# A Stay in the Interchange

Regenerative Cohousing in the Greater Toronto Area

by

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# Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

# Abstract

Satellite cities built around the 1960s across the Greater Toronto Area (GTA) represent the modernist belief in comprehensive architecture. The suburban arrangement of apartment towers, single-family bungalows, and warehouses – that once provided Toronto's workforce population local access to affordable housing and stable employment – must now adapt to an ever expanding live-work pattern of a global city. Building on Koolhaas and Aureli's theory of architectural congestion, the thesis reframes Toronto's infill development of dense suburban homes not simply as isolated objects of market urbanism but more importantly as new pieces towards the possible intensification of pre-existing community relations, towards socioeconomic solidarity.

The thesis proposes a cohousing model to be situated alongside the many underused suburban malls within the GTA, using the sites' potential as borderland between residential neighbourhoods and employment lands to rebuild new pathways for meaningful socioeconomic interaction. The design thesis relies on a two-part research process of 1) documenting the past – through census data, Google Maps Street View images, and a collection of journal photos that captures everyday suburban social life and 2) reimagining the future – through diagram analysis of analogous projects of urban morphology (Chapter 2) and building typology (Chapter 3) that captures the potential of urban redevelopment to preserve and/or heighten workforce population's perception of community belonging. The contemporary issue of constant migration-and-outmigration in the GTA due in part to housing unaffordability is tackled in the thesis through cohousing homeownership, with the understanding that a singular architectural response to the concept of housing security – between home and migration, between permanence and transformation – is no final answer. But a key part in the on-going self-discovery of why we continuously decide to stay living-and-working within a specific community, to continuously participate in the political life of our chosen city, and on how the spirit of a comprehensive architecture can evolve in mediating this inner social desire.

# Acknowledgements

Thank you to the many people who encouraged me throughout the years to question the potential of architecture to improve the social landscape of cities. Thank you for emphasizing the value of patience and commitment as I move onto the next stage of my professional career.

Thank you to my supervisor Val Rynnimeri, committee member David T. Fortin, internal reader Tracey Eve Winton, and external reader Matthew Bolen. The rational image of community preservation as proposed in the thesis is an overview of my academic (and personal) journey in search of permanence, the state of equilibrium into which social identity teethers between the static and the chaotic. Thank you for providing guidance as I tackle these seemingly contradictory topics of home and migration.

Thank you to the faculty at the University of Waterloo School of Architecture, Architectural Engineering and the School of Planning. Special thank you to Lola Sheppard, Marie-Paule Macdonald, Michael Fohring, Quan Thai, and Samantha Eby; to David Correa; to Elizabeth English, and Joyce Kim; and to Markus Moos. * Thank you to the many academic and professional mentors and colleagues who took a chance on me ever since I started my undergraduate education in architecture.

# Land Acknowledgement

I acknowledge that the land represented in the research, the city of Brampton and the Region of Peel, is part of the Treaty Lands and Territory of the Mississaugas of the Credit. For thousands of years, Indigenous peoples inhabited and cared for this land, and continue to do so today. In particular I acknowledge the territory of the Anishinabek, Huron-Wendat, Haudenosaunee and Ojibway/Chippewa peoples; the land that is home to the Metis; and most recently, the territory of the Mississaugas of the Credit First Nation who are direct descendants of the Mississaugas of the Credit.

I am grateful to have the opportunity to live and work on this land, and by doing so, give respect to its first inhabitants.

# Dedication

To my family and friends. Thank you for the encouragement that led me to continue pursuing architecture. Thank you to my family for the much-needed push whenever I lose momentum, and the pull whenever I lose sight of my present limits. Thank you for supporting me as best as you could in a career path that I am truly passionate about.

To the many migrants in their journey in search of a better life, may they find true happiness and content. “The purpose of architecture is to shelter and enhance man’s life on earth and to fulfill his belief in the nobility of his existence.” Eero Saarinen

“Joy is the noblest human act.”

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Source: Alexandra Studios, City of Toronto Archives Fonds 1257, Series 1057, Item 4586, York, Ontario: ca. 1960s, https://gencat.eloquent-systems.com/city-of-toronto-archives-m-permalink.html?key=215398.

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Image by author. Data source: Phinjo Gombu, The Race for Space: Securing the Future of Ontario's Employment Lands, (Toronto: Toronto Region Board of Trade, 2023), 9. Statistics Canada, Gross domestic product (GDP) at basic prices, by census metropolitan area (CMA) (x 1,000,000), 2020.

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Image by author. Data source: City Fabrick, https://www.cityfabrick.org/projects/la-placita-cinco.

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Image by author. Data source: Carine De Pauw, "Little Mountain Cohousing: Compact plan visually connects all building levels to shared outdoor space," Sustainable Architecture & Building Magazine, November 8, 2021, https://sabmagazine.com/little-mountain-cohousing/.

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Image by author. Data source: Carine De Pauw, "Little Mountain Cohousing: Compact plan visually connects all building levels to shared outdoor space," Sustainable Architecture & Building Magazine, November 8, 2021, https://sabmagazine.com/little-mountain-cohousing/.

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3.20 110 Durham Central Park Co-housing Community axonometric diagram. Scale 1 : 600

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Image by author. Data source: Heide & von Beckerath, "R50 - cohousing," https://heidevonbeckerath.com/single/r50-cohousing.

3.22 112 R50 Baugruppen axonometric diagram. Scale 1 : 600

Image by author. Data source: Heide & von Beckerath, "R50 - cohousing," https://heidevonbeckerath.com/single/r50-cohousing.

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Image by author. Data source: George Kafka, "Six Years in the Making, Berlin's IBeB Cooperative Housing Development Creates a Tight-Knit Community of Residents," Metropolis, February 2019, https://metropolismag.com/projects/ibeb-cooperative-housing-berlin-ifau-heide-von-beckerath/.

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Image by author. Data source: Heide & von Beckerath, "IBeb," https://heidevonbeckerath.com/single/ibeb. Fundació Mies van der Rohe, "Residential and studio building at the former Berlin flower market," https://miesarch.com/work/3950.

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Image by author. Data source: Heide & von Beckerath, "IBeb," https://heidevonbeckerath.com/single/ibeb. Fundació Mies van der Rohe, "Residential and studio building at the former Berlin flower market," https://miesarch.com/work/3950.

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Image by author. Data source: Heide & von Beckerath, "IBeb," https://heidevonbeckerath.com/single/ibeb. Fundació Mies van der Rohe, "Residential and studio building at the former Berlin flower market," https://miesarch.com/work/3950.

## Chapter 4

**Fig. Pg. Description and Source**

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Image by author. Data source: Land Information Ontario. Ministry of Municipal Affairs and Housing, "Ontario Providing New Tools to Municipalities to Build More Homes Sooner," August 21, 2023, https://news.ontario.ca/en/backgrounder/1003396/ontario-providing-new-tools-to-municipalities-to-build-more-homes-sooner.

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Source: Google Maps.

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Image by author. Data source: Land Information Ontario. City of Brampton, Official Plan Schedule A: General Land Use, 2020. City of Brampton, Official Plan Schedule A: Overlays, 2020. City of Brampton, Bus Routes, 2024.

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Image by author. Author's calculations. Data source: Statistics Canada, Census of Population (Brampton, CY), 2021.

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Image by author. Author's calculations. Data source: Statistics Canada, Census of Population (Brampton, CY), 2021. Toronto Regional Real Estate Board, MLS Home Price Index (Brampton), October 2021.

4.08 131 Map of Downtown Brampton Urban Growth Centre and Central Area. Scale 1 : 25,000

Image by author. Data source: Land Information Ontario. City of Brampton, Official Plan Schedule A: General Land Use, 2020. City of Brampton, Official Plan Schedule A: Overlays, 2020.

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Image by author. Data source: Land Information Ontario. City of Brampton, Official Plan Schedule A: Overlays, 2020.

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Source: Google Maps.

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Source: Xander Wu, Scarborough, Ontario: 2023, Wikimedia Commons, https://commons.wikimedia.org/wiki/File:Parkway_Mall_Food_Court,_September_2023_(2).jpg.

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Image by author. Data source: Land Information Ontario. City of Toronto, Zoning By-law 569-2013, 2023. City of Mississauga, Mississauga Zoning, 2020. City of Brampton, Official Plan Schedule A: General Land Use, 2020. City of Brampton, Official Plan Schedule A: Overlays, 2020.

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Image by author. Data source: Land Information Ontario. City of Toronto, Zoning By-law 569-2013, 2023. City of Toronto, Property Boundaries, 2024. City of Toronto, Topographic Mapping – Building Outlines. City of Mississauga, Mississauga Zoning, 2020. City of Mississauga, Mississauga Buildings, 2020. City of Brampton, Official Plan Schedule A: General Land Use, 2020. City of Brampton, Official Plan Schedule A: Overlays, 2020.

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Image by author. Data source: International Council of Shopping Centers, Canadian Retail Real Estate Standard: A Framework for Shopping Centre and Other Retail Format Definitions, (2010).

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Image by author. Data source: City of Toronto, Property Boundaries, 2024. City of Toronto, Topographic Mapping – Building Outlines. City of Mississauga, Mississauga Buildings, 2020.

4.25 156 Typology study of shopping centres in the GTA (1.2). Scale 1 : 10,000

Image by author. Data source: City of Toronto, Property Boundaries, 2024. City of Toronto, Topographic Mapping – Building Outlines. City of Mississauga, Mississauga Buildings, 2020.

4.26 157 Typology study of shopping centres in the GTA (1.3). Scale 1 : 10,000

Image by author. Data source: City of Toronto, Property Boundaries, 2024. City of Toronto, Topographic Mapping – Building Outlines. City of Mississauga, Mississauga Buildings, 2020.

4.27 158 Typology study of shopping centres in the GTA (1.4). Scale 1 : 10,000

Image by author. Data source: City of Toronto, Property Boundaries, 2024. City of Toronto, Topographic Mapping – Building Outlines. City of Mississauga, Mississauga Buildings, 2020.

4.28 159 Typology study of shopping centres in the GTA (1.5). Scale 1 : 10,000

Image by author. Data source: City of Toronto, Property Boundaries, 2024. City of Toronto, Topographic Mapping – Building Outlines. City of Mississauga, Mississauga Buildings, 2020.

4.29 160 East York Town Centre Food Court

Source: Canmenwalker, East York, Ontario: 2023, Wikimedia Commons, https://commons.wikimedia.org/wiki/File:East_York_Town_Centre_Food_Court_2023.JPG. Radiyah Chowdhury, "The Greatest Mall in the World," The Local, April 2022, https://thelocal.to/the-greatest-mall-in-the-world/.

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Image by author. Data source: Musagetes Architecture Library, Peel Parcel. Musagetes Architecture Library, Building Footprints. JLL Canada, Bramrose Square. City of Brampton, Brampton Planning Viewer. City of Brampton, Bus Routes, 2024. City of Brampton, Bus Stops, 2024.

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Image by author. Data source: Bramalea: Model Homes, ca. 1960s, Breithaupt Hewetson Clark Collection. Toronto Regional Real Estate Board, Commercial Realty Watch. The author interprets mid-size industrial warehouse to correspond with the TRREB industrial leasing category '5,001 to 15,000 Sq Ft.'

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Image by author. Author's calculations. Data source: Avison Young, Commercial Real Estate Investment Review / First Quarter 2021: Greater Toronto Area. Toronto Regional Real Estate Board, Commercial Realty Watch 2023 Q3. Assume estimated land cost to be $45,800,000 (the total sale price from the most recent transaction 2021, Avison Young) * 1.26 (the increase rate in dollar per sq. ft. pricing for all commercial/retail sales transactions between 2020 Q3 and 2023 Q3, TRREB).

4.46 183 Bramrose Square feasibility study. Building block

Image by author. Author's calculations. Data source: Altus Group, 2024 Canadian Cost Guide, (Toronto: 2024), 5. City of Brampton, 2021 Individual Income by Census Tract.

4.47 184 Share of proposed gross floor area by floor level, Block 1. Scale 1 : 1,000

Image by author.

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Image by author. Data source: Musagetes Architecture Library, Peel Parcel. Musagetes Architecture Library, Building Footprints. JLL Canada, Bramrose Square. City of Brampton, Bus Routes, 2024. City of Brampton, Bus Stops, 2024.

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Image by author. Data source: Musagetes Architecture Library, Peel Parcel. Musagetes Architecture Library, Building Footprints. JLL Canada, Bramrose Square. City of Brampton, Bus Routes, 2024. City of Brampton, Bus Stops, 2024.

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Source: Tim Pierce, Berlin, Massachusetts: 2011, Flickr, https://www.flickr.com/photos/qwrrty/5784972412.

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Image by author. Author's calculations. Data source: Statistics Canada, Census of Population (Brampton, CY), 2021. Toronto Regional Real Estate Board, MLS Home Price Index (Brampton), October 2021. Canada Mortgage and Housing Corporation, Ontario - Rental Market Statistics Summary by Metropolitan Areas, Census Agglomerations and Cities (Toronto CMA), 2021.

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Image by author. Data source: CAD Lab Studio.

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Image by author. Data source: Google Maps. Edward Yourdon, New York, Flickr. https://www.flickr.com/photos/yourdon/2766029691. https://www.flickr.com/photos/yourdon/3877165849. https://www.flickr.com/photos/yourdon/9123739779. https://www.flickr.com/photos/yourdon/11719391953. https://www.flickr.com/photos/cpls/8204361046. https://www.flickr.com/photos/heraldpost/6052458531. https://www.flickr.com/photos/yourdon/14968961997. https://www.flickr.com/photos/yourdon/5696062468. https://www.flickr.com/photos/yourdon/17724334425. https://www.flickr.com/photos/yourdon/15769822589.

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Image by author. Data source: Google Maps. Edward Yourdon, New York, Flickr. https://www.flickr.com/photos/yourdon/18668971840. https://www.flickr.com/photos/yourdon/19877017559. https://www.flickr.com/photos/yourdon/4543190296. https://www.flickr.com/photos/yourdon/11719391953. https://www.flickr.com/photos/yourdon/22000393091. South Carolina State Library, Columbia, South Carolina: 2014, Flickr, https://www.flickr.com/photos/scsl/13762075933. Christchurch City Libraries, Christchurch, New Zealand: 2014, Flickr, https://www.flickr.com/photos/christchurchcitylibraries/12038123513.

4.76 229 Interior perspective. Kitchen, dining and living room

Image by author. Data source: Google Maps. Scott Hadfield, St. Andrews, New Brunswick: 2009, Flickr, https://www.flickr.com/photos/hadsie/3947302785. Eric Peacock, 2014, Flickr, https://www.flickr.com/photos/evilpeacock/15159986885. Wonderferret, 2006, Flickr, https://www.flickr.com/photos/wonderferret/352266047. San Bernardino National Forest, California: 2015, Flickr, https://www.flickr.com/photos/sanbernardino_nf/22413363136. City of Toronto, Planning and Development Department, City of Toronto Archives Series 1465, File 729, Item 16, Toronto: 1985, Flickr, https://www.flickr.com/photos/torontohistory/19285585469.

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Image by author. Data source: Google Maps. Alexandra Studios, City of Toronto Archives Fonds 1257, Series 1057, Item 4586, York, Ontario: ca. 1960s, https://gencat.eloquent-systems.com/city-of-toronto-archives-m-permalink.html?key=215398. South Carolina National Guard, McCormick, South Carolina: 2020, Flickr, https://www.flickr.com/photos/scguard/49856608026.

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# Introduction

The whole is greater than the sum of its parts.

Where does the singularity reside? It resides in the single artifact, in its material, the succession of events that unfolds around it, and the minds of its makers; but also in the place that determines it – both in a physical sense and above all in the sense of the choice of this place and the indivisible unity that is established between it and the work.

Aldo Rossi

OUTMIGRATION

The thesis explores the idea of housing security in the Greater Toronto Area (GTA). It addresses two aspects of housing security: 1) the length of housing tenure and 2) the commuting distance of live-work patterns. Housing insecurity leads to an increasing outmigration of the GTA's workforce population. The present-day housing situation necessitates the GTA communities to rely heavily on new economic migrants to sustain their population. These new migrants are then subjected to the same issues of housing insecurity creating a constant wave of outmigration to periphery communities and an increasing distancing of everyday commutes.

WORKFORCE POPULATION

The thesis explores the possibility of reinserting affordable workforce housing within the GTA's suburban communities. It focuses on the workforce population which is generally defined as working individuals whose after-tax income lies within 80% to 120% of the median individual income of a census division. Their income level often lies above the cut-off point for many public services such as eligibility to community housing. This housing situation leaves the GTA's workforce population to rely primarily on the private market-rate rental units. The yearly increase in rental cost is comparatively higher than the increase rate in income level. Similarly, the access to homeownership is decreasing in part due to market speculation and a decreasing availability of greenfield lands to build upon. The growing unaffordability due to the unmatched rate increase in rental cost results to housing insecurity, and its mentioned consequences of outmigration and increased commuting.

COHOUSING

The thesis proposes the construction of workforce housing to be situated within the vacant commercial lands of suburban town centres. The proximity of these leftover urban spaces to existing employment lands and residential neighbourhoods provides an alternative to outmigration. This architectural proposal opens a new possibility for the GTA's workforce population to access secure housing tenure through cohousing homeownership. The thesis proposes a cohousing project within the Downtown Brampton Urban Growth Centre as a pilot project. The design project provides an alternative to the increasing instability of constant migration-and-outmigration experienced in relation to Toronto Pearson International Airport and its surrounding employment lands. The thesis addresses housing security as an idea represented within two systems: 1) the economic framework of innovation (and resiliency) and 2) the political framework of community preservation. Urban intensification through citizens-led cohousing projects provides local companies with the increased workforce population necessary to be economically competitive. And simultaneously, urban intensification provides residents an alternative to long and fast-paced commuting towards the metropolitan downtown. Gentle intensification provides residents with the choice to be able to live and work within their local communities.

SEGREGATION

The thesis argues for citizens-led cohousing projects as an alternative to the market-led interpretation of 'manhattanism.' Dutch architect Rem Koolhass describes the skyscraper of the Downtown Athletic Club in New York City as the definition of meaningless congestion. Within a generic skyscraper and the generic city at-large, architectural spaces are perceived *instantaneously* as surface images that must renew themselves *instantaneously* to remain relevant. Similarly, housing insecurity shortens the length of housing tenure leading towards an on-going cycle of outmigration. It also increases the speed-distance between everyday commutes. The over-reliance on fast-paced encounters between the people we live with and work with results in a community built upon superficial relationships. Ultimately, the thesis frames gentle intensification of the GTA's suburban communities as an opportunity to restrengthen social networks, towards socioeconomic solidarity.

COMMUNITY

The thesis frames housing security within the architectural dimension of time. Affordable workforce housing extends the length of tenure that a resident may choose to stay within their community. And as an alternative to economic outmigration, the decision to stay allows for time to potentialize new encounters of 'homefulness' to be felt within the localized space of a suburban community.

Figure 0.01 Post-WWII suburban communities in the GTA must rebuild the concept of housing security for its workforce population.

# Context

Satellite cities across the Greater Toronto Area (GTA) represent the modernist belief in comprehensive architecture. During the post-WWII era, suburban clusters of apartment towers and single-family bungalows were built alongside local warehouses to create sustainable living and working communities.[1] The present-day changes in employment patterns reflect the increasing share of knowledge-based workers in the Toronto region, as an extension of globalization. These new job patterns are restructuring the socioeconomic and spatial landscape of the region. Lower income working households are being displaced to the inner and outer suburbs of Toronto.[2] Meanwhile Toronto's downtown and gentrifying inner-city neighbourhoods are being redeveloped exclusively for knowledge-based workers.

The declining proportion of the middle class in the present-day Canadian workforce parallels the increasing inaccessibility for homeownership.[3] For-profit development of condo units throughout the downtown and inner-city neighbourhoods attracts and retains young adults – capitalizing on their desire to be near employment, education, and entertainment amenities. These gentrified areas are categorized as 'generationed' spaces.[4] In these areas, transition to other life course stages such as marriage and parenthood becomes more and more unlikely and/or results to relocating to the outer suburbs. The concept of generationed spaces are also evident within the suburbs in and around Toronto where seniors occupy over half of Toronto's low-rise housing stocks.[5] The transition of senior residents as 'empty nesters' equates to over 400,000 houses across the

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1 E.R.A. Architects and the University of Toronto, "City of Towers," in *Mayor's Tower Renewal: Opportunities Book*, (Toronto: City of Toronto, 2008), 8-23.

2 John Stapleton, *The Working Poor in the Toronto Region: A Closer Look at the Increasing Numbers*, 3rd ed. (Toronto: Metcalf Foundation, 2019), 17.

3 Charles M. Beach, "What Has Happened to Middle-Class Earnings in Canada?" in *Income Inequality: The Canadian Story*, ed. by David A. Green, W. Craig Riddell, and France St-Hilaire (Montreal: Institute for Research on Public Policy, 2016), 83-86.

4 Markus Moos, ""Generationed" space: Societal restructuring and young adults' changing residential location patterns," *Canadian Geographies* 58, no.1 (2014): 28-30, https://doi.org/10.1111/j.1541-0064.2013.12052.x.

5 City of Toronto Planning Division, *Right-Sizing Housing and Generational Turnover*, (Toronto: City of Toronto, 2021), 9.

province containing three or more empty bedrooms.[6] Policymakers have explored the potential of turning over many single-family houses that contain excessive number of empty bedrooms more suitably towards lower income family households.[7] And the proximity of these single-family houses to industrial employment lands within the suburbs is beneficial to new migrants searching for stable employment.

Toronto's post-WWII suburban neigbourhoods produced a distinct North American pattern of 1960s skyscrapers situated alongside strip malls, bungalows, and arterial roads. The belief in comprehensive regional planning aimed to create self-sufficient communities where young couples, empty nesters and newcomers have convenient access to industrial employment lands, expansive parks, and natural systems.[8] As employment patterns in the 1970s starts to shift to other sectors beyond local warehouse jobs, the image of these concrete apartment towers shifted from a futurist image of progress into the present image of hidden poverty. Within the City of Toronto and the Region of Peel, roughly 25% of households who rent these multi-unit residential buildings (MURBs) spend 50% or more of their income on rent alone. And more than 20% of their total households experiences overcrowding.[9]

Social mix redevelopments accelerate market control of Toronto's post-WWII satellite cities. Through these redevelopments, affordable and/or community housing in the GTA's suburban

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6 Canadian Centre for Economic Analysis, "CANCEA RESEARCH: The "Missing Middle,"" in *TREB Market Year in Review & Outlook Report 2018*, ed. by Toronto Real Estate Board (Toronto: Toronto Real Estate Board, 2018), 64.

7 City of Toronto Planning Division, *Right-Sizing Housing and Generational Turnover*, 19-21.

8 E.R.A. Architects, planningAlliance, and the Cities Centre at the University of Toronto, *Tower Neighbourhood Renewal in the Greater Golden Horsehose: An Analysis of High-Rise Apartment Tower Neighbourhoods Developed in the Post-War Boom (1945-1984)*, (Toronto: Ontario Growth Secretariat Ministry of Infrastructure, 2010), 8-10.

9 United Way Greater Toronto, Neighbourhood Change Research Partnership, and Tower Renewal Partnership, *Vertical Legacy: The case for revitalizing the GTA's aging rental tower communities*, (Toronto: United Way Greater Toronto, 2021) 13-15.

Figure 0.02 Toronto's single-family bungalows are 'overhoused' with empty bedrooms as more owners transition as empty nesters.

centres are being gentrified in exchange for a superficial representation of economic diversity.[10] In addition, the decreasing availability in suburban land reinforces a conundrum – of zoning conversion for more housing and of zoning protection for pre-existing industrial warehouses. Our middle class will depend on the former for shelter, while also depending on the latter for employment. Statistically, the employment lands along the Toronto region, known as the Innovation Corridor, hold 40% of the total job share in the region. They produce more than 1.5 million jobs.[11] Meanwhile, to access affordable housing, a significant portion of the GTA workforce population will relocate outside the region. And the cost of this increasing worker outmigration is estimated to cost the region a loss of more than $3 billion in possible income revenue.[12]

* * *

Within the context of the Toronto region, how does the current state of our housing crisis shape our perceptions of housing security and community belonging? And through the medium of architecture, how can we transform the GTA's housing landscape to enable the restrengthening of existing social networks and the creation of new ones?

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10 Martine August, "Social Mix and Canadian Public Housing Redevelopment: Experiences in Toronto," *Canadian Journal of Urban Research* 17, no.1 (2008): 93-95, https://www.jstor.org/stable/26193206.

11 Phinjo Gombu, *The Race for Space: Securing the Future of Ontario's Employment Lands*, (Toronto: Toronto Region Board of Trade, 2023), 3.

12 Toronto Region Board of Trade, and WoodGreen, *Housing a Generation of Essential Workers: The Cost of Inaction*, (Toronto: Toronto Region Board of Trade, 2021), 20-21.

Figure 0.03 A meaningful housing landscape is one that enables social encounters.

# Literature Review

In *Bigness*, American art historian Hal Foster reintroduced the Surrealist perspective that the beauty of New York lies in its congestion.[13] Within a global city such as Toronto, diversity and spontaneity of human actions are produced. And to translate the inherent instability and apparent chaos of cosmopolitan life into the material permanence of architecture has become an on-going discourse on metropolitan representation. How to represent the image of the city in its entirety without blurring the character of its contrasting parts?

The thesis frames the issue of housing insecurity in the Toronto region as a misrepresentation of congestion. To reiterate Koolhaas' critique of 'manhattanism,' the skyscraper has successfully secured the multiplicity of its programming within its interior space. Its façades are blank and generic because it has given up on its basic responsibility of mediating the private and the public spaces.[14] This form of interiority reflects the socioeconomic segregation evident within the GTA's contemporary housing landscape. If manhattanism embodies the displacement of architectural spaces, urban sociology introduces 'manhattanization' as a terminology appropriate of describing the displacement of Toronto's workforce population to its periphery. Housing enclaves constructed under market urbanism have diffused the possibility of permanence in human relationships. Social interactions are left to be expressed through a relentless pattern of outmigration and long-distance commuting.

[Toronto] Beauty will be delirious or will not be.[15]

Migration becomes the reactionary policy against the waves of outmigration. It ensures Toronto's economic vitality by captivating willing migrants. The 'culture of congestion' as represented through the *delirious* image of skyscrapers and of global cities serves as competitive advertisements

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13 Hal Foster, "Bigness," *London Review of Books*, November 2001, https://www.lrb.co.uk/the-paper/v23/n23/hal-foster/bigness.

14 O.M.A., Rem Koolhaas, and Bruce Mau, "Elegy for the Vacant Lot," in *S,M,L,XL*, ed. by Jennifer Sigler (New York: The Monacelli Press, 1995), 937.

15 Hal Foster, "Bigness," November 2001.

Figure 0.04 Distance between home and work is determined not by personal choice but by economic necessity and affordability.

within the realm of market urbanism.[16] Globalization ensures the urban intensification of Toronto without truly addressing its housing unaffordability. Toronto as a model of the generic city extends horizontally towards the suburbs and vertically onto high-rise towers.

In opposition, Koolhaas proposes the concept of proximity as 'congestion without matter.'[17] Human relationships are the primary source of a city's ephemeral congestion. We build relationships through the spatial encounters we share with each other. And the habitual reassertion of these encounters into the everyday live-work patterns, through the dimension of time, condense themselves into an 'invisible congestion.' To limit the smooth expanding field of urbanization, Italian architect Pier Vittorio Aureli proposes to materialize this concept of proximity through the architecture of limits. Through the erection of walls and thresholds, architecture regains its first and foremost function of organizing social life.[18] It separates and subsequently reconciles the self and the others. The private and the public. The individual architecture and the city as a whole.

The distinction between the genericness of manhattanism and that of a 'mat-building' as proposed by the British architect Alison Smithson lies within their design intentions. In Toronto's housing landscape, access to housing is determined not necessarily by personal choice but by market economy. The financialization of housing has encroached the totalizing field of market control inward into the intimate spaces of residential architecture. In opposition, Smithson's mat-building reframes the meaninglessness of the grid as a call to action. The open grid enables a free association of human actions.[19] Active participation, through time, begins to shift aspects of authority back down to its constituent parts. And as an alternative counterpart to market-led urban redevelopment, the thesis proposes cohousing projects as a bottom-up approach. Thereby, self-identity is to be understood less as an external rule of market classification between income levels. Self-identity, as a *process* of self-determination, is again to be understood as the borderland onto which inner desires confront the social life.

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16 Refer to glossary: winner-takes-all urbanism.

Markus Moos, Tara Vinodrai, and Ryan Christopher Walker, *Canadian Cities in Transition: Understanding Contemporary Urbanism*, 6th ed. (Don Mills, Ontario: Oxford University Press, 2020), 452.

17 O.M.A., "Elegy for the Vacant Lot," 937.

18 Pier Vittorio Aureli, "More and More About Less and Less: Notes Toward a History of Nonfigurative Architecture," *Log* 16 (2009): 15-18, https://www.jstor.org/stable/41765273.

19 Alison Smithson, "How to recognise and read Mat-Building," *Architectural Design*, September 1974, 580.

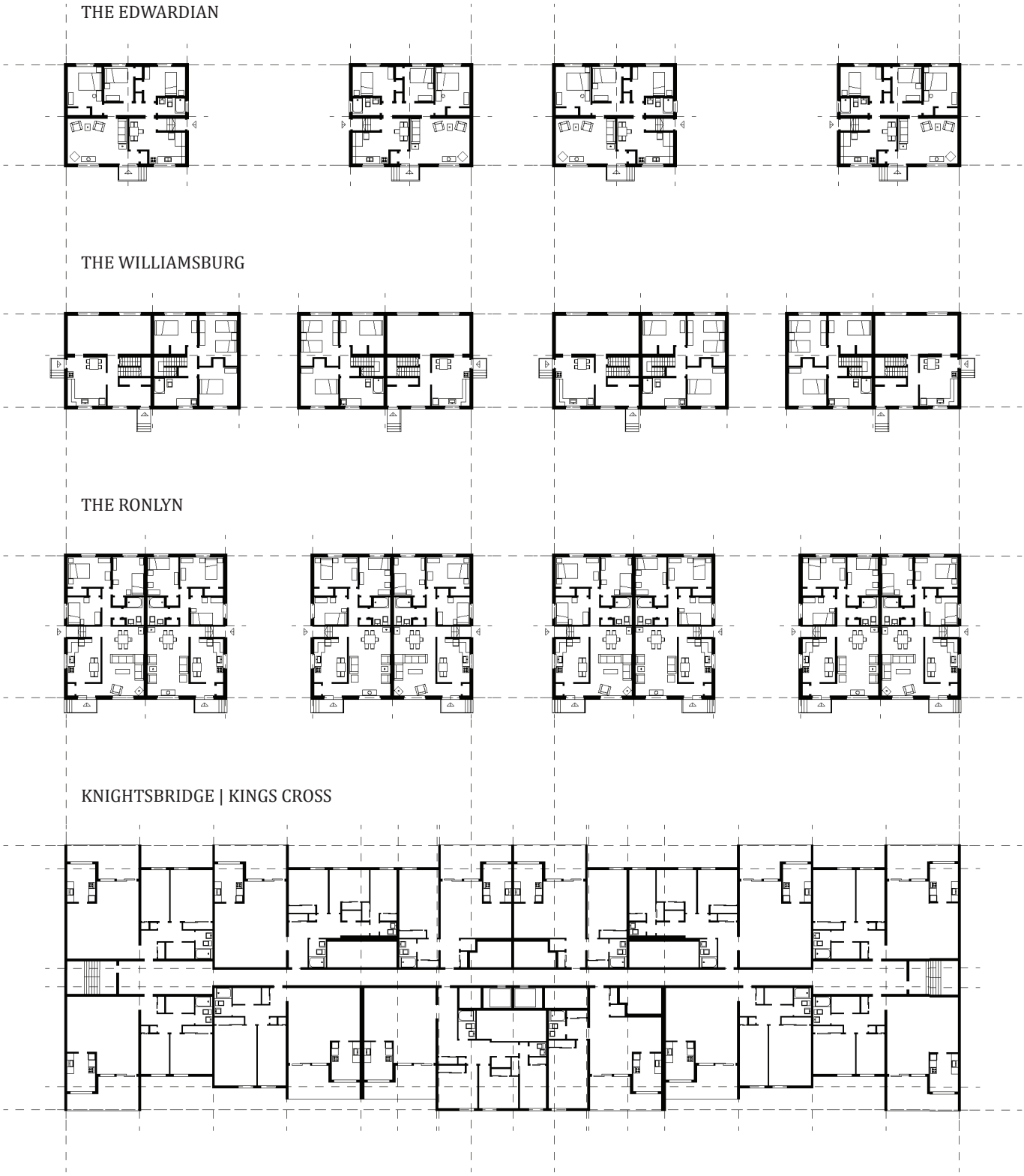


Figure 0.05
The open grid of a generic house has welcomed diverse modes of habitation through time.

Scale 1 : 500
0 10m

Figure 0.06 Active participation renders the uniformed façade of a generic house with self-identity.

Italian architectural historian Massimo Scolari argues that beauty is both mean and ephemeral.[20] The open grid of Smithson's mat-building welcomes the spontaneity of human participation. And in a supporting contradiction, Aureli hints to the *mutation* of the plinth as a stubborn reinsertion of the local to the universal. The siting of the plinth both extends the uniformity of the grid and then limits itself to heighten the framing of a pre-existing territory.[21] Building upon Aureli's interpretation of limits, the architecture of the plinth is to be understood not merely as an extension of the economy and its reproduction of material congestion. The plinth in its act of subtraction binds itself to the invisible matter of pre-existing human relationships (the public realm). In parallel, the thesis proposes cohousing-led urban intensification not merely as a generic precondition for the economic growth (and resiliency) of Toronto's Innovation Corridor but also as a critical act of preserving the permanence of a *localized* collective identity.

See fig. 4.58 on pp. 200.

Massing diagram of the project.

20 Massimo Scolari, "Crossing Architecture," trans. Jenny Condie Palandri, *Log* 9 (2007): 19-20, https://www.jstor.org/stable/41765130.

21 Pier Vittorio Aureli, "More and More About Less and Less: Notes Toward a History of Nonfigurative Architecture," 15-18.

# Design Problem

The thesis aims to address the increasing housing insecurity that the GTA's workforce population is experiencing. It addresses housing insecurity within the site context of the GTA's post-WWII suburban communities, where the everyday live-work patterns of many moderate-income workers are centrally located. It is urgent and timely to address this specific aspect of the housing crisis because the direction we take now in addressing this issue will have a long-lasting impact on the whole Toronto region. It will shape our evolving perception of home and community belonging.

The thesis argues that market-led urban development is weakening our perception of community identity. The private housing market has a tendency of subdividing households based on income levels to secure financial investments. This inclination towards social segregation is evident within the present-day pattern of outmigration and long-distance commuting. Building upon Aureli's understanding of the plinth, the thesis reframes the immediate effect of urban intensification not solely of displacement but as a possibility for community preservation.

The design problem of the thesis focuses on the question of precision. The structural grid of manhattanism and of the mat-building share similar visual aesthetics. But both models have produced two opposing results. The first contributes to an increased sense of isolation within the metropolitan city. Meanwhile, the second enables an increased *proximity* in spontaneous participation and social interactions. In cohousing development, American architect Charles Durrett argues that the depth of analysis put into the spatial programming of a project is crucial for its design success. It must accurately represent a specific community's present needs and future ambitions. Unfortunately, in a typical North American cohousing community, shared amenity spaces or 'common houses' may attract less than 100 combined hours of social interactions or 'people-hours.' This is significantly lower than the high benchmark of more than 450 people-hours.[22]

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22 Charles Durrett, *Cohousing Communities: Designing for High-Functioning Neighborhoods*, (Hoboken, New Jersey: John Wiley & Sons, Inc., 2022), 15-17.

The thesis proposes a cohousing design that will enable an increase in 'people-hours' both in quantity and quality. In relation to quality, the thesis frames the authenticity of these interactions through the lens of socioeconomic coexistence. To truly address the housing insecurity in the GTA, the thesis provides a detailed feasibility study of the proposed cohousing project, for the financing of its construction and its on-going maintenance. The feasibility study validates the project objective of constructing long-term access to affordable workforce housing. In effect, it also prevents misrepresenting common houses solely as exclusive clubhouses for the rich. Housing advocates argue that intensifying the quantity of new housing stocks without ensuring their affordability may have the adverse effects of gentrification and displacement.[23] And in response, the main design brief of the cohousing project is to be brought forward. How to accurately push the boundary of design imagination where the open area (the architectural space) of a common house is maximized, while grounding itself within the limiting reality of present-day economic frameworks in housing affordability?

23 Brian Doucet, "Ontario's 'affordable housing' task force report does not address the real problems," The Conversation, February 10, 2022, https://theconversation.com/ontarios-affordable-housing-task-force-report-does-not-address-the-real-problems-176869.

# Thesis Structure

The thesis explores the idea of housing security within the GTA's post-WWII satellite cities. Many urban artifacts have represented the suburban idea of home in the past: single-family bungalows, apartment towers, employment warehouses, and suburban town centres. In response to the socioeconomic inequality in today's housing landscape, the architecture of Toronto's suburbs must reimagine its urban form. The organizational grid of the suburban home must be reimagined to reflect present-day economic realities. It must tackle issues of housing instability and the financial feasibility of developing truly affordable workforce housing.

MEMORY

Chapter 1 aims to better understand the people who call the GTA's satellite cities their home. Census data from 2001 to 2021 are analyzed through visual representations to gain better understanding of the evolving household situations in Toronto, Mississauga, and Brampton.

FRAGMENT

Chapter 2 analyzes the GTA's existing urban elements, and how they embody the workforce population's perception of home and community belonging. In particular, the thesis looks upon the contrasting relationship between the 1960s concrete apartment towers and the present-day glass condo towers. And the live-work relationship between provincially significant employment zones (PSEZs) and the urban intensification of urban growth centres (UGC).

IMAGINATION

Chapter 3 introduces cohousing development as an alternative model of workforce housing. Within the cohousing model, two options of homeownership tenures are explored and refined to reflect the specificity of the GTA's financial and social characters. Case studies of similar cohousing projects are also analyzed and built upon.

REGENERATION

Chapter 4 incorporates parts of the thesis research and formalizes them into a single design project situated in the City of Brampton. On the scale of an urban growth centre, the project balances the social goals of housing security (through shelter cost affordability) while simultaneously addressing budget feasibility. On the scale of a suburban town centre, the project uses the siting of new mid-rise housing blocks to improve the perception of adjacent vacant lands into good social gathering spaces. And on the scale of a multi-unit residential building, a new structural grid is reworked to enhance the spatial proximity of private and common spaces within the building, and thereby strengthening perceptions of home and community belonging.

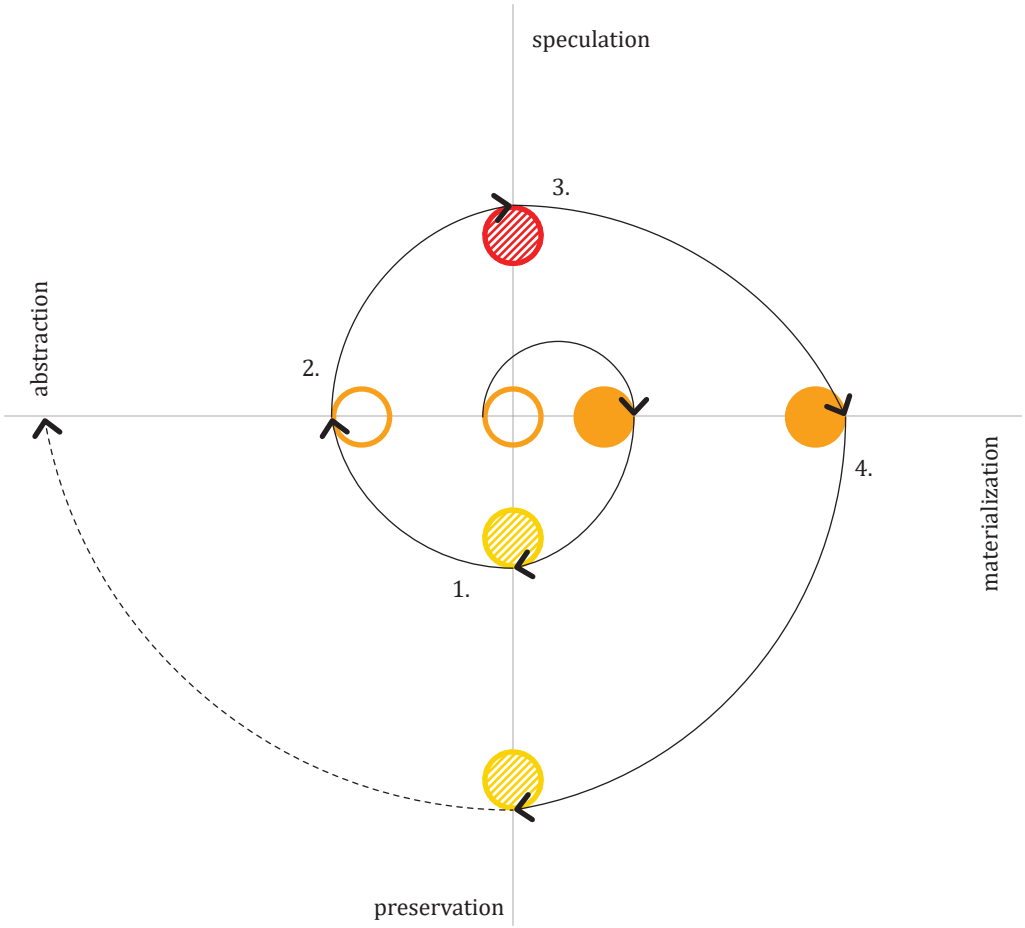


Figure 0.07 Shifting perception of housing security within the on-going evolution of an autonomous (satellite) city, starting from its conceptual idea (empty circle at the centre without a solid fill) and to its first set of built housing typologies (first solid circle to the right side of the centre).

1. Housing security is understood through past lived experiences.
2. Housing security is understood through the breaking of past housing typologies.
3. Housing security is understood through future speculation in alternative living patterns.
4. Housing security is understood through the interruption of new 'domesticated' housing typologies.

Chapter 1 and 3

Chapter 2 and 4

The city is an invisible collection of human events, a shared history of c.1) preserving the past and c.3) speculating on future ways of living. Also, the city is a material collection of urban artifacts, the on-going process of c.2) constructing the generic space into which this multiplicity in identities and in the many ways of living are represented and communicated, and c.4) constructing the specific space into which individual identities are preserved and renewed.

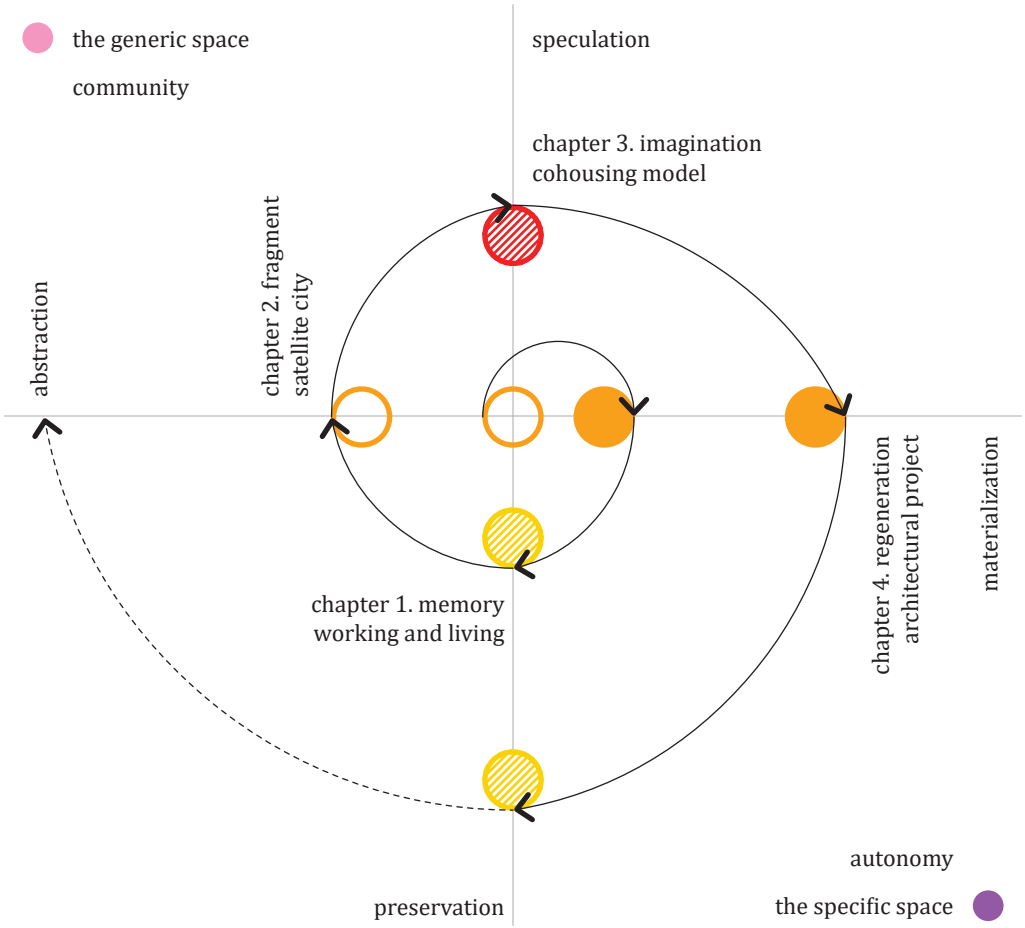


Figure 0.08

Diagram of thesis structure.

Section 4.1, 4.2, 4.3

Unity and Scale

Through the frame of housing security, the specific space of workforce housing is to be (re)inserted within the generic space of urban growth centres. Infill development of affordable housing is to be (re)inserted within the overall redevelopment of suburban town centres. And the specific space of individual dwelling units – in respect to the diversity in household age and socioeconomic levels – is to be (re)inserted within the border proximity of a proposed cohousing community.

To be continued.

The thesis explores the possibility of a cohousing project to resolve the gaps in our current housing landscape. Cohousing provides an alternative form of homeownership thereby helping to bridge the gap in housing security – between market-rate rental tenure and homeownership. In addition, gentle intensification, through cohousing infill projects, allows for new homes to be built within existing suburban neighbourhoods. This strategy enables residents to gain greater access to economic mobility and household formation *without the necessity for outmigration* and thereby regain the authority to stay within their respective neighbourhoods.

Cohousing creates an alternative storyline different from the present-day reality of outmigration and segregation. Toronto's post-WWII satellite cities were built on the idea of a comprehensive community. They held-in-place a congestion of diverse interpretations regarding housing security, or 'homefulness.' The proximity of such diverse households was traditionally achieved through the resolution (and reorganization) of private and public spaces. In opposition, outmigration and long-distance commuting forgoes boundary resolution in exchange for the unlimited expansion of urbanization. The unpredictability of social proximity is abandoned in exchange for the market predictability of housing enclaves and socioeconomic general categorization. As an alternative, the thesis proposes cohousing as a reinterpretation and reassertion of social proximity. Therefore, it argues that traces of housing security felt by the successive waves of economic migrants within the GTA's suburban communities since the 1960s are not yet lost in their totality.

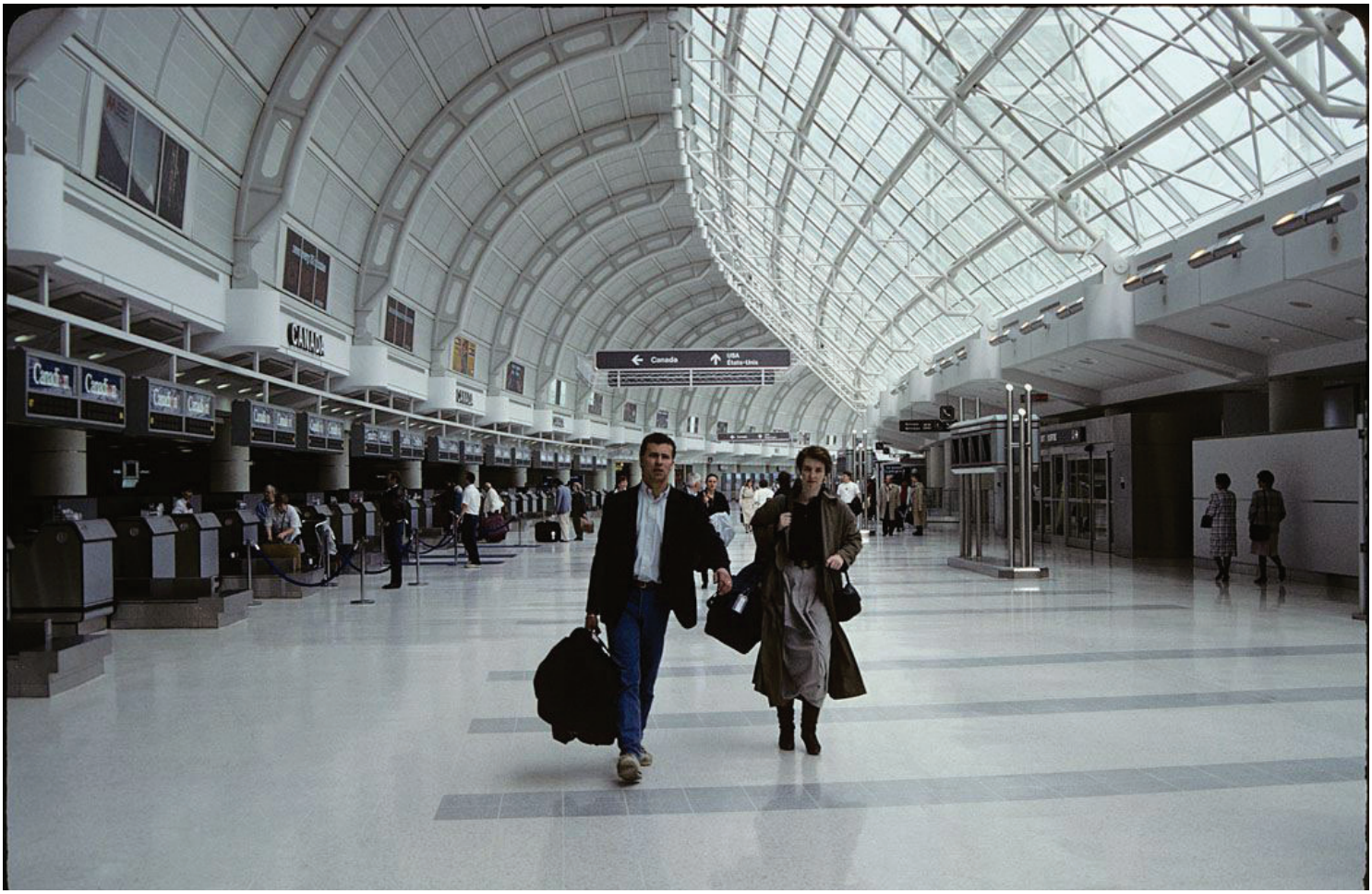


Figure 0.09 Terminal 3, Lester B. Pearson International Airport, 1990s.

The built environment of the Greater Toronto Area has become the material realization of home for many economic migrants.

# 1. Working and Living

An important labour condition reshaping the spatial pattern of Canadian global cities is the increasing weight of the 'creative class' in its national economy. This new middle class reflects the post-industrial society conceptualized as early as the 1970s.[1] It prioritizes problem-solving human capital and advanced technologies over standardized manufacturing and mass production.[2] This new middle class is reflective of globalization to which greater connectivity of both physical and digital infrastructure facilitates money-saving relocation of knowledge-based workers from one global city to another.[3] The thesis explores the spatial realities of economic immigrants working and living in an expanding Toronto region. The Ontario provincial government accounted for 9,000 new economic immigrants in 2021, which will eventually double to 18,000 immigrants by 2025.[4] Migrants hold education, employment experiences, and a 'transnational field' of social networks that may be of benefit to the ever-evolving urban fabric of Toronto as their destination city.[5]

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1 Tara Vinodrai, "The New Economy of Canadian Cities? Employment, Creativity, and Industrial Change," in *Canadian Cities in Transition: Understanding Contemporary Urbanism*, ed. by Markus Moos, Tara Vinodrai, and Ryan Christopher Walker, 6th ed. (Don Mills, Ontario: Oxford University Press, 2020), 314–15.

2 Ibid, 314–15.

3 Ibid, 315.

4 The Canadian Press, "Ontario to See Higher Numbers of Economic Immigrants under Federal Agreement," *CBC News*, March 18, 2023, https://www.cbc.ca/news/canada/toronto/ontario-immigration-1.6783467.

5 Audrey Kobayashi and Valerie Preston, "International Migration and Immigration: Remaking the Multicultural Canadian City," in *Canadian Cities in Transition: Understanding Contemporary Urbanism*, ed. by Markus Moos, Tara Vinodrai, and Ryan Christopher Walker, 6th ed. (Don Mills, Ontario: Oxford University Press, 2020), 138.

# 1.1 Manhattanization

The contemporary issue of the 'manhattanization' of Toronto describes how lower income households are being displaced to the inner and outer suburbs of Toronto.[6] As a result of globalization, Toronto's labour force grew primary in two sectors: higher income knowledge-based work and the entry level service jobs that cater this growing creative class.[7] The widening of income gap is reflected on the spatial segregation of housing units. Higher income households outbid others for market-rate housing near the central business districts (CBDs) of the downtown and of inner-city neighbourhoods.

For-profit housing developments take shape in the form of new condo towers. Also, existing rental stocks are being renovated to justify higher rental rates (also known as 'renoviction')[8] or are converted into ownership tenure with increased selling prices based mainly on land speculation. This process of replacing local blue-collar residents and their households with more affluent and educated 'gentry' is commonly referred to as gentrification.[9] Lower income earners are being displaced into suburban apartment towers where public transportation is the least reliable in the region. This situation pushes suburban workers into commuting on public transit for long hours, to rely primarily on driving when access to cars becomes economically viable, and/or to limit application to local jobs that are being concentrated with low-wage jobs.[10] Through manhattanization, working poverty is being shifted and concentrated onto the suburbs of the Toronto region.

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6 John Stapleton, *The Working Poor in the Toronto Region*, 17.

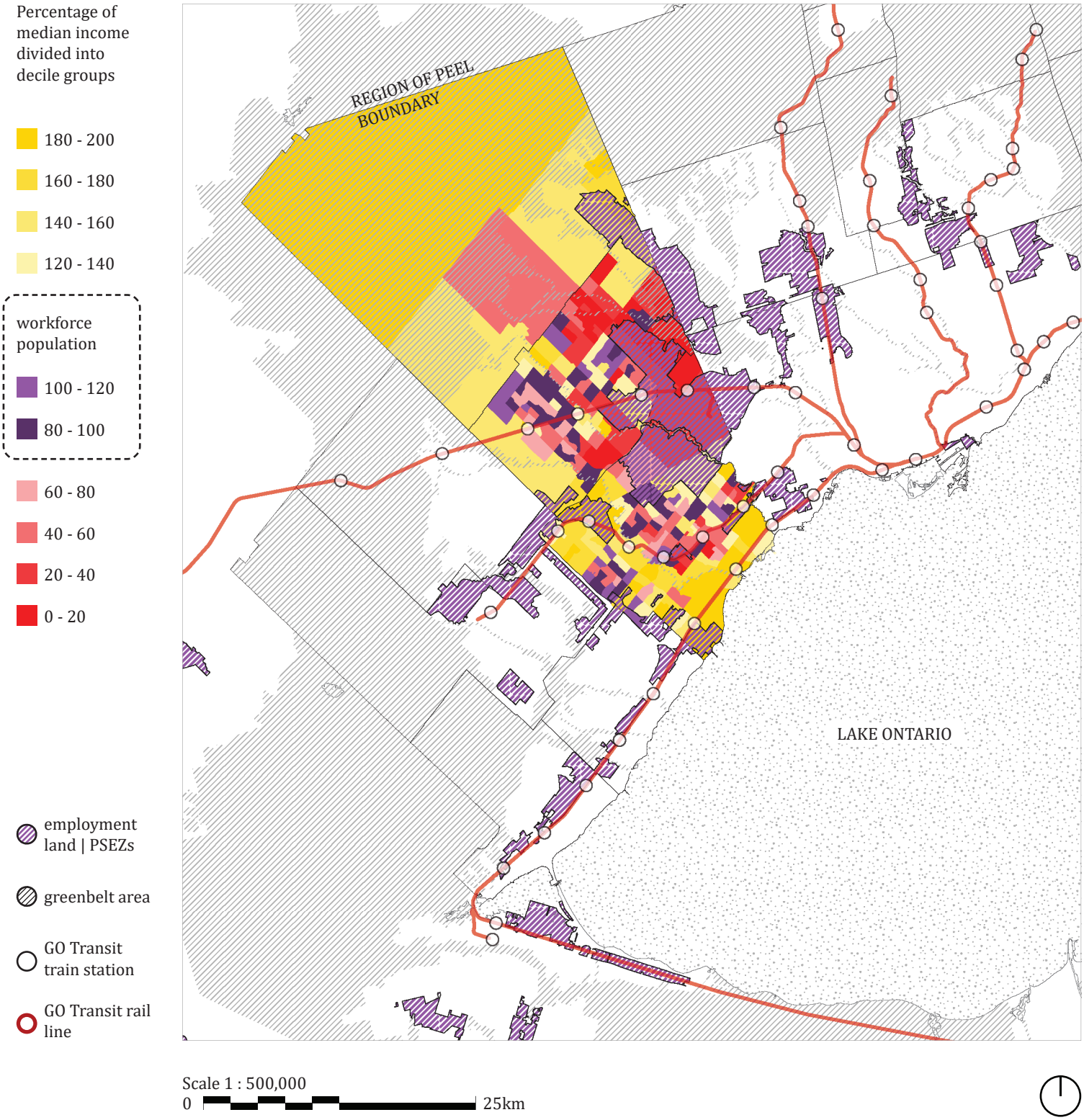
7 Ibid, 22.

8 Martine August and Alan Walks, "Gentrification, Suburban Decline, and the Financialization of Multi-Family Rental Housing: The Case of Toronto," *Geoforum* 89 (2018): 132–133, https://doi.org/10.1016/j.geoforum.2017.04.011.

9 Alison Bain and Bryan Mark, "Re-Imaging, Re-Elevating, and Re-Placing the Urban: Gentrification and the Transformation of Canadian Inner Cities," in *Canadian Cities in Transition: Understanding Contemporary Urbanism*, ed. by Markus Moos, Tara Vinodrai, and Ryan Christopher Walker, 6th ed. (Don Mills, Ontario: Oxford University Press, 2020), 283.

10 Skye Collishaw, Markus Moos, and Tara Vinodrai, "Does Subsidized Housing Facilitate More Sustainable Commute Patterns? Insights From Canadian Metropolitan Areas," *Housing Policy Debate* (2023): 3–6, https://doi.org/10.1080/10511482.2023.2251431.

Figure 1.01
Map of median individual income by census tract in the Region of Peel, 2021.



The working poor is typically understood as an individual whose annual income falls below the Canadian median income. In 2020, this accounts to around $26,000 for a 1-person household.[11] Racial identity plays a key factor in the composition of working poverty within the Toronto census metropolitan area (CMA). Within the Toronto CMA, around 60% of the working poor population are racialized workers even when they only represent around 45% of the total workforce.[12] And while level of poverty tends to decrease from first generation immigrant to subsequent generation, this trend is currently not applicable to Toronto region's Black community. A report conducted by the non-profit organization Metcalf Foundation compared the 2006 and 2016 Statistics Canada census. And it reveals concerning evidence that the percentage of working poor within the Black community grew for its second and third generation immigrant population.[13]

Figure 1.02
Percentage of workforce population by ethno-cultural group in Toronto CMA, 2016.

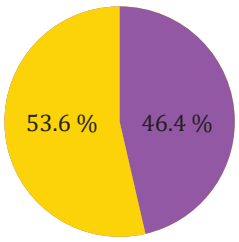
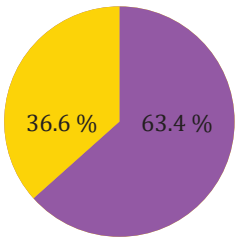



Figure 1.03
Percentage of working poor population by ethno-cultural group in Toronto CMA, 2016.




Ethno-cultural group

racialized workers

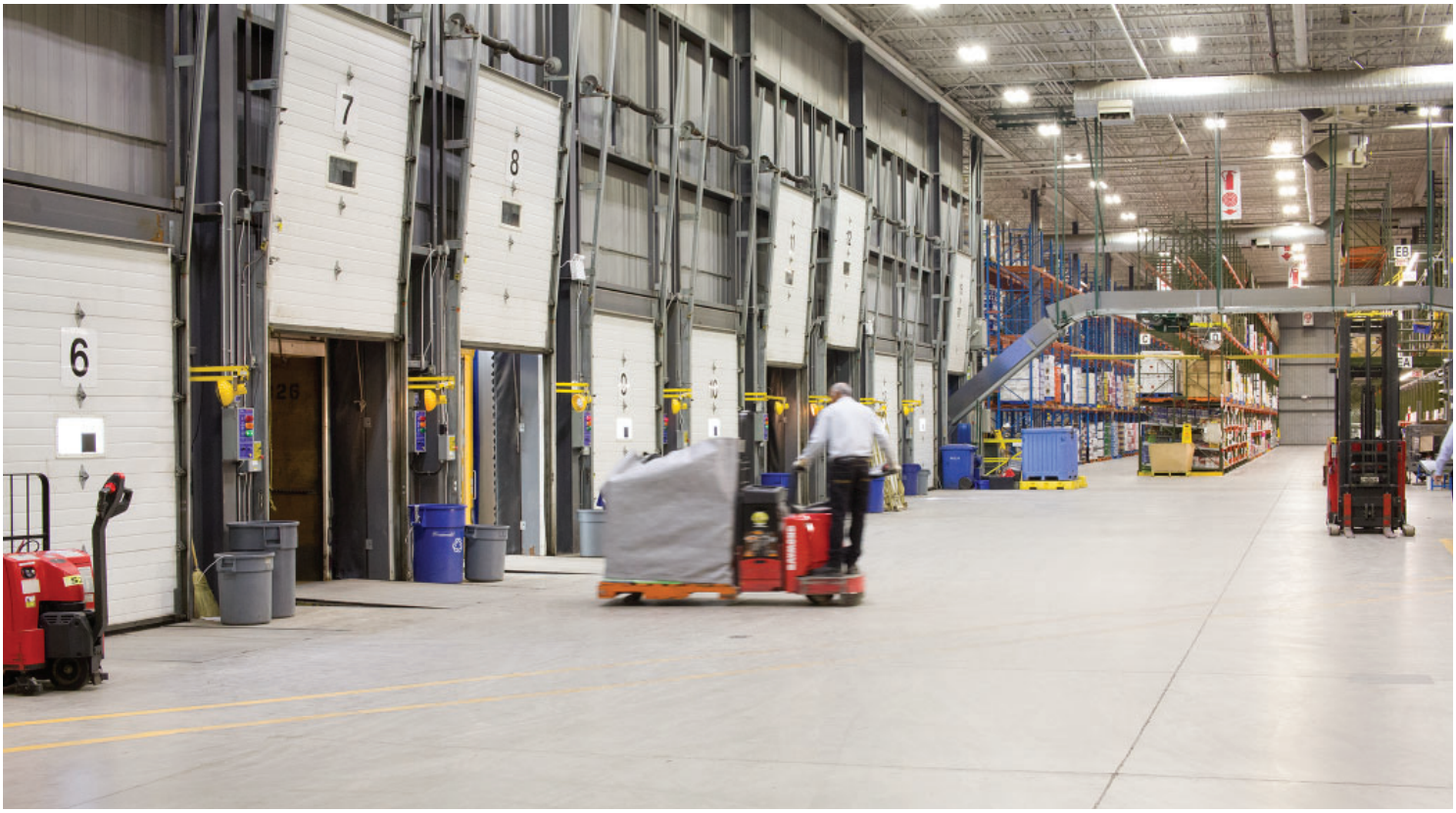
others

11 Statistics Canada, "Low-Income Measures Thresholds (LIM-AT and LIM-BT) for Private Households of Canada, 2020," November 22, 2022, https://www12.statcan.gc.ca/census-recensement/2021/ref/dict/tab/index-eng.cfm?ID=t2_4.

12 Stapleton, *The Working Poor in the Toronto Region*, 27.

13 Ibid, 36.

191 Highway 27 Rocket
192 Airport Rocket
300 Bloor-Danforth
Eastbound Blue Night Service
EXPRESS
7941
8045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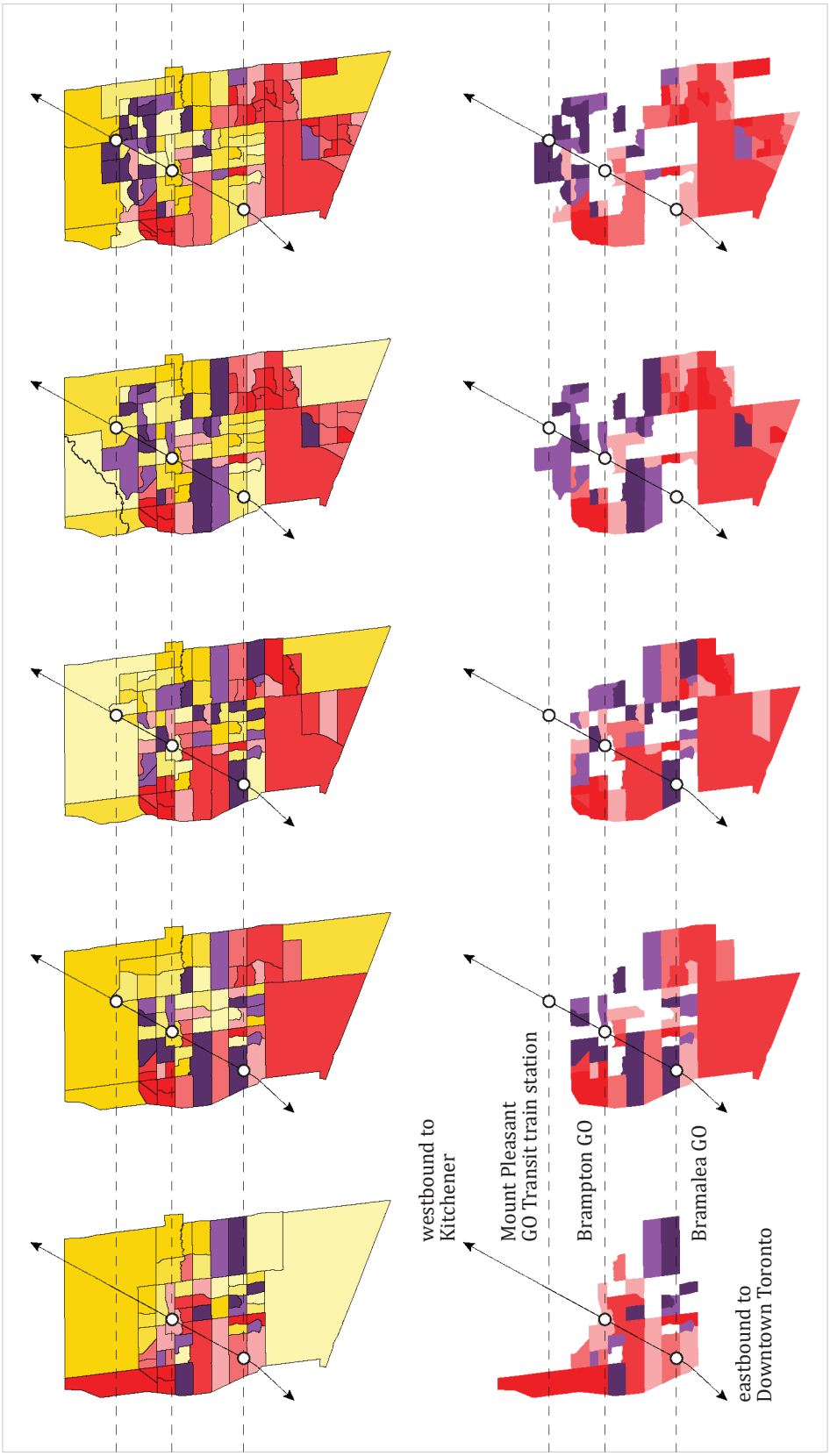



Figure 1.04
(previous page, top image)
Lower income workers are being displaced into suburban apartment towers where public transportation is the least reliable in the region.

Figure 1.05
(previous page, bottom image)
Local manufacturing and logistics industry sectors provide stable and long-term employment opportunities.

Figure 1.06
Map of median individual income by census tract in Brampton, 2001-2021.

Scale 1 : 500,000

Census 2021

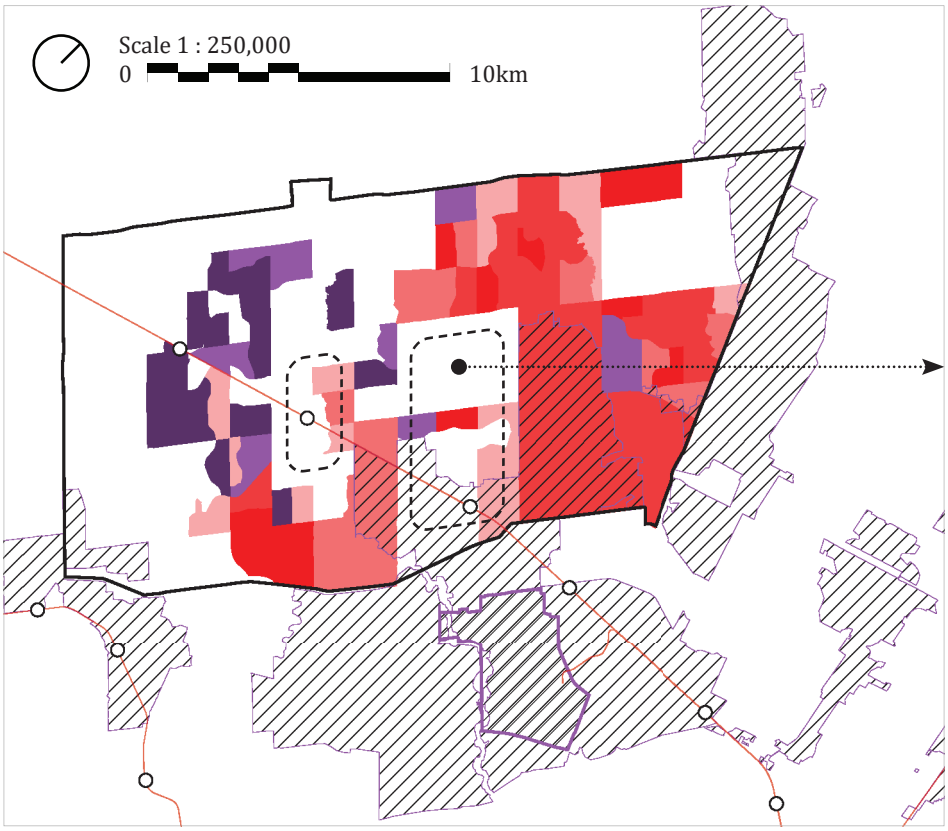
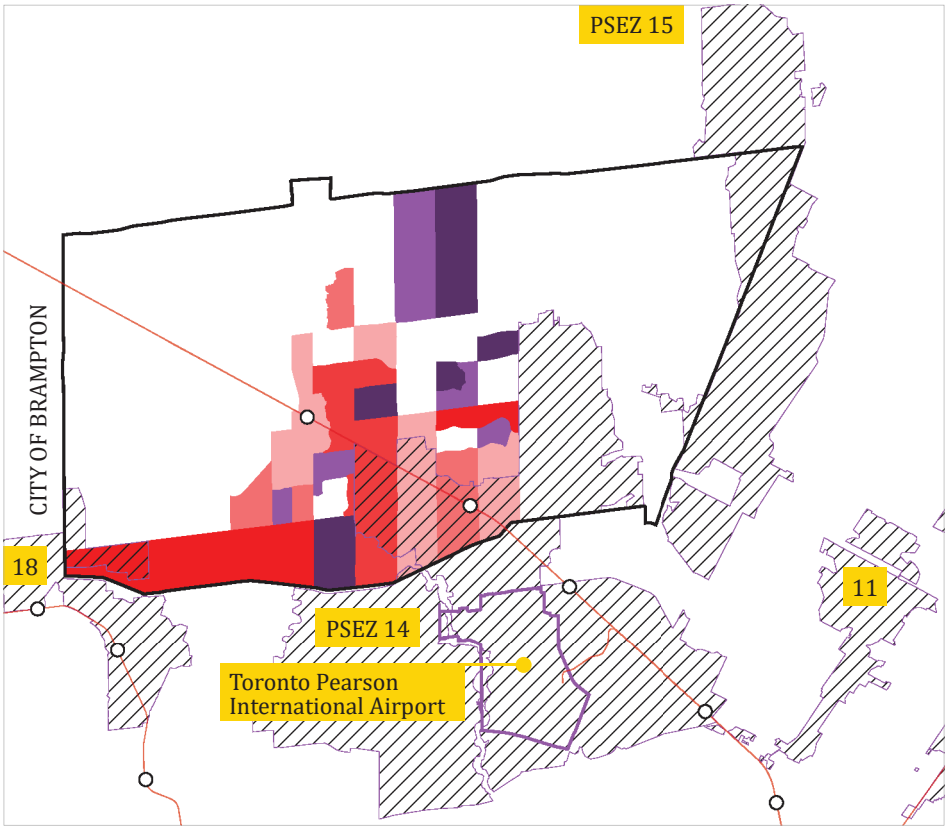



Figure 1.07
Map of median individual income by census tract in Brampton, 2021.

An increased concentration of higher income workers near transit centres indicates to a new wave of outmigration and/or displacement of lower income households from existing workforce residential neighbourhoods and employment lands.




Affordable workforce housing is being pushed to the outer edge of the region in areas with the least access to reliable public transit.

employment land | PSEZs

GO Transit train station

GO Transit rail line

Figure 1.08
Map of median individual income by census tract in Brampton, 2001.

Census 2001

Racialized workers are pushed into the suburbs where employment opportunities are lower in comparison to the rest of the region. Social advocate groups argue that this form of socioeconomic discrimination stands incompliance with Canada's national and international legal obligations which enshrine human right to equality and non-discrimination.[14] Many researchers argue that the lack of affordable housing translates discriminatory attitudes and/or the indifference to them into the organizational logic of the GTA's gentrifying built environment. In regard to the many for-profit housing schemes, rental applications have shifted from 'first come first served' basis to income compatibility[15] – reinforcing racial bias in favor of affluent households with stable income.

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14 Centre for Equality Rights in Accommodation, National Right to Housing Network, and Social Rights Advocacy Centre, *Housing Discrimination & Spatial Segregation in Canada*, (Toronto: Centre for Equality Rights in Accommodation, 2021), 6-7, https://www.homelesshub.ca/resource/housing-discrimination-spatial-segregation-canada.

15 Ibid, 12–13.

Figure 1.09 Transit-oriented development (TOD) without any allocation for affordable workforce housing will result to gentrification and displacement, and a continuation of racial discriminatory attitudes.

# 1.2 New Middle Class

The growing reality of home insecurity among the working poor challenges our society's uninformed assumption to simply equate homelessness with unemployment and heavy dependence on social assistance. In parallel, housing advocates frame home security as a continuum consisting of multiple levels of security. The working poor occupy a varied level of housing options in-between the two-sided polarity of absolute homelessness (sleeping outside) and 'homefulness' in the form of ownership tenure.[16] From 1945 to the 1970s, low-income to moderate-income Canadian households were able to acquire homeownership tenure through 'filtering.' This process relies on the availability of older and dilapidated housing stocks of the inner-city neighbourhoods – whose declining property value has reached the threshold to which low-income households may deem affordable.[17]

During the same period, many middle-class residents freely chose to leave the city and move into newly constructed post-war suburbs. American writer Jane Jacobs attributed the economic stability of inner-city neighbourhoods not on policies that enforce artificial retention of existing middle-class. Instead, she pointed out the city's inherent ability to gradually (re)integrate poor slum dwellers and new immigrants into its public street life, and to transform them as the new middle-class.[18] Through filtering, the city enables the gradual self-diversification of its population. In contrast, the on-going process of advanced gentrification has created segregated communities – squeezing more and more creative class individuals into inner-city neighbourhoods.

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16 Alan Walks, "Urban Divisions: Inequality, Neighbourhood Poverty, and Homelessness in the Canadian City," in *Canadian Cities in Transition: Understanding Contemporary Urbanism*, ed. by Markus Moos, Tara Vinodrai, and Ryan Christopher Walker, 6th ed. (Don Mills, Ontario: Oxford University Press, 2020), 187-189.

17 Richard Harris, "Housing: Dreams and Nightmares," in Canadian Cities in Transition: Understanding Contemporary Urbanism, ed. by Markus Moos, Tara Vinodrai, and Ryan Christopher Walker, 6th ed. (Don Mills, Ontario: Oxford University Press, 2020), 198-199.

18 Jane Jacobs, *The Death and Life of Great American Cities*, 1992 ed. (New York: Vintage Books, 1992), 282-283.

Figure 1.10 Continuum of homefulness, as a concept introduced by geography professor Alan Walks.

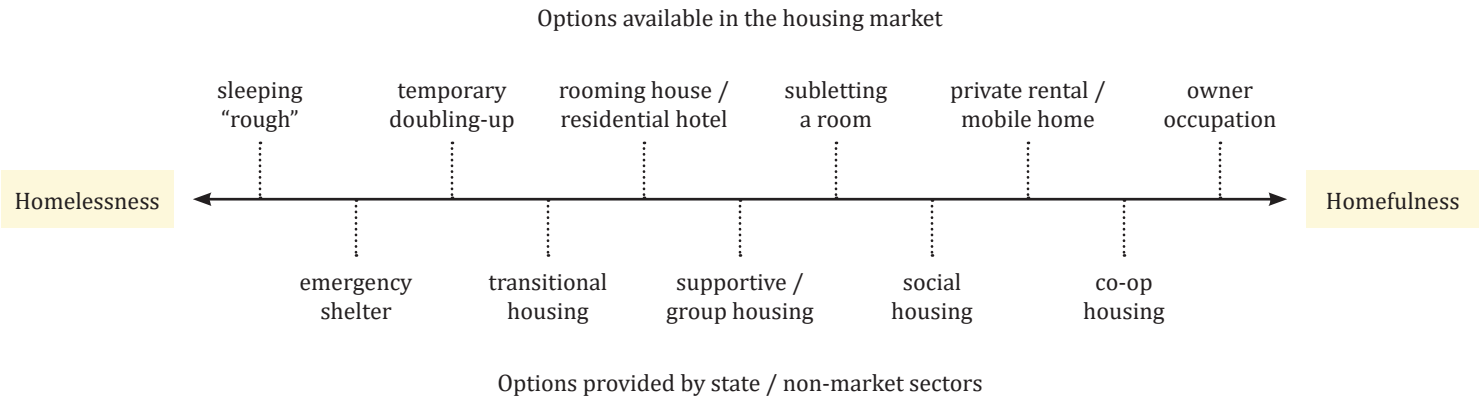


Figure 1.11 Homeownership as the realization of the middle-class dream.

Figure 1.12
Rate of change comparison between individual median total income and median shelter cost for a renter household in Brampton, 2006-2021.

The absolute increase in individual median total income (Brampton, CY) is unmatched to the higher increase rate in rental shelter cost (Toronto CMA), which results to an overall decrease in affordability.

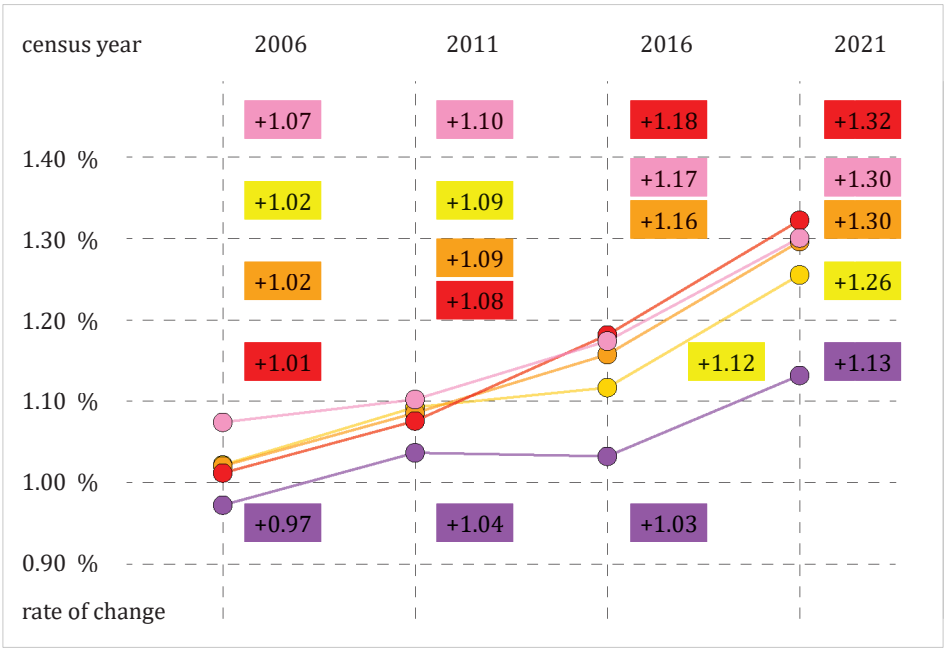
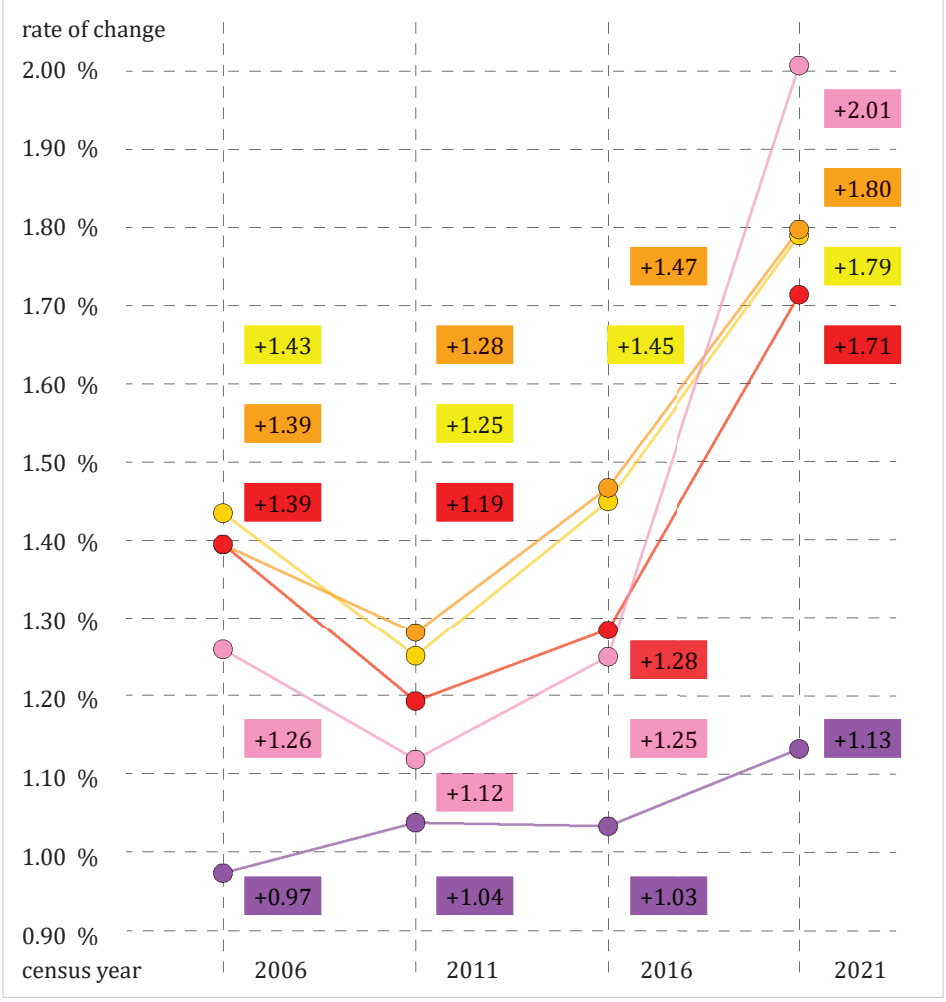



Figure 1.13
Rate of change comparison between individual median total income and median home prices in Brampton, 2006-2021.

The absolute increase in individual median total income (Brampton, CY) is unmatched to the higher increase rate in median home prices (Brampton, W-23 and W-24), which prevents potential homebuyers from being able to save on a mortgage downpayment.



Inequity in homeownership access is further heightened by the intergenerational transfer of wealth. An analysis report published in 2021 by Statistics Canada states that the rate of homeownership between young adult differs significantly based on their parents' homeownership status. For young adults born during the 1990s to non-homeowner parents, the rate of homeownership stands at around 8%. In contrast, young adults from homeowner parents tend to acquire a significantly higher rate of homeownership – more than twice (2x) the rate for those of single-property homeowner parents, and almost thrice (3x) the rate for those of multi-property homeowner parents.[19] Intergenerational transfer of wealth, through financial gift, has helped us as privileged young adults to save on mortgage downpayment at a faster timeline and with greater amount.[20] And financial gifts had become the main source of downpayment for the majority of first-time home buyers, reaching an average amount of more than $100,000.[21] This additional financial support allows affluent young adults to own housing stocks within many desirable urban sites – in which high earning knowledge-based jobs are further being concentrated.

Figure 1.14 Percentage of young adult homeownership rates in comparison to parental property ownership in Canada, 2021.

* * *

Access to housing, either through ownership or rent, is indicative of the current scene of Toronto's middle class. The declining proportion of middle class in the present Canadian workforce parallels the shift in homeownership (in)accessibility from affordable 'filtering' to gentrification. Canadian economics professor Charles M. Beach conducted a data analysis based on census data from the 1970s up to the 2000s. The report points to a great increase in earnings for high-income workers, a drop in earnings for middle-class workers, and stagnant earnings for low-income workers.[22] The economy of a global city, such as Toronto, is shifting farther from the city economy Jane Jacobs advocated for – a city in which low-income households including new immigrants are

19 Michael Mirdamadi and Aisha Khalid, "Parents and children in the Canadian housing market: Does parental property ownership increase the likelihood of homeownership for their children?" *Housing Statistics in Canada* (2023): 6.

20 Ibid, 3-4.

21 Benjamin Tal, "Gifting for a down payment – perspective," *CIBC In Focus*, October 2021.

22 The article defines a middle-class worker as an individual with an annual employment income which fall within 50% to 150% of the median employment income (gender-specific).

Charles M. Beach, "What Has Happened to Middle-Class Earnings in Canada?" 83-86.

not confined into stagnation (economically and spatially) but can mobilize upwards and be the new middle class. Meanwhile, the contemporary understanding of the new middle-class as the 'creative class' is dwindling in proportion due in part to 'upskilling' - in which they obtain a higher income in return for better work efficiency.[23] A higher income and an advantageous intergenerational transfer of wealth further polarized the economic and housing condition in-between a simultaneously increasing number of both high-income and low-income households. Our middle-class functions as a relatively stable transitional phase that promotes socioeconomic connectivity and mobility. Their decreasing proportion in society may signal a greater distancing of access between our multi-level housing continuum.

Figure 1.15
Percentage of full-time full-year male workers by earnings level, Canada, 1970-2005

Figure 1.16
Percentage of full-time full-year female workers by earnings level, Canada, 1970-2005

23 Ibid, 97-98.

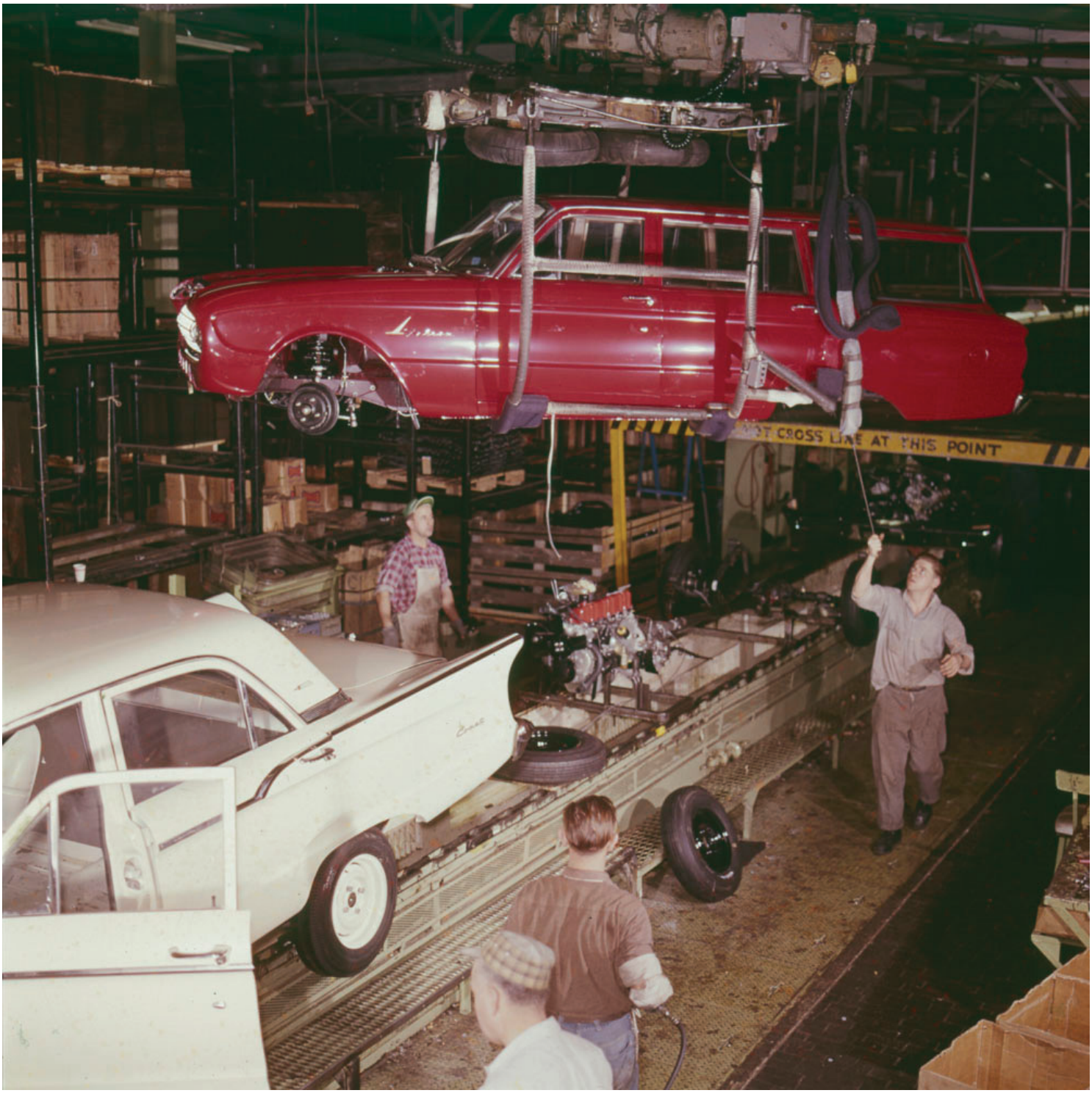



Figure 1.17 The decline in proportion of middle-class workers in the workforce population points to a widening gap in the continuum of housing security, or homefulness. A decreasing hope towards homeownership.

# 1.3 Generationed Space

The availability of distinct housing tenures and typologies influences the way we live and adapt within our built environment. In the 1960s, there was a significant migration of young adults into inner-city neighbourhoods. In parallel to the counterculture movement, this intra-regional migration highlights how, in the 1960s, young adults were searching for employment alternatives to the pre-existing norm of Fordist warehouse manufacturing.[24] Similarly, the present-day residential densification of the downtown and of gentrifying inner-city reflects young adults' desire to be near employment, education and entertainment amenities; and it addresses the environmental concerns of the younger generation by disfavouring outward sprawl.[25] Meanwhile, the popularity of these smaller inner-city condo units also reflects the decline in earnings for middle-class young adults.[26] Transitioning onto the next possible life course stages, such as marriage and/or parenthood, is restricted by the lack of secure rental housing tenure and often results to relocating into the suburbs. For-profit condo development throughout the inner city attracts and retains new cohorts of young adults – marking these gentrified areas as separate 'generationed' spaces,[27] for which transition to other life course stages becomes more and more unlikely.

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24 Markus Moos, ""Generationed" space: Societal restructuring and young adults' changing residential location patterns," 23.

25 Ibid, 14-16.

26 Ibid.

27 Ibid, 28-30.

Figure 1.18 An increasing concentration of young adults in the downtown and inner-city neighbourhoods is in parallel with the increasing reliance (and/or lack of alternatives) for private rental housing market in urban centres.

The concept of a 'generationed' space is also evident within the suburbs in and around Toronto. Baby boomers (born between 1946 and 1965) alongside older generations altogether occupy over half of Toronto's low-rise housing stocks.[28] Their transition into 'empty nesters' for which their children have left the parental house marks a significant life course stage. Their dwelling unit now contains more bedrooms than required per occupant by the National Occupancy Standard (NOS). Households with this living condition are categorized as 'overhoused' to differentiate with 'right-sized' and 'underhoused' households.[29] And in Ontario, the scale of overhoused households is quite excessive – with Canadian Centre for Economic Analysis reporting that over 400,000 houses in the province contains three or more empty bedrooms.[30] In contrast, underhoused households in Toronto consist mainly of couples with children or lone parents - for which more than 60% are housed in mid- or high-rise units.[31]

A solution explored in the City of Toronto report *Right-Sizing Housing and Generational Turnover* discusses the possibility of turning over existing detached houses to the future generation so as to achieve more efficient use of currently vacant bedrooms. The report further suggests that this scenario of right-sizing can help address the housing crisis – with estimates pointing to the capacity for existing overhoused housing stocks, within the suburbs, to accommodate about 25% of Toronto's forecasted population growth into the year 2051.[32] These existing detached houses can provide much needed suitable housing for lower income family households, and their proximity to industrial employment lands is beneficial to new migrants searching for stable employment.

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28 City of Toronto Planning Division, *Right-Sizing Housing and Generational Turnover*, 9.

29 Ibid, 10.

30 Canadian Centre for Economic Analysis, "CANCEA RESEARCH: The "Missing Middle,"" 64.

31 City of Toronto Planning Division, *Right-Sizing Housing and Generational Turnover*, 11-13.

32 Ibid, 19-21.

Percentage of one-person and couple-without-children (combined) households

- 60 - 65
- 55 - 60
- 50 - 55
- 45 - 50
- 40 - 45
- 35 - 40
- 30 - 35
- 25 - 30
- 20 - 25

recreation centre

Figure 1.19
Map of one-person and couple-without-children households by census tract in the City of Brampton, 2021.

The spatial mismatched between dwelling units with large number of available bedrooms and a smaller household size such as those of seniors living alone, widowed or elder couples who became empty nesters.

Percentage of dwelling units with three or more bedrooms

- 90 - 100
- 80 - 90

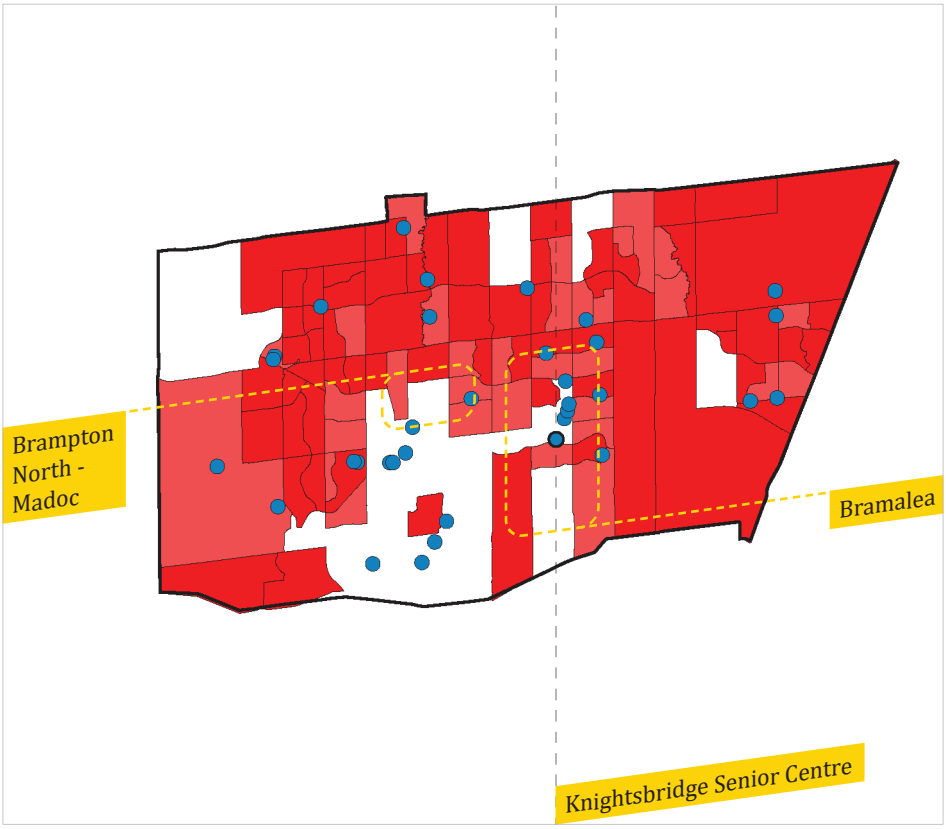


Figure 1.20
Map of dwelling units with three or more bedrooms by census tract in the City of Brampton, 2021.

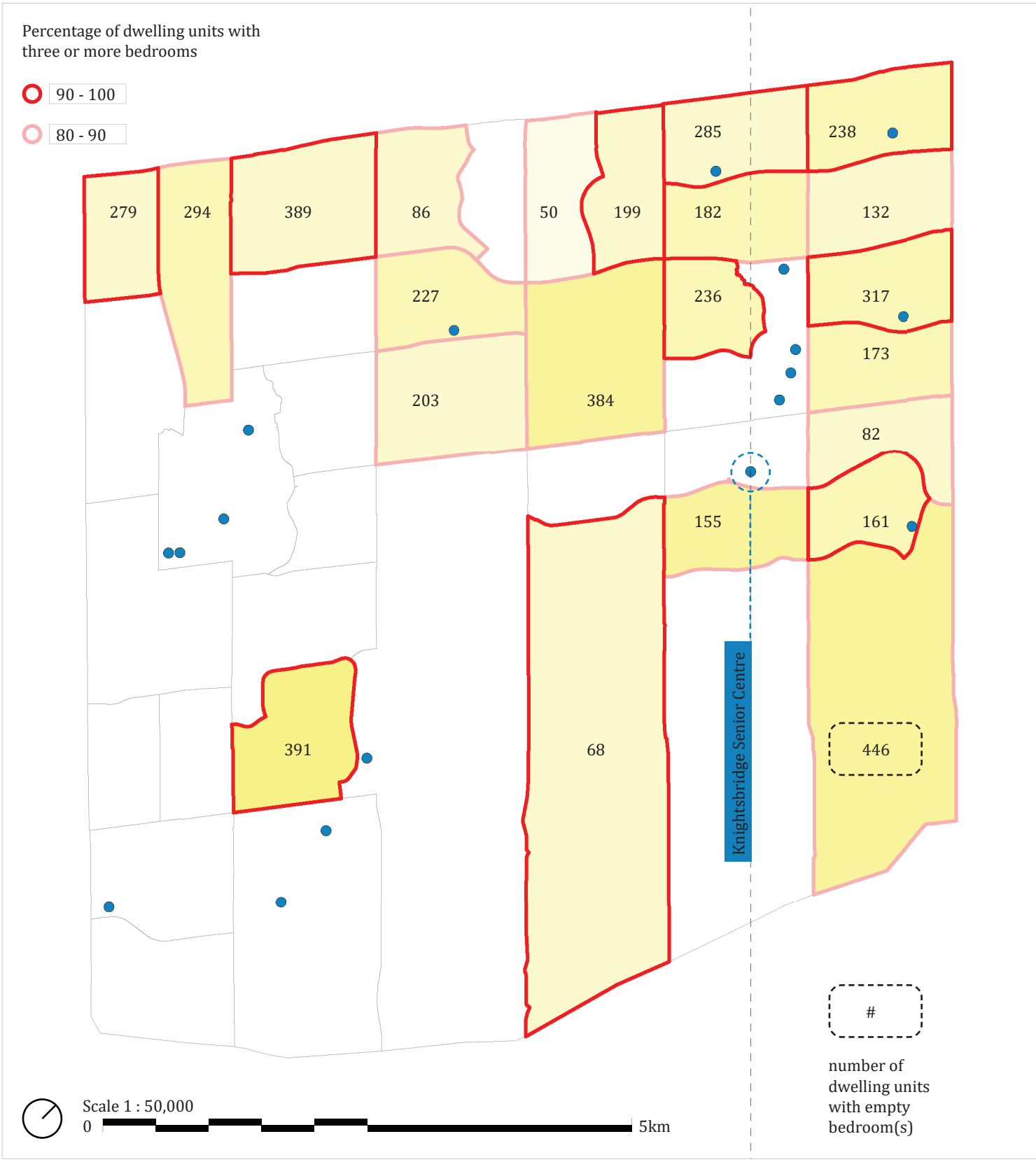
Percentage of dwelling units with three or more bedrooms
90 - 100
80 - 90
279
294
389
86
50
199
285
238
182
132
227
236
317
173
203
384
82
155
161
391
68
446
Knightsbridge Senior Centre
#
number of dwelling units with empty bedroom(s)
Scale 1 : 50,000
0
5km

Figure 1.21
(previous page)

Map of dwelling units with three or more bedrooms by census tract in the central area neighbourhoods of Brampton, 2021.

Dwelling units with empty bedrooms can be turned over to more suitable households if affordable alternatives are available for many of its current occupants that are one-person or couples-without-children households.

A house is an integral part of the urban environment. It delineates the public realm apart from the intimate seclusion of private spaces. It defines our self-autonomy, and our civic participation within the greater community. Unique to the context of the Toronto metropolitan area, the concept of a comprehensive suburban community was conceived and replicated in large numbers during the 1960s. High-rise apartment buildings were scattered in-between detached houses to achieve a balanced residential density for each emerging neighbourhoods. Today, these towers contain the greatest share of underhoused households, of middle-aged residents and their children, while many detached houses remain (under)occupied by a presently growing senior population. The proposed housing turnover and right-sizing, although efficient, may disregard a deeper understanding of a home beyond the statistical calculation of suitable shelters.

"Most of the people here are retired. It's very quiet. There's no noise and confusion here," he reasons. "We know everybody here, we're comfortable, so why should we move?"[33]

For many seniors, their suburban neighbourhoods have been their central source for community living. Typical housing options for seniors includes private retirement residences and long-term care facilities.[34] In car-dependent suburbs, elderly people are losing their driver's licenses and/or physical mobility due to old age. The loss of mobility outside of their detached houses puts seniors at risk of social isolation, possibly leading to depression and other worsening health

33 Colin Perkel, "Rapidly aging suburbs pose a challenge to residents, urban planners alike," *CBC News*, May 3, 2017, https://www.cbc.ca/news/business/census-aging-population-suburbs-1.4097307.

34 Jen Recknagel, "The Big Idea: Help seniors age at home," *Maclean's*, February 2023, https://macleans.ca/society/health/big-idea-long-term-care-senior-age/.

issues.[35] And yet, according to the 2016 Canadian census, more than 85% of seniors prefers to 'age in place' within their home.[36] This strong personal affection seniors and their family members have of suburban Toronto is reflected in a City of Toronto Archives exhibition titled 'Wide Open World: A Celebration of the Suburbs in Toronto.' A variety of photos, some taken by newspaper photographers and some by ordinary citizens, showcased everyday events and social gatherings.[37] And for the curator of the exhibition, archivist Manda Vranic, 'Wide Open World' serves as a nostalgic remembering of the more than half-a-century collection of memories that constitutes suburban living.[38]

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35 May Warren, "All of Toronto is getting older, but it's tougher to age in the suburbs," *Toronto Star*, September 5, 2018, https://www.thestar.com/news/gta/all-of-toronto-is-getting-older-but-it-s-tougher-to-age-in-the-suburbs/article_e45116f3-ed1e-5051-9bb4-fdebd0e978f9.html.

36 Jennifer Jakobi, *Aging in Place: Reflections from Canadians*, (Kelowna, British Columbia: University of British Columbia Okanagan, 2022), 3.

37 Ed Conroy, "Seven fascinating photos that reveal what it was like to live in Toronto's suburbs before the 1980s," *Toronto Life*, October 2017, https://torontolife.com/life/wide-open-world-toronto-suburbs-photo-essay/.

38 Ibid.

Figure 1.22 Leftover urban spaces such as parking lots became distinctive sites for social gatherings. A nostalgic image of suburban living.

Memory. Our suburban housing stock of high-rise towers and detached houses, through globalization and its changing live-work patterns, now embodies a socially and spatially fragmented metropolitan landscape. Issues of 'manhattanization' and of 'generationed' space segregate households based on socioeconomic classes – a wealth disparity that transcends generations. The possibility of turning over the detached homes of the 'yellow belt' from overhoused baby boomers onto low-income family households may tackle housing availability and perhaps affordability through 'filtering.' Meanwhile, the subsequent relocation of senior residents outside of their cherished neighbourhood weakens important social networks. The lack of in-between spaces to transition into reflects the demography of a shrinking middle class and its belief in homeownership, a restricted social mobility, and a neighborhood that lack meaningful self-diversity. Within the Toronto region, housing stocks are divided between 45% single-detached homes and 35% apartment buildings.[39]

A possible solution that the thesis explores is 'gentle intensification.' This type of incremental development is being studied in similar planning projects such as the City of Toronto's Expanding Housing Options in Neighbourhoods (EHON) initiative. As proposed by EHON, incremental development can diversify the housing typologies *within* existing low-rise neighbourhoods.[40] Constructing a series of smaller dwelling units can accommodate 'empty nesters' and seniors who wants to 'age in place,' and of larger units for family households to grow into. In addition, to allow local commercial and retail amenities within these preliminary housing types can provide young adults new spaces to stay and gather outside the gentrified areas of the downtown.

Canadian urban planning professor David Hulchanski downplays relying purely on the minimum income and expenditure-to-income ratio as a total signifier of housing affordability. Aside from the formal market economy that focuses on cash exchange, Hulchanski points out that household resources are also gained through four other economic spheres. These are: 1) the domestic economy – within the household, 2) informal economy – between extended family and close friends, 3) social economy – within the neigbourhood, and 4) the state economy.[41] Therefore, the thesis looks

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39 Canadian Centre for Economic Analysis, "CANCEA RESEARCH: The "Missing Middle,"" 64.

40 City of Toronto Planning Division, *Attachment 4: EHON Major Streets Urban Design*, (Toronto: City of Toronto, 2023), 1.

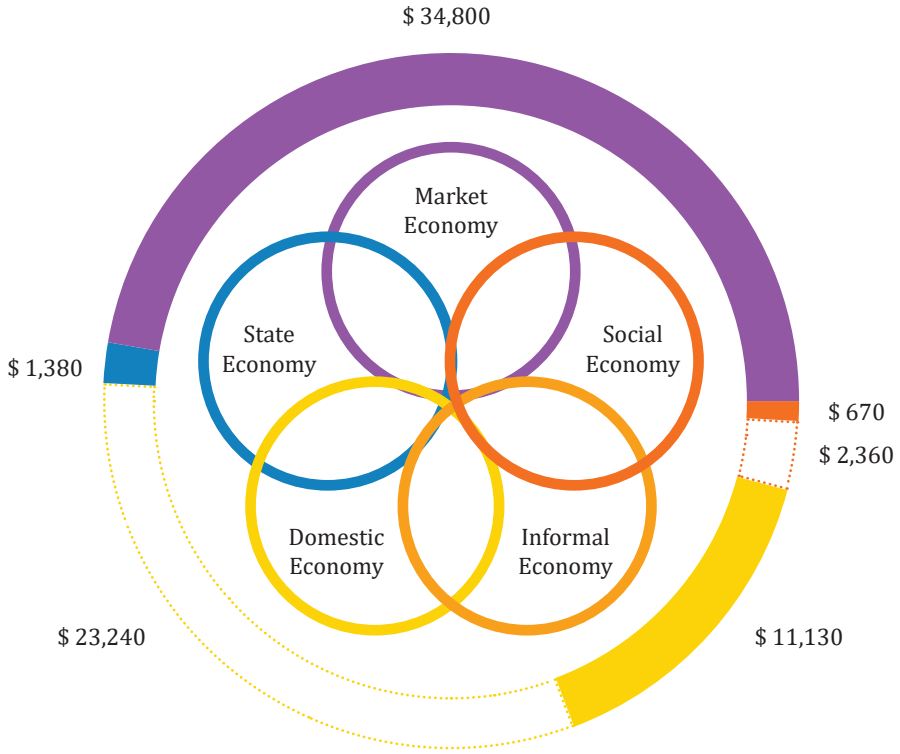
41 J. David Hulchanski, "The Concept of Housing Affordability: Six Contemporary Uses of the Housing Expenditure-to-Income Ratio," *Housing Studies* 10, no.4 (1995): 483-484, https://doi.org/10.1080/02673039508720833.

on ‘gentle intensification’ as a way to encourage suburban residents to stay, to limit gentrification and displacement, and to keep their existing social networks – a crucial factor for many households to achieve housing affordability – intact and growing.

Figure 1.23

Diagram of 5 economic spheres on which households can obtain resources to achieve housing affordability, as interpreted from the concept introduced by David Hulchanski.

An important component is the social economy, which relies on the preservation and restrengthening of neighbourhood networks. Shared household work through a cohousing model can provide an individual household with possible rough estimate savings of $23,240 and $ 2,360 annually (interlink between domestic and social economy).




Market economy includes median employment income (Brampton, CY 2019).
State economy includes median government transfers (Brampton, CY 2019).
Domestic economy includes the difference between gross opportunity cost and replacement cost for unpaid household work per capita (Canada, 2019).

Social economy includes the difference between the ideal 450 hours per week and the North American cohousing average of 100 ‘people-hours’ per week, then multiply by $14 (Ontario minimum wage, 2019).

# 2. Satellite City

Globalization and its seemingly limitless capacity to transfer financial wealth build skyscrapers into reality. The global city is an agglomeration of multiple worker identity, such as those of the creative class, manufacturing, and the service sector. Every identity necessitates its own autonomous space – to accommodate its own distinct work activity. The residential typology of downtown Toronto, for the past 20 years, has been dominated by the high-rise point tower with its consistent 750-square-metre floor plates.[1] Canadian architect Peter Clewes points to both the Ontario provincial greenbelt legislation, enacted in 2005,[2] and the federal government's economic immigration policy as key factors to the uncontrolled condo boom around designated urban growth centres (UGCs) throughout the GTA.[3] These government policies consequently encouraged residential intensification; and the market-based solution is the skyscraper. For real estate developers, increasing the number of floor levels of a typical tower – and thereby maximizing the number of sellable condo units – can better offset the construction costs of excavation, underground parking garages and elevators.[4,5] Through this rationale, a high-rise residential building always tends to result in a lower per-square-foot cost than the ideal six-storey buildings policymakers advocate for. And so, when framing the housing crisis as a simple numerical deficit in housing stocks, the skyscraper surely becomes the simple solution.

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1 Stefan Novakovic, "Is This Architecture? A Conversation with Peter Clewes," *Azure*, December 2022, https://www.azuremagazine.com/article/peter-clewes-interview-toronto-condo-architecture/.

2 Graeme Stewart, Josh Thorpe, and Michael McClelland, "The slabs vs. the points: Toronto's two tower booms," *Satellite Magazine*, 2013, https://web.archive.org/web/20141206183001/http:/www.satellitemagazine.ca/2013/09/the-slabs-vs-the-points-torontos-two-tower-booms/.

3 Stefan Novakovic, "Is This Architecture? A Conversation with Peter Clewes," December 2022.

4 May Warren, "City staff want 6-storey apartment buildings in more Toronto neighbourhoods. But will developers build them?" *Toronto Star*, October 2, 2023, https://www.thestar.com/real-estate/city-staff-want-6-storey-apartment-buildings-in-more-toronto-neighbourhoods-but-will-developers-build/article_2fe07dcd-2b1e-518c-8f09-f28fe074da1d.html.

5 *Purpose-Built Rental and Condo Development: Market Perspectives*, Canadian Centre for Economic Analysis, April 2019, 11-12.

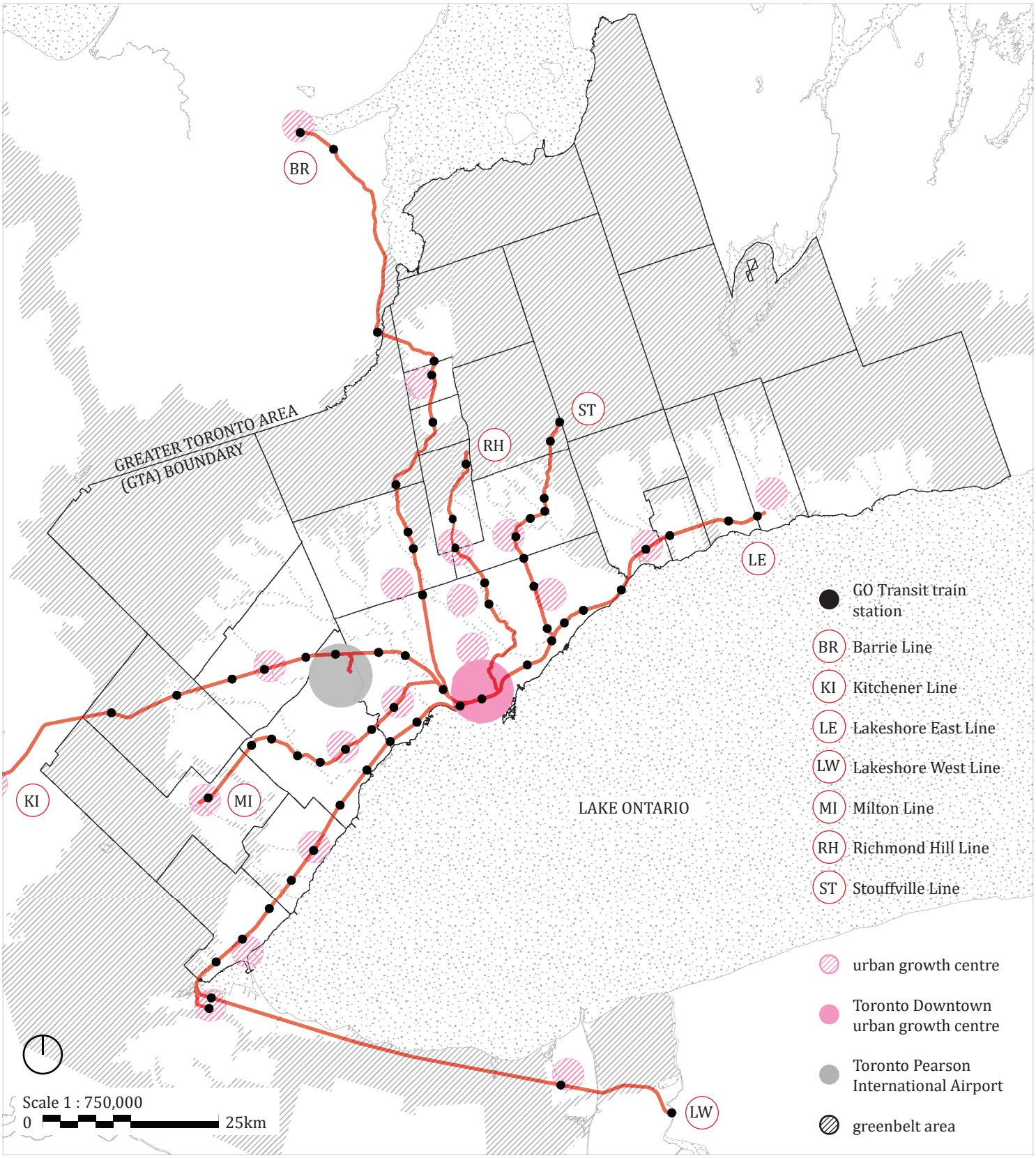
BR
ST
RH
LE
KI
MI
LW
GREATER TORONTO AREA (GTA) BOUNDARY
LAKE ONTARIO
GO Transit train station
BR Barrie Line
KI Kitchener Line
LE Lakeshore East Line
LW Lakeshore West Line
MI Milton Line
RH Richmond Hill Line
ST Stouffville Line
urban growth centre
Toronto Downtown urban growth centre
Toronto Pearson International Airport
greenbelt area
Scale 1 : 750,000
0
25km

Figure 2.01
(previous page)

Map of urban growth centres in the Greater Golden Horsehose (GGH).

Urban growth centres promote residential intensification and transit-oriented developments. Allocating portions of these urban redevelopments for affordable workforce housing can counteract the ongoing trend of workforce outmigration caused by metropolitan polycentric centralization.

Furthermore, the residential intensification of Toronto's downtown alongside existing and new office towers has created a livelier environment – evident in a greater amount of travel between home, workplace and lifestyle services made on foot than by car.[6] Around 60% of Toronto's new condo units that were constructed within the past two decades are located within its Downtown and Central Waterfront area.[7] They are characterized by higher rent and low vacancy rates.[8] Altogether, the liveliness of Toronto's contemporary condo skyscrapers repeats the architecture of Manhattan. Following on Koolhaas' critique of manhattanism, Toronto's high-rise towers are perceived simply as big containers enclosing an ever-changing multiplicity of programs synonymous with metropolitan life.[9]

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6 Jill L. Grant and Pierre Filion, "The Market, Planning, and Emerging Urban Forms," in *Canadian Cities in Transition: Understanding Contemporary Urbanism*, ed. by Markus Moos, Tara Vinodrai, and Ryan Christopher Walker, 6th ed. (Don Mills, Ontario: Oxford University Press, 2020), 221-224.

7 City of Toronto Planning Division, *Condominiums: Two Decades of New Housing*, (Toronto: City of Toronto, 2020), 6-9.

8 Matti Siemiatycki and Karen Chapple, *EX3.1 - Housing Action Plan 2022-2026- Priorities and Work Plan: Attachment 2 - Perspective on the Rental Housing Roundtabl*e, (Toronto: City of Toronto, 2023), 6-7.

9 O.M.A., "Elegy for the Vacant Lot," 937.

Figure 2.02 New condo towers along Toronto's Downtown and Central Waterfront area.

Figure 2.03 New condo towers along Toronto's suburban centres including 1960s- satellite cities are becoming better integrated through new investments in public transport infrastructure. These modern urban infrastructures can facilitate greater distancing between live-work patterns.

# 2.1 High-Rise Tower

The skyscraper typology is equally represented in the inner suburbs of Toronto (which includes Scarborough, North York, Etobicoke, York, and East York), as well as the outer suburbs of neighbouring municipalities. Between the 1960s and 1980s, around 1,000 high-rise apartment buildings (of twelve storeys and over) were constructed within Metropolitan Toronto. The majority of which are constructed in the suburbs.[10] Within an emerging satellite city or a new town masterplan, these concrete apartment buildings embody comprehensive regional planning. Its design goals were 1) to encourage a more responsible and diverse land use of greenfield sites within Metropolitan Toronto, 2) to limit urban sprawl, and 3) to create self-sufficient communities where new residents can equitably access public transit and employment areas within a close proximity.[11] These 1960s neighbourhoods are categorized by the 'tower in the park' development layout, in which a lot-coverage ratio of 60% to 70% open space,[12] or up to 90% open space was allocated in exchange for taller towers.[13] The 'slab apartment towers' were constructed of concrete structural frames with concrete shear wall at every 6-metre-wide bay, fire stairs placed at either end of the building's public corridor, and a concrete structural limit of about 36 storeys.[14]

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10 E.R.A. Architects, "City of Towers," 10.

11 Ibid, 12.

12 Graeme Stewart, "The Suburban Tower and Toronto's Legacy of Modern Housing," *Docomomo Journal* 39 (2008): 25-28.

13 E.R.A. Architects, "City of Towers," 16.

14 Ibid.

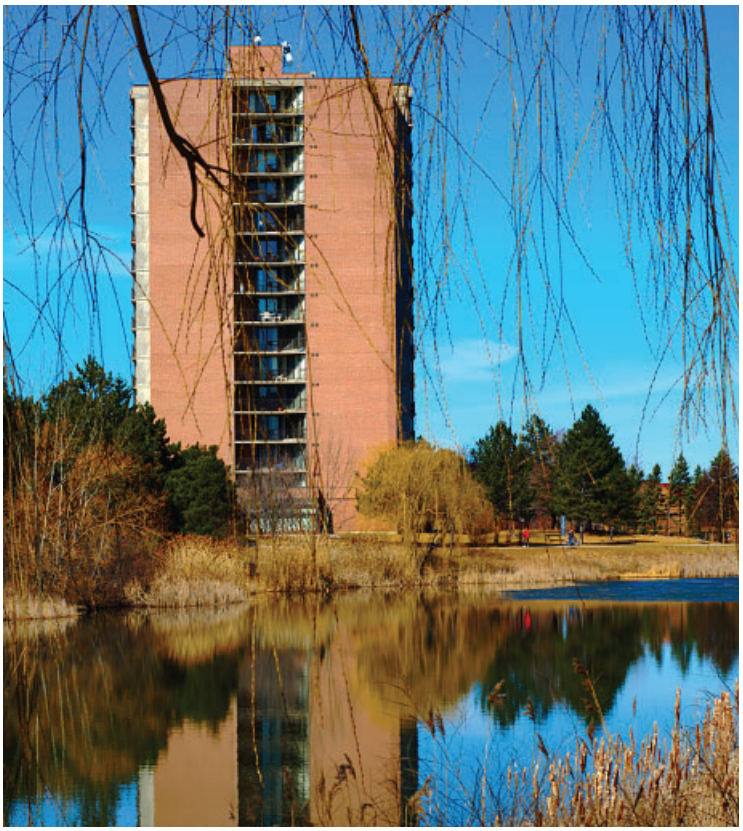

Figure 2.04 (previous page, top-left image) Apartment buildings beside parks and natural systems are typical of 1960s- suburban neighbourhoods around Toronto.

The growth of 1960s apartment tower neighbouhoods aligned with both public planning policy and the interest of private development industry. Public policymakers, such as the upper-tier Metropolitan Toronto government, aimed to maximize efficiency in infrastructure investment in water and sewer services, and in public transit by enforcing minimum density requirements. In parallel, private developers capitalized on the strong public demand, evident during the following post-war decades, for apartment units furnished with modern high-quality amenities. Residential tower typology became especially favourable for young couples, empty nesters and newcomers who valued the proximity of these new tower clusters to industrial employment zones as well as to expansive parks and natural systems.[15]

Figure 2.05 (previous page, top-right image) Donald M. Gordon Chinguacousy Park in Bramalea, Ontario.

Figure 2.06 (previous page, bottom image) Apartment buildings provide high density stocks of affordable rental units. Ensuring long-term housing affordability is critical to reduce the likelihood of concentrated forms of poverty.

The majority of Toronto's modernist towers were constructed by private developers and were intended to accommodate diverse socioeconomic groups.[16] They stand in contrast with the American context. Modernist residential towers in the U.S. were erected primarily as social housing targeted exclusively for low-income residents,[17] and were concentrated within the declining inner cities. Meanwhile, the expansion of high-density apartment towers into Toronto's emerging suburbs, alongside strip malls, bungalows, and arterial roads,[18] served as catalysts for suburban self-sufficiency as a whole. And as the Canadian architect Graeme Stewart asserts, the 'sexy slab' of the 1960s apartment towers, during its inception, was the image of a confident and progressive future.[19]

The suburban landscape of the Toronto region has changed significantly during the past 60 years. Suburban residents once had convenient access to stable employment from local manufacturing plants, which are now slowly being discontinued and/or relocated.[20] Due to the decreasing number in local warehouse employment and the limited modes of public transit infrastructure, Owen Charters, president of the non-profit youth organization BGC Canada, points in 2023 to the post-war apartment buildings of suburban Toronto as the image of hidden poverty

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15 E.R.A. Architects, *Tower Neighbourhood Renewal in the Greater Golden Horsehose*, 8-10.

16 E.R.A. Architects, "City of Towers," 16.

17 Ibid.

18 Graeme Stewart, "The suburban slab: Retrofitting our concrete legacy for a sustainable future," in *GreenTOpia: towards a sustainable Toronto*, ed. by Alana Wilcox, Christina Palassio, and Jonny Dovercourt (Toronto: Coach House Books, 2007), 132-133.

19 Ibid, 133-136.

20 Alan Walks, "Urban Divisions: Inequality, Neighbourhood Poverty, and Homelessness in the Canadian City," 177-178.

in Canada.[21] In addition, a 2021 United Way Greater Toronto *Vertical Legacy* report highlights that in the City of Toronto and the Region of Peel roughly 25% of households who rent these apartment buildings experienced 'deep unaffordability.'[22] These households spend 50% or more of their income on rent alone. Furthermore, low-income households are more likely to 'double up' with another household, or to prefer a smaller and/or unsuitable unit to offset rental cost. Within the City of Toronto and the Region of Peel's housing stock of 1960s- apartment buildings, overcrowding is a challenge for more than 20% of its total households.[23] Overcrowding negatively impacts residents' physical and mental health – as evident during the Covid 19 pandemic. Therefore, within the context of the Toronto region, the ambiguous image of the residential towers – between the glass point towers of the 2000s and the concrete slab towers of the 1960s – mirrors the wide range of socioeconomic households this typology can accommodate and (under)represents.

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21 Owen Charters, "Hidden poverty in Canada," *BGC Canada* (blog), May 2, 3023, https://www.bgccan.com/en/hidden-poverty/.

22 United Way Greater Toronto, *Vertical Legacy: The case for revitalizing the GTA's aging rental tower communities*, 14-15.

23 Ibid, 13.

Figure 2.07 1960s- apartment towers provide leftover 'affordable' housing units within the private housing market.

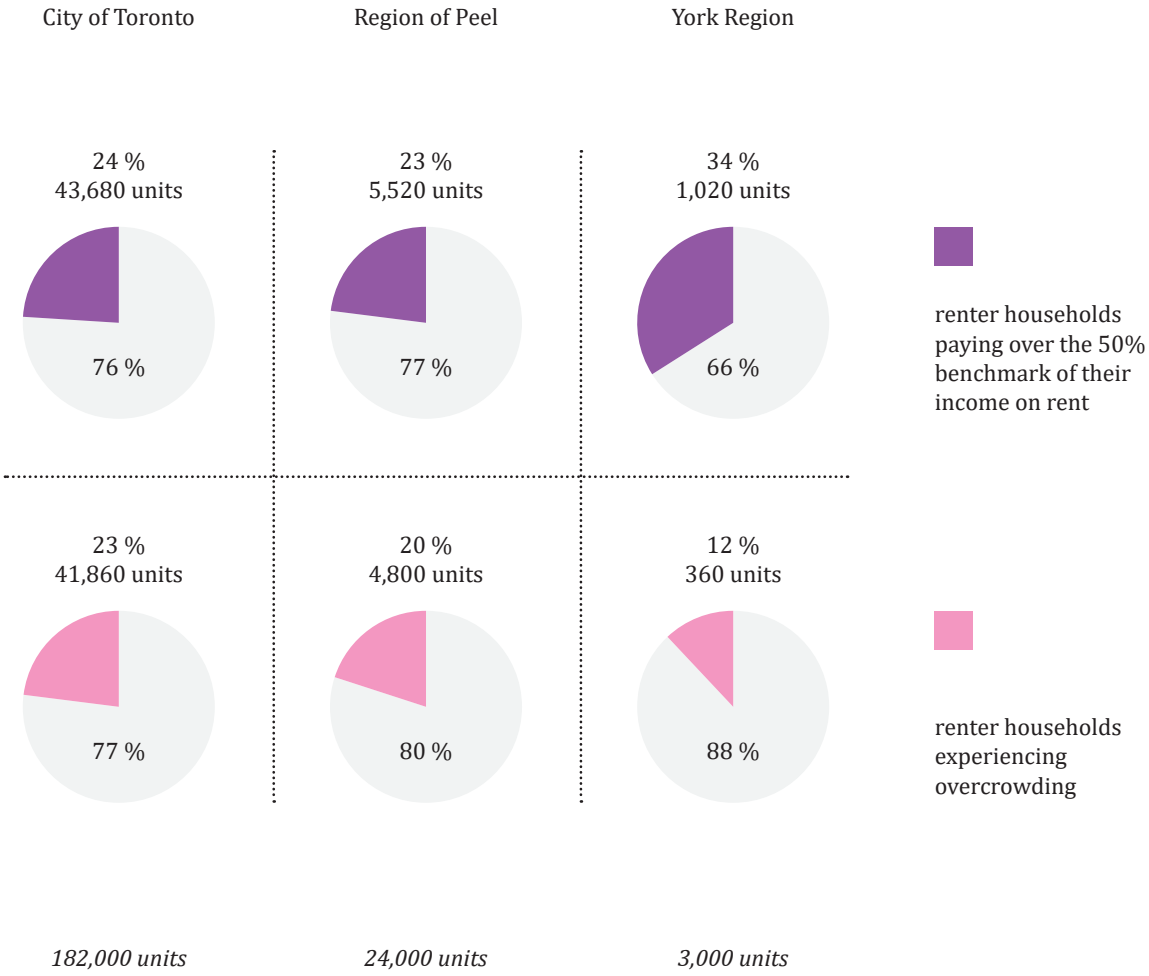


Figure 2.08
Percentage of high-rise apartment renter households paying over the 50% benchmark of their income on rent, City of Toronto, Region of Peel and York, 2016.

Figure 2.09
Percentage of high-rise apartment renter households experiencing overcrowding, City of Toronto, Region of Peel and York, 2016.

Legacy Towers
mostly privately owned purpose-built rental apartment towers over five storeys in height built before 1985

United Way Greater Toronto, *Vertical Legacy*, 2021

# 2.2 Employment Land

The image of Toronto's high-rise tower embodies both economic progress and concentrated poverty. The paradox of socioeconomic integration and polarization characterizes our present-day (mis)understanding of 'social mix' and its processes of economic diversification. During the 1990s, social housing providers in Canada increased their partnership with real estate developers in inserting for-profit housing within low-income neighbourhoods.[24] For Toronto Community Housing Corporation (TCHC), as Toronto's main social housing provider since 2002, its revitalization projects were often understood as a necessary budget decision. Its social mix projects aim to balance the changes in the budget caused by the downloading of social housing responsibility from the federal and provincial government during the 1990s and early 2000s onto the municipal government.[25] In addition to the decrease in public funding, the now aging 1960s towers require greater building maintenance. This pushes many private and public owners towards social mix redevelopment to finance major repair costs.

24 Martine August, "Social Mix and Canadian Public Housing Redevelopment: Experiences in Toronto," 93-95.

25 Ibid.

Following on market tendency to equate housing as a financial commodity, Canadian urban planning professor Martine August provides a critique of social mix redevelopments. Whether intended or not, she argues that social mix – under the image of mixed-use New Urbanism – functions as an opportunistic way for the market to encroach and capitalize on existing urban spaces that were intended previously for community housing and/or social public housing.[26] In contrast to for-profit housing, the main objective of community housing is to provide rent at or below the market rate for eligible households. It can also provide rent-geared-to-income (RGI) housing option, for which the cost of rent is subsidized to reflect 30% maximum of a renter's household income.[27] The RGI option helps ensure that low-income households can pay for other necessary housing expenses aside from rent such as: healthy food, clothing and reliable transportation.[28] As the thesis argues, a more sincere form of urban redevelopment lies in part in the ability of its residents to retain and/or increase access to decent housing more equitably. Ensuring that the working population can rent or own a house with secure and stable tenure is key to sustainable economic growth.

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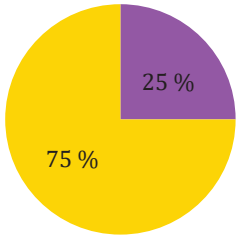
26 Ibid, 90-92.

27 Ministry of Municipal Affairs and Housing, "Amendments to Simplify the Rent-Geared-to-Income Calculation in Social Housing," Ontario's Regulatory Registry, September 23, 2019, https://www.ontariocanada.com/registry/view.do?postingId=29327&language=en.

28 Duangsuda Sopchokchai, and Stephanie Shewchuk, *Introducing the housing hardship concept*, (Ottawa: Canada Mortgage and Housing Corporation, 2020), 1-2, publications.gc.ca/pub?id=9.883851&sl=0.

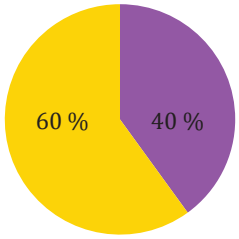
While travelling from Kitchener to downtown Toronto's Union Station by train, through Canada's Innovation Corridor, geography professor Brian Doucet reflects upon the region's industrial landscape, and the complexity of its transformation.[29,30] In a 2019 Toronto Region Board of Trade report, this transformation is stated to have contributed close to 20% of Canada's gross domestic product and produces the fastest growing tech market in the world.[31] Employment lands along the Innovation Corridor hold 40% of the total job share in the region – with more than 1.5 million jobs.[32] And specific to the transportation and warehousing sector, employment lands hold more than 60% of the total job share in that sector.[33] Nationally, distribution warehouses are vital parts of Canada's global supply chain operation - through which $1 trillion worth of goods are transported, and for which around 90% of Canadian companies depends upon.[34]

Figure 2.10
Percentage of economic contribution on the national GDP, 2020.



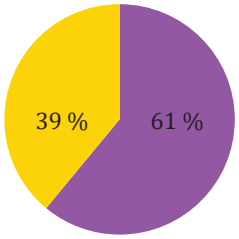

25 %
( $520+ billion)

Figure 2.11
Percentage of employment share in the Toronto Region, 2016.




40 %
( 1.5+ million jobs)

Figure 2.12
Percentage of employment share specific to transportation and warehousing jobs in the Toronto Region, 2016.




61 %

Land use zoning by municipality

- employment lands in the Toronto Region
- others

29 Brian Doucet, "Observing Urban Change Through the Window of a GO Train," *Spacing*, April 8, 2020, https://spacing.ca/toronto/2020/04/08/observing-urban-change-through-the-window-of-a-go-train/.

30 The Toronto Region Board of Trade defines the Toronto Region (Canada's Innovation Corridor) to include the Greater Toronto Hamilton Area (GTHA), Guelph and Waterloo region.

Phinjo Gombu, *The Race for Space: Securing the Future of Ontario's Employment Lands*, 23.

31 Toronto Region Board of Trade, "Toronto Region: Canada's Innovation Corridor," 2019.

32 Phinjo Gombu, *The Race for Space: Securing the Future of Ontario's Employment Lands*, 3-5.

33 Ibid, 6-9.

34 Yemi Adediji, Liam Donaldson, Murtaza Haider, and Alexandra Marin, *COVID-19 and Logistics*, (Toronto: Toronto Metropolitan University, 2022), 4-6.

Integral during the COVID-19 pandemic, these supply chain infrastructures – such as Toronto Pearson International Airport and its surrounding employment area known as 'GTA West Economic Gateway' - were responsible for transporting essential goods. They delivered medicine, personal protective equipment (PPE), information technology components, and food supplies.[35] Moving forward, the potential for our region's employment lands to generate greater economic growth, as the thesis suggests, is only to be realized when affordable housing becomes once again accessible for our essential warehouse workers.

* * *

The decreasing availability of suburban land complicates the need for more housing and that of industrial warehouses – our middle class depends on the former for shelter, while also depending on the latter for employment. Following on the market bias within social mix developments, the conversion of employment lands into high-density residential projects should be carefully examined in terms of their design intention and overall socioeconomic impact. Who is benefiting the most from these projects? Researchers argue that the financialization of housing stocks is shifting the function of a house initially as a shelter for local residents into a stable product through which anonymous global investors can store their surplus capital.[36] In fact, in 2020, more than a third of condo units in the Toronto CMA are owned by investors.[37]

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35 Greater Toronto Airports Authority, "Keeping Goods Moving: Protecting Ontario's Supply Chains Critical to COVID-19 Response," 2020.

36 Martine August, 2022, *The financialization of housing in Canada: A summary report for the Office of the Federal Housing Advocate*, The Office of the Federal Housing Advocate, 4.

37 Matti Siemiatycki, *EX3.1 - Housing Action Plan 2022-2026- Priorities and Work Plan*, 6-7.

Figure 2.13 Logistics facility around Toronto Pearson International Airport. Copyright Queen's Printer for Ontario, photo source: Ontario Growth Secretariat, Ministry of Municipal Affairs.

Figure 2.14 The transportation-and-warehousing sector is crucial for the economic recovery of the GTA moving forward from the COVID-19 pandemic.

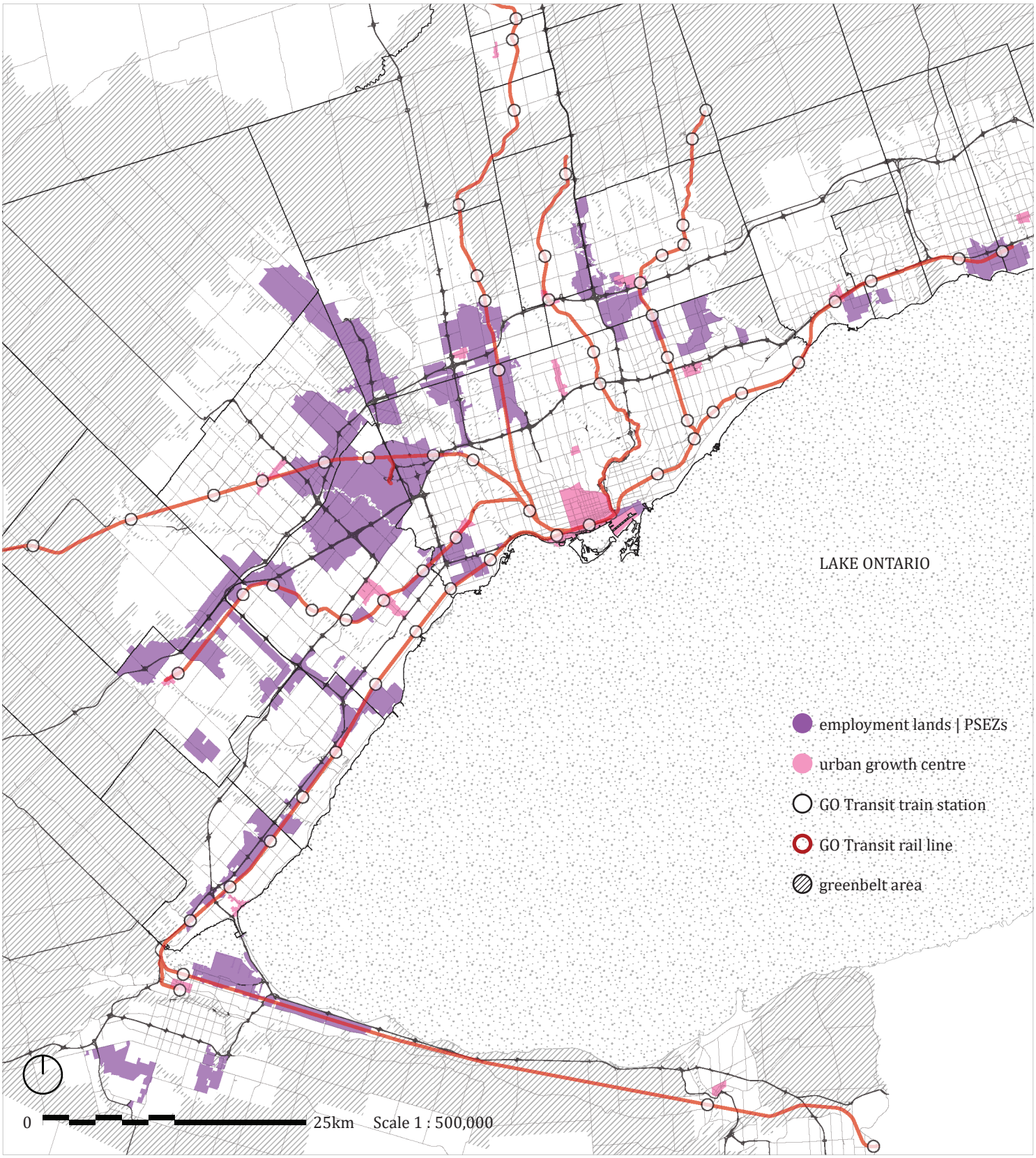

LAKE ONTARIO
employment lands | PSEZs
urban growth centre
GO Transit train station
GO Transit rail line
greenbelt area
0
25km
Scale 1 : 500,000

Figure 2.15
(previous page)

Map of provincially significant employment zones (PSEZs) in the Toronto region.

PSEZs in the Toronto region are at risk of land conversion due in part to the construction of new housing stocks targeted for commuter residents, and its subsequent effects of relocation and/or displacement of local workforce population.

The thesis points to workforce housing as an alternative form of 'social mix' intensification, for which the design goal aligns with long-term economic sustainability. Workforce housing aims to provide accommodation for moderate-income households whose income range is high enough to be cut-off from most social housing services – while low enough that they continue to struggle in finding stable rental or ownership options within the private housing market.[38] Without any proactive housing policies, the continued uprooting of the workforce population away from the GTA – towards areas with better housing options – has eliminated more than $3 billion of potential annual revenue for the Toronto region.[39]

38 Toronto Region Board of Trade, and WoodGreen, *Housing a Generation of Essential Workers: Defining the problem*, (Toronto: Toronto Region Board of Trade, 2020), 4.

39 Toronto Region Board of Trade, *Housing a Generation of Essential Workers: The Cost of Inaction*, 20-21.

# 2.3 Workforce Housing

The thesis presents three case studies of contemporary workforce housing. Each project has implemented unique site strategies that explore new positive relationships between workforce housing – within the context of an industrial zone, a commercial plaza, and a government-owned vacant lot. Through these analyses, we can begin to speculate on similar architectural gestures that will acknowledge and restore the issue of housing (un)affordability among Toronto's suburban communities.

The case studies include:

1. The Eastman Reserve in Rochester, New York

2. La Placita Cinco in Santa Ana, California

3. YWCA Block Line Road Complex in Kitchener, Ontario

The Eastman Reserve | Rochester, New York (2020)

NH Architecture

The residential infill redevelopment 'The Eastman Reserve' generates new opportunities for Eastman Business Park (EBP) after it declared bankruptcy in 2012. And as of 2020, the industrial park currently consists of more than 100 companies employing roughly 6,000 workers.[40] This is a significant decline from the 15,000 workers employed in the 1990s.[41] To attract more businesses in light and biomaterial technology, and in advanced manufacturing, the developer for the housing project PathStone Corporation argues for rezoning the area to allow residential use alongside industrial and commercial uses. The non-profit developer argues that the availability of affordable workforce housing can incentivize new businesses to relocate into the Rochester area.[42]

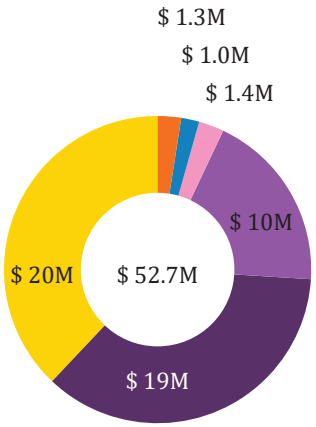



Figure 2.16
Share of construction financing,
The Eastman Reserve, 2020.

- non-profit investment
- state subsidy
- state loan
- deferred developer fee
- federal home loan
- others

40 Office of Policy Development and Research, "Rochester, New York: The Eastman Reserve Provides Housing at Eastman Business Park," U.S. Department of Housing and Urban Development, https://www.huduser.gov/portal/casestudies/study-022422.html.

41 Office of Resource Conservation and Recovery, "Hazardous Waste Cleanup: Eastman Business Park in Rochester, New York," United States Environmental Protection Agency, https://www.epa.gov/hwcorrectiveactioncleanups/hazardous-waste-cleanup-eastman-business-park-rochester-new-york.

42 Office of Policy Development and Research, "Rochester, New York: The Eastman Reserve Provides Housing at Eastman Business Park."

Figure 2.17 Key plan.

Figure 2.18 (top image) Street view before project construction.

Figure 2.19 (bottom image) Street view after project construction.

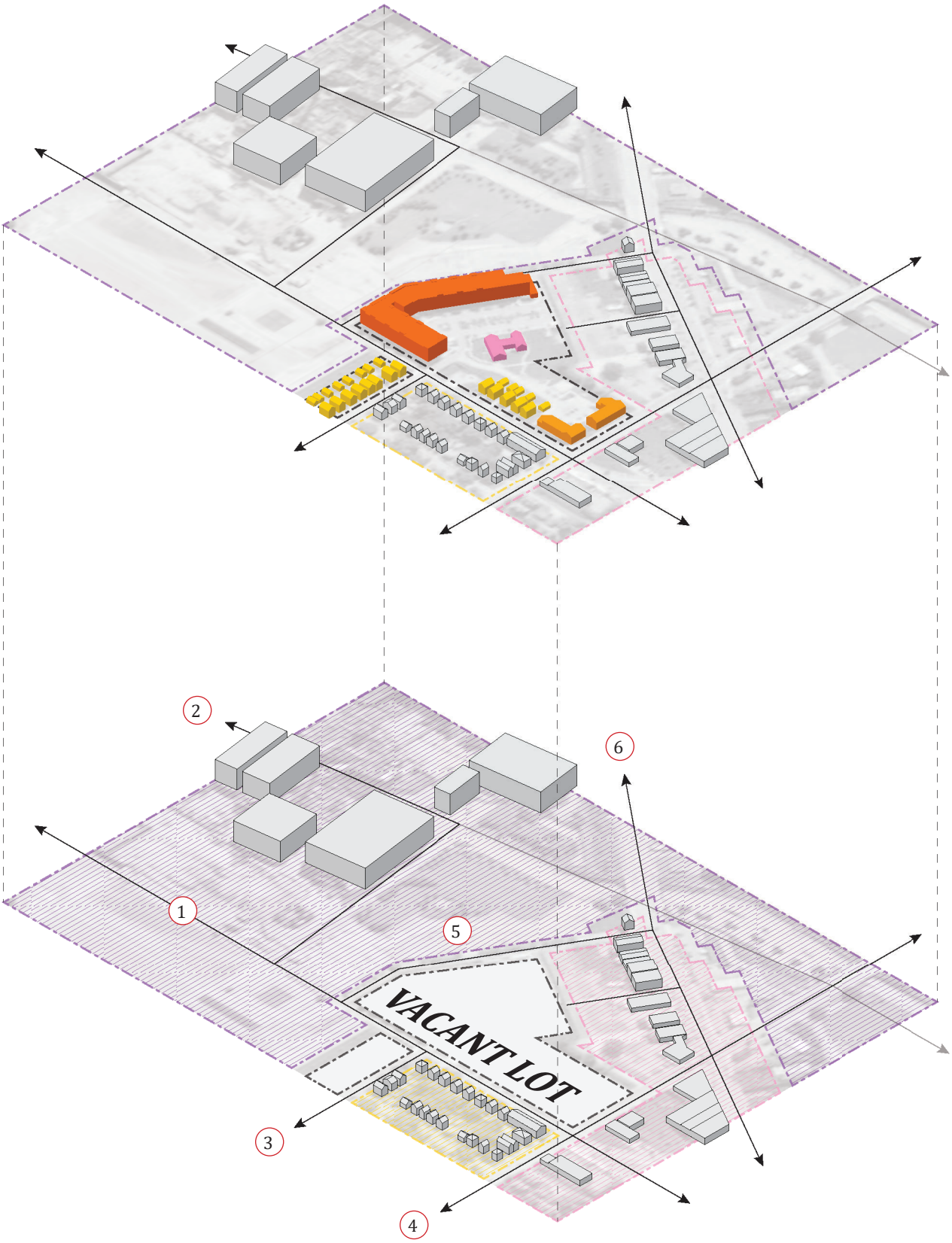

2
6
1
5
VACANT LOT
3
4

Figure 2.20
(previous page)

Site axonometric diagram.

187 units

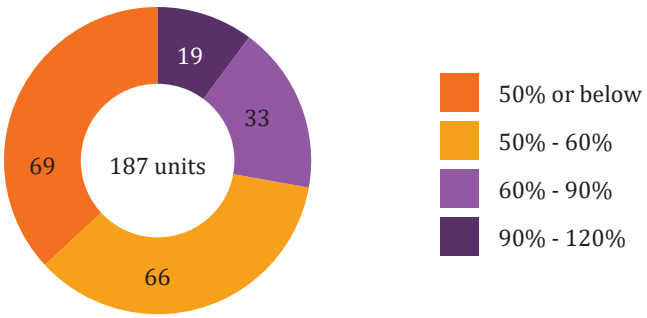
- 4-storey apartment building | 160 units
  child care centre
- 2 townhouse blocks | 14 units
- 13 single-detached houses
- computer lab + community room

- Eastman Business Park
- residential neighbourhood
- mixed-use zoning

1. Eastman Ave.
2. Kodak Park
3. Goodwill St.
4. Dewey Ave.
5. Woodside St.
6. W. Ridge Rd.

Figure 2.21

Share of allocated rent level by average median income (AMI), The Eastman Reserve, 2020.




The variety in allocated rent levels by AMI percentile ensures the diversity in socioeconomic households within workforce housing projects.

The case study highlights the potential of workforce housing in the revitalization of industrial employment lands. The mutually beneficial relationship between a greater affordable housing and a greater employment revenue should incentivize governments,[43] developers, and investors to see workforce housing projects as sustainable long-term investment.

43 Division of Housing and Community Renewal, "New York State Homes and Community Renewal Announces Groundbreaking of The Eastman Reserve, a $52.9 Million Mixed-Use Mixed-Income Residential Community," New York State Government, July 18, 2018, https://hcr.ny.gov/news/new-york-state-homes-and-community-renewal-announces-groundbreaking-eastman-reserve-529.

La Placita Cinco | Santa Ana, California (2021)

Lot area: 2.25 acre | UPA: 22 units per acre

TCA Architects

The residential infill development 'La Placita Cinco' sits on the former gas station of a suburban strip mall plaza. Through medium intensification, the project helps address Orange County's growth management strategy of preserving open spaces, and prioritizing transit-oriented development to accommodate the region's forecasted population growth.[44]

The 4-storey building provides 51 family units which are to be rented at 30% to 60% AMI.[45] Designed to be family oriented, the building consists of 20 two-bedroom units, 29 three-bedroom units, and 2 four-bedroom units. The shift in the design process away from studio and one-bedroom units allows the building to better cater the city's lower-income Hispanic families, who prefer to live in multi-generational households.[46]

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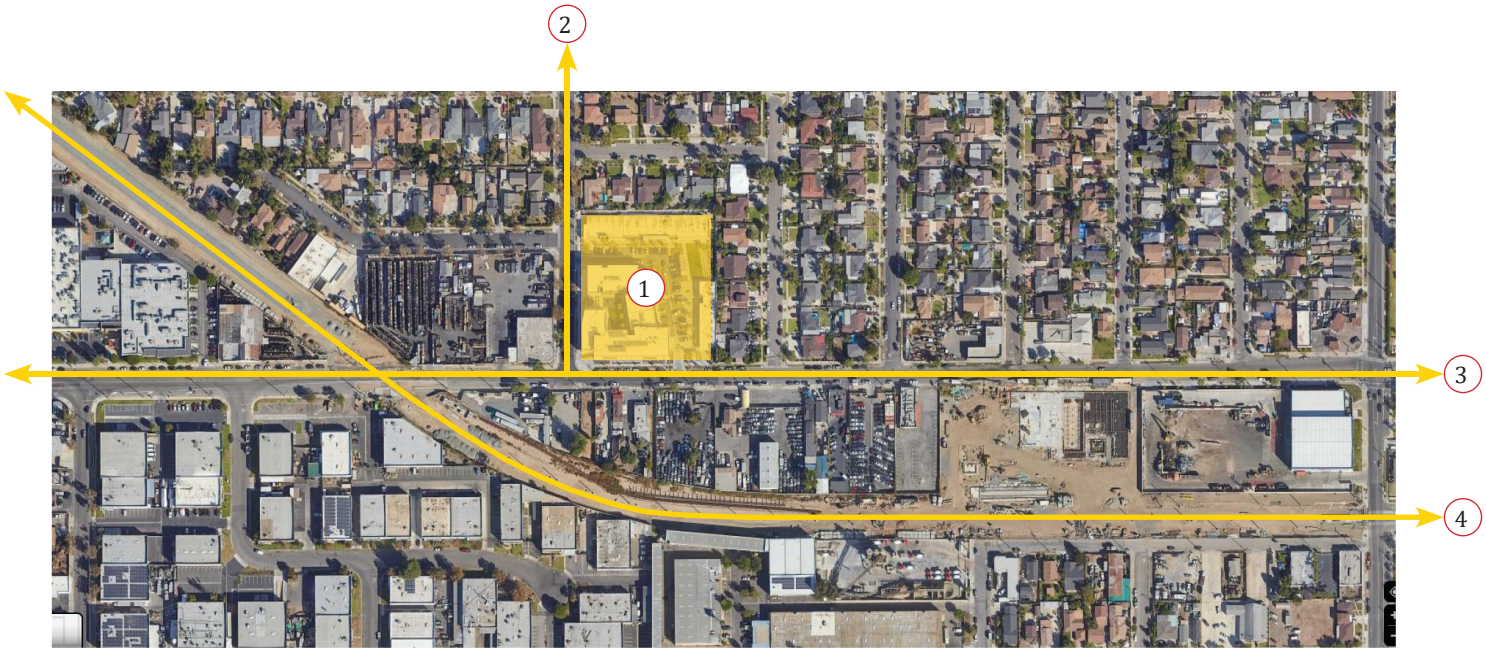
44 Federal Transit Administration, *Santa Ana/Garden Grove Streetcar Project Profile*, (Washington, DC: U.S. Department of Transportation), 5-6, https://www.transit.dot.gov/funding/grant-programs/capital-investments/santa-anagarden-grove-streetcar-project-profile.

45 City of Santa Ana, "La Placita Cinco wins affordable housing award from Urban Land Institute," November 9, 2021, https://www.santa-ana.org/la-placita-cinco-wins-affordable-housing-award-from-urban-land-institute/.

46 Tim Mustard, "La Placita Cinco: A Practical Prototype for Creating Housing Affordability and Revitalizing Disadvantaged Neighborhoods," Urban Land Institute, December 1, 2021, https://urbanland.uli.org/planning-design/la-placita-cinco-a-practical-prototype-for-creating-housing-affordability-and-revitalizing-disadvantaged-neighborhoods.




1 Project Site

2 N. Hawley St.

3 W. 5th St.

4 Orange County Streetcar (under construction)

Figure 2.22 Key plan.

6 12 18 24

Figure 2.23 Street view before project construction.

6 12 18 24

Figure 2.24 Street view after project construction.

The residential infill project extends instances of human presence and social interaction within the site beyond the typical work hours.

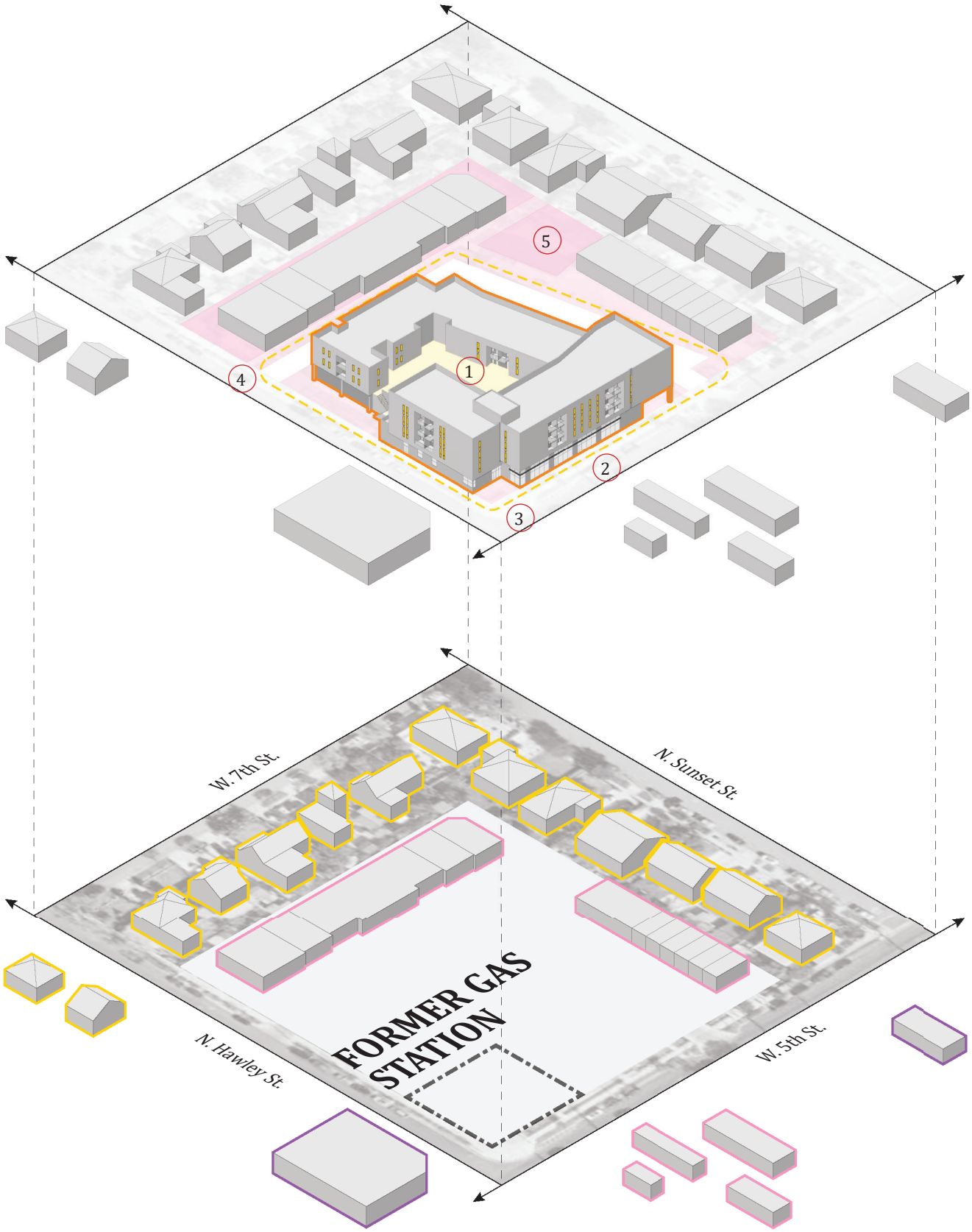

5
1
4
2
3
W. 7th St.
N. Sunset St.
FORMER GAS STATION
N. Hawley St.
W. 5th St.

Figure 2.25
(previous page)

Site axonometric diagram.

51 family units

20 2-bedroom units

29 3-bedroom units

2 4-bedroom units

residential neighbourhood

mixed-use zoning

industrial zoning

1 2nd floor courtyard (parking below)

2 ground floor community space

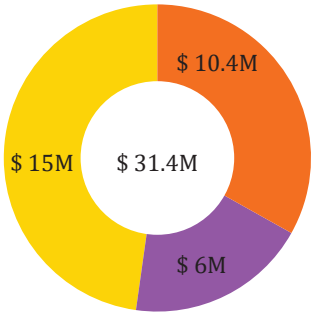
3 corner plaza

4 walk path

5 mini park

Figure 2.26

Share of construction financing, La Placita Cinco, 2021.




non-profit investment (LIHTC)

city grant

federal home loan (FHLMC)
private bank loan
others

project developer:
Community Development Partners

The case study highlights the potential of gentle residential intensification in promoting a more integrated suburban neighbourhood. The new residential building along with its ground floor community centre extends human presence, or 'eyes-on-the-street' throughout the existing commercial plaza 24 hours, 7 days a week.[47] Furthermore, the mixed-use design strategy of 1) preserving the existing commercial units within the residential redevelopment project, 2) connecting these commercial units along a new pedestrian path for better walkability and 3) to allocate for a shared urban park onsite ensure a sense of community continuity, not displacement.

47 City of Santa Ana, "La Placita Cinco wins affordable housing award from Urban Land Institute," November 9, 2021.

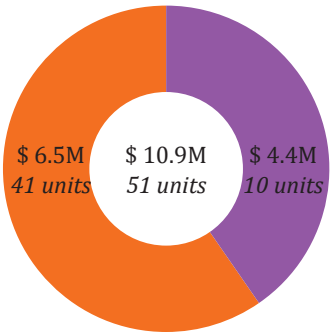
YWCA Block Line Road Complex | Kitchener, Ontario (2022)

Lot area: 1.1 acre | UPA: 46 units per acre

Edge Architects

The residential infill development 'Block Line Road Complex' is situated on a greenfield site within the Country Hill East neighbourhood. It is near Trillium Industrial Park, Schneider Creek Floodplain and Natural Areas, and a light rail transit (LRT) station. The land value of the project site was estimated to be more than $2.5 million.[48] The project is part of an initiative by the City of Kitchener to use city-owned land as possible community housing.[49]

Figure 2.27 Share of construction financing, YWCA Block Line Road Complex, 2022.




Phase 1

4-storey apartment building
supportive housing

1-bedroom units

* life skills and crisis management support programs

Phase 2

3-storey apartment building
affordable housing

family units

* mother-and-children household
* rents are set at 60% and 80% market rate

Key funding:

* Rapid Housing Initiative
  federal government program
  application between the Region of Waterloo and YW Kitchener-Waterloo

* $1 land lease (50 years)
  City of Kitchener land contribution

48 Region of Waterloo, "More supportive, affordable housing units for women coming to Waterloo Region," October 22, 2021, https://www.regionofwaterloo.ca/Modules/News/index.aspx?feedId=ab159244-c732-45c7-b4c9-67b38b43eed5&newsId=53c1d0a7-dd57-40b2-a62c-f368c74a17b8.

49 Doucet, B., McDougall, E., and Jay, M (2023) *Thinking Beyond the Market: Innovative Housing Examples Based on People, Not Profit*, Research Report, University of Waterloo, March 2023, 28-30.

1 Project Site

2 Kitchener Public Library - Country Hills

3 St. Mary's High School

4 Activa Sportsplex

5 Block Line Station (light rail transit)

6 Schneider Creek Floodplain and Natural Areas

7 Trillium Industrial Park

8 Block Line Rd.

9 Courtland Ave. E.

10 Fairway Rd. S.

11 Homer Watson Blvd.

Figure 2.28 Key plan.

1
2

3
4

Figure 2.29 (previous page, top image) Street view before project construction.

1. Kitchener Public Library – Country Hills

2. St. Mary's High School

The 4-storey supportive housing provides women and gender diverse individuals who are currently living in emergency shelters or on the streets a more stable and secure housing option. Additional programs offered on site include crisis management, food bank, daily life skills training and move-in support.[50] By participating on a Housing First policy,[51] homelessness for the vulnerable population is first and foremost addressed by providing them access to decent housing. It reiterates the thesis argument that a house is not merely a shelter to protect humans from the natural elements. For the vulnerable population, decent housing also serves as a good foundation to rebuild lives, to regain access to higher education and new employment opportunities. And to heal individual identity and social relationships.

The case study highlights the potential of proactive government leadership to ensure housing affordability in parallel to the private housing market. Land contribution from the city eliminates the cost of land acquisition from the overall construction cost of a project. And the availability of federal funding can help secure construction financing. Furthermore, innovative design such as implementing mass timber superstructure successfully integrates cost-competitiveness, fast-paced construction sequencing and environmental sustainability initiatives.[52,53]

Figure 2.30 (previous page, bottom image) Street view after project construction.

3. YWCA 4-storey supportive housing

4. YWCA 3-storey affordable housing

50 Region of Waterloo, "More supportive, affordable housing units for women coming to Waterloo Region," October 22, 2021.

51 Homeless Hub, "Housing First," Canadian Observatory on Homelessness, https://homelesshub.ca/collection/programs-that-work/housing-first/.

52 Matt Bolen, "Utilizing Mass Timber," Wood Solutions Conference - Calgary (lecture, July 16, 2024), https://www.woodworks.org/wp-content/uploads/presentation_slides_Bolen_Utilizing_Mass_Timber_02.2024.pdf.

53 Emily Chung and Alice Hopton, "Many of Canada's greenest apartments are ultra-affordable. Here's why," CBC, June 18, 2023, https://www.cbc.ca/news/science/green-affordable-housing-1.6876487#:~:text=an%20eco-home%3F-,Some%20of%20Canada's%20greenest%20apartments%20go%20for%20as%20little%20as,standards%20and%20green%20building%20techniques..

# 3. Cohousing Model

Cohousing is a form of community-led housing development. It extends access to homeownership by empowering its members to build and finance a cohousing project for themselves. By doing so, it eliminates portion of the project cost typically allocated towards the profit share of an external developer and/or investor, with a possible cost savings of around 15%.[1] The ability for moderate-income households to co-design alongside an architect, build and ultimately purchase a condominium property or an equity share of a housing cooperative paints two contrasting point of views towards cohousing development. Firstly, it extends homeownership tenure as a means towards greater housing security for its owner-occupied households. Meanwhile, the equity model reinforces the commodification of housing. The capital gain to be realized within the housing market, including within a cohousing project, may be perceived as a continuation towards land speculation and gentrification.[2]

In contrast to the previously mentioned case studies of rental workforce housing, cohousing homeownership provides its occupants with the ability to build home equity and the subsequent capital gain from them. For many of the workforce population aspiring to be the new middle class, the continuously growing financial assets fixed within their property can provide an additional layer of housing security – in response to the equally increasing instability of a globalized economy. And in response to the issue of land speculation, the thesis reasserts the idea of the 'political space' as a counterargument.[3] Aureli argues that a man is a political animal not through the entitlement of a predetermined truth, but through a man's active participation in the political life of the city, towards its conflict resolution and their obligation towards the common good of their fellow citizens.

---

1 Resident-led cohousing projects can forgo the typical developer's profit, thereby, reducing the overall cost of a residential unit by around 15%. Refer to case study: Harbourside Co-Housing in Sooke, British Columbia.

Claire Nelischer, "Seniors Co-Housing: Inspiring Examples, National Institute on Ageing," Toronto Metropolitan University City Building Institute, 2019, https://www.niageing.ca/commentary-posts/seniors-cohousing-inspiring-examples.

2 Max Ott, "Help Yourself, but Build the Right Thing: A Collaborative Housing Project in Growing Berlin," in *The vulnerable middle class? Strategies of housing in propering cities*, ed. by Johannes Moser, and Simone Egger (Munich: utzverlag GmbH, 2019), 69-88.

3 Pier Vittorio Aureli, "Toward the Archipelago," *Log* 11 (2008): 92-96, https://www.jstor.org/stable/41765186.

In parallel, the thesis argues that to take shelter within a rental or an owner-occupied housing does not necessarily make a person into a citizen.[4] To take shelter is merely an act of physical survival and self-preservation. Meanwhile, the political act of separation, to stay within a specific community apart from any others, is a critical part towards the possible encounters of social coexistence and community belonging. In the present-day housing market, Toronto's low- to moderate-income households will relocate into the overcrowded and structurally inadequate rental units of the GTA's 1960s- high-rise towers. It represents not necessarily of personal choice but of economic necessity. Overall, the increasing share of (highly) opportunistic rental housing market in the GTA challenges the concept of a house as an authentic representation of a political identity.

As a critical interpretation of urban redevelopment, the thesis frames the cohousing model within the concept of the political space. Cohousing accepts the current economic framework of home equity and (limited) capital gains as a stable way of investing in financial assets. But more importantly, the built-up in home equity indirectly serves as a way for residents to gain greater freedom in choosing and accessing more equitable housing options, and in extension, to a more authentic form of free association between community members. The decision to stay or to leave a specific neigbourhood or region is no longer solely to be predetermined by economic restriction.

4 Ibid, 94-95.

To stay becomes a choice.

Beyond the economics, the thesis reinforces the idea of a house as a financial commodity, but also as a reflection of one's identity in relation to the collective identity of their city. In addition, housing security is to be understood as the stability of housing tenure in relation to affordability, but also as the resiliency of coexistence in relation to one's social acceptance within their community.

Beyond the question of how to build a greater density of housing stock at a more feasible price, it is even more critical for a cohousing architecture to question: how to design a building in which residents are continuously reminded, through architectural elements, the metaphysical beauty of community living.

Figure 3.01 Baugruppen-Gentrifizierer | 'building group-gentrifier'

A cohousing architecture, as an economic space, must extend its affordability framework to ensure the inclusion of the local workforce population as part of its project members.

Figure 3.02 A cohousing architecture, as a political space, must foster a continuous sense of coexistence between its members.

The transitional spaces, such as porches, balconies and terraces, in-between the private residential units and the shared amenity spaces or 'common house' serve as nodes for informal social encounters.

Figure 3.03 (left image) Shared household works through a cohousing model can reduce the hours and costs associated with domestic labour.

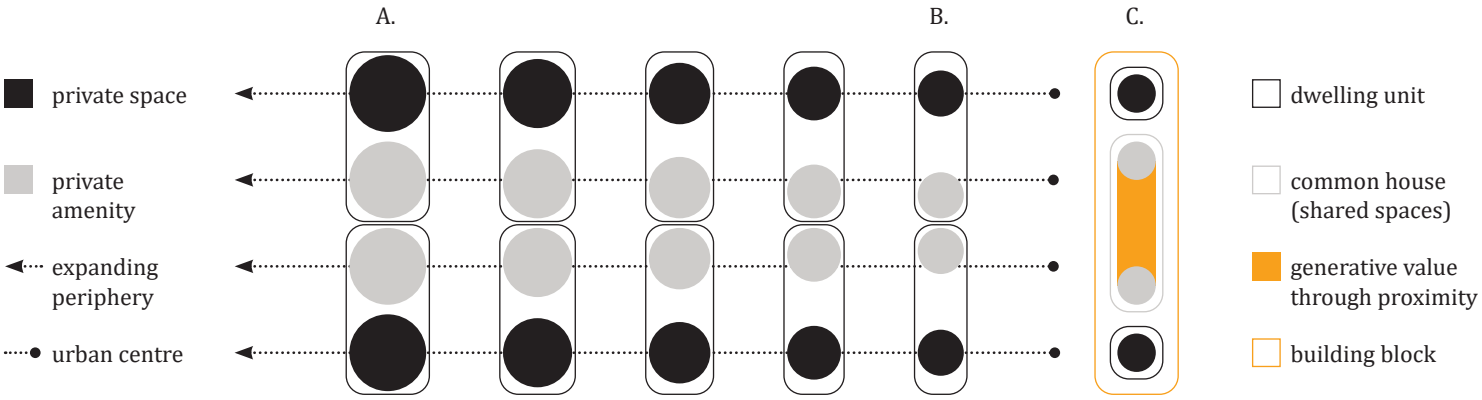
Figure 3.04 (right image) Shared household works provide opportunities for social connection and knowledge sharing.

Figure 3.05 The joy of community living.

# 3.1 Typology

A cohousing project is a financial framework that allows an associated group of people to build their own neighbourhood. It requires a strong and active social capital which begins during a project's development phase and continues to grow after occupancy. A cohousing community consists of a centrally located 'common house' and a cluster of individual dwelling units. The common house is a shared amenity space accessible to every member of the cohousing community. It is ideal to situate the common house in the centre of the project to allow inclusive access for all dwelling units. A spacious common house promotes greater interactions between neighbours. And in relation to financial affordability, a large communal space is justified in return for smaller residential units, allowing for better cost-efficiency in overall floor space area.[5] Furthermore, a set of smaller individual dwelling units allows for a greater densification of existing lot parcels. Altogether, the spatial organization of a cohousing project produces a combined effect of financial affordability and social integration.

Figure 3.06 Diagram of spatial programming between private spaces (minimum required floor area) and private amenities (optional floor area).




A. The tendency towards migrant relocation to the suburbs to access dwelling units with larger and/or more suitable floor space.

B. The tendency towards overcrowding in (sub)urban centres, into unaffordable rental units, to access suitable employment opportunities and social services.

C. The cohousing model as an alternative housing scenario to which the workforce population can access suitable housing, with a generous share of amenity spaces, without the need for relocation.

5 Charles Durrett, *Cohousing Communities: Designing for High-Functioning Neighborhoods*, 352.

Figure 3.07
(top image)

A centrally located common house provides equal access to all cohousing members to participate in the social life of the community.

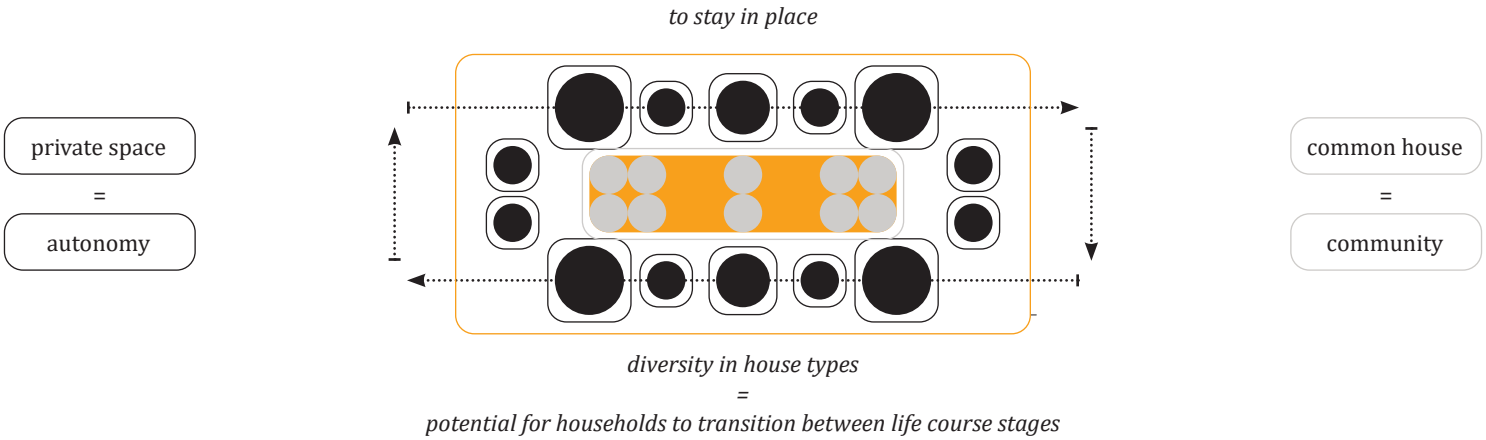



Figure 3.08
(bottom image)

Shared amenity spaces, or common house, allow for diverse sizes of households to interact with each other.

An alternative to the relocation of young adults, seniors, and census family with children into separate housing enclaves, or 'generationed' spaces.

A summary of the community engagement process introduced by the American architect Charles Durrett.

A cohousing project is built through a shared investment in social capital. It pools together the required financial contributions from each member and allocates the total fund towards securing a construction loan for the project.[6] Alongside the regular 'cash calls' during the early development phase, participatory design workshops are also to be organized to give cohousing members the chance to share their design goals and concerns. Member participation in the design workshops helps further refine the project design to better represent the consensus in its members' needs and desires.

1.
SITE PLANNING

Cohousing is a free association of people who decided to live together within a community. Active participation from members is important both in the design phase and in its post-occupancy management. According to Durrett, in the design phase, the architect can facilitate workshops to better understand the specific need and desire of each cohousing member. In workshop 1 – Site Planning, members are tasked to come up to a consensus on the project's overarching goal. The agreed-upon goal becomes a reflection of the cohousing members' common values. It stands as a vision of each member's future *improved* self, with the hope that the design of the cohousing community can become an instrument for their realization, or self-actualization.[7]

In the Site Planning workshop, members share their ideal scenarios of community living and translate them into a working model. The model begins to address the paths of connection and continuity between the common house, corridors and private houses. The workshop also explores the relationship between location, room size and bedroom count per unit, which are important factors in preliminary unit pricing.[8] By listening to members' suggestions on unit pricing and cost allocation for the shared amenities, the architect gains a clearer understanding of a project's initial budget. Moving forward, a precise preliminary budget can better resolve design limits in relation to the affordability of acquiring construction mortgage (for the whole building) and 'permanent financing' mortgage (for the individual dwelling units).

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6 Chris Scotthanson and Kelly Scotthanson, *The Cohousing Handbook: Building a Place for Community*, (Gabriola Island, British Columbia: New Society Publishers, 2004), 189-191, 196-197.

7 Charles Durrett, *Cohousing Communities: Designing for High-Functioning Neighborhoods*, 58-59.

8 Chris Scotthanson, *The Cohousing Handbook: Building a Place for Community*, 198-200.

2.
COMMON HOUSE

In workshop 2 – the Common House, members are tasked to translate their goals into a set of activities (architecture programming) which will influence the form of the shared amenity space or 'common house.' This set of activities are given spatial characters, or 'program places,' based on functional needs and wants. The main objective of the architect in facilitating the second workshop is to achieve the desired spatial qualities for the common house as precisely as possible. An inviting and comfortable common house is crucial to the success of a cohousing project in encouraging optimum amount of social gathering or 'people-hours.'

3.
PRIVATE HOUSE

In workshop 3 – the Private House, design standardization and cost-saving strategies are tackled upon. The workshop tasked members to resolve the basic layouts for each individual unit. The transition between the common house and the individual units such as entrances and porches are also to be addressed. In addition, design flexibilities are also taken into consideration such as the possibility for future unit customization when additional building funds become available.[9]

4.
DESIGN CLOSURE

5.
DESIGN
DEVELOPMENT

6.
PRIORITIZATION

Subsequent workshops assist members in further refining the design of the site, common house and private houses.[10] In workshop 4 – Design Closure, the schematic design proposal is finalized, gaining a final approval through a consensus by the participating members. In workshop 5 – Design Development, decisions on material construction are specified and/or revised to gain a more accurate estimate of the overall construction cost. And in workshop 6 – Prioritization, design options for the individual units are categorized between: 1) basic equipment and furnishings, 2) optional material finishes, and 3) custom work to be done by the individual after the initial construction phase.

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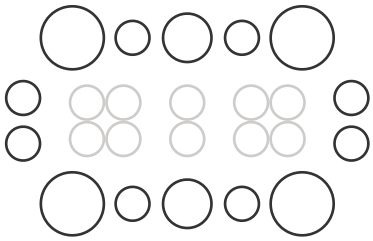
9 Charles Durrett, *Cohousing Communities: Designing for High-Functioning Neighborhoods*, 168-169.

10 Ibid.

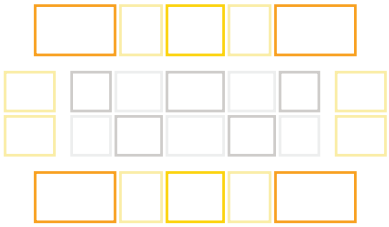
Figure 3.09 Diagram of design process in a cohousing participatory workshop, as interpreted from the American architect Charles Durrett's *Cohousing Communities: Designing for High-Functioning Neighbourhoods*.

1. site planning



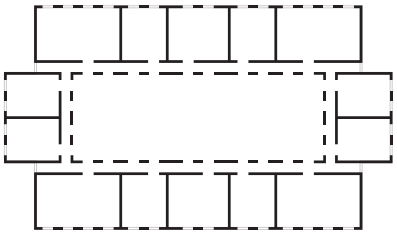
discuss the relationship between private spaces and common areas

2. common house
3. private house



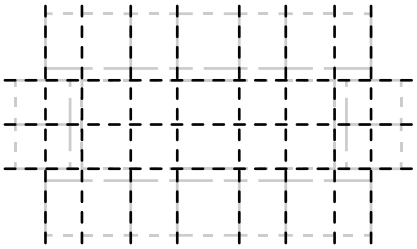
analyze programs, spatial characters, and preliminary unit pricing

4. design closure



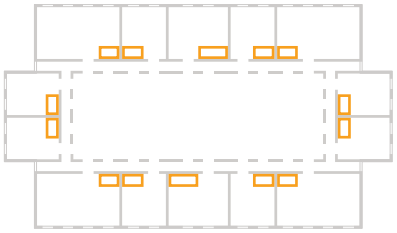
reach a consensus on the design layout

5. design development



specify and revise the construction material and construction cost

6. prioritization

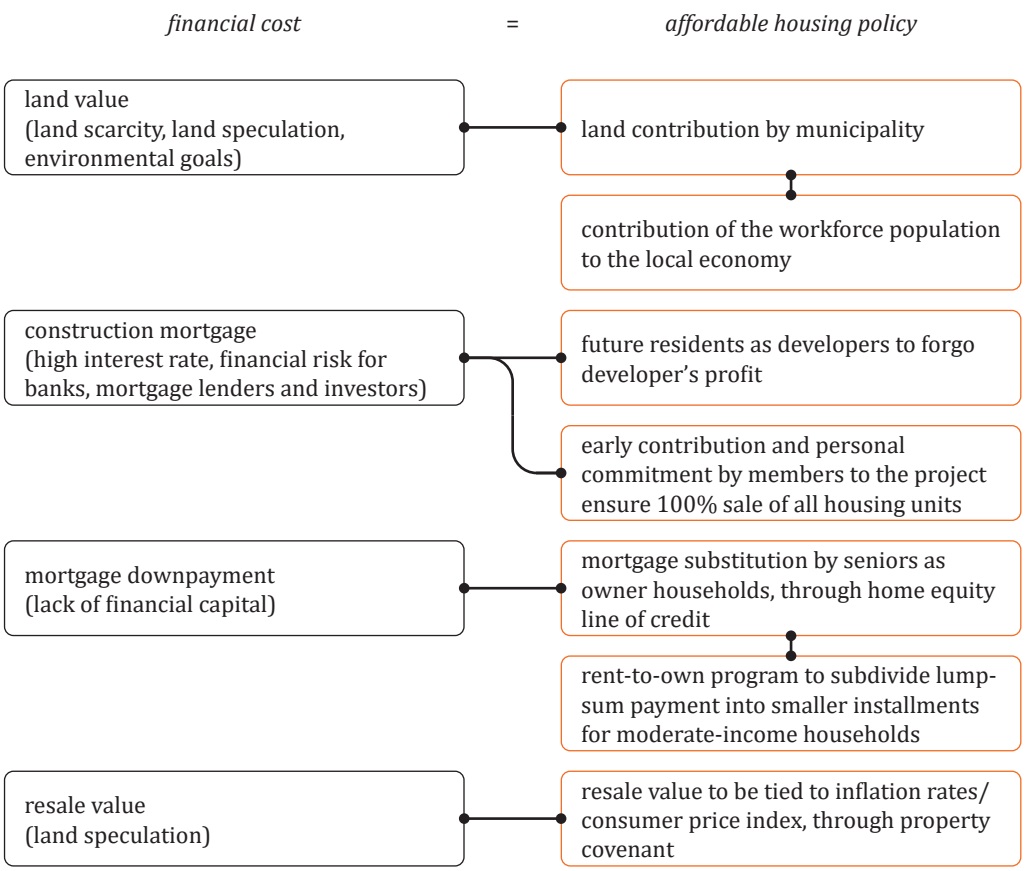


categorize design options: standard, optional, or custom work

# 3.2 GTA Context

The cohousing model has the potential to reduce the on-going cycle of migration-and-outmigration within the GTA, by providing the existing workforce population an alternative path towards homeownership and the housing security associated with it. The thesis brings together many multi-disciplinary housing policies to be implemented within a cohousing model. These policies are compatible to both the housing co-operative and condominium corporation forms of homeownerships. Furthermore, these strategies are to be implemented throughout the project phase from project proposal, construction and onto post-occupancy building management, thereby ensuring long-term housing affordability.

Figure 3.10 Diagram of affordable housing policies to be implemented within a cohousing model.



Cohousing Option 1: Housing Co-operative

SELF GOVERNANCE

A housing co-operative is an indirect form of homeownership. The common facilities and individual dwelling units within a residential complex are owned by a housing co-operative corporation, with access to these spaces to be achieved through an on-going payment of housing charges.[11] In regard to building management, residents (as co-op members) annually elect a board of directors. They are also to vote on their buildings' operating budget, with each proposed budget gaining prior recommendation from the board beforehand.[12] This form of governance provides each member a greater voice over the future management of their home, in comparison to the conventional renter tenure with its external landlords. In addition, an equity co-op requires members to acquire an ownership share of the co-op corporation, giving members an opportunity to build home equity.

LAND CONTRIBUTION

Acquiring a downpayment for a mortgage or a co-op home loan can be a challenge for renters wanting to transition to homeownership.[13] Developing equity co-ops on municipally owned land is a strategy policymakers can implement to help reduce the overall construction cost of cohousing projects. A land contribution from the municipality in the form of a 50-year lease for $1, for example, can help facilitate cost reduction. Municipalities are to be persuaded to participate in cohousing projects through the rationale that workforce housing is beneficial for the economic growth of the Toronto region as well as to reinforce the ethics of housing accessibility as a fundamental human right.

PRE-CONSTRUCTION

The cohousing model enables housing corporations to lead the role as project developers, with its members acting both as the co-developers/ co-producers as well as the intended end users. By having residents committed early on through the collection of contribution fees,[14] this model reduces the risk of having unsold unit(s) after the project completion. A full occupancy of future resident-members with mortgage pre-approval is an advantage that cohousing corporation should

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11 Ontario Co-operative Association, "Housing Co-operatives," *Co-op Factsheets*, 2020, 1, https://ontario.coop/node/3586.

12 Co-operative Housing Federation of Toronto, "What Is a Co-op?" accessed May 31, 2024, https://co-ophousingtoronto.coop/our-sector/what-is-a-coop/.

13 Ontario Co-operative Association, "Housing Co-operatives," 2.

14 Chris Scotthanson, *The Cohousing Handbook: Building a Place for Community*, 195-198.

capitalize on when applying for construction mortgage. In addition, the mortgage pre-approval for the individual units should accept the rent-to-own model. In this model, a typical lump-sum down payment is subdivided into a series of monthly payments ranging typically from a 3 to 5-year term.[15,16]

RENT-TO-OWN PROGRAM

For non-profit organizations such as housing co-operatives, removing the required 5% lump-sum down payment to acquire a mortgage loan insurance from the Canada Mortgage and Housing Corporation (CMHC) can allow these housing corporations to build more housing stocks geared for homeownership tenure.[17] Following on the equity co-op ownership option, the monthly housing charges of each owner-member for the first 5-year term would include the building's operational cost, mortgage for their share of the corporation, and the subdivided amount of the required down payment. After the 5-year term, the equivalent amount of the monthly down payment can then be converted and continued as payment contribution for the co-op's building reserve fund.

Designing a cohousing project based on its members' financial limitations, as estimated from their mortgage pre-approvals, is an option that can ensure affordable homeownership. The total construction cost, which is significantly reduced through municipal land contribution, must aim to accurately reflect the members' mortgage limits multiplied by the desired maximum number of housing units.

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15 Melissa Lopez-Martinez, "Rent-to-own: What is it and is it right for you?" CTV News, Septermber 8, 2022, https://www.ctvnews.ca/business/rent-to-own-what-is-it-and-is-it-right-for-you-1.6060384.

16 RE/MAX, "A Guide to Rent-to-Own Homes," December 31, 2023, https://blog.remax.ca/a-guide-to-rent-to-own-homes/.

17 Canada Mortgage and Housing Corporation, "Rent-to-Own Stream for Housing Providers," April 12, 2024, https://www.cmhc-schl.gc.ca/professionals/project-funding-and-mortgage-financing/funding-programs/all-funding-programs/affordable-housing-innovation-fund/rent-stream-housing-providers.

Cohousing Option 2: Condominium Corporation

A condominium is a form of real estate consisting of shared ownership.[18] In a multi-unit residential building (MURB), condo owners purchase the total ownership of their individual units, plus the shared ownership of common elements such as indoor and outdoor amenities. Access to a conventional mortgage through condominium homeownership is more favourable compared to the housing co-op model. Within an equity co-op model, members own a financial *immaterial* share of the corporation. Meanwhile, in a condo model, residents own the physical dwelling units for themselves, with clearly delineated boundaries as specified in each condo corporation's legal documents.

RESALE VALUE

To ensure the long-term affordability of cohousing projects, the resale price of these properties should be regulated to reduce the market pressure towards property speculation. One strategy is to form a property covenant that limits the resale value of a property, ensuring it remains affordable in perpetuity.[19] A similar strategy by Whistler Housing Authority in British Columbia is to link the resale value of a property with the change in the consumer price index (CPI).[20] Shelter cost for both rental and owner-occupied housing, as predetermined through the average market rent (AMR), are rising faster than the increase in area median income (AMI).[21] The CPI-linked resale strategy relinks housing cost with the change in AMI. In effect, it ensures that affordable housing projects will truly remain accessible to the same percentage of the workforce population, beyond the initial house sales.

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18 Condominium Authority of Ontario, *Ontario's Residential Condominium Buyers' Guide*, (Toronto: 2023), 5.

19 Charles Durrett, *Cohousing Communities: Designing for High-Functioning Neighborhoods*, 340-341.

20 Toronto Region Board of Trade, *Housing a Generation of Essential Workers: Defining the problem*, 15-16.

21 Ibid, 6.

LEASEHOLD CONDOMINIUM

Similarly, cohousing developments geared toward condominium ownership can partner with municipality through land contribution to ensure greater financial viability of workforce housing projects. This strategy follows the form of a leasehold condominium, to which a parcel of land is leased for a 40 to 99-years term.[22] Partnering with a municipality or a future community land trust (CLT) acting as the landowner can ensure that renegotiations of the lease in the distant future will remain in the mutual interest of the community at-large.

MORTGAGE SUBSTITUTION

Towards gentle intensification and household suitability, the condominium option provides seniors an opportunity to downsize from their detached home into more appropriate unit sizes. It thereby provides them an opportunity to 'age in place' within their existing suburban community. In addition, the sizeable percentage of seniors participating in the cohousing development can be beneficial to the financial viability of the project (in addition to the social benefits of intergenerational living). Seniors can pay the lump-sum cost of a mortgage downpayment by using the equity gained from their current low-rise suburban homes, accessing mortgage substitute through home equity line of credit or HELOC.[23] The availability of secured downpayments can provide mortgage lenders greater confidence in issuing construction mortgage for the project, and thereby stabilizing the risk assumption that mortgage lenders have towards rent-to-own downpayments.

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22 Condominium Authority of Ontario, *Ontario's Residential Condominium Buyers' Guide*, 5-6.

23 Financial Consumer Agency of Canda, "Getting a home equity line of credit," Government of Canada, December 1, 2023, https://www.canada.ca/en/financial-consumer-agency/services/mortgages/home-equity-line-credit.html.

Figure 3.11 Diagram of cohousing funding stream, in theory.

1. The first arrow on the top shows the general development phases within a cohousing project.
2. 3. The second arrow illustrate the general financing process while the third arrow provides distinction between the financial responsibilities of the collective and of the individual members.
4. The fourth arrow on the bottom situates the downpayment(s) requirement in parallel to the overall financing process.

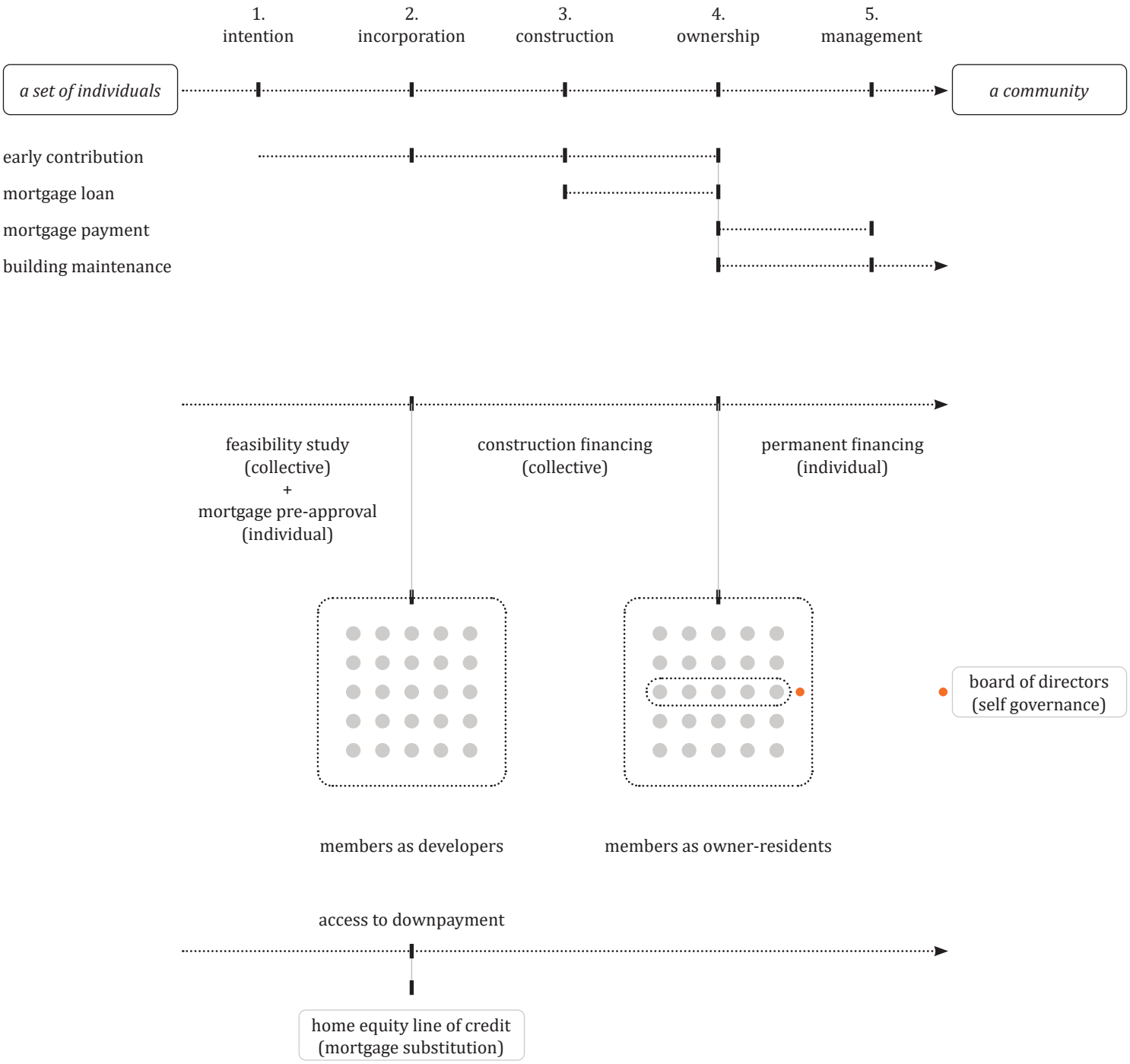
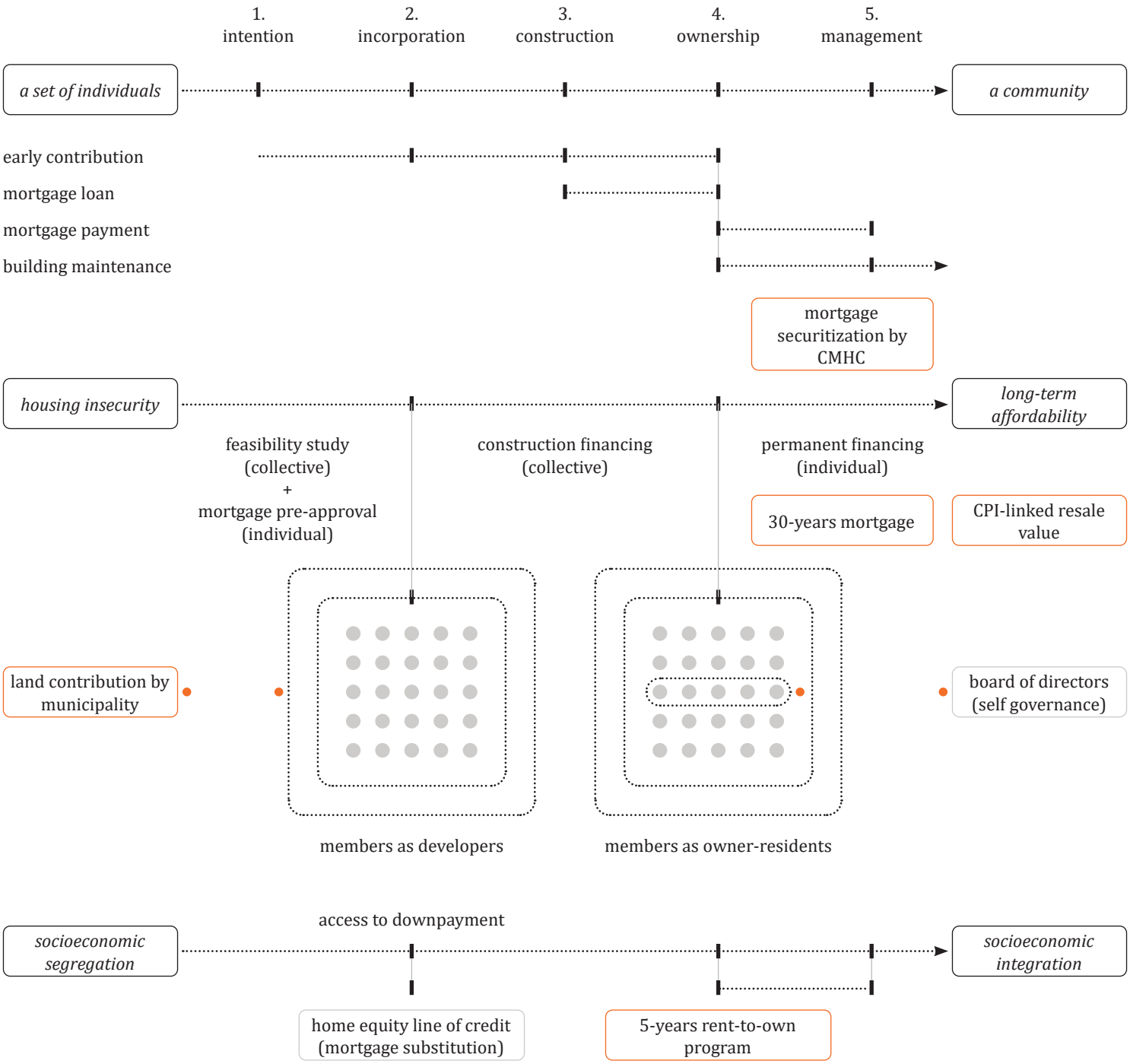


Figure 3.12 Diagram of cohousing funding stream, in relation to the construction of new homeowner-occupied workforce housing within the GTA context.

Text boxes with coloured borders highlight housing policies to be implemented throughout the development process. These policies help ensure long-term affordable access to many dwelling units within a cohousing project specifically targeted for the workforce population.



# 3.3 Cohousing Case Studies

The thesis presents four case studies of cohousing projects. Each project has a distinct building layout that explores the relationship between the private units and the common house of their cohousing communities. Through these analyses, we can better understand and recreate architectural spaces that balance both human needs for privacy and for social interaction. Furthermore, these mid-rise cohousing projects reinforce the thesis argument in support for greater housing stocks within urban and suburban centres through gentle intensification.

The case studies include:

1. Little Mountain Cohousing in Vancouver, Canada

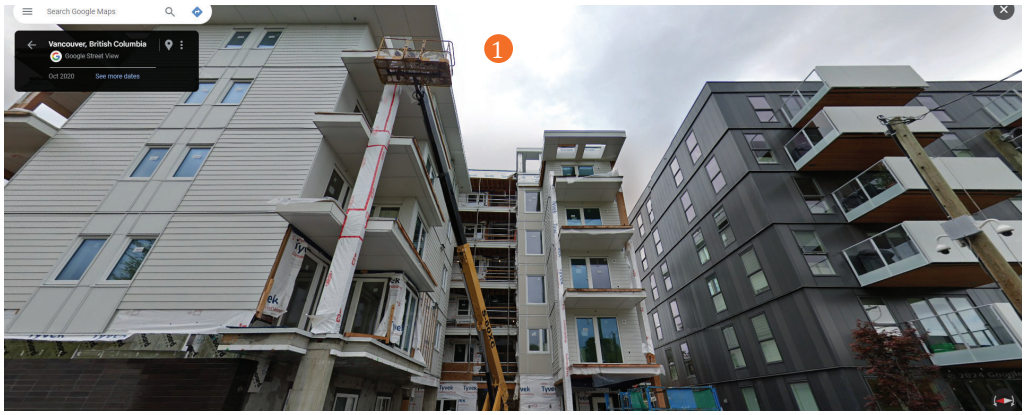
2. Durham Central Park Co-housing Community in Durham, North Carolina

3. R50 Baugruppen in Berlin, Germany

4. IBeB in Berlin, Germany

Figure 3.13
Little Mountain Cohousing

6 storeys

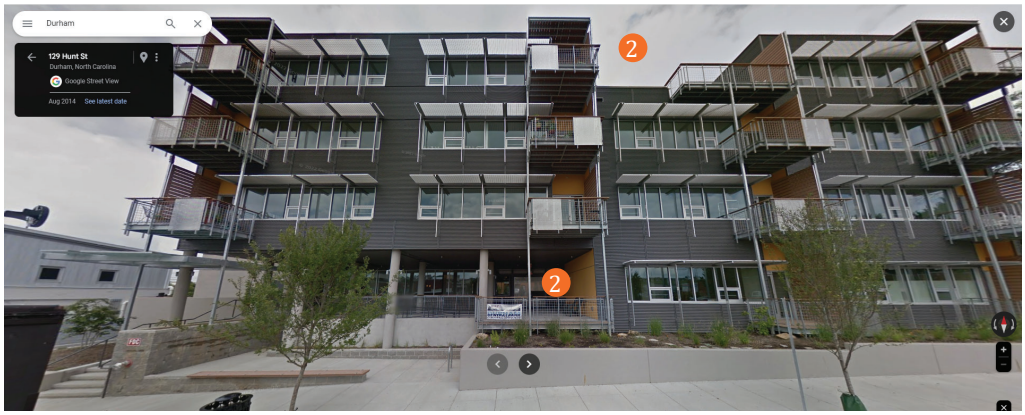



design concept

1. corner plaza

Figure 3.14
Durham Central Park Co-housing Community

4 storeys




2. terraces

Figure 3.15
R50 Baugruppen

7 storeys

3. shared balconies

Figure 3.16
IBeB | Integratives Bauprojekt am ehemaligen Blumengroßmarkt

5 storeys

4. lightwells

Little Mountain Cohousing | Vancouver (2021)

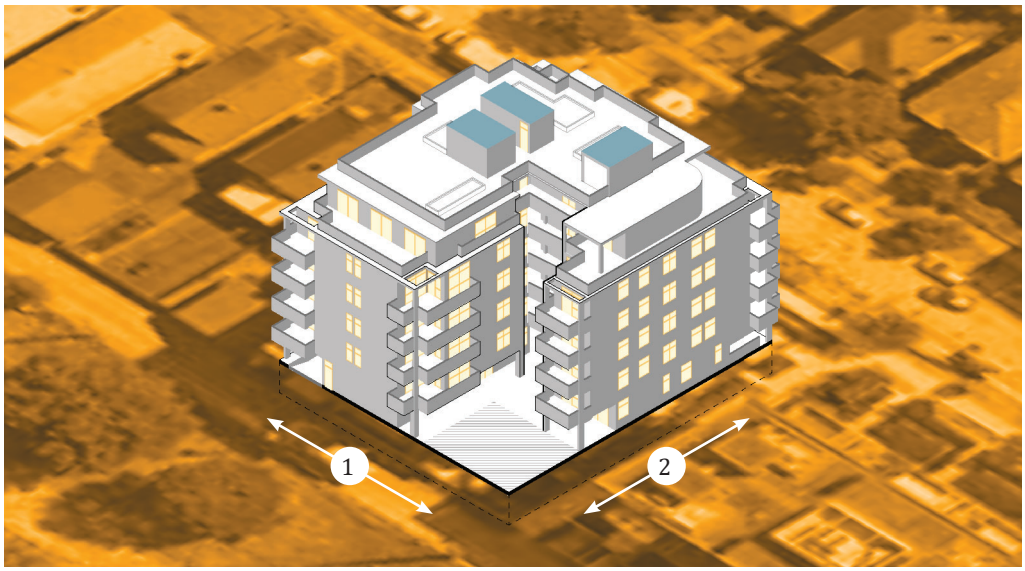
Cornerstone Architecture

Little Mountain Cohousing is a 6-storey 25-unit condo residential building. The project consolidated 3 parcels of detached houses into a medium-density multifamily building, with common goals of fostering social relationships, affordability and climate action.[24] This self-developed project extends homeownership onto moderate-income households. And in effect, it provides an alternative transformation to Vancouver's low-density residential zoning with its above-a-million-dollar detached houses.

The goal of social integration is represented in the building's main design concept, with its distinct L-shaped form. The ground floor common house and children's playroom (located on both arms of the 'L'), and the small meeting areas adjacent to the elevator entry per floor (located at the corner intersection of the 'L') are tied altogether through their shared horizontal and vertical proximity to the outdoor garden plaza.[25]

Figure 3.17
South-west perspective.

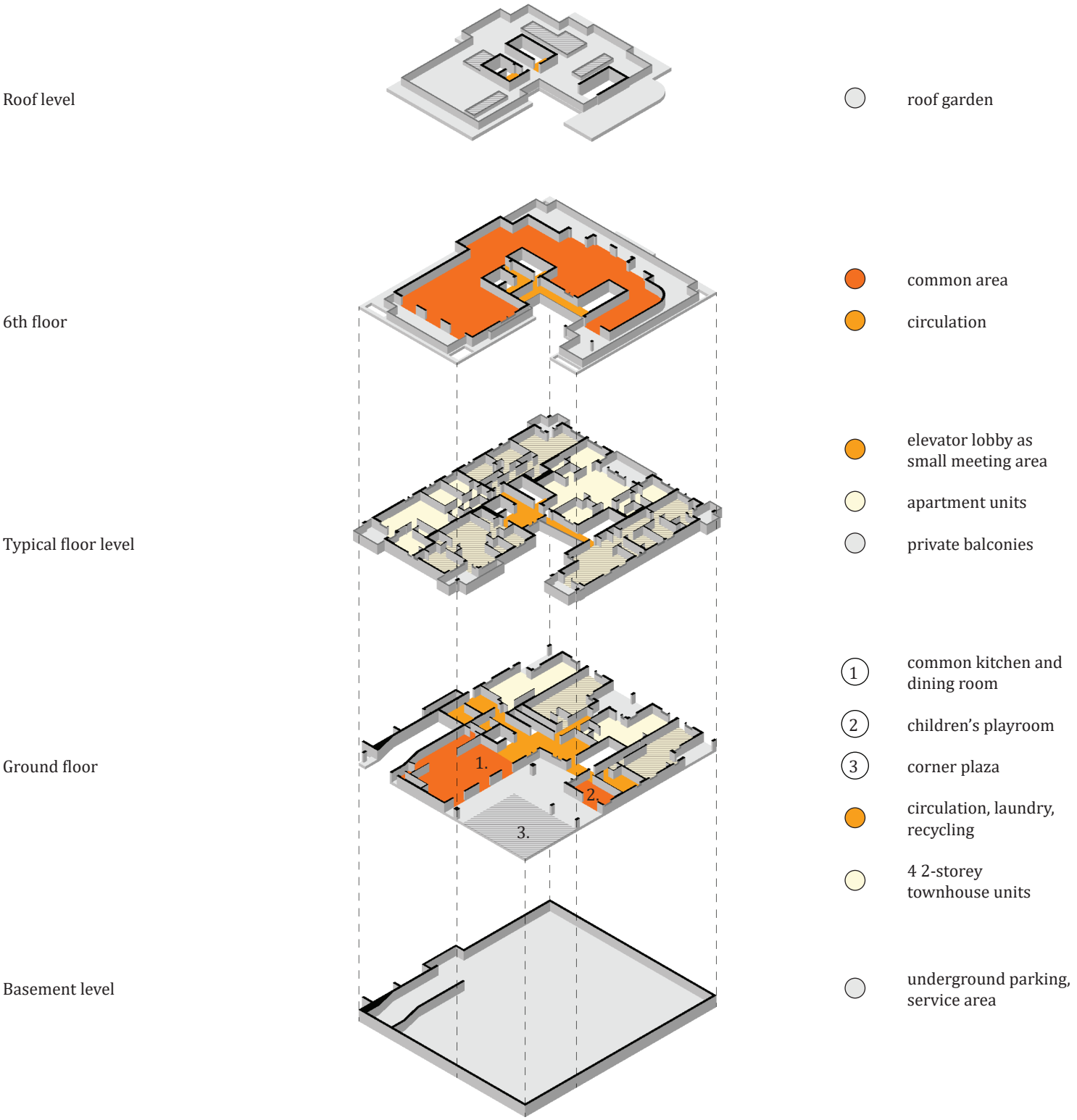
1. rear yard laneway
2. public pedestrian mews




24 Charles Montgomery, "Charles Montgomery: We built a home to solve some of the greatest challenges of our times," *Vancouver Sun*, December 8, 2021, https://vancouversun.com/opinion/charles-montgomery-we-built-a-home-to-solve-some-of-the-greatest-challenges-of-our-times.

25 Carine De Pauw, "Little Mountain Cohousing: Compact plan visually connects all building levels to shared outdoor space," *Sustainable Architecture & Building Magazine*, November 2021, https://sabmagazine.com/little-mountain-cohousing/.

Figure 3.18 Axonometric diagram.



Durham Central Park Co-housing Community

Durham, North Carolina (2014)

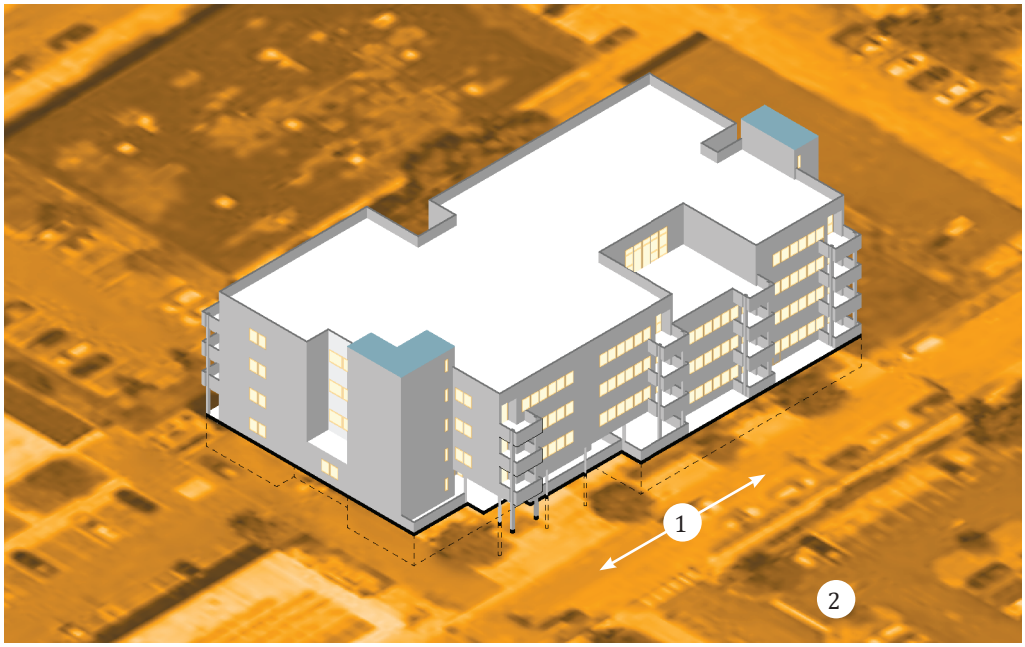
withArchitecture

Durham Central Park Co-Housing Community (DCPC) is a 4-storey 24-unit condo residential building. The project is built upon a common goal of community living, within the cohousing corporation and as a part of the greater Durham Central Park neighbourhood. This social goal plays itself through the daily 'happy hour' conversation, scheduled every afternoon at 5:30 pm.[26] This relaxed social gathering often take place on the building's ground floor front porch, backyard terrace and/or the 4th floor roof terrace.

The goal of community living is represented in the repetition of the building's main architectural element, its shared front porch and roof terraces plus its smaller private terraces and balconies. These in-between spaces encourage greater social interactions within the building, onto Hunt Street, and towards the Durham Center for Senior Life across the street.

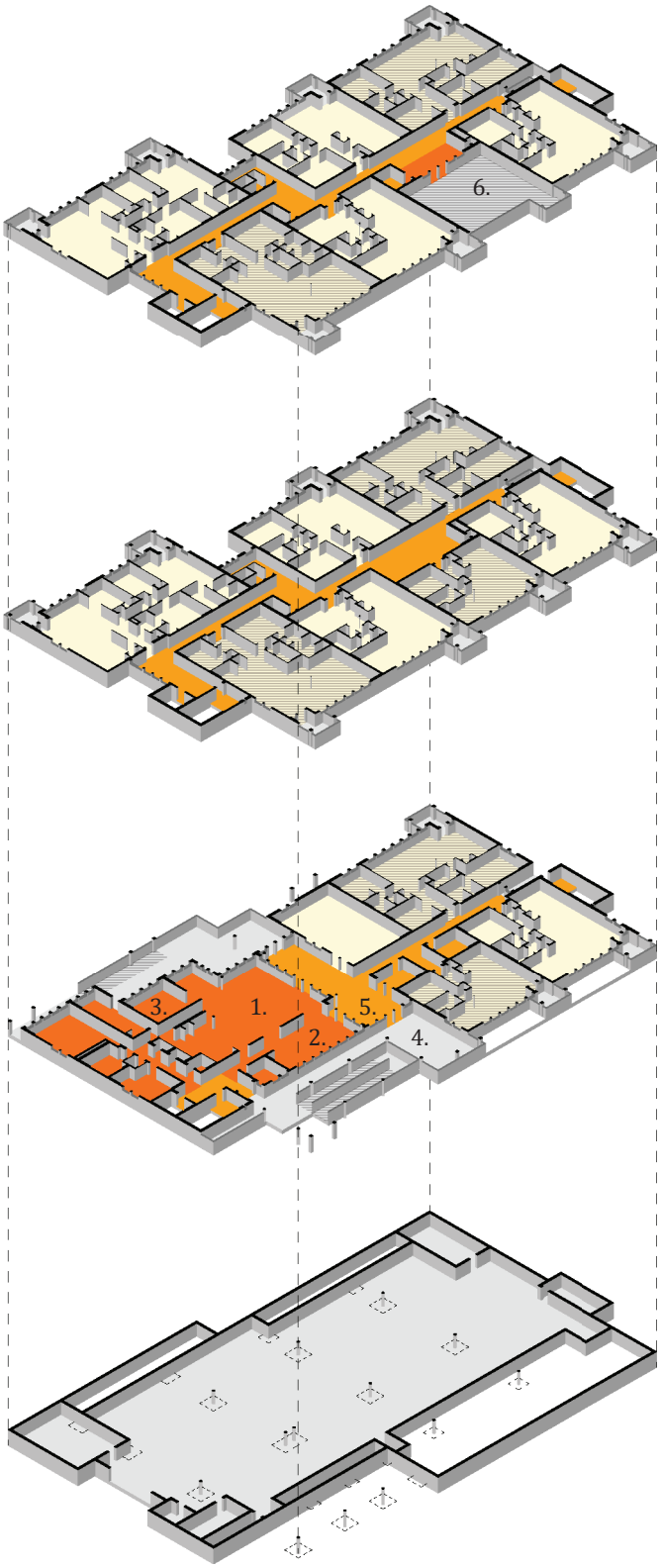
Figure 3.19
South-west perspective.

1. Hunt St.
2. Durham Center for Senior Life




26 Cole del Charco, "How the Triangle Became Ground Zero in the Cohousing Movement," *Indy Week*, August 30, 2017, https://indyweek.com/news/triangle-became-ground-zero-cohousing-movement/.

Figure 3.20 Axonometric diagram.




6 rooftop terrace

solarium

circulation

apartment units

private balconies

1 common kitchen and dining room

2 café

3 living room

4 porch

5 breezeway

common area

circulation

apartment units

private terraces

parking, workshop, storage area

R50 Baugruppen | Berlin (2013)

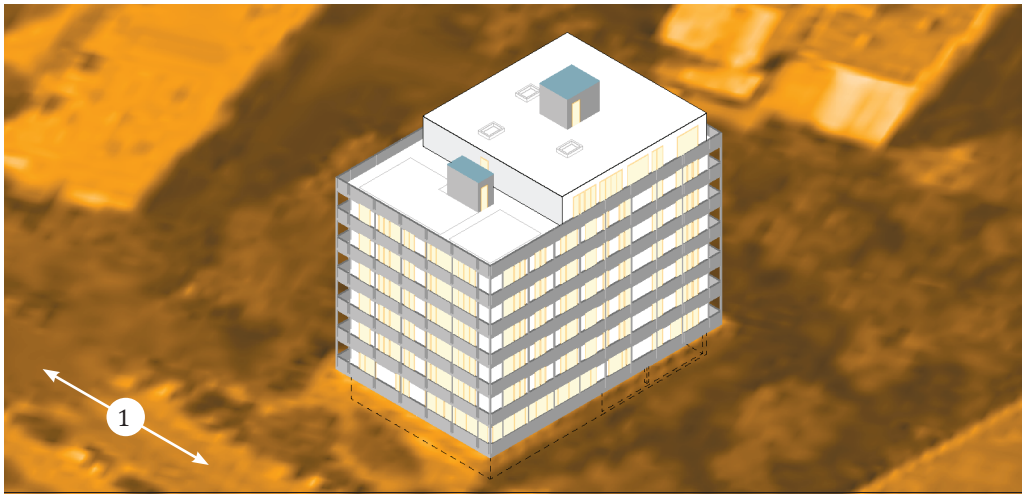
ifau, Jesko Fezer, Heide & von Beckerath

R50 Baugruppen is a 7-storey 19-unit condo residential building. The project proposes an alternative form of accessing homeownership by enabling future residents to act as project developers. The economic goal of the project is to increase affordable housing stocks within the Berlin city limits, and thereby limiting the ongoing trend of suburbanization/ segregation of live-work patterns.[27] The baugruppen, or 'building group' has enabled homeownership through the R50 project. Its self-developed apartment units were being sold at a relatively affordable price rate of €2,150 per square metre, compared to the neighbourhood average (in Kreuzberg, in 2013) of €2,950 per square metre.

The building structure consists of a reinforced concrete frame, modular timber building envelope and a suspended steel structure for the balconies.[28] In opposition to socioeconomic segregation, the main design concept of the building represents heightened social connectivity through its distinct wraparound balconies. The balconies act as shared outdoor spaces and exterior circulation routes,[29] extending the perimeter boundary for spontaneous and intimate interactions.

Figure 3.21
South-east perspective.

1. Ritterstraße




27 Jessica Bridger, "Don't Call It A Commune: Inside Berlin's Radical Cohousing Project," *Metropolis*, June 2015, https://metropolismag.com/projects/dont-call-it-a-commune-inside-berlin-radical-cohousing-project/.

28 Living Places - Simon Architecture Prize, "R50-Cohousing," https://www.simonprize.org/r50-cohousing/sheet/.

29 Jessica Bridger, "Don't Call It A Commune," June 2015.

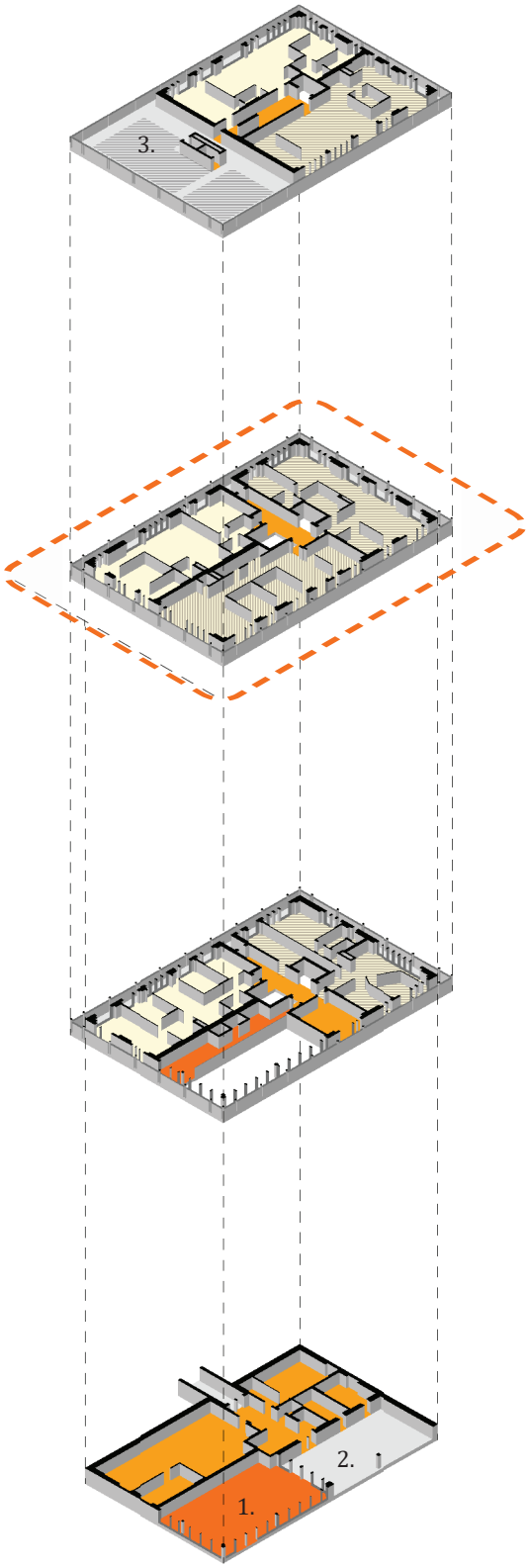
Figure 3.22 Axonometric diagram.

7th floor

Typical floor level

Ground floor

Basement 1
at grade with entrance
ramp along the
eastern side of the
building




3 roof terrace

wraparound balcony

circulation

5- 3 apartment units per floor

wraparound balcony, common area

circulation, guest room

apartment units

1 2-storey community space

2 covered entrance

circulation, storage, service area

Integratives Bauprojekt am ehemaligen Blumengroßmarkt (IBeB)

Berlin (2018) | ifau, Heide & von Beckerath

IBeB is a 5-storey 66-unit residential building, with mixed housing tenures consisting of owner-occupied, rental co-op, and supportive housing units. The possibility for mixed housing tenures, as a social process of integration, was a key design aspect that convinced local authorities to award the winning bid for the urban redevelopment of the former Berlin flower market to the project developer of IBeb.[30] To ensure rental affordability, the project implements a cross-subsidization policy. Through this agreement, apartment owners agree to pay the €310 per square metre addition in unit price, serving as long-term rental subsidy for the housing co-op.

The goal of social integration is reflected in the building's main design concept, with its generous 'rue intérieure.' This main horizontal corridor, located at the second floor, is coupled with five 3-storey lightwells creating an interior street atmosphere that is well suitable for many social activities and gatherings.[31] Apartment owners and co-op tenants can comfortably socialize with each other along the 'interior street' and/or through the interior windows of apartment units that face the lightwells.

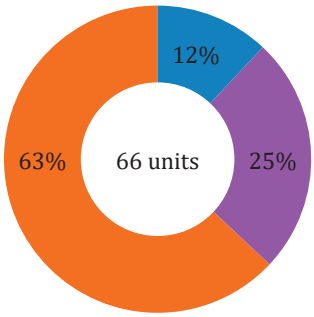



Figure 3.23
Share in the types of housing tenure, IBeB, 2018.

- private owners
- housing cooperative | Selbstbaugenossenschaft Berlin eG
- supportive housing for the deaf | Ev. Gemeindeverein der Gehörlosen in Berlin e.V.

30 The baugruppen, as a form of cohousing model in Germany, creates greater access in homeownership within urban centres. Collectively, members are able to construct and finance dwelling units with home prices below market rate especially for those projects coupled with cross-subsidization solidarity fund policy.

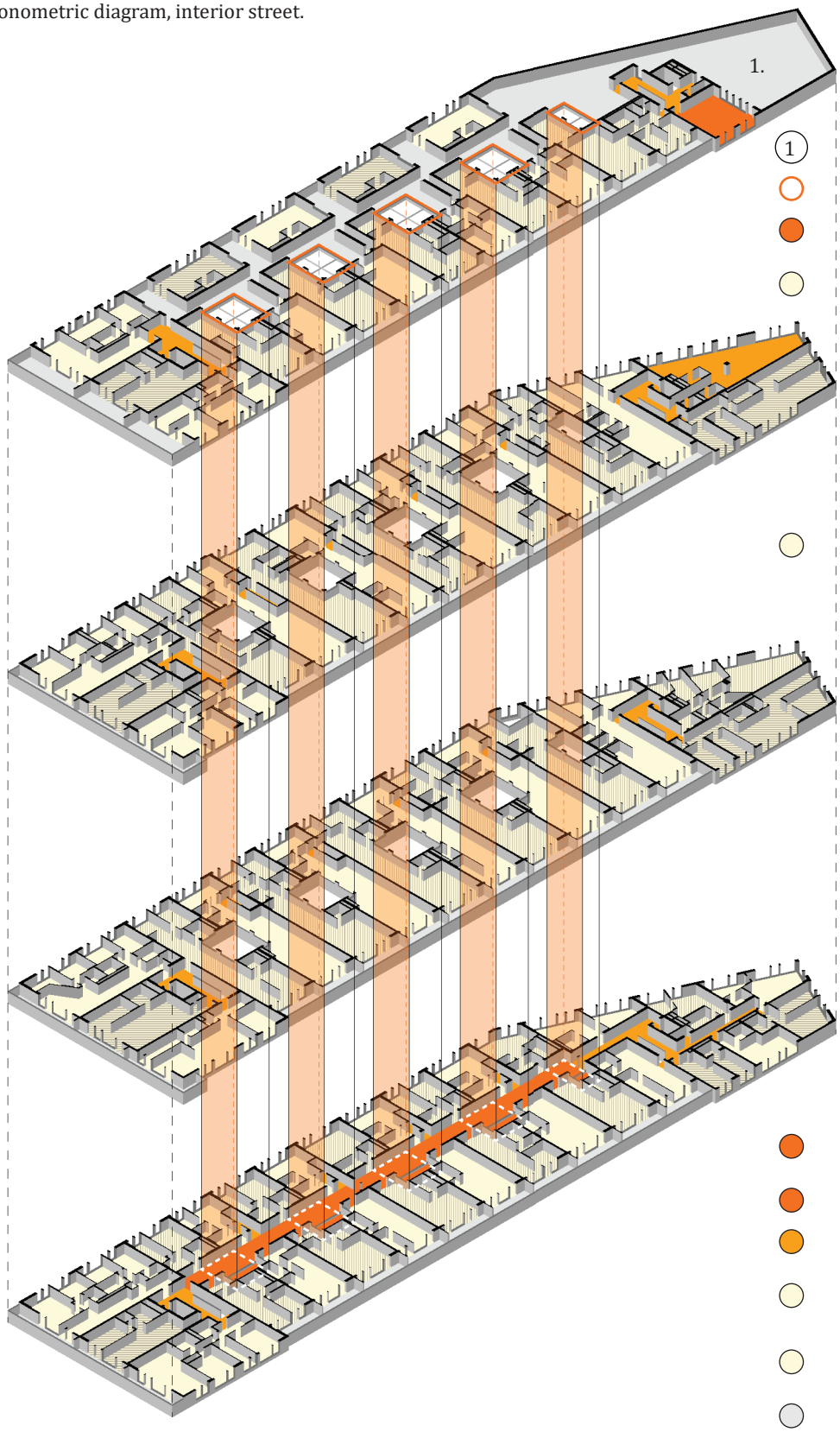
Max Ott, "Help Yourself, but Build the Right Thing," 77-81.

31 George Kafka, "Six Years in the Making, Berlin's IBeB Cooperative Housing Development Creates a Tight-Knit Community of Residents," *Metropolis*, February 2019, https://metropolismag.com/projects/ibeb-cooperative-housing-berlin-ifau-heide-von-beckerath/.

Figure 3.24 South-west perspective.

Figure 3.25 Axonometric diagram, artist studio.

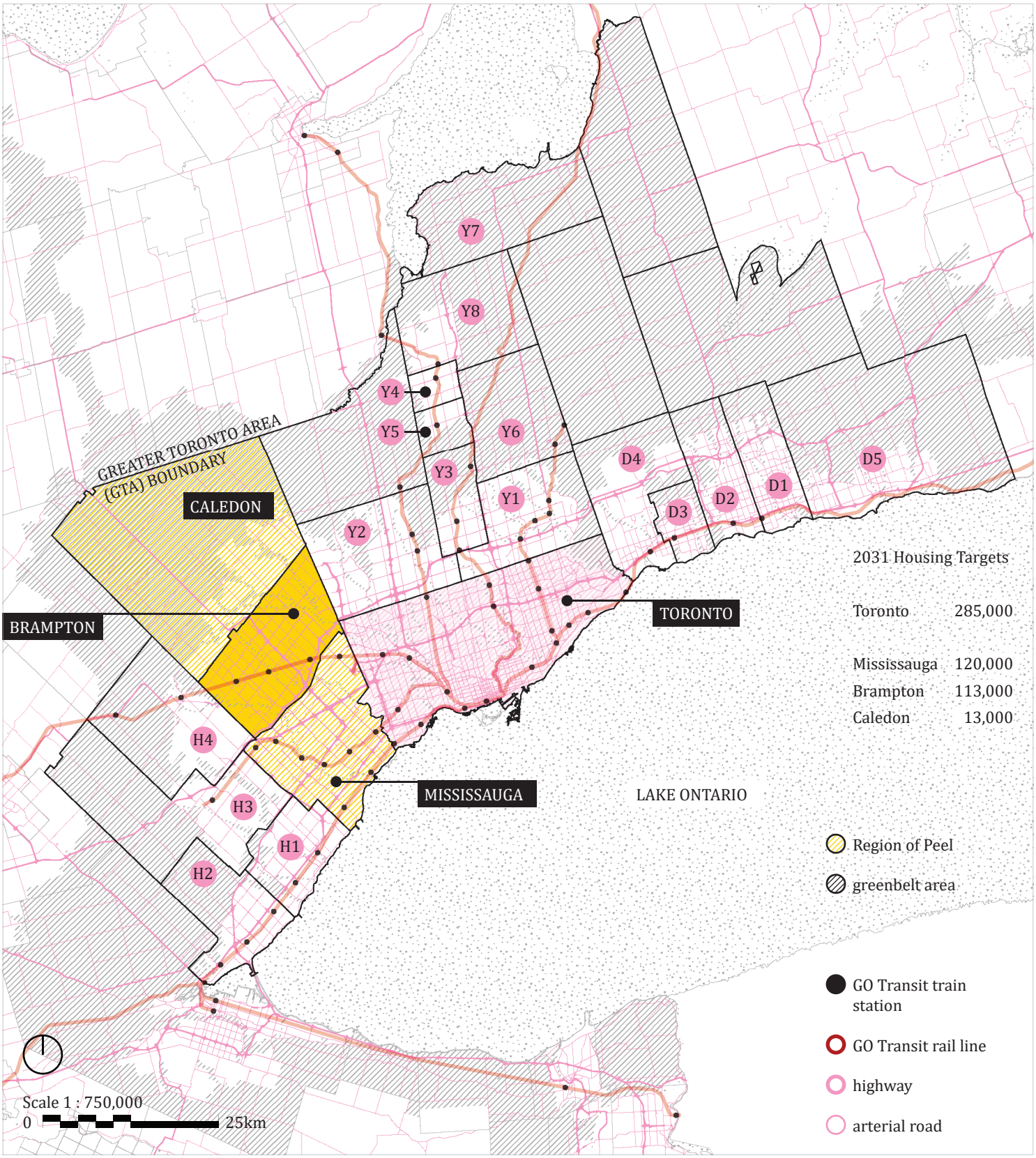
Figure 3.26 Axonometric diagram, interior street.



# 4. Architectural Project

The concept of housing security corresponds to one's stable and long-term experience of living-and-working in a single place, or landscape. And in relation to the social landscape of cities, the concept of home intersects with the psychological (and financial) state of community acceptance and belonging. The boundary between the self (the private space) and society (the public space) is an important learning space to which we actively reconcile and better understand our individual differences and shared commonalities. To reiterate Koolhaas' distinction between 'material congestion' and of *spatial relationship* as 'congestion without matter,' the thesis argues that the generative value of urban redevelopment and residential infill projects points not only to the material sum of their newly constructed (affordable) housing stocks. But also, to their ability to preserve and restrengthen community relationships through *spatial proximity*.

The thesis proposes an architectural project that analyses and redefines the residential boundaries within the Greater Toronto Area (GTA), in relation to their function as paths of encounter between socioeconomic levels. The project presents a multi-scalar reevaluation of our understanding of live-work boundaries in the GTA, from the perspective of an urban growth centre (4.1), suburban town centre (4.2) and into the fine-grained detail of an individual building block (4.3). Downtown Brampton Urban Growth Centre was chosen as a pilot project. Its proximity to Toronto Pearson International Airport, provincially significant employment zones (PSEZs), and to the region's remaining greenfield sites and protected greenbelt area points to the proposed project site as an excellent typological placeholder. Downtown Brampton embodies both the present-day challenges in housing insecurity as well as the unseen potential that alternative housing strategies can enable.


GREATER TORONTO AREA (GTA) BOUNDARY
CALEDON
BRAMPTON
TORONTO
MISSISSAUGA
LAKE ONTARIO
Y1
Y2
Y3
Y4
Y5
Y6
Y7
Y8
D1
D2
D3
D4
D5
H1
H2
H3
H4
2031 Housing Targets
Toronto 285,000
Mississauga 120,000
Brampton 113,000
Caledon 13,000
Region of Peel
greenbelt area
GO Transit train station
GO Transit rail line
highway
arterial road
Scale 1 : 750,000
0
25km

2031 Housing Targets

York Region

Y1 high to Y8 low housing targets

| | |
|---|---|
| Markham | 44,000 |
| Vaughan | 42,000 |
| Richmond Hill | 27,000 |
| Newmarket | 12,000 |
| Aurora | 8,000 |
| Whitchurch-Stouffville | 6,500 |
| Georgina | 6,200 |
| East Gwillimbury | 4,300 |

Halton Region

H1 high to H4 low

| | |
|---|---|
| Oakville | 33,000 |
| Burlington | 29,000 |
| Milton | 21,000 |
| Halton Hills | 9,500 |

Durham Region

D1 high to D5 low

| | |
|---|---|
| Oshawa | 23,000 |
| Whitby | 18,000 |
| Ajax | 17,000 |
| Pickering | 13,000 |
| Clarington | 13,000 |

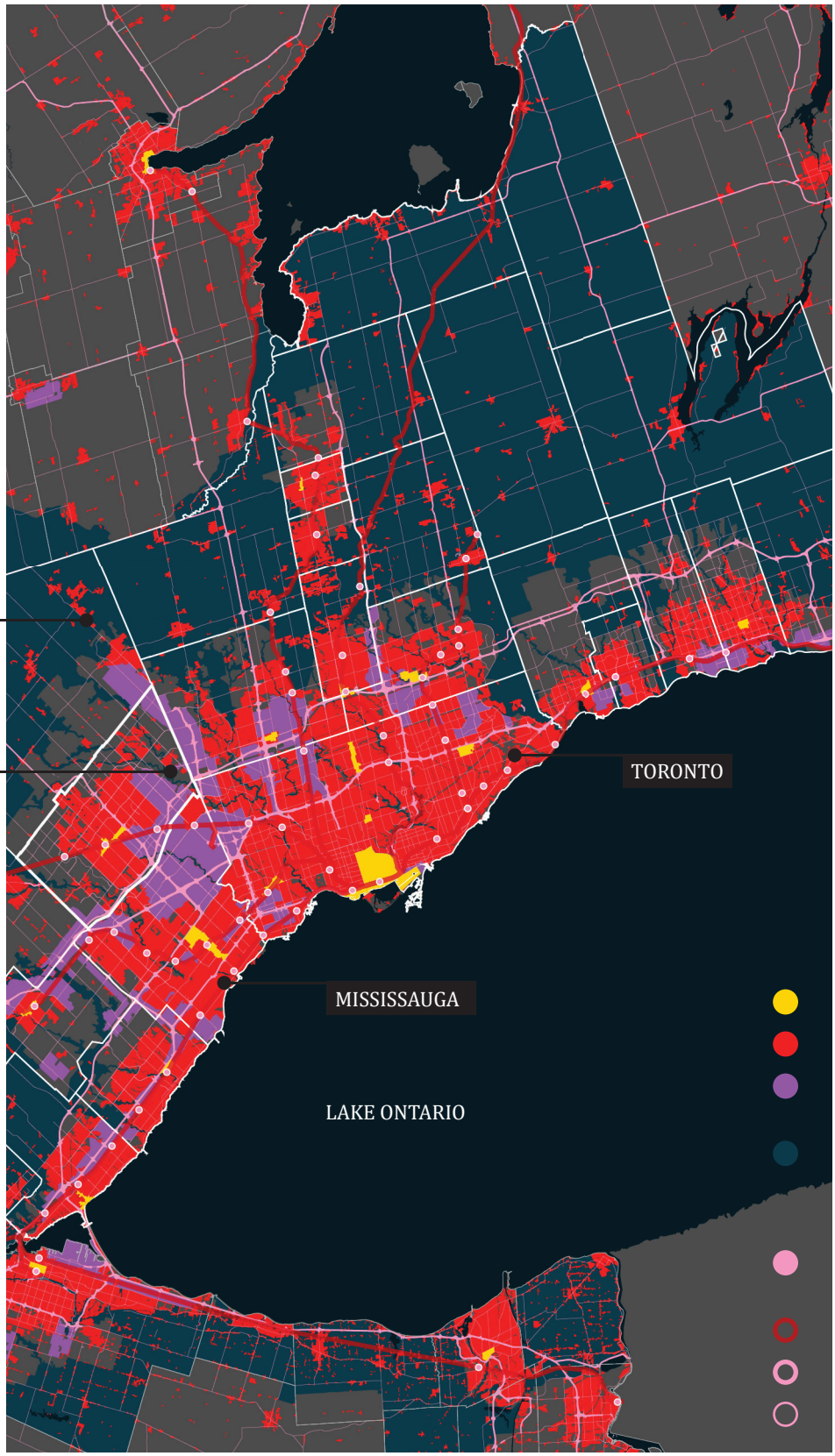



Figure 4.01 (previous page) Map of the 2031 municipal housing targets in the GTA.

Figure 4.02 Map of urban growth centres in the Greater Golden Horseshoe (GGH), in relation to its greenbelt regions.

The scarcity of greenfield sites in-between the GTA's greenbelt and built-up areas necessitates for new infill developments to play key parts in achieving the housing targets as proposed by the provincial government.

How to build a good border? The thesis argues that a successful border is a place that encourages social interactions between different individuals. It invites the private self to extend its territory into a shared common area – to extend one's authority and responsibility towards the common good of the city. In contrast, the urban fragmentation of the GTA's housing landscape towards 'manhattanization' and 'generationed' space has weakened the spatial proximity of our dwelling units. Any form of everyday social interaction is predetermined inward within housing enclaves, towards a repetition of households of similar economic level and age group. Meanwhile, the preceding chapter on the cohousing model proposes to bridge this housing gap. It introduces alternatives in the financial framework and spatial organization of housing development, thereby enabling the re-creation of proximity between diverse household units.

The architectural project situates the cohousing model within the present-day reality of housing (un)affordability in the GTA. The main design concept of the proposed building block is shaped around the analogous concept of border, proximity and limits. The proposed 6-storey mid-rise typology of 'the Common House' respects the limits in construction cost, continuity in building form, and the local specificity in spatial programming. The project forgoes the random newness in spatial programing, the cosmopolitan lifestyle, which the thesis argues had become a complicit advertisement to market urbanism and advanced gentrification. The project forgoes the erratic limitlessness of 'manhattanism,' of skyscrapers and fast-paced urbanization. Ultimately, the Common House becomes a compositional re-creation of spatial programming limited to prioritize the honest representation of the GTA's workforce population, and to be situated within the border proximity of a singular building block.

Defining borders.

### 4.1 Rent-to-own

The project proposes to extend local residents' lived experience of housing security within the GTA, in parallel to the on-going redevelopment (and/or gentrification) of urban growth centres, by re-creating a transitional pathway between rental and owner-occupied housing tenures.

### 4.2 Live-work

The project proposes to extend economic diversity and resiliency, in parallel to the suburban land conversion of industrial employment lands (PSEZs), by re-establishing path of continuity and hybridity in existing warehouse building typology.

### 4.3 Private-to-public realm

The project proposes to extend and to renew 'middle-class' identity, in parallel to metropolitan expansion (fragmentation and/or polarization), by reorganizing greater proximity in spatial programming.

# 4.1 Urban Growth Centre

Rent-to-own

The project proposes to extend local residents' lived experience of housing security within the GTA, in parallel to the on-going redevelopment (and/or gentrification) of urban growth centres, by re-creating a transitional pathway between rental and owner-occupied housing tenures.

***

Chapter 1 introduces the issue of financialization within the housing market, specifically of highly leveraged investments that aim to create quick profits through a 'buy low, sell high' strategy. This unsustainable increase in residential property value is unmatched by the increase in employment wages, thereby creating a gap in rental affordability and the inability to save for a mortgage downpayment. Chapter 3 points to the rent-to-own model as a possible path for moderate-income households to obtain homeownership and to build home equity. In addition, the general design layout of a cohousing project with its centrally-located 'common house' enables greater interaction and coexistence between neighbours – which the thesis hopes will indirectly translate into more socially-inclusive policymaking in local governance.

At the scale of an urban growth centre, the thesis builds upon the cohousing process of members selection (feasibility study). Following on the design intention of extending access to homeownership in Downtown Brampton UGC, the architectural project begins by analyzing the local renter-households' eligibility to participate in a proposed rent-to-own program. These initial steps include: 1) mapping of community housing which are mainly of housing stocks owned by the Region of Peel's housing provider 'Peel Living' and 2) collecting and analyzing census data that pertains to the median income of individual residents by census tract, with emphasis on census tracts with the highest number of community housing units.

The mapping of community housing in the City of Brampton helps illustrate the commuting patterns of the workforce population. This mapping analysis reveals the many pre-existing relationships created through spatial proximity between residential, industrial, institutional, commercial and/or mixed-used building blocks with each other, and their proximity along public transportation routes. In particular, the 250-unit 'Chelsea Gardens' rental apartment towers are in the Bramalea Centre section of Brampton Central Area district. The site contains the highest number of community housing units in the city that are under the ownership of Peel Living. It is strategically located in proximity to Bramalea Terminal, which provides an express bus route service to Pearson Airport and the surrounding employment sites in PSEZ 14 (the second largest PSEZ in the province by land area).

In following Hulchanski's five economic spheres, the mapping analysis illustrates the location of existing schools, community centres (religious, commercial, and recreational), public libraries and food banks. Their proximity enables households to achieve an overall housing affordability by supplementing their income in the market economy with government transfers (state economy) and cost reduction (social, informal, and domestic economy). In terms of site selection, the emphasis on suburban infill development allows for moderate-income households to access housing security within their existing neighbourhood, and therefore, retain access to these critical economic spheres.

1. Chelsea Gardens rental apartment towers | 2x 13-storey towers (in the background)
2. 3 Knightsbridge Rd. apartment tower | 26-storey tower
3. 11 Knightsbridge Rd. apartment tower | 18-storey tower
4. 5 Kings Cross Rd. apartment tower | 18-storey tower

Figure 4.03 Street view of Brampton Central Area, Bramalea Centre section.

The 1960s- suburban arrangement of rental apartment towers and single-family bungalows represents a pathway towards homeownership, transforming many economic migrants into the new middle class.

Figure 4.04 Street view of Brampton Central Area, Queen Street Corridor section.

The redevelopment of urban growth centres along the GTA must recreate new pathways for homeownership and/or other sustainable long-term housing tenures, to preserve the proximity of social relationships and its generative outcome of socioeconomic integration.

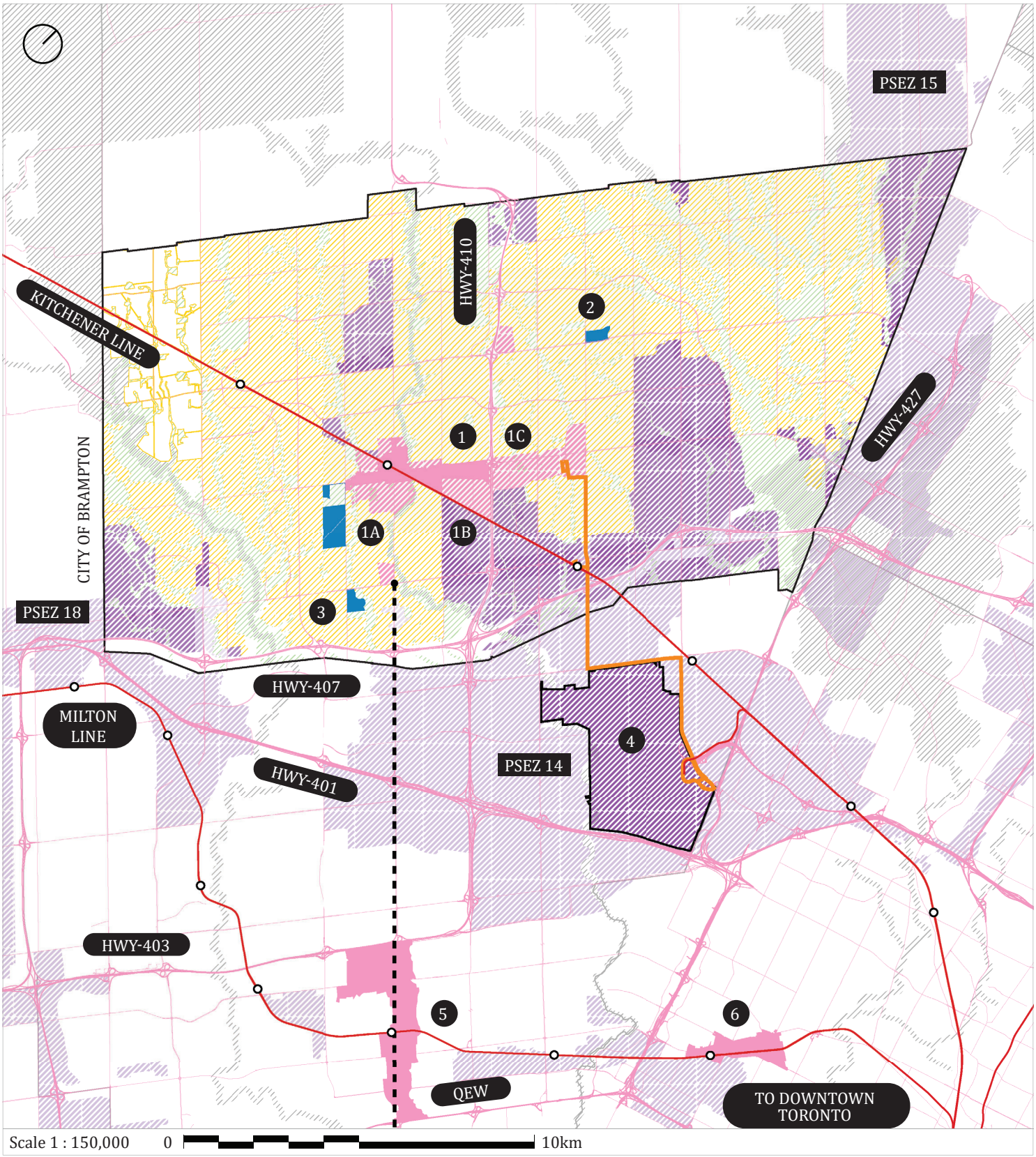

PSEZ 15
HWY-410
KITCHENER LINE
2
HWY-427
1
1C
CITY OF BRAMPTON
1A
1B
PSEZ 18
3
HWY-407
MILTON LINE
4
PSEZ 14
HWY-401
HWY-403
5
6
QEW
TO DOWNTOWN TORONTO
Scale 1 : 150,000
0
10km

Figure 4.05
Map of the City of Brampton, in relation to GTA's regional transportation systems.

The proximity of existing, under construction and planned public transit infrastructure within and around the city of Brampton is key to the city's economic prosperity. Public transit provides employment access to the local workforce population. And simultaneously, it exposes the city to (opportunistic) transit-oriented redevelopments with the possible risks of greater displacement and housing alienation.

1 Downtown Brampton UGC

2 Brampton Civic Hospital

3 Sheridan College

4 Toronto Pearson International Airport

5 Mississauga City Centre UGC

6 Etobicoke Centre UGC

urban growth centre

Brampton Central Area

1a. Downtown

1b. Queen Street Corridor

1c. Bramalea Centre

residential zones

institutional zones

industrial zones

greenbelt area

Pearson Airport Express bus route

Hurontario light rail transit (under construction)

GO Transit train station

GO Transit rail line

highway

arterial road

The collection of census data regarding the median income of individuals by census tract serves as the basis for a cohousing project's preliminary feasibility study. To construct affordable housing units, the 30% affordability threshold in shelter cost (in relation to a household's annual income) will serve as a benchmark for the maximum amount of monthly housing charge to be paid by a member household. The estimated average value in monthly housing charges (x12) multiplied by the length of amortization period (x30) multiplied by the number of member households becomes the preliminary construction budget for a cohousing project.

The variable in household income is to be determined by the number of household maintainer(s), or the number of individual(s) who are responsible for the payment of shelter cost for a single household unit. The inclusion of one-parent families and young adults living alone results in a lower average household income (in comparison to couple-families) and therefore to a lower construction budget. Meanwhile, the inclusion of 'empty nester' seniors with their built-up home equity and the intention to downsize through mortgage substitution increases the proportion of available funding (liquid asset) for a project.

Figure 4.06 Proposed feasibility study. Members selection formula.

$$\text{target monthly housing charge} = \frac{\text{household median after-tax income} \times 30\%}{12 \text{ months}}$$

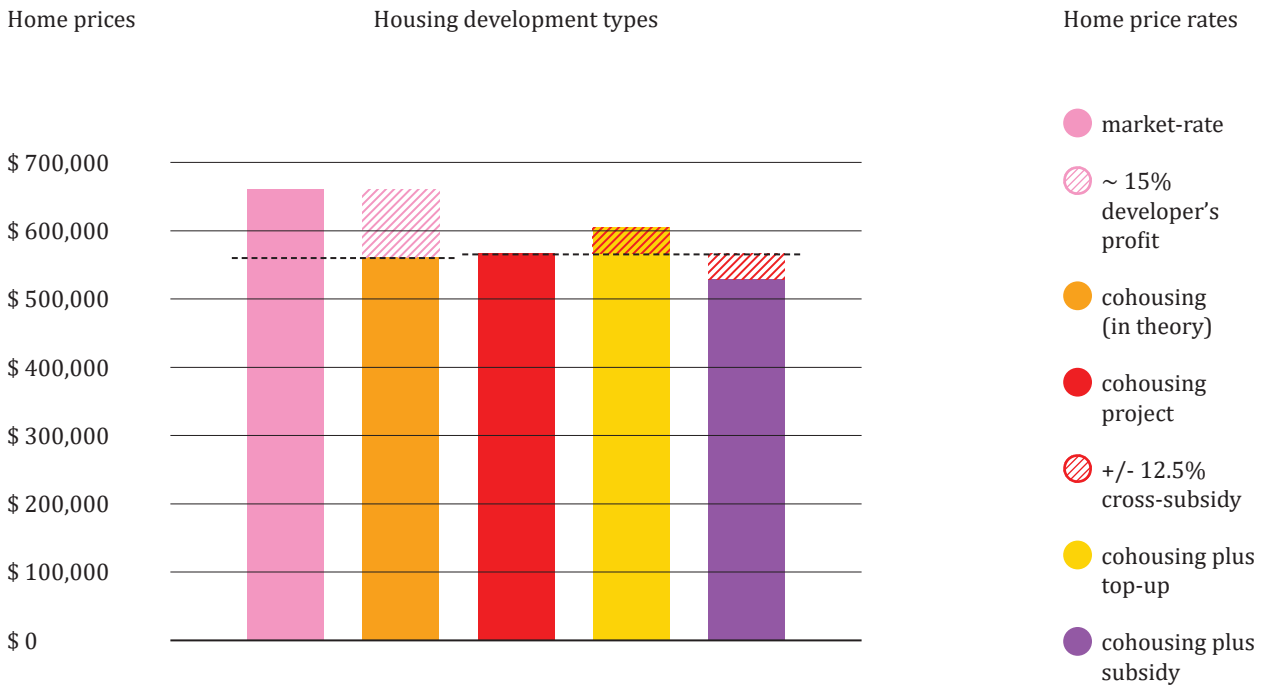
$$\$\,1{,}680 = \frac{(2 \times \$\,33{,}600) \times 30\%}{12 \text{ months}}$$

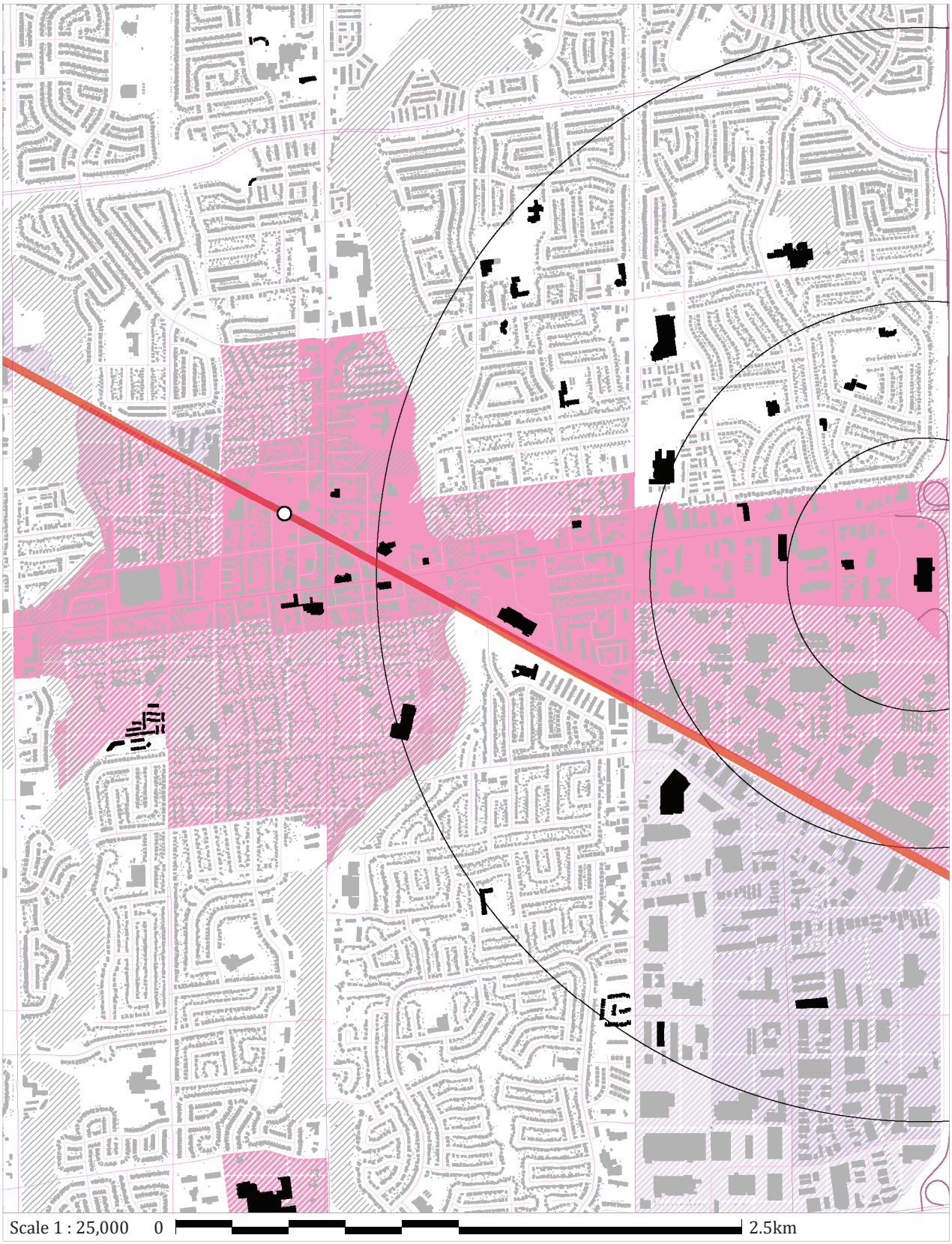
$$\text{initial construction budget} = \text{monthly housing charge} \times 12 \text{ months} \times 30 \text{ years} \times \text{number of member households}$$

$$\$\,18{,}144{,}000 = \$\,1{,}680 \times 12 \text{ months} \times 30 \text{ years} \times 30 \text{ households}$$

Following a similar strategy implemented in IBeB cohousing project (Berlin), the proposed project will implement a cross-subsidization policy to ensure its socioeconomic diversity. A moderate-income household can purchase a dwelling unit at a designated lower per sq. m. pricing. Meanwhile, a 'middle' income household (121% to 160% AMI) can purchase a unit at a higher per sq. m. pricing – which amounts to the average per sq. m. pricing plus the top up for the subsidized units. The property covenant in the CPI-link resale value ensures that subsequent generation of homebuyers will benefit from the initial cross-subsidization policy. In tandem with the spatial efficiency of (gentle) residential intensification and of cohousing typology, the projected home prices for the units with designated higher per sq. m. pricing rate, in theory, will align with the median home prices for the local area, or lower. In addition, dwelling units with the implemented subsidy pricing will have significantly lower home prices (in comparison to present-day market rates), and thereby extends the entry access to homeownership for one-parent families and for the young adult generation.

Figure 4.07 Home price comparison between market-rate development, cohousing, and proposed cohousing development coupled with cross-subsidization policy in Brampton, 2021.

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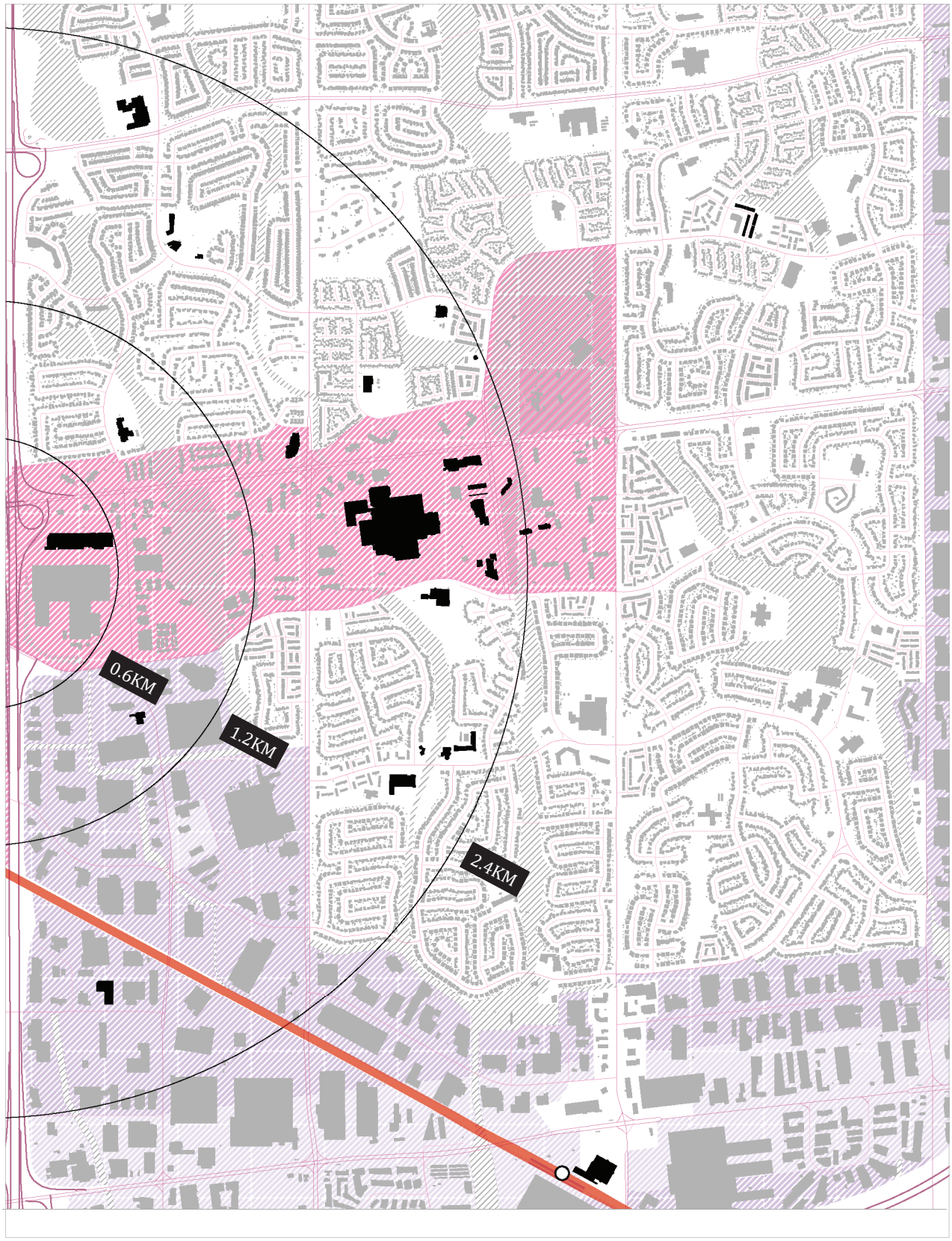



Figure 4.08
Map of Downtown Brampton Urban Growth Centre within Brampton Central Area.

urban growth centre

Brampton Central Area

industrial zones

greenbelt area

GO Transit train station

GO Transit rail line

highway

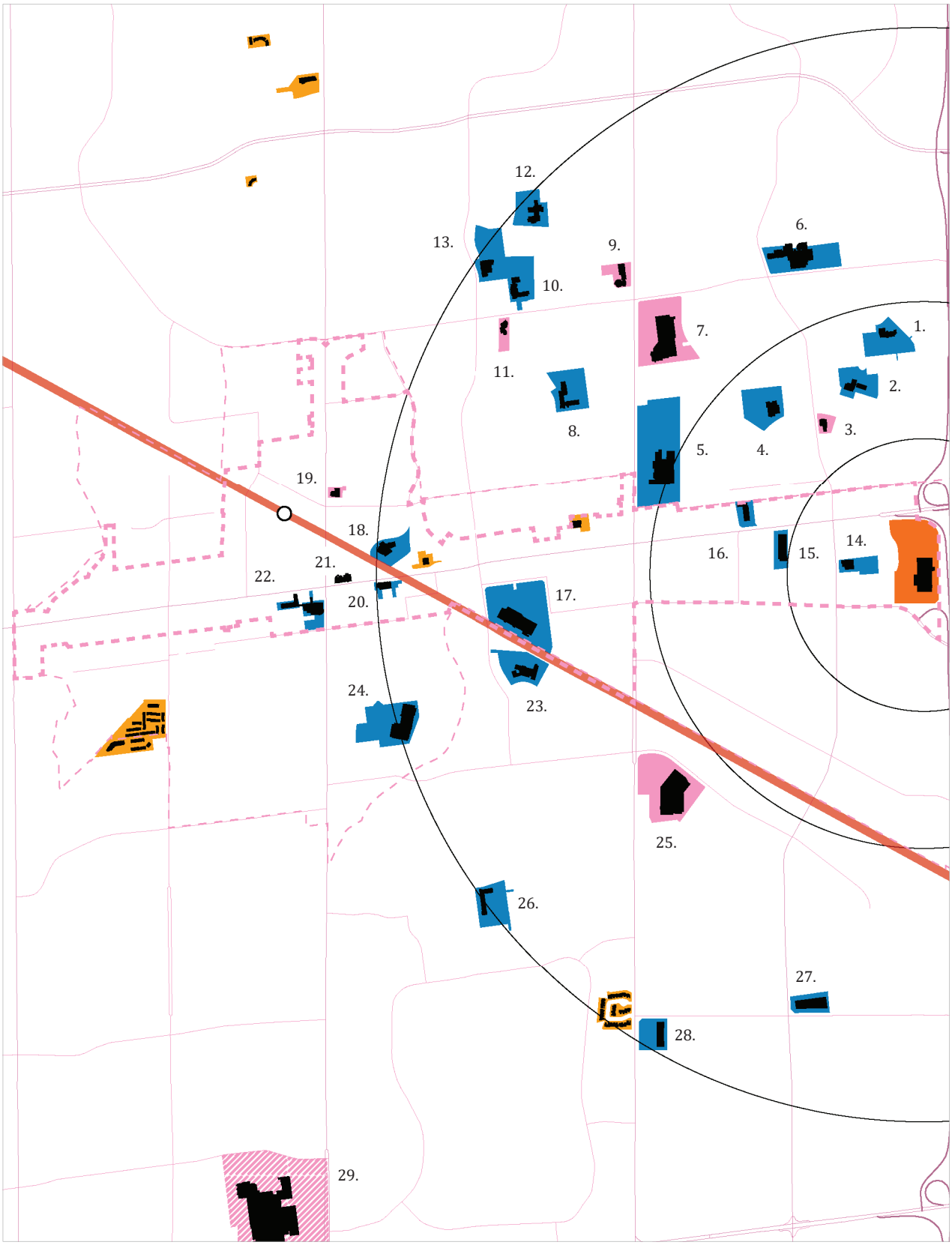
arterial road

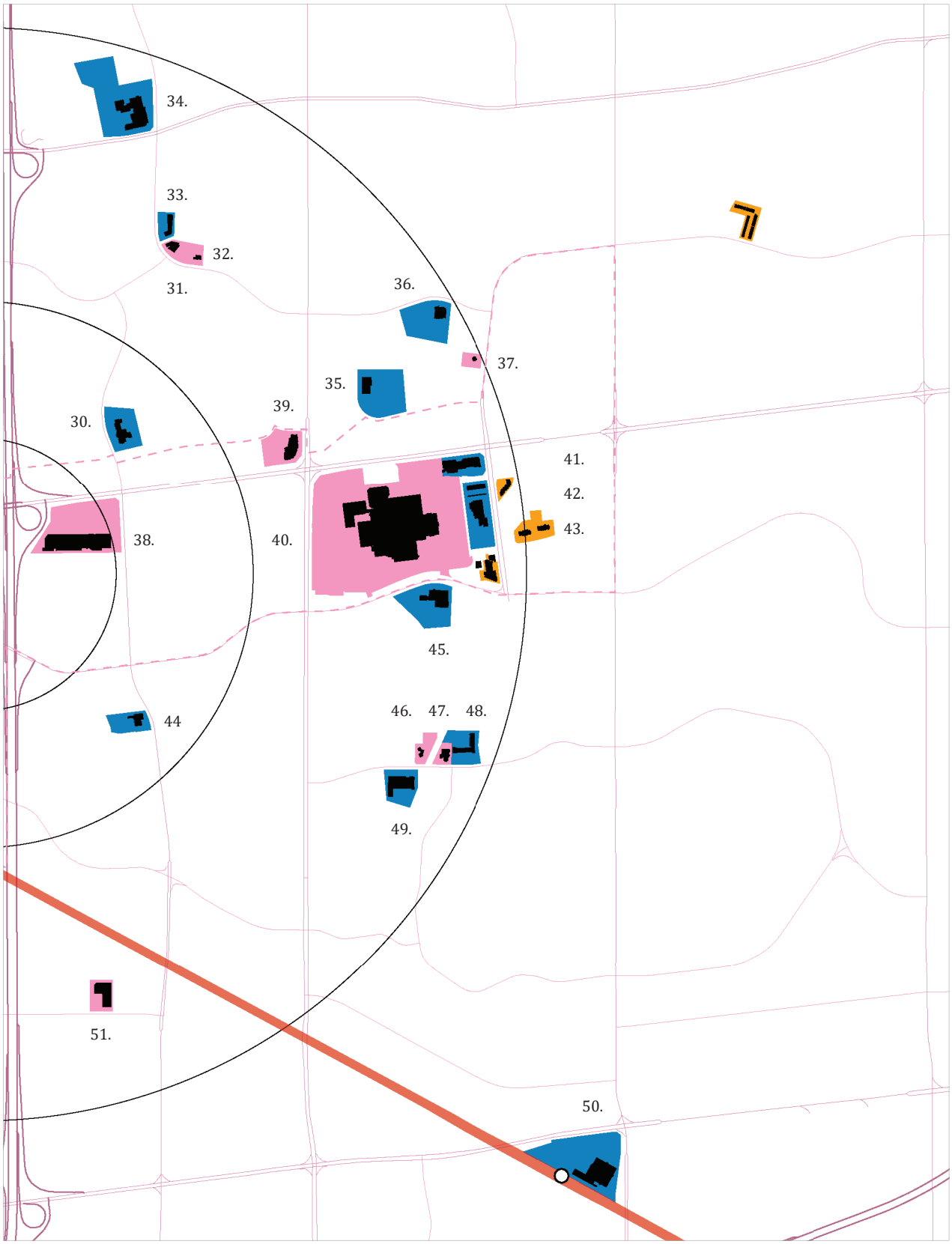
0.6 km radius
7.5 minutes walk

1.2 km r.
15 minutes walk

2.4 km r.
30 minutes walk
7.5 minutes bike

1. Harold F. Loughin Public School
2. Father C.W. Sullivan Elementary School
3. Church of the Nazarene (c. 1970s)
4. Madoc Drive Public School
5. Central Peel Secondary School
6. Century Gardens Recreation Centre
   Gordon Graydon Sr. Public School
7. Centennial Mall
8. Agnes Taylor Public School
9. Kennedy Road Tabernacle (c. 1970s)
10. St. Anne Elementary School
11. St. Anne's R.C. Church (c. 1970s)
12. Kingswood Drive Public School
13. Nibi Emosaawdang Public School
14. Noon Academy Islamic School (2000s)
15. Queens Gate Academy
16. Aims Plus High School
17. Peel Memorial Centre | Health
18. Brampton YMCA
19. Grace United Church (c. 1860s)
    Regeneration Outreach Community
20. Brampton Library - Four Corners Branch
21. Algoma University - Brampton (2000s)
22. Brampton City Hall
23. Sir Winston Churchill Public School
24. Cardinal Leger Secondary School
25. Kennedy Square | Mall
26. Helen Wilson Public School
27. Habitat for Humanity ReStore
28. Knights Table | Food bank and soup kitchen
29. Shoppers World Brampton (c. 1960s)



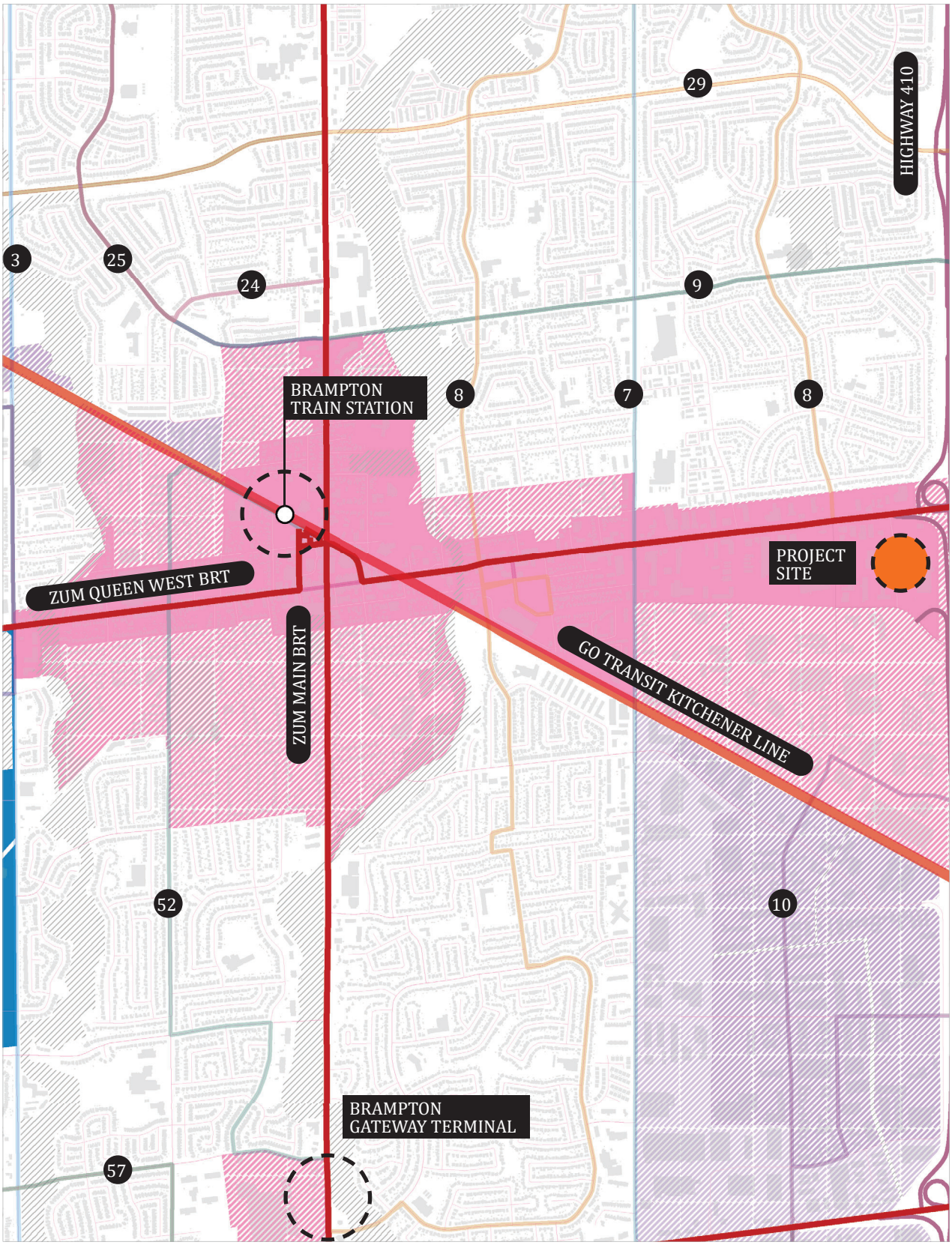



30. École Sainte-Jeanne-d'Arc
31. North Bramalea United Church
32. Bramalea Free Methodist Church
33. Doon School | Secondary school
34. North Park Secondary School
35. Hanover Public School
36. Lester B. Pearson Elementary School
37. Central Park Baptist Church
38. 410@7 Centre | Mall
39. Bramalea Baptist Church (c. 1970s)
40. Bramalea City Centre (c. 1970s)
41. Region of Peel Headquarter
42. Bramalea Terminal
43. Bramalea Civic Centre (c. 1970s)
    Toronto Metropolitan University - Brampton (under construction)
44. The Honourable William G. Davis Centre for Families
45. Clark Boulevard Public School
46. St. Joseph of Nazareth Anglican Church (c. 1960s)
47. St. John Fisher R.C. Church (c. 1960s)
48. St. John Fisher Elementary School
49. Balmoral Drive Sr. Public School
50. Bramalea GO Station (c. 1970s)
51. Sri Guru Nanak Sikh Centre (c. 1990s)

- institutional building
- mixed-use building
- community housing
- project site

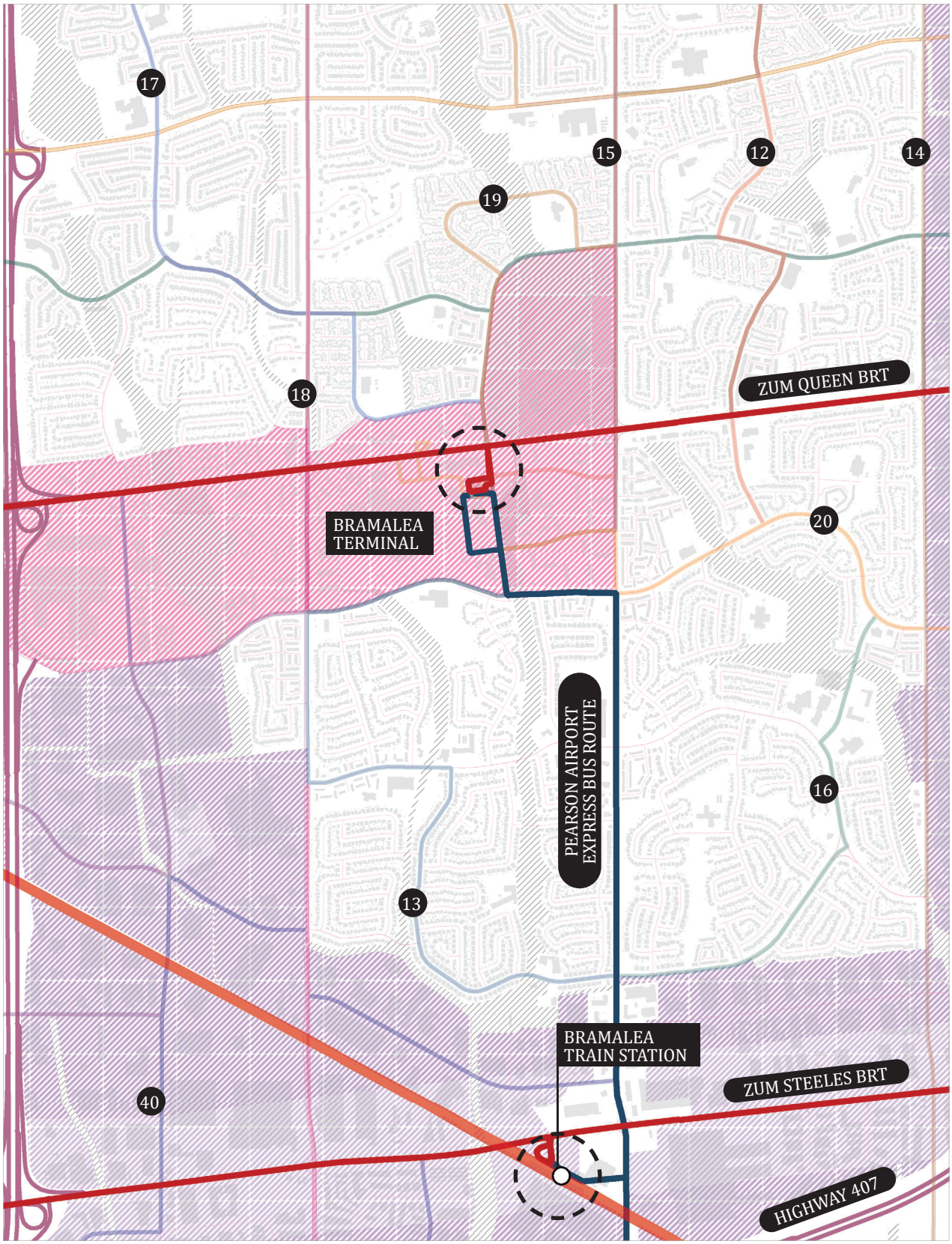
Figure 4.09
(previous page)
Map of selective building blocks within and around Brampton Central Area, in relation to their social function as gathering spaces.

Figure 4.10
Map of transportation systems along Brampton Central Area.




Brampton Transit bus routes

- 3 McLaughlin
- 7 Kennedy
- 8 Centre
- 9 Vodden
- 10 South Industrial
- 24 Van Kirk
- 25 Edenbrook
- 29 Williams
- 52 McMurchy
- 57 Charolais




urban growth centre

Brampton Central Area

industrial zones

greenbelt area

GO Transit train station

GO Transit rail line

Brampton Transit bus routes

12 Grenoble

13 Avondale

14 Torbram

15 Bramalea

16 Southgate

17 Howden

18 Dixie

19 Fernforest

20 East Industrial

40 Central Industrial

Figure 4.11
Map of median individual income by census tract in the central area neighbourhoods of Brampton, 2021.

Percentage of median income divided into decile groups

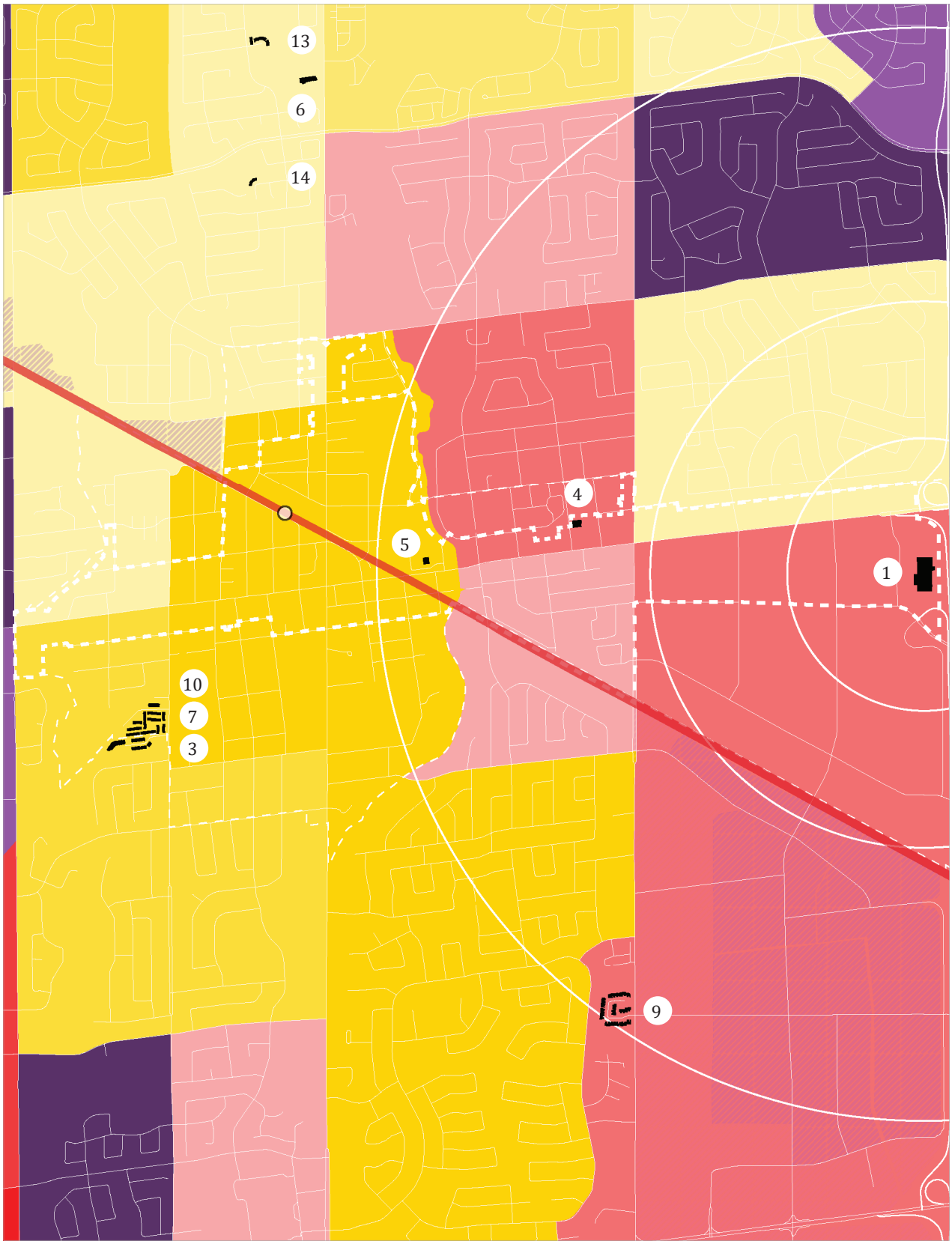
- 180-200
- 160-180
- 140-160
- 120-140

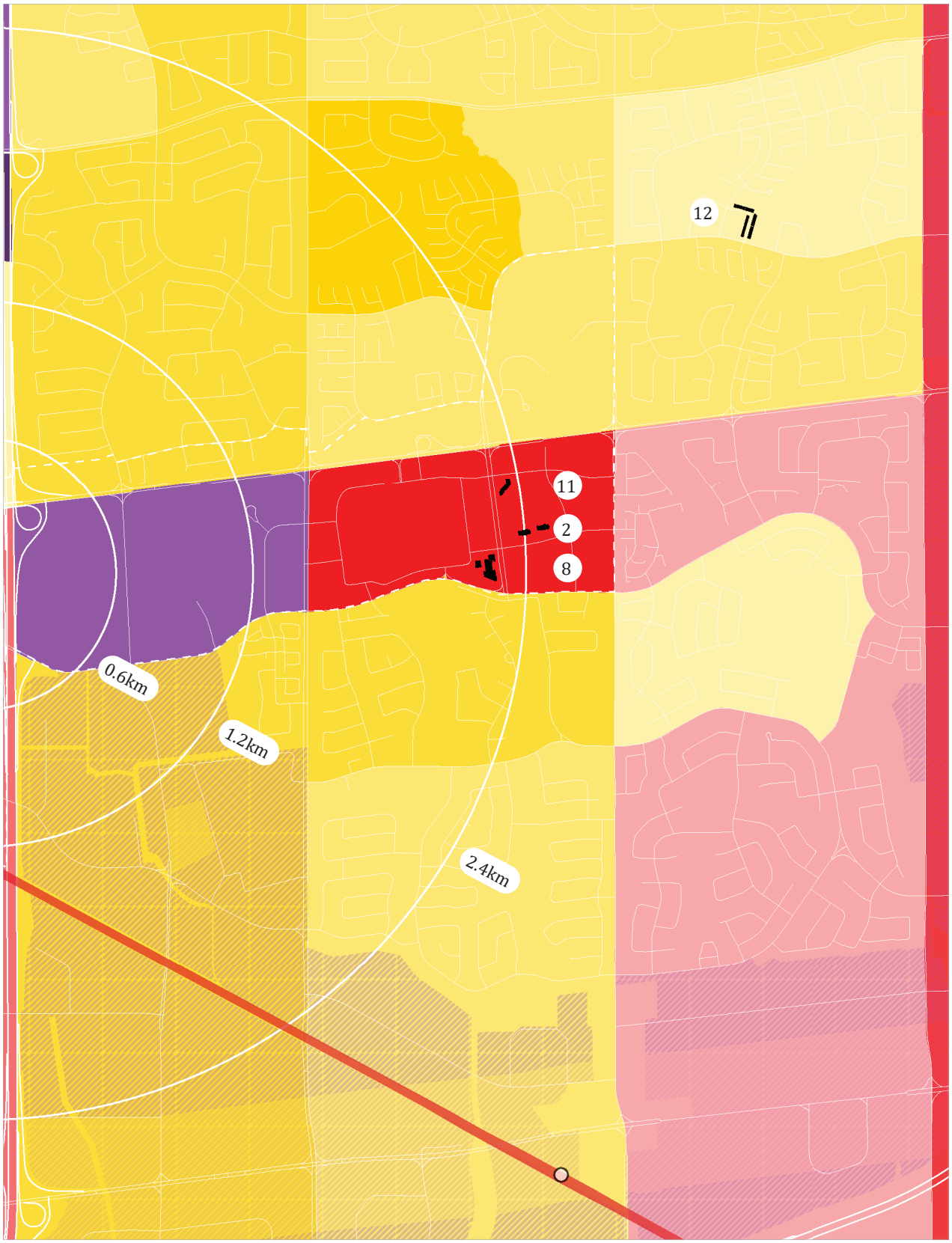
workforce population

- 100-120
- 80-100

- 60-80
- 40-60
- 20-40
- 0-20

- industrial zones
- GO Transit train station
- GO Transit rail line






1 Project site

Community housing per census tract

Median individual after-tax income

CT 0563.01 $ 29,400

2 250 units

8 90 units

11 45 units

CT 0572.01 $ 36,000

3 148 units

7 98 units

10 48 units

CT 0575.02 $ 31,800

4 122 units

CT 0574.00 $ 37,200

5 101 units

CT 0573.03 $ 34,800

6 98 units

13 18 units

14 6 units

CT 0570.01 $ 31,400

9 64 units

CT 0562.08 $ 34,800

12 45 units

In addition to affordable shelter cost, as suggested by CMHC through the 'housing hardship' concept, housing security should also take into account additional basic housing expenses such as equitable access to good food, clothing and transportation. Future redevelopment proposals within urban growth centres, such as those along suburban town centres, should provide assistance to both residential and commercial tenants including the possibility to stay, or to return into newly built units on-site in exchange.

Figure 4.12 A strip mall, at the scale of a neighbourhood centre, provides multiple social functions to local residents, such as supermarkets, restaurants, discount stores, and employment centres.

Figure 4.13 A strip mall, at the scale of a neighbourhood centre, provides multiple social functions to local residents, such as family clinics.

Figure 4.14 Manufacturing plant and warehouse.

New workforce housing, through urban redevelopment, will provide companies with a greater talent pool of potential workforce. And in effect, the stable availability of local workers incentivizes companies to continue investing in their local communities, instead of relocating to possibly more profitable areas.

Figure 4.15 Building material manufacturing plant.

Affordable housing in proximity to employment lands reduces the market pressure on these urban parcels towards land speculation, zoning conversion, and gentrification. In return, local manufacturing plants provide housing projects with building materials that have lower embodied carbon, in relation to their transportation distance.

Figure 4.16 Food bank and soup kitchen.

Proximity to community services such as food banks and soup kitchens brings an additional layer of housing security for the workforce population, in response to unforeseeable circumstances such as the COVID-19 pandemic.

A cohousing project provides many design options for its private dwelling units (workshop 6 – Prioritization), to be initiated by its residents at a future date as their personal needs and wants evolves.

Figure 4.17 Non-profit home improvement warehouse store.

Proximity of urban growth centres to non-profit home improvement warehouse stores enables residents to renovate and improve their dwelling units at affordable rates.

The redevelopment of urban growth centres must ensure the diversity in housing types to recreate the diversity in household types, in opposition to the 'youthification' or the increasing concentration of young adults/ yuppies within Toronto's polycentric metropolitan centres.

Figure 4.18 Outdoor playground area of a suburban child care centre.

The proximity of affordable child care centres to the live-work pattern of the workforce population serves as an additional reason to stay, in opposition to relocation.

Highly opportunistic urban redevelopments risk creating hyperreality in multiculturalism, short-lived and unsecure like the instability of their housing tenure.

Figure 4.19 Immigrant community centre.

Suburban neighbourhoods have served as affordable transitional place for many economic migrants. The stability of their housing tenure has created long-lasting social relationships and cultural coexistence, as embodied in the warehouse typology of suburban cultural and religious centres.

# 4.2 Suburban Town Centre

Live-work

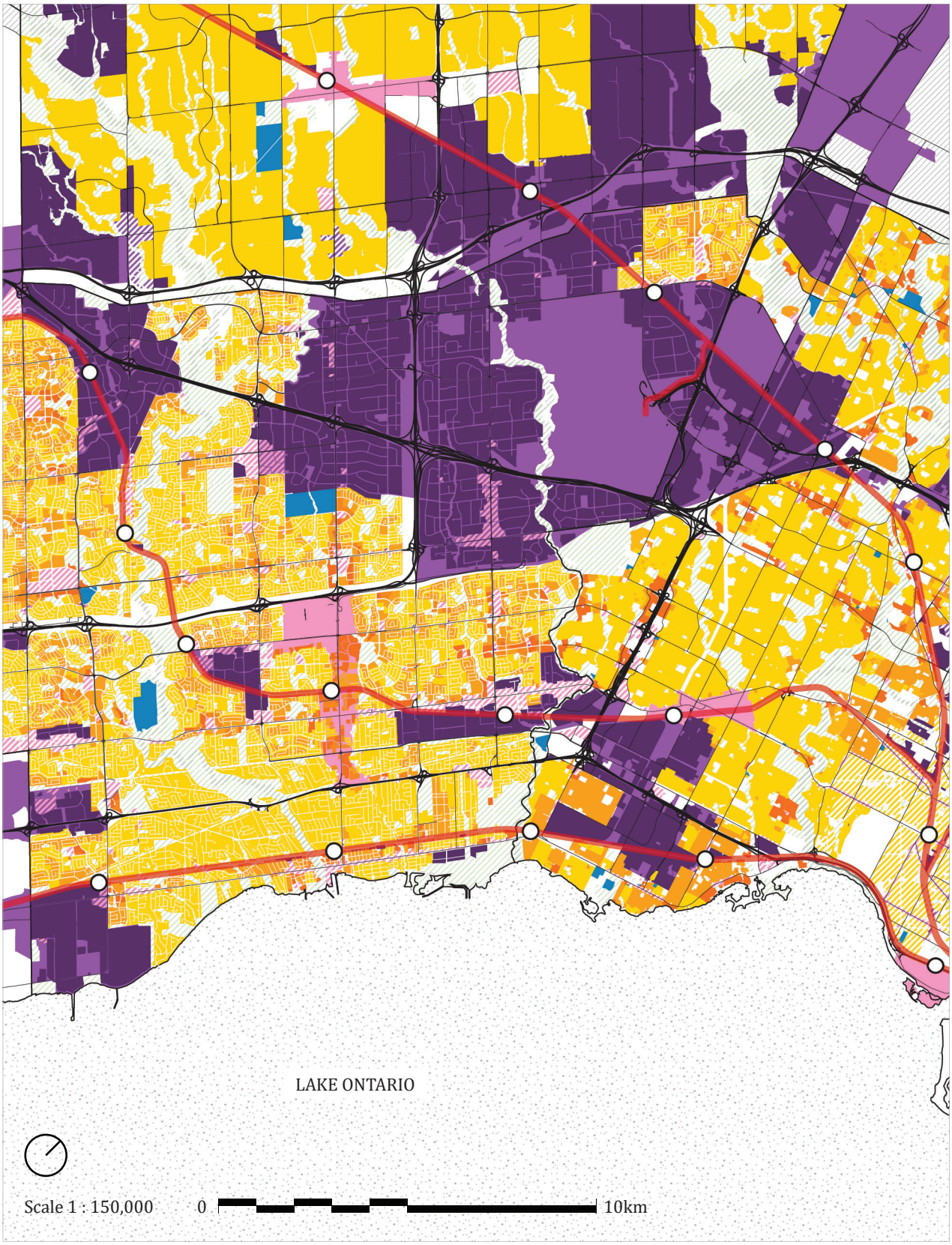
The project proposes to extend economic diversity and resiliency, in parallel to the suburban land conversion of industrial employment lands (PSEZs), by re-establishing path of continuity and hybridity in existing warehouse building typology.

***

Chapter 2 introduces the concept of urban growth centres in the Greater Golden Horseshoe (GGH), which for the past 20 years has led to the construction boom of high-rise condo towers in the region. The boundary of an urban growth centre defines a collection of land parcels suitable for higher density redevelopment so as to address the increase in economic immigration and to ensure greater protection of the region's greenbelt areas. Building upon section 4.1 (feasibility study), the cohousing project proposes a counterargument to the issues of gentrification-and-displacement. It argues for the rebuilding of a greater number in housing stocks specifically intended for the workforce population – in parallel with the overall population increase within urban growth centres. The question of design precision, as analyzed within the members selection process proposed in section 4.1, is to be further examined through the careful selection of building typology(s).

At the scale of an individual land parcel, city block or a suburban 'superblock,' the project builds upon the process of building typology analysis (zoning review, site plan application). The project looks at the potential of commercial town centres as possible sites for new cohousing communities. Their strategic location, situated in-between existing residential neighbourhoods and employment lands, points to the redevelopment of these shopping centres as a path towards the restrengthening of spatial proximity in the workforce population's everyday live-work experience.

Figure 4.20 Community shopping centres are important gathering spaces. They serve the everyday needs of many suburban residents in the GTA.


LAKE ONTARIO
Scale 1 : 150,000
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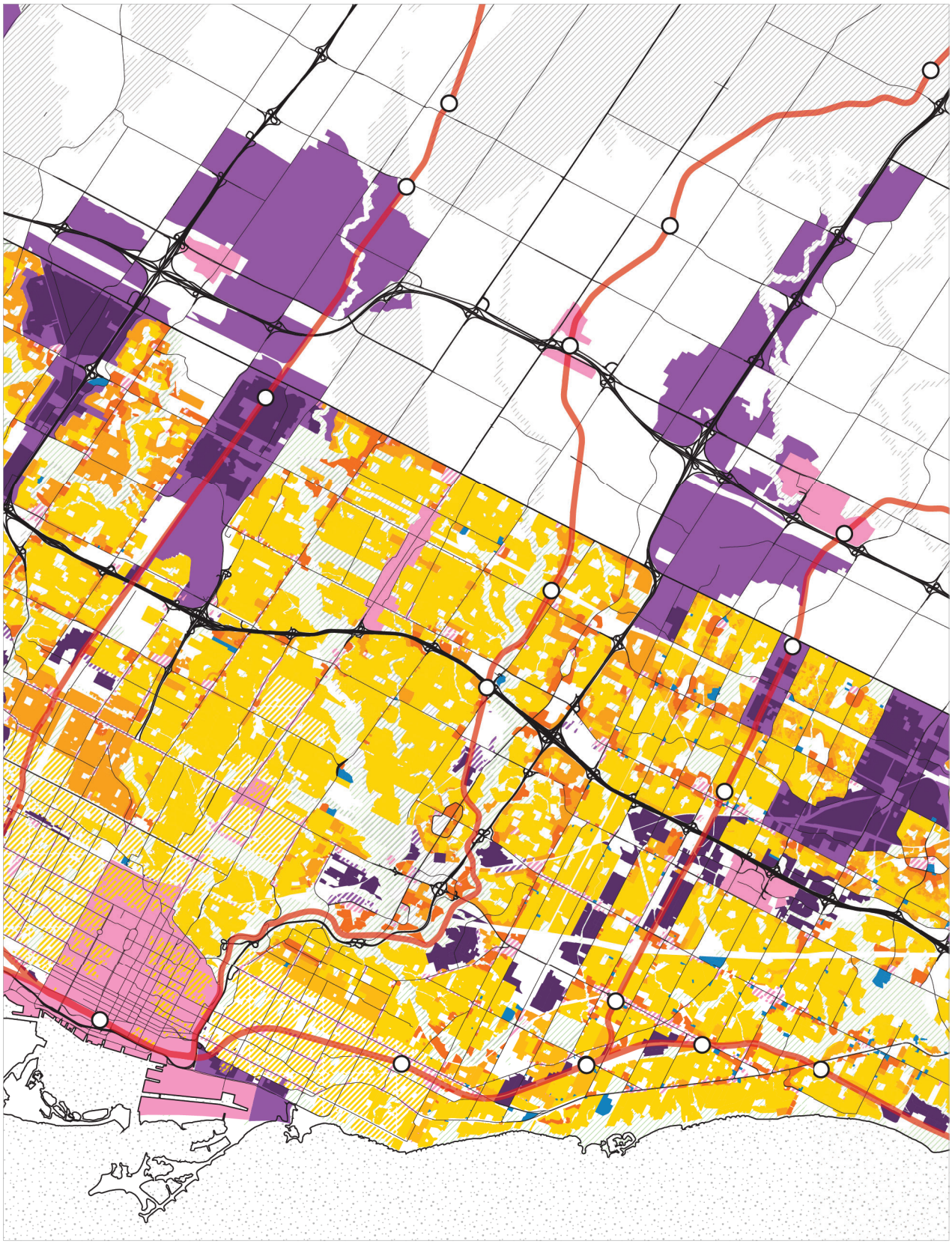


Figure 4.21
Land-use zoning map of the City of Toronto, Mississauga and Brampton.

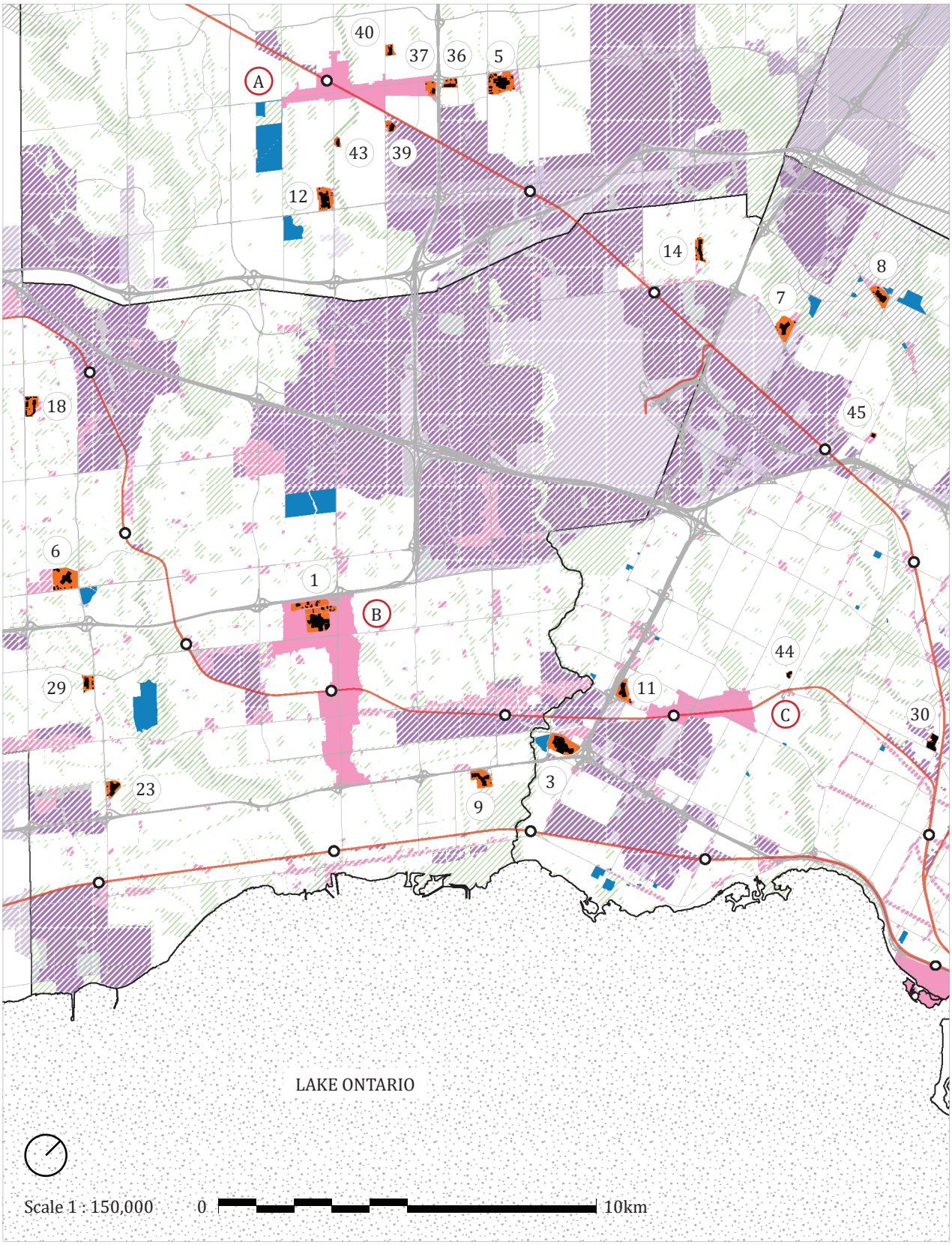
- urban growth centre
- commercial zones
- employment lands | PSEZs
- industrial zones
- industrial zones | general
- institutional zones
- residential zones | apartment
- residential zones | mid-rise apartment
- residential zones | low-rise
- residential zones | semi-detached
- residential zones
- residential zones | general
- greenbelt area
- GO Transit train station
- GO Transit rail line
- highway
- arterial road

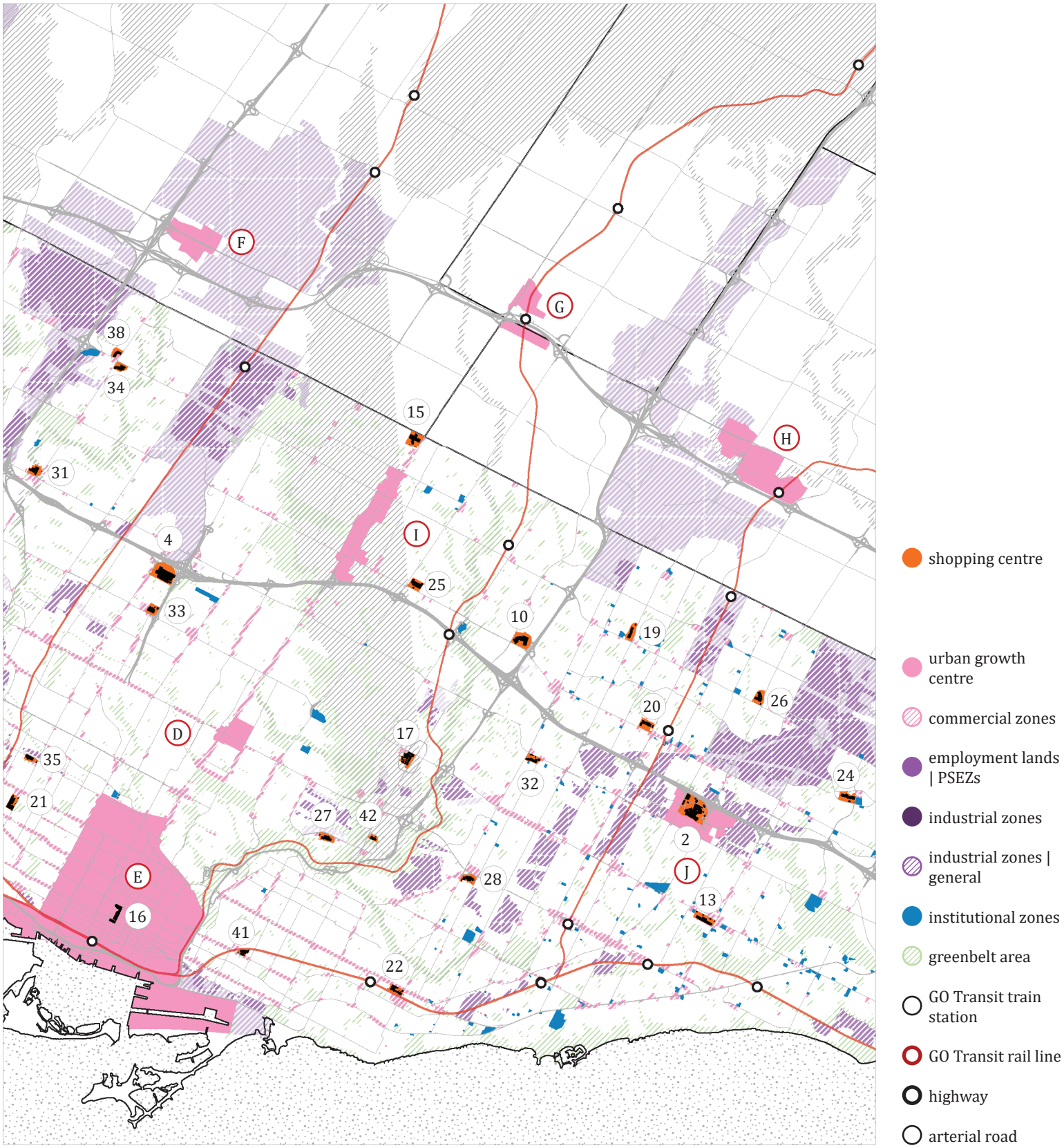
Figure 4.22
Map of commercial town centres within the City of Toronto, Mississauga and Brampton.

The collection of commercial town centres along the intersecting border of urban growth centres, (sub)urban town centres and employment lands can provide new spaces for affordable workforce housing.

Urban growth centre

- (A) Downtown Brampton
- (B) Mississauga City Centre
- (C) Etobicoke Centre
- (D) Yonge-Eglinton Centre
- (E) Toronto Downtown
- (F) Vaughan Corporate Centre
- (G) Richmond Hill | Langstaff Gateway
- (H) Markham Centre
- (I) North York Centre
- (J) Scarborough Centre

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shopping centre
urban growth centre
commercial zones
employment lands | PSEZs
industrial zones
industrial zones | general
institutional zones
greenbelt area
GO Transit train station
GO Transit rail line
highway
arterial road

According to the Canadian Retail Real Estate Standard, Canadian shopping centres are to be categorized primarily into five levels: 1) convenience centre, 2) neigbourhood centre, 3) community centre, 4) regional mall, and 5) super-regional mall.[1] In regard to the construction boom in podium-tower condo typology, the thesis points to the regional and super-regional malls as suitable sites and sites-adjacent for this form of intensification. With a primary trade area defined by a 20km radius and with their smooth integration onto mass public infrastructure, regional malls are best suited to serve and adapt to the highly competitive global economy, the digital workplace, and mass tourism. Meanwhile, community centres, neighbourhood and convenience centres, have primary trade areas *limited* to a 5km radius (1-hour walk, or a 15-minute bike ride). These centres are best suited to serve and restrengthen the local economy.

To build upon the German architect Oswald Mathias Unger's concept of 'city-island' archipelago,[2] the project proposes to separate fragments of the soon-to-be redeveloped suburban centres in the GTA. Within the theme of socioeconomic inclusivity, the sea of 'urban forest' is to be interpreted as land parcels designated for the general housing market, digital workplace and super/regional malls. And as a counterpart, the city-island are to be interpreted as land parcels designated for affordable housing, warehouse employment sites, and the in-between space of community shopping centres. The high-degree of intersecting boundaries between the city-island (the stable) and the urban forest (the ephemeral, innovative yet open to uncertainty) re-creates a diverse and resilient city economy.[3]

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1 International Council of Shopping Centers, *Canadian Retail Real Estate Standard: A Framework for Shopping Centre and Other Retail Format Definitions*, (New York: 2010), 2-3.

2 Pier Vittorio Aureli, "Toward the Archipelago," 114-118.

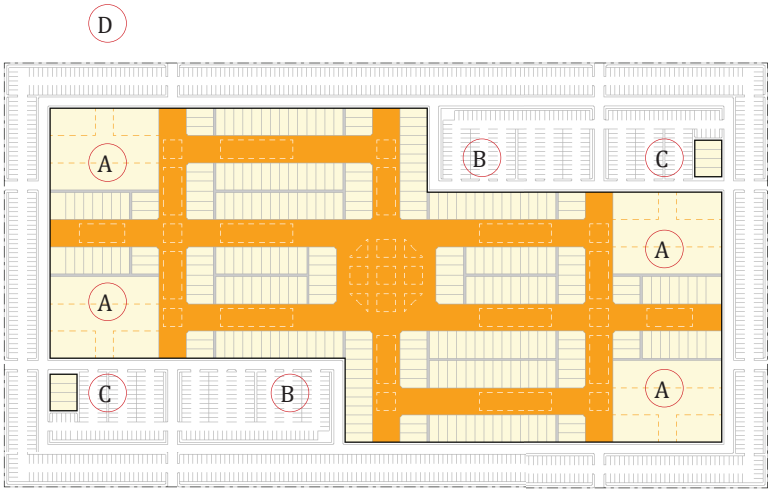
3 Market expansion, e.g. global investors in real estate investment. Market contraction, e.g. land banking, land trust, and shelter cost subsidization. These are opposing forces *in tandem* informs a city economy on how to operate effective market correction. In effect, these self-corrections ensure an active state of equilibrium and economic resiliency.

Jane Jacobs, "Cities and the wealth of nations; a new theory of economic life," *Atlantic*, March 1984.

Figure 4.23 Typology study of shopping centres in the GTA, as interpreted from the International Council of Shopping Centers' *Canadian Retail Real Estate Standard: A Framework for Shopping Centre and Other Retail Format Definitions*.

SUPER-REGIONAL MALL

over 800,000 sq. ft. gla
10 to 30 km primary trade area
3 or more anchors




mall

a private walkway and/or common area connecting a set of storefronts with inward orientation

'interior street' skylight

A anchor store

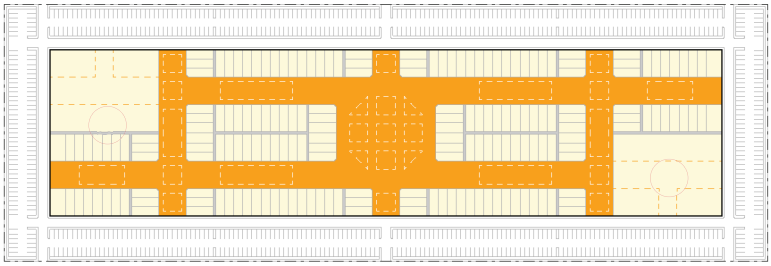
B storefronts with outward orientation

C outparcel store

D multiple levels

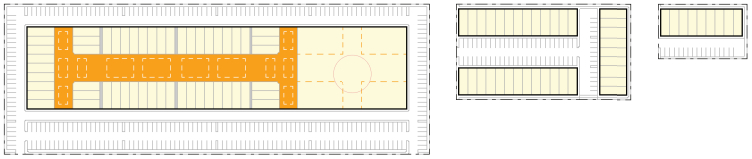
REGIONAL MALL

300,000 to 799,999 sq. ft. gla
8 to 20 km primary trade area
2 or more anchors



COMMUNITY CENTRE

100,000 to 400,000 sq. ft. gla
5 to 8 km primary trade area
1 or more anchors



NEIGHBOURHOOD CENTRE

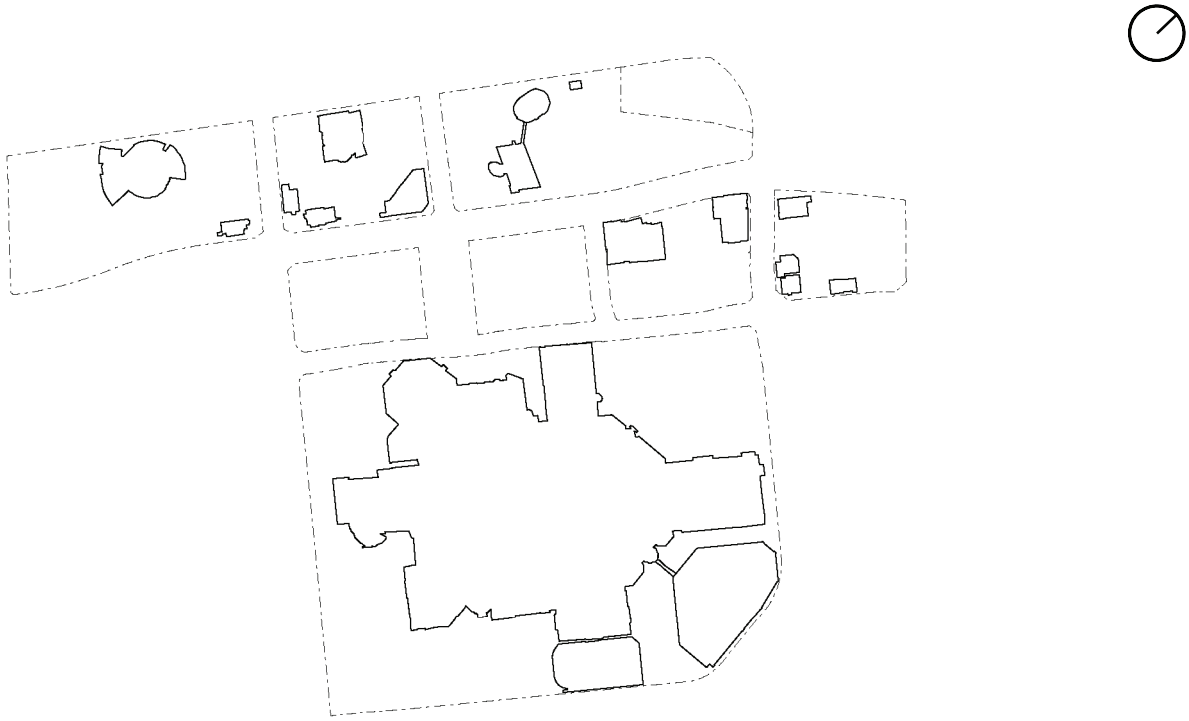
40,000 to 99,999 sq. ft. gla
up to 5 km primary trade area
1 anchor

CONVENIENCE CENTRE

10,000 to 39,999 sq. ft. gla
up to 2 km primary trade area
n/a anchor

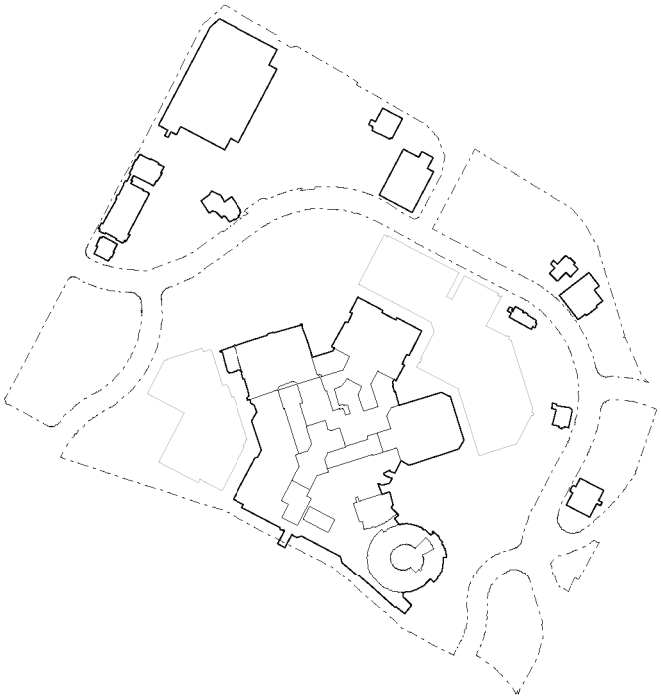
Scale 1 : 5,000 0 250m

Figure 4.24 Typology study of shopping centres in the GTA (1.1). Scale 1 : 10,000



1

Square One Shopping Centre 2,200,000 sq. ft. gross leasable area (gla)



2

Scarborough Town Centre 1,600,000 sq. ft. gross leasable area (gla)

Figure 4.25 Typology study of shopping centres in the GTA (1.2).

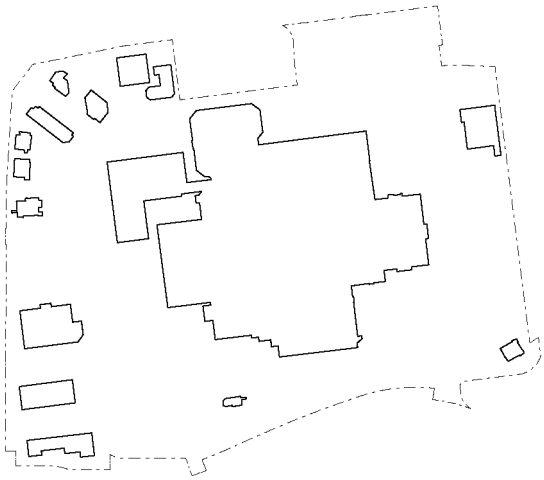
0 500m

3

CF Sherway Gardens 1,147,323 sq. ft.

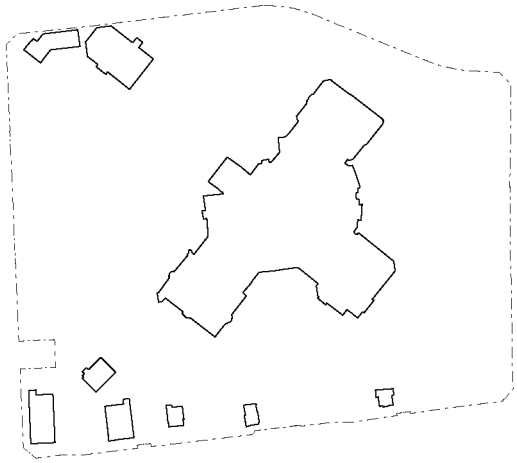
4

Yorkdale Shopping Centre 2,000,000 sq. ft.



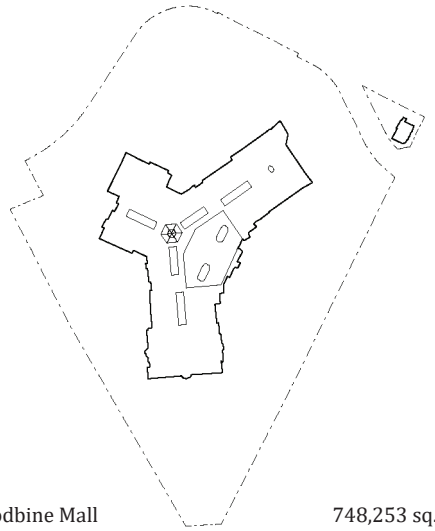
5

Bramalea City Centre 1,490,308 sq. ft.



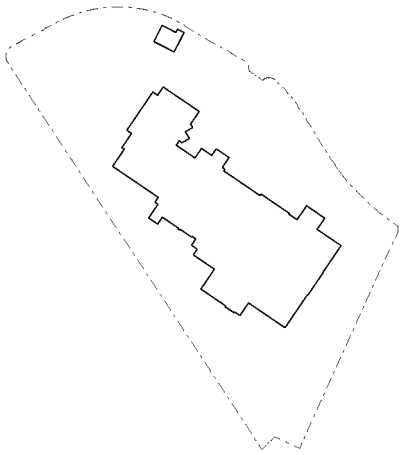
6

Erin Mills Town Centre 850,000 sq. ft.



7

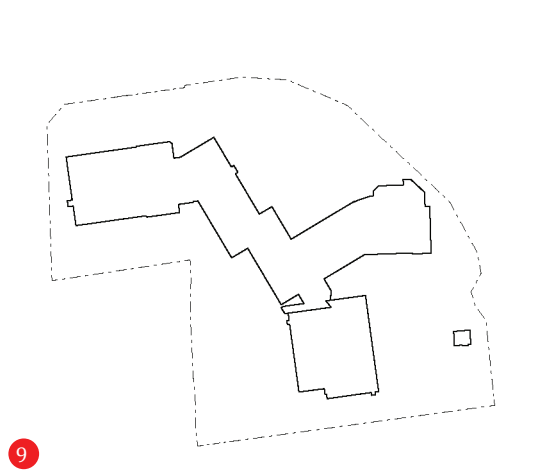
Woodbine Mall 748,253 sq. ft.



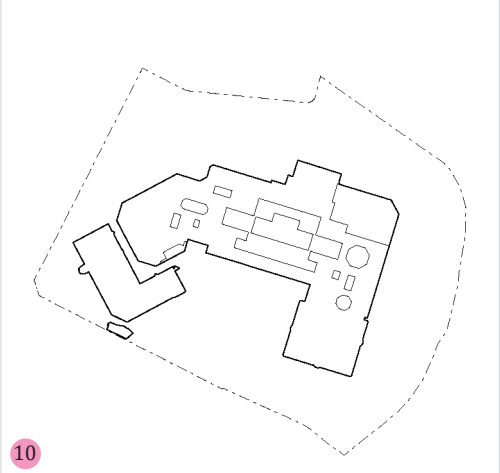
8

Albion Centre 376,579 sq. ft.

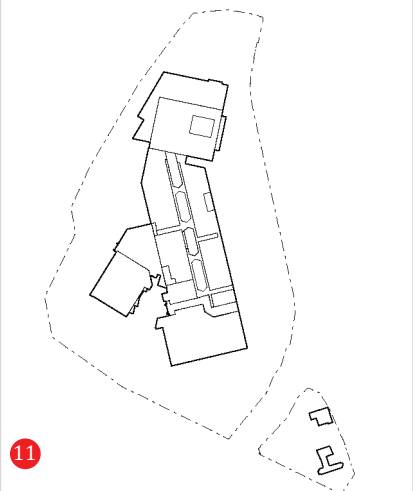
Figure 4.26 Typology study of shopping centres in the GTA (1.3). Scale 1 : 10,000



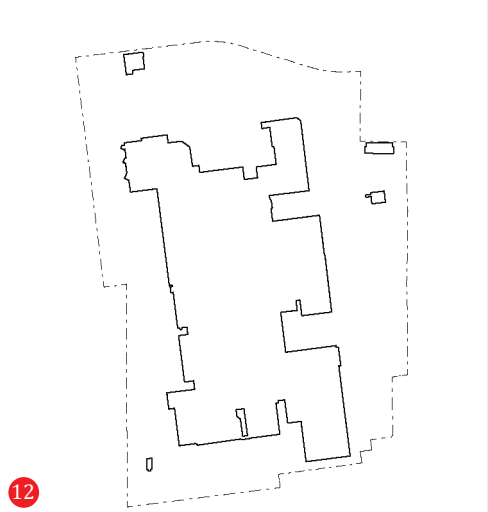

Dixie Outlet Mall 423,265 sq. ft.



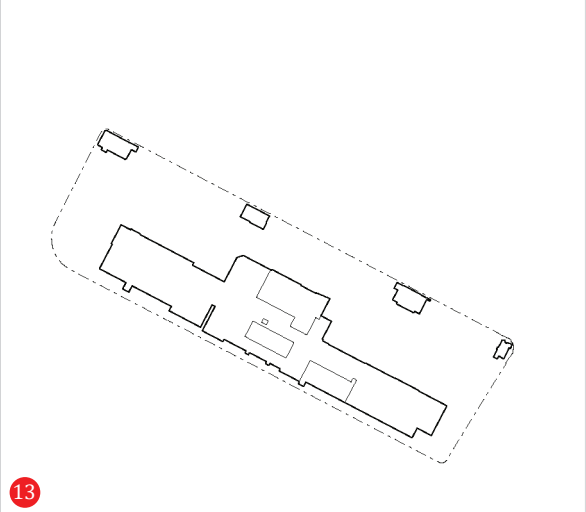

CF Fairview Mall 851,662 sq. ft.



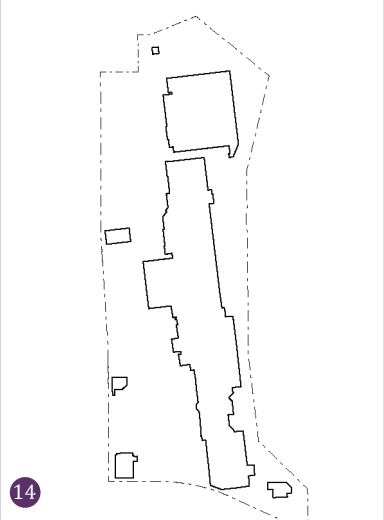

Cloverdale Mall 435,000 sq. ft.



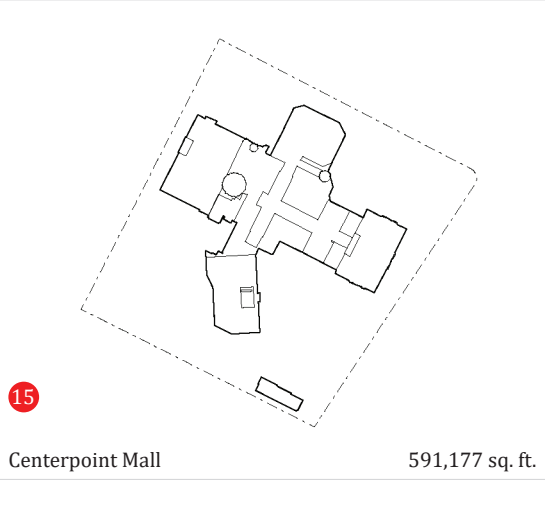

Shoppers World Brampton 694,016 sq. ft.




Cedarbrae Mall 457,222 sq. ft.

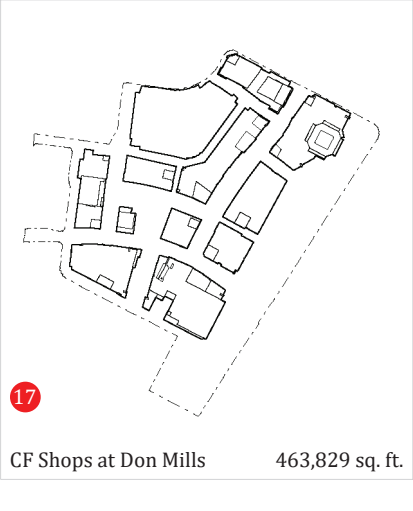



Westwood Square 400,000 sq. ft.




Centerpoint Mall 591,177 sq. ft.

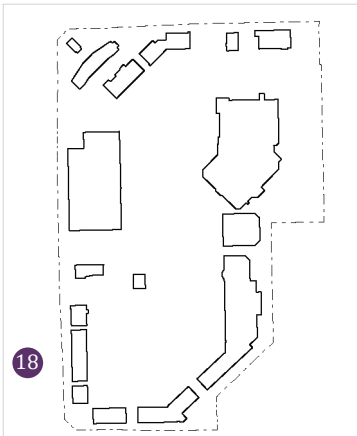
CF Toronto Eaton Centre 1,889,301 sq. ft.

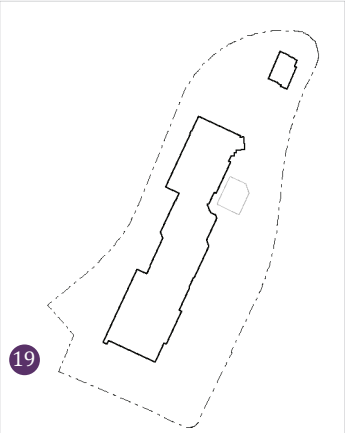


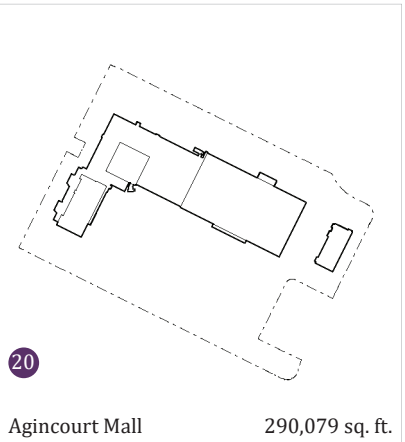

CF Shops at Don Mills 463,829 sq. ft.

Figure 4.27 Typology study of shopping centres in the GTA (1.4).

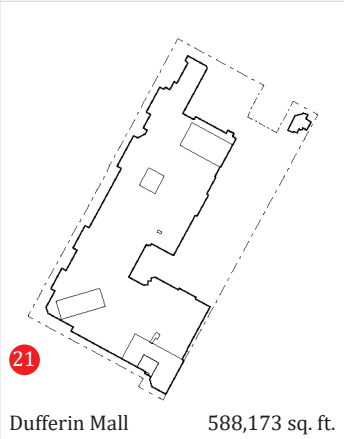
0 500m



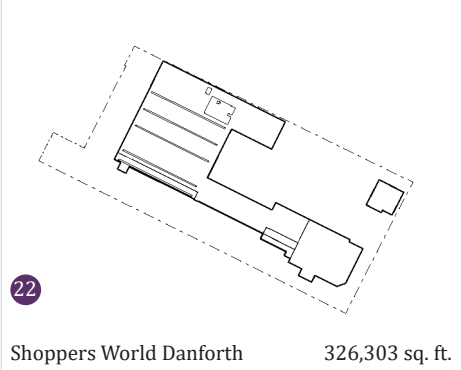



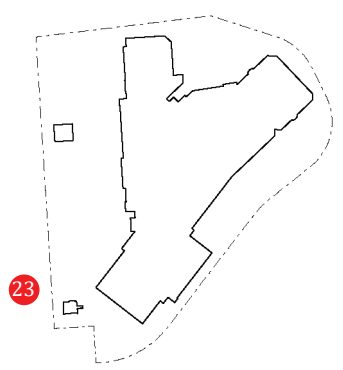

Agincourt Mall 290,079 sq. ft.

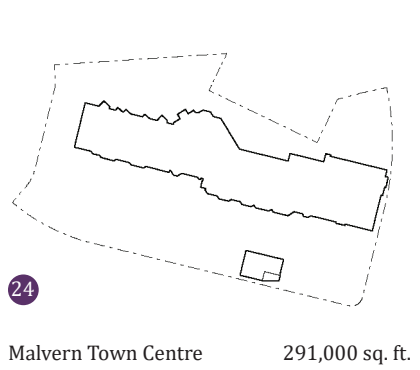



Dufferin Mall 588,173 sq. ft.

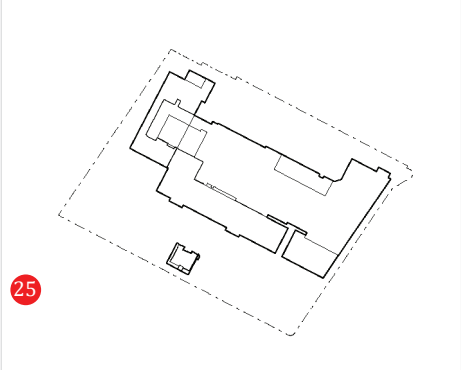


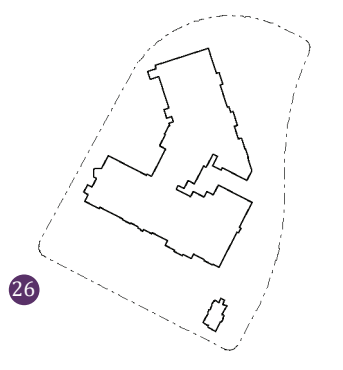

Shoppers World Danforth 326,303 sq. ft.

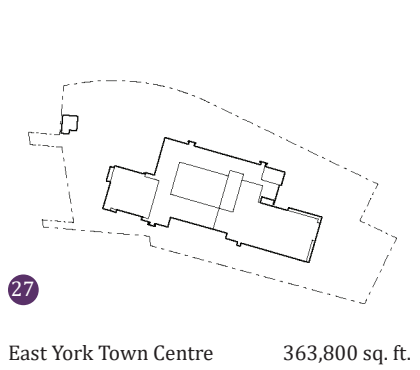


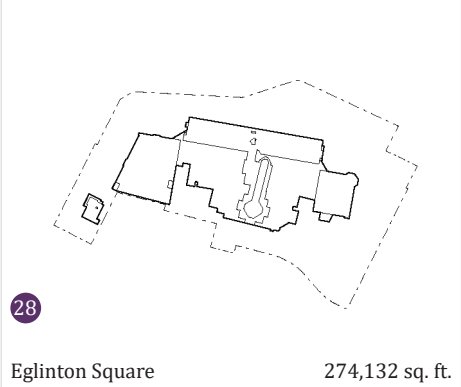

Malvern Town Centre 291,000 sq. ft.



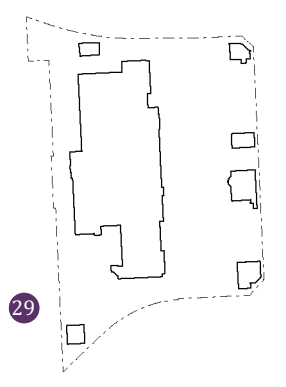



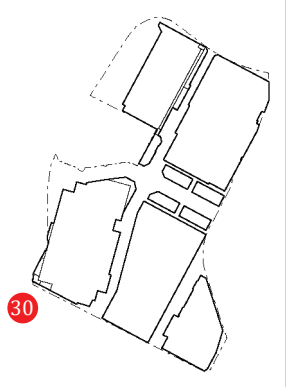



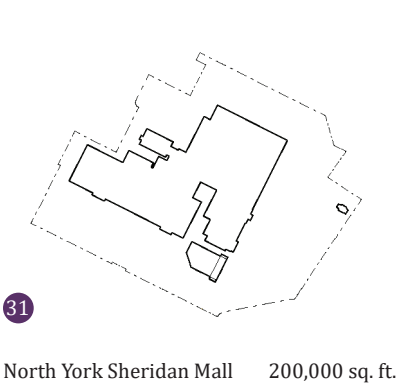

East York Town Centre 363,800 sq. ft.




Eglinton Square 274,132 sq. ft.




North York Sheridan Mall 200,000 sq. ft.

18. Meadowvale Town Centre
388,425 sq. ft.

19. Bridlewood Mall
n/a sq. ft.

23. Sheridan Centre
548,267 sq. ft.

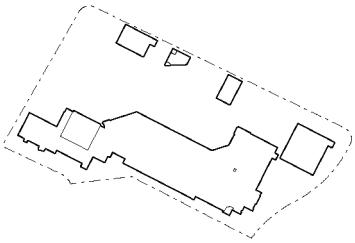
25. Bayview Village Shopping Centre
440,000 sq. ft.

26. Woodside Square
n/a sq. ft.

29. SmartCentres South Common
292,127 sq. ft.

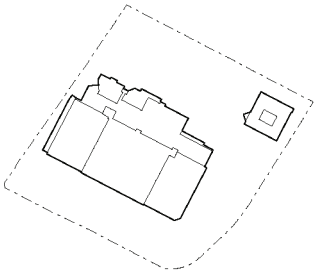
30. Stock Yards Village
504,179 sq. ft.

Figure 4.28 Typology study of shopping centres in the GTA (1.5). Scale 1 : 10,000



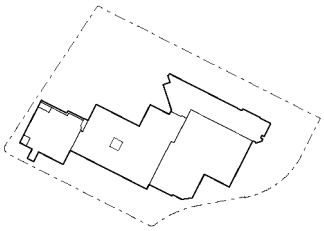
32

Parkway Mall 244,552 sq. ft.



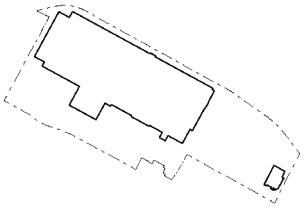
33

Lawrence Allen Centre 657,821 sq. ft.



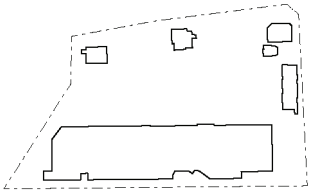
34

Jane Finch Mall 246,080 sq. ft.



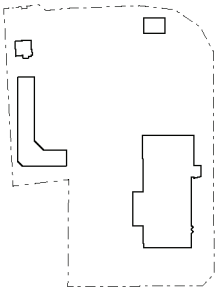
35

Galleria Shopping Centre
215,000 sq. ft.



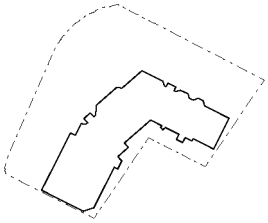
36

410 @ 7 Centre
238,000 sq. ft.



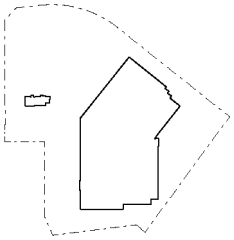
37

Bramrose Square
186,389 sq. ft.



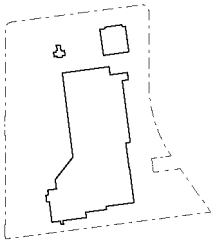
38

Yorkgate Mall
217,339 sq. ft.



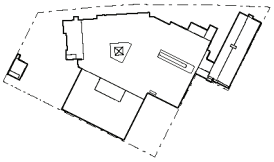
39

Kennedy Square Mall
n/a sq. ft.



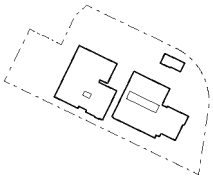
40

Centennial Mall
177,000 sq. ft.



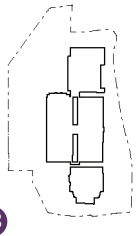
41

Gerrard Square Shopping Centre
n/a sq. ft.



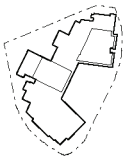
42

Flemingdon Park Shopping Centre | n/a sq. ft.



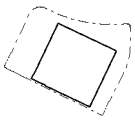
43

Brampton Mall
103,140 sq. ft.



44

Humbertown Shopping Centre
108,700 sq. ft.



45

Rexdale Mall
97,229 sq. ft.

Figure 4.29 The *often-forgotten* architecture of community shopping centres, in its subjective beauty, has served as an event-space for the everyday encounters of home and community belonging.

*The Local* 'The greatest mall in the world.'

From a bouncing child running the candy aisles of the dollar store to the teenage antics I'd get up to after school to now, an adult sitting at the small desk Pomer has set up beside his cash register. No mall will ever know me as intimately as this one. I will remain steadfast in my claim that it's the best, to anyone that will hear me.

29

SmartCentres South Common

Community Centre | Mississauga
2150 Burnhamthorpe Rd. W.
cor. Erin Mills Pkwy. & Burnhamthorpe Rd. W.

292,127 sq. ft. gla

Figure 4.30 SmartCentres South Common street view.

14

Westwood Square

Community Centre | Mississauga
7205 Goreway Dr.
near Goreway Dr. & Derry Rd. E.

400,000 sq. ft. gla

Figure 4.31 Westwood Square street view.

9

Dixie Outlet

Regional Mall | Mississauga
1250 S. Service Rd.
near Q.E.W. & Dixie Rd.

423,265 sq. ft. gla

Figure 4.32 Dixie Outlet street view.

8

Albion Centre

Community Centre | Etobicoke
1530 Albion Rd.
cor. Finch Ave. W. & Kipling Ave.

376,579 sq. ft. gla

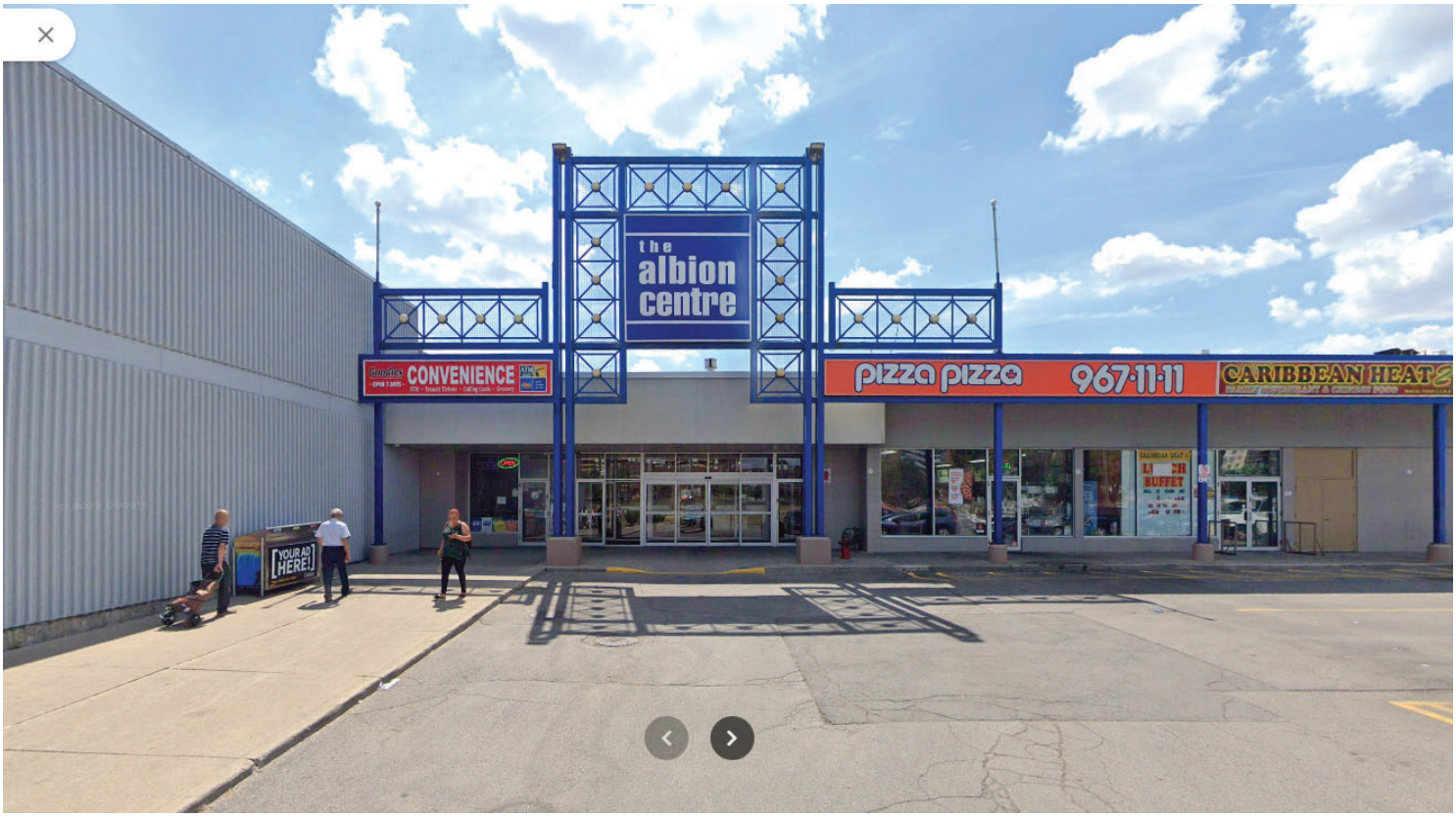



Figure 4.33 Albion Centre street view.

27

East York Town Centre

Community Centre | East York
45 Overlea Blvd.
cor. Overlea Blvd. & Thorncliffe Park Dr.

363,800 sq. ft. gla

Figure 4.34 East York Town Centre street view.

38

Yorkgate Mall

Community Centre | North York
1 Yorkgate Blvd.
cor. Finch Ave. W. & Jane St.

217,339 sq. ft. gla

Figure 4.35 Yorkgate Mall street view.

31

North York Sheridan Mall

Community Centre | North York
1700 Wilson Ave.
cor. Jane St. & Wilson Ave.

200,000 sq. ft. gla

Figure 4.36 North York Sheridan Mall street view.

42

Flemingdon Park Shopping Centre

Community Centre | North York
747 Don Mills Rd.
near Don Mills Rd. & Eglinton Ave. E.

=/+ 100,000 sq. ft. gla

Figure 4.37 Flemingdon Park Shopping Centre street view.

32

Parkway Mall

Community Centre | Scarborough
85 Ellesmere Rd.
cor. Victoria Park Ave. & Ellesmere Rd.

244,552 sq. ft. gla

Figure 4.38 Parkway Mall street view.

37

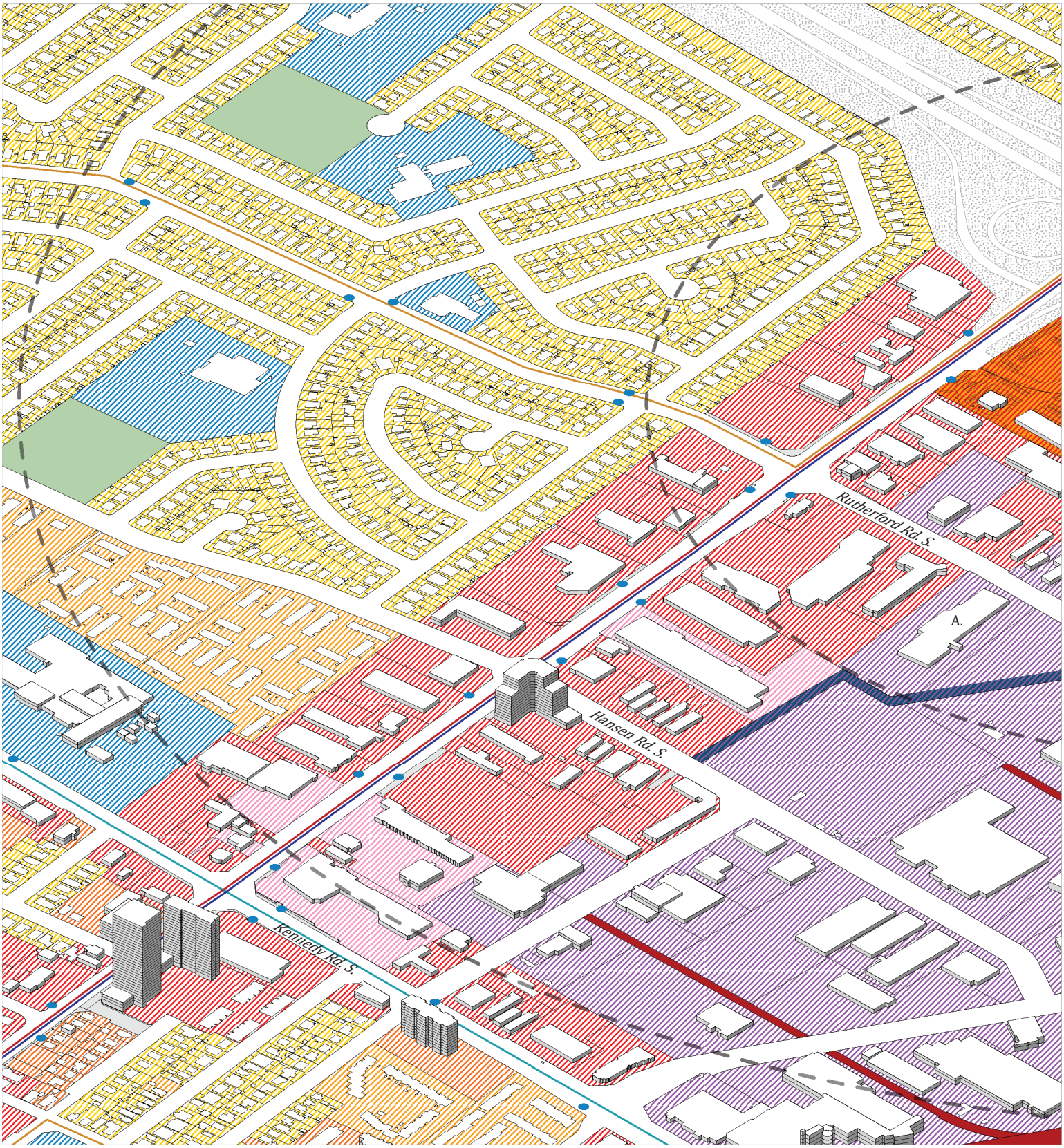
Bramrose Square

Community Centre | Brampton
295 Queen St. E.
cor. Queen St. E. & HWY-410

152,389 sq. ft. gla

Figure 4.39 Bramrose Square street view. Project site.

The project looks at the potential of commercial town centres as possible sites for new cohousing communities.


Rutherford Rd. S.
A.
Hansen Rd. S.
Kennedy Rd. S.

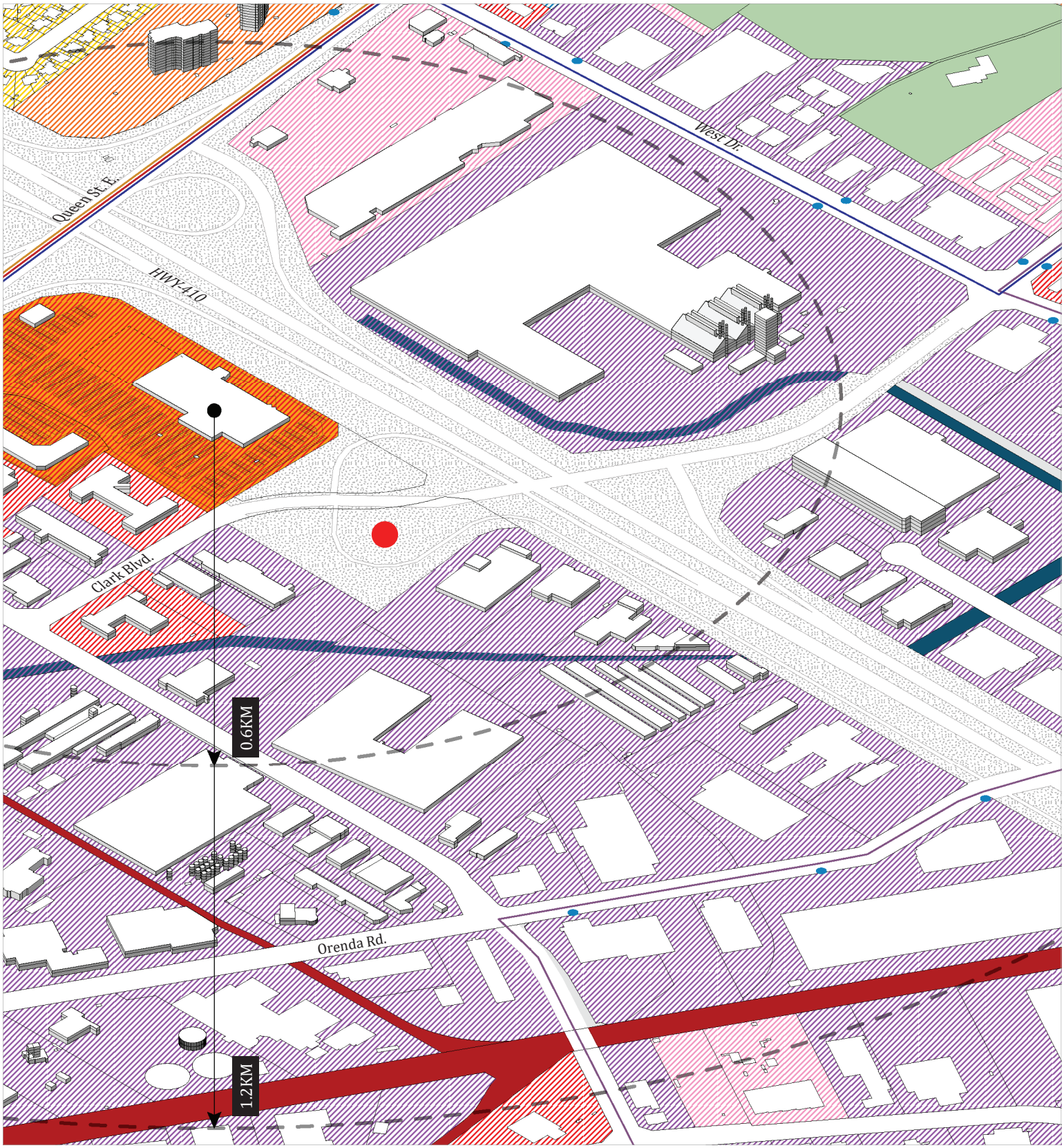

Queen St. E.
HWY-410
West Dr.
Clark Blvd.
0.6KM
Orenda Rd.
1.2KM

Figure 4.40 (previous page) Bramrose Square neighbourhood axonometric drawing. South perspective.

commercial zones

mixed-use zones

industrial zones

residential zones | R1. R2.

residential zones | R3. townhouse

residential zones | R4. apartment dwelling

institutional zones

bus stop

501 Züm Queen bus route

1 Queen bus route

8 Centre bus route

7 Kennedy bus route

10 South Industrial bus route

carpool parking lot

GO Transit rail line

open space

watercourse

project site

A. Region of Peel

youth transitional housing (c. 2024)

To represent the concept of limits as the spatial proximity of the local economy, the project proposes a mid-rise building block typology with a central service core to facilitate vertical circulation. Depending on budget feasibility, a design constraint of 6 storeys is proposed to enable all the cohousing households to have sensorial connection/ interaction with the public street below. The proposed building length is to be analogous with that of a townhouse block, approximately 6 structural bays with 6m span each, or a total of 36m. Two mid-rise building blocks are to have a mirrored-orientation with each other, and their street-level setbacks (on the side) to serve as covered arcades connecting the front and rear façade of the buildings. The combined length of 2 blocks at 72m, with a building width of 15m (assume a double-loaded corridor with a 3m width, plus a typical apartment depth of 6 m and a 3m height to follow a 1:2 ratio in daylighting strategy) produces a building footprint analogous to a mid-sized industrial warehouse. The composition of 2 arcades side-by-side transforms into a central courtyard that serves the 2 cohousing communities altogether, and the public at-large through a 'privately-owned publicly accessible spaces' (POPS) designation.

The 6 structural bays multiplied by 5 storeys of residential space indicates an estimated maximum number of cohousing households at 30 members – the ideal number to allow both a sense of intimacy and of social connectivity.[4] Meanwhile, the ground level retains the site's previous commercial (mixed-use) zoning. The position of building blocks in relation to a land parcel (to be subdivided) is again to be determined through the concept of spatial proximity. Underutilized parking lots immediately adjacent to existing commercial buildings are the first to be converted into multi-unit residential buildings (MURBs). The first set of reductions in parking spaces is to be justified by the increased investment in public infrastructure within urban growth centres, with many infrastructure projects currently under construction, or to be proposed.

Furthermore, the thesis argues that many community shopping centres are incapable of competing against the large investment pool of regional and super-regional malls. The eventual loss in competitiveness is expressed through the numerous vacant and demolished warehouse stores. As an alternative to the duality between total gentrification-or-obsolescence, the project proposes to re-shift the economic framework of many community shopping centres towards a more localized economy. The new cohousing residents will become the primary target customer for these shopping centres, with their spatial proximity (at half-a-kilometer, or a 7.5-minute walk) enabling more walking and biking in their everyday commutes. Meanwhile, parking lots farthest from existing commercial buildings are to remain (to be managed through land banking and/or to be developed

4 Chris Scotthanson, *The Cohousing Handbook: Building a Place for Community*, 128.

at a later phase). They will continue to serve the weekly commutes of suburban residents from adjacent neighbourhoods. The gradual increase in bus stops, transit frequency and the construction of a neigbourhood bus terminal (at a later phase) mirrors the gradual increase in newly constructed building blocks allocated for the workforce population, and the gradual decrease in surface parking spaces. Following on the stories of The Eastman Reserve (Rochester) and La Placita Cinco (Santa Ana), as infill development of workforce housings built-over underused parking lots, the siting of the proposed building blocks respects the limits in space-and-time (construction phasing). It builds upon the site's existing industrial and commercial spatial relationships, instead of reverting onto an idealized empty space.

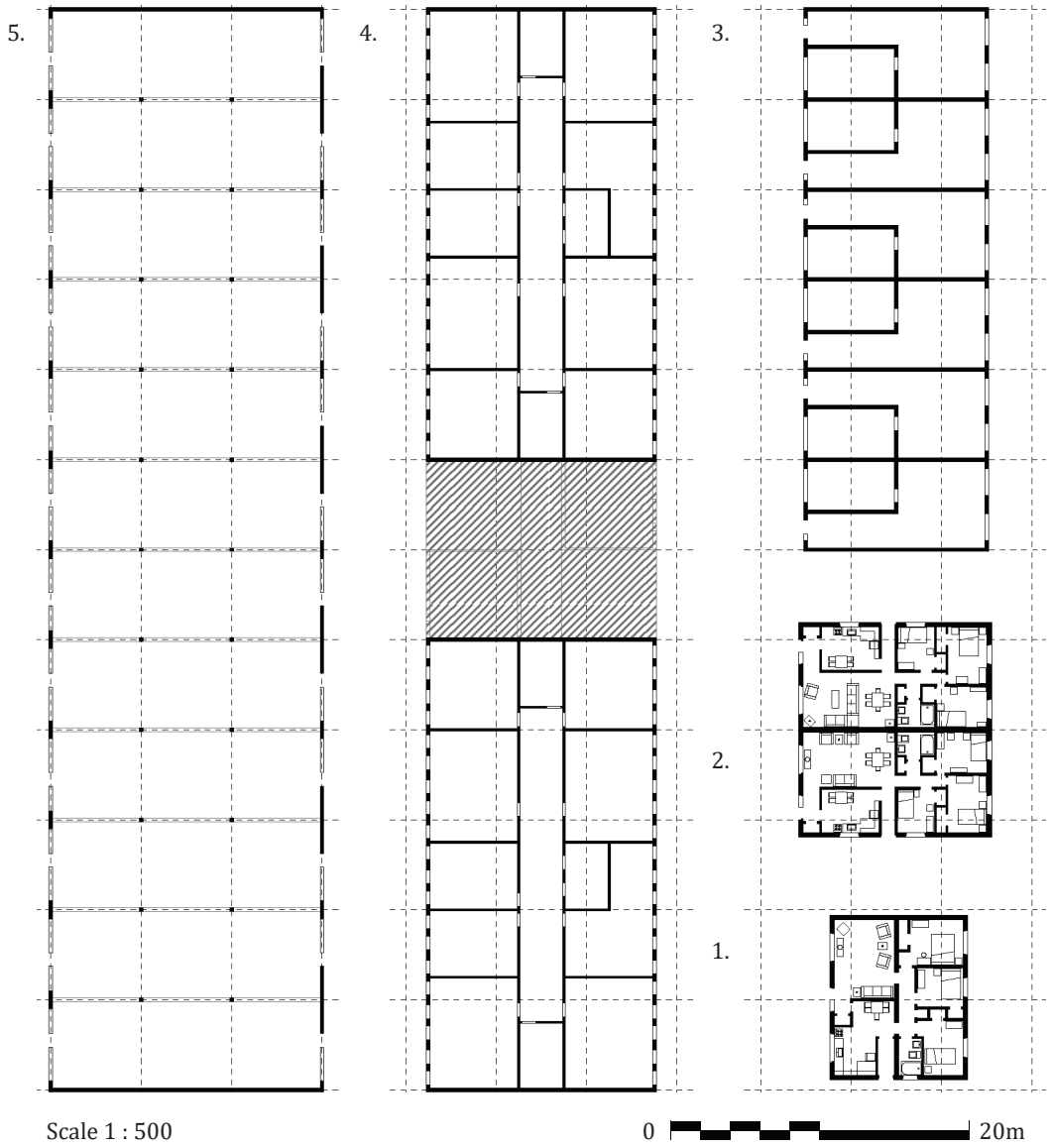



Figure 4.41
Typology study of suburban architecture in Brampton Central Area.

1. single-family detached bungalow
2. single-family attached bungalow
3. townhouse
4. proposed mid-rise residential building blocks with central courtyard in-between
5. mid-sized industrial warehouse

A.
1
2
3
4
PRIVATE ROAD
Scale 1 : 1,500
0
100m

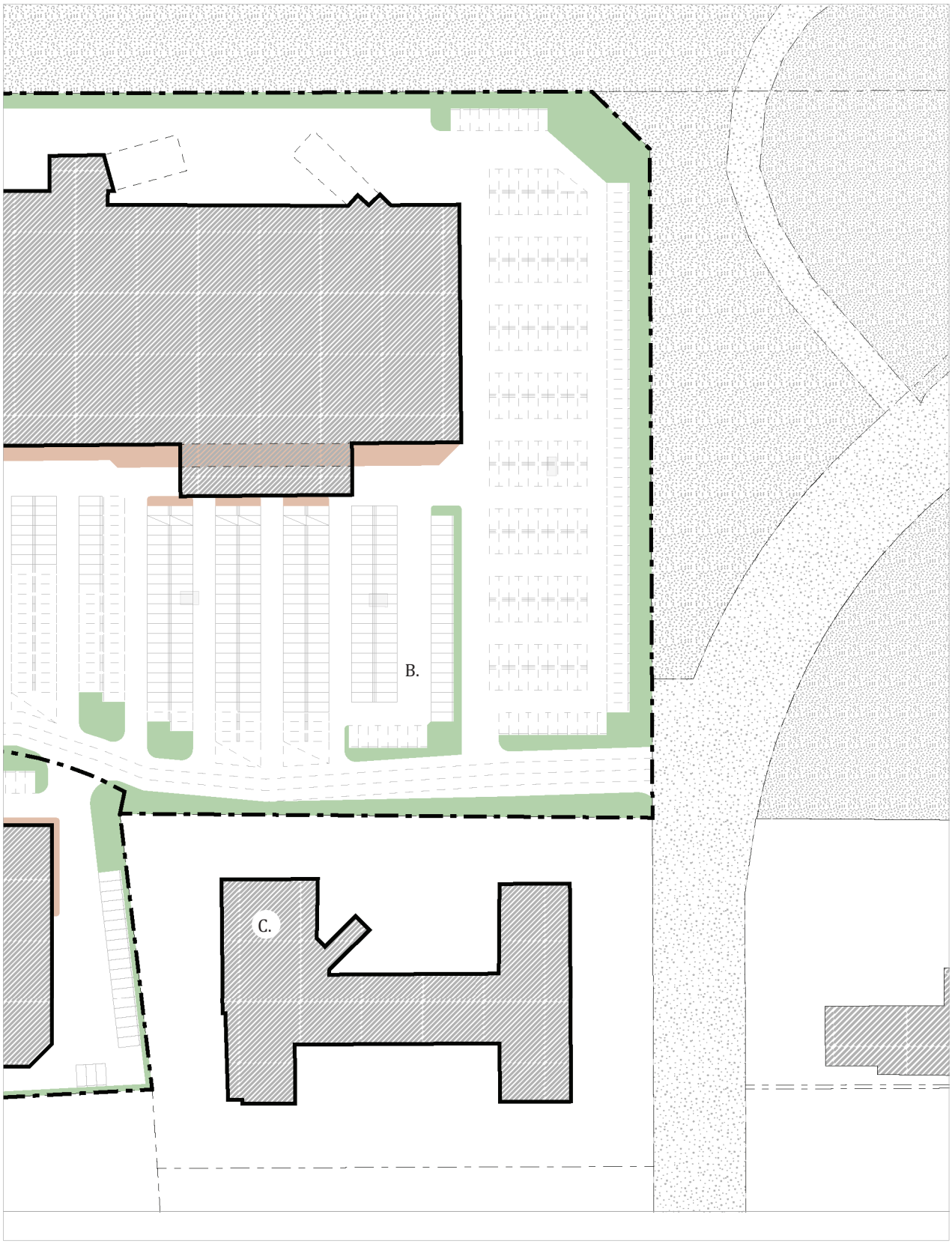



Figure 4.42
Bramrose Square existing site plan.

1 Existing 1-storey warehouse stores including 1 anchor store: discount supermarket

2 Existing 1-storey strip mall including restaurants, retail, business and personal service stores

3 Existing 1-storey commercial pavilion: local restaurant

4 Existing 1-storey commercial pavilion: restaurant

A Empty space. Demolished 1-storey warehouse store

B Temporary garden centre

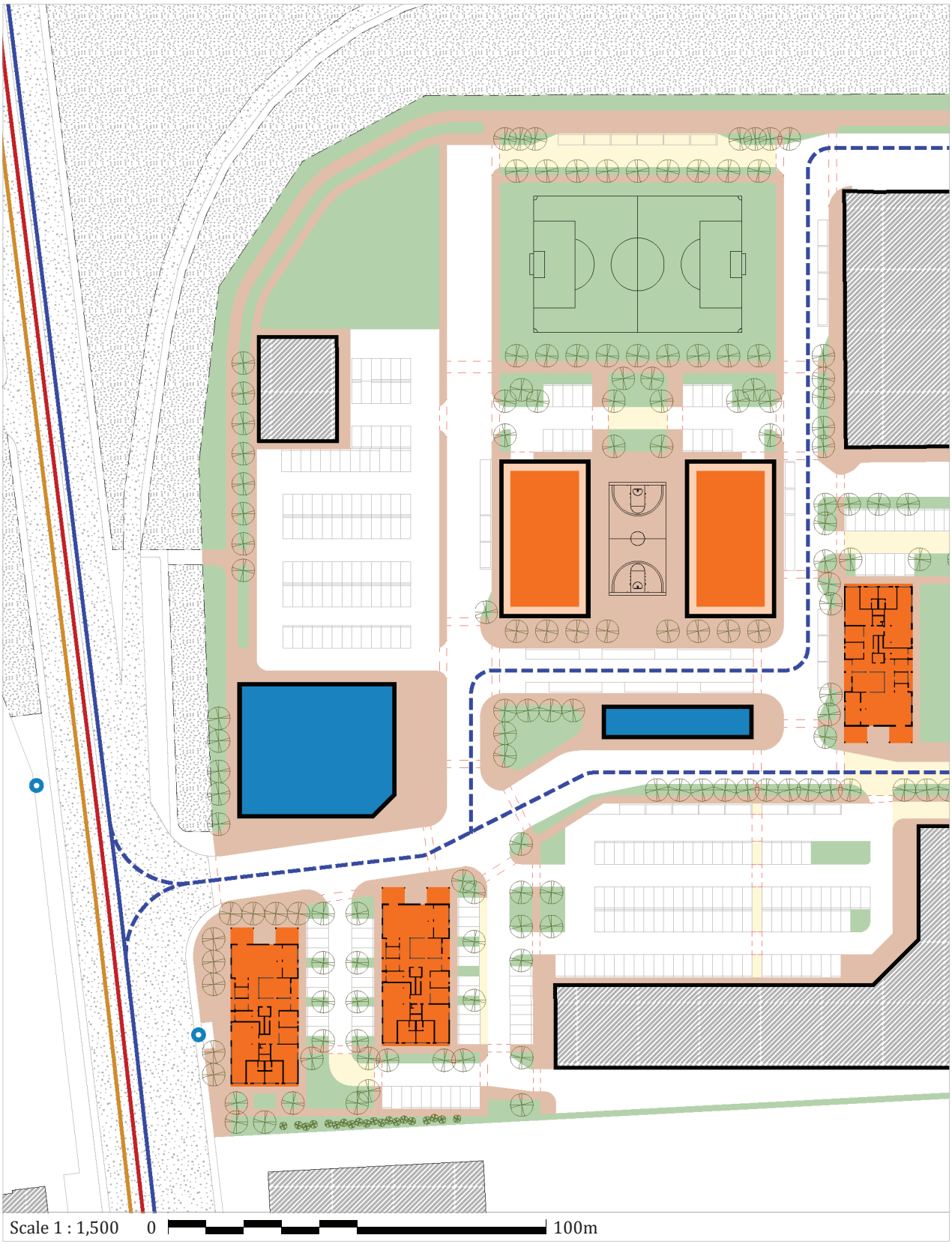
C Existing 2-storey Quality Inn & Suites hotel

bus stop

501 Züm Queen bus route

1 Queen bus route

8 Centre bus route


Scale 1 : 1,500
0
100m

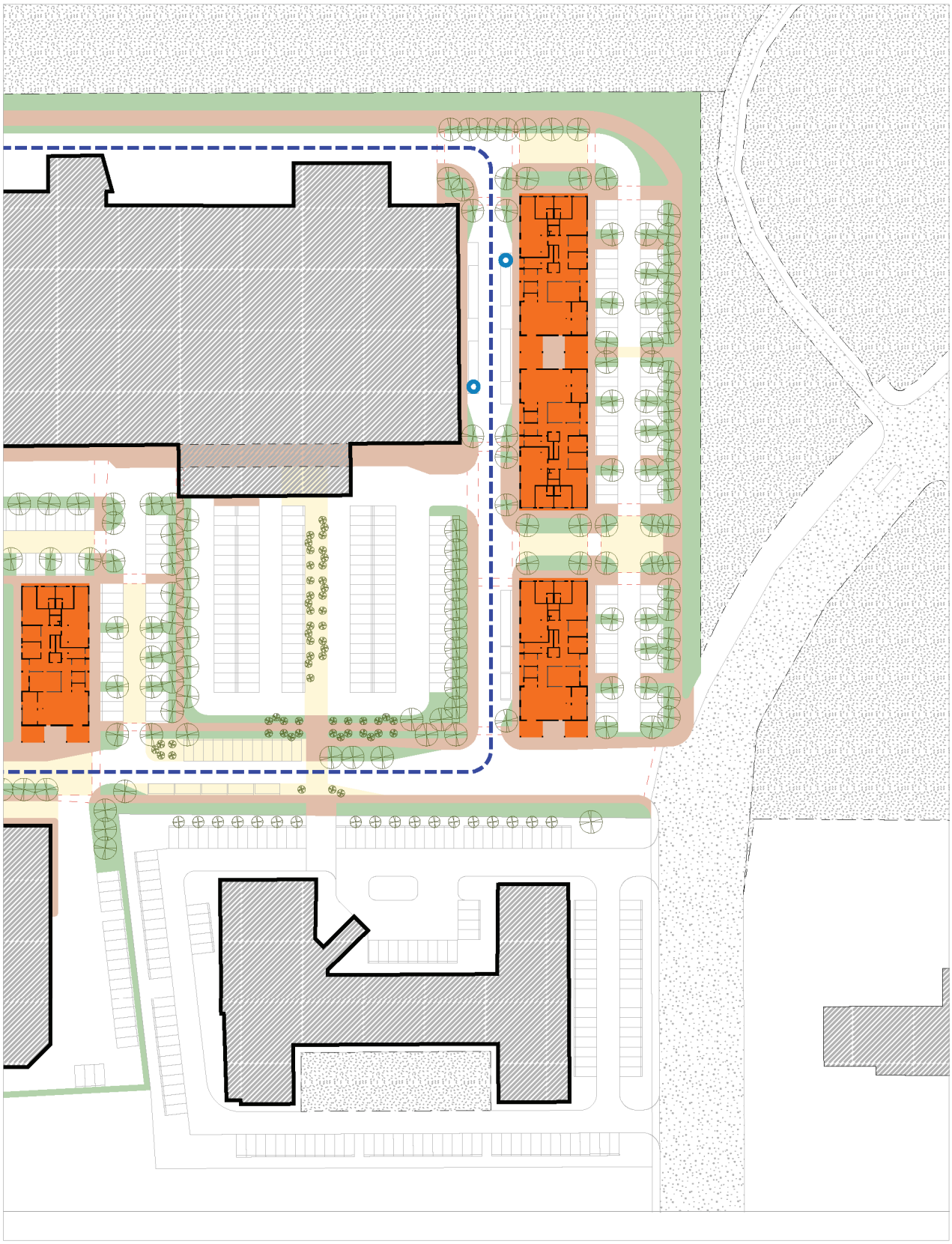


Figure 4.43
Bramrose Square
proposed site plan.

true north

project north

affordable housing

institutional building

1 Queen new bus loop

bus stop

'woonerf' shared street

hard landscaping area

soft landscaping area

Figure 4.44
Bramrose Square proposed site plan. Plan of subdivision.

true north

project north

A. Heart Lake Rd. S.

B. bike path

C1. First St.

C2. Second St.

C3. Third St. E.

C4. Park St.

C5. Third St. W.

D1. bus terminal - Bramrose

D2. public park - soccer field

D3. land banking

phase 1
block 1, 2 and 3
=/< 6 storeys

phase 2
block 4 and 5
=/< 6 storeys

phase 3
block 6 and 7
=/< 12 storeys

phase 4
block 8 and 9
=/< 6 storeys

The proposed design for the 'Common House' building block pertains only to Block 1. Building footprints for Block 2, 3, 4, 5, 8 and 9 serves only as placeholders, allowing for further adaptation in building form and a variety of types in housing tenure.

The specified 42m building length, as a design guideline, can easily adapt to the 6-storey mid-rise building typology (as proposed) and/or the 3 to 4-storey townhouse typology (7- 6 metres structural bay). Both typologies are to be prioritized to achieve gentle intensification. In addition, the repetition of building form allows for non-profit organizations to share preliminary design layouts, thereby lowering the project cost to be allocated on design service fee. (And/or for architectural firms to extend pro-bono services).

Blocks 6 and 7 design guideline follows a 12-storey mid-rise building typology with podium at the base, and to be separated by a min. 25 metres setback apart from each other. The higher density is justified by their proximity to the proposed bus terminal and public park (soccer field).

Blocks 6 and 7 are intended for rental housing tenure to extend the diversity of owner-occupied and renter-occupied households in the neighbourhood. Possible clients are regional housing providers and rental housing cooperatives (with a priority towards constructing new housing stocks, rent-geared-to-income set for households below 80% AMI).

# Feasibility Study

Rough Estimate. Site Plan.

| | | | |
|---|---|---|---|
| **Land cost** | **$57,910,314.36** | **87,533.50 sq. m.** | **Existing parcel to be subdivided.** |
| A. | $5,183,563.10 | 7,835.14 sq. m. | Proposed public local road - (Recontinue) Heart Lake Road South |
| B. | $4,496,176.03 | 6,796.13 sq. m. | Proposed public bike path and parkland |
| C. | $6,312,216.66 | 9,541.14 sq. m. | Proposed public local roads - access roads |
| D. | $7,342,652.22 | 11,098.68 sq. m. | Proposed public amenities |
| Phase 1 | $1,282,139.86 | 1,938.00 sq. m. | Proposed block 1 - 1 First St. |
| Phase 1 | $1,282,139.86 | 1,938.00 sq. m. | Proposed block 2 - 3 First St. |
| Phase 1 | $1,417,856.15 | 2,143.14 sq. m. | Proposed block 3 - 5 First St. |
| Phase 2 | $1,751,166.20 | 2,646.95 sq. m. | Proposed block 4 - 72 Heart Lake Rd. S. |
| Phase 2 | $1,516,596.79 | 2,292.39 sq. m. | Proposed block 5 - 70 Heart Lake Rd. S. |
| Phase 3 | $1,205,833.35 | 1,822.66 sq. m. | Proposed block 6 - 3 Park St. |
| Phase 3 | $1,205,833.35 | 1,822.66 sq. m. | Proposed block 7 - 1 Park St. |
| Phase 4 | $1,569,318.02 | 2,372.08 sq. m. | Proposed block 8 - 2 Third St. W. |
| Phase 4 | $1,428,077.54 | 2,158.59 sq. m. | Proposed block 9 - 61 Heart Lake Rd. S. |

Figure 4.45 Bramrose Square feasibility study. Site Plan.

Possible funding for infrastructure projects (A) and (B) is through Canada Housing Infrastructure Fund. Current and future federal funding programs focused on the interrelationship between infrastructure services (neighbourhood unit) and housing affordability (building unit) can become substitutes to the present-day municipal funding strategy of collecting development charges. Developers (including self-led cohousing corporations) can benefit from the offloading of development charges in return for the construction of new affordable housing.

Possible funding for neighbourhood projects (C) and (D) is through the city's strategic reserves fund. Acquiring and constructing public roads (to be subdivided from existing commercial town centre 'superblocks') is a good investment toward infill residential developments. Gentle intensification can contribute to the municipal economy through 1) an increase property tax base, 2) increase car and foot traffic into commercial lots that are previously separated apart from the public realm by big parking lots, and 3) an increase pedestrian safety by creating alternative routes such as 'woonerf' shared streets. The proposed bike path abutting a major expressway (HWY-410) provides an alternative route to the eastern part of Brampton Central Area through Clark Boulevard highway overpass to the south, in addition to Queen Street East on the northern boundary of the property.

Possible funding for the land cost for each separate building block is through municipal land acquisitions, and subsequent land contributions to individual developers (regional housing providers and non-profit organizations) at a term of 50-year lease.

# Feasibility Study

Rough Estimate. Building Block.

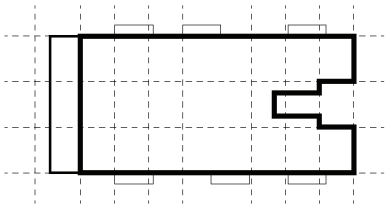
Phase 1 - Block 1.

| | | | |
|---|---|---|---|
| **Land cost** | **$1,282,139.86** | **1,938.00 sq. m.** | **Land contribution** |
| | | | |
| Hard costs | | | |
| 6-storey mid-rise building | $12,516,275.03 | 3,876.00 sq. m. | $300 / sq. ft. |
| Surface parking | $122,062.74 | 756.00 sq. m. | $15 / sq. ft. |
| | | | |
| Soft costs | $3,791,501.33 | | 30% of hard costs |
| | | | |
| **Total cost** | **$16,429,839.11** | | |

| | | |
|---|---|---|
| Mortgage pre-approval | $14,288,400.00 | $1,470.00 monthly housing charges x 27 units |
| | | 30-year ammortization period |
| | | 30% affordability threshold |
| | | for 2-persons household maintaners |
| | | |
| Funding | | |
| Municipality - City of Brampton | $1,000,000.00 | Strategic reserves fund |
| Municipality - Region of Peel | $1,000,000.00 | Capital investment (reserves fund) |

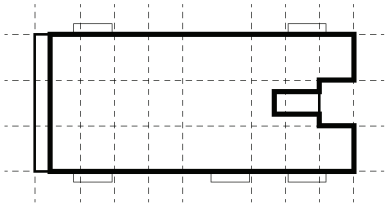
Figure 4.46 Bramrose Square feasibility study. Block 1.

total gfa:  3,876 sq. m.



5th/6th floor:  603 sq. m.

The preliminary feasibility study for Block 1 mediates between the present-day reality in construction cost (Altus Group, 2024) and the available mortgage funding for a GTA worker-renter to transition to homeownership. 6-storey wood framed residential construction ($245 to $330 per square foot) is proposed due to its lower cost in comparison to a typical condominium construction of up to 12 storeys ($285 to $390 per square foot). Meanwhile, 6-storey wood framed construction is of a higher cost in comparison to other wood framed low-rise typology. But the thesis justifies this cost difference by the increased number in units – allowing for a greater number of cohousing members contributing to the collective construction mortgage of the proposed building.

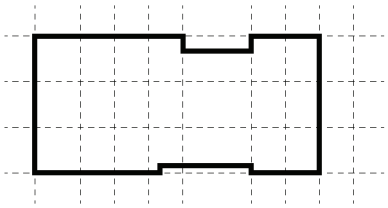


3rd/4th floor:  675 sq. m.

In addition, surface parking is proposed due to its lower cost in comparison to both freestanding-above grade and underground parking garages. The proposed 6-storey mid-rise building, as a form of gentle intensification, allows for a sufficient minimum number of cohousing members to effectively implement carpooling strategies, in contrast to the typical low-rise suburban housing typologies. Meanwhile, the additional cost to construct and manage parking garages would necessitate a housing project to build additional units within a taller tower typology. The additional dwelling units above the 6-storey level plus the above-grade or underground parking garages are less effective in interacting with the public realm (public streets). In comparison, the proposed surface parking implements the 'woonerf' shared street concept – enabling residents to informally appropriate the space for many outdoor social activities.

2nd floor:  675 sq. m.

Soft cost accounts to typically 30% of a project's hard cost. The estimated soft cost is subdivided to 10% general requirements, 15% design allowance, and 5% construction allowance. Possible reduction in general requirements cost can be achieved through developer charges exemption (as part of a housing affordability strategy). And the repetition of building form from Block 1 to 9 can simplify the project delivery in both design services and construction management – to further reduce the overall project cost for subsequent blocks. Meanwhile, as an alternative, the cost saving from design simplification can be allocated to fund additional building strategies that align with Passive House building standard.



ground floor:  645 sq. m.

Scale 1 : 1,000

0 40m

Figure 4.47

Share of proposed gross floor area by floor level, Block 1.

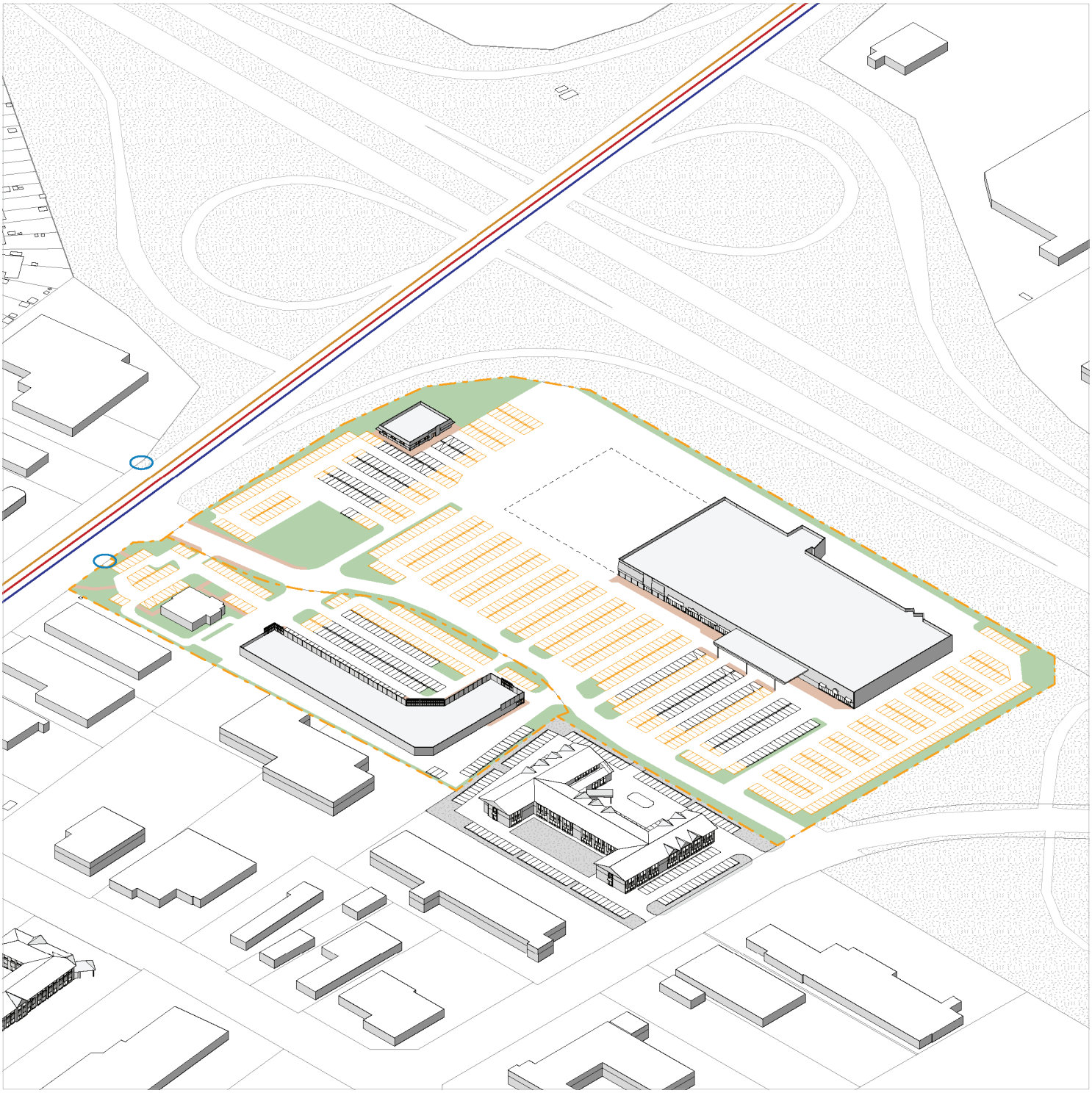


Figure 4.48 Bramrose Square existing site axonometric drawing. South perspective.

Figure 4.49 Bramrose Square proposed site axonometric drawing. South perspective.

Figure 4.50
(previous page)

The 'woonerf' shared street concept transforms a hard landscaping area including surface parking lots into vibrant gathering spaces. These existing underused parking lots which surround many suburban community shopping centres are to be framed by multi-unit residential building blocks. By doing so, these inserted blocks will extend the human presence to the site-adjacent shopping centres beyond the typical working/ operational hours. Low-cost material finishes such as paint-over-asphalt pavement allows for greater public awareness and engagement of these living street networks.

Figure 4.46
(continued)
see pp. 183.

The main source of funding for the cohousing project is through mortgage loan(s). The economic viability to fund a collective construction mortgage and to eventually transfer it into individual permanent mortgages is to be analyzed through mortgage pre-approval, as part of the cohousing member selection process. To extend the socioeconomic inclusivity of the project, the estimated monthly housing charges for the 'average' household aligns with the local population's 30% shelter cost affordability threshold.

The annual median after-tax income among recipients for Census Tract 0563.01 stands at $29,400, which is within the 1st (lowest) decile housing group in the City of Brampton (Statistics Canada, 2021 Census). Located in Brampton Central Area district, the census tract also contains the highest number of community housing units in the city that are owned and/or operated by the Region of Peel through Peel Living. To provide a selection of existing Peel Living renters who have stable rent payment history an opportunity to transition to homeownership tenure, as the cohousing project proposes, the thesis argue will counter the wave of outmigration of the workforce population in the region. Furthermore, as former tenants transition into homeowners (while remaining within their neighbourhood through infill development), the surplus in available renter-tenure dwelling units allows for Peel Living to accommodate more of the low to moderate-income households within its centralized waiting list, and/or to carry out the renovation of its 1960s high-rise social housing blocks.

A preliminary analysis of mortgage loans assumes a combined mortgage funding of $ 14,288,400. It accounts for a monthly housing charge of $1,470 for 27 cohousing household members, extended onto a 30-years amortization period. The initial value in monthly housing charge aligns with the 30% affordability threshold for an 'average' moderate-income household, assumes that it contains 2-persons household maintainers (2- $29,400).

# 4.3 Common House

Private-to-public realm

The project proposes to extend and to renew 'middle-class' identity, in parallel to metropolitan expansion (fragmentation and/or polarization), by reorganizing greater proximity in spatial programming.

***

The proposed design for a mid-rise multi-unit residential building (MURB) is to be clad in brick veneer on its 1st and 2nd storey façade, and corrugated metal panels on its 3rd up to 6th storey façade. The material finishes allude to the visual aesthetic of the suburban townhouse (1990s New Urbanism) and of industrial warehouses (minimalism, with post-modernist billboard signage), thereby, complying with the visual continuity of the neighborhood. In its construction material, wood frame construction (maximum of 6 storeys, with dimensional lumber organized into prefabricated wall panels) is to be specified due to its lower construction cost (per sq. m. pricing) compared to cast-in place concrete condo construction (maximum of 12 storeys).[5] In addition, asphalt surface parking is to be specified due to its lower construction cost compared to both concrete underground and above-ground parking garages. The simplification and repetition of building materials help ensures that the construction budget of the proposed MURB building closely aligns with the 30% affordability threshold of the GTA's workforce population.

5 Altus Group, *2024 Canadian Cost Guide*, (Toronto: 2024), 5.

# Preliminary Unit Pricing

Rough Estimate. Phase 1 - Block 1.

| | | | | |
|---|---|---|---|---|
| **Total cost** | **$16,429,839.11** | | | |
| Gross floor area | | 3,876.00 sq. m. | | |
| Total area of private dwelling units | | 2421.84 sq. m. | | 62% of building gfa |
| 'Average' cost per sq. m. | $6,784.02 | | | Total cost / Total area of private dwelling units |
| Cross-subsidization policy | | | 0.875 | Median income in Census Tract 0563.01 ($29,400) / Median income in the City of Brampton, 2021 ($33,600) |
| Proposed cost per sq. m. \| Rate of 1.125 | $7,632.02 | $709.04 per sq. ft. | | 'Average' cost per sq. m. x 1.125 |
| Proposed cost per sq. m. \| Rate of 0.875 | $5,936.02 | $551.47 per sq. ft. | | 'Average' cost per sq. m. x 0.875 |

Figure 4.51 Share of construction cost by dwelling unit types.

Figure 4.52 Unit pricing overlay. Ground floor.

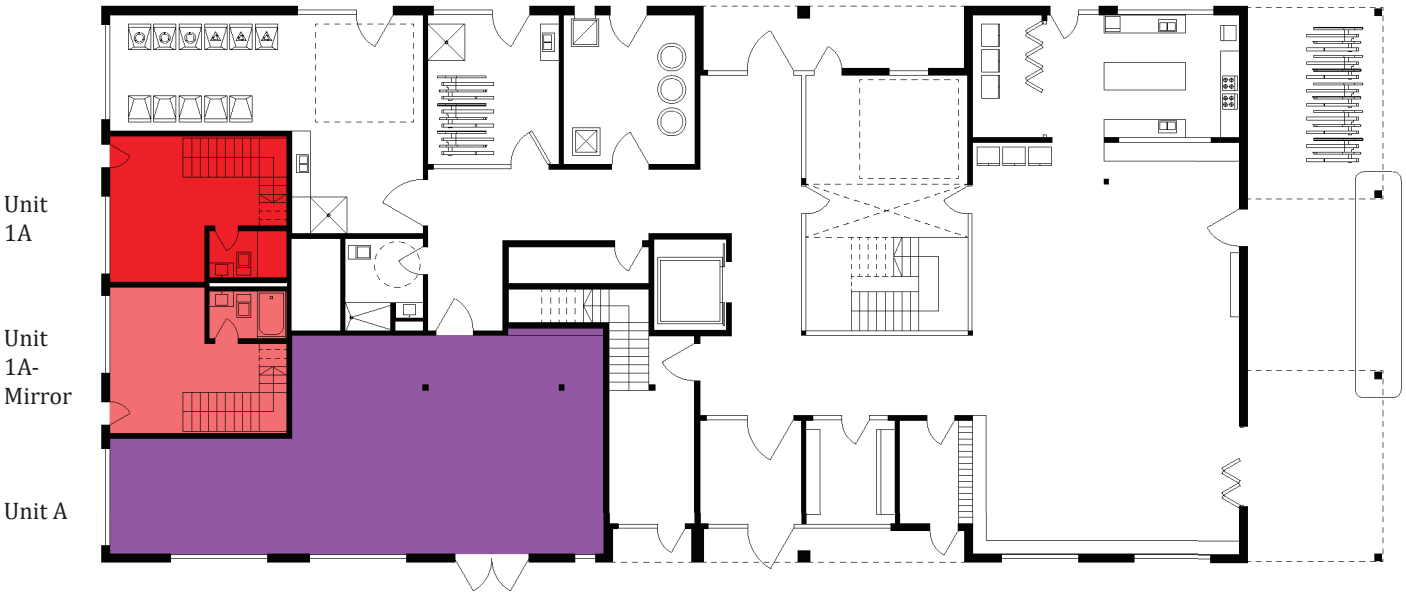



Figure 4.53 Unit pricing overlay. Second floor.

Scale 1 : 250 0 10m

Figure 4.54 Unit pricing overlay. Typical floor level 3 and 4.

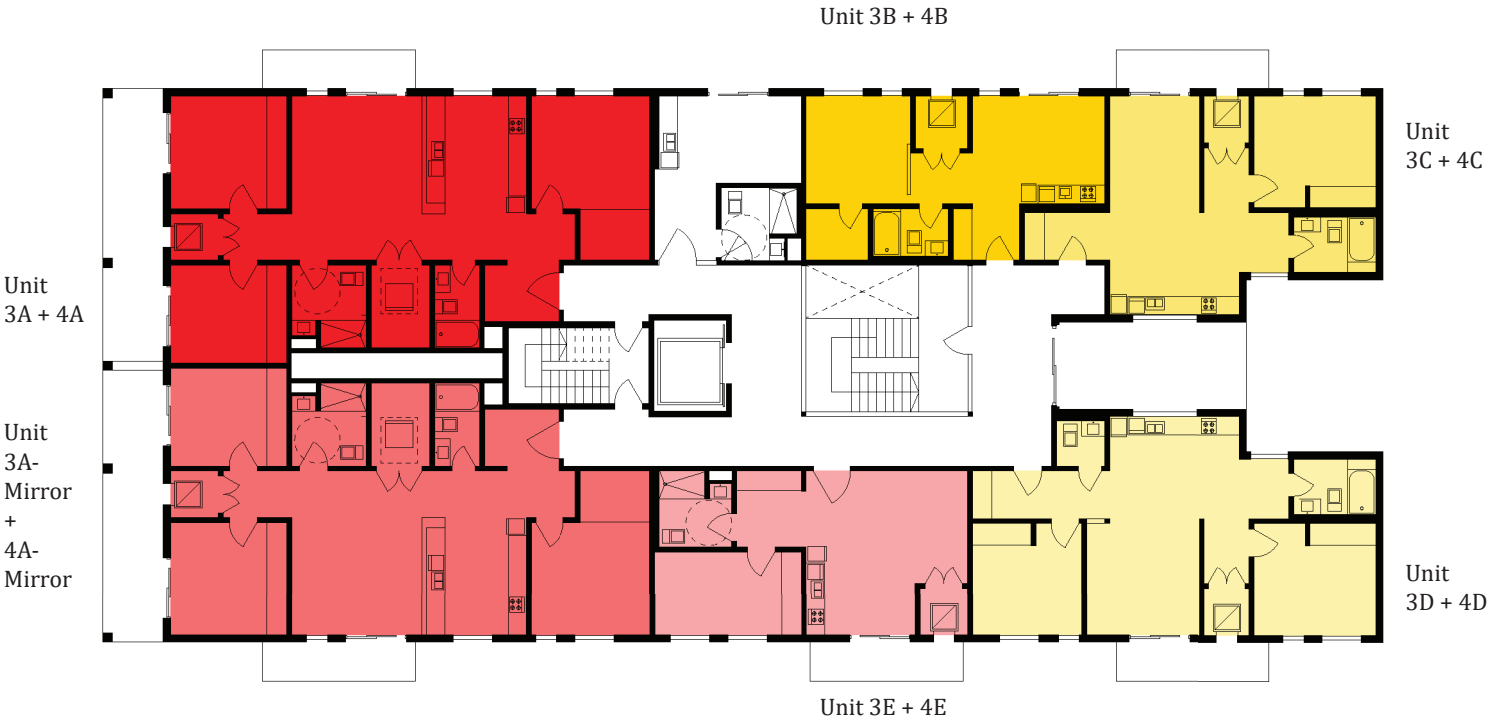
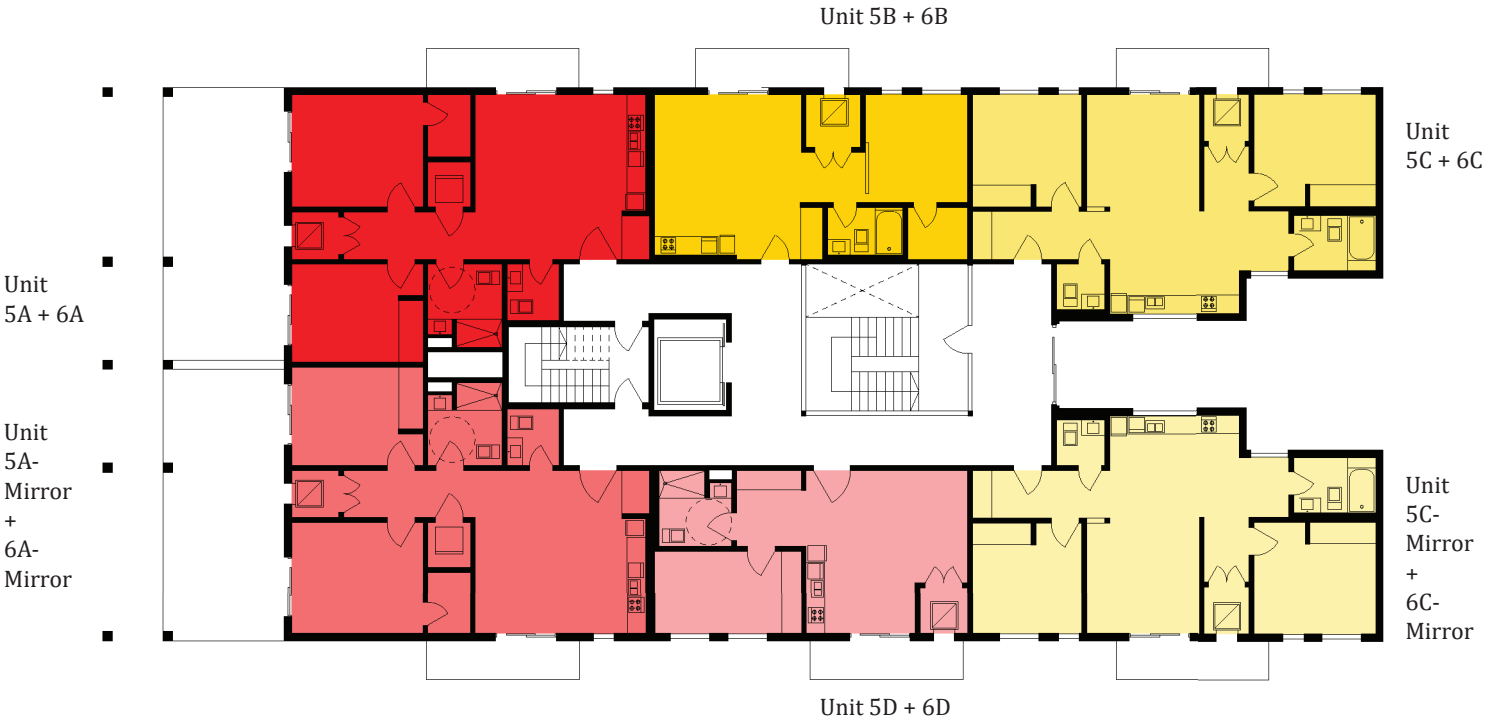



Figure 4.55 Unit pricing overlay. Typical floor level 5 and 6.




Scale 1 : 250 0 10m

| Floor Level | Unit | Unit Area (SM) | Unit Price | *Monthly Housing Charge | Rate | Private Amenities |
|---|---|---|---|---|---|---|
| 1,2 | 1A | 175.73 | $1,192,185.71 | $3,311.63 | | 3-bedroom plus den. barrier-free. |
| | 1A- Mirror | 175.73 | $1,192,185.71 | $3,311.63 | | 3-bedroom plus den. barrier-free. |
| 2 | 2A | 59.06 | $400,681.25 | $1,113.00 | | 1-bedroom. barrier-free. |
| 3 | 3A | 127.73 | $974,871.78 | $2,707.98 | 1.125 | 3-bedroom. barrier-free. terrace and balcony. |
| 3 | 3A- Mirror | 127.73 | $974,871.78 | $2,707.98 | 1.125 | 3-bedroom. barrier-free. terrace and balcony. |
| 3 | 3B | 51.44 | $305,333.95 | $848.15 | 0.875 | 1-bedroom. |
| 3 | 3C | 65.56 | $500,374.56 | $1,389.93 | 1.125 | 1-bedroom. balcony. |
| 3 | 3D | 89.34 | $681,873.62 | $1,894.09 | 1.125 | 2-bedroom. balcony. |
| 3 | 3E | 59.06 | $350,596.09 | $973.88 | 0.875 | 1-bedroom. barrier-free. balcony. |
| 4 | 4A | 127.73 | $758,233.61 | $2,106.20 | 0.875 | 3-bedroom. barrier-free. balcony. |
| 4 | 4A- Mirror | 127.73 | $758,233.61 | $2,106.20 | 0.875 | 3-bedroom. barrier-free. balcony. |
| 4 | 4B | 51.44 | $392,572.22 | $1,090.48 | 1.125 | 1-bedroom. |
| 4 | 4C | 65.56 | $389,180.21 | $1,081.06 | 0.875 | 1-bedroom. balcony. |
| 4 | 4D | 89.34 | $530,346.15 | $1,473.18 | 0.875 | 2-bedroom. balcony. |
| 4 | 4E | 59.06 | $450,766.40 | $1,252.13 | 1.125 | 1-bedroom. barrier-free. balcony. |
| 5 | 5A | 93.98 | $717,290.98 | $1,992.47 | 1.125 | 2-bedroom. barrier-free. terrace and balcony. |
| 5 | 5A- Mirror | 93.98 | $717,290.98 | $1,992.47 | 1.125 | 2-bedroom. barrier-free. terrace and balcony. |
| 5 | 5B | 59.06 | $350,596.09 | $973.88 | 0.875 | 1-bedroom. balcony. |
| 5 | 5C | 89.34 | $681,873.62 | $1,894.09 | 1.125 | 2-bedroom. balcony. |
| 5 | 5C- Mirror | 89.34 | $681,873.62 | $1,894.09 | 1.125 | 2-bedroom. balcony. |
| 5 | 5D | 59.06 | $350,596.09 | $973.88 | 0.875 | 1-bedroom. barrier-free. balcony. |
| 6 | 6A | 93.98 | $557,892.99 | $1,549.70 | 0.875 | 2-bedroom. barrier-free. balcony. |
| 6 | 6A- Mirror | 93.98 | $557,892.99 | $1,549.70 | 0.875 | 2-bedroom. barrier-free. balcony. |
| 6 | 6B | 59.06 | $450,766.40 | $1,252.13 | 1.125 | 1-bedroom. balcony. |
| 6 | 6C | 89.34 | $530,346.15 | $1,473.18 | 0.875 | 2-bedroom. balcony. |
| 6 | 6C- Mirror | 89.34 | $530,346.15 | $1,473.18 | 0.875 | 2-bedroom. balcony. |
| 6 | 6D | 59.06 | $450,766.40 | $1,252.13 | 1.125 | 1-bedroom. barrier-free. balcony. |

Figure 4.56 Home price by dwelling unit.

The estimated monthly housing charges per dwelling units correspond with a dwelling unit's floor area in proportion to the overall total area of private dwelling units, then multiply by the rate of 1.125 or 0.875 depending on whether a unit is allocated with a top-up or with a subsidy rate. The combined monthly housing charges of 27 cohousing units multiplied by a 30-year amortization period, in theory, accounts to the estimated construction cost of the cohousing project.

**Additional information for comparison**

| | | |
|---|---|---|
| Median monthly shelter costs for owned dwellings ($) | $2,300.00 | Census, 2021 - Brampton |
| Median monthly shelter costs for rented dwellings ($) | $1,520.00 | Census, 2021 - Brampton |
| Median home price | | Toronto Regional Real Estate Board (TRREB), October 2021 - Brampton |
| Single family detached | $1,102,800.00 | |
| Single family attached | $916,600.00 | |
| Townhouse | $660,700.00 | |
| Apartment | $513,300.00 | |
| Median rent | | Canada Mortgage and Housing Corporation (CMHC), 2021 - Toronto CMA |
| 3+ Bedroom | $1,800.00 | |
| 2 Bedroom | $1,620.00 | |
| 1 Bedroom | $1,445.00 | |
| Bachelor | $1,220.00 | |

Cohousing Model

Following on the general home price comparison of a cohousing model (see fig. 4.07 on pp. 130), the assumption that the spatial efficiency of a cohousing model (with its shared amenity spaces, or common house) can result to a significant reduction in overall construction cost is further validated through the proposed design project. As evident in the preliminary unit pricing, 5 out of the 12 units *with designated top-up rate* (42%) are still estimated to have a lower monthly housing charge in comparison to the median monthly shelter cost of a renter-household in the City of Brampton ($1,520). The proposed housing charge is within the 30% affordability threshold for a household with 2-persons household maintainers, plus the opportunity to build home equity in contrast to a rental tenure. Furthermore, an estimated housing charge with subsidy rate of $800 to $1,000 for a 1-bedroom unit, and of $1,500 for a 2-bedroom unit help extend the access to homeownership to one-parent families and to the young adult generation.

* Shelter Cost

Additional shelter cost expenses such as the interest on mortgage loans, insurance premium, property tax and monthly utility cost are to be added on top of the proposed housing charges. The cross-subsidization rate can be increased or decreased to accommodate these additional costs, and to better reflect the rate to which cohousing members will be willing to participate in. In connection to the United Way Greater Toronto report (see fig. 2.08 on pp. 60), even with these additional costs, the proposed cohousing project is still a significant improvement in comparison to the many renter households experiencing deep unaffordability (with rent accounting to more than 50% of their monthly income).

See fig. 0.08 on pp. 20.

Chapter 3 introduces the concept of architecture as the re-creation of the economic and the political space. An understanding of a house, primarily through the physical attributes of its overall form and its material components, aligns with the basic function of a house as a place of rest and healing for the human body. The physical maintenance of the body (or the 'economy' of the body) is improved upon through the scientific precision in building standard, minimum required floor area, daylighting through minimum required window area, optimal ventilation and thermal comfort through detailed specification in the mechanical system. In parallel to the 2-fold concept of the economic and the political space of architecture, the project proposes a 2-fold perspective in understanding housing security within the GTA. Housing security is to be interpreted as the stability (and affordability) in accessing a dwelling unit – into which the human body is restored into a good state through the physical *economic* quality of space. And into which the human spirit is renewed through the metaphysical *political* quality of space.[6]

Section 4.2 (zoning review, site plan application) asserts the importance of both the city-island and the urban forest in implementing the necessary forces of market expansion (globalization) and contraction (regionalism). And in relation to *the political*, the ephemeral quality of the urban forest – the public realm – serves as the shared space of *spiritual* fluidity and universality. And specific to the thesis argument regarding housing alienation, fragments of the urban forest are to be reinterpreted as the space designated for the *acts* of co-sharing wealth, and in effect, the temporary blurring of socioeconomic division. To provide a counterpart to the precise physical attributes of a house, as the Finnish architect Pallasmaa argues in defense of 'the haptic city,'[7] the collection of free-forming *actions* reinforces the concept of a house not just a financial commodity to acquire (the architectural 'object'), but also, as a negative space to dwell in, as in, to participate into (the architectural 'field,' the metaphysical atmosphere…)

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6 According to Aureli, the Ancient Greek concept of *oikos* or economy and *polis* or politics are comparable to the Roman concept of the city as the place of the *urbs* or administration and of the *civitas* or confrontation, respectively. In this context, the author defines the *economic* quality of space as the stability of its physical attributes. And the *political* quality of space as the fluidity/ unpredictability of human actions/ interactions.

Pier Vittorio Aureli, "Toward the Archipelago," 92-96.

7 Juhani Pallasmaa, *The Eyes of the Skin*, 3rd ed. (London: John Wiley & Sons, 2012), 37-38.

Furthermore, the concept of housing security is often attributed to the physical ownership of a home – the middle-class suburban bungalow. As a counterpart, the thesis interprets housing security as the ownership to one's actions (to one's negative space), which enables residents to experience a sense of belonging *in place*. And within the theme of socioeconomics, the lived experience of belonging *in place* is to be interpreted through the acts of economic solidarity, or through the co-sharing of wealth. The renewal of middle-class identity is to be re-experienced through the everyday actions that generate greater understanding between low- and high-income residents. As a proposal, the architectural project builds upon the spatial organization of a cohousing typology. It prioritizes small private dwelling units in exchange for a generous shared space – the common house. And within the common house, the project allocates through spatial programming (through the shared responsibility in household chores) the acts of co-sharing wealth. The project builds upon the ability of a cohousing typology to enable the many functions of the social economy including: volunteering for local gatherings, food preparation for the shared 'common meals' between households, maintenance of a community food pantry, clothing and furniture exchange, watering the indoor plants along corridors and common areas, shoveling snow off sidewalks, individual parking spaces and shared driveway, carpooling, occasional babysitting and/or tutoring of neighbours' children, etc.

Elevation.

Plan.

Section.

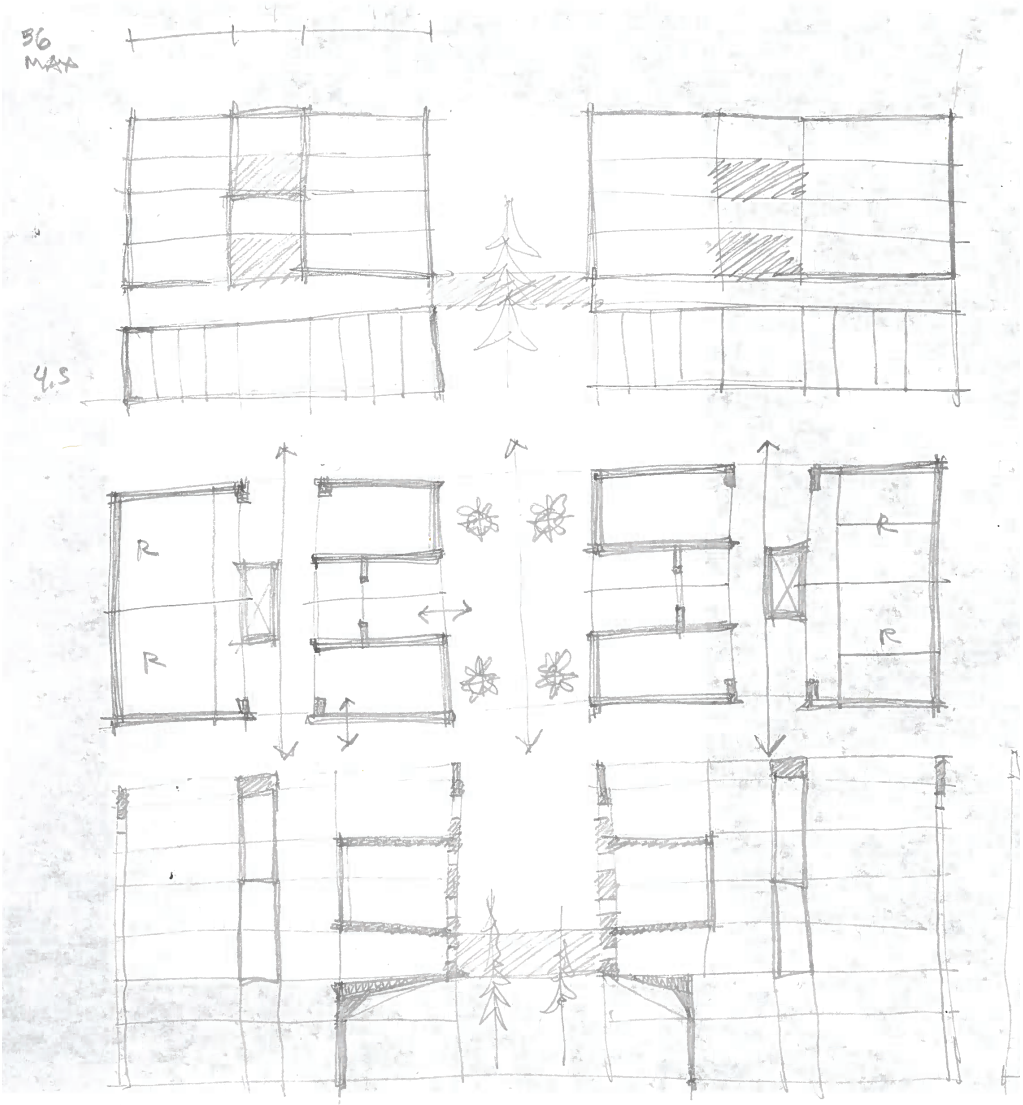


Figure 4.57 Parti diagram.

The building perimeter is maximized through the subtraction in building massing. The selective subtraction of floor area – the finite space as perceived through the objective *economy* of the cartesian coordinates – is to be justified by the increased border intersection between the private and public realm. This increase in social connectivity and proximity enables the specific rooms within the cohousing building to generate greater variety and frequency in human (inter)actions – the infinite *political* space as perceived through the continuity in space-and-time.

'My body is made of the same flesh as the world ... and moreover, this flesh of my body is shared by the world.'

The constructions may be empty but they are impenetrable, except through the word, because the space contained by the flesh is very shallow, while the space which contains it is infinite. It is the proverbial gap between the face and the mask.

This architecture addresses embodied perception in a direct way. The body of both the architecture and the participant undergoes a crystallization which engages its fragments in the geometrical essence of architecture, thus allowing man to recover a foothold in the world.[8]

8 Alberto Perez-Gomez, "The Renovation of the Body: John Hejduk & The Cultural Relevance of Theoretical Projects," *AA Files*, 1986, 28.

The geometric form of the architectural project is built upon a generic grid, in reference to Smithson's mat-building architecture, with a proposed typical 4.5m span along its building length and 3 bays of 6m span along its depth. The main architectural element of the project is its main stairwell, which runs the full 6-storey height of the building and is to be enclosed on top with clerestory windows. The main stairwell is located at the core of the building, similar to the point block typology. The stairwell is encircled by public corridors per floor, which then connects onto 6 residential units along the building perimeter. The partition walls framing the stairwell are infilled with fire-rated windows, to effectively serve its function as one of the required fire exits. But more importantly, the natural daylight that extends from the stairwell and onto the public corridors enables residents to appropriate these prosaic circulation spaces as truly inviting gathering spaces. As an alternative, a straightforward everyday walk up-and-down the elevator cab is replaced by the episodic experience of walking through the main staircase. At every landing, residents gain a sightline to another corridor level, another set of entrance doorways leading into private apartments, with the opportunity to wave 'hello' to many cohousing members along the way.

See fig. 4.73 on pp. 225-226.

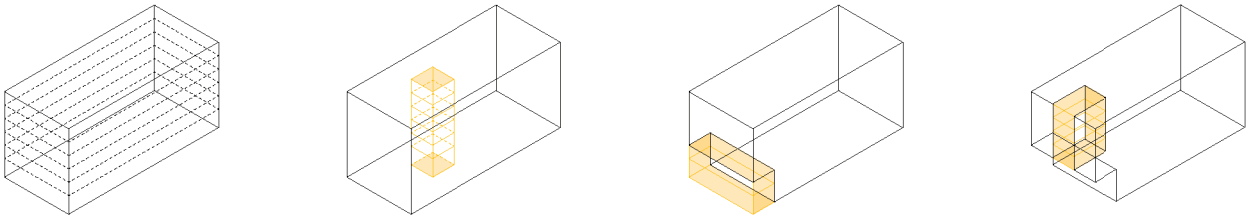
The second main element of the project is its 3m wide, 6m deep recessed void on one side of the building's 42m length, 18m wide cubic massing. This 4-storey recessed void, starting from the 3rd floor podium, provides connection between the central stairwell and the building perimeter. The corridor section – sandwiched between the main stairwell and the building's external wall – becomes a cozy place to be shared between the 6 neighbouring households per floor level. It is enclosed with glass sliding doors equipped with balcony railing – allowing for daylighting and natural ventilation to penetrate through the space.

1.
the skyscraper is cut down into a 6-storey mid-rise typology.

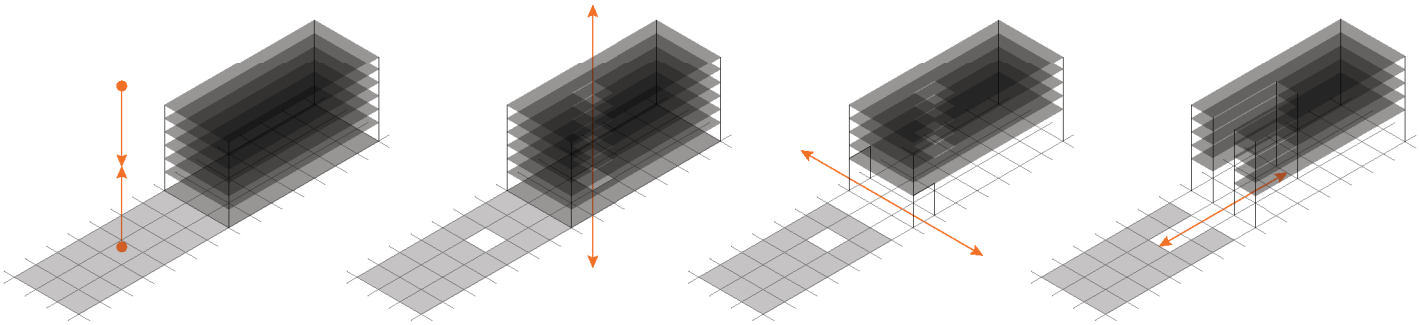
2.
the building core is carved out as a main stairwell.

3.
the building side is carved out as a covered arcade.

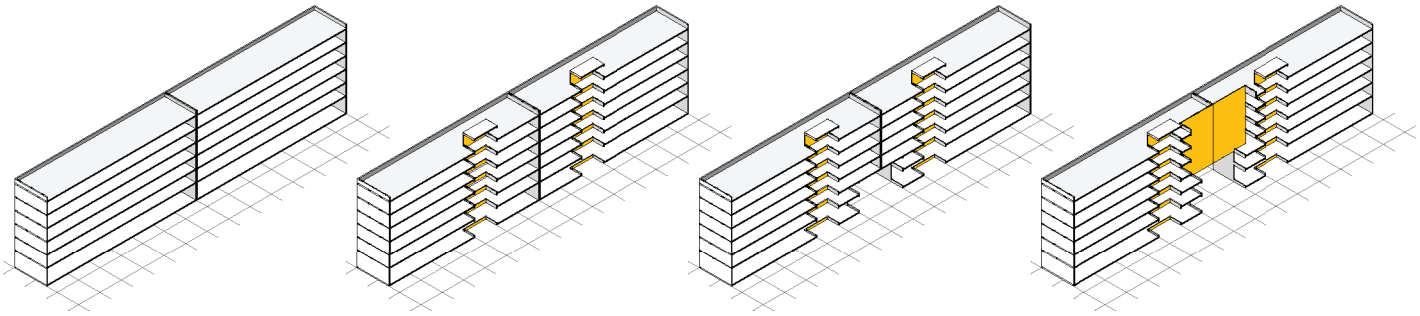
4.
the building side is carved out as a terrace podium.



Volumetric subtraction.



Massing.



Cross-section. 2 blocks side-by-side.

Figure 4.58 Block 1 design subtraction axonometric diagram.

See further information on the design gudieline for 3.) the covered arcade on pp. 173-174.

See fig. 4.74 on pp. 227.

Meanwhile, on the ground level, the main stairwell and the side perimeter are interlinked through the generous open space of a 2-storey common hall. The primarily access into the hall is through the main entrance of the building, then passing towards one of its interior walls where mailboxes are to be allocated, and onto the main stairwell – creating an everyday ritual of residents appropriating the common hall. In addition, the adjacent common kitchen enables residents to enjoy a cup of coffee and snacks, before and after commuting to work individually. And/or to wait in the common hall for residents taking part in carpooling arrangements. Operable doors on the exterior side-facing wall of the common hall are equipped with guardrail-height metal gate. Together, they frame a wide opening extending the interior programming of the hall onto the building's exterior arcade, and onto the public street beyond.

Another process of subtraction is perceived through the storefront of the cohousing building's street-level commercial unit. Leasing opportunities are to be prioritized towards non-profit organizations providing services that align with the needs and desires of the cohousing members, and to be incentivized through $1 lease agreements. In particular to Downtown Brampton UGC, possible spatial programming are: building trade workshop (by a local union), 3d-printer makerspace (by city, alongside Magna International, Stellantis, Canadian Tire, MDA Space), senior centre and child care centre (by city, alongside Toronto Metropolitan University, Sheridan College…), youth employment centre (by the Boys and Girls Club of Peel, BGC Peel).

The storefront window opening on the side-facing façade (opposite to the covered arcade) opens onto 2 apartment units, each with its own separate ground floor entrance access, and a den space suitable to be appropriated as a home office. The storefront window opening on the rear façade opens onto the bicycle storage, well-lit, becoming the 'anchor' program for this part of the building. Its interior glass partition extends natural daylight onto an interior corridor – which also leads to the adjacent waste management room and universal washroom. The proximity between the bike storage (as a primary circulation in and out of the building) and the waste management room encourages residents to participate daily in waste management, in particular, in recycling, upcycling, and clothing/ furniture exchange. The waste management room is furnished with its own storefront window opening, an overhead garage door with glass lites, commercial sink and a mop sink – suggesting a quality of cleanliness. Furthermore, the adjacent universal washroom can serve the function of a mudroom. As well as a wash station for residents, specifically for construction and healthcare workers.

See fig. 4.77 on pp. 230.

The open concept design of the kitchen, dining and living room, for each private dwelling unit, allows for household members to continuously interact with each other while being preoccupied in their separate activities (e.g. parents preparing a meal, children doing their homework…) And in addition, a private balcony adjacent to the living room (limited to a maximum vertical distance of 6-storeys above ground) enables residents to appropriate and to extend interaction with the public street below, and thereby experiencing a sense of housing security within the private and public realm simultaneously.

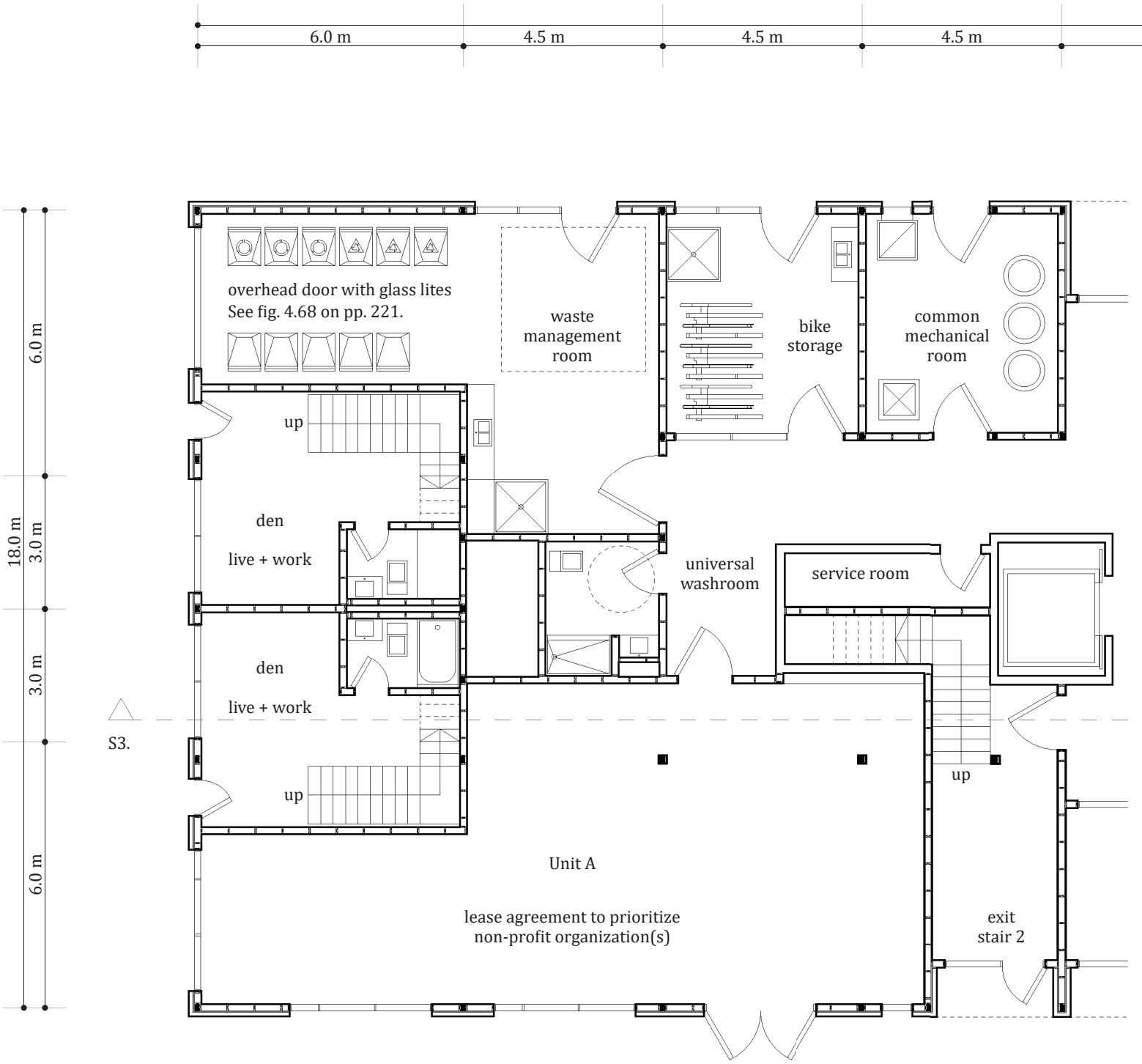
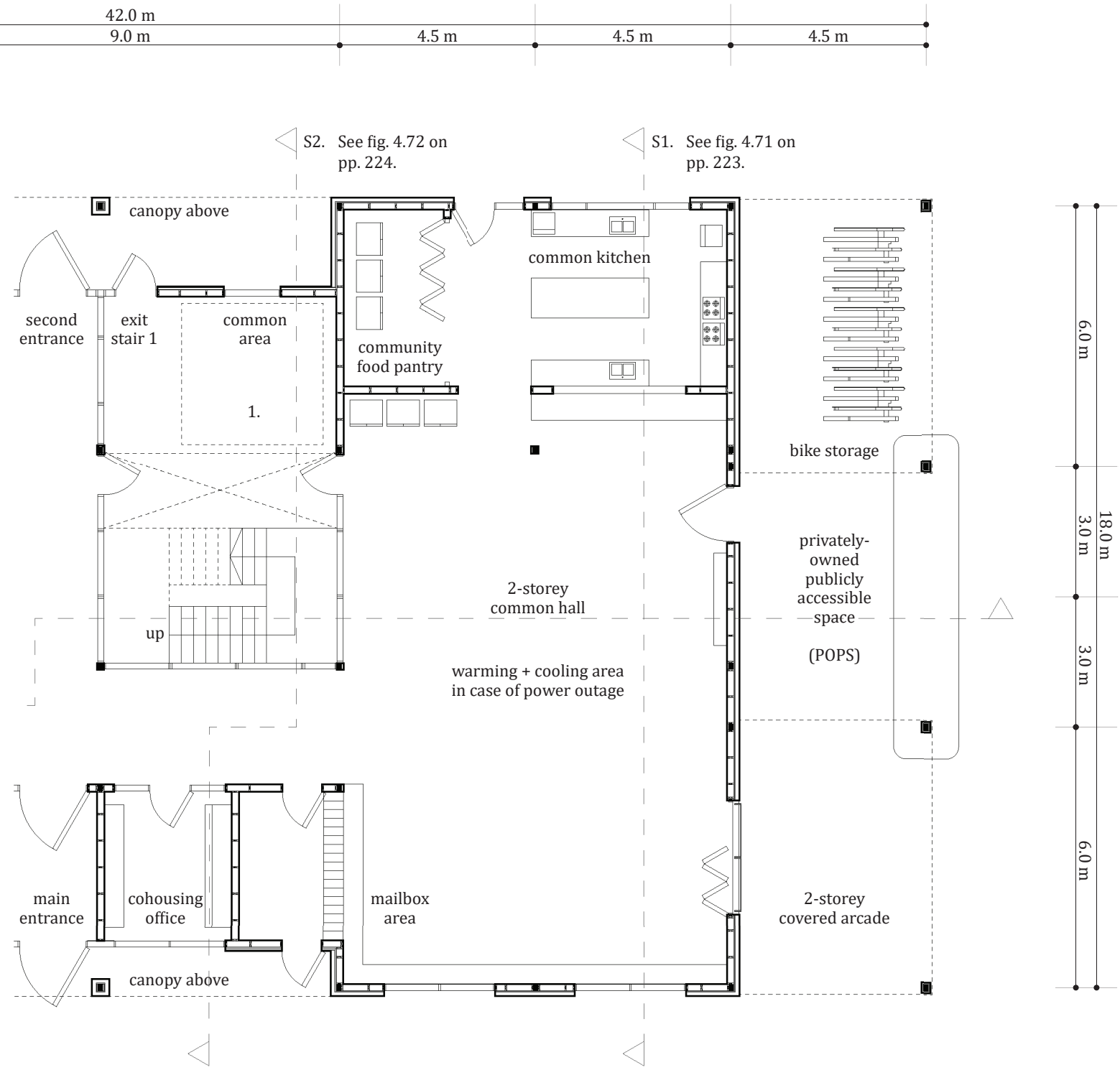



Figure 4.59 Ground floor plan. Scale 1 : 125 0 10m




1. Ensure minimum unobstructed path required for fire safety.

S3. See fig. 4.73 | building section on pp. 225.

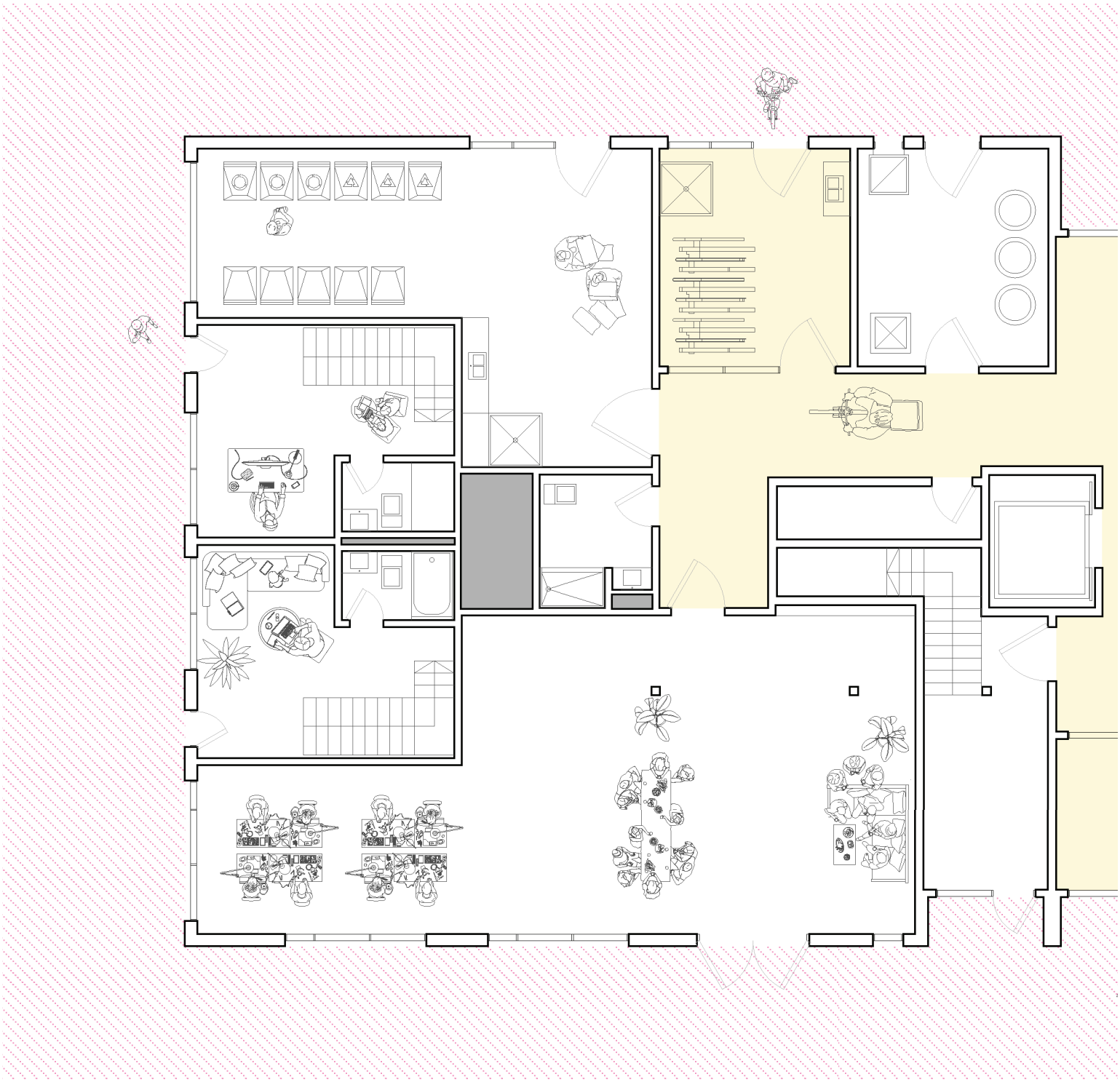
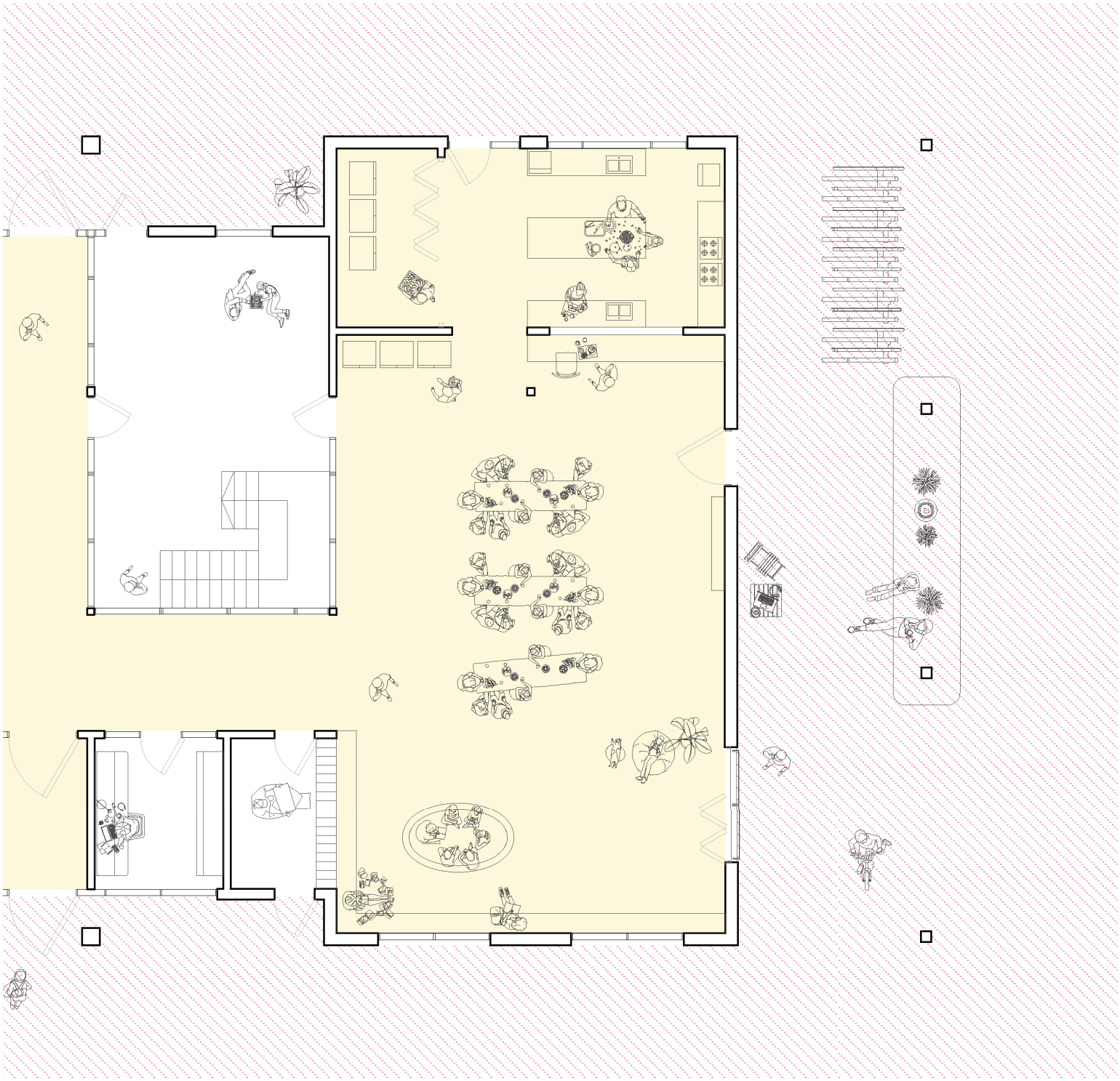


Figure 4.60 Architectural programming overlay. Ground floor.



public realm

interior street : common house, common areas and/or public corridors

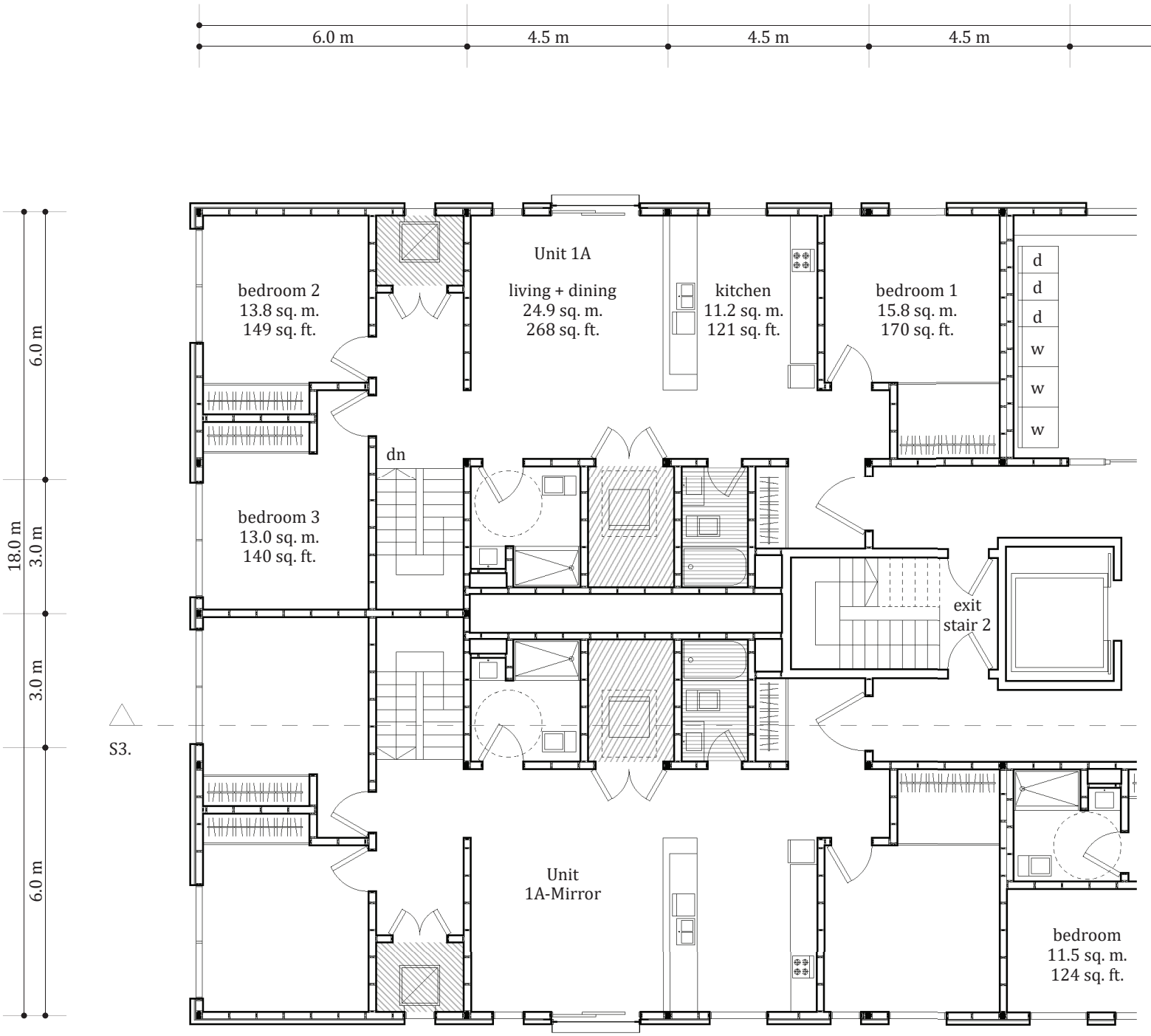
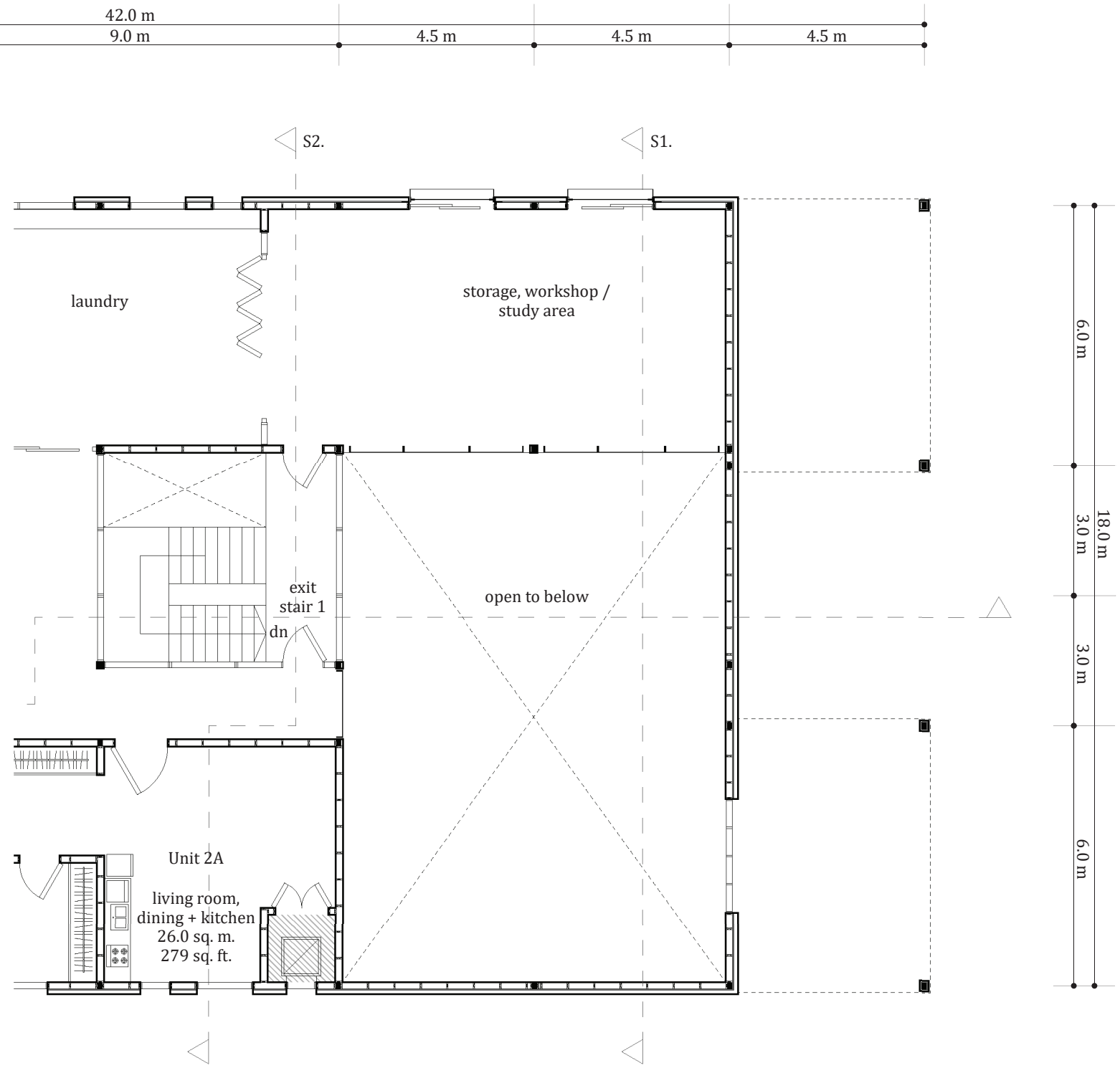



Figure 4.61 Second floor plan. Scale 1 : 125 0 10m




powder room or bathroom (optional)

laundry (optional)

multi-zone heat pump (plus an optional ERV unit)

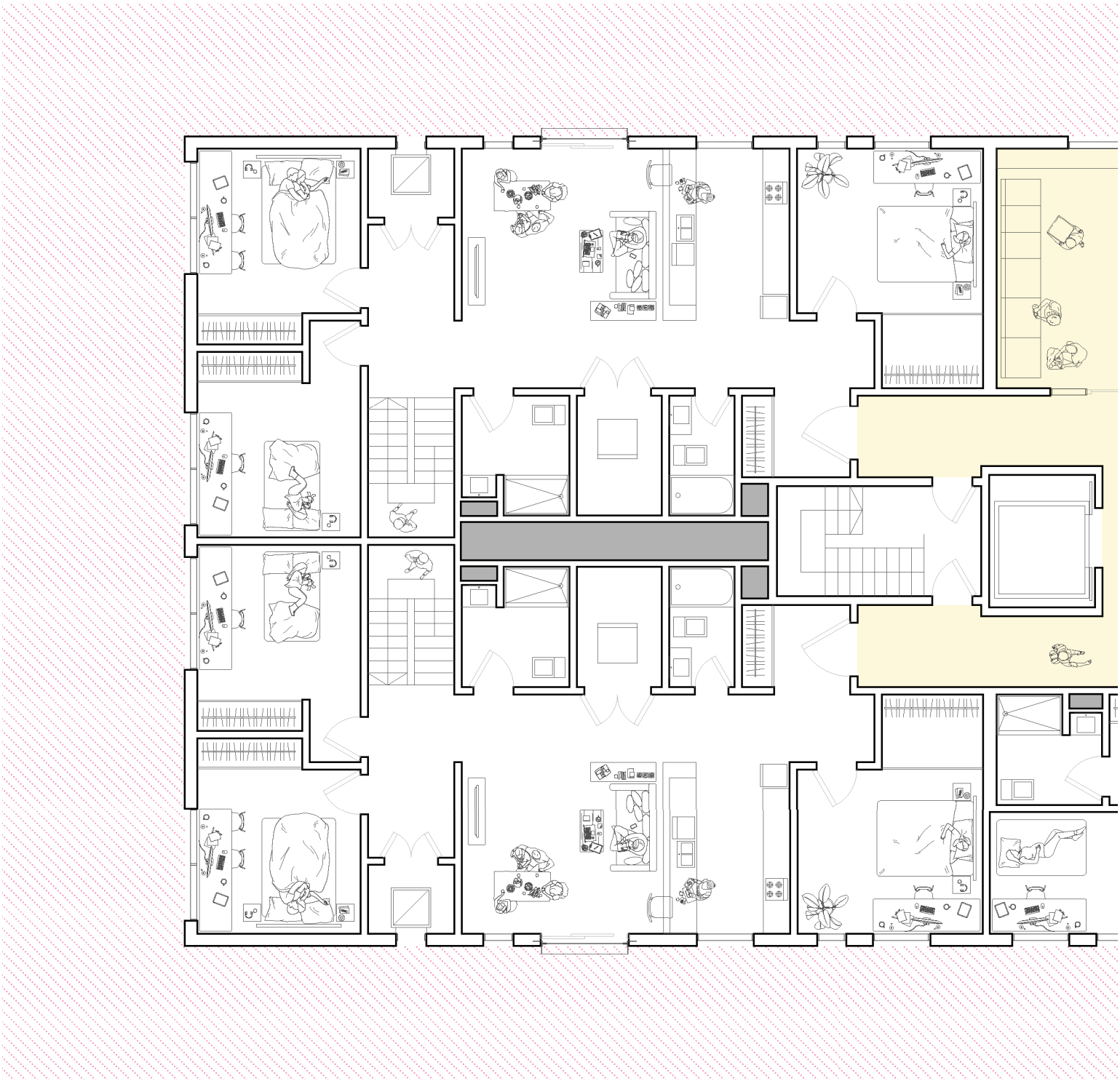
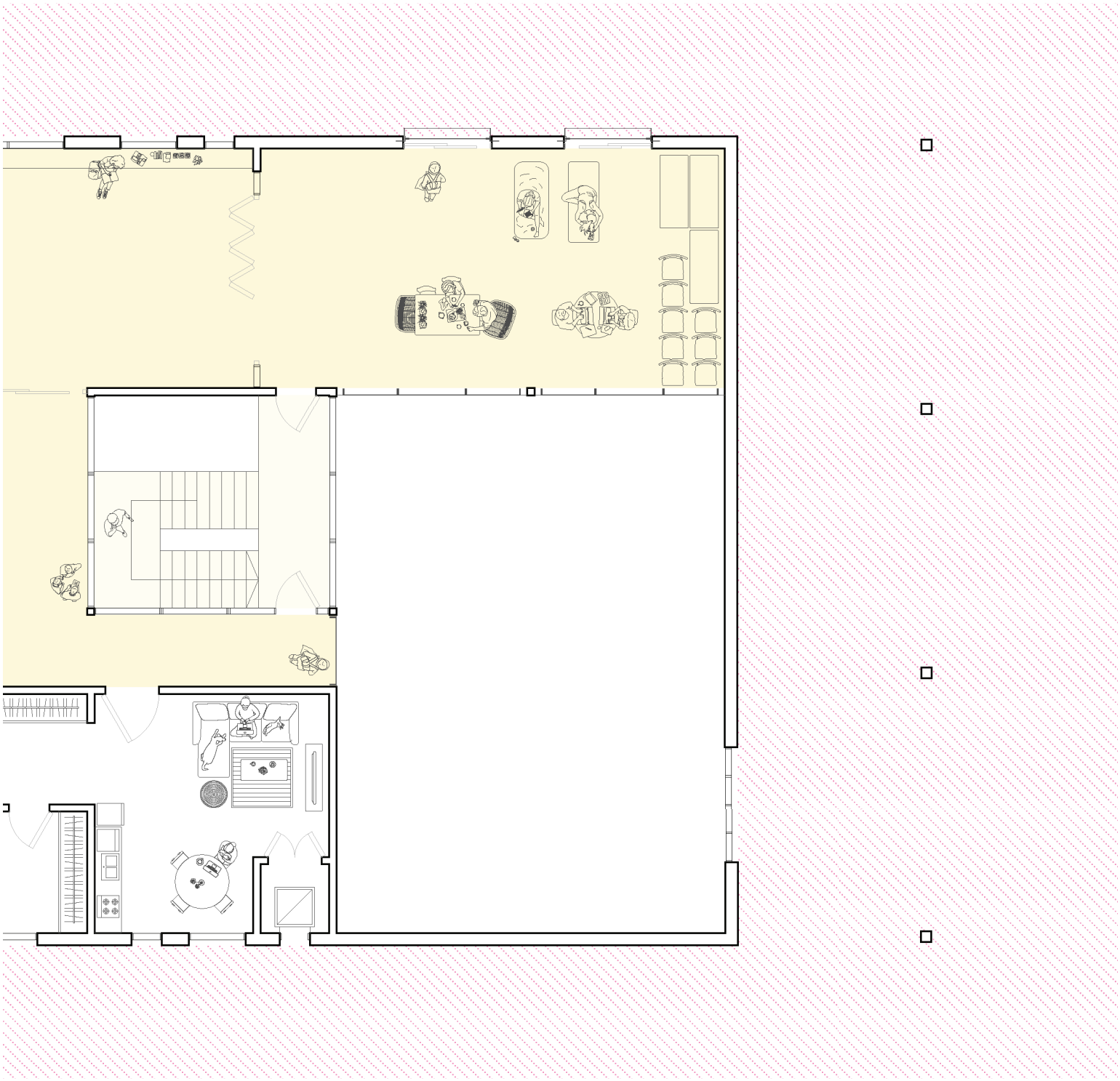


Figure 4.62 Architectural programming overlay. Second floor.



public realm

interior street : common house, common areas and/or public corridors

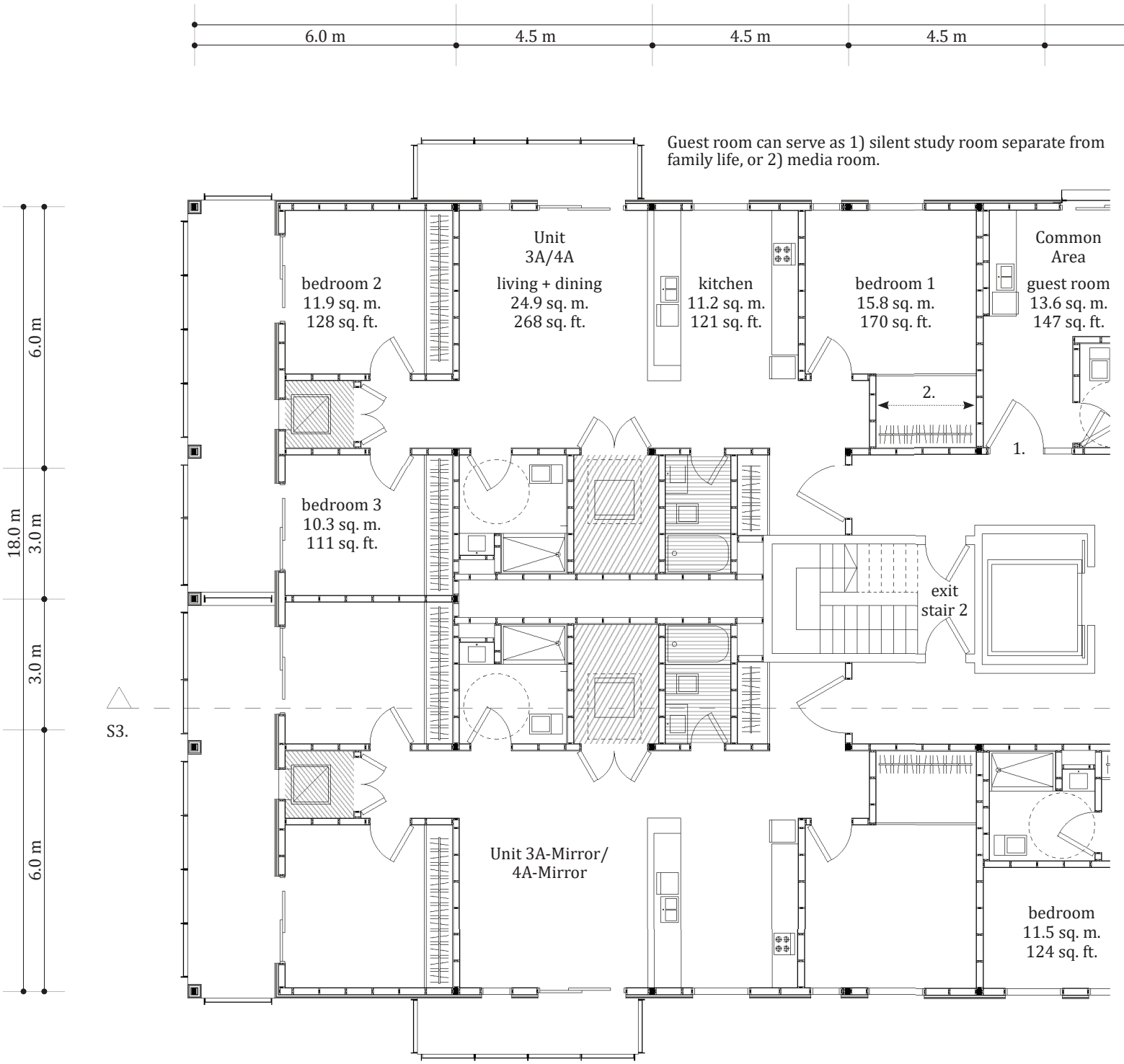
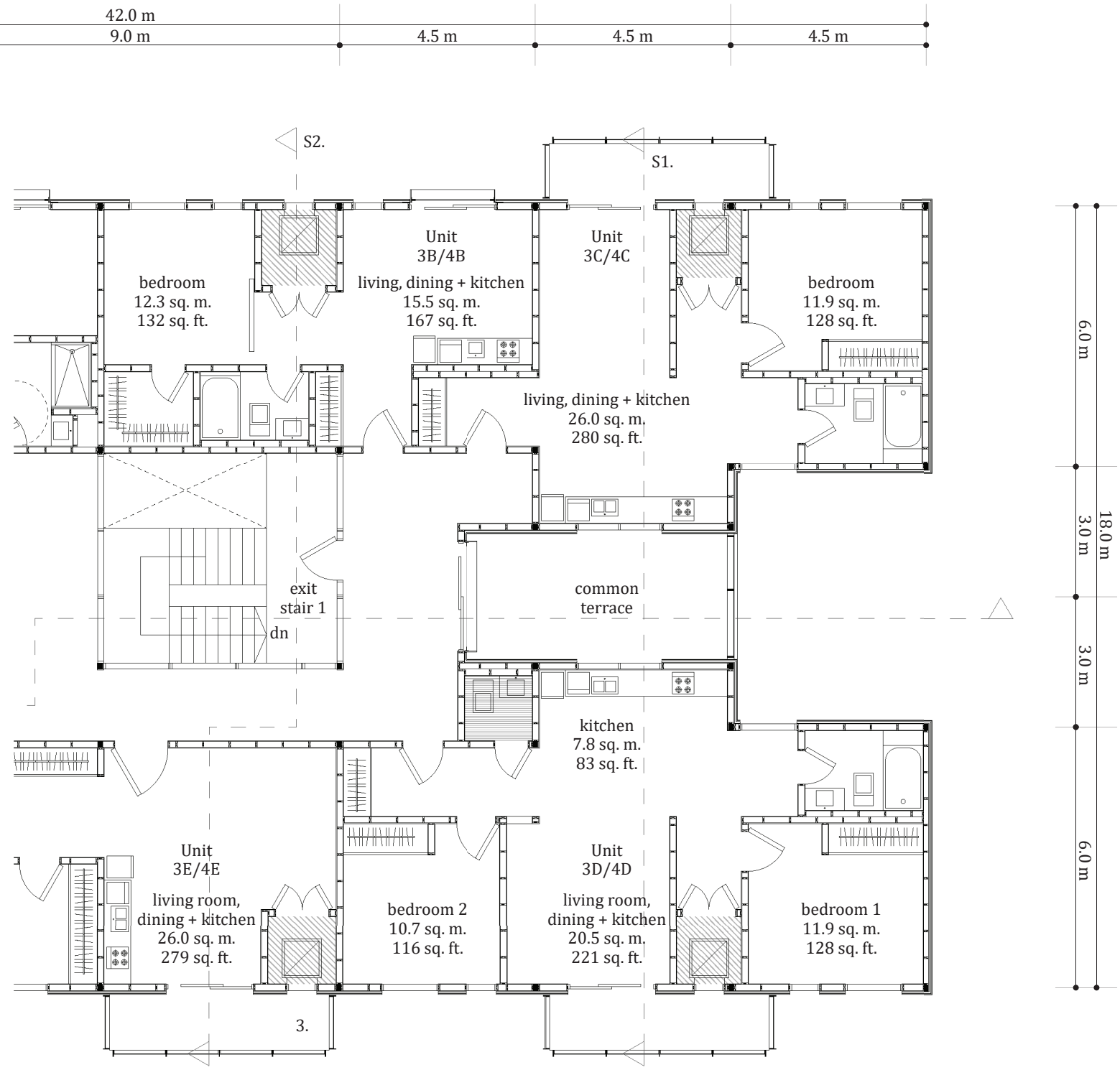



Figure 4.63 Typical third/fourth floor plan. Scale 1 : 125 0 10m




- powder room or bathroom (optional)
- laundry (optional)
- multi-zone heat pump (plus an optional ERV unit)

1. Provide suitable sound isolation based on room function(s).
2. Option to transform adjacent guest room into a fourth bedroom.
3. Ensure balcony floor level complies with barrier-free design.

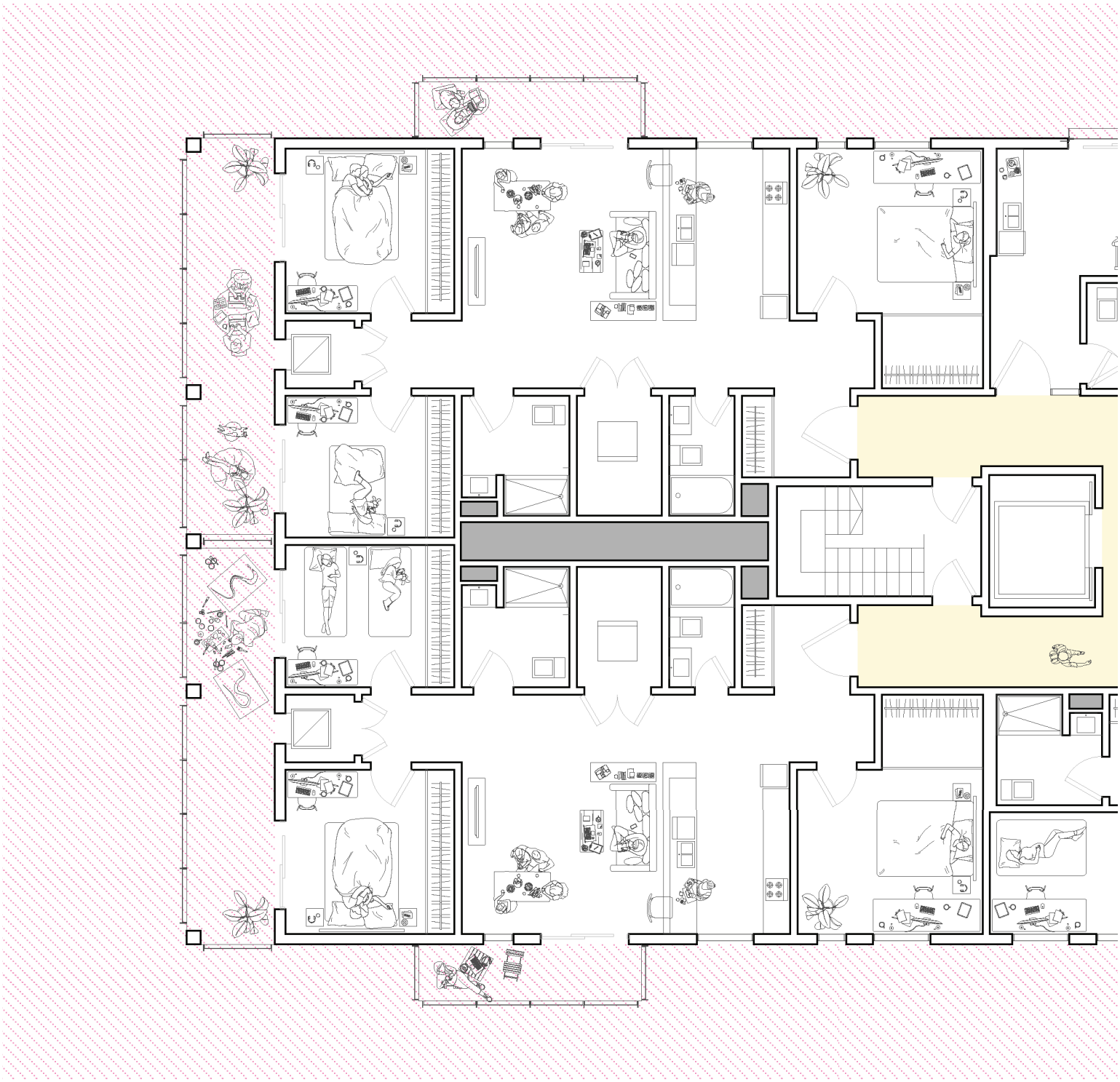
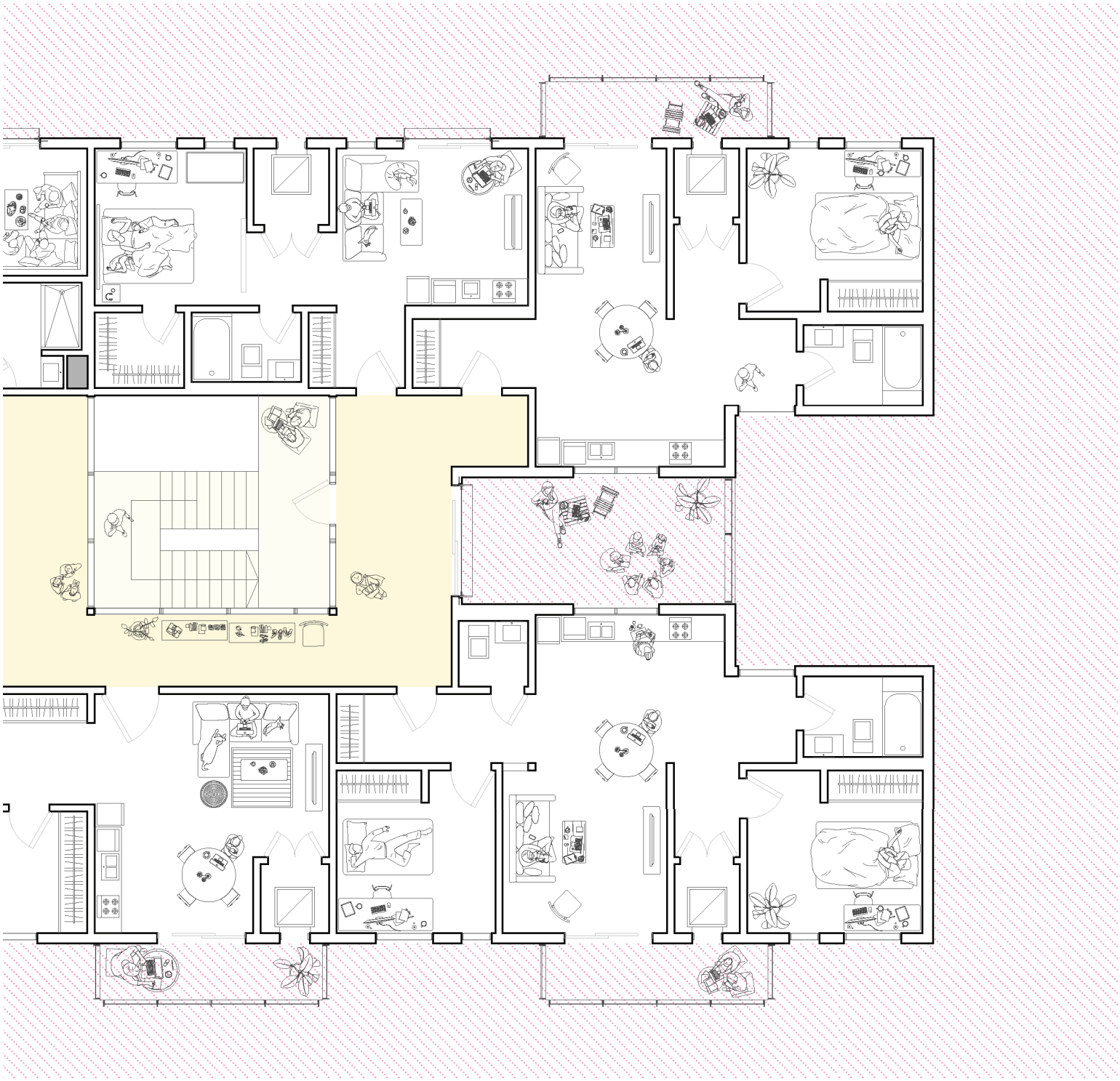


Figure 4.64 Architectural programming overlay. Typical floor level 3 and 4.



public realm

interior street : common house, common areas and/or public corridors

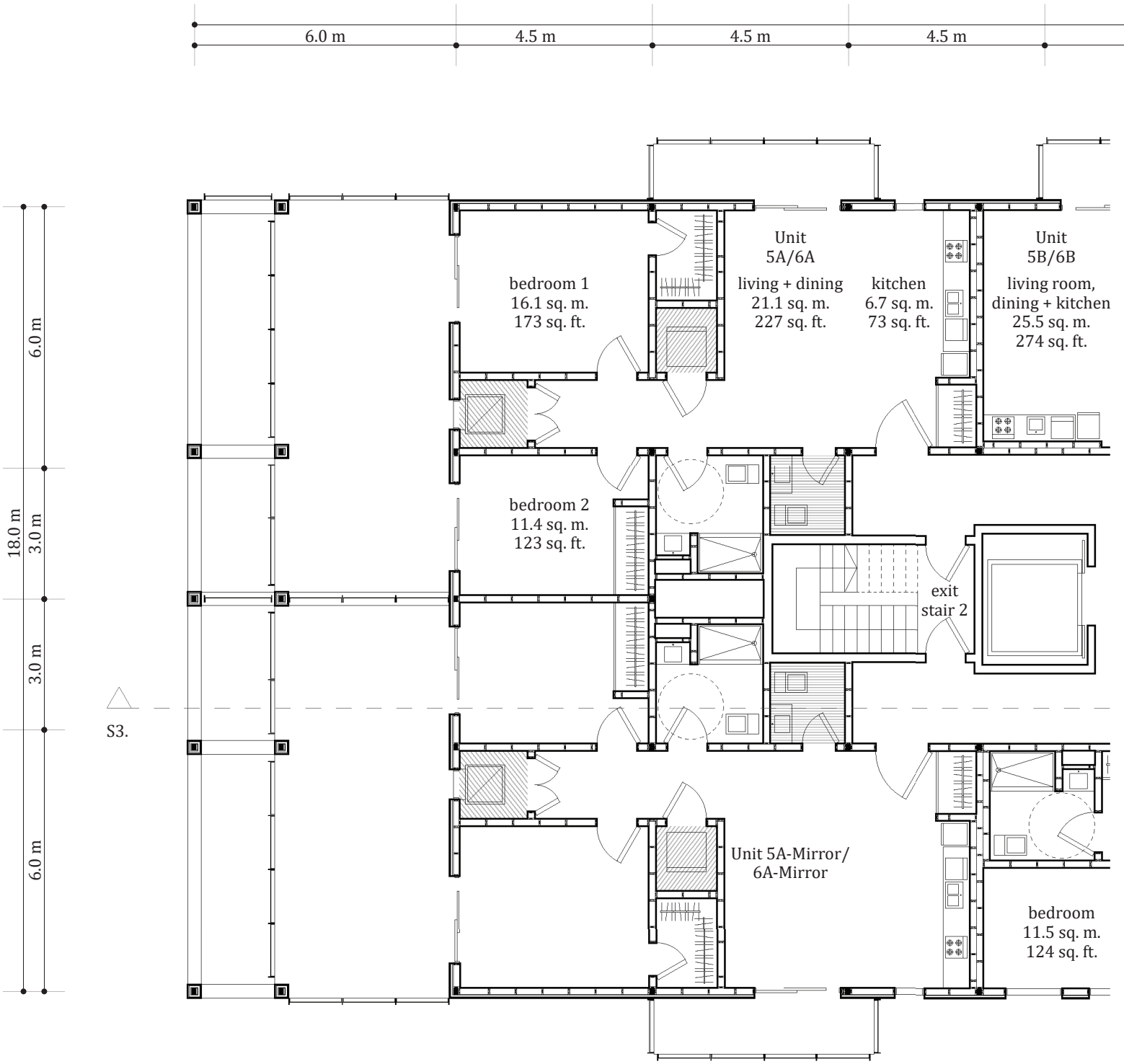
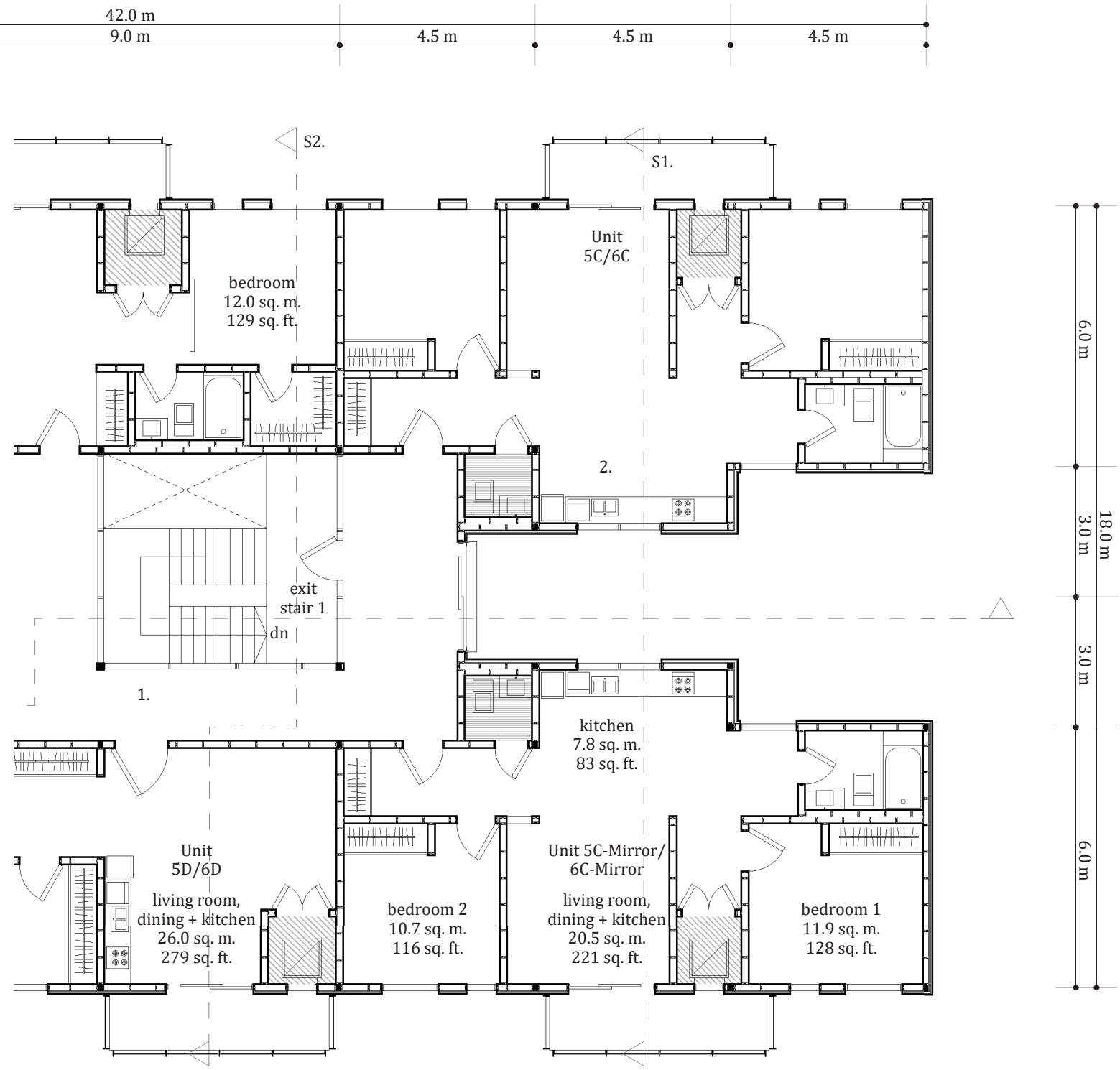



Figure 4.65 Typical fifth/sixth floor plan. Scale 1 : 125 0 10m




- powder room or bathroom (optional)
- laundry (optional)
- multi-zone heat pump (plus an optional ERV unit)

1. Allocate space for furniture, benches and/or side tables to facilitate furniture, clothing and book exchange (to be shared by household units per floor).
2. Specify frosted window finish for enhanced privacy (optional).

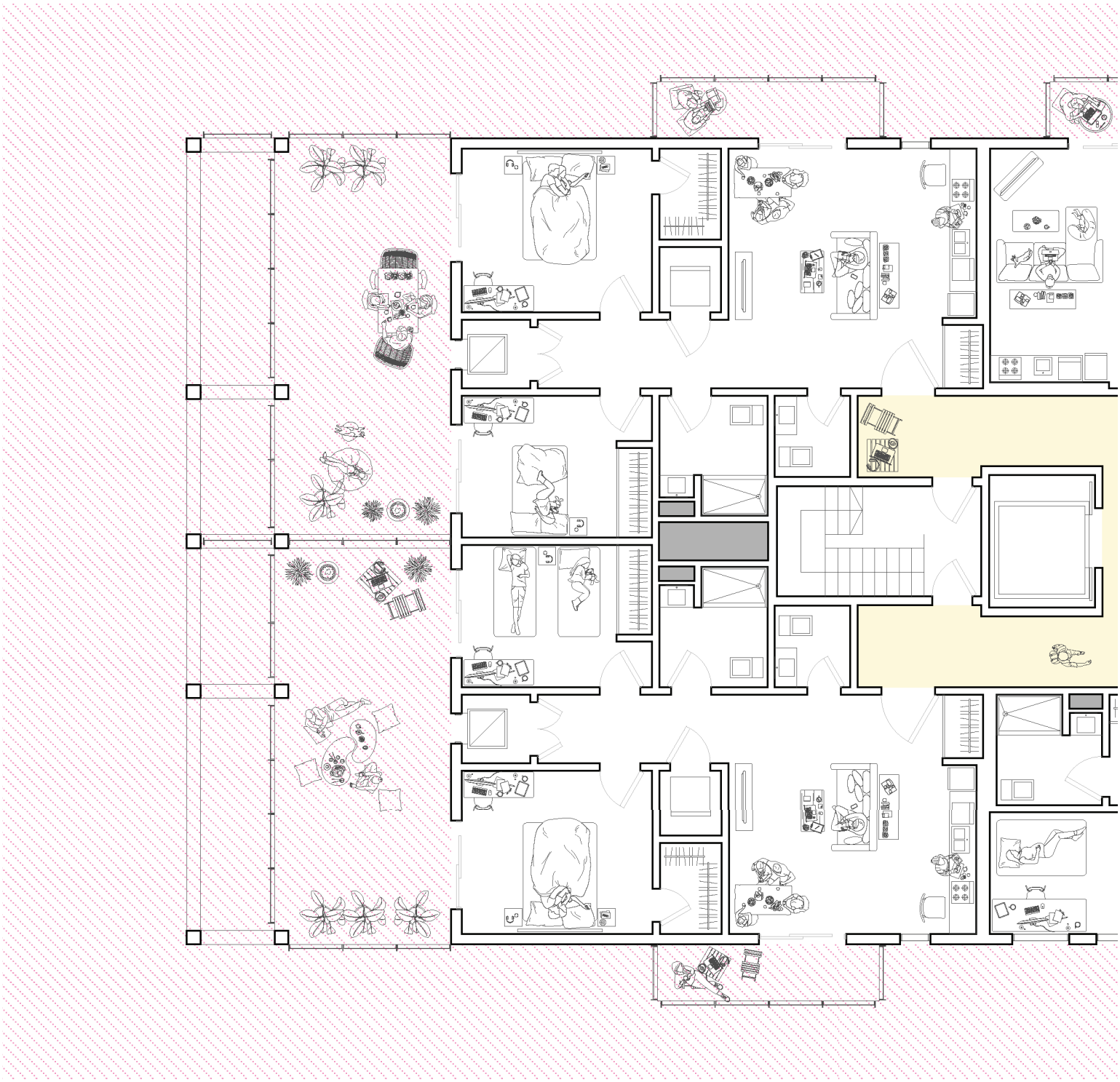
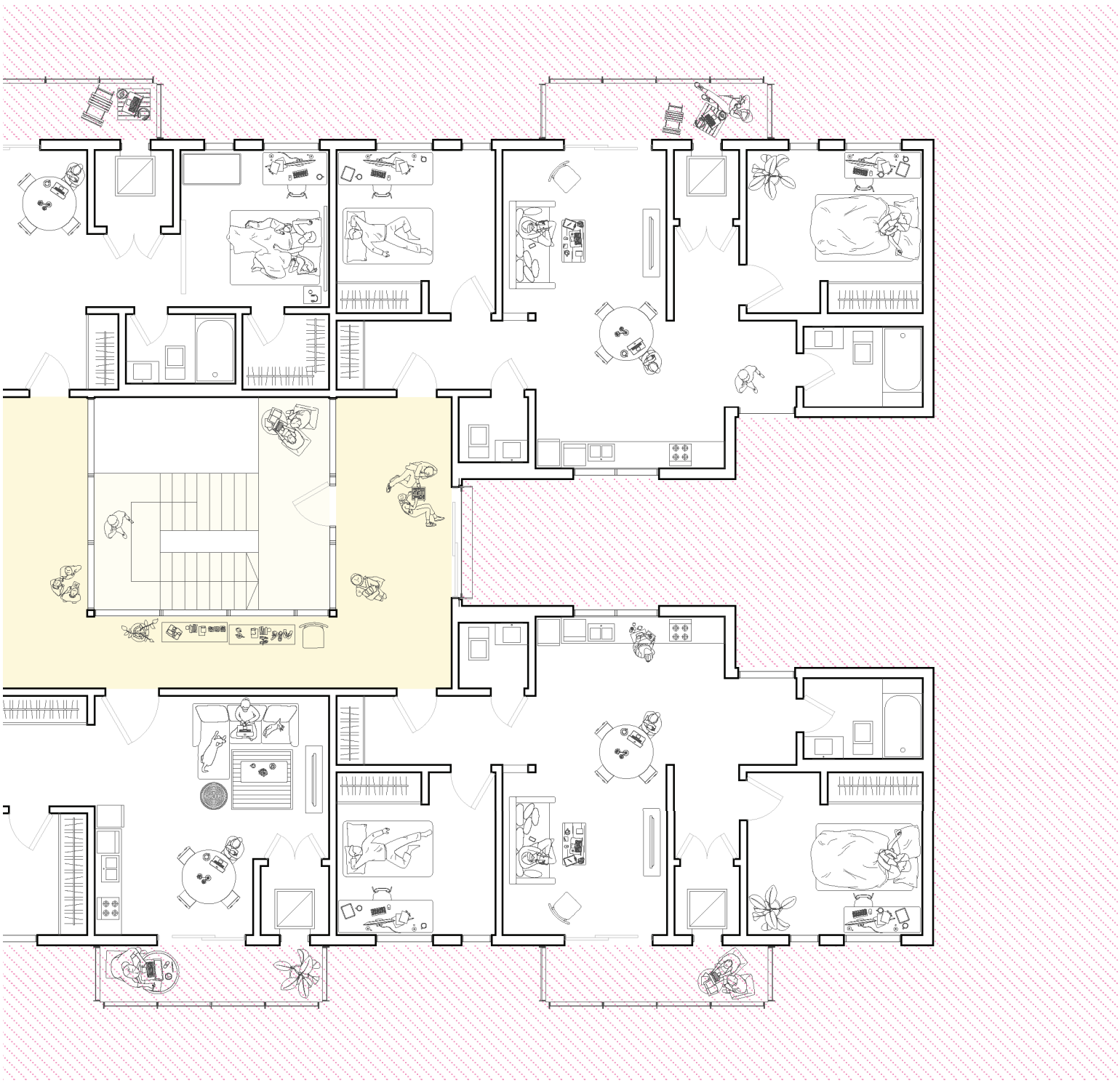


Figure 4.66 Architectural programming overlay. Typical floor level 5 and 6.



public realm

interior street : common house, common areas and/or public corridors

Figure 4.67 Front elevation. Scale 1 : 125 0 10m

1. Specify railing infill panels with standardized width dimensions for cost efficiency and easy installation. E.g. perforated metal panels. Residents can take control of the initial and subsequent paint finish to allow expression of individual identity.

2. Specify durable cladding material to reduce building maintenance costs. E.g. metal siding panels with enhanced rust resistance.

3. Specify locally manufactured materials to support local companies and their workers. E.g. Brampton Brick | brick veneer. Also, it produces a lower embodied carbon in relation to the transportation process.

Outdoor terraces provide buffer between the proposed residential units and the existing industrial sites and highway infrastructures. In addition to the proposed bike path, the outdoor terraces facilitate greater human presence in the public surroundings as a form of public safety and social engagement strategy.

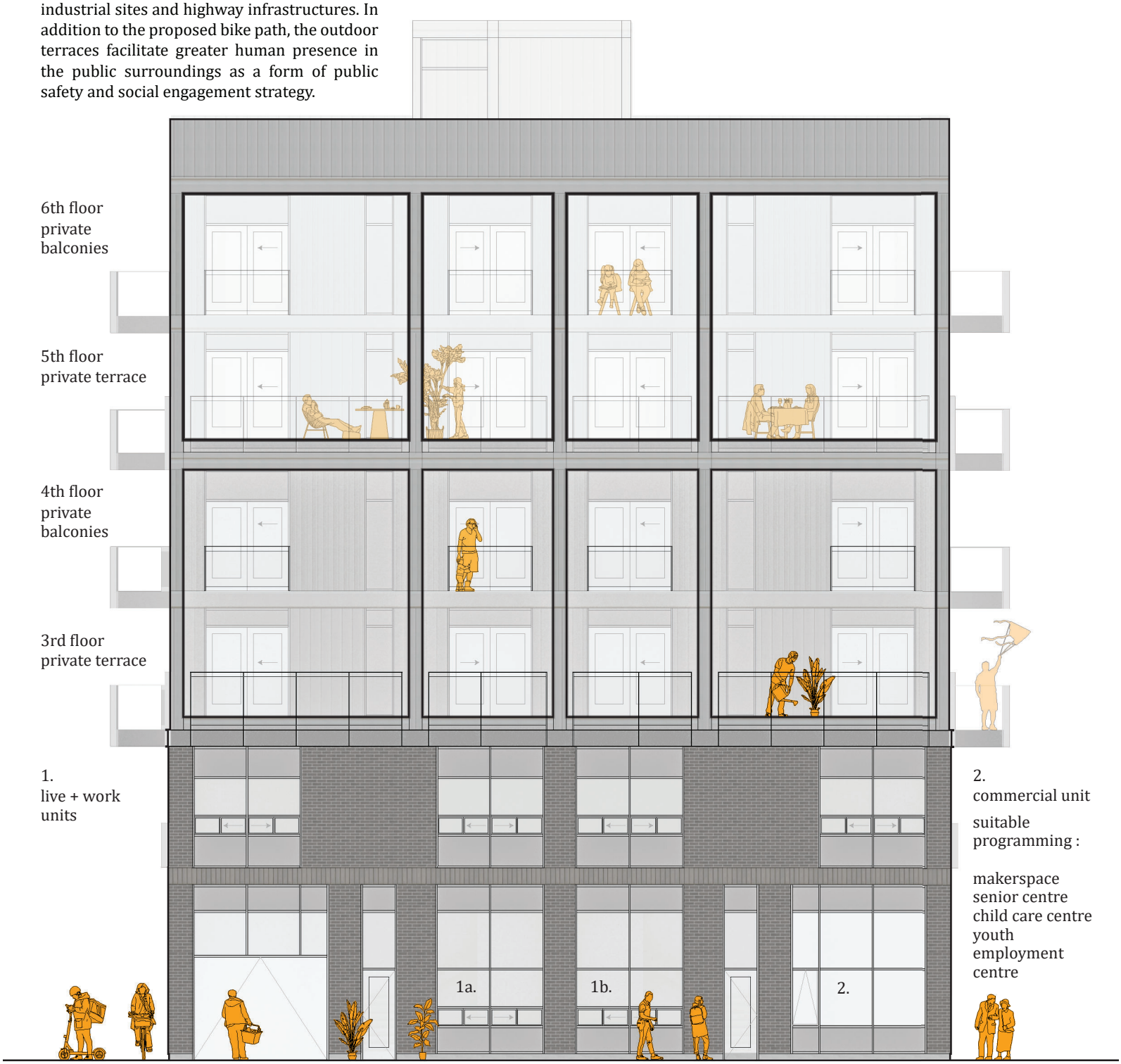



Figure 4.68 Side elevation. Townhouse units. Scale 1 : 125 0 10m

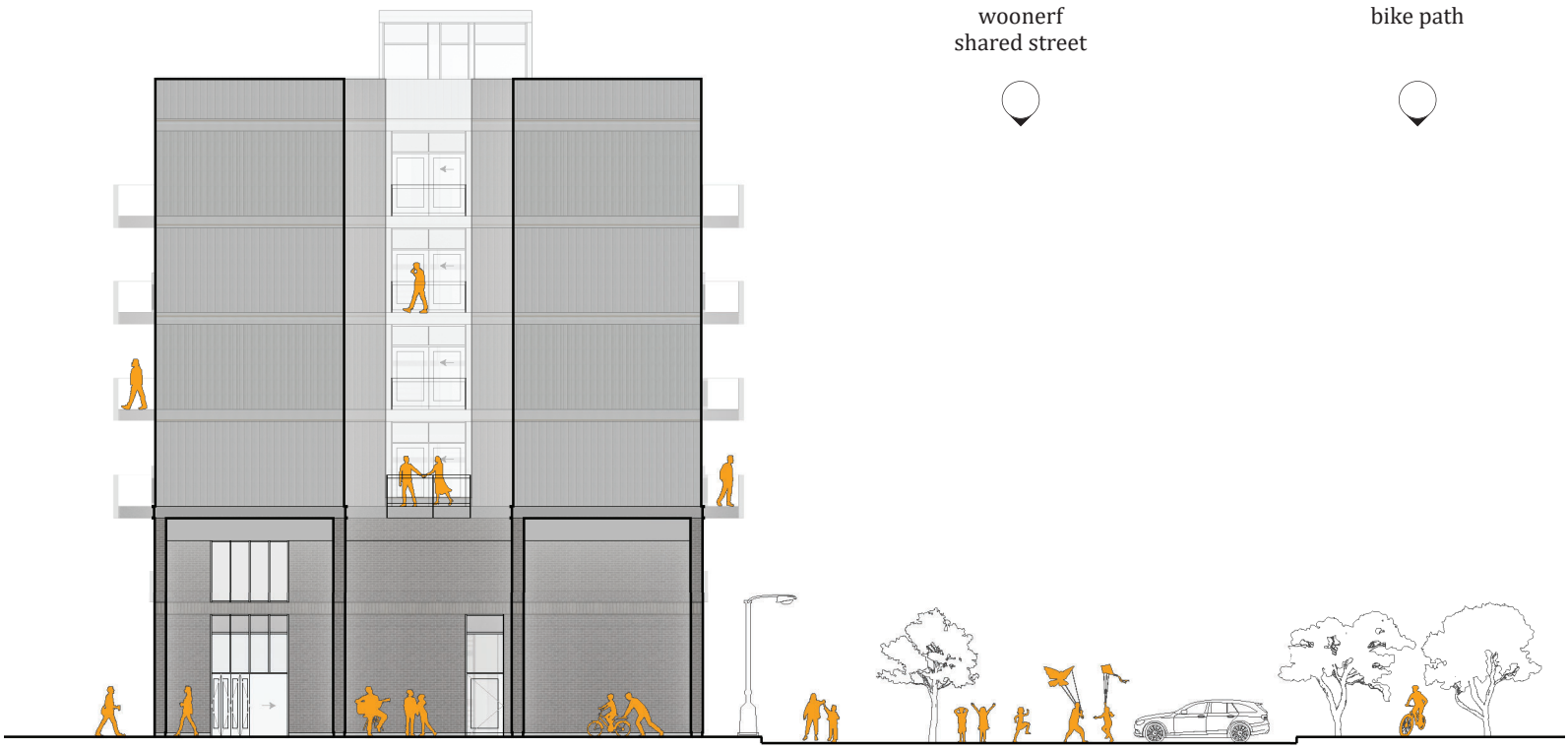



Figure 4.69 Side elevation. Plaza.

Figure 4.70 Rear elevation. Scale 1 : 250 0 10m

1. Specify a ceiling height suitable to accommodate the installation of a dropped ceiling structure (optional). E.g. A clear ceiling height of 2,850mm aligns to the proposed curtain wall design. A 2,100mm (h) exterior sliding door plus a 750mm (h) spandrel panel to serve a decorative or mechanical function.

The 750mm height difference can accommodate both a 450mm (1'-6" h) operable transom above bedroom interior doors (optional) plus the proposed ~300mm (h) dropped ceiling structure. These design options provide additional natural ventilation and sound isolation.

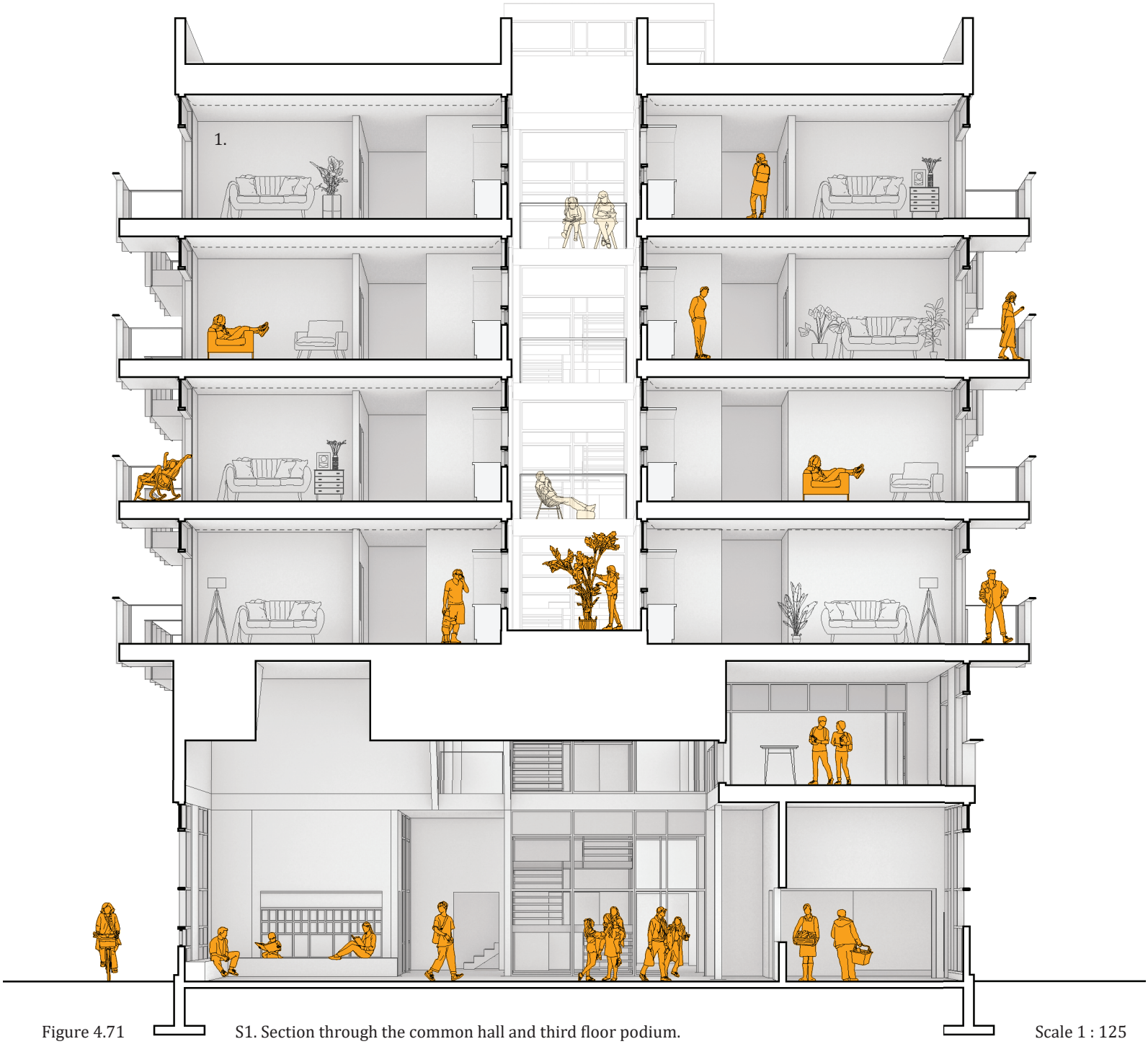



Figure 4.71 S1. Section through the common hall and third floor podium. Scale 1 : 125

1. Specify individual heating and cooling system for each dwelling unit. E.g. multi-zone heat pump. A decentralized mechanical system allows residents to control and differentiate the thermal comfort specific to each room function, and specific to each users' preference. This allows for greater efficiency in energy load consumption, and thereby leads to a lower monthly utility cost.
2. In addition to operable windows, an individual household has the option to install an ERV unit for greater indoor air quality.

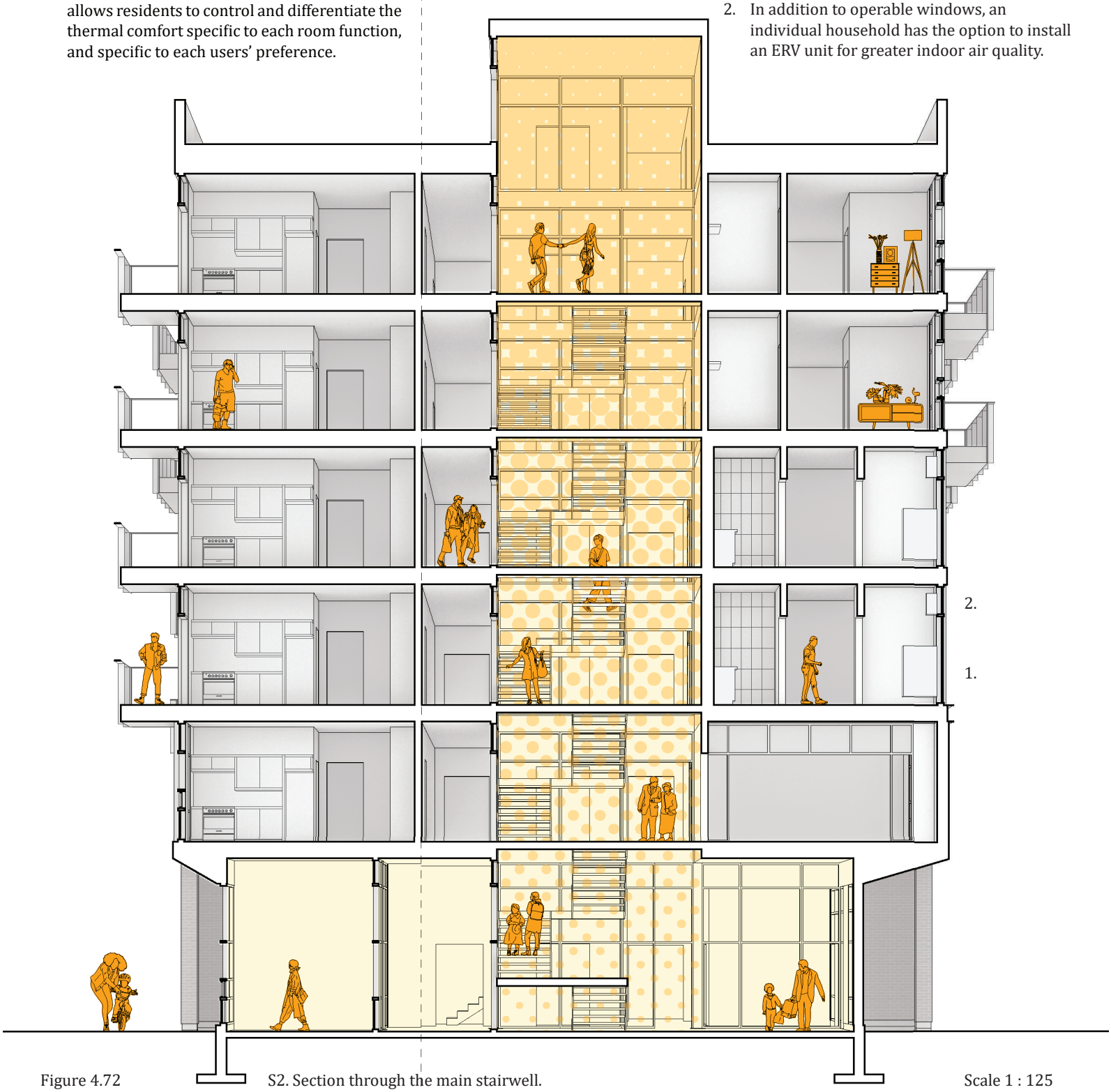



Figure 4.72 S2. Section through the main stairwell. Scale 1 : 125

1. Bathrooms, laundry (optional) and powder rooms (optional) are vertically aligned per floor and are located adjacent to a continuous shaft wall (see fig. 4.59 to 4.66 | floor plans on pp. 203-218). This strategy allows for greater simplicity, repetition and efficiency in ductwork installation.
2. Non-profit organizations are given priority over the leasing of the street-level commercial unit. A possible programming is a city-operated child care centre.

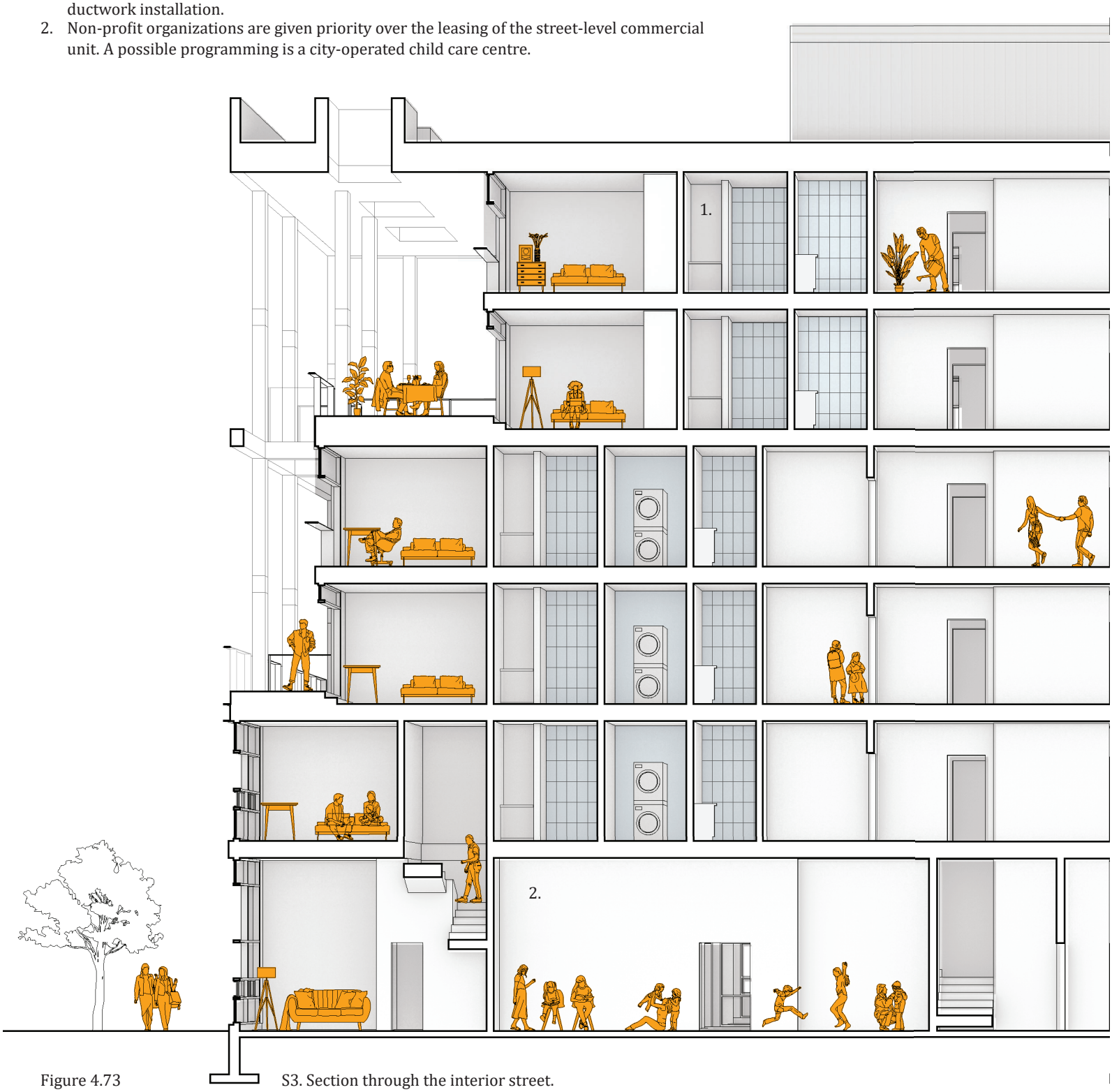
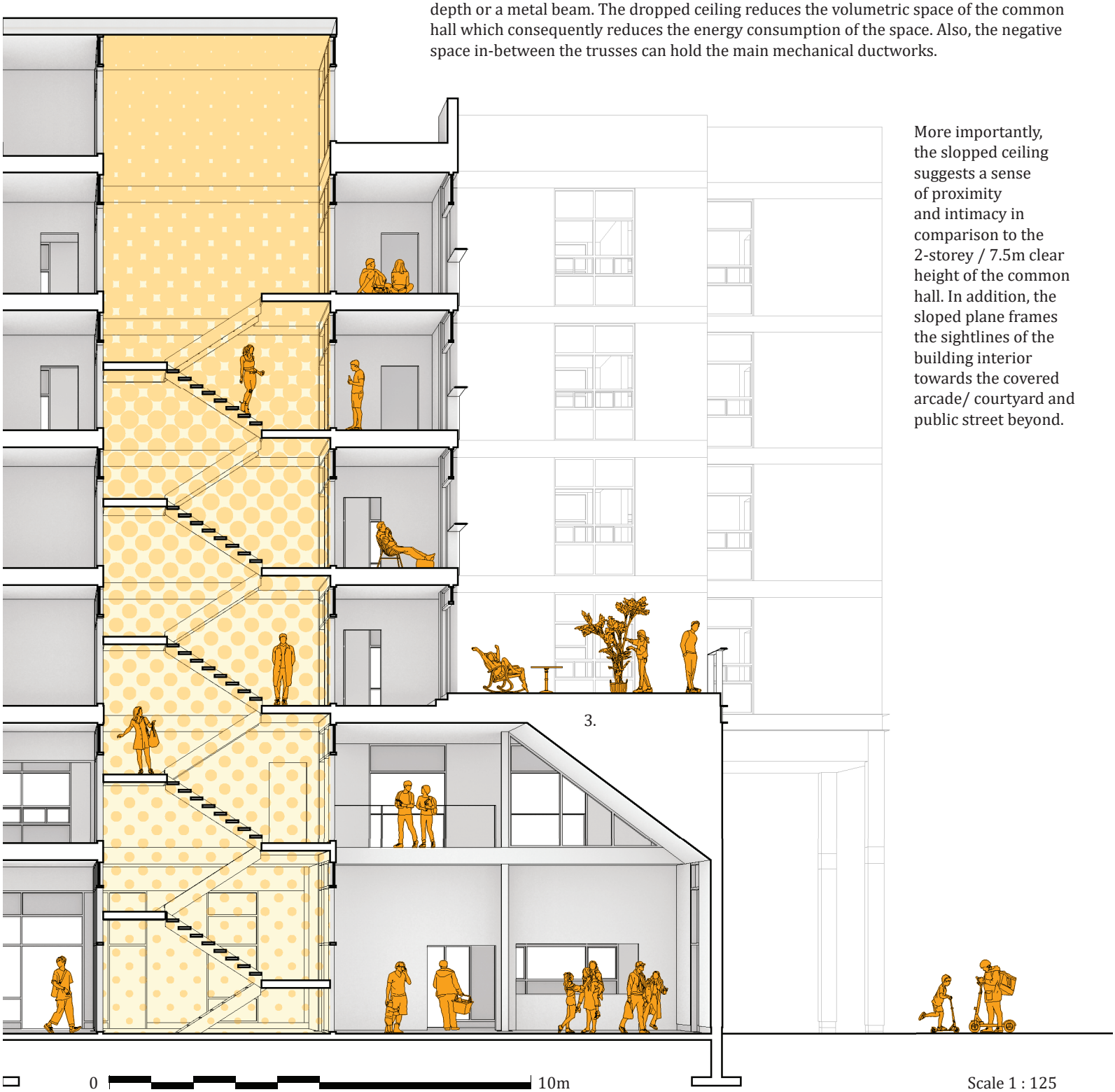



Figure 4.73 S3. Section through the interior street.

3. The structural post-and-beam framing of the building, consisting of laminated-veneer lumber (LVL), aligns with a 4.5m by 4.5m grid. For the 9m clear span of the 2-storey common hall, floor trusses are to be specified as an alternative to a thicker LVL beam depth or a metal beam. The dropped ceiling reduces the volumetric space of the common hall which consequently reduces the energy consumption of the space. Also, the negative space in-between the trusses can hold the main mechanical ductworks.




More importantly, the slopped ceiling suggests a sense of proximity and intimacy in comparison to the 2-storey / 7.5m clear height of the common hall. In addition, the sloped plane frames the sightlines of the building interior towards the covered arcade/ courtyard and public street beyond.

Figure 4.74 Interior perspective of the common hall.

Figure 4.75 Interior perspective of the corridor.

Figure 4.76 Interior perspective of the kitchen, dining and living room.

Figure 4.77 Exterior perspective of the private balcony.

# Conclusion

The contemporary issue of constant migration-and-outmigration in the GTA due in part to housing unaffordability is tackled in the thesis through cohousing homeownership, with the understanding that a singular architectural response to the concept of housing security is no final answer. But a key part in the on-going self-discovery of why we continuously decide to stay living-and-working within a specific community, to continuously participate in the political life of our chosen city, and on how the spirit of a comprehensive architecture can evolve in mediating this inner social desire.

***

The displacement of the GTA's workforce population into periphery communities, the increasing (dis)entitlement regarding intergenerational wealth through real estate capital gains, and the fragmentation of a metropolitan region into 'generationed' spaces are indicators of a restrictive body politics. The body experience of belonging *in place* is restricted due to the distancing of everyday live-work patterns, and the on-going relocation onto newer suburban subdivisions – along an ever-expanding metropolitan periphery. As a counterargument, the thesis proposes to rebuild a sense of proximity, or specific to architectural theory – to rebuild a 'congestion without matter.' Within the frame of socioeconomics, the thesis proposes to allocate parts of an urban growth centre (many of which are currently in the process of redevelopment) for the rebuilding of workforce housing. The recomposition of workforce housing within the city, and the composition of spatial programming related to the co-sharing of wealth within the 'common house' are the *macro* and the *micro* scale into which architecture can rebuild proximity between households of diverse socioeconomic levels.

The sense of belonging *in place*, and specific to the theme of socioeconomics, the sense of economic *solidarity*, as the thesis proposes, is to be rebuilt through a renewed proximity in live-work patterns. The multiplicity of free-forming actions (a collection of negative spaces) self-authored by participants within a shared common space constitutes the political space of a city. In the post-WWII era, the satellite cities of the GTA enabled these lived experiences of social (socioeconomic) confrontation/ coexistence – through the proximity in apartment towers, single-family bungalows and warehouses. In relation to the present-day realities in design constraints, the author reimagines the metaphysical space through the architectural scale of 'the Common House.' And in relation to the future continuity of the city, as an urban artifact of intimate memories that constitute one's journey towards 'homefulness,' the thesis invites the reader to dwell on the many possibilities for her regeneration.[1]

***

Through the rebuilding of the metaphysical space of *the political*, the workforce population reasserts the authority and the responsibility towards the personal question of home and migration. Where does the home reside?

1 As part of the discussion during the thesis defense, the research was to be interpreted as a departure point in exploring many more possible ways of living affordably in the Toronto region. In housing tenure, alternatives such as renter-occupied supportive housing and non-equity housing co-ops maybe better aligned with pre-existing funding streams provided by CMHC. In housing typology, stacked townhouse and laneway house, in conjunction with an improved public transit system along suburban local roads, are possible new housing options as well. In building construction, cross-laminated timber (CLT) construction can be further explored as an alternative in achieving faster construction scheduling and lower embodied carbon emission.

Figure 5.01 A generic lot is the global space of market urbanism. Phase 1/3. Acceleration.

Figure 5.02 Phase 2/3. Stagnation.

Figure 5.03 Phase 3/3. Collapse.

Figure 5.04 An architectural project, built or unbuilt, is an essential part to the on-going journey of rebuilding the city. A hopeful recollection to the past memories of a house that is yet to be.

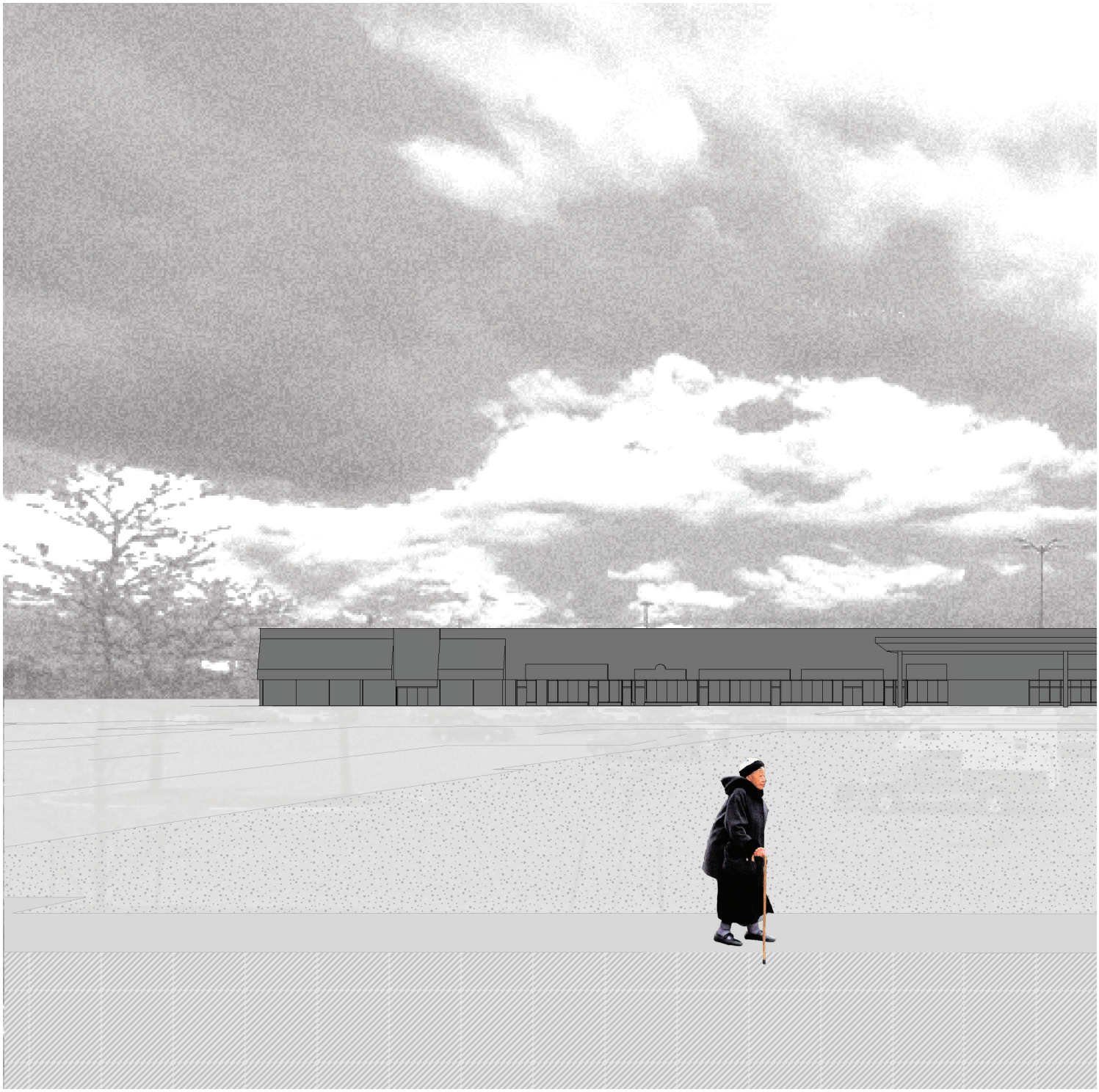


Figure 5.05 Exterior perspective of a community shopping centre.

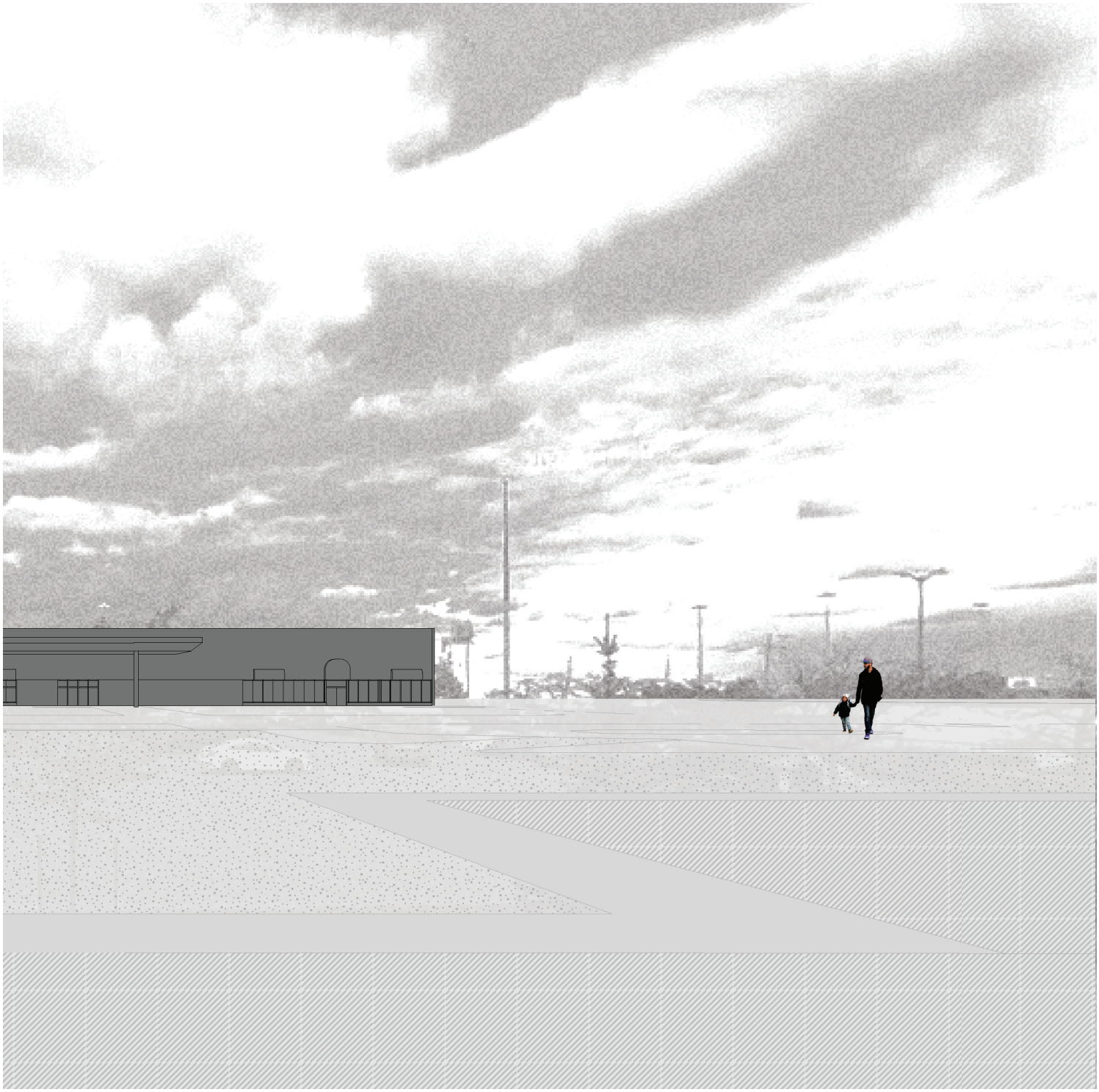


Figure 5.06 Exterior perspective of a community shopping centre recontextualized to generate greater proximity towards local workforce housing.

Where does the singularity reside?

I was fascinated by the mystery of architectural creation and was anxious to determine what transformed an ordinary building into a masterpiece of architecture.

How can one explain the metamorphosis that alters the very value of a thing without necessarily altering the quality of the materials that form it?

Étienne Gaboury

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# Appendix

Figure 6.01 ‘Knowledge is light.’ Ecology and the Architectural Imagination.

The ‘Common House’ is the ethereal space of light and shadow. The shared space and the separate space. Interdependency and autonomy. To understand others is to understand oneself.

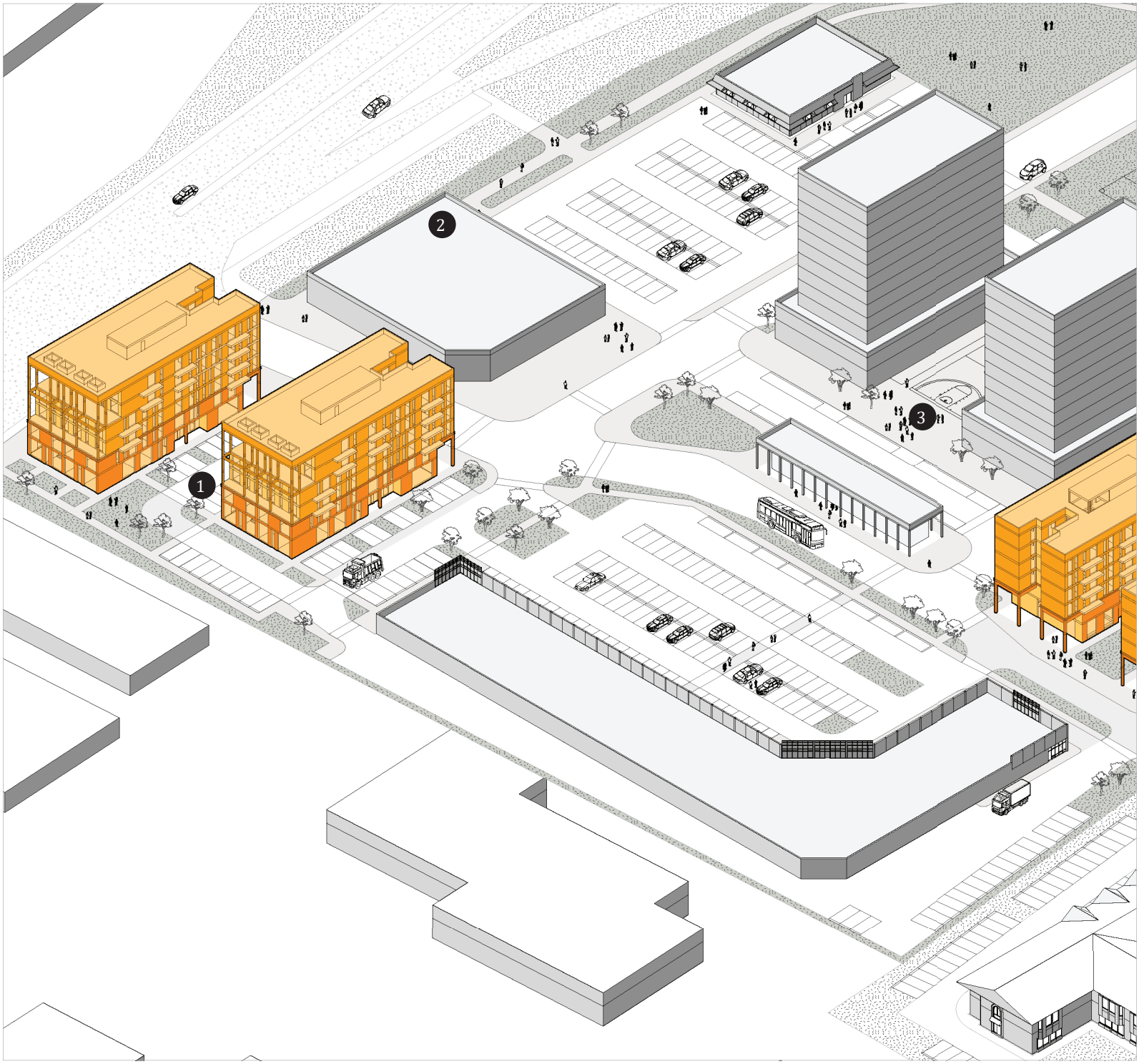


Figure 6.02 Bramrose Square proposed urban design. Axonometric drawing (2).

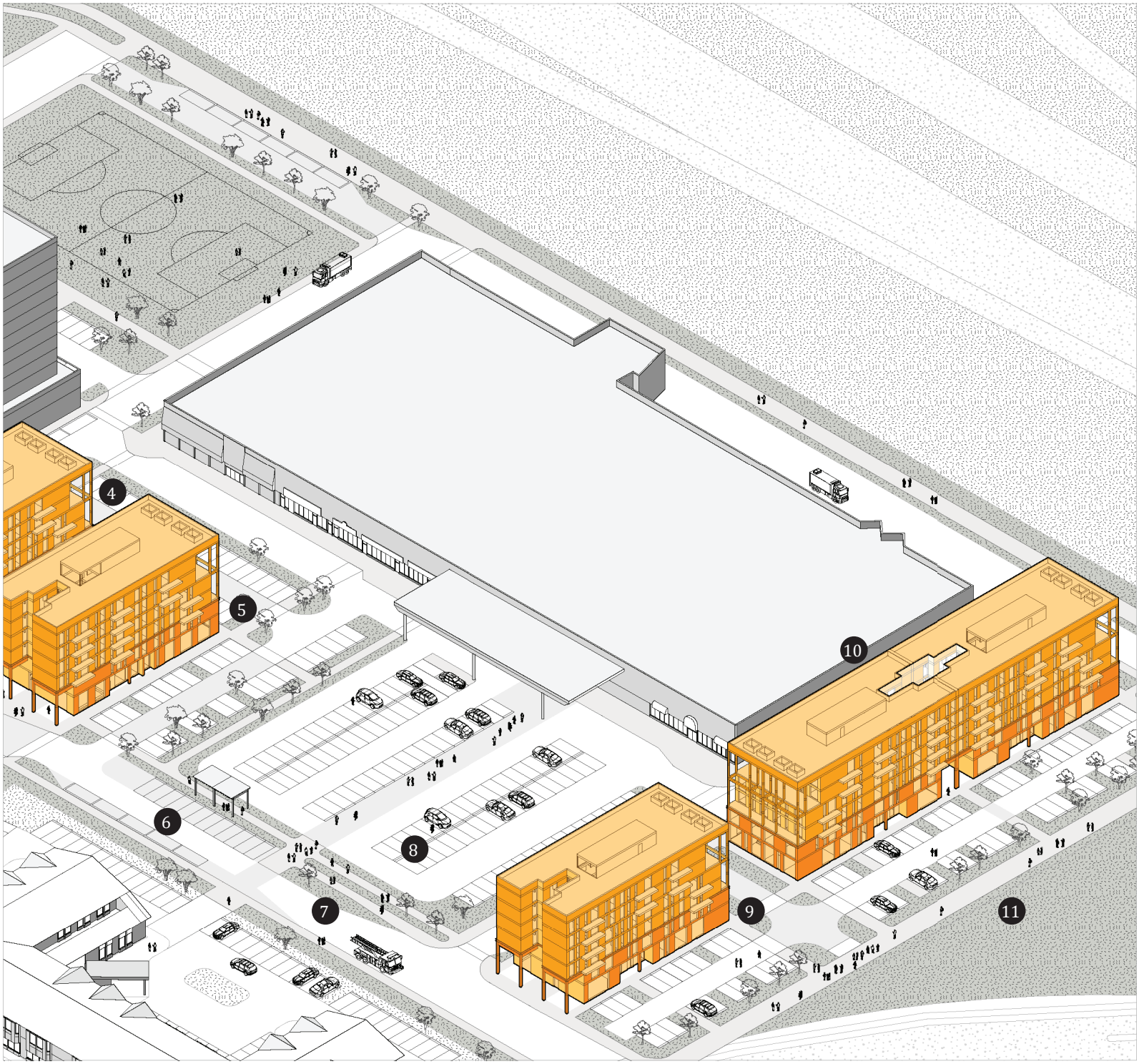
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Figure 6.02 (continued) Possible collection of social event-spaces.

1. Youth employment centre
2. Future elementary school and/or community centre
3. Outdoor movie theatre
   Ice skating rink (winter months)
4. Child care centre
5. Senior centre
6. Farmers' Market (special event road closure)
7. Community garden (adjacent to a senior centre)
8. Garden centre (summer months)
9. Building trade workshop
10. 3d-printer makerspace
11. Community garden (urban farming)