promises, but as well those that are currently lacking, where future planning on the site could ameliorate community wellbeing. Of all LEED-ND criteria assessed, 2 out of 4 criteria in 'Smart Locations + Linkages' and 5 out of 14 criteria in 'Neighbourhood Pattern + Design' met LEED-ND standards for green neighbourhood development. Of those that did not meet LEED-ND standards, several recommendations are made by the planning team, all of which are listed here for ease of reference.

LEED®-ND Criteria Assessed:

- Smart Location
- Tree-Lined + Shaded Streets
- Locations with Reduced Automobile Dependence
- Transportation Demand Management
- Access to Public Spaces + Recreation Facilities
- Neighbourhood Schools
- Transit Facilities
- Reduced Parking Footprint
- Visitability + Universal Design
- Local Food Production
- Walkable Streets
- Compact Development
- Mixed Use Neighbourhood Centres
- Bicycle Network + Storage
- Housing + Jobs Proximity
- Connected and Open Community
- Mixed-Income Diverse Communities

EPILOGUE

The findings in this report provide an informational document for reference in future decision making for campus planning at Queen's University, with a specific focus on the former St. Mary's of the Lake Hospital site. With this focal objective, research was presented investigating best practices in integrated university campus design and describing the greater neighbourhood context surrounding the St. Mary's site.

First, integrated university campus design was examined to explore the opportunities available to Queen's University as a campus embedded in an urban and residential context. Here, we considered the history of integrated and non-integrated university planning, including the drawbacks of separation and opportunities for developing a symbiotic relationship with the community through integration. This research not only supported adopting an integrated approach to campus planning, but also identified the unique characteristics shared by other embedded and integrated campuses. Hence, three core objectives were outlined for increasing campus integration: enhancing neighbourhood connectivity and permeability, designing streets and landscapes that are walkable and built with pedestrian-oriented design, and creating destinations and activity hubs.

The second component established a near-campus community profile for the St. Mary's of the Lake site through a socio-demographic analysis and an analysis of assets and gaps within the community (including a land use inventory). Nearby permanent residents were found to be highly educated, with high household incomes and home ownership. Almost half of the working population in the study area are employed at Queen's, reflected in short commute times and high usage of active transportation. Hence, this assessment revealed a population who would likely be highly invested in decisions regarding the future of the St. Mary's site. Next, the physical context of the neighbourhood was considered to describe and map assets and gaps in the community, using the LEED®-ND framework to identify areas for further consideration in future site redevelopment. Thus, an understanding of the greater community surrounding the St. Mary's site was established.

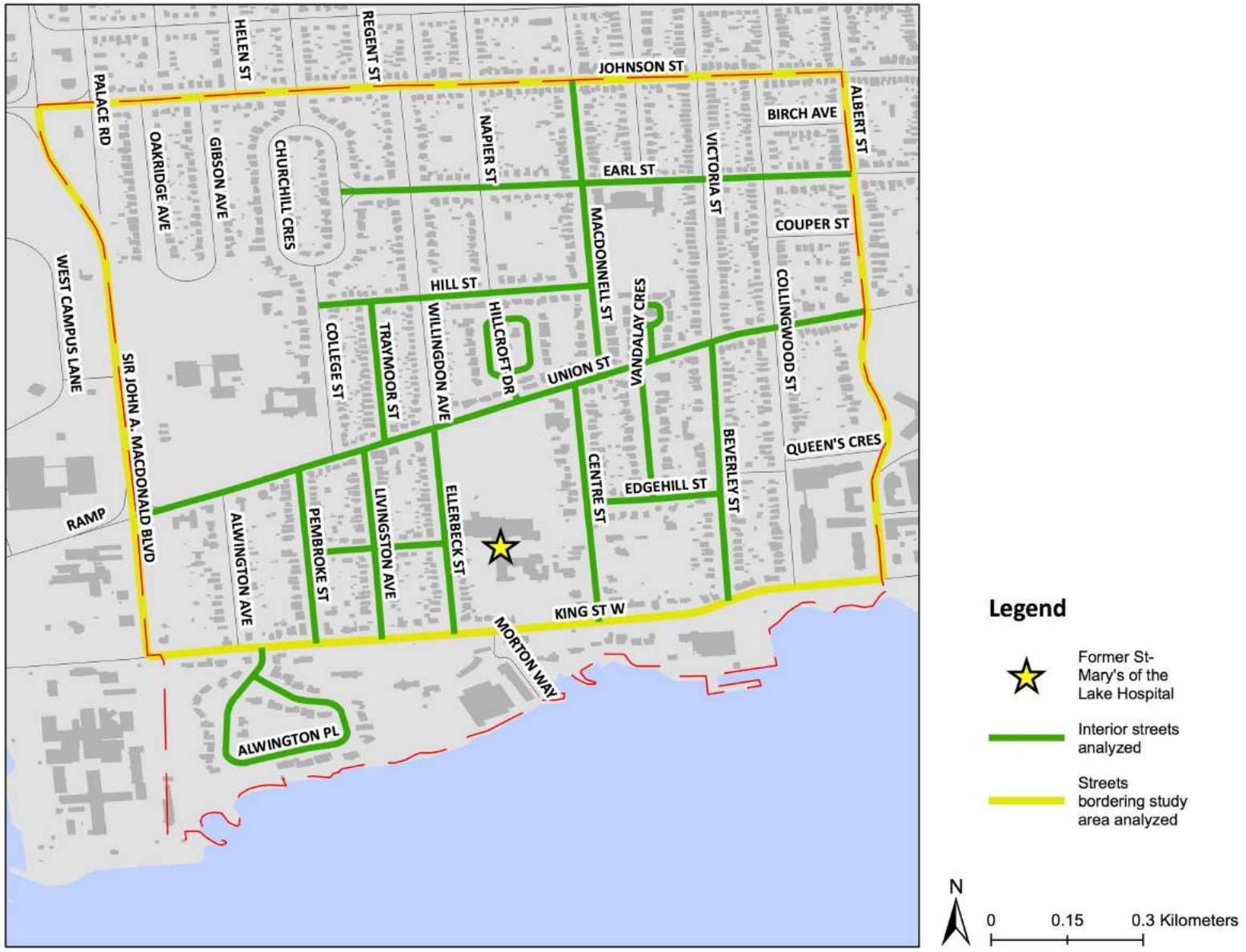
The St. Mary's site presents an important case study for campus integration at Queen's University. As a relatively new and undeveloped property for Queen's, yet situated in an established neighbourhood, the university faces great opportunities and challenges in envisioning how this property will be used in the years ahead. Should the university choose university-community benefits. However, achieving an integrated campus is a long-term process, requiring forward-thinking and ongoing commitment to campus integration.

APPENDIX A: SIMSPON SCORE CALCULATION

2016 Census Profiles Files / Profile of Census Tracts (CT 5210003)

Single-detached house	Duplex or Townhouse	Apartment in a building ≥ 5 storeys	Total # of dwelling units
	• Semi attached house: 30 • Row house: 20 • Apartment in flat or duplex: 75		
Total: 755	**Total: 125**	**Total: 85**	**Total: 965**
(# Single-Detached/ Total # Dwelling Units)^2	**(# Duplex or Townhouse/Total # Dwelling Units)^2**	**(# Apartment/ Total # Dwelling Units)^2**	**Simpson Score**
(755/965)^2 = 0.61	(125/965)^2 = 0.02	(85/965)^2 = 0.01	1- (0.61+0.02+0.01) = 0.36

APPENDIX B: VISUAL ANALYSIS OF BUILDING TYPOLOGY



APPENDIX C: VISUAL ANALYSIS OF BUILDING TYPOLOGY

Street Name	Street Segment	Border	Road Class	Observations
Albert St.	King St. West to Johnson St.	East	Local/Street	• Predominantly single-detached residential structures • Predominantly brick with some siding and some stucco • Storeys range from 1-3, predominantly 2-3 • Apparent student housing north of Union St. • Some apartment buildings fewer than 5 storeys north of Union St. • High density student apartment style residences on southern portion of Albert St. on Queen's Main Campus
Johnson St.	Albert St. to Sir John A. MacDonald Blvd.	North	Arterial Road	• Predominantly single-detached residential structures • Mix of brick, siding and stucco • Storeys ranging from 1-3, mostly 2 • Some semi-detached residential structures • Condo-style, 3-storey brick apartment buildings at 637 Johnson St
Sir John A. MacDonald Blvd	Johnson St. to King St. West	West	Arterial Road	• No residential structures
King St. West	Sir John A. MacDonald Blvd to Albert St.	South	Arterial Road	• Predominantly single-detached residential structures • Predominantly brick, several siding • Storeys ranging from 1-3, predominantly 2 • Several brick row houses near Main Campus

Street	Street Segment	Orientation	Road Class	Observations
Union St.	Albert St. to Sir John A. MacDonald Blvd.	East - West	Collector	• Predominantly single-detached and a considerable number of multi-unit residential structures near Queen's Main Campus • Predominantly brick, several siding and several stucco • Storeys ranging from 1-3, predominantly 2
Earl St.	Victoria St. to Churchill Cres.	East - West	Local/Street	• Predominantly single-detached residential structures • 1 small multi unit, 3-storey residential building • Mix of brick, siding and stucco • Storeys ranging from 1-3, predominantly 2
Davidson St.	Entire Street	East - West	Local/Street	• Exclusively single-detached residential structures • Mix of brick and siding • Storeys ranging from 1-2, predominantly 2
Edgehill St.	Entire Street	East - West	Local/Street	• Exclusively single detached residential structures • Mix of brick and siding • Storeys ranging from 1-2, predominantly 2
Beverly St.	Entire Street	North - South	Local/Street	• Predominantly single-detached residential structures • Mix of brick and siding • Storeys ranging from 1-3, predominantly 2 • Multiple multi-unit residential structures
Kensington Ave.	Entire Street	North - South	Local/Street	• Exclusively single-detached residential structures, • Predominantly brick or stucco • Storeys ranging from 1-3, predominantly 2-3 • Varied styles of architecture

Street	Street Segment	Orientation	Road Class	Observations
Centre St.	Entire Street	North - South	Local/Street	• Exclusively single-detached residential structures • Predominantly brick, stucco and several siding • Storeys ranging from 1-3, predominantly 2-3
Ellerbeck St.	Entire Street	North - South	Local/Street	• Predominantly single-detached with some semi-detached residential structures • Predominantly brick with several siding and stucco • Storeys ranging from 1-3, predominantly 2
Livingston Ave.	Entire Street	North - South	Local/Street	• Predominantly single-detached with some semi-detached residential structures • Mix of siding and brick, more siding than any other street in study area • Storeys ranging from 1-3, predominantly 2
Pembroke St.	Entire Street	North - South	Local/Street	• Mix of single-detached and semi-detached residential structures • Mix of brick and siding • Storeys ranging from 1-3, predominantly 2
Hill St.	Entire Street	East - West	Local/Street	• Exclusively single detached residential structures • Predominantly brick and several siding • Storeys ranging from 1-2, predominantly 2
Hillcroft Dr.	Entire Street	'Looped Street'	Local/Street	• Exclusively single detached residential structures • Predominantly brick, several siding and several stucco • Storeys ranging from 1-2, predominantly 2

REFERENCES

1. Blaik, O. (2007). Campuses in Cities: Places between Engagement and Retreat. Chronicle of Higher Education, 53(25).
2. Perry, D. C., Wiewel, W., & Menendez, C. (2009). The university's role in urban development: From enclave to anchor institution. Land Lines, 21(2), 2-7.
3. Hebbert, M. (2018). The campus and the city: a design revolution explained. Journal of Urban Design, 23(6), 883-897.
4. Hebbert, 2018.
5. Turner, Paul. (1984). Campus: An American Planning Tradition. Cambridge, MA: MIT Press.
6. Turner, 1984.
7. Hebbert, 2018.
8. bercrombie, N. (1974). The university in an urban environment: a study of activity patterns from a planning viewpoint (Vol. 2). Sage Publications (CA).
9. Hebbert, 2018.
10. Hebbert, 2018.
11. Hebbert, 2018.
12. Ossa-Richardson, A. (2014). The Idea of a University and Its Concrete Form. In Temple, P. (Eds.) The Physical University: Contours of Space and Place in Higher Education (pp 131-159). London: Routledge.
13. Domae, Lisa. (2017). Planning the Campus with Place in Mind: A Phenomenological Exploration of the Lifeworlds of Community College Campuses in British Columbia. [Doctoral Thesis]. University of Victoria.
14. Hajrasouliha, A. H. (2017). Master-planning the American campus: goals, actions, and design strategies. Urban Design International, 22(4), 363-381.
15. Turner, 1984.
16. Government of Ontario. (2017). Places to Grow: Growth Plan for the Greater Golden Horseshoe. Retrieved from Ministry of Municipal Affairs and Housing website: http://placestogrow.ca/images/pdfs/ggh2017/en/growth%20plan%20%282017%29.pdf
17. Government of Ontario, 2017.
18. Gumprecht, B. (2007). The campus as a public space in the American college town. Journal of Historical Geography, 33(1), 72-103.
19. Stern, R. A. (2010). Robert AM Stern: On Campus: Architecture, Identity, and Community. Random House Digital, Inc..
20. Stern, 2010.
21. Stern, 2010.

22. Urban Strategies. (2009). University of Waterloo Campus Master Plan Update. Retrieved from https://uwaterloo.ca/plant-operations/sites/ca.plant-operations/files/uploads/files/2009_campus_master_plan.pdf.
23. Urban Strategies, 2009.
24. Blaik, 2007.
25. Domae, 2017.
26. Domae, 2017.
27. Urban Strategies. (2015). UOttawa Campus Master Plan. Retrieved from https://www.uottawa.ca/facilities/sites/www.uottawa.ca.facilities/files/uottawa_master_plan_-_section_4.pdf.
28. Blaik, 2007.
29. Urban Strategies, 2015.
30. Way, T. (2016). The urban university's hybrid campus. Journal of landscape architecture, 11(1), 42-55.
31. Sungu-Eryilmaz, Y. (2009). Town-gown collaboration in land use and development. Lincoln Institute of Land Policy.
32. UIC. (2018). UIC Campus Master Plan Update: 2018 Implementation Plan. Retrieved from https://cppm.uic.edu/Content/master_plan/2018campus/UICMP2018%20v16.pdf, p. 25.
33. Sasaki. (2006). Penn Connects: A Vision for the Future. Retrieved from http://www.pennconnects.upenn.edu/history_pc/PennConnectsAVisionfortheFuture_2006.pdf
34. Sasaki. (2018). University of Pennsylvania Penn Connects. Retrieved from http://www.sasaki.com/project/116/university-of-pennsylvania-penn-connects/
35. Sasaki, 2018
36. University of Washington. (2017). 2018 Seattle Campus Master Plan. Retrieved from: https://cpd.uw.edu/sites/default/files/master-plan/2018_CMP/2017-06-23%20-%20FINAL%20CMP%20TRANSMIT.pdf
37. University of Washington, 2017
38. University of Washington, 2017, p. 46
39. Syracuse University. (2018). Syracuse Connective Corridor Overview. Retrieved from: http://connectivecorridor.syr.edu/about/history/.
40. IBI Group. (2010). Dalhousie University Campus Master Plan. Retrieved from: https://cdn.dal.ca/content/dam/dalhousie/pdf/plan/Dal%20Campus%20Master%20Plan%20Framework%20Plan.pdf
41. IBI Group, 2010.
42. Brockliss, L. (2000). Gown and town: The university and the city in Europe, 1200–2000. Minerva, 38(2), 147-170.
43. Dalhousie University, 2010.
44. Greenberg, K. (2012). Walking home: The life and lessons of a city builder. Vintage.
45. Government of Ontario, 2017.
46. IBI Group, 2010.

47. Lawrence-Hughes, Dorine Lynelle. (2014). Negotiated Communities: A Stakeholder Approach to Understanding Town-Gown Relations During Periods of Campus Expansion. [Dissertation], University of California, Los Angeles. Retrieved on November 9, 2018, from https://search-proquest-com.proxy.queensu.ca/docview/1524264451?accountid=6180.
48. Urban Strategies, 2015.
49. Brockliss, 2000; Sungu-Eryilmaz, Yesim, 2009.
50. Urban Strategies. (2014). Queen's University Campus Master Plan.
51. Urban Strategies, 2014.
52. City of Kingston (2018). 'Section 3.3.A.2 - Queen's University: Objectives' in City of Kingston Official Plan (p. 137)
53. Urban Strategies, 2014.
54. Hajrasouliha, 2017.
55. Hajrasouliha, 2017, p. 369.
56. Hebbert, 2018.
57. Sasaki Associates. (2018). "University of Pennsylvania Penn Connects." Retrieved from:
58. Hebbert, 2018.
59. Way, 2016.
60. Chapman, P. M. (2006). American Places: In Search of the Twenty-first Century Campus. Westport, CT: Praeger Publishers.
61. Reed, C. (2012). Integrated Campus Design: A Proposal For Colorado College. Retrieved from: https://www.coloradocollege.edu/dotAsset/eb34d01a-2e59-4749-8b9f-7d3e557fa0fd.pdf
62. Chapman, 2006.
63. Hajrasouliha, 2017.
64. Hajrasouliha, 2017.
65. Hajrasouliha, 2017, p. 365
66. Chapman, 2006.
67. Way, 2016.
68. Hebbert, 2018.
69. Hebbert, 2018.
70. Way, 2016.
71. Chapman, 2006.
72. Hebbert, 2018.
73. Chapman, 2006.
74. Chapman, 2006.
75. Godschalk, D. R., & Howes, J. B. (2012). The Dynamic Decade: Creating the Sustainable Campus for the University of North Carolina at Chapel Hill, 2001-2011. Univ of North Carolina Press.
76. City of Kingston (2013). City of Kingston and Kingston CMA Population, Housing and Employment Projections. Retrieved from: https://www.cityofkingston.ca/documents/10180/3062316/Projections+Study+Report/6973521d-2c53-4aaa-a206-ae6b1440a89b

77. Devine-Wright, P. (2009). Rethinking NIMBYism: The role of place attachment and place identity in explaining place-protective action. Journal of community & applied social psychology, 19(6), 426-441.
78. Queen's University. (1996). The Mission of Queen's University. Retrieved from: https://www.queensu.ca/secretariat/policies/senate/mission-statement-queens-university
79. Queen's University. (2014). Executive Summary. In Queen's University Campus Master Plan. [PDF Document] Retrieved from: https://www.queensu.ca/sites/default/files/assets/pages/strategicframework/cmp/Queens-CMP-Executive-Summary.pdf
80. City of Kingston (2018a). City of Kingston Official Plan. [PDF Document]. Retrieved from: https://www.cityofkingston.ca/documents/10180/541790/Official+Plan/17793cad-90db-4651-8092-16c587600001
81. City of Kingston, 2018a.
82. City of Kingston, 2018a.
83. City of Kingston, 2018a.
84. City of Kingston, 2018a
85. City of Kingston, 2018a.
86. City of Kingston (2018b). Development and Services Hub. Retrieved from: https://apps.cityofkingston.ca/dash/CityofKingston-v2.aspx?fbclid=IwAR2BwQ9-osCAW_0DmZBuX-tJwh2ArHuJDiCqf2uvRrqu4KNkO7YS1c3xY_w
87. City of Kingston, 2018b.
88. City of Kingston, 2018b.
89. Canada Green Building Council. (2009). LEED® 2009 for Neighbourhood Development with Canadian Alternative Compliance Paths. [PDF Document]. Retrieved from: https://www.cagbc.org/CAGBC/Programs/LEED®/LEED®_Canada_Rating_System/Neighbourhood_Development.aspx
90. Canada Green Building Council, 2009.
91. Canada Green Building Council, 2009, p. 1
92. Canada Green Building Council, 2009, p. 96
93. Canada Green Building Council, 2009, p. 35
94. Canada Green Building Council, 2009, p. 82
95. Canada Green Building Council, 2009, p. 82
96. Canada Green Building Council, 2009, p. 98
97. Fraser Institute. (2018). Schools by Rank, Location, Name. Retrieved from: http://ontario.compareschoolrankings.org/SchoolsByRankLocationName.aspx?schoolType=elementary&SortBy=SchoolCity
98. Canada Green Building Council, 2009, p. 81
99. Canada Green Building Council, 2009, p. 77
100. Queen's University. (2014a). Chapter 4: Campus at the City Scale. In Queen's University Campus Master Plan. [PDF Document]. Retrieved from: https://www.queensu.ca/sites/default/files/assets/pages/strategicframework/cmp/Queens-CMP-Chap-4.pdf

101. Canada Green Building Council, 2009, p. 94
102. Canada Green Building Council, 2009, p. 53
103. Queen's University. (2014b). Executive Summary. In Queen's University Campus Master Plan. [PDF Document]. Retrieved from: https://www.queensu.ca/sites/default/files/assets/pages/strategicframework/cmp/Queens-CMP-Executive-Summary.pdf
104. Queen's University, 2014b.
105. Canada Green Building Council, 2009, p. 56
106. Queen's University, 2014b.
107. Canada Green Building Council, 2009, p. 70.
108. Queen's University. (2014c). Chapter 2: Existing Campus Conditions and Needs. In Queen's University Campus Master Plan. [PDF Document] Retrieved from: https://www.queensu.ca/sites/default/files/assets/pages/strategicframework/cmp/Queens-CMP-Chap-1-3.pdf
109. Canada Green Building Council, 2009, p. 40.
110. Yang, L., Sahlqvist, S., McMinn, A., Griffin, S. J., & Ogilvie, D. (2010). Interventions to promote cycling: systematic review. Bmj, 341, c5293.
111. Canada Green Building Council, 2009, p. 40
112. City of Kingston. (2018). Walk 'n' Roll Kingston: City of Kingston Active Transportation Master Plan Executive Summary. [PDF Document] Retrieved from: https://www.cityofkingston.ca/documents/10180/17995653/Projects_WalknRollKingston_ExecutiveSummary.pdf/567d4300-80a2-4d78-993b-ce6c8414d76a
113. Canada Green Building Council, 2009, p. 42.
114. Queen's University, 2014a
115. Queen's University, 2014a.
116. Canada Green Building Council, 2009, p. 93.