APPENDIX A: ADDITIONAL BACKGROUND INFORMATION

TABLE OF CONTENTS

LIST OF FIGURES

A.1 SUPPORTING MAPS

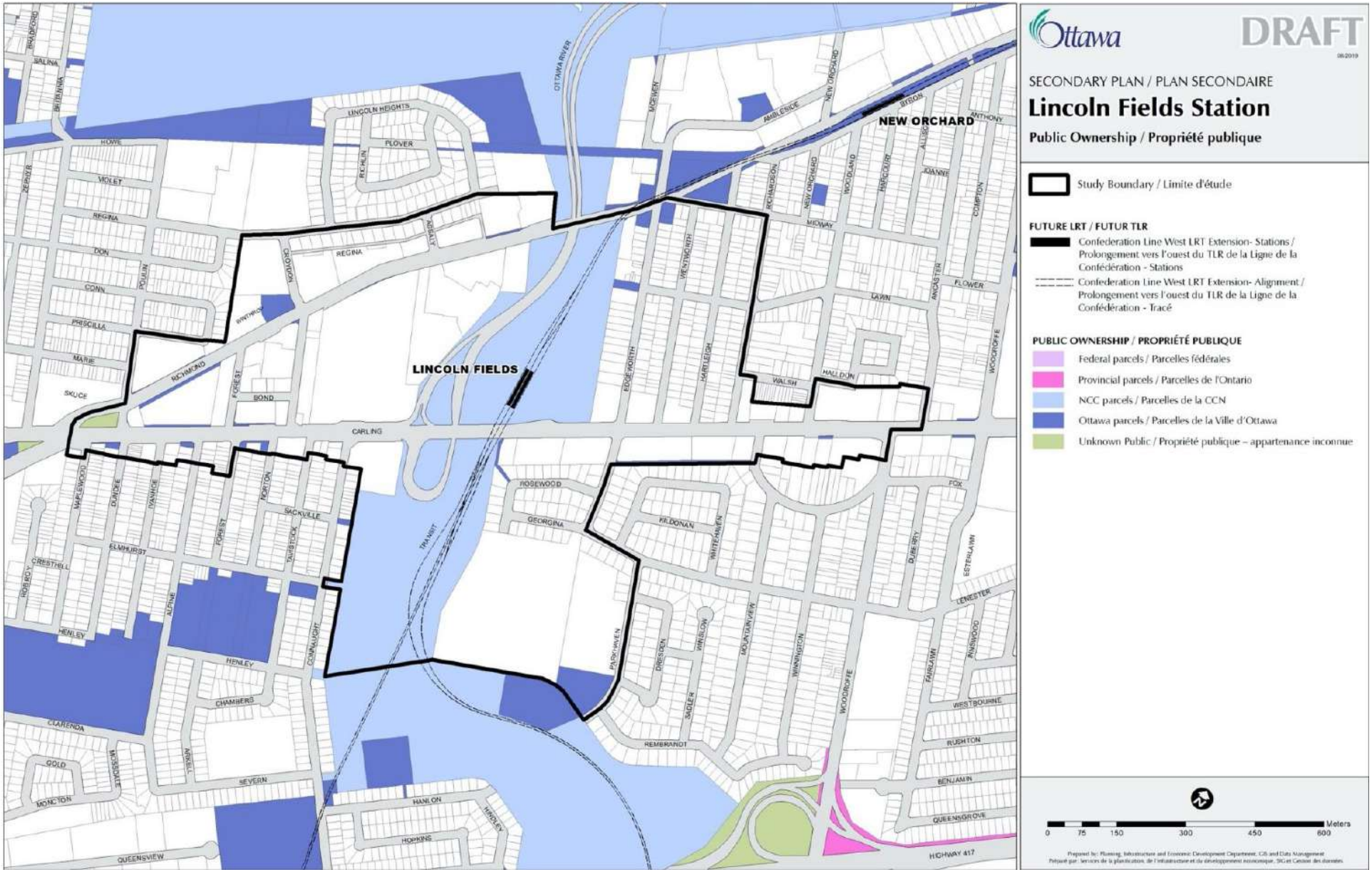

Figure A-1: *Public ownership map, Lincoln Fields Secondary Plan (City of Ottawa, 2019)*

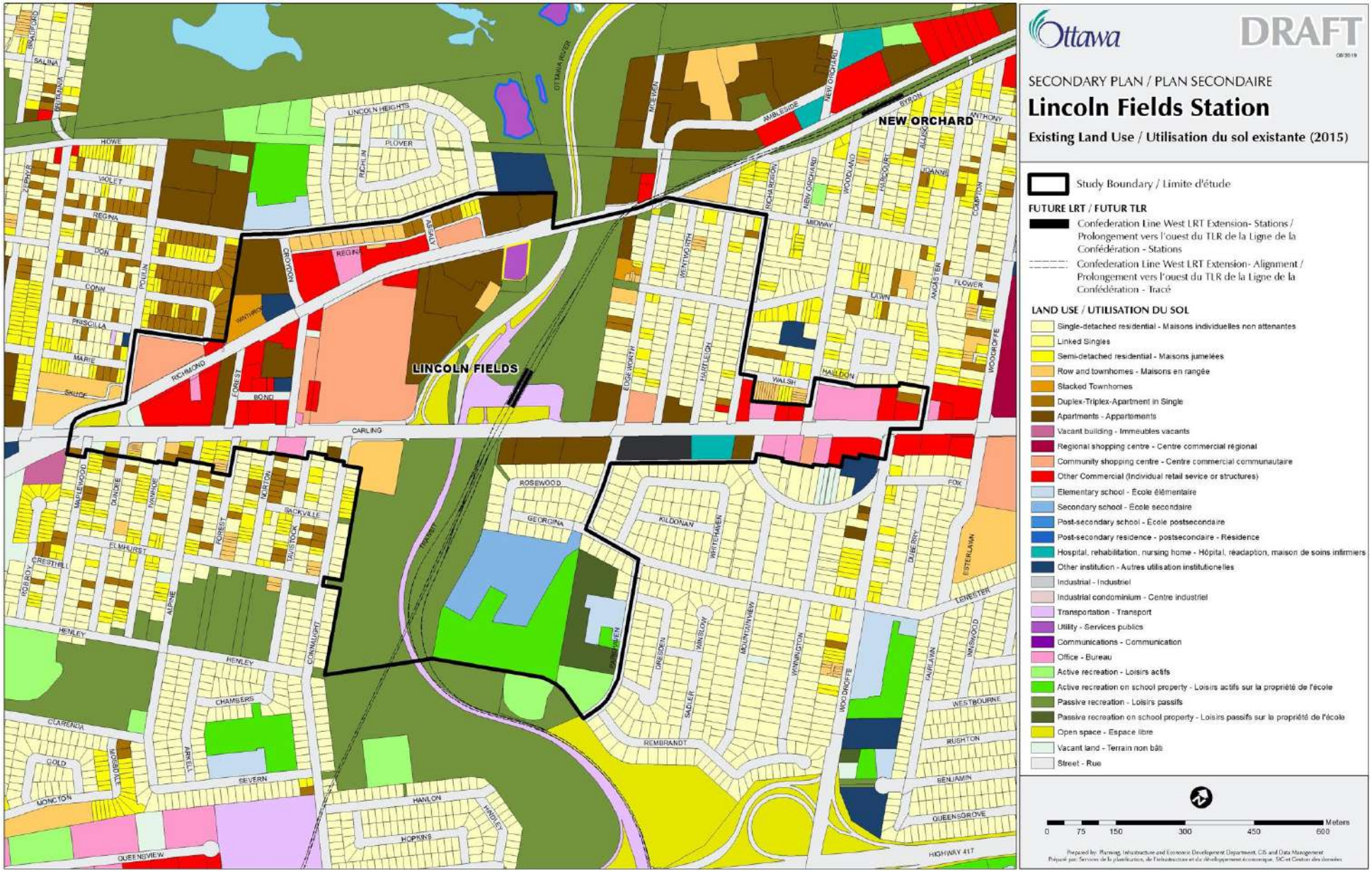

Figure A-2: *Existing land use map, Lincoln Fields Secondary Plan (City of Ottawa, 2015)*

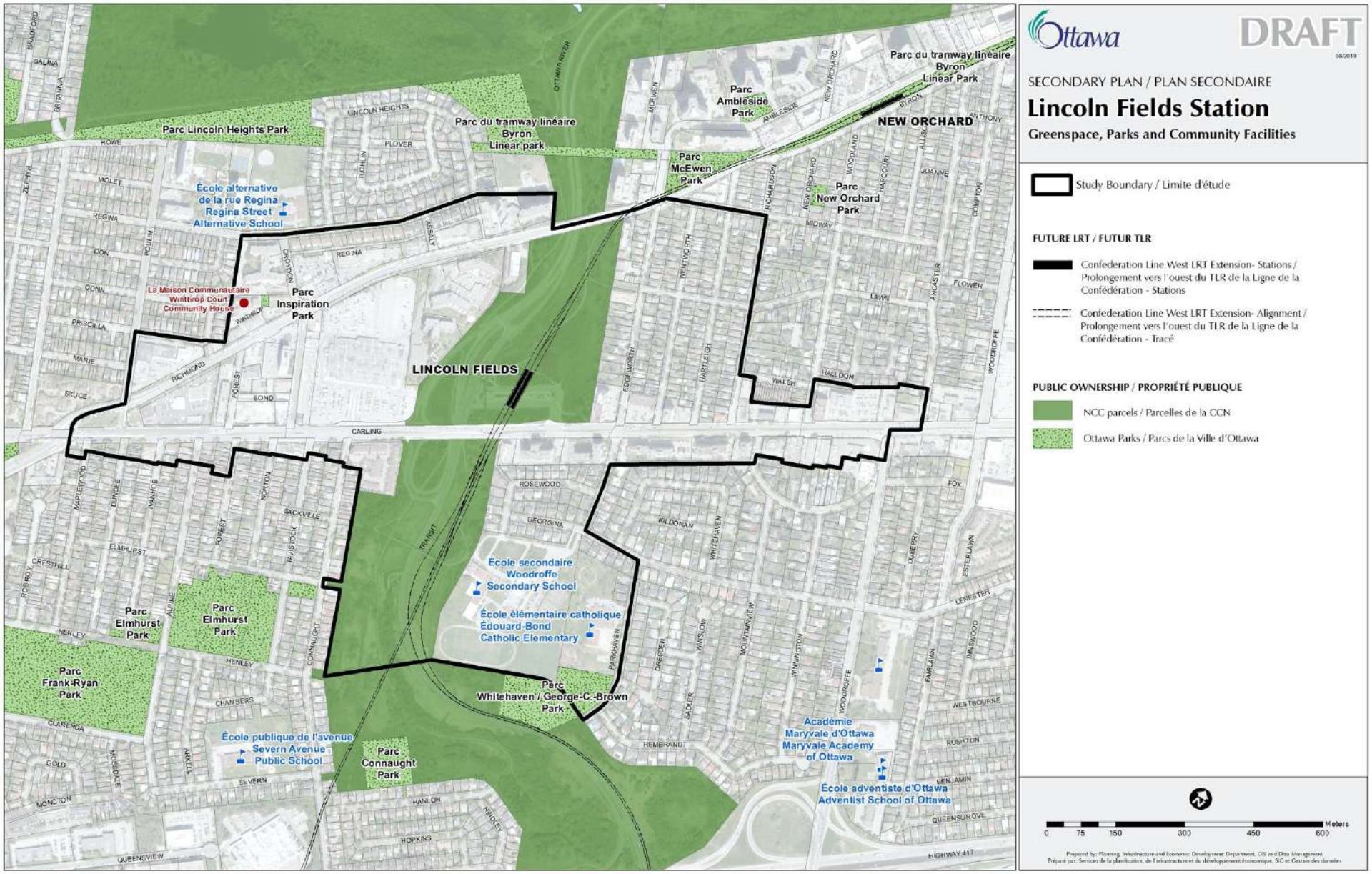

Figure A-3: *Greenspace, parks and community facilities, Lincoln Fields Secondary Plan (City of Ottawa, 2019)*

A.2 SITE VISIT IMAGES

A.2.1 Central Area

Figure A-4: *Linear open space, intersection of Richmond Road and Carling Avenue (SURP, 2019)*

Figure A-5: *Site of former Wendy's, Lincoln Fields Shopping Centre (SURP, 2019)*

A.2.2 NCC Parkway Corridor

Figure A-6: *MUP alongside the Sir John A. Macdonald Parkway and Lincoln Fields BRT Station (left) (SURP, 2019)*

Figure A-7: *Pedestrian bridge connecting Woodroffe High School with Sackville Street (SURP, 2019)*

A.2.3 North-West Area

***Figure A-8**: Strip mall development along Richmond Road (SURP, 2019)*

***Figure A-9:** Quiet residential street, Lincoln Heights neighbourhood (SURP, 2019)*

A.2.4 North-East Area

***Figure A-10:** Quiet residential street, Woodpark neighbourhood (SURP, 2019)*

***Figure A-11:** Community gardens east of Sir John A. Macdonald Parkway, Woodpark neighbourhood (SURP, 2019)*

A.2.5 South-West Area

Figure A-12: *Cloverleaf off-ramp, Sir John A. Macdonald Parkway south of Carling Avenue (SURP, 2019)*

Figure A-13: *Recently constructed semi-detached homes on Alpine Avenue, south of Carling Avenue (SURP, 2019)*

A.2.6 South-East Area

Figure A-14: *Woodroffe High School (SURP, 2019)*

Figure A-15: *Carling Avenue at Edgeworth Avenue, looking west (SURP, 2019)*

APPENDIX B: MARKET ANALYSIS

.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

This market analysis examines the submarkets of Ottawa, relating them to the LFSA. Recommendations for real estate development that should be considered for Lincoln Fields are provided based on current and anticipated trends. Among Canadian cities, Ottawa ranks third place in real estate prospects with strong economic growth (PWC, 2019). Population increase due to migration has recently helped the city surpass one million residents. This milestone may encourage more investors to entre the market (PWC, 2019).

The completion of LRT Stage 1 in Ottawa sparked renovation projects (SunLife Financial Centre, CF Rideau Centre) along the line running east to west through the downtown core. Stage 2 will create 44 more kilometres of LRT. This is expected to spur development opportunities for housing, office, and commercial properties (Colliers, 2019). With many construction projects simultaneously underway, the city is facing a labour shortage that is preventing supply from optimally addressing demand (Marcus & Millichap, 2019).

Table B-1 provides Ottawa's Q2 2019 capitalization rates for Downtown Offices, Suburban Offices, Retail, and Hotel spaces (Colliers, 2019). The redevelopment site falls under the Community Retail category, which has seen a similar cap rate to the previous quarters (Colliers, 2019). High-quality assets and well-located land parcels are experiencing strong demand from purchasers (Colliers, 2019). However, buildings and land with less attractive locations and with large shares of vacancy rates are struggling to attract purchasers at typical cap rates and would likely have to adjust cap rate expectations upwards (Colliers, 2019).

B.1 OFFICE ANALYSIS

The federal government is the largest office tenant in Ottawa and has increased leasing activity in both downtown and suburban markets (PWC, 2019). Federal absorption of space should remain steady into the future (PWC, 2019). Growth in both the government and high-tech sector has contributed to lowering vacancy rates for office space, which are currently the lowest since 2013 (Cushman & Wakefield, 2019). The downtown office market is experiencing few new construction projects, which could result in a bottleneck of downtown office supply. Tenants who rapidly require new space may need to consider options outside the downtown core (PWC, 2019).

Currently, the Ottawa West submarket has an inventory of 3,972,145 sq. ft. with an overall 6.1% vacancy rate. The current net overall absorption has been increasing in Ottawa West to 15,943 sq. ft. in Q2 2019 from 8,046 sq. ft. in Q1 2019. The Ottawa West submarket witnessed a key office sale transaction in Q2 2019 at 144 Richmond, comprising of 1,346 sq. ft. at $743 per sq. ft. Additionally, Q1 2019 witnessed a sale transaction at 329 Churchill Avenue North, comprising of 5,640 sq. ft. at $286 per sq. ft (Cushman & Wakefield, 2019).

Table B-1: Ottawa Q2 2019 Cap Rates (Colliers, 2019)

DOWNTOWN OFFICE					
A		B		Trend	
LOW	High	Low	High	A	B
5.00%	6.00%	6.00%	7.25%	Same	Higher
SUBURBAN OFFICE					
A		B		Trend	
LOW	High	Low	High	A	B
6.25%	7.00%	7.00%	8.00%	Higher	Higher
RETAIL					
REGIONAL/POWER		Community		Strip Mall	Trend
LOW	High	Low	High	Low	High	R/P, C, SM
5.00%	6.00%	6.00%	6.50%	6.00%	6.50%	Same
HOTEL					
URBAN FULL SERVICE		Select Service		Limited Service	Trend
LOW	High	Low	High	Low	High	UFS, SS, LS
6.00%	7.75%	7.50%	8.50%	8.50%	10.00%	Same

B.2 RETAIL ANALYSIS

The Ottawa-Gatineau region witnessed a decade-high GDP growth rate of 2.7% in 2018, yet it has been weakening since the beginning of 2019. The anticipated "Canada 150 hangover" did not impact the region much as expected, yet tourism has slightly slowed (Cushman & Wakefield, 2019). Consumer spending growth decreased from 2.2% in 2018 to 1.7% in the first half of 2019 and is forecasted to decrease over the next year (Cushman & Wakefield, 2019). Similarly, retail sales growth is decreasing from 0.9% to 0.4% across 2018 to 2019. Cannabis legalization brought a new retail market to Ottawa with three stores, the most of any city in Ontario (Cushman and Wakefield, 2019).

Ottawa West has a retail space inventory of 6,703,780 sq. ft. with vacancy of 3% and an average asking price of $37.53 per sq. ft. (Cushman & Wakefield, 2019). The average asking price for retail space is comparable to Ottawa South and Kanata, while the Downtown Core has an average asking price of $42.85 per sq. ft (Cushman & Wakefield, 2019).

The slight increase of retail vacancy from 5.0% over 2018 to 5.1% in the first half of 2019 is due to the notable negative absorption of Neighbourhood Malls in Ottawa (Cushman & Wakefield, 2019). Specifically, Neighbourhood Mall vacancy rates increased from 5.2% at Q4 2018 to 6.8% in Q2 2019 with a current net overall absorption of -164,925 sq. ft (Cushman & Wakefield, 2019). The overall average asking price for Neighbourhood Mall is $33.10 per sq. ft. Neighbourhood Malls include most space across the region (Cushman & Wakefield, 2019).

Total floor area for retail space in Ottawa has remained similar from 2017 to 2018, where Power Centres and standalone big box stores had the largest share of space, increasing to 27.5% of the total in 2018 from 27.3% in 2017 (City of Ottawa, 2019). Office Concourses are the only retail category that experienced a vacancy increase to 4.7% in 2018 from 3% in 2017. Community Shopping Centres experienced the largest growth in vacancy rate, rising from 0.9% to 7% (City of Ottawa, 2019).

Additionally, big box retailers have closed across the city. Landlords have been forced to rethink uses for the old anchor store spaces by redeveloping areas for mixed-use or condominium buildings (Cushman & Wakefield, 2019). Overall vacancy rates across all retail spaces have decreased by 0.5% between 2017 and 2018 (City of Ottawa, 2019).

B.3 RESIDENTIAL ANALYSIS

Housing prices in Ottawa have steadily increased over the last decade (**Figure B-1**). In September 2019, the average price range was $350,000 to $499,000, accounting for 43% of transactions (OREB 2019). In the condominium sub-market, the $225,000-$349,999 price range represented 56% of units sold in September 2019 (OREB 2019).

Figure B-1: Ottawa housing prices (CREA, 2019).

The Housing Market Assessment (HMA) conducted by CMHC has determined that there is a moderate level of vulnerability in national housing markets. Vulnerabilities are defined as imbalances caused by overheating (when sales outpace new listings), overvaluation, and overbuilding (CMHC, 2019). Across all categories, Ottawa's market and rental housing seemed to be performing better

than the national average as it was rated as "low vulnerability" across all three indicators (CMHC, 2019).

In 2019, CMHC reported that the resale market rebounded in the first quarter of 2019 from a downward blip in 2018, due to both the easing of borrowing costs and the strong year-over year growth of the young adult population (CMHC, 2019). This positive trend is expected to continue over the coming quarterly periods.

The CMHC also reported that the market was facing a tight supply of resale homes and rental accommodations (CMHC, 2019). Developers are attempting to respond, but low resale and simultaneous low rental supply paired with high ownership costs for single-detached dwellings has caused an uptick in the development of more affordable housing types (CMHC, 2019). Therefore, multifamily residential builds are in high demand in the Ottawa market.

B.3.1 Multifamily Residential

Over the past year, Ottawa has generally experienced high growth rates in multifamily residential properties, amounting to around $260M in investments (JLL, 2019). Vacancy rates also continue to dip to historic lows, now 1.7%, prompting a response by the development sector that is anticipating considerable levels of growth along the new LRT corridor (JLL, 2019). Stage 2 of the LRT line that will connect the LFSA and downtown core will likely cause rippling effects in this housing market surrounding the new station.

As of 2019, cap rates have demonstrated consistent returns in Ottawa's multifamily residential market. Low-rise (one- to four-storey residential dwellings) report an average return of 4.75%, whereas high-rise (ten storeys or more) are reported to have a slightly more modest return average of 4.25% (Colliers, 2019). These steady rates of return are expected to increase over the coming years LRT reaches the LFSA.

Quality apartment rentals are in high demand, as limited supply and upward rental rates continue to make renting more difficult for those seeking accommodations of this tenure type (Colliers, 2019). Developers are slow to meet this demand. However, 3,500 apartment rental units are set to come online in the next three years in suburban and downtown areas, as well as within peripheral communities like Kemptville and Carleton Place (Colliers, 2019). These trends will likely impact the LFSA, as affordability is of high concern in this housing market.

B.3.2 Housing Affordability

Ottawa-wide trends are signalling an undersupply of affordable rental housing. The population living in rental housing has increased to around 3% between 2016 and 2018, while the supply (by units) has only grown by 1% over that same period (CMHC, 2019). The prices for rental units have correspondingly risen 7.8% and rental houses have increased by 11.3%, leading to a shift in Ottawa's development scene away from single-detached dwellings and towards more affordable forms of housing, such as row housing and apartments (CMHC, 2019).

When measuring the affordability of the study area, 43% of Britannia/Lincoln Heights residents (the CMHC subdivision most closely corresponding to the LFSA) live in unaffordable housing (CMHC, 2019). This means these households spend over 30% of after-tax income on housing. Apartment prices in the Britannia/Lincoln Heights area are $996/mo. for a bachelor, $1,119/mo. for a one-bedroom, $1,424 for a two-bedroom, and $1,636/mo. for a three-bedroom apartment (CMHC, 2019). Considering the income levels of many people in the area, the costs for rental housing are quite high in relation to the annual earnings of residents.

In Britannia/Lincoln Heights, vacancy rates for one, two, and three-bedroom apartments are lower than the City of Ottawa average of 1.7% (**Table B-2**). Average and median rent are relatively high in this submarket, at $1,089/mo. and $1,070/mo. respectively (CMHC, 2019). Most residents in Britannia/Lincoln Heights live in high-rise apartments (CMHC, 2019). This is important for considering the building types that best integrate into the existing built fabric.

***Table B-2**: Vacancy rates per apartment type in Britannia/Lincoln Heights (CMHC, 2019).*

APARTMENT TYPE	ONE-BEDROOM	TWO-BEDROOM	THREE-BEDROOM
VACANCY RATE	1.0%	0.7%	0.0%

Table B-3: Housing type matrix for Britannia/Lincoln Heights (CMHC, 2019)

	SINGLE-DETACHED	SEMI-DETACHED	ROW	DUPLEX	LOW-RISE APT.	HIGHT-RISE APT.	OTHER	TOTAL
BRITANNIA/LINCOLN HEIGHTS	1,110	500	750	270	680	5,665	0	8,975
WESTBORO SOUTH	1,850	75	100	0	390	1,775	0	4,190
WESTBORO S/HAMPTON PK/BRITANNIA	2,960	580	845	270	1,070	7,435	0	13,165

B.3.3 Neighbourhood Housing Breakdown

Whitehaven is an affluent neighbourhood located in the southeast quadrant of LFSA. Recent listings for this neighbourhood range from $649,000 to $2,500,000 (Realtor, 2019). These selling points are reflected in reported annual incomes, which range from $100,000 to $199,000 per year, with an additional 15.7% of the population claiming an income of $200,000 plus annually (Realtor, 2019).

Homeownership is strong in Whitehaven. Roughly 88.5% of the 217 households in this neighbourhood are owned, while 11.5% are rented (Realtor, 2019). Many houses in the Whitehaven neighbourhood are aging, as a reported 47% of the housing supply in this neighbourhood was constructed between 1961 and 1980, and a further 38.2% was constructed before 1960 (Realtor, 2019).The median age of homeowners in Whitehaven was reported to be 45.8 years old with a typical household size of 2.7 people (Realtor, 2019). Furthermore, when considering that 55% of households have children, coupled with the fact that most homebuyers are middle-aged or younger, this neighbourhood is home to numerous young families (Realtor, 2019).

Located just north of Whitehaven, the Woodpark neighbourhood shares many characteristics. An estimated 59% of households have children, the average household income is $210,000, and listed house prices are in the range of $949,000 to $1,048,000 (Realtor, 2019).

Looking west of Woodpark and Whitehaven, a different housing context emerges. Households with children remain in the 59% range but annual household incomes are significantly lower, as 59.8% of the population earn from $0 to $59,000 annually (Realtor, 2019). 70% of this area rents housing accommodations, demonstrating a drastic shift in tenure type (Realtor, 2019). The median age is also lower at 38.4 years old, indicating a younger demographic (Realtor, 2019).

Finally, Ambleside is another neighbourhood located in the northwest LFSA worth noting. This area demonstrates a mix of tenure types, with a ratio of 66.4 to 33.6 of rent-to-owned housing (Realtor, 2019). The majority (63.7%) of households located in this zone earn 0 to $59,000 (Realtor, 2019). The price of recent listings ranged from $199,000 to $415,000, and three quarters of the housing in this neighborhood was constructed in between 1961 and 1980 (Realtor, 2019). This neighbourhood is also characterized by a significantly higher density, with a total of 1,174 households on this small portion of the LFSA (Realtor, 2019). High-rise buildings are the most prominent housing type in this area.

B.4 IMPLICATIONS FOR REDEVELOPMENT

The LRT expansion has catalyzed redevelopment in areas surrounding transit stations. The future LRT station at Lincoln Fields will provide an opportunity for redevelopment in the LFSA. Given low lease rates, proximity to transit, and a dwindling available office supply in downtown Ottawa, employers may consider leasing office space in the future LFSA. As the Lincoln Fields Shopping Centre illustrates, Neighbourhood, Community, and Power & Regional Malls are struggling in Ottawa, and redevelopment should transition existing greyfield sites into mixed-use neighbourhoods with appropriate retail uses.

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APPENDIX C: STAKEHOLDER ANALYSIS

TABLE OF CONTENTS

LIST OF FIGURES

C.1 INTERVIEW PROCESS

On September 13, 2019, the project team interviewed stakeholders from the City of Ottawa, OC Transpo, and NCC. These interviews were administered prior to the LFSA site visit. Questions tailored to each stakeholder were drafted the week prior. These interviews provided insight on stakeholder vision for the LFSA.

Further interviews were also conducted by phone with RioCan and Fotenn Planning and Design. These interviews helped the team understand current RioCan redevelopment priorities for the Lincoln Fields Shopping Centre site. Each interview emphasized how the LFSA is expected to redevelop in the near, medium, and long term.

***Figure C-1**: A current development application for a site adjacent to the LFSA (SURP, 2019)*

C.2 SAMPLE INTERVIEW QUESTIONS

Informed consent was obtained from each interviewee prior to the stakeholder interviews. This included involved acknowledging and signing a consent form (**Figure C-1**). The following sample questions were posed to a Senior Planner from the City of Ottawa:

1. *What case studies should the project team examine when considering the Lincoln Fields Shopping Centre Site?*
2. *What is the vision for this redevelopment in terms of density? How does the phasing impact this vision?*
3. *What is the City of Ottawa's opinion concerning high-rises in this area?*
4. *How do you see open park space playing a role in this redevelopment?*
5. *What are the costs associated with this greyfield redevelopment?*
6. *What is the planned ratio of affordable housing to market rent housing?*
7. *How do you envisage this redevelopment in relation to the future LRT station?*
8. *What level of retail presence does RioCan plan on maintaining on this site?*

Questions like these helped the team better understand Lincoln Fields and stakeholder priorities to address in the LFSA Plan.

C.3 SAMPLE INTERVIEWEE CONSENT FORM

Project Title: *A New Vision for the Lincoln Fields Community*

Researchers: Michael Beauchamp, Mark Gordon, Sean Harrigan, Gavin Luymes, Rachel MacKnight, Bridget Murphy, Adam Shaker, Adrian van Wyk, Victoria Webster
Supervisor: Dr. David Gordon, Queen's University
Sponsorship: City of Ottawa

We are inviting planners in Ottawa to take part in a research study. The purpose of this research is to study the Lincoln Heights Community, located in Ward 7 in Ottawa, Ontario. This research will assist the project team to develop a plan that will guide the evolution of the area. Stakeholder interviews will clarify policy direction to assist the project team in producing an overview of existing conditions in the neighbourhood, policy directions for the area, and opportunities and constraints impacting redevelopment. If you agree to take part, you will be interviewed for approximately one hour at the time and location of your choice and will be asked a set of questions to learn more about your experiences and understanding of City policies in the context of the Lincoln Heights area. The interview will be audio-recorded and later transcribed. There are no known risks from participation in this study. If you feel upset after the interview, please call the Telephone Aid Line Kingston (TALK) at 613-544-1771. As a participant in this research study, benefits could be direct or indirect. In your professional capacity, this study will give you the opportunity to confirm and clarify policy direction from previous long-term planning exercises.

Participation is voluntary. You don't have to answer any questions you don't want to. You can stop participating at any time without penalty. You may withdraw from the study at any time, or request to have your data withdrawn from the study, by contacting Adrian van Wyk at 18agvw@queensu.ca or Mark Gordon at Mark.Gordon@queensu.ca.

Your confidentiality will be protected, to the extent permitted by applicable laws. We will do this by replacing your name with a pseudonym in all publications and a study ID number in all study records. The study data will be stored on an encrypted hard drive on Queen's University servers. The code file that links real names with pseudonyms and study ID numbers will be stored securely and separately from the data on an encrypted USB key. We will keep your data securely for at least five years per Queen's University Policy, after which the de-identified data will be destroyed. The code file identifying your pseudonym and study ID number will be destroyed five years after study closure. In addition to the study team, the project supervisor will have access to participants' data. The Queen's University General Research Ethics Board (GREB) may see your study data for quality assurance purposes.

We plan to publish the results of this study in a report and presentation. Research results may be presented at a conference and/or in an open access publication relevant to the digital library community. We will include quotes from some of the interviews when presenting our findings. We will never include any real names with quotes. We will do our best to make sure quotes do not identify participants. During the interview, please let us know if you say anything you do not want us to quote. When the research is complete, the final report will be available through QSpace, the Queen's Research and Learning Repository at https://qspace.library.queensu.ca. an electronic copy of the report will be provided to any participants that would like one.

If you have any ethics concerns please contact Heather Castledon, Unit REB Chair for the Department of Geography and Planning, Queen's University at Heather.Castledon@queensu.ca or at 613-533-6000 ext. 77216; or the General Research Ethics Board (GREB) at 1-844-535-2988 (Toll free in North America) or chair.GREB@queensu.ca.

If you have any questions about the research, please contact Mark Gordon at Mark.Gordon@queensu.ca or at 226-218-6810; or Dr. David Gordon at gordond@queensu.ca or at 613-533-6000 ext. 77063.

Page 1 of 2

This Letter of Information provides you with the details to help you make an informed choice. All your questions should be answered to your satisfaction before you decide whether or not to participate in this research study. Keep one copy of the Letter of Information for your records and return one copy to the researcher. You have not waived any legal rights by consenting to participate in this study.

By signing below, I am verifying that: I have read the Letter of Information and all of my questions have been answered.

☐ Yes, you have my permission to use quotes/audio record/video record.
☐ No, you do not have my permission to use quotes/audio record/video record.

Signature of Participant/Guardian/ Substitute Decision-Maker	PRINTED NAME	Date
Signature of Person Conducting the Consent Discussion	PRINTED NAME & ROLE	Date

***Figure C-2**: The consent form signed by each interviewee before commencing the interview, as required by the Queen's University General Research Ethics Board (SURP, 2019)*

APPENDIX D: POLICY ANALYSIS

TABLE OF CONTENTS

LIST OF FIGURES

D.1 FEDERAL POLICY

D.1.1 The Plan for Canada's Capital (2017)

This policy articulates the overarching NCC vision for Ottawa. The LFSA Plan must adhere to general NCC standards for design, development, and land use. These include creating compact, walkable neighbourhoods, supporting sustainable transportation, and encouraging TOD. The Sir John A. Macdonald Parkway Corridor is designated "urban greenspace" under this policy, meaning an area that is appropriate for recreation, active transportation, and ecological conservation rather than urban development. Furthermore, these NCC-owned lands are considered National Interest Land Mass (NILM), meaning they cannot be sold. The LFSA Plan should conform to this NCC policy by proposing a compact, sustainable TOD while preserving and enhancing the Sir John A. Macdonald Parkway corridor greenspace.

D.1.2 The Capital Urban Lands Plan (2015)

The Capital Urban Lands Plan details the planning vision for NCC lands within the Ottawa Greenbelt, including the Sir John A. Macdonald Parkway Corridor within the LFSA. This corridor is designated "capital greenspace network," encouraging ecological conservation, the animation of greenspace for leisure and recreation, and the provision of linkages to the surrounding environment. NCC lands within the LFSA are not designated a federal node or gateway, meaning urban or office development is unlikely. This plan also outlines broader NCC standards for design and development, including emphasis on urban intensification, promotion of sustainable mobility, and improvement of connectivity. To conform to the Capital Urban Lands Plan, the LFSA Plan should retain and enhance the Sir John A. Macdonald Parkway greenspace while proposing sustainable, transit-oriented intensification for non-NCC land.

D.1.3 The Ottawa River South Shore Riverfront Park Plan (2018)

The NCC South Shore Plan seeks to animate the Ottawa River waterfront from Britannia Beach to LeBreton Flats, improving access, active transportation linkages, and recreational facilities. The LFSA adjoins Sector A at the western edge of the planning area and should therefore integrate with the vision and recommendations of this plan. These include renaturalizing Pinecrest Creek and designating Richmond Road as a principal gateway to the South Shore waterfront. The LFSA Plan should feature development, connections, and greenspace enhancements that transform the area into a gateway for the revitalized riverfront.

D.1.4 The Parkways and Driveways Policy (1984)

This policy outlines the vision for scenic parkways in Ottawa, including the Sir John A. Macdonald Parkway. These parkways are intended to provide a scenic and comfortable automobile route through the capital for public enjoyment. The NCC has considered updates to the policy that enhance environmental stewardship, provide leisure activities, and facilitate active transportation. The LFSA Plan should be sensitive to the unique vision, role, and future evolution of NCC parkways.

D.1.5 The Pathway Network for Canada's Capital Region (2006)

This strategic plan outlines recommendations for the NCC pathway network, including sections within the LFSA. The plan states that pathways should support multi-modal active transportation, be integrated with the surrounding environment, and feature high quality of experience. The LFSA Plan should consider these standards and objectives when proposing MUPs within the study area and Sir John A. Macdonald parkway corridor.

D.1.6 Canada's National Housing Strategy (2017)

The National Housing Strategy (NHS) is a federal plan for reducing homelessness and encouraging affordable housing in Canada. The LFSA Plan should address

this federal commitment to providing affordable housing. Specific NHS policies that are relevant to the LFSA include locating affordable housing near public transit, improving the diversity of housing choice, and providing dedicated housing and amenities for vulnerable populations, such as the large community of seniors and recent immigrants in the LFSA.

D.2 PROVINCIAL POLICY

D.2.1 The Provincial Policy Statement (2014)

The Provincial Policy Statement (PPS) outlines the provincial vision for land use, the built environment, and sustainability in Ontario. The LFSA Plan must conform to provincial requirements and recommendations in the PPS, such as providing housing choice and diversity, redeveloping underutilized urban land, supporting sustainable transportation, encouraging green infrastructure, and protecting areas of natural amenity.

D.2.2 The Ontario Transit-Supportive Guidelines (2012)

These provincial guidelines offer best practices for transit-friendly community planning and design. The LFSA Plan should draw inspiration and recommendations from these guidelines, such as encouraging intensification at transit nodes, orienting buildings toward the public realm, and creating complete streets that limit automobile traffic and promote pedestrianism.

D.2.3 The Metrolinx Mobility Hub Guidelines (2011)

Developed for planning agencies and departments across Ontario, these guidelines offer strategies for creating successful mobility hubs. The LFSA Plan should consider these guidelines in reimagining the future Lincoln Fields LRT Station, which is located on undeveloped greenspace along a busy arterial. Relevant recommendations include linking the station to development nodes through public space and pedestrian corridors, integrating all modes of transit at the same station area, and using commercial and public space to enhance placemaking at the station itself.

D.3 MUNICIPAL POLICY

D.3.1 The City of Ottawa Official Plan (2003)

The City of Ottawa Official Plan (OP) provides strategic directions and specific land use designations that govern development in the LFSA. From a strategic perspective, the OP states that future growth should be distributed through intensification and infill, higher densities should be located near public transit, urban greenspace should be enhanced, and affordable housing should be provided. Specific policies that apply to the LFSA are expressed through land use designations. Sites in the LFSA with the highest redevelopment potential are designated Arterial Mainstreet, which encourages mixed-use intensification, transit-supportive densities, and human-scale development along the Carling and Richmond arterials. Specific regulations are also provided for density and height:

- **Density:** The target density along the Richmond and Carling arterial is 200 people per hectare, while the current density is 179 people per hectare along Richmond and 133 along Carling (2.2.2)
- **Height:** Tall buildings are appropriate for sites that front Richmond or Carling or are within 800 metres of the Lincoln Fields Station, and buildings up to nine storeys are permitted (3.6.3.12)

The LFSA Plan must be compatible with the strategic and specific objectives articulated in the OP.

D.3.1 The City of Ottawa New Official Plan (Forthcoming)

The City of Ottawa is currently rewriting the OP to help Ottawa become the most livable mid-sized city in North America. The New OP is organized around five “big moves” that inform the LFSA Plan:

- Growth: More growth should be achieved through intensification than greenfield development
- Mobility: Most trips in Ottawa should be made through sustainable transportation by 2046
- Urban Design: New development should feature sophisticated and remarkable urban design

- Resiliency: Public health and environmental sustainability should be at the core of planning and development
- Economy: Economic development should be a core consideration of planning and development

Recommendations of the LFSA Plan should be rooted in the 5 Big Moves, such as transforming the Lincoln Fields Shopping Centre into a mixed-use, transit-oriented town centre, renaturalizing the Sir John A. Macdonald Parkway, and creating a transportation network that prioritizes sustainable transit.

D.3.2 The City of Ottawa Zoning By-law (2008-250)

Zoning By-law 2008-250 outlines specific use regulations that facilitate development in accordance with the OP. The main zones relevant to the LFSA are "Arterial Mainstreet" (AM) and "Residential Second Density" (R2). Properties with the highest redevelopment potential are located in the AM zone, including the Lincoln Fields Shopping Centre and lots lining the Carling and Richmond arterial. The R2 zone includes detached dwelling neighbourhoods that will experience development pressure as rapid transit becomes available, though significant redevelopment is not anticipated. Relevant regulations include the following:

- **Purpose:** The AM zone provides a broad range of commercial, institutional, and residential uses. The R2 zone is for residential use with a maximum density of two units
- **Permitted Uses:** Diverse retail, office, recreational, and residential uses are permitted in the AM zone, including apartments and townhomes. Detached dwellings, group homes, duplexes, and home-based businesses are permitted in the R2 zone
- **Frontage:** Notably, the AM zone requires buildings to make up 50% of the frontage along Richmond and Carling
- **Floor Area Ratio (FAR):** FAR of 2 is permitted in the AM zone, while maximum lot coverage in the R2 zone is 25%
- **Height:** Height ranges from 11 to 30 metres in AM zones, and is 11 metres in the R2 zone
- **Parking:** No parking is required for significant areas of the LFSA, including the former Lincoln Fields Shopping Centre, since the site is located near rapid transit per the Parking Area Z designation

To achieve certain proposals in the LFSA Plan, zoning variances could be required for various development regulations. However, Zoning By-law 2008-250 indicates that mixed uses, street orientation, reduced parking, and context-sensitive height are appropriate for areas along arterial roads and close to rapid transit. Based on these regulations, the LFSA Plan can propose a development that is intensified, mixed-use, and oriented to streets, transit, and pedestrians.

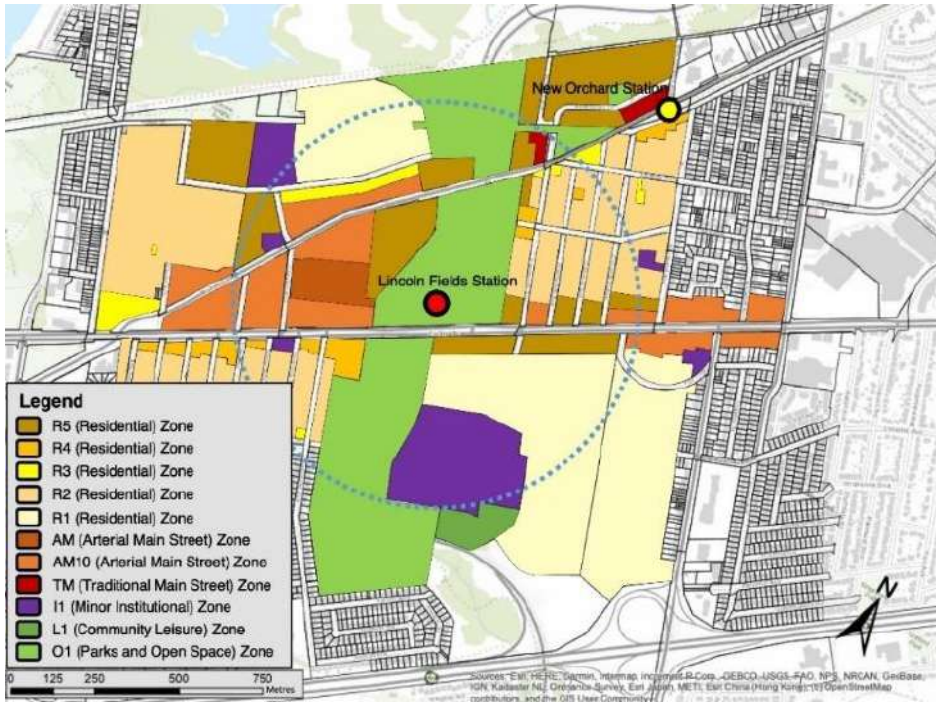

Figure D-1: Prominent Arterial Mainstreet zones in the LFSA that should experience mixed-use redevelopment, along with NCC-owned greenspace that should be retained and enhanced (SURP, 2019)

D.3.3 The Transportation Master Plan (2013)

The Transportation Master Plan (TMP) outlines City of Ottawa transit goals for 2031. These goals reflect social, environmental, and economic sustainability along with organizational accountability and responsiveness. The TMP also

states that 50% of peak period trips in Ottawa should be via sustainable transportation by 2031. The LFSA Plan should address specific recommendations of the TMP such as meeting all mobility needs, delivering efficient service, cooperating with stakeholders such as the NCC, accommodating dedicated bus service along Carling Avenue, and connecting transit stations to development.

D.3.4 The City of Ottawa Cycling Plan (2013)

The Ottawa Cycling Plan (OCP) complements the TMP. The OCP aims to strengthen the city-wide cycling network, especially in suburban areas like the LFSA. According to the OCP, the LFSA is within the Algonquin College Employment Node, meaning bicycle routes consider accommodation of commuters. The LFSA Plan should adopt recommendations of the OCP by providing bicycle connections to surrounding environments, bicycle-friendly routes through developed areas, and bicycle storage and infrastructure at the Lincoln Fields Station.

D.3.5 The City of Ottawa Pedestrian Plan (2013)

The Ottawa Pedestrian Plan (OPP) supports the TMP and considers year-round, all-ages pedestrian needs. The OPP seeks to improve the percentage of trips under two kilometres that are done on foot, which is only 40%. The LFSA Plan should adopt the goals and recommendations of the OPP to enhance pedestrianism in the LFSA. These include creating safe, enjoyable environments for walking, proposing small blocks with mid-block connections to accommodate pedestrian shortcuts, and creating compact, mixed-use development that allows people to access daily needs from either their residence or public transit.

D.3.6 Urban Design Guidelines for High-Rise Buildings (2018)

The LFSA Plan must conform to the City of Ottawa guidelines for high-rise buildings (HRBs). HRBs are buildings over ten storeys in height and are appropriate for numerous areas within the LFSA including mixed-use centres, TOD nodes, and arterial mainstreets. Where HRBs are proposed, the LFSA Plan must consider whether the HRB is a landmark or background building. The experience function of HRBs must also be addressed, meaning the lower portion of the building that interacts with urban fabric and the pedestrian realm. HRBs also require an appropriate transition in height to the surrounding environment. Bearing these guidelines in mind, the LFSA must consider the appropriate role, function, height, and street-level experience of any proposed HRB.

Figure D-2: *An example of height respecting scale. The podium of an HRB should be as high as the fronting street is wide at maximum (City of Ottawa, 2018).*

D.3.7 Urban Design Guidelines for Low-Rise Infill Housing (2012)

These guidelines apply to future low-rise development in stable residential neighbourhoods of the LFSA. These areas will experience development pressure for infill as rapid transit becomes available. Guidelines for appropriate low-rise infill that are relevant to the LFSA Plan include ensuring that the scale of existing built form is maintained, resisting increased automobile traffic, and creating sensitive transitions between stable areas and intense development.

D.3.8 Regional Road Corridors (2000)

The Regional Road Corridors (RRC) policy outlines goals and functions that are relevant to Carling Avenue and Richmond Road within the LFSA. These arterials

are important travel routes, and the LFSA Plan should therefore accommodate all major modes of transportation along the Carling Avenue and Richmond Road corridor. According to the policy, arterial roads function as public space, access providers, multi-modal routes, and service and utility networks. These functions are supported by the various components of an arterial road, namely the right-of-way, adjacent lands, road edge, and intersections. The LFSA Plan should align with this holistic understanding of a regional road corridor, considering how the physical infrastructure of Carling Avenue and Richmond Road should be designed to facilitate public space and multi-modal connectivity. The policy also includes specific guidelines that are used to determine right-of-way design and allowance within the LFSA.

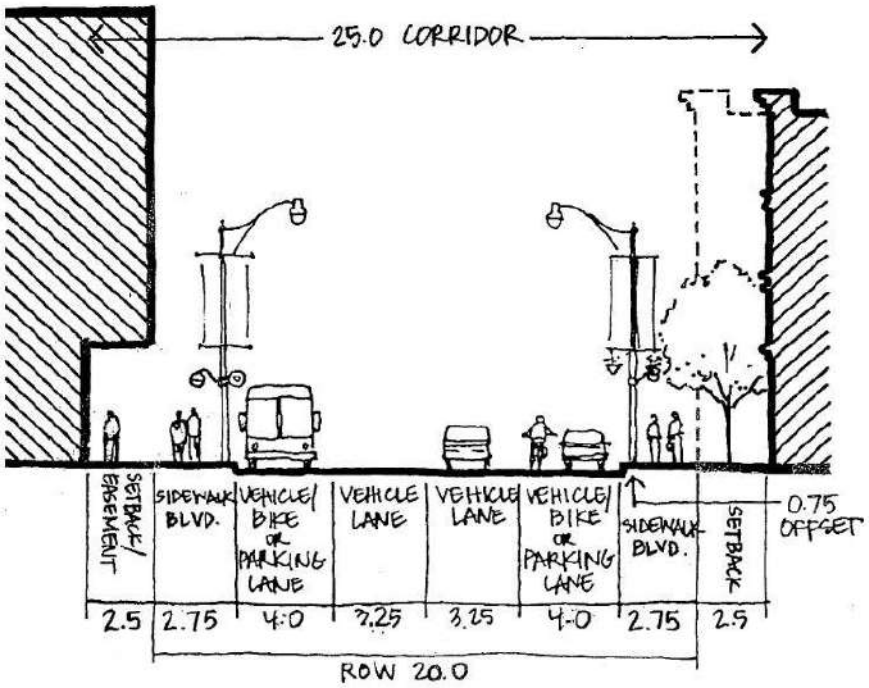

Figure D-3: *Example of a 26-metre complete street right-of-way (City of Ottawa, 2000).*

D.3.9 Urban Design Guidelines for Development Along Arterial Mainstreets (2006)

This policy is more recent and specific than the RRC, providing design guidelines that apply to Arterial Mainstreet (AM) zones within the LFSA. Through addressing issues such as streetscape, parking locations, landscaping, and orientation of built form, the guidelines seek to achieve efficient and inviting development along arterial mainstreets. Recommendations relevant to the LFSA Plan include creating mixed-use intensification, a consistent street edge, and permeable blocks along the Carling Avenue and Richmond Road corridor. Off-street parking should be hidden from view, and a gradual transition between different densities and scales should also be achieved.

D.3.10 Transit-Oriented Development Guidelines (2007)

This policy applies to developments that are served by public transit or 600 metres from a transit station, including the LFSA. The guidelines address land use, layout, built form, pedestrians and cyclists, vehicles and parking, streetscape, and environment. Specific guidelines that are relevant to the LFSA Plan include reducing overall parking, introducing green infrastructure, providing land uses that correspond to local needs, reduction of automobile use, and construction of pedestrian lighting.

***Figure D-4**: An example of interior parking obscured from street frontage (City of Ottawa, 2018).*

D.3.11 Transit-Oriented Development Plans (2014)

This document contains area-specific TOD plans for five rapid transit stations in Ottawa: Lees, Hurdman, Tremblay, St. Laurent, Cyrville, and Blair. Each plan area is based on a 10-minute, 800-metre walking distance. The plans also consider influence areas, which are beyond the study area boundary but could experience future development pressure. Plans are classified based on density and also contain pedestrian, bicycle, street network, land use, and environmental studies. These precedents inform the elements considered and densities proposed in the LFSA Plan.

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APPENDIX E: PRECEDENT CATALOGUE

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TABLE OF CONTENTS

LIST OF FIGURES

E.1 GREYFIELD REDEVELOPMENT

E.1.1 Rockville Town Square: Rockville, MD

The Rockville Town Square is a six-block mixed-use infill project anchored by restaurants, shops, condominium and rental multi-family housing, parking, and two civic buildings (a regional library and a business innovation and arts centre). Rockville Town Square is the first development phase of a 24-hectare town centre master plan. Prior to redevelopment, the site hosted a gas station and the Rockville Mall, an aging but operational regional shopping centre.

Located on the Red Line of the Rockville Metrorail, the pedestrian-oriented project is arranged around a central town square. The two civic buildings and four mid-rise residential structures are located above ground-floor retail space. Located within an established suburban community, Rockville Town Square has become a transformed urban live/work/play environment.

Rockville Town Square was developed by a public-private partnership between retail partner Federal Realty Investment Trust, the City of Rockville, Montgomery County, private sector owner/developer ROSS Development and Investment, and the DANAC Corporation. The County constructed the three-story flagship Rockville Library, and the City built the adjacent five-story Rockville Arts and Innovation Center. These civic buildings include ground-floor retail space and are arranged around the central public plaza.

The plaza is set across from the Rockville Town Square clock tower (**Figure E-1**), serving as a downtown park, gathering space, and setting for community events. Streets within the Rockville Town Square can be closed for special events. Placemaking and human scale is achieved through active street-level retail with tall, detailed storefronts and wide, tree-lined sidewalks with benches and inlaid paving patterns.

DEVELOPER	ROSS Development & Investment DANAC Corporation
LOT SIZE	31.0 hectares
OPENING DATE	2004
RETAIL SPACE	16,700 m^2
OFFICE SPACE	25,000 m^2
INSTITUTIONAL SPACE	13,000 m^2
OPEN SPACE	2,800 m^2
RESIDENTIAL SPACE	68,000 m^2
RESIDENTIAL UNITS	644 (including 94 affordable units)
GROSS RESIDENTIAL DENSITY	60 units per hectare
PARKING	1,500 spaces in 5 garages, surface lots, and street parking
TRANSIT ACCESS	Adjacent to Rockville Metrorail Station (via bridge connection)

Figure E-1: *View of the six-storey clock tower in Rockville Town Square (WDG Architecture, 2007)*

Design priorities for Rockville Town Square were determined based on a hierarchy of user experience. These were pedestrian (primary), vehicular (secondary), and "behind-the-scenes" (tertiary). Higher levels of architectural details are incorporated at significant corners and bays, including turrets, detailed brickwork, and intricate fenestration. Civic buildings, parking structures, and access points are placed in locations that enhance the pedestrian experience. Pedestrian and vehicular access points are prominent, allowing visitors to better navigate the neighbourhood by car and on foot.

Figure E-2: *Figure-ground drawing of the Rockville Mall site in 2002 (left) and 2018 (right) (SURP, 2019)*

Rockville Town Square evolved from a community-based planning process after the City demolished Rockville Mall in 1995. In 2000, the City began working with consultants and stakeholders during an 18-month process involving the creation of three committees, interviews with additional stakeholders, surveys, public meetings, and a public open house. These engagement efforts resulted in the Rockville Town Center Master Plan. The ensuing development has also benefited from approximately $100 million in public financing (including municipal, state, and federal contributions for public-related infrastructure).

Lessons Learned

- Strong public engagement, an area-based master plan, and pre-emptive re-zoning can create momentum and impetus for development
- Prioritizing the pedestrian experience ensures a high standard of design, walkability, sustainability, and funding for future maintenance and improvement
- Mixed-use development, landmarks, and central public space can contribute to placemaking and sustain success of the project

Figure E-3: *View of Gibbs Street right-of-way featuring wide landscaped pedestrian sidewalks, on street parking, and a dedicated cycling lane (MHG, 2015)*

E.1.2 Belmar District: Lakewood, CO

Located in Lakewood, an inner suburb of Denver, Belmar is the redevelopment of Villa Italia, a former 130,000 m^2 regional mall on a 106-acre suburban site. Opened in 1966, Villa Italian was once the largest U.S. mall west of Chicago. However, significant decline in sales and occupancy forced its closure in 2001. Belmar exemplifies the potential for transforming post-war suburban environments into more diverse, compact, sustainable, pedestrian-oriented communities.

Lakewood selected the developer Continuum Partners to transform the site into an "urban downtown." Backed by strong municipal support and extensive stakeholder collaboration, the concept master plan encouraged pedestrian traffic and promoted public space. Over several phases, the large site was divided into 22 distinct blocks. Mixed-use buildings were built to face the new internal streets and public spaces, and active street frontages and pedestrian-scaled buildings created a walkable environment. Ground-floor studios mask parking structures from pedestrian view maintaining an interactive streetscape.

Figure E-4: *Storefronts and streetscapes in Belmar (Continuum Partners, 2018)*

DEVELOPER	Continuum Partners
LOT SIZE	43.0 hectares
OPENING DATE	2004
RETAIL SPACE	102,000 m^2
OFFICE SPACE	25,000 m^2
OPEN SPACE	9 acres of urban parks and plazas
RESIDENTIAL SPACE	200,000 m^2
RESIDENTIAL UNITS	1,300 apartments for rent (61 units of affordable seniors' housing)
GROSS RESIDENTIAL DENSITY	35 units per hectare
PARKING	2,300 surface spaces 2,200 structure spaces 250 on-street spaces (at $0.75 per hour)
TRANSIT ACCESS	8 bus routes through the site Free shuttle to nearby Lakewood-Wadsworth LRT Station

Belmar contains 1,500 residential units in an urban mix of townhouses, lofts, live/work units, affordable seniors' units, condominiums and rental apartments. Belmar also boasts a community contemporary arts centre, cinema, hotel, over 90 retailers, and institutional uses. Additionally, seven hectares of the site are dedicated to public open space, which includes a one-hectare park occupying the central block in the southern residential area and a half-hectare public plaza at the heart of the commercial district (Dunham-Jones & Williamson, 2011).

The site has strong bus connections and offers a free shuttle to the nearby Lakewood-Wadsworth LRT Station on the Regional Transportation District (RTD) West Line. Belmar is also five kilometres from the Alameda RTD LRT station (Lines C, D, E, F, and H).

$165 million (1/5th of total development cost) was spent on public improvements to the greyfield site before redevelopment, including property acquisitions, environmental cleanup, asbestos removal, utilities installations, and drainage control. Continuum paid 25% of these up-front costs and financed the rest through bonds. To pay off the bonds, the City worked with Continuum to secure public funding through tax-incremental financing and a public-improvement fee. The public improvement fee was financed through a 2.5% sales tax on all purchases within the redevelopment site. To further alleviate the financial burden of paying off debt and to reduce the burden on customers, the City waived one cent from its two-cent sales tax (Dunham-Jones & Williamson, 2011) within the boundaries of Belmar for a period of 25 years, or until the debt is paid off.

Continuum also secured a green building loan of $200 million to fund project initiatives, including LEED certifications for select buildings, the recycling and reuse of old building material, a series of 1.8-MW rooftop solar arrays, and the construction of a micro-wind farm located within one of the surface parking lots. (Dunham-Jones and Williamson, 2011). In total, the project was funded through 17 different sources. Belmar now generates over $17 million annually in tax revenue and has realized a 60% price premium for its market-rate residential units.

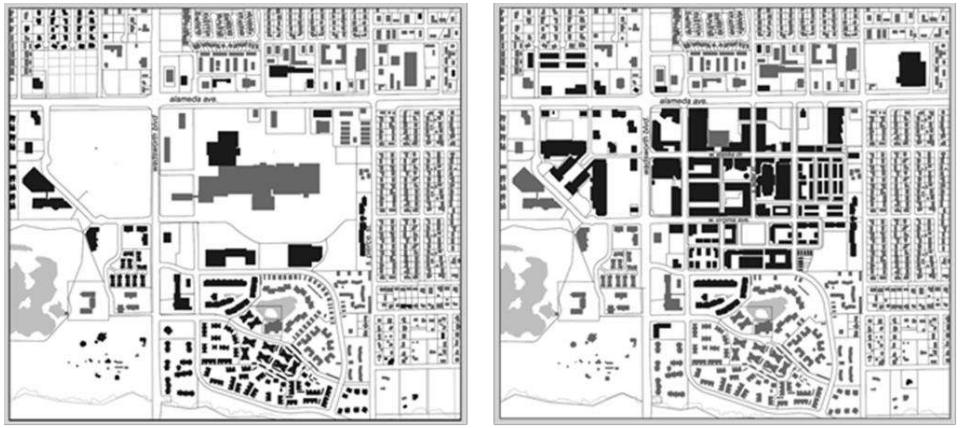

Figure E-5: *Figure-ground drawing of Belmar in 1995 (left) and proposed completion in 2015 (Tachieva, 2010)*

Lessons Learned

- Municipal commitment and the strategic leveraging of funding is critical to project success
- Pedestrian-oriented design creates a fine-grained built environment that better facilitates walkability
- Flexible policy and design that is mindful of future development supports an appropriate mix of uses and ensures the alignment of future street grids, allowing for seamless connectivity

Figure E-6: *Commercial liners at ground-level conceal a parking garage and active street frontage (Congress for the New Urbanism, 2015)*

E.1.3 Mizner Park: Boca Raton, FL

Mizner Park was one of the first large-scale greyfield redevelopments in the U.S. The development is located on the 12-hectare failed Boca Raton Mall site and adjoins low-density stripmalls and single-family dwellings.

The City began to redevelop the mall in 1987, investing $50 million in infrastructure improvements and creating a community redevelopment agency. The Boca Raton Community Redevelopment Agency partnered with developers Crocker & Company and used $68 million of up-front capital and tax-increment bonds to acquire the site.

Built in phases, Mizner Park was completed in 1998. The new mixed-use district includes retail, residential rental units, office space, and cultural facilities, including the Boca Raton Museum of Art.

Mizner Park characterized by a grand parkway plaza (Figure 5). The project has received recognition from the Urban Land Institute and the International Council of Shopping Centers.

DEVELOPER	Crocker & Company Teachers Insurance and Annuity Association
LOT SIZE	12.0 hectares
OPENING DATE	1998
RETAIL SPACE	22,000 m^2
OFFICE SPACE	24,400 m^2
OPEN SPACE	Large central park plaza
RESIDENTIAL SPACE	25,300 m^2
RESIDENTIAL UNITS	272 rental units
GROSS RESIDENTIAL DENSITY	22.7 units per hectare
PARKING	492 surface spaces 2,177 structure spaces
TRANSIT ACCESS	Bus stops along adjacent arterial road

Figure E-7: *'Before' view of Boca Raton Mall in 1980 (Dunham-Jones & Williamson, 2011)*

Figure E-8: *'After' view of Mizner Park showing its publicly owned and maintained linear park (Google Earth, 2019)*

The first phase included three- and four-storey buildings with office space and apartments built over ground-floor retail lining the central park. Due to initial success, later phases added a nine-storey residential building, seven-storey office building, and furniture store. In keeping with the City's request to create a cultural hub, a 1,800-seat concert hall and outdoor amphitheatre were built at opposing ends of the park. Four large parking structures are located within each quadrant of the plan. The garages are lined with townhouses, masking the parking space and providing an appropriate transition to the surrounding development.

Since the completion of the first phase, Mizner Park has been a successful project and significant source of tax revenue. The retail space is fully leased and profitable, the outdoor space is heavily utilized, and the residential units are in high demand.

However, criticism remains regarding the integration of Mizner Park with its low-density surroundings. Additionally, since there are limited external connections to the central plaza, access and visibility to the community is limited from surrounding arterial roads.

Lessons Learned

- Redevelopment agencies can catalyse development, and strategic methods of public financing can propel a project forward
- Ensuring that internal streets intersect existing arterials will attract visitors, increase visibility and use of the urban public areas, and improve public support for the project
- Civic and institutional uses are critical to the success of a mixed-use project, fostering interest and sense of place within the community
- Initial development centred around public open space can contribute to and accelerate project success

Figure E-9: *View overlooking the central plaza at Mizner Park (Brookfield Properties, 2017)*

Figure E-10: *Public realm amenities within the central plaza at Mizner Park (Brookfield Properties, 2017)*

E.1.4 Shops at Don Mills: Toronto, ON

Featuring a lifestyle-focused design concept, Shops at Don Mills is among the most popular shopping and entertainment destinations in Toronto. The "urban village" theme of the masterplan is centred around a town square and main street, emphasizing the creation of a pedestrian-friendly environment. The plan was strategically conceived and developed to animate and transform the Don Mills Centre into a more desirable destination.

Figure E-11: *The Shops at Don Mills, featuring a pubic plaza (Cadillac Fairview, 2010)*

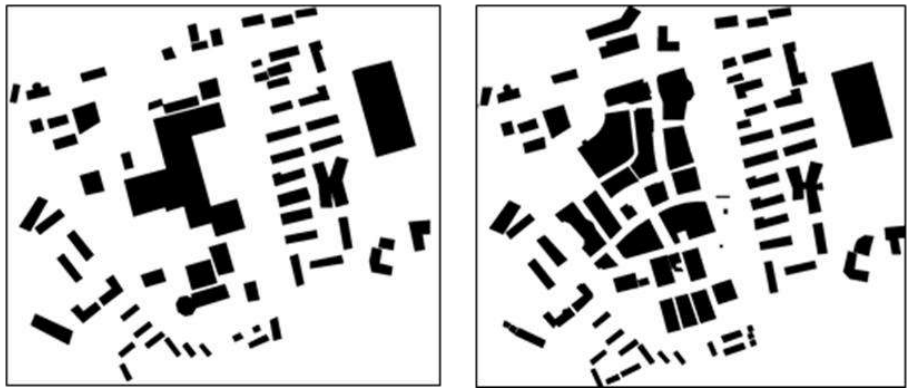

Figure E-12: *Figure-ground drawing of the Shops at Don Mills site in 2002 (left) and 2018 (right) (SURP, 2019*

DEVELOPER	Cadillac Fairview Corporation Limited FRAM Building Group Lanterra Developments
LOT SIZE	16.0 hectares
OPENING DATE	2009
RETAIL SPACE	48,000 m^2
OFFICE SPACE	6,000 m^2
INSTITUTIONAL SPACE	4,700 m^2 community centre
OPEN SPACE	Central plaza 6,000 m^2 public park
RESIDENTIAL UNITS	2,050 units
PARKING	1,000 structure spaces 1,500 on-street spaces Additional sub-grade parking for residential towers
TRANSIT ACCESS	Future LRT access to Science Centre Station on Eglington Crosstown Line Local and express bus routes

Phasing plans were utilized to maintain parts of the existing shopping centre during the initial construction project. This two-phase, 16-hectare mixed-use development is comprised of retail, office, and residential uses. Phase 1 exclusively involves retail, restaurant, and office use, including a 1,000-car parkade. Phase 2, planned around the periphery of the retail area, includes 2,050 residential units in low- and mid-rise buildings with underground parking.

The Market Square is a place of communal gathering and special events including festivals, concerts, pop-ups, and local markets.

The design involved the placement of driveways and underground garage entrances in strategic locations that did not interfere with pedestrian movement and urban design. Internal streets were designed to be pedestrian-friendly with on-street parking and decorative pavement treatments.

In 2001, Cadillac Fairview filed for a mixed-use redevelopment of the Don Mills Centre shopping mall. The application was appealed to the Ontario Municipal Board (OMB) in July 2007 and settled in 2010. The settlement established that in return for increased density, a large community centre would be provided.

Figure E-13: *Map of the Shops at Don Mills showing plans for future residential and commercial development (Cadillac Fairview, 2010)*

The development was recently renovated to add more restaurants. Other improvements include a new pedestrian connection to an adjacent arterial road, the addition of iconic entry pylons, and a fountain in the public plaza. A major wayfinding program was implemented throughout the site to attract and guide visitors. The final 16-hectare site will house over 3,000 residents and provide significant retail opportunities to the wider Toronto community.

Lessons Learned

- Creative approaches are required to keeping existing parts of the original shopping centre open and functional during construction of the new development
- Considering the dining, shopping, and entertainment experience of a mixed-use development is important for neighbourhood success
- Maintaining cooperative working relationships with the City will ease the development process and prevent roadblocks
- Prioritizing the pedestrian experience is critical to a successful mixed-use development

E.2 MOBILITY HUBS

E.2.1 Joyce-Collingwood Village: Vancouver, BC

Joyce-Collingwood Village is a mixed-use neighbourhood in outer Vancouver with mobility hub access to the elevated SkyTrain. Five bus routes serve the station, providing both local and express routes. The surrounding area contains mid- to high-rise mixed-use development including a community centre, elementary school, and neighbourhood policing centre.

The village was developed from an industrial rail yard by Concert Properties in close consultation with the City of Vancouver and neighbourhood groups. High levels of pedestrian connectivity are achieved through mid-block connections and human-scale development. Diverse housing types contribute to the desirability of the village, along with community amenities and public art.

Figure E-14: *Public art space below the elevated SkyTrain corridor (Translink, 2008)*

Since opening, the station has accomplished significant transit mode shifts in the area. 55% of residents commute via public transit, with an average weekday ridership of 30,000 (Statistics Canada, 2011).

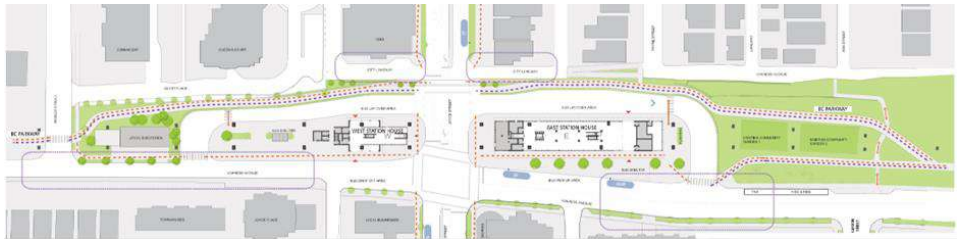

Figure E-15: *Long-term station upgrade plan (City of Vancouver, 2017)*

DATE COMPLETED	November 2006
SITE AREA	11.3 hectares
RIDERSHIP	30,000 passengers per day
PARKING	2,173 spaces
BICYCLE PARKING	50 spaces

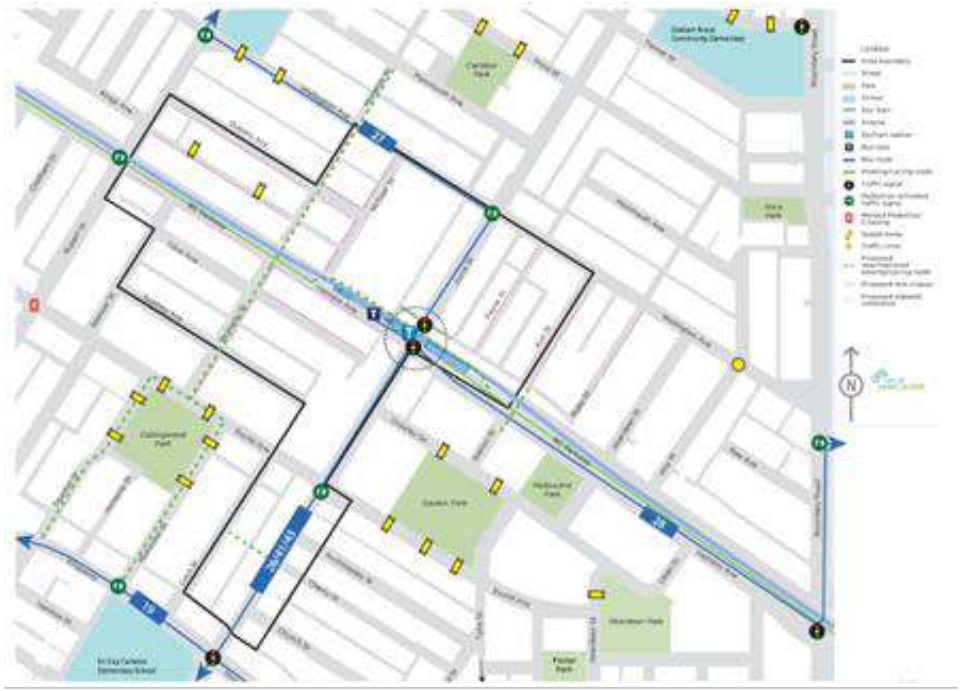

Figure E-16: *The existing transportation network with proposed walking and cycling routes (City of Vancouver, 2017)*

The station is being upgraded in two phases to accommodate more passengers. The upgrade includes additional elevators and escalators to facilitate access to and from the ground level, along with more pedestrian lighting. A bicycle parkade with 50 spaces and commercial retail unit are included.

The station is close to the BC Parkway, a multi-use pathway that runs parallel to the SkyTrain. A pedestrian bridge has been proposed for the Parkway to avoid busy arterial roads, and numerous priority areas have been identified for the improvement of pedestrian facilities. These areas were selected based on connection to important destinations such as school, community centres, transit stations, and shopping areas.

The area also experiences significant vehicular traffic due to surrounding arterial roads. The flow of buses at Joyce-Collingwood Station has been adjusted to function in this high-traffic environment. Modal shifts occur gradually, and the road network should be efficiently managed to improve safety and minimize congestion for all users.

Lessons Learned

- Significant mode shifts can be achieved with appropriate connectivity to desirable destinations
- Projects should feature close consultation with the City and community groups
- Small blocks with mid-block connections and human-scale development contribute to walkability
- Elevators and escalators should be used to accommodate grade change
- Continuous sidewalks and pedestrian bridges protect and facilitate active transportation

E.2.2 Millennium Park: Chicago, IL

Millennium Station illustrates the potential for pedestrian and bicycle facilities in a rapid transit station. The station connects users travelling via commuter rail and local bus routes throughout downtown Chicago.

Figure E-17: *View of the station and Millennium Park Cycle Center (SOM, 2015)*

The station features underground "pedways" that provide pedestrian connection to other metro lines and nearby commercial, residential, and office space. The pedways were designed as safe, inviting spaces that provide protection from extreme weather conditions. Painted lines on the floor contribute to improved wayfinding. Retail is embedded within the pedways to increase convenience for travellers while making the station a safe and inviting destination through activity.

DATE COMPLETED	2002
SITE AREA	6.9 hectares
RIDERSHIP	18,000 passengers per day
PARKING	0 spaces for commuters
BICYCLE PARKING	300 spaces

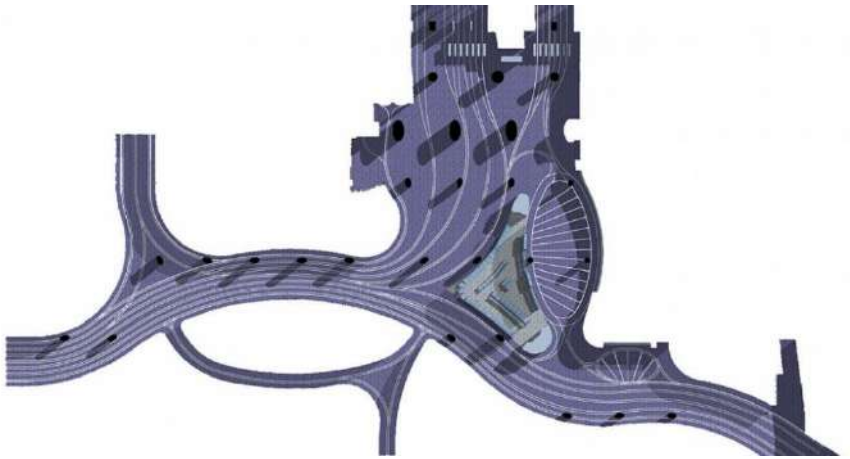

Figure E-18: *Plan view of the underground pedways throughout Millennium Station (SOM, 2015)*

Figure E-19: *View from within the underground pedways (SOM, 2015)*

The station also includes the Cycle Center, a three-storey bicycle facility with both long- and short-term parking, a repair station, and a bike rental station. End-of-trip facilities including showers and changerooms are provided in the Center. This multi-use facility services a wide range of cyclists and trip types. Indoor bicycle parking uses double-stacked bicycle racks to conserve space.

Lessons Learned

- Underground or sheltered pedestrian pathways can provide protection from weather
- Pathways can feature direct connection from surrounding buildings to the station
- Wayfinding can be improved through design features such as painted lines
- Stacked bicycle racks provide efficient storage
- End-of-trip facilities enhance the active transit experience
- Diverse bicycle facilities accommodate a wider range of users
- Commercial integration increases station activity, convenience, and placemaking

Figure E-20: *Double-stack bicycle storage within the Cycle Center (City of Chicago, 2005)*

Figure E-21: *Deconstructed view of Millennium Station below-grade (SOM, 2015)*

E.2.3 Union Station: Denver, CO

Union Station is a mobility hub with successful integration of public spaces and convenient access to community destinations. Constructed on an industrial rail yard, the station serves LRT, regional rail, and the Denver bus system.

The station incorporates commercial uses to increase convenience and placemaking. The surrounding land uses are connected via cycling infrastructure and pedestrian walkways and include office, retail, residential, festival grounds, and hotels.

Figure E-22: *Plan view of Union Station (Union Station Denver, 2010)*

The station design includes vibrant colours and natural lighting to aid navigation between transit modes. The design features significant open space including plazas, gardens, and pavilions that integrate the station with the surrounding neighbourhood and pedestrian network. The open-air platforms use tensioned canopies to provide weather protection. Free wi-fi is provided throughout the station to help users access real-time transit information.

DATE COMPLETED	2014
SITE AREA	20.3 hectares
RIDERSHIP	44,865 passengers per day
PARKING	2,400 spaces
BICYCLE PARKING	Indeterminate

Figure E-23: *Plan view of the industrial rail yard prior to construction (Union Station Denver, 2010)*

The station also features two free, electric-powered shuttle buses that connect to downtown Denver. These shuttles help address the first- and last-mile problem of public transit. Shuttles run more frequently during peak travel times, alleviating rush-hour traffic.

Diverse bicycle parking options are provided in and around Union Station. Bike racks are provided on both trains and buses. Bikeshares are also prevalent in the area, meaning the size of bicycle facilities is difficult to determine. However, a survey of area cyclists found 70% satisfaction with the amount of bicycle facilities in the station (Regional Transportation District, 2015).

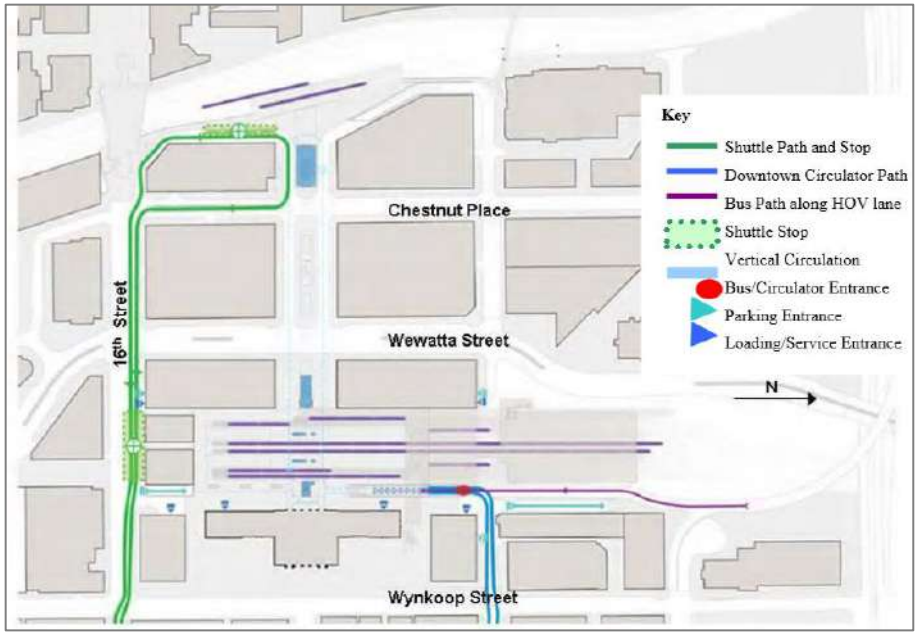

Figure E-24: *Mall shuttle and circulation routes (Union Station Denver, 2010)*

Figure E-25: *View of Union Station from the canopied platforms (SOM, 2015)*

Key Lessons

- Shuttle services can solve the first- and last-mile transit problem
- Public spaces should be integrated with the station
- Commercial uses establish convenience and placemaking
- Wayfinding can be improved via design
- Free wi-fi provides real-time transit information and improves user experience

E.2.4 Central Station: Rotterdam, The Netherlands

Rotterdam Central Station is a mobility hub that provides innovative wayfinding and connectivity through station design with exceptional attention to serving bicycle transit. The station was designed to integrate with the surrounding environment, providing seamless transition in modes of transportation and built form. The northern entrance meets low-rise surroundings while the grand southern entrance meets open space, providing a gateway to the station.

Figure E-26: *Aerial view of Rotterdam Central Station (Linders, 2013)*

Bus, tram, and short-term parking is integrated with the existing fabric. Private motorized traffic is only able to access the station front temporarily. This reduces congestion while encouraging more sustainable modes of travel.

Solar panels on the building roof provide power, reducing CO_2 emissions by 8%. Natural light and wood tones make the station hall feel warmer and more inviting, enhancing user experience.

DATE COMPLETED	2014
SITE AREA	7.0 hectares
RIDERSHIP	110,000 passengers per day 323,000 anticipated by 2025
PARKING	750 temporary spaces
BICYCLE PARKING	5,190 spaces

Underground facilities provide parking for 5,190 bicycles, the majority being free of charge. Electronic sensors on the parking spaces indicate the number and location of vacant spaces at the entrance. Mirrors help cyclists navigate and avoid collisions around corners. The double-stacked bicycle racks are hydraulically powered to facilitate ease of use for all cyclists. “Travellator” moving walkways allow bicycles to be easily moved in and out of the underground facility. Opportunities to rent and share bicycles are provided.

Figure E-27: *Rotterdam Central Station Main Hall (Linders, 2013)*

Figure E-28: *Double-stacked bicycle parking in Rotterdam Central Station (Bicycle Dutch, 2015)*

Figure E-29: *Travellators provide access to bicycle parking in Rotterdam Central Station (Bicycle Dutch, 2015)*

Lessons Learned

- Station should be integrated with the urban fabric
- Stacked bicycle racks increase efficiency of space
- Travellators increase ease of access to bicycle storage and parking
- Wayfinding can be improved through design
- Diverse bicycle facilities should be provided

E.3 TRANSIT-ORIENTED DEVELOPMENT

E.3.1 Gladstone: Ottawa, ON

Following an update to the TMP, the City of Ottawa created a Community Design Plan for Gladstone Station in December 2009. This planning process was initiated through designating the Carling-Bayview corridor a major LRT node.

The area surrounding Gladstone Station is owned by Public Works and Government Services Canada (PWGSC) and was identified as underutilized in the 2004 *Where Will We Live* report. The site was characterized by large industrial use and smaller-scale residential and commercial properties. Gladstone Avenue is the major collector in this area, servicing east-west travel demands. An MUP along the LRT corridor accommodates cycling and pedestrian transit.

The Gladstone Plan features significant attention to public space, expanding Bland Bath and Plouffe Park by over 20% to provide more recreational space. A two-acre park will provide open space in the heart of the community. The station will include a new public plaza with a mix of activities and public infrastructure.

Figure E-30: *The Gladstone Station concept plan (HOK, 2014)*

LANDOWNER	The City of Ottawa (transit corridor) The National Capital Commission (several fragmented properties around the corridor)
LOT SIZE	30.1 ha
DEVELOPMENT DATE	Underway
PREVIOUS SITE USE	Industrial, low-density residential, commercial
PLANNED SITE USE	Mixed-use residential TOD
PROJECTED POPULATION	12,750
GROSS FLOOR AREA RATIO	1.8
RETAIL SPACE	34,271 m²
OFFICE SPACE	117,272 m²
RESIDENTIAL SPACE	323,891 m²
RESIDENTIAL UNITS	3,017
GROSS RESIDENTIAL DENSITY	100 units per hectare
PARKING	No surface parking required

Figure E-31: *Rendering of the entrance to Gladstone Station (City of Ottawa, 2018)*

Most new transit-supportive development is located directly on the LRT corridor itself. This focuses density and activity around the transit node. The street network will be reconfigured to include new streets, mid-block connections, and a pedestrian and cycling bridge reaching a new MUP along the transit corridor.

Lessons Learned

- Conduct extensive community consultation
- Underutilized land provides significant opportunity for infill
- MUPs enhance the activity and sustainability of a transit corridor
- Station plazas create unique public space concentrated on transit
- Street networks should be reconfigured for small blocks and mid-block crossings

E.3.2 Brentwood Station: Burnaby, BC

Prior to redevelopment, the Brentwood Station area was an auto-oriented mall and low-density residential neighbourhood with large surface parking lots. However, with the construction of the Millennium SkyTrain Line, the City of Burnaby identified an opportunity to transform the area into a vibrant town centre. Redevelopment focused on creating an urban residential and retail village at the Brentwood SkyTrain Station.

Figure E-32: *Rendering of the final Brentwood Station and adjoining mixed-use centre (Bosa, 2019)*

The redevelopment was divided into unique precincts, each with specific roles. The urban residential area achieved transition in built form from low-density residential neighbourhoods to the planned mixed-use centre. The mixed-use precinct provided diverse uses including residential, office, and commercial. This was achieved through tall buildings on podiums close to the station. The retail village designation transformed the existing big-box mall into an urban retail main street. Finally, the transit hub contained the highest densities at Brentwood, including towers up to 90 metres in height. Parking in the area was reduced, encouraging users to access the station via transit.

LANDOWNER	The City of Burnaby
LOT SIZE	35.6 ha
DEVELOPMENT DATE	1997, 2011 – Present
PREVIOUS SITE USE	Industrial, commercial, residential
PLANNED SITE USE	Mixed-use residential TOD
PROJECTED POPULATION	16,500
GROSS FLOOR AREA RATIO	3.6
RETAIL SPACE	1,100,000 m²
OFFICE SPACE	117,272 m²
RESIDENTIAL SPACE	272,248 m²
RESIDENTIAL UNITS	7,000
GROSS RESIDENTIAL DENSITY	531 units per hectare
PARKING	1,400 spaces

Figure E-33: *Brentwood Town Centre land use plan (Bosa, 2019)*

The project has intensified since 2011. In total, 11 towers will be constructed in the Brentwood Station area, with many more planned in adjacent districts. Some of the residential development will include affordable housing dispersed among diverse housing types.

Key Lessons

- Dividing TOD into precincts allows different areas to focus on unique functions that contribute to designing an urban centre
- Phased development should consider current and future access to station
- Transition in built form should be achieved from surrounding neighbourhoods
- Tower podiums contribute to human-scale design at street level
- Diverse housing options can provide opportunities for affordability and community vibrancy

Figure E-34: *Brentwood Town Centre features large point towers sitting on top of podiums and townhomes at street-level (Bosa, 2019)*

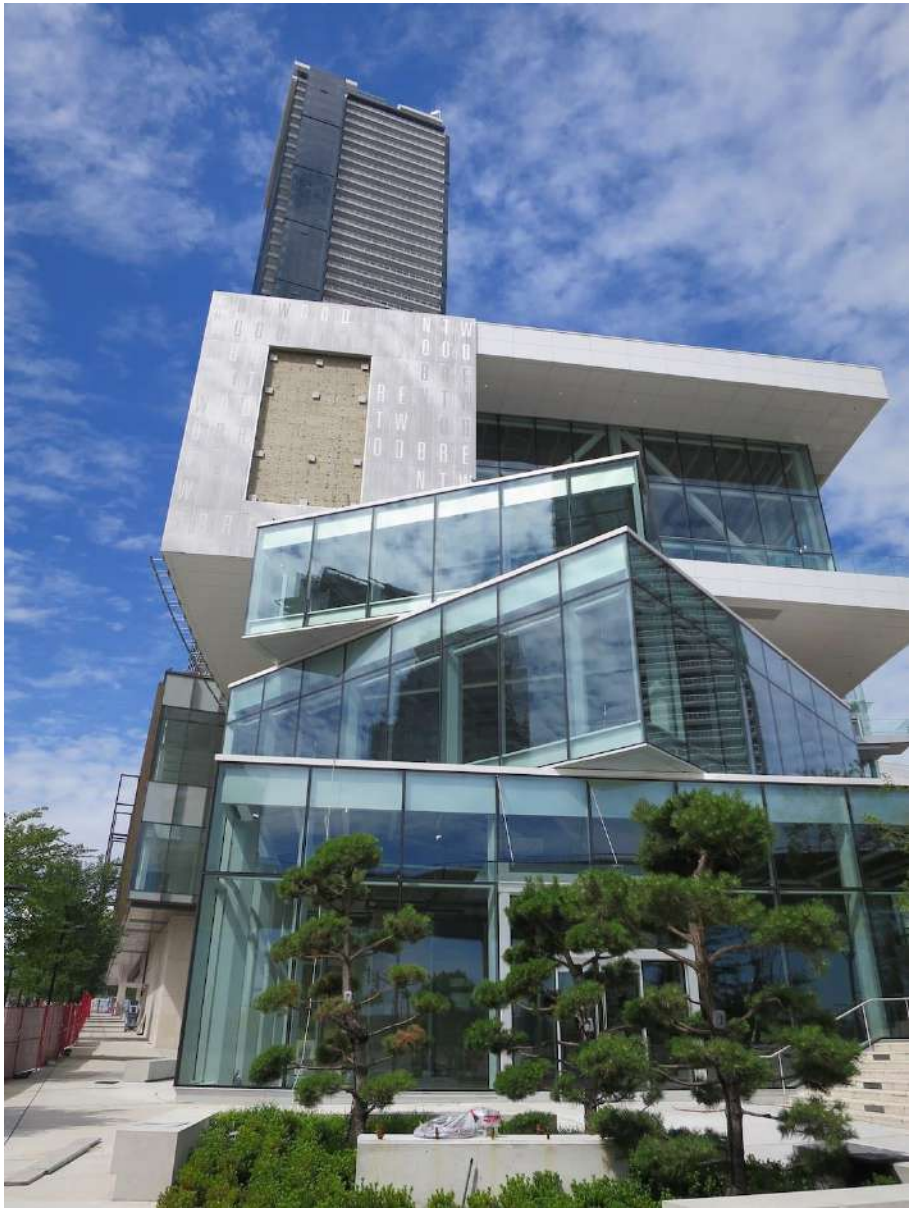

Figure E-35*: Brentwood Town Centre Phase 1 build (Bosa, 2019)*

E.3.3 The Bridges: Calgary, AB

The Bridges is a greyfield TOD developed on the former Calgary General Hospital site. Located north of downtown Calgary in a residential neighbourhood, the site was adjacent to a large and prominent park. The park was required to be maintained or relocated. Bridgeland LRT Station adjoins the redevelopment. The City of Calgary was determined to develop The Bridges as a TOD neighbourhood and initiated an extensive public consultation process for public input and education.

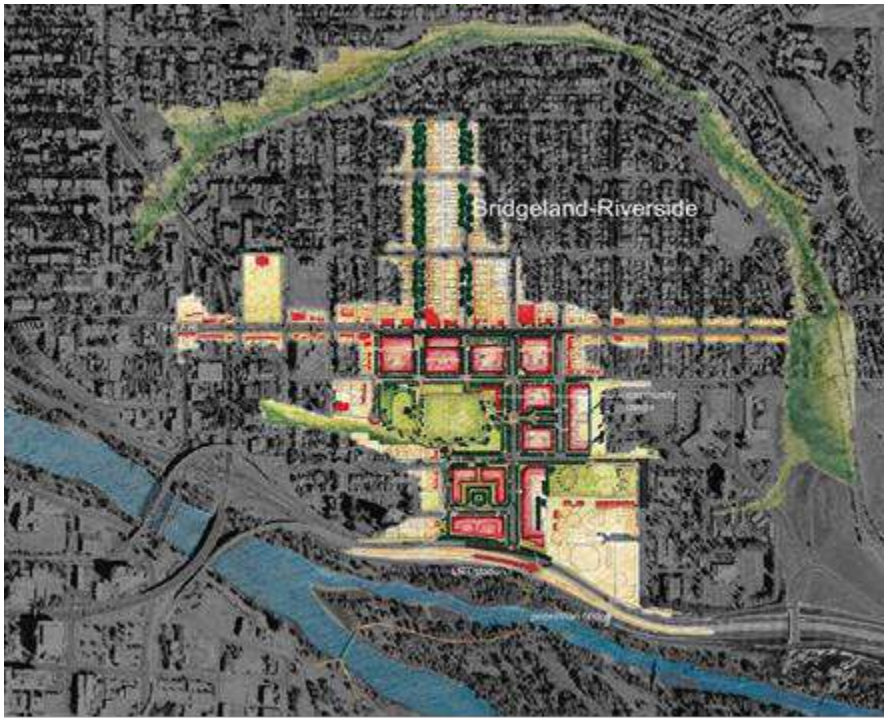

Figure E-36: *Plan view of The Bridges community (Sturgess Architecture, 2002)*

The planning process resulted in Calgary's first mid-rise, mixed-use TOD community. The compact urban village was developed in a phased approach that was sensitive to the surrounding low-density environment.

LANDOWNER	The City of Calgary
LOT SIZE	14.9 ha
DEVELOPMENT DATE	2011 – Present
PREVIOUS SITE USE	Greyfield (Calgary General Hospital)
PLANNED SITE USE	Mixed-use residential TOD
PROJECTED POPULATION	2,500
GROSS FLOOR AREA RATIO	1.7
RETAIL SPACE	15,600 m²
OFFICE SPACE	12,230 m²
RESIDENTIAL SPACE	59,000 m²
RESIDENTIAL UNITS	1,575
GROSS RESIDENTIAL DENSITY	320 units per hectare (around station) 210 units per hectare (near existing residential)
PARKING	1,969 spaces

Pedestrianism is prioritized in The Bridges. Wide tree-lined boulevard, underground parking, and narrow streets create a public realm safe for pedestrians. On-street parking further serves to calm traffic, and the movement of goods is accommodated through rear lane access. Bridgeland LRT Station is connected to the community via a public plaza that also provides pedestrian access to street-level retail.

Figure E-37: *Wide tree-lined boulevards illustrate pedestrian priority in The Bridges (Sturgess Architecture, 2002)*

The neighbourhood includes diverse housing options and over 200 affordable units. Densities decrease further from Bridgeland Station, helping integrate The Bridges with the surrounding low-density environment. Sustainability is also a focus, and two of the buildings developed were the first mixed-use residential projects to receive LEED Platinum status.

The success of The Bridges is also attributed to a thorough public consultation process. Public concerns prompted the City to include a new community centre in the final development, and the process also helped educate residents on the value of TOD for their community.

Lessons Learned

- Public consultation creates mutual understanding and identifies community needs
- Decreased densities further from the station create transition into the surrounding environment
- Pedestrians are prioritized through wide sidewalks and traffic-calming measures
- Public space can provide pedestrian access to the station and new development
- Diverse housing options contribute to affordability and social mix
- Environmental sustainability can drive market interest and public support

E.3.4 Addison Circle: Addison, TX

Addison Circle is a mixed-use town centre near Dallas, Texas. In 1991, the Town of Addison create a group called Vision 2020 to inspire future development. Vision 2020 argued for embracing higher-density multi-family development, and these ideas were used to create Addison Circle, the first greenfield new urbanist development. The project featured high-quality construction materials and parking in community garages rather than on each lot. Since this was an innovative new development, the Town offered to construct and maintain all streets, parks, and plazas to incentivize developers, entering a public-private partnership.

Figure E-38: *Plan of Addison Circle (Town of Addison, 2011)*

LANDOWNER	Public-private partnership (29 hectares private, 21 hectares public)
LOT SIZE	50.2 ha
DEVELOPMENT DATE	1997 – Present
PREVIOUS SITE USE	Greenfield
PLANNED SITE USE	Office space, hotel, retail, town centre, residential, transit station
PROJECTED POPULATION	16,000
GROSS FLOOR AREA RATIO	1.78
RETAIL SPACE	7,000 m²
OFFICE SPACE	51,000 m²
RESIDENTIAL SPACE	436,000 m²
RESIDENTIAL UNITS	2,427 units in 2010 4,800 units projected
GROSS RESIDENTIAL DENSITY	48.3 units per hectare in 2010 95.6 units per hectare projected
PARKING	9,600 spaces

Access to public transit was prioritized during the development of Addison Circle. The neighbourhood became a bus park-and-ride station in 1992, serving over 800 riders per day in 2010. A station on the Dallas Area Rapid Transit rail line is currently planned for the area.

Addison Circle provided important lessons about TOD vitality and marketability. The neighbourhood features many units along parks, which have become the most valuable properties in Addison Circle. Commercial units at the base of five-storey apartment buildings increased foot traffic and neighbourhood vitality, while the hierarchy of streets helped establish clear patterns of activity and development. Streets are regarded as long, thin parks that promote active transportation and enjoyment of the public realm. The central park is a

"convention center without a roof" (Town of Addison, 2011), hosting large community gatherings and events.

Figure E-39: *The central park of Addison Circle (Town of Addison, 2011)*

Figure E-40: *Addison Circle festival space (Town of Addison, 2011)*

Lessons Learned

- Intense greenfield/greyfield development can be supported by taking advantage of public transportation
- Development proposals should benefit long-term goals for the community
- Public-private partnerships can support more risky or innovative projects
- Bus transit can play a significant role in TOD
- Streets should be considered for public recreation and enjoyment

E.4 CREEK RENATURALIZATION

E.4.1 Quaggy River: London, UK

For many years, London's Quaggy River was buried underground in a culvert under eight soccer fields. Local residents were not even aware that a river existed until flooding became a concern. In 1968, extensive flooding affected over 600 properties in Lewisham. In 1992, 100 more were damaged. In response, the UK Environmental Agency began to increase flood risk protection for four kilometres of the Quaggy River from Sutcliffe Park to Lewisham.

The design of the new open-air creek at Sutcliffe Park feature a low flow meandering creek following its original alignment. Future flood storage capacity was provided by lowering and reshaping the park to create a new floodplain that could store up to 85,000 cubic metres of water. Further downstream, an additional 65,000 cubic metres could be stored in an open-air sports field. The original culvert was maintained as an additional defence mechanism in the event of flood, directing water into and out of the park.

Figure E-41: *Open-air ponds in Sutcliffe Park provide flood storage capacity and access to nature (RCC, 2008)*

PROJECT END DATE	2007
LENGTH	4 km
AGENCIES	Environment Agency, Quaggy Waterways Action Group, Breheny Engineering, Greenwich Council

Less than two months after the after their official opening, the restored floodplain successfully held tens of thousands of cubic metres of water and prevented flooding in the London suburbs of Blackheath, Eltham and Lewisham. Since restoration of the Quaggy River took place in 2007, visits to Sutcliffe Park have increased by 73% (Restore 2013). The new wetland has successfully provided a new habitat for a diverse range of species. The scheme has won a number of awards for its demonstration as an effective restoration effort.

Lessons Learned

- Create a strategic network of blue and green spaces to effectively deal with the impacts of climate change. Strategic work and collaboration with multiple stakeholders are crucial to achieving the success of a river restoration program that crosses many jurisdictions
- Combine flood risk management with a river restoration strategy. Provide additional flood storage area through ponds and lakes while also creating an attractive open space for public use through the provision of a network of boardwalks, pathways and viewing points
- Create a low flow meandering channel and retain culverts to take excess water in times of flooding

E.4.2 Muddy River: Boston, MA

The Muddy River is part of Boston's Emerald Necklace network of rivers and parks, designed by Frederick Law Olmsted, which drains into the Charles River. As Boston developed in the 1950s and 1960s, the Muddy River was buried underground in culverts, making room for roadway expansion and parking. During major storm events, storm water runoff flows directly into the Muddy River through underground pipes and is choked by sediment, debris and vegetation, causing the river to swell. Flooding has caused significant damage in surrounding communities and to Boston's public transit system.

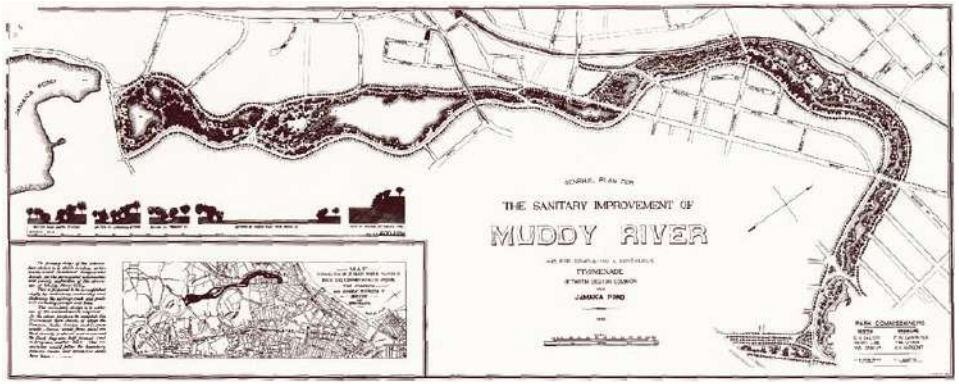

Figure E-42: *The 1982 plan for the Muddy River (National Association for Olmsted Parks, 2013)*

The $90 million Muddy River Flood Risk & Restoration project was undertaken to daylight the river and replace aging infrastructure. The aim of the project was to mitigate the risk of flooding, restore the natural ecosystem, and protect historic trees. To do so, invasive vegetation, built up sediment, and narrow pipes were removed. Shorelines were stabilized with 230 new trees and shrubs.

The project aimed to replicate Olmsted's 1920s design. Olmsted's plan called for a continuous park running throughout the City of Boston by continuing the strip of the Muddy River valley and connecting it with Jamaica Pond. It was once considered one of the country's best examples of multi-use open space. Phase I of the project was completed 2016 but work on Phase II has yet to begin. Work is expected to resume in 2020. It will include river and sandbank excavation, dredging, and the installation of boulders and habitat logs for wildlife.

PROJECT END DATE	2016 (Phase I)
LENGTH	5.6 km
AGENCIES	US Army Corps of Engineers, Massachusetts Executive Office of Energy, Town of Brookline, City of Boston, Commonwealth of Massachusetts, Federal Emergency Management Agency

Figure E-43: *Restored segment of the Muddy River completed during Phase 1 of the Muddy River Restoration Project (US Army Corps of Engineers, 2017)*

Lessons Learned

- Restoration projects are most successful when they can fulfill multiple purposes at the same time (cultural, heritage, recreational, environmental, etc.). Blue-green infrastructure (BGI) often takes decades to develop and is often conceived when water and public health problems begin to arise, usually due to rapid urbanization
- The financial value of parks and BGI to local citizens is large but often undervalued. Funding and ongoing maintenance present a major obstacle for the long-term sustainability of river restoration projects
- A strong civic mandate is necessary to carry out largescale park projects. Oftentimes, it is necessary to coordinate among multiple public agencies and with a wide range of stakeholders. Strategic and institutional integration is ideal

E.4.3 Braid Burn: Edinburgh, UK

The Braid Burn River is over 18 kilometres in length and has a catchment area that is more than 80% urban in nature (Gowans et al., 2012). Once a highly urbanized watercourse, the Braid Burn has now been transformed into a natural oasis that significantly improves drainage. The re-meandering of Braid Burn formed part of a larger flood alleviation plan to protect over 900 homes in Edinburgh's suburbs from a one in 200-year flood event. As with Sutcliffe Park in London, Edinburgh's Inch Park provides flood storage capacity for the Braid Burn, along with promoting biodiversity and restoration of natural habitats.

Inch Park, the location of the Braid Burn restoration effort, is a major recreational source in the city and, similar to the Pinecrest Creek, is adjacent to a regional shopping centre. The park contains a mix of woodland and grassland with some trees. Several recreational playing fields and pavilions exist to the west. The flood storage capacity is approximately 120,000 cubic metres (Gowans et al., 2012). Roughly 80% of the restored water channel was newly dug. Brick and concrete sections of the channel were broken down and infilled with gravel and densely graded rock. The design relied on the introduction of meanders, runs, shoals and gently sloping banks to create a new wetland habitat.

Figure E-44: *Downstream wetland area of the Braid Burn (AECOM, 2011)*

PROJECT END DATE	2009
LENGTH	310 m
AGENCIES	City of Edinburgh Council, SEPA, AECOM

The river corridor is now significantly wider and has a more natural appearance. Variability in the width and depth of the channel support new habitats for birds, mammals and a variety of plant life. Informal footpaths have developed along the banks of the Braid Burn, and Inch Park has become a popular destination for recreational uses. In 2010, the project successfully limited flood waters during a major flood event.

Figure E-45: *Wetland area during a major flood event (AECOM, 2010)*

Lessons Learned

- Utilise existing flood storage capacity of existing parkland to promote biodiversity and create a habitat
- Replace brick and concrete channels with meanders, runs, shoals and gently sloping banks

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APPENDIX F: DESIGN CHARRETTE

TABLE OF CONTENTS

LIST OF FIGURES

F.1 DESIGN GROUPS

The attendees were divided into four groups for the design charrette. Two groups focused on redevelopment of the Lincoln Fields Shopping Centre site while each of two other groups focused on the Richmond Road and Carling Avenue arterials. Each group provided rough notes on their design concept, as seen below.

F.1.1 Lincoln Fields Shopping Centre – Group 1

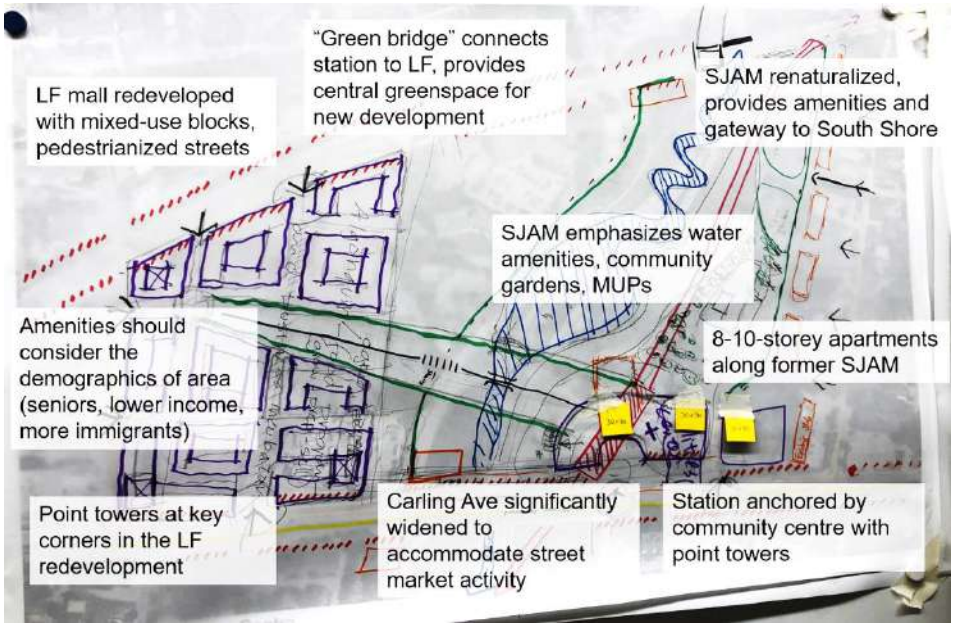

Figure F-1: Lincoln Fields Shopping Centre redevelopment concept proposed by Group 2 (SURP, 2019)

- Podium point towers on the corners of site with internal pedestrian streets
- Economic office spaces so that development does not solely rely on retail
- Consider demographics of the area, i.e. seniors and the access they need. These facilities also offer employment opportunities to other residents
- Bring density closer to the station through community centre with point tower, age-in-place facilities as anchor tenants. e.g. gym/rehab centre
- Algonquin College as a potential tenant for RioCan
- Carling widened to support street activity adjacent to station
- Pedestrian colonnade offering a covered walkway from the station to the redevelopment site
- Green bridge to facilitate access from redevelopment to station with MUPs

F.1.2 Lincoln Fields Shopping Centre – Group 2

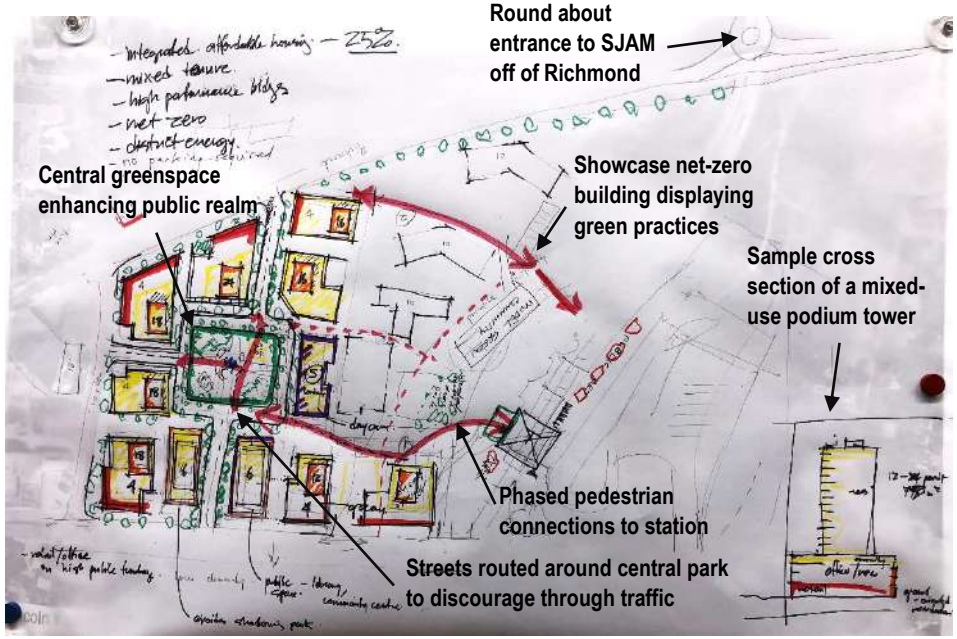

Figure F-2: Lincoln Fields Shopping Centre redevelopment concept proposed by Group 1 (SURP, 2019)

- Permeability through proposed central park for pedestrian pathways only
- Removing part of the Sir John A. Macdonald Parkway to reduce the barriers of pedestrian connection to the station
- Consideration of phasing to provide appropriate connections intermittently
- Community features such as community centre and central park space, public art throughout the site. Library to support complete communities
- Podium corners available for commercial/retail space
- Buildings drawn could be combined for a bigger floor area but not ideal
- Careful placement of towers so that there are no shadows on the park
- 25% affordable housing dispersed throughout the site
- No surface parking – underground parking if desired

F.1.3 Carling Avenue

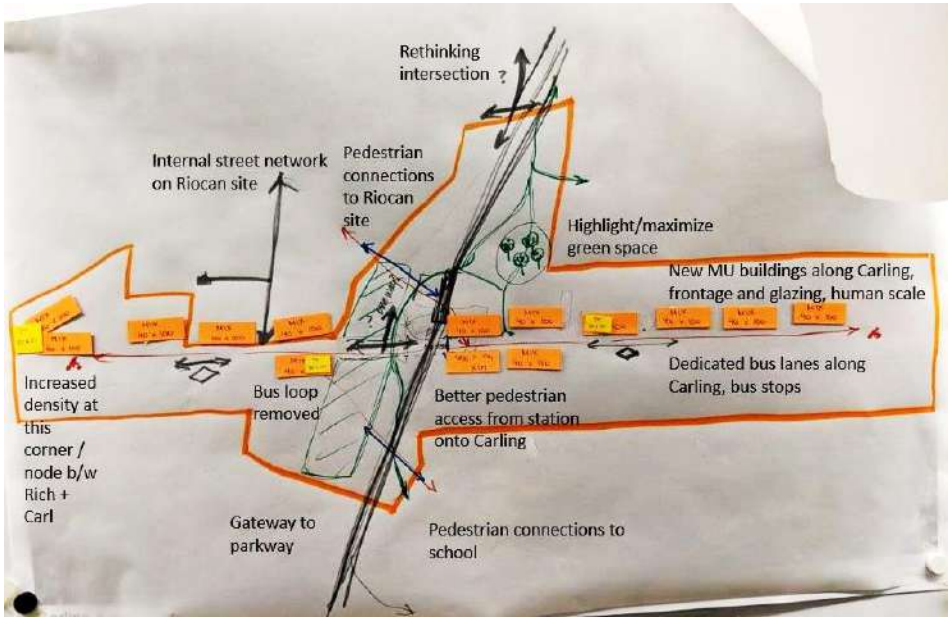

***Figure F-3**: Carling Avenue redevelopment concept (SURP, 2019)*

- Rethink the "gateway to the parkway, potentially a grand entrance with expansive views of naturalization
- Eliminate vehicle access to parkway from Carling
- Rethink/remove bus loop, put transit priority lanes and stops along Carling – shelter using adjacent buildings
- Create additional intersection on Carling where pedestrians exit the station
- Uniform frontage along Carling through introduction of mixed-use buildings
- Connect pathways to schools south of Carling
- Increase density at the intersection of Richmond and Carling, creating a node
- Grade separation for cycling infrastructure

Alternatively:

- Move the LRT line to reduce fragmentation of green space

F.1.4 Richmond Road

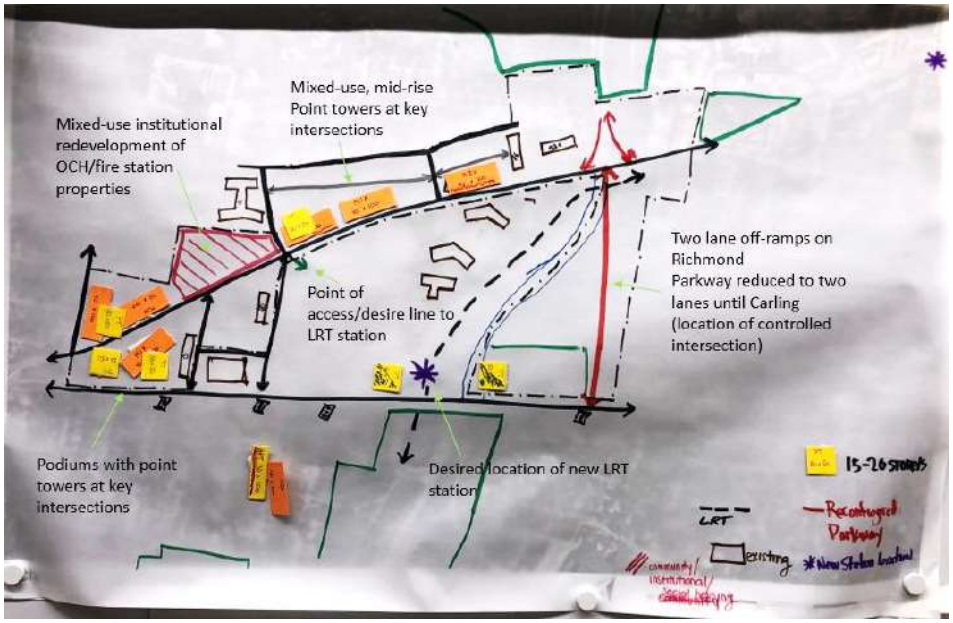

***Figure F-4:** Richmond Road redevelopment concept (SURP, 2019)*

- Ideal location of LRT Station next to mall
- Parkway ends at Richmond and/or Carling at the bus loop intersection to reduce fragmentation of green space
- Tall office buildings to provide higher density adjacent to the station, possibly look to develop on top of station itself
- OCH/fire station be redeveloped to mixed-use institutional building with community facility
- Renaturalization of Pinecrest Creek
- Mid-rise mixed-use with retail on Richmond
- Point towers at key intersections along both Richmond and Carling
- Connectivity through to Regina Alternative School site and Britannia Park
- A good principle is to always start by planning the open spaces first
- Maintain existing service lane between Richmond and Regina

F.2 GENERAL DISCUSSION

Following the design portion of the charrette, each proposal was presented. Discussion of each proposal followed. These are the most important lessons of the charrette:

Pinecrest Creek should become a comprehensive connected park space for active and passive recreation. Renaturalization of Pinecrest Creek would contribute to the serenity of the space as people are naturally drawn to water. Open spaces to be planned for therapeutic uses rather than swaths of green space. There was unanimous support for the green bridge idea of Group 1.

All groups worked to remove barriers to connectivity and reduce fragmentation of the LFSA. Many supported reducing vehicle lanes or removing the parkway altogether. As the original road in the area, Richmond Road would be an interesting historical candidate to host the new parkway entrance.

Bus transit will be important for redevelopment. Road diets suggested through the introduction of transit priority lanes on Carling. Bus stops on the street could allow for additional park space and transit efficiency.

Phasing is important to keep the implementation of the design realistic. Open space should be planned first with additional planning around it. This way, the surrounding developments can be stewards of the space and involved in its activation. This creates a greater sense of resident belonging to open space. Adjacent uses can be complementary rather than conflicting.

Figure F-5: *Presentation of design concepts opened the floor for general discussion (SURP, 2019*

F.3 CHARRETTE PARTICIPANTS

Marissa Mascaro
City of Kingston

Andrew Morton
City of Kingston

Chris Wicke
City of Kingston

Benjamin Cool-Fergus
City of Ottawa

Peter Giles
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Mark Young
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Sereen Aboukarr
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APPENDIX G: DESIGN CONCEPT 1

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

G.1 3D IMAGES

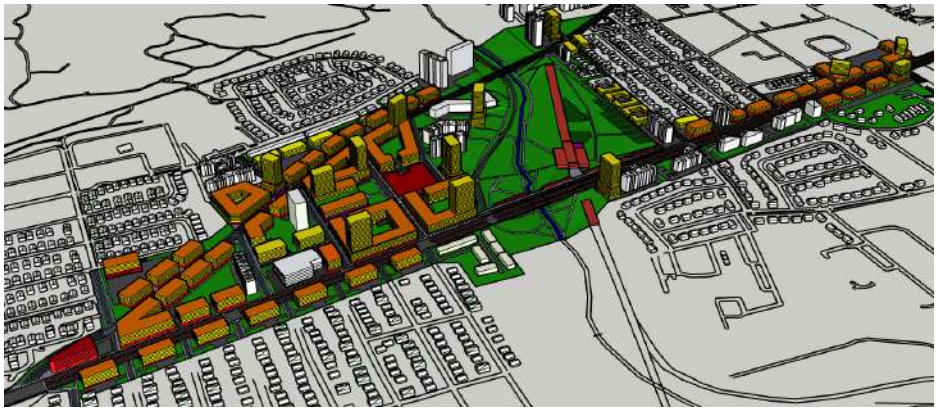

Figure G-1: *Concept 1 looking north towards the Ottawa River (SURP, 2019)*

Figure G-2: *Concept 1 looking east towards Carlingwood Shopping Centre (SURP, 2019)*

Figure G-3: *Concept 1 looking south towards Carling Avenue (SURP, 2019)*

Figure G-4: *Concept 1 looking west towards Britannia Bay (SURP, 2019)*

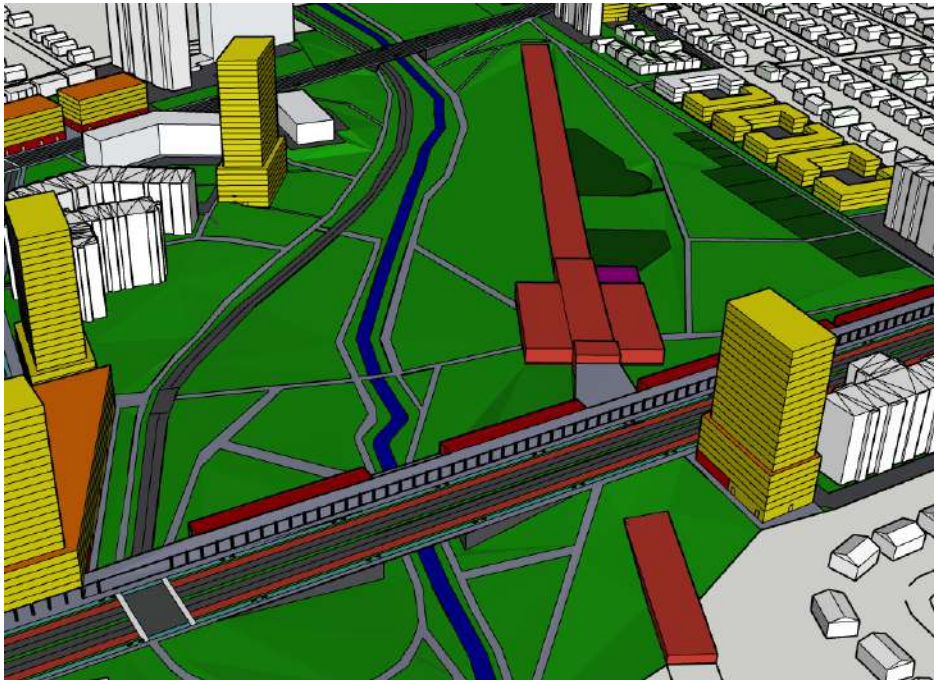

***Figure G-5**: Concept 1 parkway corridor looking north (SURP, 2019)*

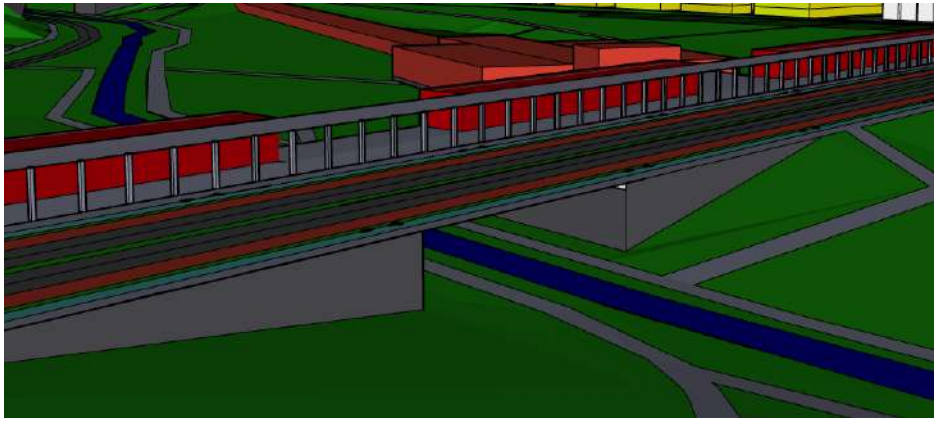

***Figure G-6:** Concept 1 pedestrian colonnade on Carling Avenue looking north toward the Lincoln Fields Station (SURP, 2019)*

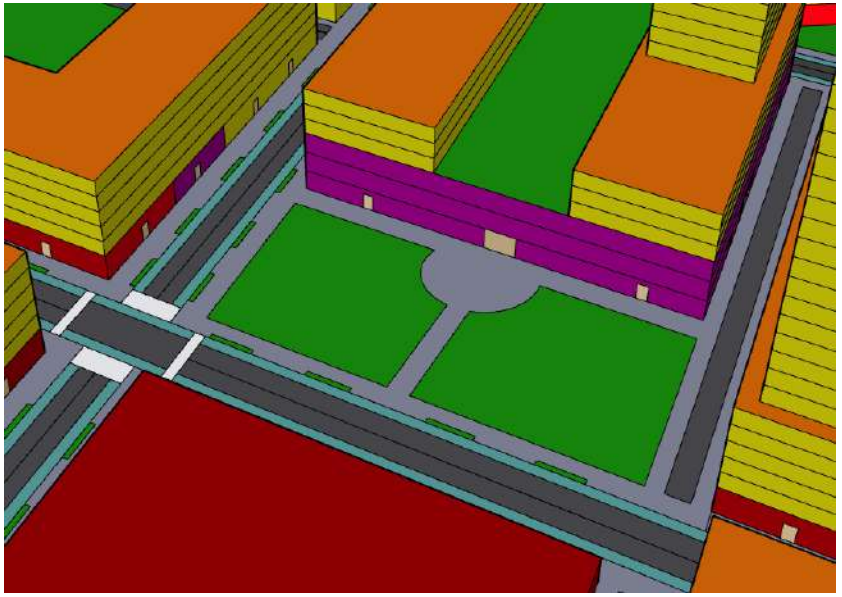

***Figure G-7:** Concept 1 community centre and public plaza (SURP, 2019)*

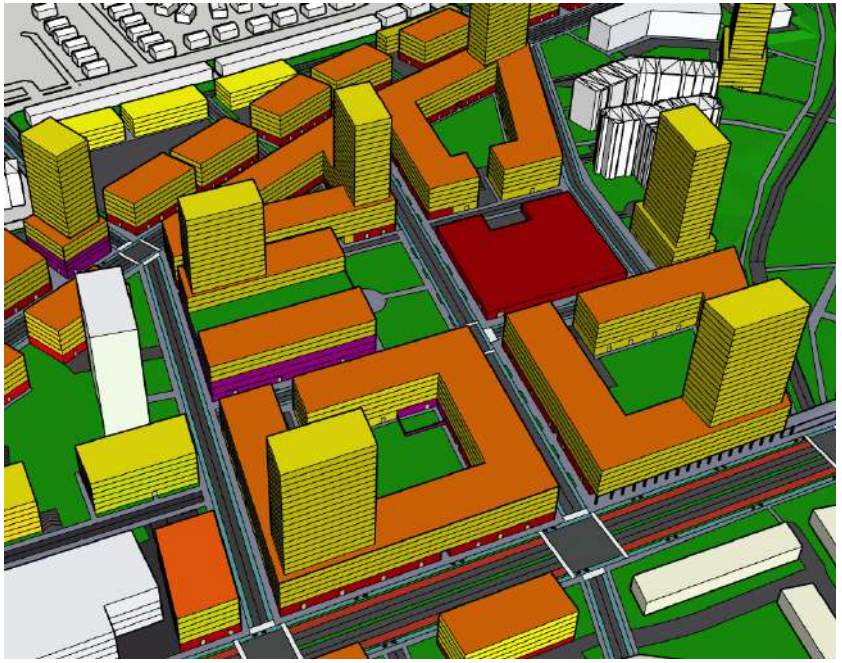

***Figure G-8:** Concept 1 Lincoln Fields Shopping Centre redevelopment (SURP, 2019)*

G.2 BUILDING HEIGHTS

Figure G-9: *Building heights west of the parkway corridor (SURP, 2019)*

Figure G-10*: Building heights east of the parkway corridor (SURP, 2019)*

G.3 DIMENSIONS

Figure G-11: *Proposed building dimensions (SURP, 2019)*

G.4 STREET CROSS SECTION

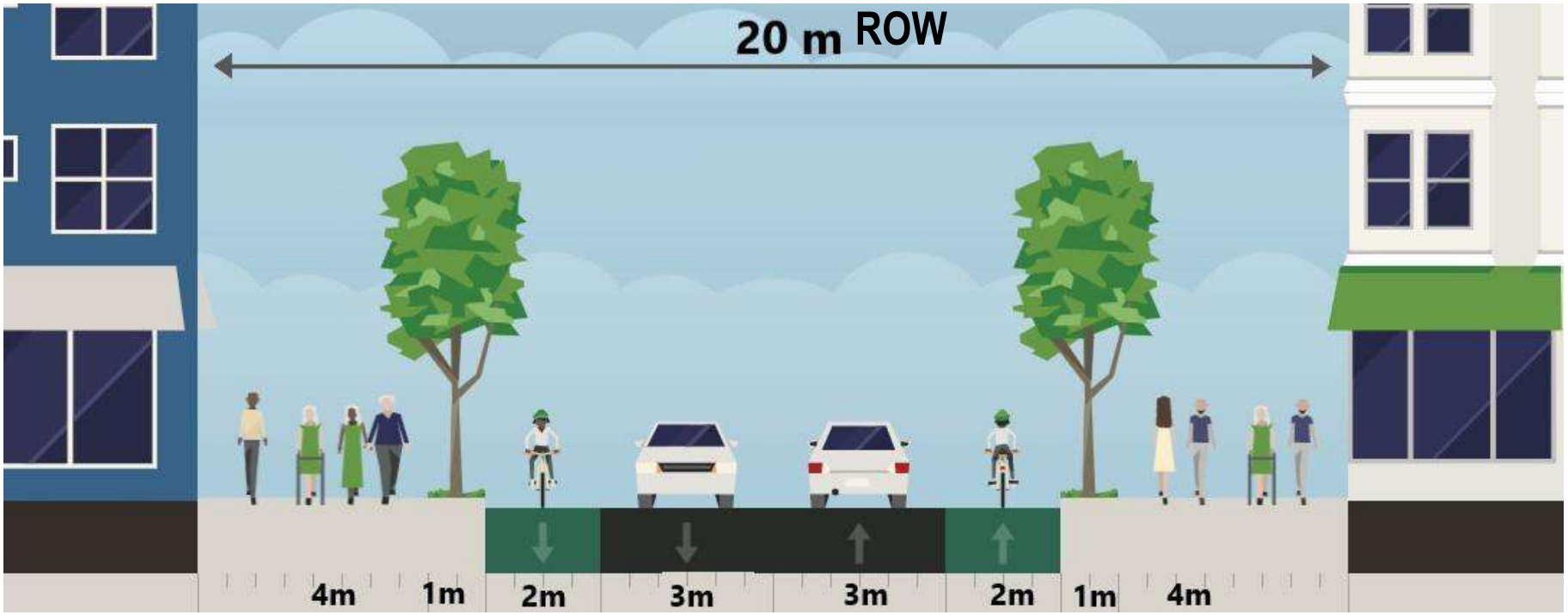

Figure G-12: *Concept 1 central street cross-section (SURP, 2019)*

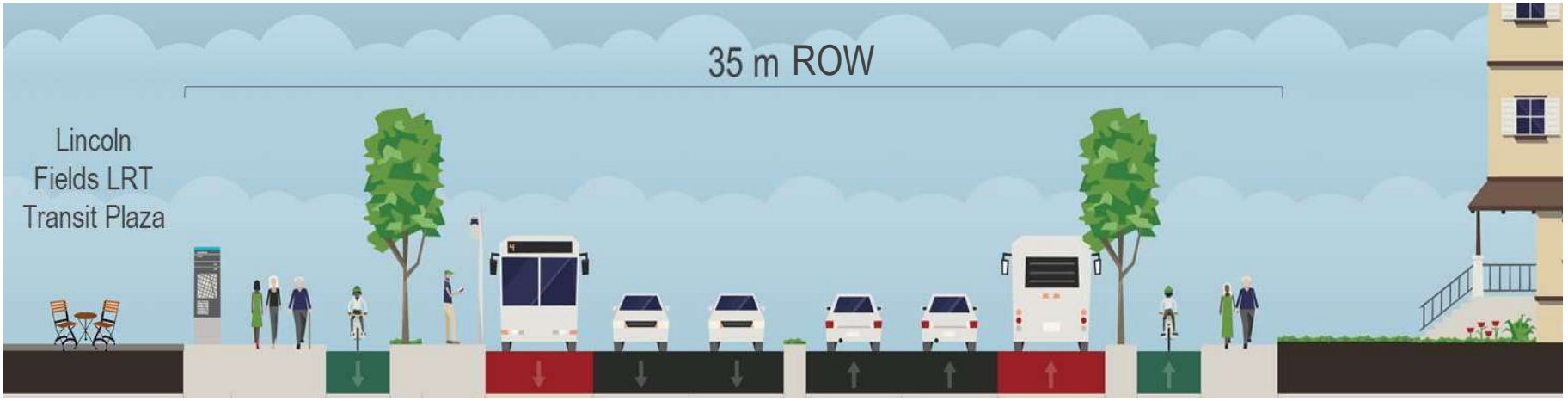

Figure G-13: *Carling Avenue street cross-section (SURP, 2019)*

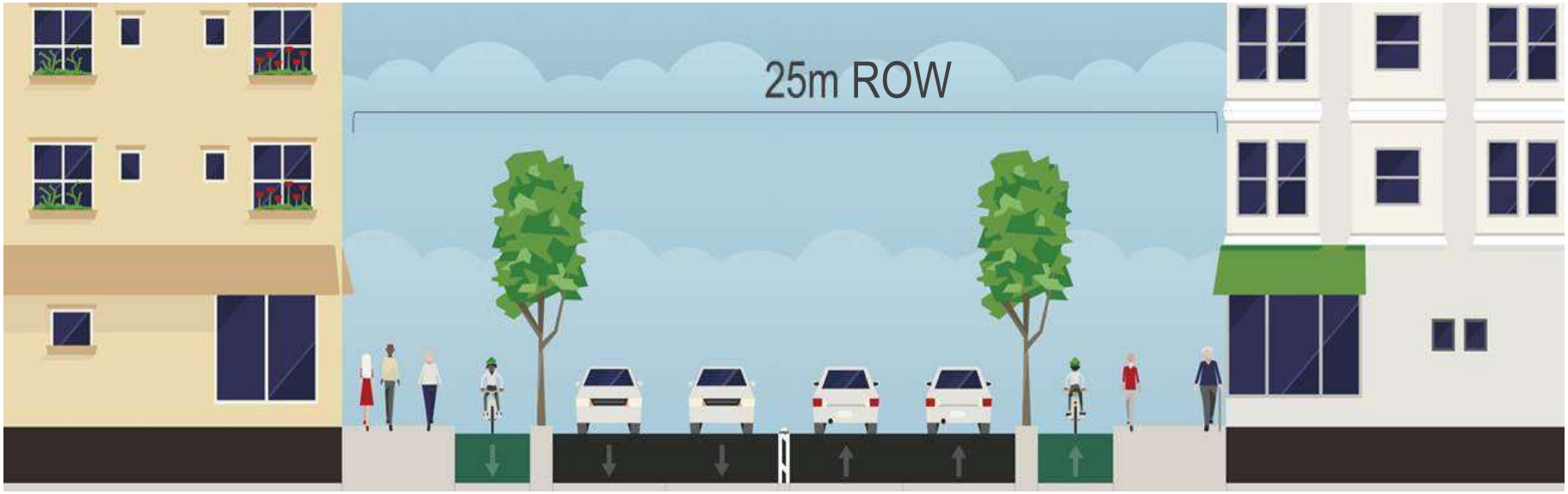

Figure G-14: *Richmond Road street cross-section (SURP, 2019)*

G.5 SHADOW ANALYSIS

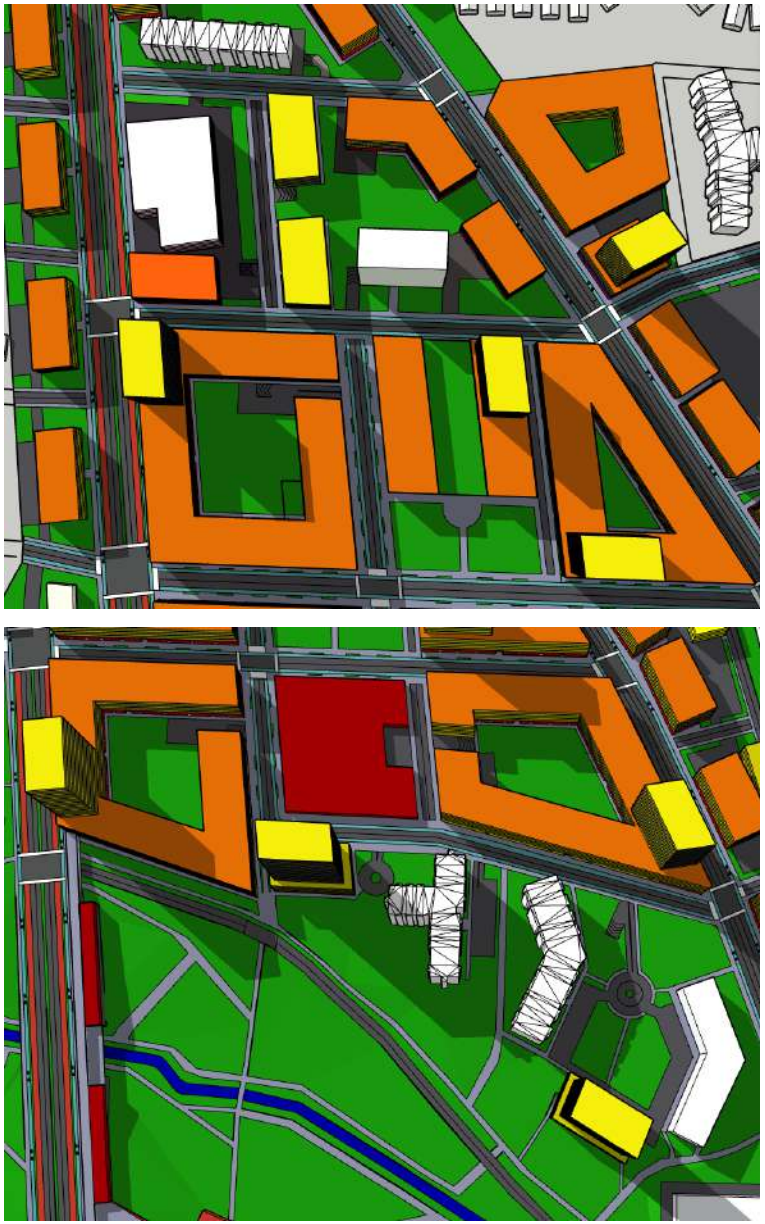

***Figure G-15**: Concept 1 shadowing at 1:00 pm, March 1 (SURP, 2019)*

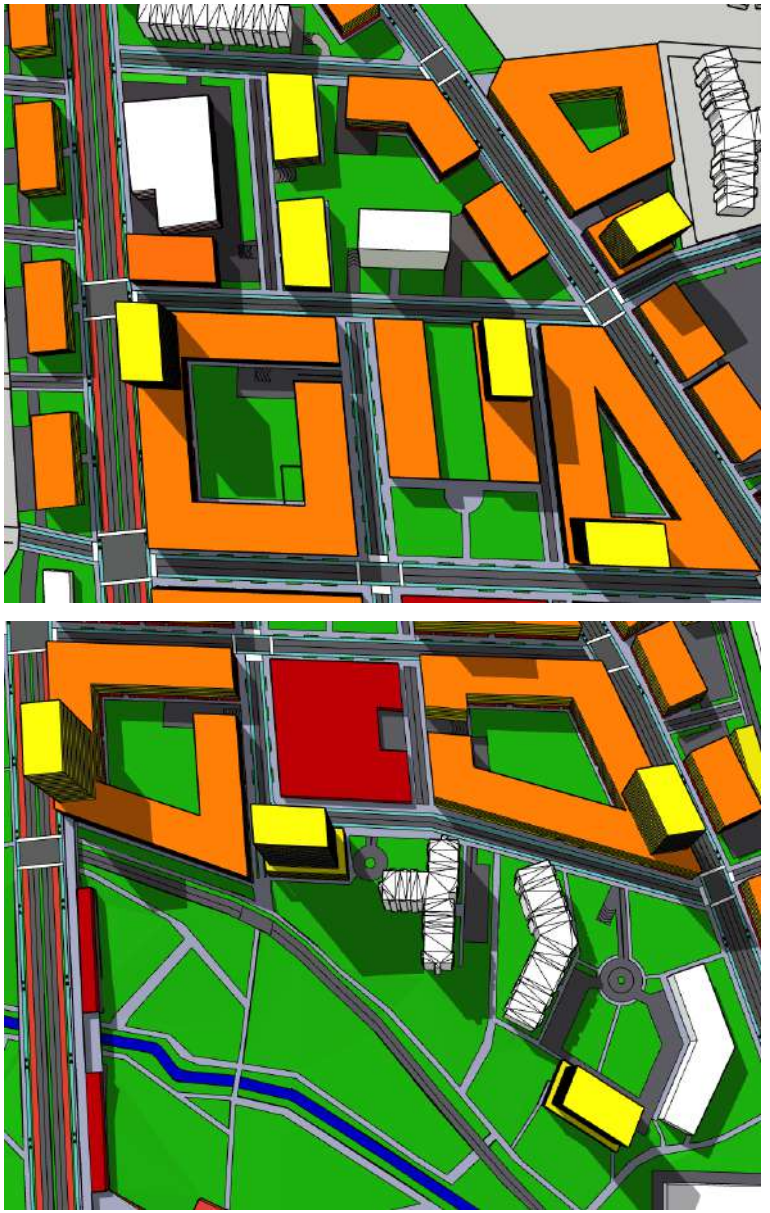

***Figure G-16**: Concept 1 shadowing at 1:00 pm, September 1 (SURP, 2019)*

G.6 PARKING

Figure G-17: Concept 1 potential underground parking access (SURP, 2019)

G.7 DENSITY ANALYSIS

Table G-1: Concept 1 density analysis compared to existing conditions and target

	EXISTING	CONCEPT 1	TARGET
GROSS DENSITY	70	345	350
GROSS FSI	0.85	2.86	2.00
DWELLING UNITS	797	8,617	8,503
DWELLING UNITS PER HECTARE	15	165	163
RESIDENTS	6,509	15,579	15,257
JOBS	3,288	2,364	3,814
RESIDENTS & JOBS PER HECTARE	1.9	6.6	4.0
HEIGHT	21 Storeys	26 Storeys	26 Storeys
PARKING	7,461	5,266	5,461
SITE AREA (HA)	140	52	52
PARKS (HA)	0.92	3.8	3.5
PARKS INCL. PARKWAY (HA)	14.9	17.8	17.5

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APPENDIX H: DESIGN CONCEPT 2

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

H.1 3D IMAGES

Figure H-1: *Concept 2 looking north towards the Ottawa River (SURP, 2019)*

Figure H-2: *Concept 2 looking east toward Carlingwood Shopping Centre (SURP, 2019)*

Figure H-3: *Concept 2 looking south toward Carling Avenue (SURP, 2019)*

Figure H-4: *Concept 2 looking west toward Britannia Bay (SURP, 2019)*

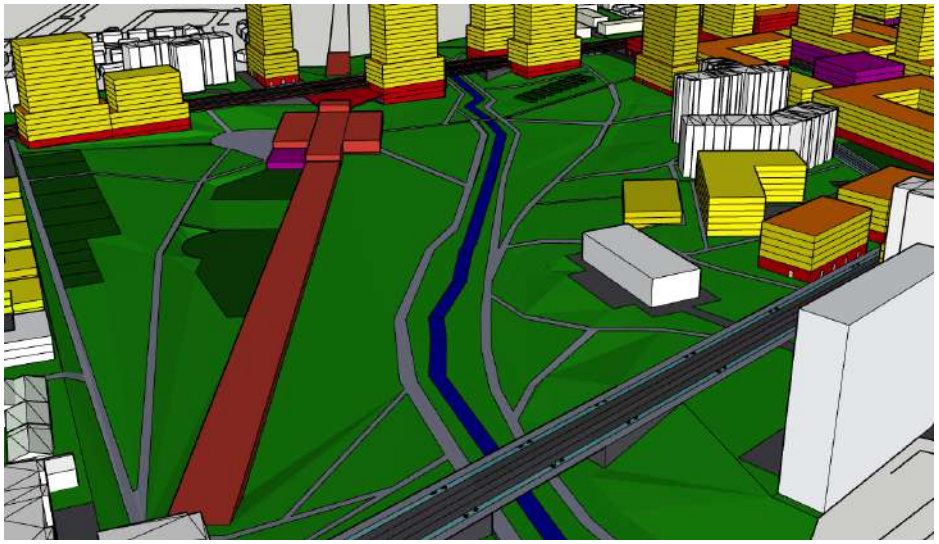

Figure H-5: *Concept 2 parkway corridor looking north (SURP, 2019)*

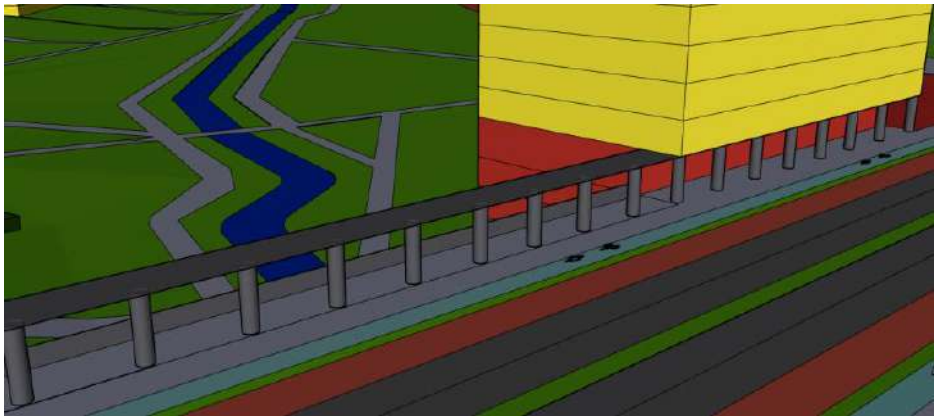

Figure H-6: *Concept 2 pedestrian colonnade on Carling Avenue (SURP, 2019)*

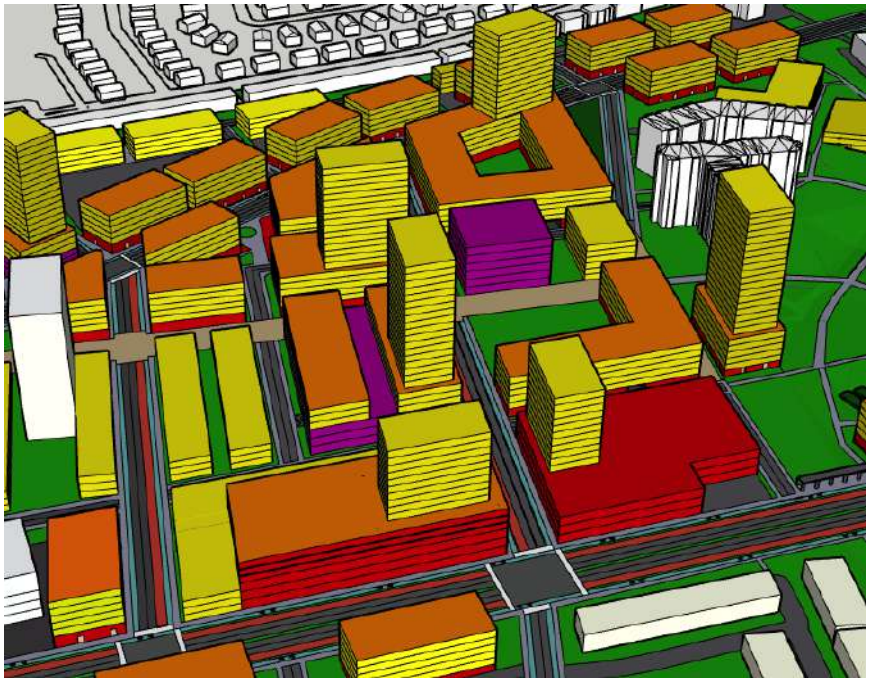

Figure H-7: *Concept 2 Lincoln Fields Shopping Centre redevelopment (SURP, 2019)*

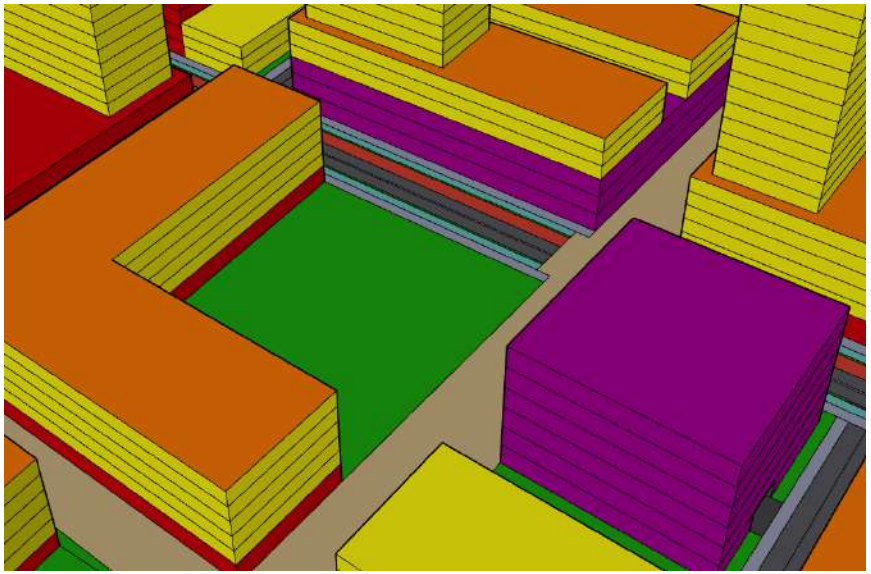

Figure H-8: *Concept 2 community centre, library, and public plaza (SURP, 2019)*

H.2 BUILDING HEIGHTS

Figure H-9: *Building heights west of the parkway corridor (SURP, 2019)*

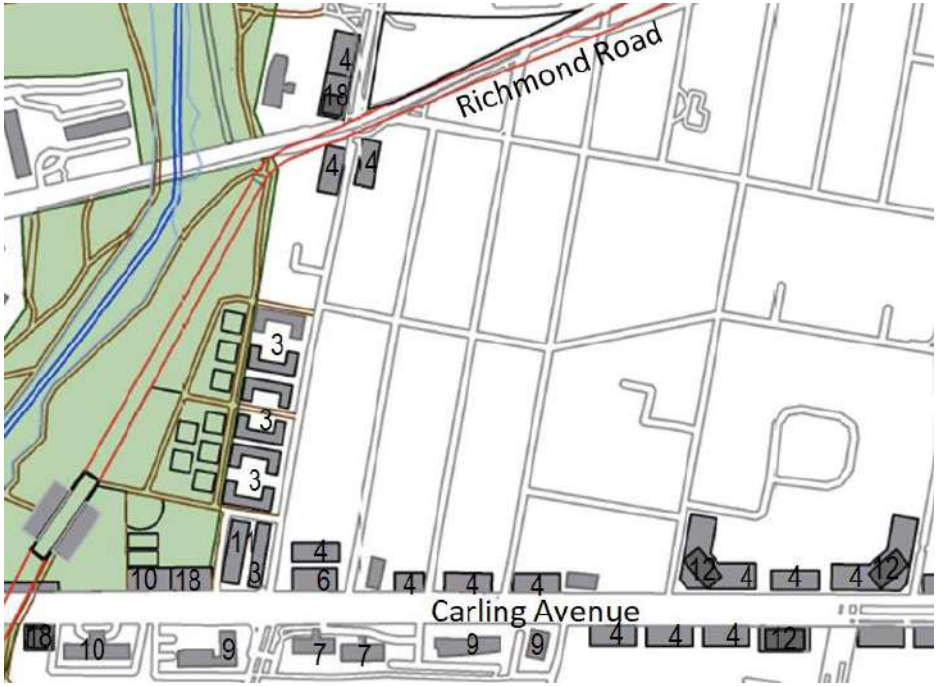

Figure H-10: *Building heights east of the parkway corridor (SURP, 2019)*

H.3 DIMENSIONS

Figure H-11: *Proposed building dimensions (SURP, 2019)*

H.4 STREET CROSS SECTION

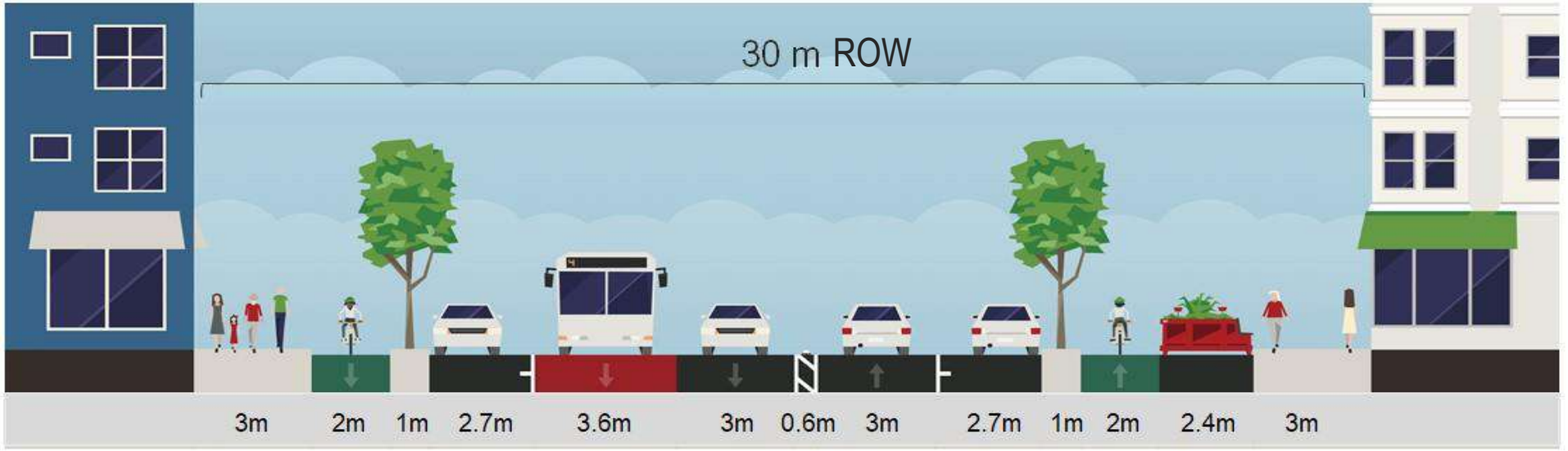

Figure H-12: *Concept 2 central street cross-section (SURP, 2019)*

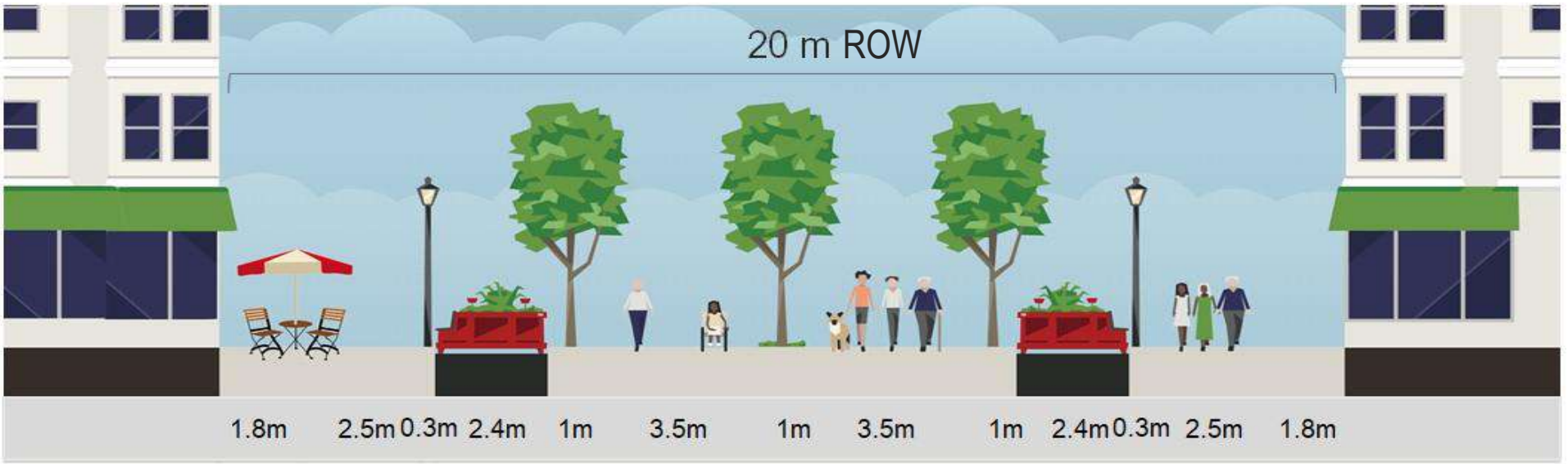

Figure H-13: *Concept 2 pedestrian boulevard cross-section (SURP, 2019)*

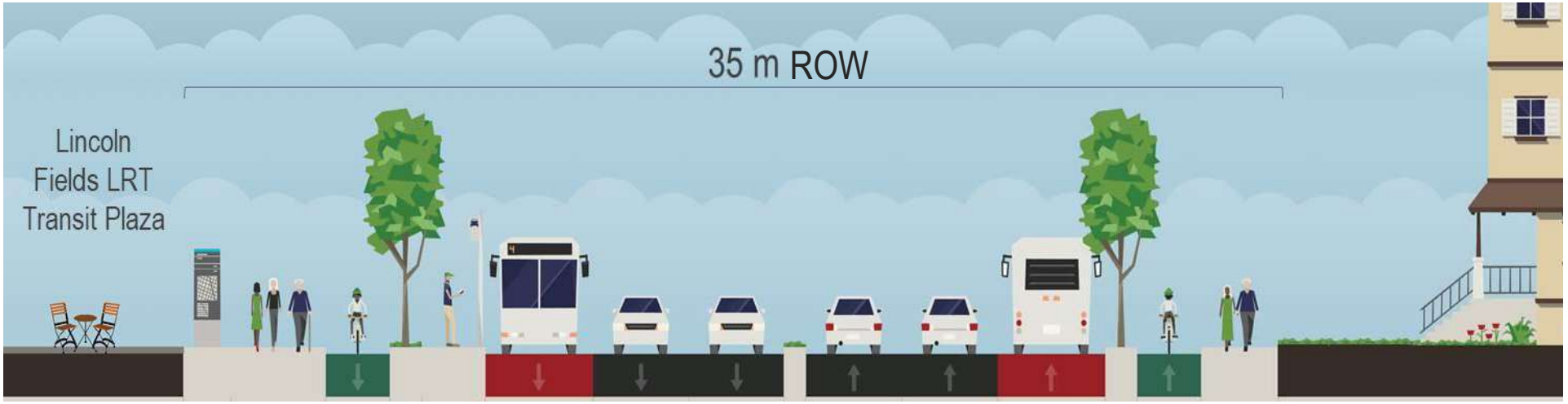

Figure H-14: *Carling Avenue street cross-section (SURP, 2019)*

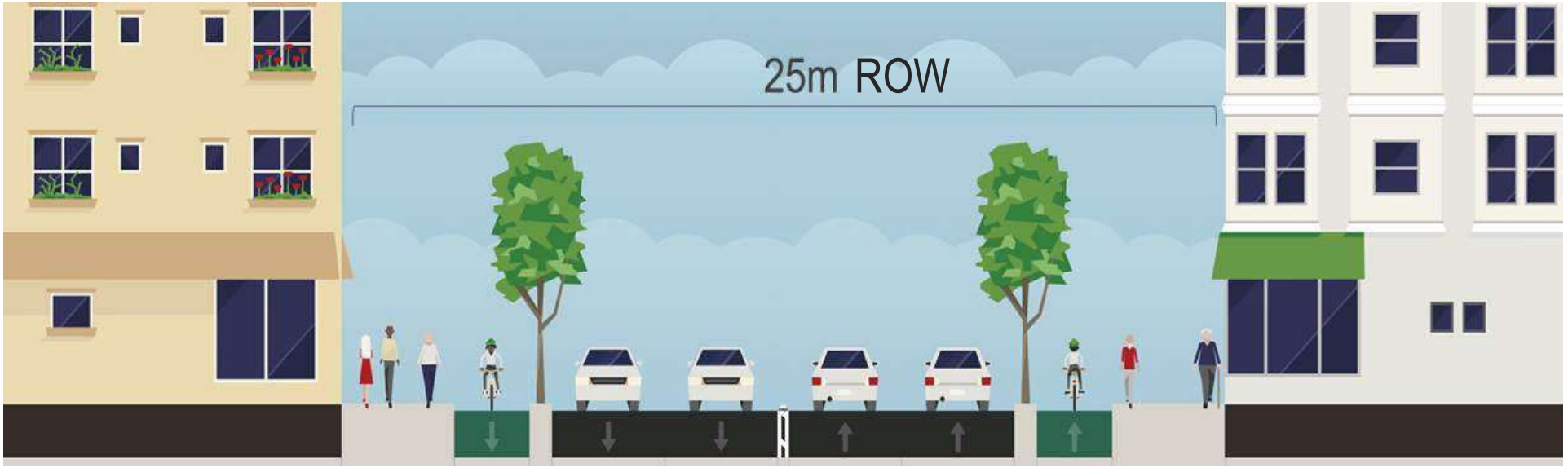

Figure H-15: *Richmond Road street cross-section (SURP, 2019)*

H.5 SHADOW ANALYSIS

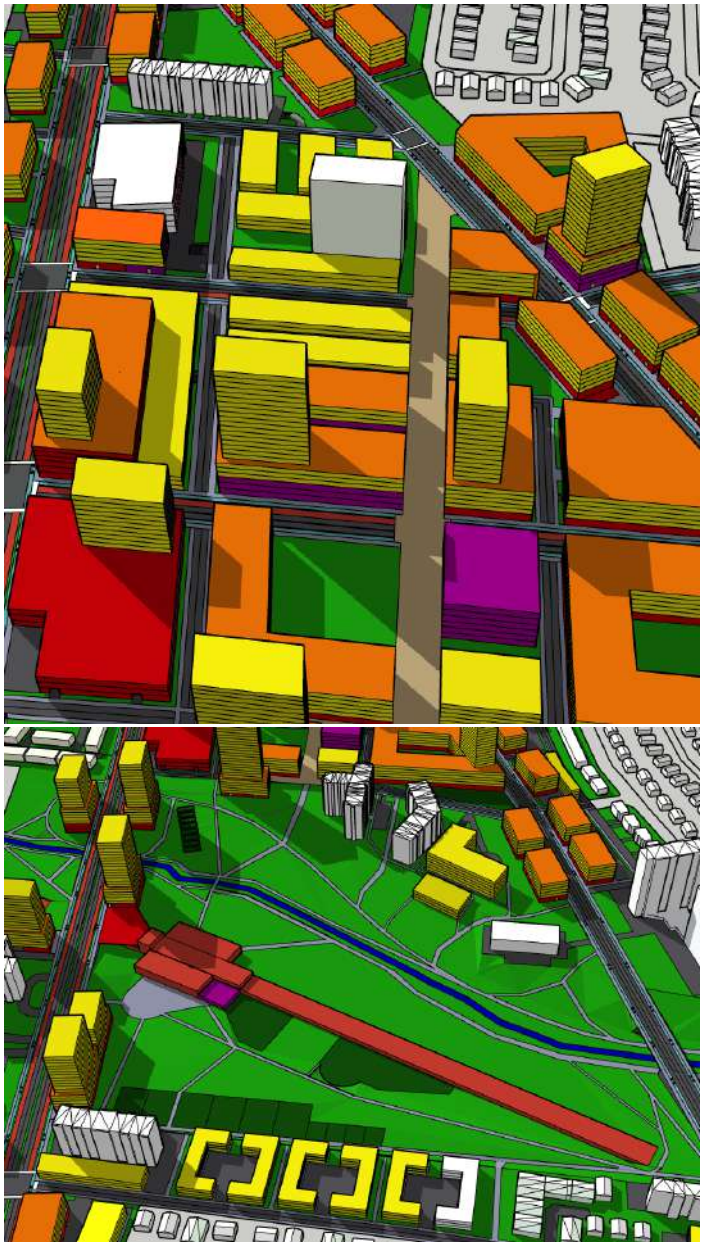

***Figure H-16**: Concept 2 shadowing at 1:00 pm, March 1 (SURP, 2019)*

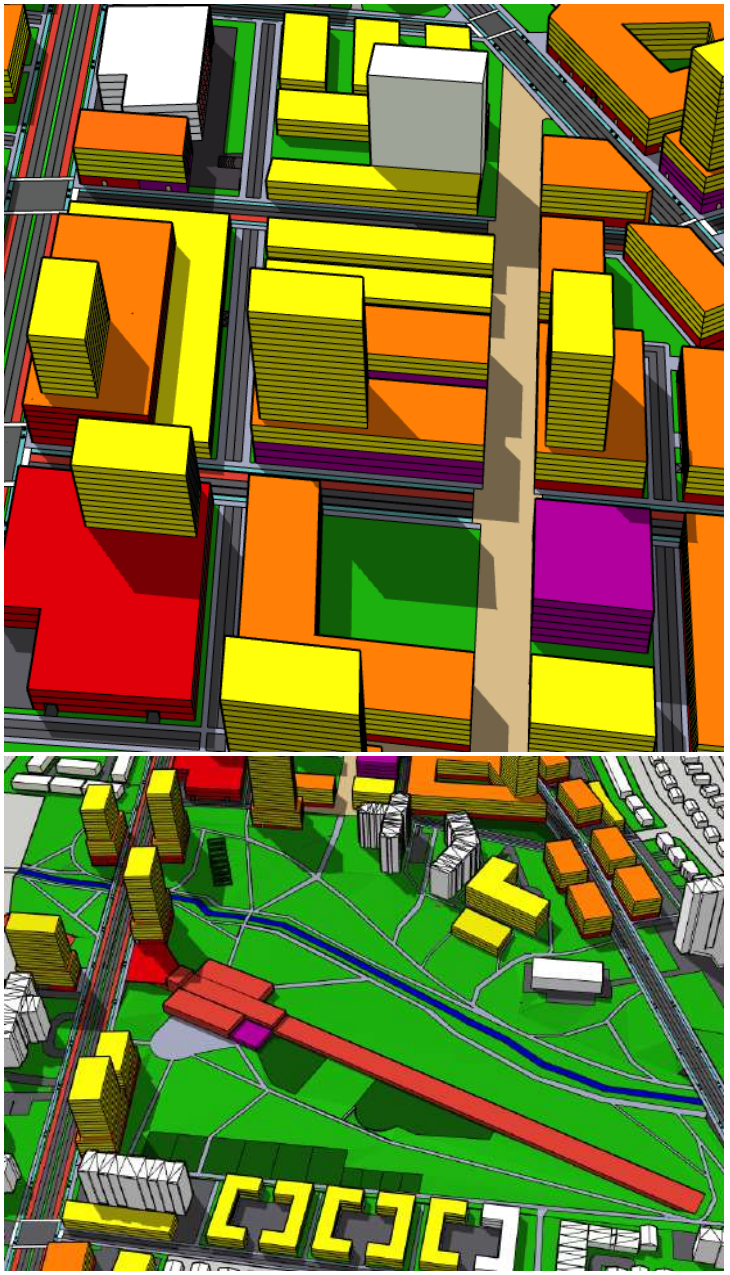

***Figure H-17**: Concept 2 shadowing at 1:00 pm, September 1 (SURP, 2019)*

H.6 PARKING

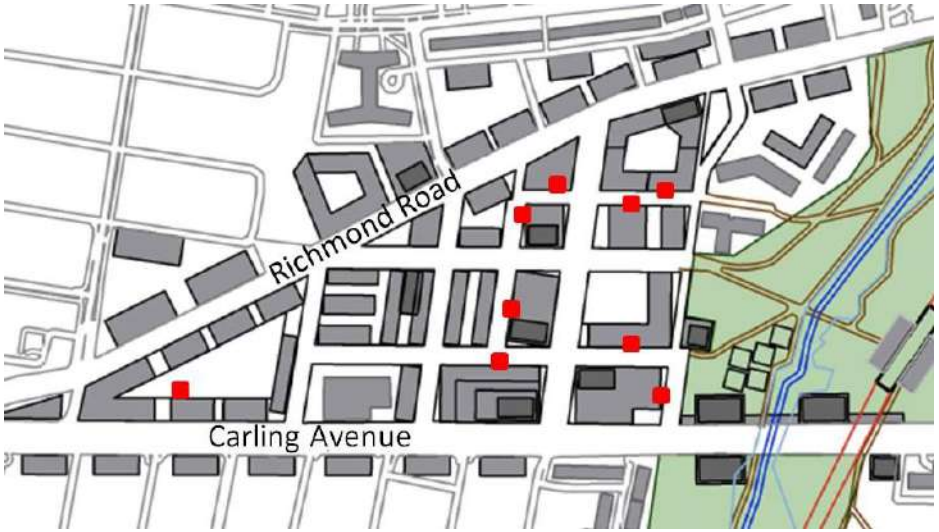

Figure H-18: Concept 2 potential underground parking access (SURP, 2019)

H.7 DENSITY ANALYSIS

Table H-1: Concept 2 density analysis compared to existing conditions and target

	EXISTING	CONCEPT 2	TARGET
GROSS DENSITY	70	373	350
GROSS FSI	0.85	2.64	2.00
DWELLING UNITS	797	8,946	8,503
DWELLING UNITS PER HECTARE	15	171	163
RESIDENTS	6,509	16,058	15,257
JOBS	3,288	3,327	3,814
RESIDENTS & JOBS PER HECTARE	1.9	5.2	4.0
HEIGHT	21 Storeys	26 Storeys	26 Storeys
PARKING	7,461	4,786	5,461
SITE AREA (HA)	140	52	52
PARKS (HA)	0.92	3.2	3.5
PARKS INCL. PARKWAY (HA)	14.9	17.2	17.5

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APPENDIX I: DENSITY ANALYSIS

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

I.1 ASSUMPTIONS

- To calculate and interpret existing and proposed densities in the LFSA, the site was divided into different precincts. Each precinct contains several different blocks. The Sir John A. Macdonald Parkway Corridor was not factored into these calculations.
- For existing conditions, a total site area of 140 hectares was analyzed. This is much larger than the LFSA established by the City of Ottawa. The area was expanded to better understand densities across the broader community and identify areas for redevelopment. Having completed this analysis, three areas of redevelopment were identified: the Lincoln Fields Shopping Centre, greyfields along Carling Avenue, and greyfields along Richmond Road. Together, these redevelopment areas account for 52 hectares.
- The floor space index (FSI) of Concept 1 is slightly higher than Concept 2 because Concept 1 utilizes larger floorplates. However, Concept 2 achieves higher density due to including more tall buildings, especially on NCC NILM.
- Block areas, parcel sizes, and building footprints were calculated using AutoCAD, representing the benchmark for density calculations. Gross floor area (GFA) is calculated by multiplying building height by footprint. FSI is calculated by dividing GFA by parcel size.
- For existing conditions, dwelling units were calculated by counting balcony windows on apartment buildings and by counting front doors/mailboxes on houses via Google Earth. Proposed dwelling units were calculated by dividing the GFA of proposed residential uses by 100.
- Under existing conditions, averages for Precincts C-F have been calculated to illustrate the average densities of blocks containing numerous single-detached dwelling units.
- Residents per building assume that one dwelling unit contains 1.8 residents (City of Ottawa, 2019). Therefore, total block residents are calculated by multiplying the number of dwelling units by 1.8.
- Number of jobs are based on standard employment assumptions used by the City of Ottawa that project jobs/sq. m. These assumptions include that retail has 1 job per 45 sq. m, office/restaurant has 1 job per 20 sq. m, and personal services have 1 job per 30 sq. m (City of Ottawa, 2019).
- Total parking spaces are calculated through measuring the area (in square metres) of the proposed parking lot and dividing by 27 (American Society of Planning Officials, 1954). This figure represents the maximum potential parking spaces for Concept 1 and 2.
- Affordable housing dwelling unit counts were selected from three sites of proposed affordable housing units.
- Parks and open space area calculations include new spaces for public and private parks and do not include the Sir John A. Macdonald Parkway.
- Target numbers are assumed from figures and ratios derived from TOD guidelines for best practices (Transit-Oriented Development Plans, 2014).

I.2 EXISTING DENSITY CALCULATIONS

Table I-1: *Precinct A density calculations*

Precinct A: Richmond, Carling and Parkway Triangle																			
Block	**Block Area**	**Parcel Size**	**Bldg ID**	**Bldg Ftprnt**	**Storeys**	**GFA**	**Block Coverage**	**FSI**	**Land Use**	**Vacant**	**Office**	**DU**	**Institutional**	**Commercial**	**Parking**	**Jobs**	**Res per Bldg**	**Block Res**	**Pop/ha**	**DU/ha**
1	42020	25933	1.1	2331	1	2331	22%	1.07	Commercial	0	0	0	0	3	363	60	0	250	60	33
			1.2	1283	1	1283			Commercial	0	0	0	0	1		42	0			
			1.3	2434	1	2434			Commercial	0	0	0	0	4		65	0			
			1.4	739	1	739			Commercial	0	0	0	0	1		37	0			
			1.5	2624	8	20992			Mixed-Use	0	2	139	0	1		43	250			
2	28153	3985	2.1	1629	1	1629	19%	0.41	Commercial	0	0	0	0	1	70	54	0	400	142	79
		4897	2.2	902	1	902		0.18	Commercial	0	0	0	0	1	37	45	0			
		9730	2.3	1771	18	31878		3.28	Mixed-Use	0	0	222	0	5	241	39	400			
		1921	2.4	284	1	284		0.15	Commercial	1	0	0	0	0	5	0	0			
		2311	2.5	672	1	672		0.29	Institutional	0	0	0	0	0	24	22	0			
3	12014	9093	3.1	1959	5	9795	25%	1.08	Commercial	0	0	0	0	1	65	44	0	0	0	
		2921	3.2	1044	2	2088		0.71	Mixed-Use	0	2	0	0	5	26	35	0			
4	228805	2598	4.1	492	1	492	26%	0.19	Commercial	0	0	0	0	1	30	16	0	985	43	24
		937	4.2	82	3	246		0.26	Residential	0	0	8	0	0	5	0	14			
		121733	4.3	29836	2	59672		0.49	Commercial	Yes	0	0	0	2	1028	81	0			
			4.4	500	1	500			Commercial	0	0	0	0	1	61	25	0			
		25812	4.5	3572	9	32148		1.72	Residential	0	0	171	0	0	482	0	308			
			4.6	12206	2	24412			Residential	0	0	20	0	0		0	36			
		15904	4.7	3572	6	21432		2.12	Residential	0	0	120	0	0		0	216			
		11058	4.8	2133	2	4266		0.39	Utility	0	0	0	0	0	6	0	0			
		29278	4.9	2920	12	35040		1.65	Residential	0	0	228	0	0	282	0	410			
			4.10	4379	3	13137			Parking	0	0	0	0	0		0	0			
		10938	4.11	638	1	638		0.06	Commercial	0	0	0	0	1	66	32	0			
		734	4.12	249	1	249		0.34	Commercial	0	0	0	0	1	4	8	0			
Total	310992	289143		78251		267259						908				649		1634		

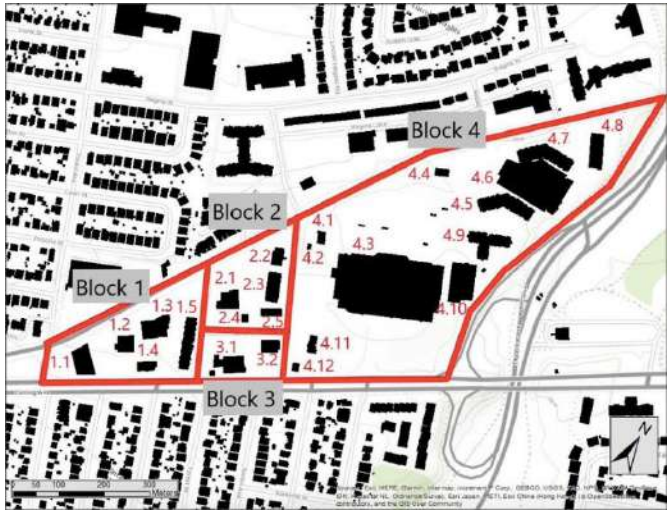

Figure I-1: *Precinct A block area (SURP, 2019)*

Table I-2: *Precinct B density calculations*

Precinct B: North of Richmond Road, West of Parkway																				
Block	Block Area	Parcel Size	Bldg ID	Bldg Ftprnt	Storeys	GFA	Block Coverage	FSI	Land Use	Vacant	Office	DU	Inst	Commercial	Parking	Jobs	Res per Bldg	Block Res	Pop/ha	DU/ha
1	24250	22021	1.1	5428	1	5428	26%	0.27	Commercial	3	0	0	0	7	114	121	0	0	0	
			1.2	604	1	604			Commercial	0	0	0	0	3	57	25	0			
		1911	1.3	391	1	391		0.20	Commercial	0	0	0	0	1	14	19.55	0			
2	44104	12646	2.1	1084	3	3252	29%	1.10	Residential	0	0	9	0	0	69		16.2	482	109	61
			2.2	1385	3	4155			Residential	0	0	10	0	0			18			
			2.3	624	3	1872			Residential	0	0	7	0	0			12.6			
			2.4	991	3	2973			Residential	0	0	10	0	0			18			
			2.5	540	3	1620			Residential	0	0	8	0	0			14.4			
		6401	2.6	1755	2	3510		0.55	Institutional	0	0	0	1	0	12	58.5	0			
		25057	2.7	6325	7	44275		1.77	Residential	0	0	224	0	0	240		403.2			
3	20579	16931	3.1	562	2	1124	53%	0.07	Commercial	0	0	0	0	1	337	19	0	65	31	17
		16037	3.2	2413	3	7239		0.55	Office	0	7239 sq.m	0	0	0	125	121	0			
			3.3	1505	1	1505			Commercial	0	0	0	0	5		75	0			
		4125	3.4	401	1	401		0.10	Commercial	0	0	0	0	1	55	13	0			
		7662	3.5	2631	2	5262		0.69	Residential	0	0	16	0	0	16		28.8			
		7656	3.6	2657	2	5314		0.69	Residential	0	0	16	0	0	16		28.8			
		1305	3.7	370	2	740		0.57	Residential	0	0	2	0	0	4		3.6			
		1406	3.8	370	3	1110		0.79	Residential	0	0	2	0	0	4		3.6			
4	59499	1395	4.1	370	3	1110	25%	0.80	Residential	0	0	2	0	0	4		3.6	860	145	80
		1312	4.2	370	3	1110		0.85	Residential	0	0	2	0	0	4		3.6			
		1311	4.3	373	3	1119		0.85	Residential	0	0	2	0	0	4		3.6			
		1369	4.4	435	3	1305		0.95	Residential	0	0	2	0	0	4		3.6			
		1307	4.5	423	3	1269		0.97	Residential	0	0	2	0	0	4		3.6			
		8392	4.6	4195	1.5	6293		0.75	Commercial	1	0	0	0	17	59	140	0			
		23426	4.7	2302	21	48342		2.06	Residential	0	0	252	0	0	255		453.6			
			4.8	3781	17	41349			Residential	0	1	204	0	0	210		367.2			
		20987	4.9	2476	1	2476		0.12	Residential	0	0	12	0	0	16		21.6			
Total	148432	182657				195147.5						782				592				159

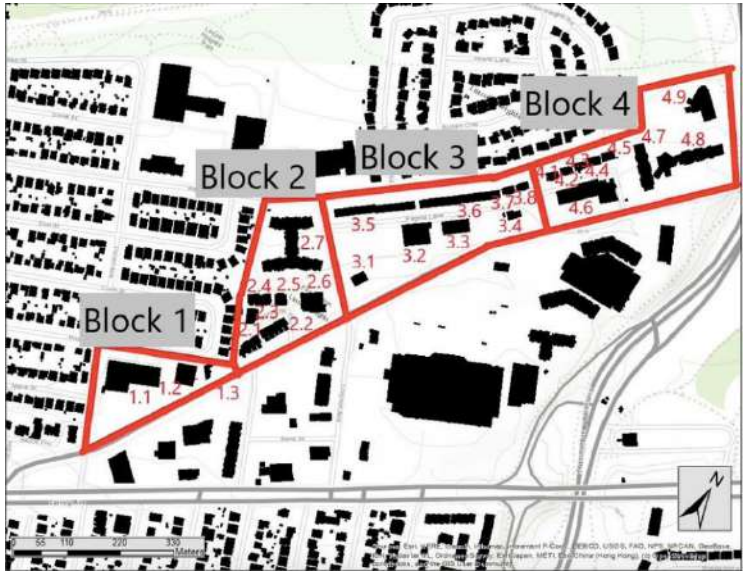

Figure I-2: *Precinct B block area (SURP, 2019)*

Table I-3: *Precinct C density calculations*

Precinct C: South of Carling, West of Parkway																	
Block	Block Area	Parcel Size	Bldg ID	Bldg Ftprnt	Storeys	GFA	Block Coverage	FSI	Land Use	DU	Institutional	Commercial	Parking	Jobs	Res per Bldg	Block Res	Pop/ha	DU/ha
1	21965	21965	1.1	951	2.5	2378	33%	0.83	Residential	8	0	0	75		14.4	110	50	28
			1.2	953	2.5	2383			Residential	8	0	0			14.4			
			1.3	585	2.5	1463			Residential	4	0	0			7.2			
			1.4	1075	2.5	2688			Residential	9	0	0			16.2			
			1.5	960	2.5	2400			Residential	8	0	0			14.4			
			1.6	841	2.5	2103			Residential	8	0	0			14.4			
			1.7	953	2.5	2383			Residential	8	0	0			14.4			
			1.8	950	2.5	2375			Residential	8	0	0			14.4			
2	25629	712	AVRG-26 Buildings	278	2.1	584	39%	0.82	Residential	40	0	0	80		72	72	28	16
3	27260	717	AVRG-28 Buildings	296	2.5	741	41%	1.03	Residential	40	0	0	80		72	72	26	15
4	29070	808	AVRG-29 Buildings	324	2.5	810	40%	1.00	Residential	39	0	0	78		70.2	70	24	13
5	31030	739	AVRG-31 Buildings	312	2.5	780	42%	1.06	Residential	49	0	0	98		88.2	88	28	16
6	32939	766	AVRG-28 Buildings	324	2.5	811	42%	1.06	Residential	41	0	0	82		73.8	74	22	12
7	18361	1148	AVRG-15 Buildings	401	2.5	1002	35%	0.87	Mixed-Use	25	1	0	50	13	45	45	24	14
8	15064	685	AVRG-15 Buildings	323	2.5	806	47%	1.18	Residential	28	0	0	56		50.4	50	33	19
9	18963	903	AVRG-18 Buildings	300	2.5	749	33%	0.83	Residential	25	0	0	50		45	45	24	13
10	14992	833	AVRG-15 Buildings	292	2.5	729	35%	0.88	Residential	23	0	0	46		41.4	41	28	15
11	14489	852	AVRG-14 Buildings	287	2.5	718	34%	0.84	Residential	16	0	0	32		28.8	29	20	11
Total	249762	30127.09				25900				387				13		697		

*Vacant and Office Columns are removed from this chart as they do not apply.

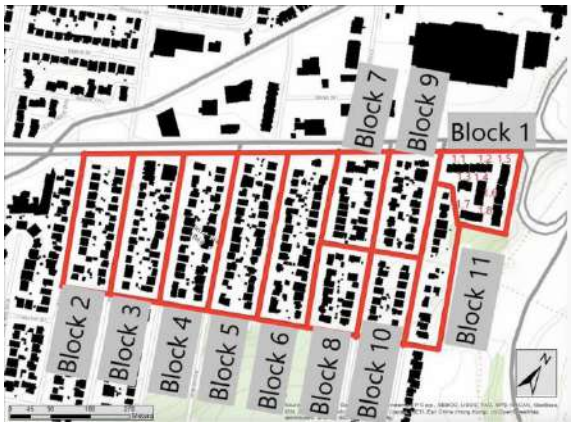

Figure I-3: *Precinct C block area (SURP, 2019)*

Table I-4: *Precinct D density calculations*

Precinct D: East of Parkway, Along Richmond, Woodland and Lawn Avenue																	
Block	Block Area	Parcel Size	Bldg ID	Bldg Ftprnt	Storeys	GFA	Block Coverage	FSI	Land Use	DU	Commercial	Parking	Jobs	Res per Bldg	Block Res	Pop/ha	DU/ha
1	19,315	12,090	1.1	2040	19	38760	21%	3.21	Residential	152	0	187		274	338	175	97
		3547	1.2	777	4	3108		0.88	Residential	36	0	8		65			
		1404	1.3	584	1	584		0.42	Commercial	0	3	6	29	0			
		2274	1.4	627	1	627		0.28	Commercial	0	2	12	21	0			
2	9194	9194	0	0	0	0	0%	0.00	Greenspace	0	0	0		0	0	0	
3	7086	7086	3.1	218	2	436	30%	0.80	Residential	2	0	16		4	41	58	32
			3.2	319	2	638			Residential	2	0			4			
			3.3	669	3	2007			Residential	10	0			18			
			3.4	231	2	462			Residential	2	0			4			
			3.5	709	3	2127			Residential	7	0			13			
4	16341	4998	4.1	1167	8	9336	31%	1.99	Residential	32	0	12		58	115	71	39
			4.2	300	2	600			Residential	4	0			7			
		943	4.3	379	1	379		0.40	Residential	1	0	4		2			
		941	4.4	247	1	247		0.26	Residential	1	0	4		2			
		940	4.5	198	2.5	495		0.53	Residential	1	0	2		2			
		922	4.6	244	1	244		0.26	Residential	1	0	4		2			
		872	4.7	282	1	282		0.32	Residential	1	0	4		2			
		866	4.8	237	2	474		0.55	Residential	1	0	4		2			
		3506	4.9	563	3.5	1970.5		1.13	Residential	8	0	12		14			
			4.10	569	3.5	1991.5			Residential	8	0			14			
		574	4.11	285	3	855		0.72	Residential	2	0	9		4			
		1183	4.12	609	3	1827		3.05	Residential	4	0	8		7			
5	22579	897	AVRG-22 Buildings	294	1.5	441	29%	0.49	Residential	22	0	44		40	40	18	10
6	22540	901.6	AVRG-23 Buildings	291	1.75	510	30%	0.57	Residential	23	0	46		41	41	18	10
7	22588	941	AVRG-23 Buildings	276	1.5	414	28%	0.44	Residential	23	0	46		41	41	18	10
Total	119,643	54,080				68815				343		428	50		617	52	29

*Vacant, Office and Institutional Columns are removed from this chart as they do not apply.

Figure I-4: *Precinct D block area (SURP, 2019)*

Table I-5: *Precinct E density calculations*

Precinct E: North of Carling, East of Parkway																			
Block	Block Area	Parcel Size	Bldg ID	Bldg Ftprnt	Storeys	GFA	Block Coverage	FSI	Land Use	Vacant	Office	DU	Institutional	Commercial	Parking	Jobs	Res per Bldg	Block Res	Pop/ha	DU/ha
1	32208	3527	1.1	1594	2	3188	21%	0.90	Residential	0	0	9	0	0	15		16.2	275	86	48
		1744	1.2	210	1	210		0.12	Residential	0	0	1	0	0	2		1.8			
		1746	1.3	194	1	194		0.11	Residential	0	0	1	0	0	2		1.8			
		1740	1.4	263	2	526		0.30	Residential	0	0	2	0	0	4		3.6			
		1571	1.5	336	2.5	840		0.53	Residential	0	0	1	0	0	3		1.8			
		1920	1.6	354	2	708		0.37	Residential	0	0	2	0	0	4		3.6			
		1746	1.7	332	2	664		0.38	Residential	0	0	1	0	0	2		1.8			
		2095	1.8	289	2	578		0.28	Residential	0	0	1	0	0	4		1.8			
		2095	1.9	280	2	560		0.27	Residential	0	0	1	0	0	3		1.8			
		2798	1.10	395	1	395		0.14	Residential	0	0	1	0	0	2		1.8			
		2793	1.11	283	1	283		0.10	Residential	0	0	1	0	0	2		1.8			
		9565	1.12	2150	11	23650		2.47	Residential	0	0	132	0	0	72		237.6			
2	34323	8131	2.1	2128	1	2128	27%	0.26	Commercial	0	1	0	0	3	65	47	0	54	16	9
		903.9	AVRG-25 Buildings	291	1.85	539		0.60	Residential	0	0	30	0	0	60		54			
3	32935	5622	3.1	1076	11	11836	28%	2.11	Residential	0	0	88	0	0	85		158.4	212	65	36
		941.8	AVRG-27 Buildings	307	1.7	522.3		0.55	Residential	0	0	30	0	0	60		54			
4	31081	942	4.1	237	1	237	29%	0.25	Residential	0	0	1	0	0	2		1.8	56	18	10
		1270	4.2	493	2	986		0.78	Residential	0	0	1	0	0	4		1.8			
		910	AVRG-29 Buildings	288	1.65	475		0.52	Mixed-Use	0	1	29	0	0	64		52.2			
5	23921	4809	5.1	1426	1.75	2496	30%	0.52	Commercial	0	0	0	0	1	32	125	0	32	14	8
		4603	5.2	1543	3	4629		1.01	Residential	0	0	9	0	0	16		16.2			
		2270	5.3	510	2	1020		0.45	Residential	0	0	4	0	0	8		7.2			
		2368	5.4	780	3	2340		0.99	Residential	0	0	5	0	0	10		9			
		6518	5.5	1899	3	5697		0.87	Mixed-Use	0	1	0	0	1	50		0			
		2440	5.6	917	1	917		0.38	Commercial	0	0	0	0	1	20	46	0			
6	31172	20563	6.1	2372	5	11860	26%	1.03	Office	0	3668 sq. m.	0	0	6	224	593	0	7	2	1
			6.2	2340	4	9360			Office	0	7116 sq. m.	0	0	3		468	0			
		5546	6.3	1618	1	1618		0.29	Office	0	1	0	0	0	44	81	0			
		2175	6.4	373	1	373		0.17	Commercial	1	0	0	0	1	58	19	0			
		4094	6.5	1426	2	2852		0.70	Residential	0	0	4	0	0	6		7.2			
7	16297	1845	7.1	412	1	412	28%	0.22	Office	0	2	0	0	0	12	21	0	0	0	
		2257	7.2	547	1	547		0.24	Commercial	0	0	0	0	1	24	27	0			
		11778	7.3	3585	2	7170		0.61	Commercial	0	3	0	0	5	102	359	0			
Total	201937	123326.72				99809						354			1061	1785		637		

Figure I-5: *Precinct E block area (SURP, 2019)*

Table I-6: *Precinct F density calculations*

Precinct F: South of Carling, East of Parkway																				
Block	Block Area	Parcel Size	Bldg ID	Bldg Ftprnt	Storeys	GFA	Block Coverage	FSI	Land Use	Vacant	Office	DU	Institutional	Commercial	Parking	Jobs	Res per Bldg	Block Res	Pop/ha	DU/ha
1	52839	3847	1.1	1194	4	4776	13%	1.24	Residential	0	0	64	0	0	28		115	544	103	57
		11957	1.2	2704	10	27040		2.26	Residential	0	0	130	0	0	302		234			
		11932	1.3	2670	9	24030		2.01	Residential	0	0	108	0	0	112		194			
		1387	AVRG-17 Buildings	400	1.9	760		0.55	Residential	0	0	17	0	0	34		31			
2	31782	16408	2.1	1532	7	10724	19%	1.51	Residential	0	0	98	0	0	18		176	916	294	163
			2.2	1752	8	14016			Residential	0	0	96	0	0	56		173			
		9542	2.3	2163	8	17304		1.81	Residential	0	0	248	0	0	60		446			
		4384	2.4	746	10	7460		1.70	Residential	0	0	67	0	0	77		121			
3	27930	4673	3.1	1258	2	2516	25%	0.54	Office	0	1	0	0	0	32	63	0	0	0	
		4546	3.2	1119	2	2238		0.49	Office	0	1	0	0	0	46	56	0			
		3872	3.3	1806	1	1806		0.47	Commercial	0	0	0	0	8		40	0			
		3651	3.4	1416	1	1416		0.39	Commercial	0	0	0	0	1		47	0			
		10562	3.5	1480	1	1480		0.14	Commercial	0	0	0	0	1		33	0			
4	19747	1316	AVRG-15 Buildings	404	2	807	31%	0.61	Residential	0	0	15	0	0	30		27	27	14	8
5	232892	152936	5.1	13928	3	41784	11%	0.27	Institutional	0	0	0	1	0		464	0	29	1	1
		54273	5.2	6123	1.5	9185		0.17	Institutional	0	0	0	1	0		204	0			
		1263	AVRG-16 Buildings	403	1.95	785		0.62	Residential	0	0	16	0	0	32		29			
Total	365190	296550				168127						859			827			1516		

Figure I-6: *Precinct F block area (SURP, 2019)*

I.3 PROPOSED DESIGN CALCULATIONS

Table I-7: *Precinct A proposed density calculations for Concept 1*

Proposed Design Group 1 Precinct A																
Block	Block Area	Parcel Size	Bldg ID	Bldg Ftprnt	Storeys	GFA	Block Cover	FSI	Land Use	DU	Jobs	Res per Bld	Block Resid	Pop/ha	Job/ha	DU/ha
1	43832	27745	1.1	953	6	5718	25%	2.46	Mixed-Use	48	21	86	1032	236	56	131
			1.2	3465	6	20790			Mixed-Use	173	77	312				
			1.3	1080	6	6480			Mixed-Use	54	24	97				
			1.4	1080	6	6480			Mixed-Use	54	24	97				
			1.5	1175	8	9400			Mixed-Use	82	26	148				
			1.6	1080	6	6480			Mixed-Use	54	24	97				
			1.7	1080	6	6480			Mixed-Use	54	24	97				
			1.8	1080	6	6480			Mixed-Use	54	24	97				
2	14922	6437	2.1	3721	6	22326	48%	3.47	Mixed-Use	186	83	335	862	578	93	321
		2770	2.2	1440	6	8640		3.12	Mixed-Use	72	32	130				
		3140	2.3	877	19	16663		5.31	Residential	167		300				
		2590	2.4	1080	6	6480		2.50	Mixed-Use	54	24	97				
3	6891	55414	3.1	2796	5	13980	41%	5	Commercial		62				145	
		1433	3.2	1145	5	5725		5	Institutional		38					
4	115320	12682	4.1	8042	6	48252	48%	4.98	Mixed-Use	402	179	724	5711	495	75	275
			4.2	748	20	14960			Residential	150		269				
		6171	4.3	6171	6	37026		8.45	Institutional			0				
			4.4	755	20	15100			Residential	151		272				
		6662	4.5	5688	6	34128		7.39	Mixed-Use	284	126	512				
			4.6	754	20	15080			Residential	151		271				
		13751	4.7	9425	6	56550		5.36	Mixed-Use	471	209	848				
			4.8	778	22	17116			Residential	171		308				
		7400	4.9	1665	6	9990		1.35	Residential	100		180				
		2351	4.10	1142	4	4568		10.41	Mixed-Use	34	25	62				
			4.11	766	26	19916			Residential	199		358				
		5310	4.12	1657	9	14913		2.81	Residential	149		268				
		5033	4.13	1350	12	16200		3.22	Residential	162		292				
		2352	4.14	1206	2	2412		8.26	Mixed-Use	12	27	22				
			4.15	773	22	17006			Residential	170		306				
		6085	4.16	5345	3.5	18707.5		3.07	Commercial		119	0				
		11595	4.17	7912	6	47472		5.56	Mixed-Use	396	176	712				
			4.18	773	22	17006			Residential	170		306				
Total	180965	178921				548525				4224	1344		7604	420	74	233

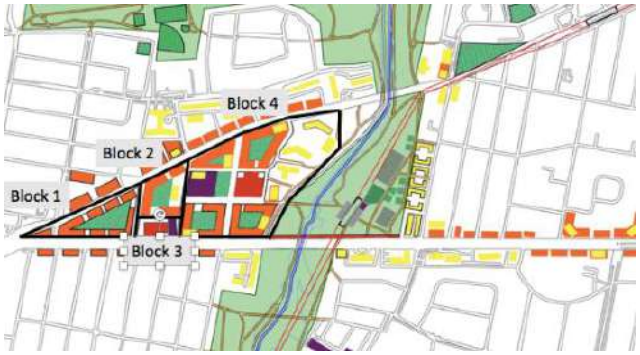

Figure I-7: *Precinct A proposed block area for Concept 1 (SURP, 2019)*

Table I-8: *Precinct A proposed density calculations for Concept 2*

Proposed Design Group 2 Precinct A															
Block	Block Area	Parcel Size	Bldg ID	Bldg Ftprnt	Storeys	GFA	Block Coverage	FSI	Land Use	DU	Jobs	Res per Bldg	Block Res	Pop/ha	Job/ha	DU/ha
1	43832	27745	1.1	953	6	5718	25%	2.46	Mixed-Use	48	48	86	1032	235	103	131
			1.2	3465	6	20790			Mixed-Use	173	77	312				
			1.3	1080	6	6480			Mixed-Use	54	54	97				
			1.4	1080	6	6480			Mixed-Use	54	54	97				
			1.5	1175	8	9400			Mixed-Use	82	59	148				
			1.6	1080	6	6480			Mixed-Use	54	54	97				
			1.7	1080	6	6480			Mixed-Use	54	54	97				
			1.8	1080	6	6480			Mixed-Use	54	54	97				
2	28153	3985	2.1	828	3	2484	26%	0.62	Residential	24		43	676	240	17	133
		4897	2.2	1074	3	3222		0.66	Residential	32		58				
		9730	2.3	1071	3	3213		0.33	Residential	32		58				
		1921	2.4	1246	3	3738		1.95	Residential	37		67				
		2311	2.5	1255	3	3765		1.63	Mixed-Use	25	28	45				
		1804	2.6	1099	6	6594		3.66	Residential	66		119				
		9730	2.7	884	19	16796		1.73	Mixed-Use	159	20	286				
3	6891	55414	3.1	2796	5	13980	57%	0.25	Commercial		62		82	120	127	66
		1433	3.2	1145	5	5725		4.00	Mixed-Use	46	25	82				
4	115320	6583	4.1	3796	6	22776	40%	3.46	Mixed-Use	114	84	205	4427	384	58	213
		1790	4.2	1246	3	3738		2.09	Residential	37		67				
		6583	4.3	750	18	13500		2.05	Residential	135		243				
		1768	4.4	1255	3	3765		2.13	Residential	38		68				
		1339	4.5	845	6	5070		3.79	Mixed-Use	42	19	76				
		1786	4.6	1021	6	6126		3.43	Mixed-Use	51	23	92				
		2039	4.7	2039	6	12234		6	Mixed-Use	102	45	184				
		8361	4.8	5872	6	35232		4.21	Mixed-Use	294	130	528				
		2207	4.9	1080	12	12960		5.87	Mixed-Use	119	24	214				
		2028	4.10	1080	6	6480		3.20	Mixed-Use	54	24	97				
		3898	4.11	1430	6	8580		2.20	Residential	86		154				
		1704	4.12	720	2	1440		0.85	Residential	14		26				
		3026	4.13	1647	10	16470		5.44	Residential	165		296				
		3651	4.14	1350	12	16200		4.44	Residential	162		292				
		1537	4.15	1080	6	6480		4.22	Residential	65		117				
		2761	4.16	1751	6	10506		3.81	Institutional		58	0				
		2035	4.17	1771	6	10626		5.22	Mixed-Use	89	39	159				
		3571	4.18	3332	6	19992		5.60	Institutional		111	0				
		3959	4.19	3350	6	20100		5.08	Mixed-Use	168	74	302				
		1286	4.20	895	3	2685		2.09	Mixed-Use	18	20	32				
		5745	4.21	4788	3	14364		2.50	Commercial		106	0				
		6583	4.22	2344	3	7032		1.07	Residential	70		127				
		3571	4.23	750	22	16500		4.62	Residential	165		297				
		5745	4.24	750	14	10500		1.83	Residential	105		189				
		2035	4.25	600	22	13200		6.49	Residential	132		238				
		8361	4.26	629	21	13209		1.58	Residential	132		238				
		1283	4.27	400	26	10400		8.11	Residential	104		187				
Totals		**214205**				**447990**				**3454**	**1347**	**6218**	**6218**	**320**	**69**	**178**

Figure I-8: *Precinct A proposed block area for Concept 2 (SURP, 2019)*

Table I-9: *Proposed density calculations for Concept 2 adjacent to NCC land along Carling Avenue*

Proposed Design Concept 2 NCC along Carling																
Block	Block Area	Parcel Size	Bldg ID	Bldg Ftprnt	Storeys	GFA	Block Covera	FSI	Land Use	DU	Jobs	Res per bldg	Block Reside	Pop/ha	Job/ha	Du/ha
1	7507	2066	1.1	1581	6	9486	72%	16.0	Office		211	425	851	1133	514	566
			1.2	1125	21	23625			Residential	236						
		2338	1.3	1581	6	9486		14.2	Office		474	425				
			1.4	1125	21	23625			Residential	236						
2	2800	2060	2.1	1581	4	6324	97%	11.8	Mixed-Use	47	35	85	409	1462	9	690
			2.2	1125	16	18000			Residential	180		324				
3	1400	1204	3.1	780	6	4680	90%	11.1	Mixed-Use	39	17	70	226	1612	2	656
			3.2	480	18	8640			Residential	86		156				
4	2654	1402	4.1	1001	10	10010	78%	7.1	Mixed-Use	80	100	144	494	1861	27	813
		1080	4.20	1080	18	19440		18.0	Residential	194		350				
Totals	14361	10150				133316		13.13		1100	838		1980	1378	583	766

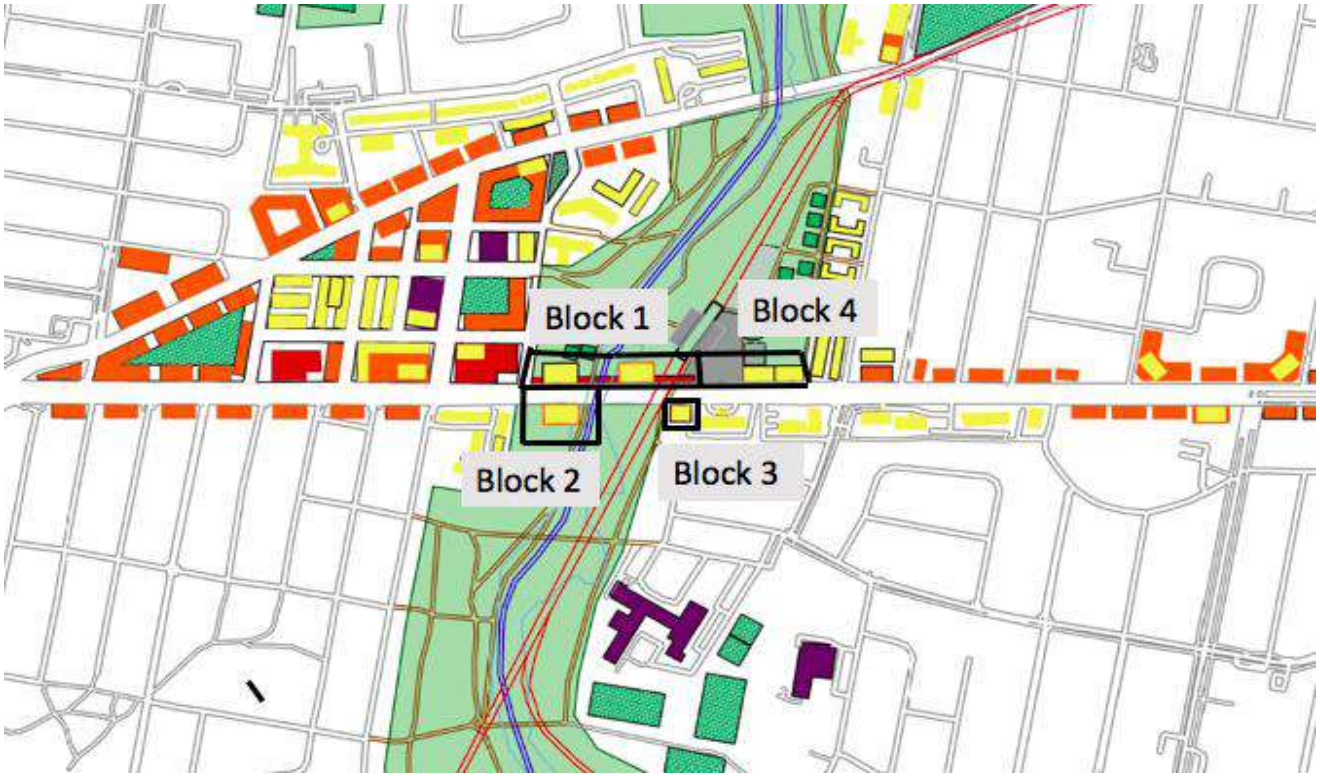

Figure I-9*: Proposed block area for Concept 2 adjacent to NCC land along Carling Avenue (SURP, 2019)*

Table I-10: *Proposed density calculations to the south of the Lincoln Fields Shopping Centre along Carling Avenue*

Proposed Design Arterials Carling West of Parkway															
Block	Block Area	Parcel Size	Bldg ID	Bldg Ftprnt	Storeys	GFA	Block Covera	FSI	Land Use	DU	Jobs	Res per Bldg	Block Res	Pop/ha	Job/ha	DU/ha
1	14017	1664	1.1	950	6	5700	47%	3.43	Mixed-Use	47.5	21	85.5	599	428	106	238
		1614	1.2	950	6	5700		3.53	Mixed-Use	47.5	21	85.5				
		1492	1.3	950	6	5700		3.82	Mixed-Use	47.5	21	85.5				
		1907	1.4	950	6	5700		2.99	Mixed-Use	47.5	21	85.5				
		1651	1.5	950	6	5700		3.45	Mixed-Use	47.5	21	85.5				
		1539	1.6	950	6	5700		3.70	Mixed-Use	47.5	21	85.5				
		1811	1.7	950	6	5700		3.15	Mixed-Use	47.5	21	85.5				
Total		11678				39900				333	148	599	599	428	106	238

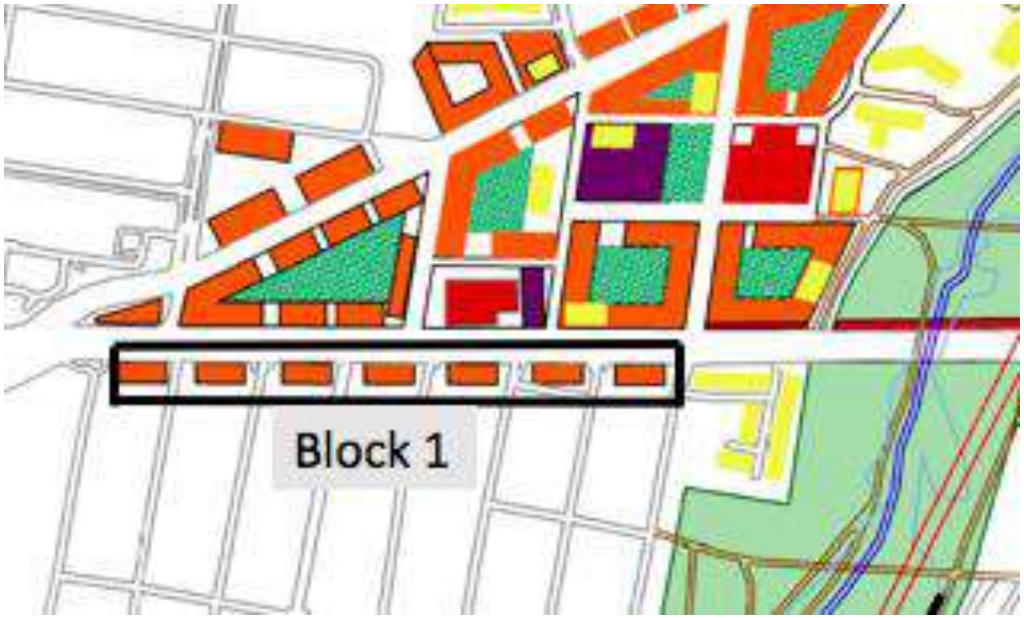

Figure I-10: *Proposed block areas to the south of the Lincoln Fields Shopping Centre along Carling Avenue (SURP, 2019)*

Table I-11: *Proposed density calculations to the west of the Parkway along Richmond Road*

Proposed Design Arterials Richmond West of Parkway															
Block	Block Area	Parcel Size	Bldg. ID	Bldg Ftprnt	Storeys	GFA	Block Covera	FSI	Land Use	DU	Jobs	Res per Bldg	Block Res	Pop/ha	Job/ha	DU/ha
1	12934	3460	1.1	2100	6	12600	49%	3.64	Mixed-Use	84	47	151	454	351	108	195
		3161	1.2	2100	6	12600		3.99	Mixed-Use	84	47	151				
		4603	1.3	2100	6	12600		2.74	Mixed-Use	84	47	151				
2	23037	7586	2.1	4553	6	27318	46%	3.60	Mixed-Use	207	101	372	1196	519	73	288
		2739	2.2	2436	6	14616		5.34	Residential	146		263				
		9087	2.3	2991	7	20937		2.30	Mixed-Use	203	66	366				
		2739	2.4	600	18	10800		3.94	Residential	108		194				
3	32202	2547	3.1	1080	6	6480	36%	2.54	Mixed-Use	54	24	97	822	255	36	142
		2408	3.2	1080	6	6480		2.69	Mixed-Use	54	24	97				
		1475	3.3	1080	6	6480		4.39	Mixed-Use	54	24	97				
		1356	3.4	1080	6	6480		4.78	Mixed-Use	54	24	97				
		3785	3.5	1080	4	4320		1.14	Residential	43		78				
		9535	3.6	2982	2	5964		0.63	Residential	60		107				
		3058	3.7	1080	4	4320		1.41	Residential	43		78				
		1464	3.8	1174	4	4696		3.21	Residential	47		85				
		1693	3.9	950	6	5700		3.37	Mixed-Use	48	21	86				
4	21062	2172	4.1	1080	6	6480	24%	2.98	Mixed-Use	54	24	97	886	420	23	234
		2331	4.2	1080	6	6480		2.78	Mixed-Use	54	24	97				
		4133	4.3	958	2	1916		0.46	Residential	19		34				
		3990	4.4	973	21	20433		5.12	Residential	204		368				
		2441	4.5	944	17	16048		6.57	Residential	160		289				
Totals	89235	75763				213748		2.82		1865	473	3356	3356	376	53	209

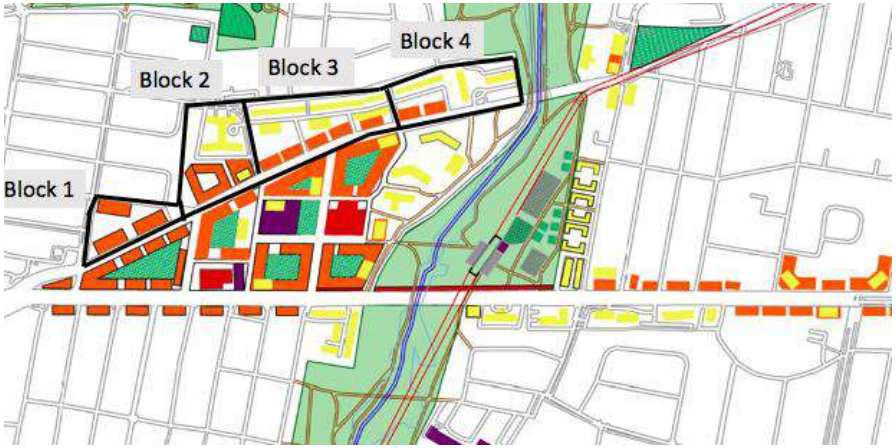

Figure I-11: *Proposed block area to the west of the Parkway along Richmond Road (SURP, 2019)*

Table I-12: *Proposed density calculations to the east of the Parkway along Richmond Road*

Proposed Design Arterials Richmond East of Parkway																
Block	Block Area	Parcel Size	Bldg ID	Bldg Ftprnt	Storeys	GFA	Block Covera	FSI	Land Use	DU	Jobs	Res per Bldg	Block Res	Pop/ha	Job/ha	DU/ha
1	10393	6572	1.1	996	19	18924	35%	2.88	Residential	189		341	594	571	49	391
		3825	1.2	2288	4	9152		2.39	Mixed-Use	69	51	124				
		3825	1.3	400	18	7200		1.88	Residential	72		130				
2	3784	1570	2.1	950	4	3800	50%	2.42	Residential	38		68	137	362		1073
		1735	2.2	950	4	3800		2.19	Residential	38		68				
TOTAL	14177	17527				42876				406	51		731	515	35	286

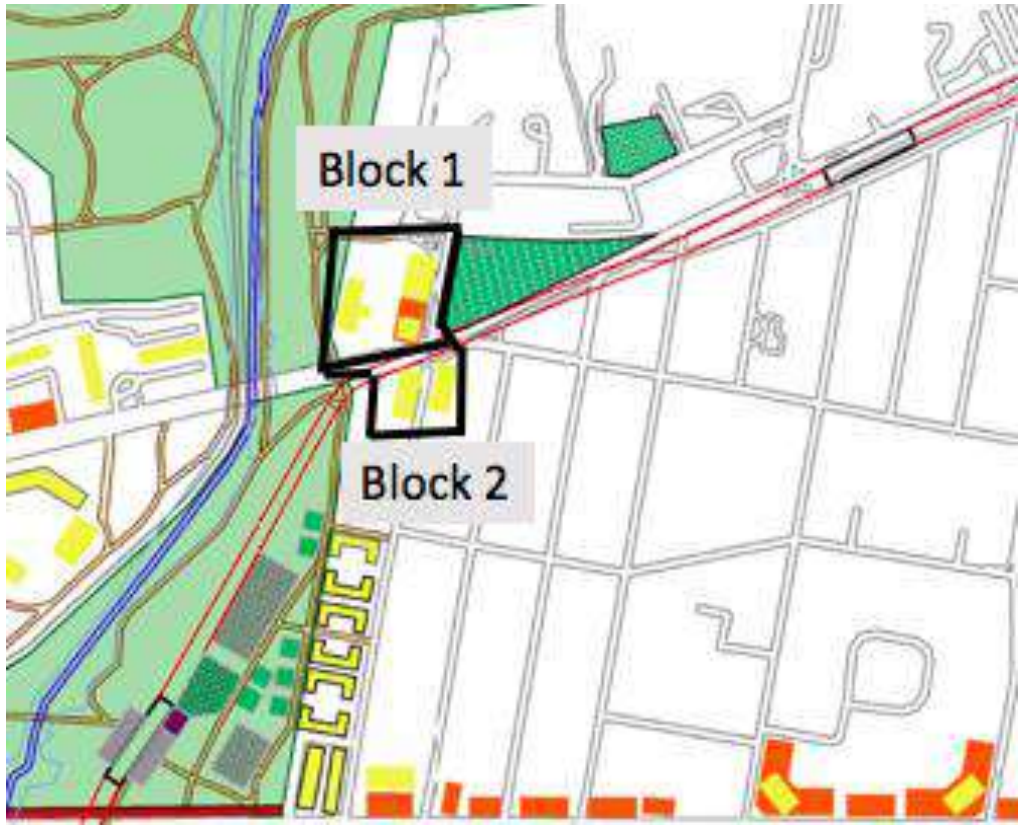

Figure I-12: *Proposed block area to the east of the Parkway along Richmond Road (SURP, 2019)*

Table I-13: *Proposed density calculations to the east of the Parkway north of Carling Avenue*

Proposed Design Arterials North Carling East of Parkway															
Block	Block Area	Parcel Size	Bldg ID	Bldg Ftprnt	Storeys	GFA	Block Covera	FSI	Land Use	DU	Jobs	Res per Bldg	Block Res	Pop/ha	Job/ha	DU/ha
1	16644	2116	1.1	784	3	2352	40%	1.11	Residential	24		42	539	324		595
		2008	1.2	784	3	2352		1.17	Residential	24		42				
		2028	1.3	784	3	2352		1.16	Residential	24		42				
		2078	1.4	784	3	2352		1.13	Residential	24		42				
		1918	1.5	784	3	2352		1.23	Residential	24		42				
		2263	1.6	784	3	2352		1.04	Residential	24		42				
		2518	1.7	1117	11	12287		4.88	Residential	123		221				
		1736	1.8	884	4	3536		2.04	Residential	35		64				
2	44109	1852	2.1	1080	6	6480	37%	3.50	Residential	65		117	1245	282	78	225
		3042	2.2	950	4	3800		1.25	Mixed-Use	29	21	51				
		1349	2.3	433	11	4763		3.53	Mixed-Use	43	10	78				
		962	2.4	600	4	2400		2.49	Mixed-Use	18	13	32				
		1740	2.5	950	4	3800		2.18	Mixed-Use	29	21	51				
		1286	2.6	950	4	3800		2.95	Mixed-Use	29	21	51				
		847	2.7	472	4	1888		2.23	Mixed-Use	14	10	25				
			2.8	3264	4	13056		3.12	Mixed-Use	98	73	176				
		7076	2.9	750	12	9000			Residential	90	17	162				
		1750	2.10	950	4	3800		2.17	Mixed-Use	29	21	51				
			2.11	3416	4	13664		3.00	Mixed-Use	102	76	184				
		7552	2.12	750	12	9000			Residential	90	17	162				
		1378	2.13	950	4	3800		2.76	Mixed-Use	29	21	51				
		1316	2.14	950	4	3800		2.89	Mixed-Use	29	21	51				
TOTAL	60753	46815				112986				991	300	1784	1784	294	49	163

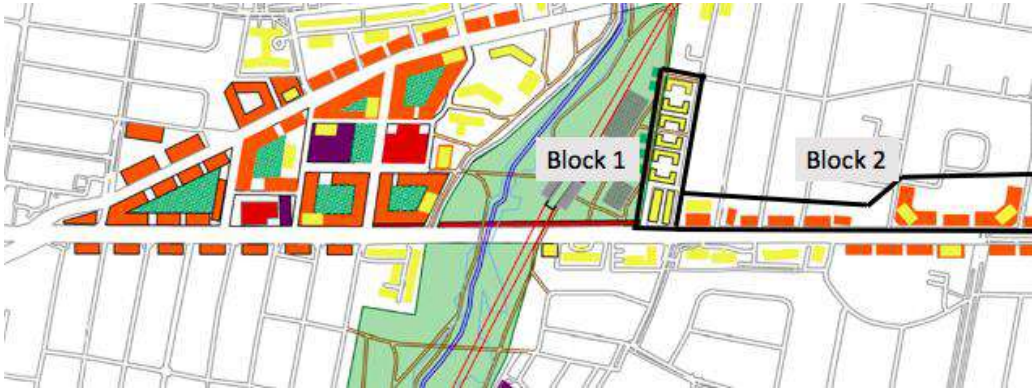

Figure I-13: *Proposed block area to the east of the Parkway north of Carling Avenue (SURP, 2019)*

Table I-14: *Proposed density calculations to the east of the Parkway south of Carling Avenue*

Proposed Design Arterials South Carling East of Parkway																
Block	Block Area	Parcel Size	Bldg ID	Bldg Ftprnt	Storeys	GFA	Block Covera	FSI	Land Use	DU	Jobs	Res per Bldg	Block Res	Pop/ha	Jobs/ha	DU/ha
1	39679	3334	1.2	1248	10	12480	34%	3.74	Residential	125		225	1437	362	39	201
		3790	1.3	1238	9	11142		2.94	Residential	111		201				
		2432	1.4	745	7	5215		2.14	Residential	52		94				
		3342	1.5	842	8	6736		2.02	Residential	67		121				
		3687	1.6	1123	8	8984		2.44	Residential	90		162				
		1460	1.7	527	10	5270		3.61	Residential	53		95				
		3100	1.8	950	4	3800		1.23	Mixed-Use	29	21	51				
		2239	1.9	950	4	3800		1.70	Mixed-Use	29	21	51				
		2242	1.10	950	4	3800		1.69	Mixed-Use	29	21	51				
		2732	1.11	1300	4	5200		5.20	Mixed-Use	39	29	70				
			1.12	750	12	9000			Residential	90		162				
		2142	1.13	950	4	3800		1.77	Mixed-Use	29	21	51				
		2162	1.14	950	4	3800		1.76	Mixed-Use	29	21	51				
		2096	1.15	950	4	3800		1.81	Mixed-Use	29	21	51				
Total	39679	34758				86827				798	156	1437	1437	362	39	201

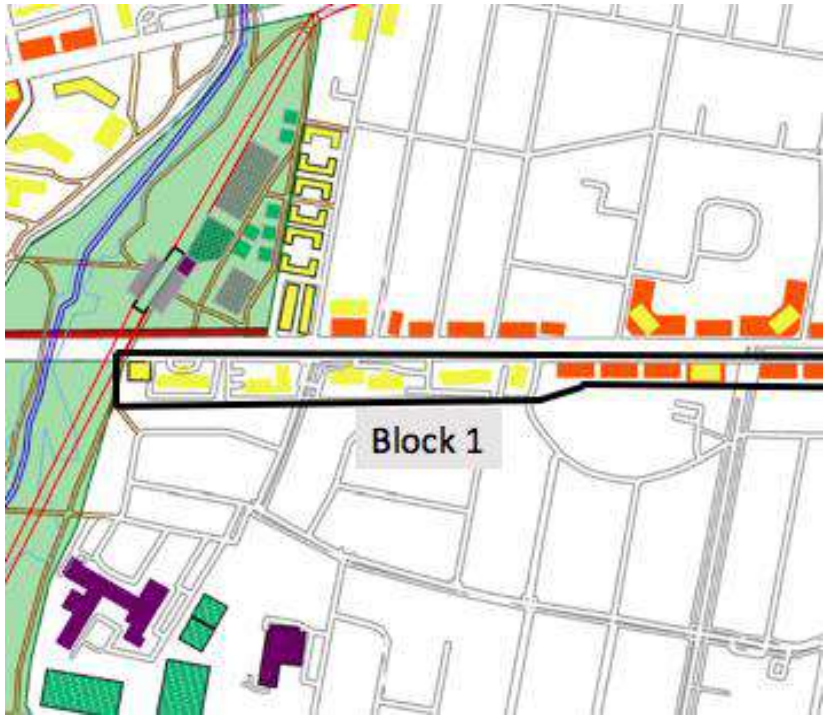

Figure I-14: *Proposed block area to the east of the Parkway south of Carling Avenue (SURP, 2019)*

I.3.1 Affordable Housing Strategy

Table I-15: Concept 1 affordable housing unit count

BUILDING	DWELLING UNITS
A 4.4	151
B 2.1	228
B 2.2	170
B 2.4	108
C TOTAL	496
CONCEPT 1 TOTAL	**1153**

Table I-16: Concept 2 affordable housing unit count

BUILDING	DWELLING UNITS
A 4.4	165
B 2.1	228
B 2.2	170
B 2.4	108
C TOTAL	496
CONCEPT 2 TOTAL	**1167**

I.3.2 Parking Strategy

Table I-17: Concept 1 maximum parking calculation

LOCATION	AREA (SQ. M)	SPACES
LFSC	59,797	2,215
CARLING	43,293	1,603
RICHMOND	39,085	1,448
NCC	-	-
CONCEPT 1 TOTAL	**142,175**	**5,266**

Table I-18: Concept 2 maximum parking calculation

LOCATION	AREA (SQ. M)	SPACES
LFSC	35,397	1,311
CARLING	43,293	1,603
RICHMOND	39,085	1,448
NCC	-	-
CONCEPT 2 TOTAL	**129,234**	**4,786**

I.3.3 Parkspace Calculations

Table I-19: Concept 1 parkspace calculation

PARKSPACE	FOOTPRINT (SQ M)
P1	7,400
P2	3,729
P3	974
P4	3,064
P5	4,004
P6	3,697
P7	2,970
P8	2,800
P9	2,584
P10	4,744
P11	2,200
CONCEPT 1 TOTAL	38,166

Table I-20: Concept 2 parkspace calculation

PARKSPACE	FOOTPRINT (SQ M)
P1	7,400
P2	695
P3	2,383
P4	3,551
P5	1,191
P6	3,200
P7	2,000
P8	3,200
P9	5,319
P10	1,165
P11	4,087
CONCEPT 1 TOTAL	31,891

APPENDIX J: FINAL PRESENTATION FEEDBACK

TABLE OF CONTENTS

On December 10, 2019, the project team presented the LFSA Plan to Ward Councillor Theresa Kavanagh and numerous planning professionals in the Councillor's Lounge of Ottawa City Hall. The presentation started at 2:30 pm and lasted 40 minutes, followed by a question and feedback period. Attendees arrived and could peruse posters featuring greenspace designs of Concept 2 and best practices generated from precedent study. The presentation began with introductions by Ms. Natalie Persaud of the City of Ottawa and Dr. David Gordon of Queen's University.

J.1 PRESENTATION FEEDBACK

Councillor Kavanagh stated that the focus on connectivity was welcome, as it is a crucial perspective for her constituents. The Councillor expressed concern that some stakeholder would be hesitant to reduce the Parkway from four lanes to two lanes between Richmond Road and Carling Avenue, as proposed in Concept 1. The Councillor also expressed concern in the case of Concept 2 where the Parkway is removed south of Richmond Road and therefore begins with an intersection at Richmond Road. The concern was that an intersection at Richmond Road would be more congested compared to an intersection at Carling Avenue as Richmond Road is narrower.

*[The revised design for Richmond Road is four lanes wide. Details on the proposed T-intersection between Richmond Road and the re-routed Parkway in Concept 2 can be found in **Chapter 9: Design Concepts** on page 9-19.]*

A development review planner at the City of Ottawa cautioned against moving the anchor tenants in Concept 2 based on feasibility.

[*Details on the advantages of moving the anchor tenants can be found in **Chapter 9: Design Concepts** on page 9-9 and **Chapter 10: Evaluation** on page 10-2. This attendee also mentioned the anchor tenant location on arterial mainstreets. Analysis of the City of Ottawa's Arterial Mainstreet Urban Design Guidelines can be found in **Table 5-1** in **Chapter 5: Policy Analysis** on page 5-3 as well as in more detail in **Appendix B: Policy Analysis** on page D-6.]*

An urban designer at the City of Ottawa expressed confusion as to why the design decisions in Concept 2 could not be present within the constraints of Concept 1.

*[The rationale behind design decisions and the different constraint premises of Concept 1 and Concept 2 is explained in the **Chapter 8: Design Charrette**, **Chapter 9: Design Concepts**, **Chapter 10: Evaluation**, and **Chapter 11: Recommendations**. In short, removing Metro from the centre of the redevelopment site allows for more creativity in terms of block layout and block size. Developing on NILM and providing more greenspace in the central corridor at the expense of the Parkway allows for height and density to be reallocated in Concept 2 compared to Concept 1, leading to different design outcomes that are direct results of the premises. The two concepts also serve to show how stakeholder collaboration can lead to different results.]*

An urban designer at the City of Ottawa expressed concern that the pedestrian boulevard in Concept 2 would not be viable given the perceived failure of Sparks Street in Ottawa.

*[The design rationale behind the pedestrian boulevard and its benefits in terms of connectivity to the MUP network and to the station is explained in **Chapter 9: Design Concepts**, particularly in the pedestrian circulation and public realm maps on page 9-13 and 9-23 respectively.]*

A planner at the NCC expressed curiosity as to whether the project team considered how the Parkway, reduced to two lanes in Concept 1, would meander in coherence to the natural environment.

*[The position of the Parkway in Concept 1 is shown in multiple land use and circulation maps on pages 9-4 to 9-23 in **Chapter 9: Design Concepts**, and is based on making minimal changes to the current shape, following the Concept 1 premise of being more constrained.]*

Finally, the Ward Councillor expressed positivity about the community centre, indicating that it would be a welcome addition according to current residents of Lincoln Fields, and that there was a lack of public indoor swimming pools in the area. The Councillor stressed that new proposed bus stops in the interior of the redevelopment site should be on the same side of the street as the Metro or relevant destination adjacent to the bus stop, as some senior community members are not capable of crossing the street safely. The Councillor indicated that pedestrian fatalities have occurred at the current bus stop by the Metro and

that safety is a priority when designing public transit routes, suggesting that Carlingwood's one-way streets could be a model.

J.2 PRESENTATION QUESTIONS

Q: *What are the block sizes of your design concepts, and what influenced these size choices? What are the characteristics of the new internal streets? (asked by a planner at the City of Ottawa)*

A: The longest length of a perimeter block in Concept 1 is 130 metres. The length of other perimeter blocks range from 90-80 metres. A detailed map of the dimensions of Concepts 1 and 2 can be found in **Appendix G** & **Appendix H** on page G-4 and H-3 respectively. These sizing choices in Concept 1 were influenced by the proposed location of Metro on the Lincoln Fields Shopping Centre site. The current freestanding building is proposed at 80 metres by 80 metres, effectively creating an 80 x 80-metre block in the redevelopment site. The rest of the block pattern logically followed to roughly mirror the Metro block in scale. Perimeter blocks were chosen to emphasize a straight, human-scale street edge while allowing ample greenspace in the centre. Concept 2 does not feature as many perimeter blocks precisely due to the fact that Metro no longer creates a central block but has been moved to directly front Carling Avenue.

Building dimensions from Fotenn Planning and Design were used to model the length and width of buildings. In particular the 24 x 45-metre dimensions of mid-rise buildings and the 20 x 37.5-metre dimensions for high-rise buildings were used. The 24-metre width was extended to 26 metres for the tower podiums to allow for a 3-metre stepback of a 20-metre wide podium. The mid-rise perimeter blocks can be constructed in a way that uses consecutive 45-metre length buildings with no or minimal space between them.

Q: *Did you consider on-street parking along the arterial mainstreets to improve foot traffic to the new commercial buildings? (asked by a planner at the City of Ottawa)*

A: The proposed ROWs of Carling Avenue and Richmond Road for both Concept 1 and 2 do not include lanes for on-street parking. The project vision was based on proximity of the Lincoln Fields Secondary Plan area to the future LRT station.

Q: *What are the details of the connections/intersections between the parkway and Richmond and Carling? Did you consider creative ways that the parkway could begin at Richmond and serve as a gateway to the rest of the parkway corridor? (asked by a planner at the NCC)*

A: In Concept 1, the parkway interacts with Richmond Road and Carling Avenue at controlled T-intersections. The off- and on-ramps and the cloverleafs are removed. In Concept 2, the parkway intersection at Richmond Road has been moved to the east to account for the grade change where it currently goes underneath Richmond Road. Moving this intersection east will allow the Parkway and Richmond Road to intersect at the same grade. Details on proposed and potential gateway enhancements at this intersection in Concept 2 can be found in **Chapter 9: Design Concepts** on page 9-19.

Q: Did we do or consult ecological assessments of the area? Do we have an idea of how many improvements would result from Concept 2? (asked by an attendee)

A: The project team did not undertake ecological assessments. Basic environmental parameters were researched and presented in **Chapter 2: Site Analysis** on page 2-2. **Figure 9-4** in **Chapter 9: Design Concepts** illustrates the improvements of Concept 2 in terms of the amount of natural greenspace that can be reclaimed. More detailed improvements in terms of ecological services were not possible due to the scope and timeframe of the project.

Q: *The number of parking spots went from 7,500 to 1,300. How did we come up with these numbers? (asked by a planner at the PSPC)*

A: The total available potential space for underground parking was divided by a metric of one parking spot that included residual space. A stakeholder interview with RioCan early in the project process revealed a preference for one storey of underground parking in order to reduce blasting costs. More detailed information on this calculation can be found in **Appendix I: Density Analysis.**

Q: *Could you explain more about your decision to remove the bus loop and give more details on our planned bus route loops? Would this cause problems with the east-bound buses? Are there problems with people crossing the street at Carling? (asked by an attendee)*

A: The decision to remove bus loops was made to prioritize the public realm around the future LRT station in line with mobility hub principles. Details on this can be found in the **Chapter 9: Design Concepts**, particularly the public realm plans on page 9-20. Another advantage is that using a bus loop through the new internal street network allows people to embark and disembark at a new proposed bus stop in front of the Metro in Concept 1 and in front of the community centre in Concept 2. This brings people into the community and allows people who are not comfortable walking to access the redevelopment site. The bus loops are designed to facilitate right-hand turns as much as possible. These loops are made possible by transit-priority intersections, which also make left-hand turns possible for buses approaching the redevelopment site down Richmond Road, as shown in the public transit connectivity plans on page 9-18. In Concept 2, a new proposed controlled intersection allows people to cross the street at Carling Avenue directly in front of the LRT station, while in Concept 1 a new proposed controlled intersection is a short walk west along Carling Avenue from the LRT station, where the parkway intersects with Carling Avenue. These intersections are shown in the pedestrian and vehicular circulation plans on page 9-13 and 9-20 respectively.

Q: *Could you give details about the community centre? (asked by the Councillor)*

A: The details of programming in the community centre would come out of formal public consultation and market demand. The project team discussed green roofs, co-working spaces, gyms, and public pools as potential needed services in the community.

Q: *How would the phasing of the design concepts come about, particularly in terms of having no surface parking? (asked by several attendees)*

A: Design Concepts 1 and 2 are both a long-term vision for approximately 30 years in the future. Areas will be left for surface parking initially as buildings are constructed in the Lincoln Fields Shopping Centre redevelopment site. The final vision utilizes underground parking lots to maximize the public realm and pedestrian experience. It is based on the lack of minimum parking requirements for the area. Concept 1 in particular envisions a private ROW roughly parallel to Carling Avenue in front of the Metro building which would facilitate an initial surface parking lot to the Metro and then become an underground parking lot when the perimeter block is constructed.

J.3 PUBLIC OPEN HOUSE

On December 12, 2019, a public open house for the Lincoln Fields Secondary Plan was held at the Ron Kolbus Lakeside Centre. Ward Councillor Kavanagh and City of Ottawa staff were in attendance. At the Councillor's request, a member of the project team presented the SWOC analysis, vision, and answered questions about the project from the public. Community members stressed their concern for connectivity to and from the incoming LRT station, along with housing affordability in the area. Community members were receptive and enthusiastic about the principles and design concepts developed by the project team.