

The Intermodal Metropolis:
Spatial Protocols at the Convergence of Regional Mobility Networks

by

John Christopher Rossetti Williamson

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Author's Declaration Page

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

Suburban Centres were established in the Toronto region as the population dispersed beyond the city's borders. Intended as a set of delivery points for municipal services and concentrations of commercial and social program serving local suburban residents, government policy and market forces are now encouraging these centres to accumulate a greater range of program, and absorb a significant share of population growth. They have a mandate to orient new residents toward improved public transit routes as a relief for overburdened road infrastructure, but their fundamental role as a suburban downtown requires continued accessibility by car.

The structure of the suburbs is fixed, dominated by the car as the primary element of an extensive mobility system that has generated its own spatial protocols and building typologies. The morphology of older urban areas was developed in response to the parameters of streetcar service and human abilities, and also shows a resistance to change. The two mobility systems co-exist, each with their own associated territories, creating an intermodal metropolis. In suburban centres, the intensive urban mobility extends into the reach of the suburban territory, creating a threshold condition that requires a hybrid morphology to serve both.

The design adopts Scarborough Centre as a test site, proposing a morphology that accommodates urban and suburban mobility by embracing the suburban planning paradigm that separates vehicle traffic from public space. The interaction between the two networks is managed to create variations in accessibility characteristics that determine programmatic distribution. The public realm is compartmentalized into differentiated spaces that support a highly permeable pedestrian network integrated with the central transit station. The proposal allows Scarborough Centre to expand its public space network without compromising its function as a highly accessible suburban downtown.

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Table Of Contents

<i>III</i>	Author's Declaration		
<i>V</i>	Abstract		
<i>VII</i>	Acknowledgements		
<i>IX</i>	Table of Contents		
<i>XI</i>	List of Figures		
<i>1</i>	Introduction		
<i>7</i>	Chapter 1: The Role of Mobility in Urban Structure		
	<i>7</i>	Generation of Morphology	
	<i>8</i>	The Streetcar Suburb	
	<i>15</i>	Rise of the Automobile	
	<i>15</i>	The Modern Suburb	
	<i>18</i>	New Infrastructures to Serve the Car	
	<i>21</i>	Programmatic Dispersions	
	<i>22</i>	Restructuring the Region	
	<i>25</i>	Suburban Centres	
	<i>31</i>	Reaching Scarborough Centre	
<i>39</i>	Chapter 2: The Emergence of Hybrid Mobility		
	<i>39</i>	Mobility Thresholds	
	<i>40</i>	Regional Growth Directives	
	<i>46</i>	Making the Centres More Accessible	
<i>51</i>	Chapter 3: Urban Design Models		
	<i>52</i>	Typical Development Models	
	<i>55</i>	Evolution of Towers-in-the-Park	
	<i>58</i>	Planning for Mississauga Centre	
	<i>63</i>	Primacy of the Street	
	<i>65</i>	The Logic of Streetcar Suburbs	
	<i>67</i>	Retail Economics	
	<i>70</i>	Assessing Intensification Plans	
<i>77</i>	Chapter 4: Morphology of Hybrid Mobility		
	<i>80</i>	Current Market Demand	
	<i>85</i>	The Site	
	<i>85</i>	History of Scarborough Centre	
	<i>87</i>	Project Intentions	
	<i>89</i>	Design Strategies	
	<i>95</i>	Formal Precedents	
	<i>95</i>	Designing the Spatial Network	
	<i>101</i>	Spatial Arrangement	
	<i>105</i>	Architectural Response	
	<i>110</i>	Cultural Facilities	
	<i>112</i>	Implications on Road Design	
	<i>114</i>	Phasing	
<i>135</i>	Conclusion		
<i>145</i>	References		

List of Figures

- 3 **Fig. 0.1** Car dominated uses in Scarborough Centre
By author.
- 4-5 **Fig. 0.2** Scarborough Centre aerial photo
<http://www.bing.com:80/maps/> (accessed: September 13, 2011)
- 8 **Fig. 1.1** Toronto Harbour
http://www.trha.ca/uploaded_images/post2-773113.jpg (accessed:
June 22, 2011)
- 9 **Fig. 1.2** Regional railway network
By author.
- 9 **Fig. 1.3** Regional passenger rail network
By author.
- 10 **Fig. 1.4** New Toronto site plan
By author.
- 11 **Fig. 1.5** Toronto streetcar routes ca. 1930
By author, adapted from “TTC Route Map 1930.” <http://transit.toronto.on.ca/archives/maps/guide1930.jpg> (accessed: March 12, 2011)
- 11 **Fig. 1.6** Toronto streetcar routes ca. 2012
By author.
- 12 **Fig. 1.7** Typical streetcar suburb commercial high street
<http://www.blogto.com/upload/2010/09/20100803-556.jpg>
(accessed: December 20, 2011)

- 12 **Fig. 1.8** Streetcar suburb residential blocks
<http://chuckmantorontonostalgia.files.wordpress.com/2011/07/photo-toronto-spruce-street-looking-east-from-rolston-a-residential-street-typical-of-a-great-many-1948.jpg?w=510&h=322> (accessed: December 20, 2011)
- 14 **Fig. 1.9** Highway 401
 By author.
- 16 **Fig. 1.10** Regional highway network
 By author.
- 17 **Fig. 1.11** Don Mills aerial
http://www.niotproperties.com/files/file/scan0029_1029.jpg
 (accessed: January 6, 2012)
- 17 **Fig. 1.12** Typical Toronto strip mall
http://www.homefinder.ca/system/listing_images/522000/small/522759_C2000356.jpg?1307687556 (accessed: June 23, 2011)
- 18 **Fig. 1.13** Demolition of South Parkdale for Gardiner Expressway
<http://bricoleurbanism.org/wp-content/uploads/2006/12/south-parkdale-1950s.jpg> (accessed: June 22, 2011)
- 19 **Fig. 1.14** Built and planned highways in Toronto
 By author, adapted from “Proposed Facilities in 1966.” <http://transit.toronto.on.ca/images/spare-0019-01.gif> (accessed: March 12, 2011)
- 22 **Fig. 1.15** Parking lots in St. Lawrence neighbourhood
http://gencat4.eloquent-systems.com/webcat/systems/Toronto.arch/resource/fo0002/ser0008/ss0004/s0008_ss0004_fl0004_id0011.jpg (accessed: June 23, 2011)
- 24 **Fig. 1.16** 1983 Centres plan
 By author, adapted from “Fig 5: Designated Metropolitan Centres” The Municipality of Metropolitan Toronto, Official Plan for the Urban Structure (Toronto: 1983) 19
- 24 **Fig. 1.17** 2002 Centres plan
 By author, adapted from “Map 2: Urban Structure.” http://www.toronto.ca/planning/official_plan/pdf_chapter1-5/2_urb_str_dec2010.pdf (accessed: June 26, 2011)

- 27 **Fig. 1.18** North York Centre aerial
http://www.menkes.com/Gibson/media/aerial/aerialN_full.jpg
(accessed: June 23, 2011)
- 28 **Fig. 1.19** Scarborough Centre aerial ca. 1966
Raymond Moriyama, Architects and Planners, Scarborough Town
Centre Land Use Study (Toronto: The Scarborough Planning Board,
1974) 6
- 30 **Fig. 1.20** Rapid Transit Network ca. 1966
By author, adapted from “Metro Transit System 1966” <http://transit.toronto.on.ca/archives/maps/guide1966.gif> (accessed: June 23, 2011)
- 30 **Fig. 1.21** Rapid Transit Network ca. 1985
By author, adapted from “TTC Ride Guide 1985” <http://transit.toronto.on.ca/archives/maps/guide1985.gif> (accessed: June 23, 2011)
- 33 **Fig. 1.22** Artist’s conception of Scarborough Centre transit station
<http://stevemunro.ca/wp-content/uploads/2009/01/pr1pg56c.jpg>
(accessed: August 25, 2010)
- 40 **Fig. 2.1** Parking lots at Yorkdale and Wilson TTC stations
http://farm2.static.flickr.com/1051/930057530_ee.6a888108.jpg
(accessed: June 23, 2011)
- 43 **Fig. 2.2** Official Plan Centres and Avenues
By author, adapted from “Map 2: Urban Structure.” http://www.toronto.ca/planning/official_plan/pdf_chapter1-5/2_urb_str_dec2010.pdf
(accessed: June 26, 2011)
- 43 **Fig. 2.3** Official Plan Employment Zones
By author, adapted from “Maps 13-23: Land Use Plan.” http://www.toronto.ca/planning/official_plan/pdf_chapter1-5/13-23_landuseplan_keymap_dec2010.pdf (accessed: June 26, 2011)
- 44 **Fig. 2.4** TTC ridership
By author.

- 44 **Fig. 2.5** Original Transit City plan ca. 2006
By author, adapted from “Transit City Light Rail Plan.” http://www3.ttc.ca/PDF/About_the_TTC/Transit_City_Map_Aug_2010.pdf (accessed: June 26, 2010)
- 45 **Fig. 2.6** Transit City plan ca. 2010
By author, adapted from “Transit City Light Rail Plan.” http://www3.ttc.ca/PDF/About_the_TTC/Transit_City_Map_Aug_2010.pdf (accessed: June 26, 2010)
- 45 **Fig. 2.7** Eglinton Crosstown LRT plan ca. 2011
By author, adapted from “Eglinton-Scarborough Crosstown.” http://www.thecrosstown.ca/sites/default/files/images/Crosstown_system-map_v3-w-stations.jpg (accessed: June 26, 2010)
- 51 **Fig. 3.1** Greenbelt Plan
By author, adapted from “Ontario’s Greenbelt.” <http://www.greenbelt.ca/maps/greenbelt-map> (accessed June 23, 2011)
- 53 **Fig. 3.2** Greenfield development in Milton’s periphery
<http://maps.google.com/> (accessed: September 16, 2011)
- 53 **Fig. 3.3** Suburban office campus
<http://www.coydavidson.com/wp-content/uploads/2011/06/office-campus1.jpg> (accessed: September 16, 2011)
- 54 **Fig. 3.4** Tower-in-the-park development model
<http://www.bing.com:80/maps/> (accessed: September 16, 2011)
- 56 **Fig. 3.5** Modern condo podium
By author.
- 56 **Fig. 3.6** Suburban condo complex morphology
<http://www.bing.com:80/maps/> (accessed: September 16, 2011)
- 58 **Fig. 3.7** Mississauga Downtown 21 morphology
<http://www6.mississauga.ca/onlinemaps/planbldg/images/DT21/Downtown21%20Report%20&%20Master%20Plan.pdf> (accessed September 16, 2011)

- 59 **Fig. 3.8** Mississauga Downtown 21 site plan
<http://www6.mississauga.ca/onlinemaps/planbldg/images/DT21/Downtown21%20Report%20&%20Master%20Plan.pdf> (accessed September 16, 2011)
- 61 **Fig. 3.9** Mississauga Downtown 21 transport plan
<http://www6.mississauga.ca/onlinemaps/planbldg/images/DT21/Downtown21%20Report%20&%20Master%20Plan.pdf> (accessed September 16, 2011)
- 61 **Fig. 3.10** Mississauga Downtown 21 street section
<http://www6.mississauga.ca/onlinemaps/planbldg/images/DT21/Downtown21%20Report%20&%20Master%20Plan.pdf> (accessed September 16, 2011)
- 64 **Fig. 3.11** Queen Street
 By author.
- 64 **Fig. 3.12** Lawrence Avenue
 By author.
- 66 **Fig. 3.13** Comparing stop spacing of streetcar and LRT operations
 By author.
- 68 **Fig. 3.14** Retail typology of North York Centre
<http://maps.google.com/> (accessed: September 16, 2011)
- 78-79 **Fig. 4.1** Scarborough Centre district aerial
<http://maps.google.com/> (accessed: March 12, 2011)
- 81 **Fig. 4.2** Scarborough Centre site aerial ca. 1999
<http://www.map.toronto.ca/imapit/IMapit.jsp?app=TOMaps>
 (accessed October 25, 2011)
- 81 **Fig. 4.3** Scarborough Centre site aerial ca. 2002
<http://www.map.toronto.ca/imapit/IMapit.jsp?app=TOMaps>
 (accessed October 25, 2011)

- 81 **Fig. 4.4** Scarborough Centre site aerial ca. 2005
<http://www.map.toronto.ca/imapit/IMapit.jsp?app=TOMaps>
(accessed October 25, 2011)
- 82 **Fig. 4.5** Scarborough Centre district land use
By author.
- 82 **Fig. 4.6** Scarborough Centre district building heights
By author.
- 83 **Fig. 4.7** Scarborough Centre district figure ground
By author.
- 83 **Fig. 4.8** Scarborough Centre district road network
By author.
- 84 **Fig. 4.9** Scarborough Town Centre mall aerial
<http://www.bing.com:80/maps/> (accessed: September 16, 2011)
- 84 **Fig. 4.10** Albert Campbell Square aerial
<http://www.bing.com:80/maps/> (accessed: September 16, 2011)
- 85 **Fig. 4.11** Existing site plan
By author.
- 89 **Fig. 4.12** Proposed site plan
By author.
- 90 **Fig. 4.13** Arrangement of highrise condo complexes
<http://www.maps.nokia.com/#|43.7734169|-79.2567924|17.16|32|56.99|3d.day> (accessed December 11, 2011)
- 91 **Fig. 4.14** Proposed pedestrian routes
By author.
- 92 **Fig. 4.15** Generation of formal strategy diagram
By author.
- 93 **Fig. 4.16** Pedestrian accessibility of courtyard blocks
By author.

- 93 **Fig. 4.17** Pedestrian accessibility of proposed formal strategy
By author.
- 94 **Fig. 4.18** GWL Terrein project in Amsterdam
<http://www.freewebs.com/b1212095/map.gif> (accessed September 17, 2011)
- 94 **Fig. 4.19** Turin Olympic Village project
<http://www.bing.com:80/maps/> (accessed: September 17, 2011)
- 96 **Fig. 4.20** Urban Eden Community Garden
http://www.cityanddale.com/storage/downtown-community-garden.jpg?_SQUARESPACE_CACHEVERSION=1283046056530
(accessed: October 31, 2011)
- 96 **Fig. 4.21** Campo Santa Maria Nova
<http://img80.imageshack.us/img80/2808/venicemiracoli.jpg>
(accessed: October 31, 2011)
- 96 **Fig. 4.22** Point Fraser
http://www.aila.org.au/lapapers/papers/syrnix-perth/06_Stormwater-wetland-Zone-3---inter-tidal-Zone.jpg (accessed: October 31, 2011)
- 97 **Fig. 4.23** Bleecker Park
<http://maps.google.com/> (accessed: October 31, 2011)
- 97 **Fig. 4.24** Lyon playground
<http://tecfa.unige.ch/~nova/img/playground.JPG> (accessed: October 31, 2011)
- 97 **Fig. 4.25** Withrow Park
<http://riverdale.homezilla.ca/blog/wp-content/uploads/2008/10/the-park.jpg> (accessed: October 31, 2011)
- 98 **Fig. 4.26** Proposed southeast block plan
By author.
- 98 **Fig. 4.27** Proposed road network
By author.

- 101 **Fig. 4.28** Proposed site density
By author.
- 102 **Fig. 4.29** Distribution of parks
By author, adapted from “Central Park.” http://cdn.shopify.com/5/files/1/0104/7902/t/1/assets/CP_poster_zoom.jpg?492 (accessed December 10, 2011)
- 102 **Fig. 4.30** Translation of commercial street typology
By author, adapted from <http://maps.google.com/> (accessed: December 10, 2011)
- 104 **Fig. 4.31** Proposed distribution of retail
By author.
- 104 **Fig. 4.32** southeast block ground floor uses
By author.
- 106 **Fig. 4.33** Typical upper floor plan
By author.
- 106 **Fig. 4.34** Typical ground floor plan
By author.
- 107 **Fig. 4.35** Typical underground parking plan
By author.
- 108 **Fig. 4.36** Section of building adjacent to arterial road
By author.
- 108 **Fig. 4.37** Section of typical building adjacent to park
By author.
- 109 **Fig. 4.38** Section of typical building adjacent to public square
By author.
- 109 **Fig. 4.39** Section of typical building adjacent to service courtyard
By author.
- 111 **Fig. 4.40** Proposed distribution of office space
By author.

111	Fig. 4.41 Proposed distribution of cultural and institutional facilities By author.
113	Fig. 4.42 Proposed interaction of pedestrian and vehicle paths By author.
113	Fig. 4.43 Proposed intersection plan By author.
113	Fig. 4.44 Proposed intersection plan, diagonal phase By author.
113	Fig. 4.45 Proposed intersection plan, roundabout phase By author.
116	Fig. 4.46 Proposed phase 1 southeast block plan By author.
116	Fig. 4.47 Proposed phase 2 southeast block plan By author.
117	Fig. 4.48 Proposed phase 3 southeast block plan By author.
117	Fig. 4.49 Proposed phase 4 southeast block plan By author.
118	Fig. 4.50 Proposed view from Borough Road By author.
118	Fig. 4.51 Proposed view of typical square By author.
120-121	Fig. 4.52 Proposed overhead view of southeast block By author.
122-123	Fig. 4.53 Proposed view of typical park By author.
124-125	Fig. 4.54 Cross-section through southeast block By author.

- 126-127 **Fig. 4.55** Transverse section through southeast block
By author.
- 128-129 **Fig. 4.56** Site Section
By author.
- 128-129 **Fig. 4.57** Site Section
By author.
- 128-129 **Fig. 4.58** Site Section
By author.
- 136 **Fig. 5.1** Tuxedo Court figure ground
By author.
- 137 **Fig. 5.2** Proposed figure ground
By author.
- 140-141 **Fig. 5.3** Proposed view of southeast block
By author.

Introduction

The growth of cities in North America has been driven by investments in low-density suburbs on the expanding periphery of regions for over fifty years. Now, two key ingredients of that growth are becoming scarce; cheap energy and plentiful land. As the edges of the Golden Horseshoe region continue to expand outward into productive farmland and sensitive habitats, planning for inward intensification has begun in earnest. Soon, the growing regional population will be directed away from the fringe and into a series of discreet nodes scattered throughout the suburban territory. These new centres will consume increasing portions of the region's purpose and capital as they become primary growth zones. The rhetoric in the planning documents implies the creation of walkable environments characterized by familiar urban conditions. The plans rely on a phenomenological adoption of urban morphology without importing the underlying mobility system that generated and sustained it. This thesis proposed a new morphology and spatial structure designed around the specific mobility and economics of the suburban context.

The Golden Horseshoe is a continuously developed urban area centred on Toronto and stretching along the north shore of Lake Ontario. Though it is politically fractured into dozens of regional and municipal governments, it functions as a singular economic and cultural entity. But, as in many regions, morphology divides the Golden Horseshoe in two: an array of contained historic urban cores, and the uniform suburban territories connecting and enclosing them. As mobility evolves and new transport modes are introduced, the design and development of cities is adapted to address the capabilities, opportunities, limitations, and requirements of the system. The railway era produced dense neighbourhoods structured around frequent streetcar services radiating

out from the downtown. As the private car took prominence, the ideal urban structure—block patterns, programmatic distribution, density, and building typologies—changed to accommodate it.

The increased mobility offered by the adoption of cars and the infrastructure to carry them led to a shift away from radial patterns, to a distributed density. At a local scale, the impact of the change had a radical effect on public space distribution. The public realm was separated from roadways carrying vehicles, and re-established as an independent system. Universal car ownership allowed full accessibility to remote spaces for the first time. Parks were moved into the protected interior of residential blocks, while commercial activities were agglomerated into strip plazas and malls.

At the regional scale a series of suburban centres were established as a municipal initiative to provide a focal point for the dispersing populations, close to their new neighbourhoods. A secondary purpose of the centres was to attract office development out of the overburdened downtown, and attract riders to the expanding subway system as the suburban terminals of the network. The centres were largely developed to be accessible to suburban residents arriving by car, with a strategic position as the threshold between the city's subway system, and the bus networks of the outer suburbs.

The suburban centres are now positioned to absorb a significant portion of the region's population and employment growth. The planning documents guiding this process are critical policies motivated by the inability of the region's infrastructure to continue to support greenfield suburban expansion indefinitely. The growth is to be accompanied by investments in the public transit networks serving the centres, with the intent to limit the necessity of car use. It is implicit that development of the centres must encourage use of the new transit networks while continuing to remain accessible to suburban residents by car.

Each of the established and emerging suburban centres in the region has a directive document to shape its growth, varying in scale and scope depending on its current state of the development. In general, the intensification plans seek to import urban spatial and typological models to create a simulacrum of Victorian commercial fabric along suburban roads, with the expectation that the vitality of historic neighbourhoods

will follow. The plans ignore the significantly different suburban context, as well as the underlying social, infrastructural, and mobility conditions that supported streetcar suburbs.

This thesis proposes the abandonment of streets as a device for combining and deploying public space and road networks. Instead the design separates traffic-carrying roads and public space into two separate networks, as an evolution of the suburban planning paradigm. Each network is optimized to support a single mobility system and they are deployed together within Scarborough Centre to create varying conditions of dominance and threshold between the two modes. Programmatic distribution is dictated by the necessities of adjacency and accessibility to each mode.

Next Page: Fig. 0.2 Scarborough Centre has developed within an industrial band, with low-density residential neighbourhoods across Ellesmere Road.

The disconnection of the public space function from streets allows the freedom to experiment with the ideal form and scale of space without historical reference to standard models. The vague negative space surrounding buildings is compartmentalized into a series of discreet spaces and differentiated by use according to programmatic conditions and position within the block. The spatial network is organized using the logic of streetcar suburbs, translated to the specific mobility context of the site. The concept embraces the separation of public space from streets, believing that the perceived failure of suburban models to generate activity is rooted in zoning policy, scale, and limited accessibility.

Fig. 0.1 Car-dominated suburban centres in Toronto are being intensified to support continued population growth throughout the region.







1 The Role of Mobility in Urban Structure

Generation of Morphology

The development of cities from the earliest trading outposts to modern metropolitan regions has been inextricably linked to human mobility. Cities have evolved as centres of trade for hard and soft commodities at various scales all requiring access to the transportation networks that maintain the flow of this trade. Cities are sited opportunistically to draw from and contribute to the trade networks carried by our physical transportation infrastructure. The patterns of movement of people and goods inherently generate the urban structure of modern cities. Mobility is essential to access and distribute the abundance of skills, services, employment, activities, and capital in cities.¹

As trade and commerce accrue, a city must expand its footprint to accommodate new people and businesses. The shape and scale of that growth into the vacant land surrounding cities is directly generated by the primary mobility system serving the expanded area. The characteristics of the dominant transportation mode—its speed, reliability, accessibility, capacity, versatility, and cost—together create an ideal urban structure that most effectively utilizes the mobility system. This ideal evolves with each innovation and variation of the mobility system to produce new urban morphology.²

The early transportation infrastructure of Toronto was dominated by its port, which established the town as a transition point in the flow of natural resources from the continental interior to European markets. A network of cleared pathways through the forests surrounding the city evolved slowly to create a network of land passages, parallel to natural waterways, to access interior settlements and areas far from navigable rivers. The trails were later paved and many still exist as key segments of the provincial highway network.³ By the late 19th Century, Toronto

was the dominant economic centre of southern Ontario. The first local railway project was the Grand Trunk Railway between Montreal and Detroit, which passed through Toronto's expanding port district. This was the period of Toronto's first major expansions, both locally and regionally. After the completion of the Grand Trunk, a number of other railways were built to connect Toronto to the other important trade centres in the province.⁴

The pattern of regional growth in this period was coincident with the radial railway pattern. Towns with access to the railways experienced economic growth, while those without railway links to Toronto and other markets became less important as commercial centres. Entire new towns were built parasitically next to the major railways, in the hinterland between established towns, to take advantage of the access to goods and connection to markets offered by the railway connection. These historic towns now form a series of urban nodes throughout the Golden Horseshoe.

The Streetcar Suburb

In Toronto, the growing commercial and industrial base was attracting more population, putting pressure on the city to expand its residential districts. To facilitate this growth a series of short railways were established along streets and extended to the fringe of the city. This opened the development of larger areas around the core to support the population growth. The street railways (now called streetcars) increased the mobility of industrial and commercial workers, allowing them to live in areas well beyond walking distance from their jobs in the city centre. Most routes ran east and west from the core, serving dense neighbourhoods of detached and semi-detached homes on narrow lots.⁵

Fig. 1.1 Toronto Harbour in 1873.



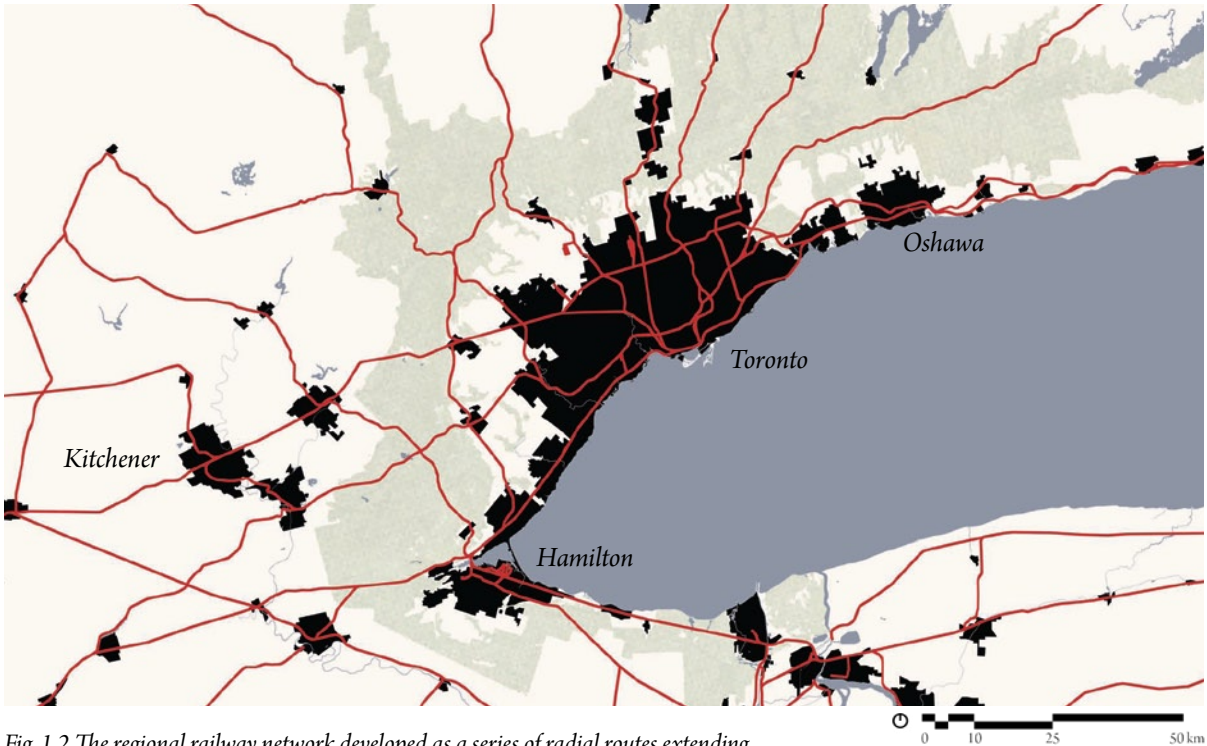


Fig. 1.2 The regional railway network developed as a series of radial routes extending from Toronto and Hamilton

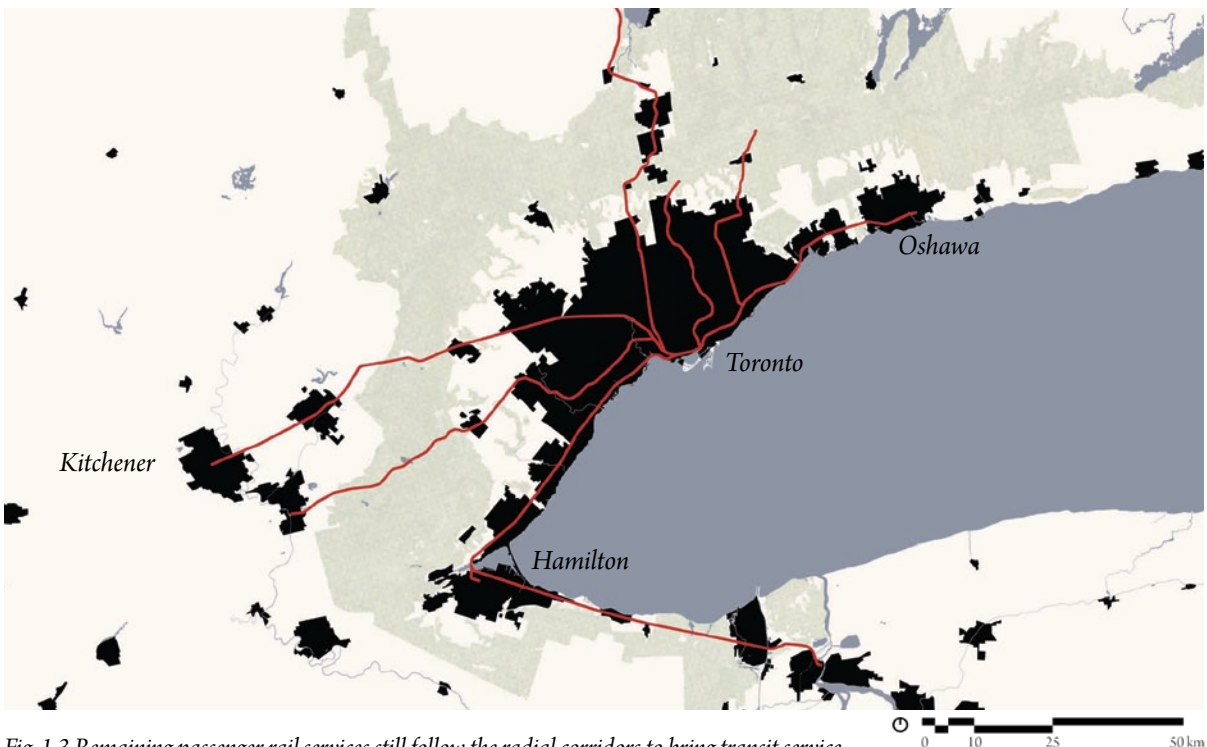
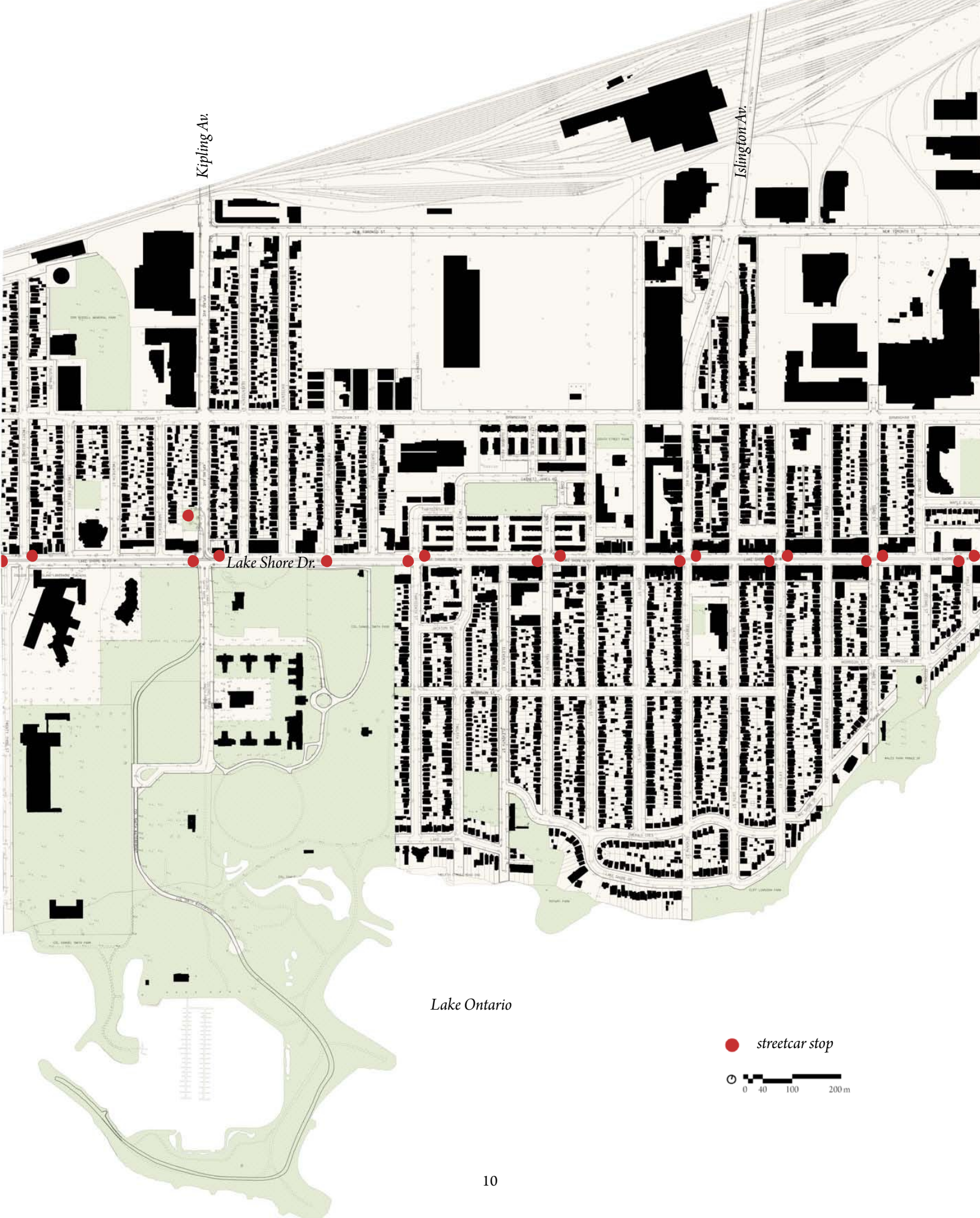


Fig. 1.3 Remaining passenger rail services still follow the radial corridors to bring transit service out to the edges of the region



Kipling Av.

Islington Av.

Lake Shore Dr.

Lake Ontario

● streetcar stop



Fig. 1.4 New Toronto is a typical streetcar suburbs built on an isolated site on the western fringe of Toronto in the 1890s.⁷ Commercial buildings line Lake Shore Dr., with industrial sites clustered near the railway.

The characteristics of the streetcar service dictated the block shape, orientation, size, and programmatic distribution in the new 'streetcar suburbs.' The streetcars worked in combination with walking as the means to complete the trip from the core to one's home, so comfortable walking distances remained relevant.⁶ With streetcar stops set very frequently, the most efficient block structure was long narrow blocks running perpendicular to the streetcar route. The block width was sized to fit two houses and sometimes also a narrow rear laneway for access to stables (and eventually automobile garages). Very few streets ran perpendicular to these blocks, as they did not lead to streetcar service directly.

Commercial buildings were located on the street with transit service. It was the least amenable for living due to the noise of the streetcars and horses and relative lack of privacy, and also the most accessible street for local residents, making it the logical place to concentrate commercial activity. Developers extracted maximum profits from these urban expansions by taking full advantage of the potential and opportunities of the mobility system.

The city's jobs remained highly centralized in this era. The largest concentration of industry and commerce was in the downtown core, served by the port and mainline railways. Some scattered minor industrial satellites had grown adjacent to railway junctions and were annexed by the city as the reach of the streetcar suburbs absorbed them. The size of Toronto during this period was small enough that streetcar service remained a fast option for commuters even from the farthest neighbourhoods.

Every streetcar suburb shared nearly identical characteristics, all of which emerged from the specific qualities and limitations of the streetcars themselves. At the metropolitan scale, the speed of the streetcar allowed the city's developed area to expand while maintaining low commuting times to the employment zones in the core. The morphology was an economically efficient response to the streetcar service, maximizing the development that could be supported by that mobility system.

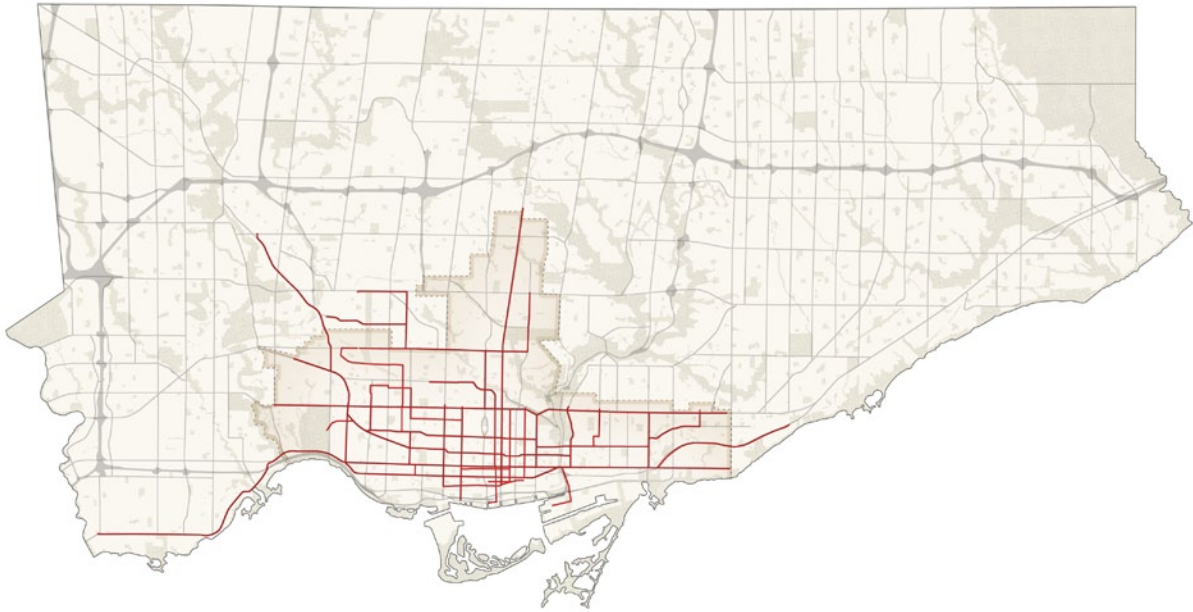
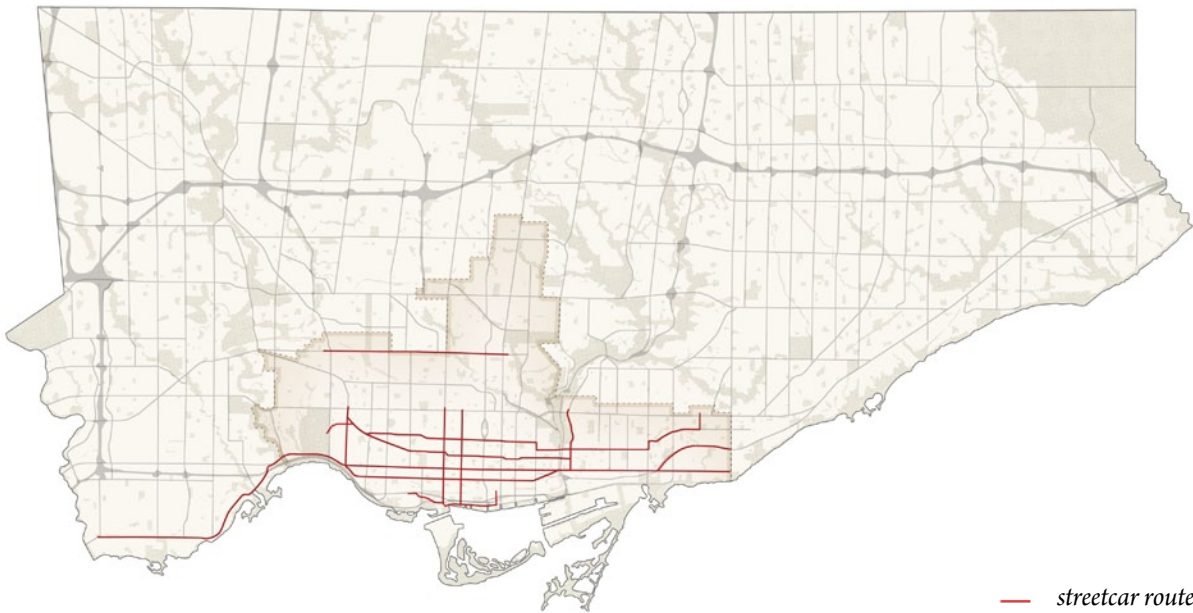


Fig. 1.5 Streetcar routes in 1930 covered the majority of the city's area



- streetcar route
- road
- former city boundary

Fig. 1.6 Streetcar routes remain today in central Toronto only



Fig. 1.7 The typical commercial street of a streetcar suburb supported a range of shops and services, allowing local residents to fulfil any daily need within their neighbourhood



Fig. 1.8 The residential blocks of streetcar suburbs were quiet streets with paved sidewalks to connect with a nearby commercial street.



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Rise of the Automobile

A major shift in the concept of urban mobility was brought about by the introduction and propagation of the private automobile. Suddenly moving throughout the region and beyond was possible without relying on public or private transportation services. An individual owned their means of mobility, and relied only on public road infrastructure to facilitate their movement. As production efficiencies and economies of scale were realized, the price of an automobile became within reach for most middle-class families.

Coinciding with the rise of the automobile was the return of soldiers from World War II, increased immigration from Europe and elsewhere, and the accompanying baby boom creating larger families and a sharp increase in the demand for homes throughout North America. Toronto's urban area was insufficient to absorb post-war growth. With the affordability of the automobile, the new residential areas did not require streetcar services as a primary means of accessing jobs in the core. Residents of the new planned neighbourhoods on the periphery were expected to drive downtown to work and shop, just as streetcar suburb residents had been expected to use the streetcar for the same purpose. This evolution in regional transportation allowed developers to experiment with new neighbourhood forms, structured by the characteristics and narrative of the automobile.

The Modern Suburb

The programmatic distribution in the new suburbs was coarse relative to the older urban areas. Because of the ease of moving long distances by car relative to walking, programs were segregated into more efficient large single-use zones.⁸ This forced residents to drive to virtually any local jobs, shops, or services, but it was not seen as a limitation at the time. With roads supporting increasing levels of traffic, the public space function of streets was moved with commercial and civic program into these remote single-use zones, which were often privately owned. The roads were transformed into unpleasant spaces, dedicated solely to moving vast numbers of cars and trucks. The public realm was redefined in strip plazas and shopping malls, taking on different shape and scale.⁹

A great advantage of the suburbs was in the liberation of residential areas from any other uses. This greatly helped the marketing paradigm that promised a rural lifestyle, away from the negative spatial and perceptual effects of the commercial and industrial programs that were more closely integrated into older streetcar suburbs and the city centre.

Fig. 1.9 Scarborough Centre sits adjacent to Highway 401, a key artery in the continental road network

Also contributing to this image was the block layout engineered to restrict traffic noise on the residential streets. The suburban street pattern was developed as a hierarchy rather than an undifferentiated grid. A resident would access their neighbourhood by arterial road, then switch to a local collector, then turn onto his or her own street. Collector roads were not designed to carry through-traffic, reducing the number of cars and aiding a feeling of seclusion. The long streets of streetcar suburbs were replaced with short dead end cul-de-sacs and curving streets that gave the impression of living amongst few people; a rural rather than urban condition.¹⁰ None of these designs would have been possible without the mobility of the car, nor would they have been desirable without the associated vision of urban escape that was packaged with car ownership. Like the streetcars before them, the car gave developers a new set of mobility conditions to exploit in generating an ideal urban structure.¹¹

The first highway in the region was the QEW connecting Toronto and Hamilton. The next project was Highway 400, which offered a fast route to cottage country.¹²

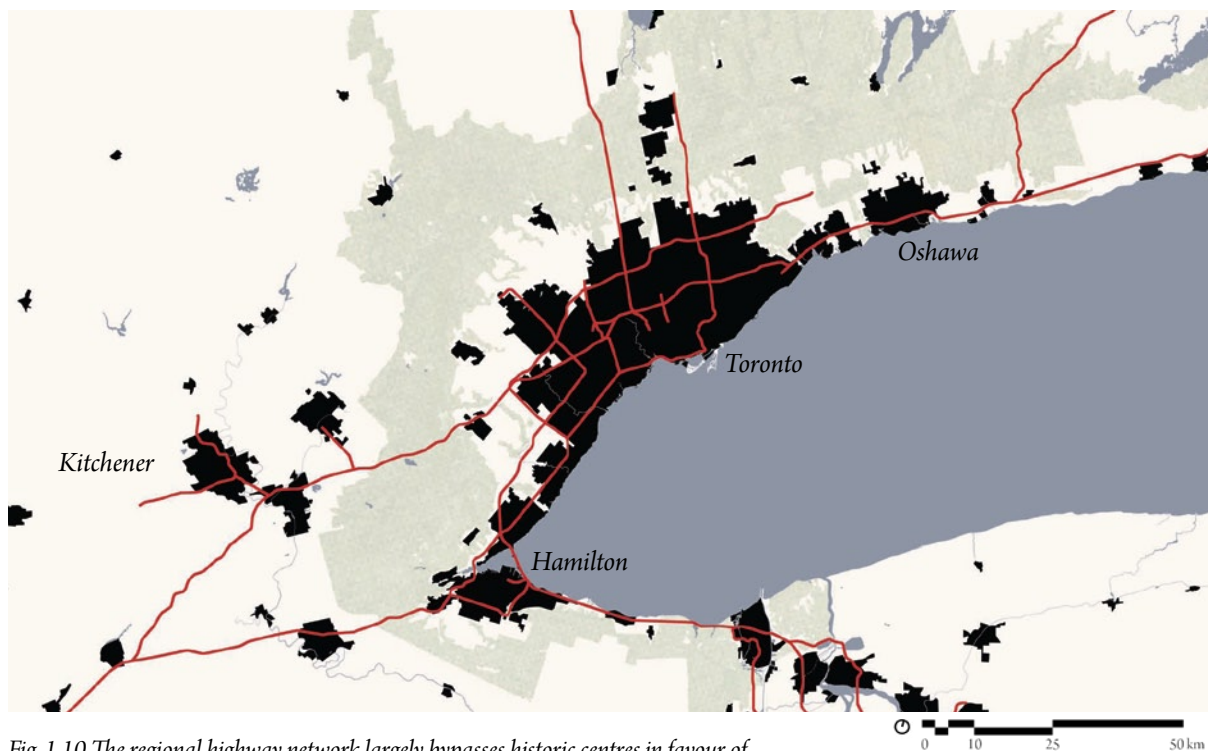


Fig. 1.10 The regional highway network largely bypasses historic centres in favour of routes passing nearest to the greatest number of people



Fig. 1.11 Don Mills was a local prototype for suburban expansion¹³



Fig. 1.12 A typical suburban strip mall is designed for use by drivers primarily

New Infrastructures to Serve the Car

At the time automobiles were first developed there was little infrastructure to carry them across the region. Intercity roads were infrequent and did not have the capacity necessary to carry the rapidly growing load of car trips throughout the region. In addition to the car traffic, goods movement by truck was also increasing as an alternative to railway freight shipments. The shift was accelerated by American government policies that favoured the new automotive and trucking industries as a measure to bring economic growth.¹⁴ The shift was happening across the continent, and Toronto required improved regional infrastructure to carry the traffic within the region and connect to a nascent continental network that was supplanting the railways in prominence.

Fig. 1.14 Opposite: The Gardiner Expressway cuts through South Parkdale, causing economic and social decline¹⁶

All levels of government coordinated to build an extensive network to serve the varied distances and speeds of regional traffic. The existing dense local road networks were paved, with major streets expanded to carry higher volumes. These arterial roads carried intra-city traffic, with long-distance trips served by a system of highways. The highways were designed to bypass the existing urban areas of the region, relying on the arterial and local roads to carry traffic further to any destination within cities and towns in the region.¹⁵

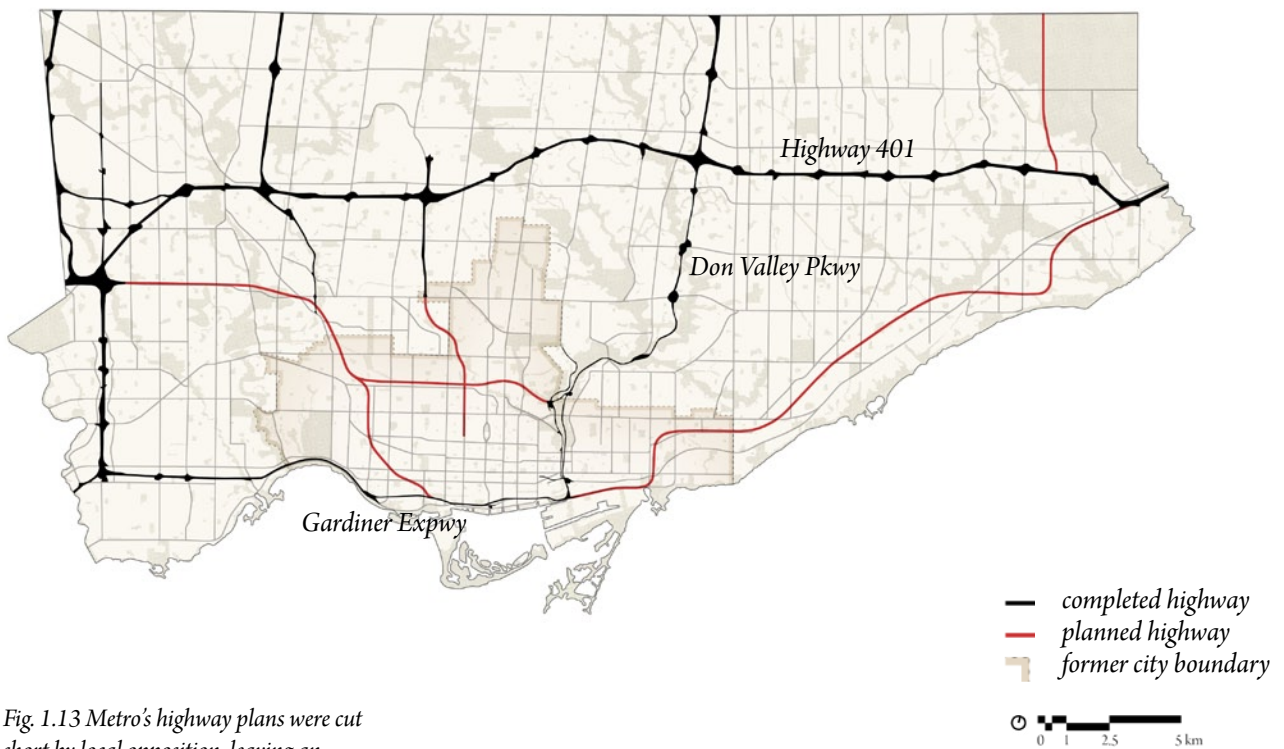


Fig. 1.13 Metro's highway plans were cut short by local opposition, leaving an unfinished network



The highway network was designed to serve the whole decentralized region that was emerging due to the dominance of the car and the full acceptance of the suburban structural model. Central Toronto was a focal point for the system as it was still a major destination for suburban residents, but several major highways bypassed the city centre entirely. Many of the highways were built to support the planned suburban development throughout the region. The plans anticipated the continued decline in the importance of the city centre as populations continued to disperse outside the core. As the new mobility networks expanded outside the traditional core, the significance of the downtown diminished.

Of the planned highways intended to serve downtown Toronto only the Gardiner Expressway and Don Valley Parkway were built.¹⁷ The DVP ran exclusively in an undeveloped ravine, while the Gardiner was routed alongside the railway yards in the core. The Gardiner did require considerable expropriation through the Parkdale neighbourhood west of central Toronto, but its residents were unable to convince planners to spare the neighbourhood. The construction wrought significant destruction, and began a gradual economic decline in Parkdale.¹⁸ The effects on local prosperity spurred resistance from other neighbourhoods facing destruction from the execution of the regional highway plan. These highway projects were eventually cancelled or drastically reduced in scope; leaving Toronto with much less highway capacity to its core than it had planned.

The downtown faced the potential of an isolated core, inaccessible from the suburban territory. The lack of highways was eventually mitigated by a commuter rail system that began operations in 1967,¹⁹ along with extensions of the subway network deeper into the suburbs. Both systems included major parking infrastructure at their suburban stations, effectively dispersing the parking load of the core, and replacing the drive on downtown highways with train and subway trips. In this way, the downtown was able to maintain a high level of accessibility to both urban and suburban populations

Programmatic Dispersions

Predictably, as populations grew outside the historic core area a market for office space also developed in the suburbs. Suburban expansion had increased the pressure on the limited road and highway capacity leading into the downtown. Suburbanites wanted to work closer to their new homes, avoiding the growing traffic problems downtown altogether. Manufacturing and office jobs left downtown to be closer to highways and the new circumferential bypass railway, and to take advantage of lower land costs on the periphery.²⁰

Companies saved money by building on low value agricultural or vacant lands, and exploited the lower property tax rates offered as incentives by Toronto's surrounding municipalities. Small and mid-sized companies could afford to develop and own their suburban building rather than renting parts of larger buildings downtown.²¹ Employees benefitted from a less stressful and shorter commute, ample free parking, and the pleasant park-like setting of early suburban office parks. Some larger complexes even included the kinds of urban amenities that were easily accessible from downtown offices but non-existent on the periphery; cafeterias, daycares, banks, and recreation spaces. The ideal suburban lifestyle was now extended from its beginnings as a residential escape into a more complete daily existence.

The emerging regional structure posed a challenge for the government of Metropolitan Toronto. The downtown core was being transformed into a single-use business district holding the greatest concentration of office jobs for a growing population, while industrial and commercial flight to the suburban municipalities led to a loss of potential tax income. Metro required more transportation infrastructure to serve the growing city, but had less capital to build and maintain it.

Restructuring the Region

Metro looked to turn this challenge into an opportunity by developing a growth strategy tuned to the emerging trends in regional re-structuring. The strategy had two major components: first to limit the development of any additional transportation capacity into the downtown in an attempt to slow commercial development in the core and reverse the trend of increasing congestion in the city,²² and second to capture some of the market for suburban office and manufacturing jobs in selected areas within Metro's own suburban territory.

Metro's intention was to maintain a strong and vibrant central area, but to slow its growth and allow it to stabilize after becoming inundated by suburban commuters. Highway projects leading into the core had stalled due to opposition of residents, and public transit projects were stopped after the opening of the University Subway and Lakeshore GO commuter rail line.²³ The plan anticipated a regional structure with gradually less focus on the central area, reducing the need to invest in high-capacity transportation infrastructure leading downtown.

Fig. 1.15 Neighbourhoods surrounding the downtown core faced demolition to provide surface parking for a growing number of suburban commuters.²⁴



“Partly, the reduced role of the inner city is a result of urban planning strategies aiming to reduce the pressure against the historical cores by establishing extra-urban relief centres, but tendencies in the property market have also moved development outwards. Due to higher mobility and car ownership rates, the demand for workplace and service locations close to slip roads in the outer areas has increased.”²⁵

The second response to the employment dispersion was the ‘Centres’ policy.²⁶ Metropolitan Toronto’s planning department consulted with its constituent municipalities to direct the growth of peripheral office and industrial space into a limited number of areas within Metro. Scarborough and North York planned major centres, while a hierarchy of other intermediate centres, office parks, and focal points for jobs and services were scattered throughout Metro. A third significant suburban centre later coalesced in Etobicoke. By funnelling the office growth into selected points in Metro’s outer boroughs it would maintain a steady growth in the tax base at a time when the city had looming costs for infrastructure expansion due to the growth of the region.

The plan also intended to more efficiently utilize the planned investments in public transportation by locating major centres at the suburban ends of rapid transit routes. The goal was to increase ridership on the subways in the reverse-commuting direction where there was plenty of capacity to spare, as well as directing suburban bus service to the centres to serve both the local office workers and downtown-bound subway passengers.²⁷

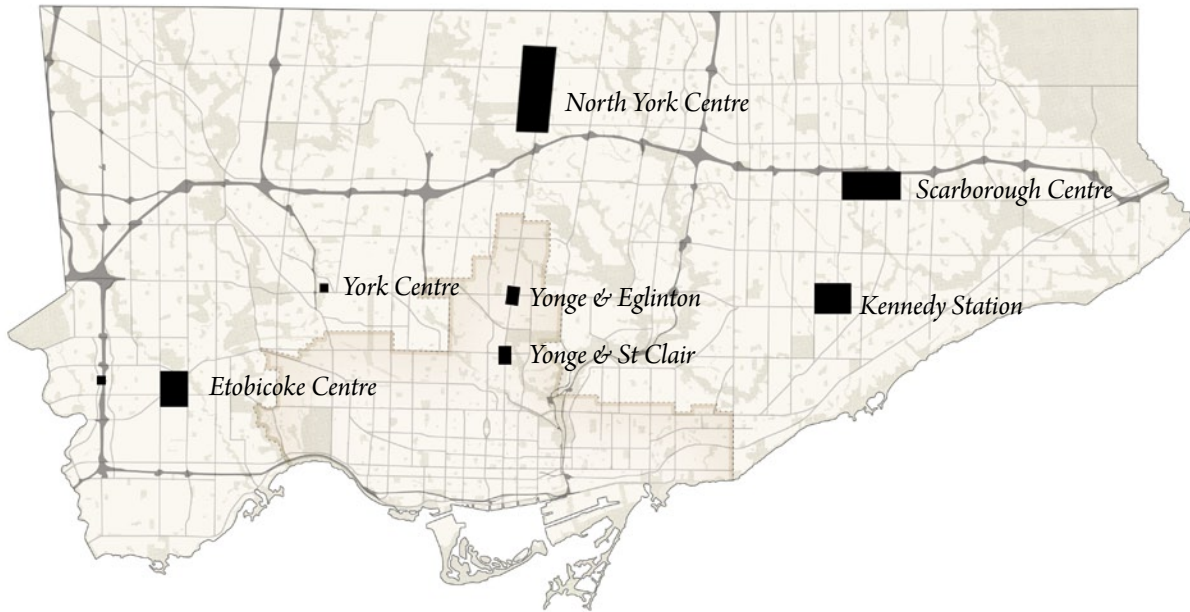
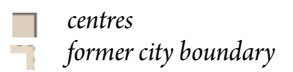


Fig. 1.16 Centres Plan ca. 1983



Fig. 1.17 Centres Plan ca. 2002



Suburban Centres

The two major centres in Scarborough and North York (and later in Etobicoke) had ambitions of creating a modern downtown combining many of the programs common to traditional urban centres but rarely seen in the suburbs at that time: government offices, civic services, public spaces, cultural facilities, hospitals, and major retailers.²⁸ Perhaps more importantly each site chosen was particularly accessible by car to the dispersed suburban population it would serve. The plans for these centres allowed for office development with more parking capacity than was possible in downtown Toronto as well as more greenspace, as was customary in new suburban developments. The centres were an experiment in creating a focal point for the suburbs that reversed the mobility hierarchy of the downtown, serving suburban drivers primarily, while the rapid transit network of the inner city held a secondary role.

The Metropolitan Centres planned for Toronto contrasted with the ubiquitous 'edge cities' phenomenon in the United States. Those developments were at the same scale as Metro's Centres, or even larger, but tended to be extensions of the suburban planning concept of segregated program zones. They were planned and executed as large office parks with poor public transit access and little consideration to transport modes other than the car.²⁹ American edge cities are often located well outside urban areas in exurban or rural counties, and are not focal points for the delivery of civic services, or other traditional urban amenities.

North York Centre grew along Yonge Street, historically the main street of Toronto leading north, between Sheppard and Finch Avenues. The district was grafted onto two existing communities - Willowdale and Newtonbrook – each with small-scale commercial buildings present along Yonge St. providing a base for the development of the centre. Yonge Street was a natural focus for a linear development pattern, creating a narrow band of high-density development surrounded by single-family houses. Its primary road access was by Highway 401 immediately to the south, and also by Yonge Street itself, which leads to the northern suburbs.³⁰

The eastern suburbs of Metropolitan Toronto remained considerably less developed than the north and west, largely due to the geographic features of the region. The Don River valley restricted communication and transportation between the historic footprint of Toronto and areas to the east. The diagonal shoreline of Lake Ontario to the east of the city meant that the street grid of the historic core could be extended to the west and north, but not far to the east. Only Kingston Road, which roughly followed the shoreline, directly connected the eastern periphery to the downtown.

Without any existing commercial activity near a highway, Scarborough opted to choose a vacant site for its planned Centre, roughly at the geographic centre of the borough, between the existing developments in the south and the agricultural lands to the north. It offered the advantages of undeveloped space in all directions compared to the restricted footprint of the other centres in Metro Toronto. The challenge of the site was its relative isolation. The major streets surrounding the site did not lead to any significant populations in either direction, and there was no access by public transportation. Everything would need to be built from scratch, relying on the new Highway 401 for its regional connections. In this way Scarborough Centre was a radical experiment in creating a new regional centre, more fully embracing the embryonic culture of suburban living and commuting by private automobile.³¹

The chosen site was within a tract of vacant land south of Highway 401 zoned for industrial uses. To overcome the lack of an existing commercial street, a major regional mall was chosen to anchor the central block of the industrial zone. The mall opened with hundreds of stores including two national department stores.³² It dominated the superblock, which it shared with the recently opened Scarborough Civic Centre. With ample parking, the mall drew consumers from all of northeast Metro Toronto and beyond. Unlike the traditional commercial street in North York, the mall had the critical mass of retail needed to act as the primary magnet drawing residents to the Centre both locally and regionally. It was this drawing power that gave the Centre appeal as an office development site. Several other regional centres outside of Metro Toronto have adopted this model.³³ The mall augmented the retail capacity and convenience of downtown Toronto. In combination with the civic centre it allowed suburban residents to live, work, shop, and access government services without entering the historic core.

“As the suburbs progressed from the bedroom communities of the 1950s and 1960s to these contemporary Edge Cities, many fundamental changes took place—changes that now dominate our identity, our politics, our opportunities, and our sense of community. We changed from a country of villages, towns, and cities to a country of subdivisions, malls, and office parks. We spread out geographically beyond any proportion to our population growth. We built a transportation system dominated by cars in a landscape designed for them. We became a decentralized service economy, rather than an urban industrial economy. And we became more segregated—by age, by income, by culture, and by race. All of these shifts found physical expression in our development patterns—suburban sprawl and urban decay, diminished natural resources, and lost history.”³⁴

Fig. 1.18 North York Centre evolved as a narrow strip between low-density residential tracts.





Fig. 1.19 The Scarborough Centre site looking north in 1966 before start of construction within the superblock.

This is a critical moment in the development of Toronto's regional structure. The historic core has been relieved of its past obligation to serve as the lone point of focus for a rapidly growing population. Regionally significant nodes like Scarborough Centre now have the ability to service the employment, consumption, and civic needs of the adjacent parts of the region. In the case of Scarborough Centre, the growing populations of Scarborough, Markham, and Pickering—the eastern and northeastern parts of the region—can now access the traditional urban programs much closer to their suburban neighbourhoods. The city has become an integrated multi-polar region.

Although the three centres were conceived of as places to attract the highway-dependent office development that was leaving Metro, the civic governments did not fully accept that the future of the city was based on exclusive travel by car. The concentrations of commerce and civic services into a limited number of sub-centres was designed to maximize usage of the rapid transit network by creating reverse demand on the subways during peak periods, out from the old city to the jobs in the Centres. Before major private development had taken place in any of the three centres, two were connected to the subway network serving the City of Toronto. A westward extension of the Bloor Subway to Islington Avenue in 1968 brought subway access to Etobicoke Centre, followed by a northern extension of the Yonge Subway in 1974 to Finch Avenue in North York Centre.³⁵

Both Etobicoke Centre and North York Centre were now connected by subway to each other and to downtown Toronto. This connection helped to attract office jobs, and gave the centres a competitive advantage over the suburban sub-centres and office parks emerging even further from the downtown. Not only were they easily accessible by car from the outer suburbs, they were also accessible from the inner city and its considerable residential population. This brought more potential office workers into the catchment area of Metro's new centres, which was an important draw for developers looking to build office space.

Scarborough's new centre was much further from the eastern terminal of the subway system than the other two centres. The subway was extended 5.5 km to Etobicoke and 8.5 km to North York from its original 1966 terminals, both along major commercial streets supporting dense neighbourhoods. Scarborough Centre was over 13 km from the eastern

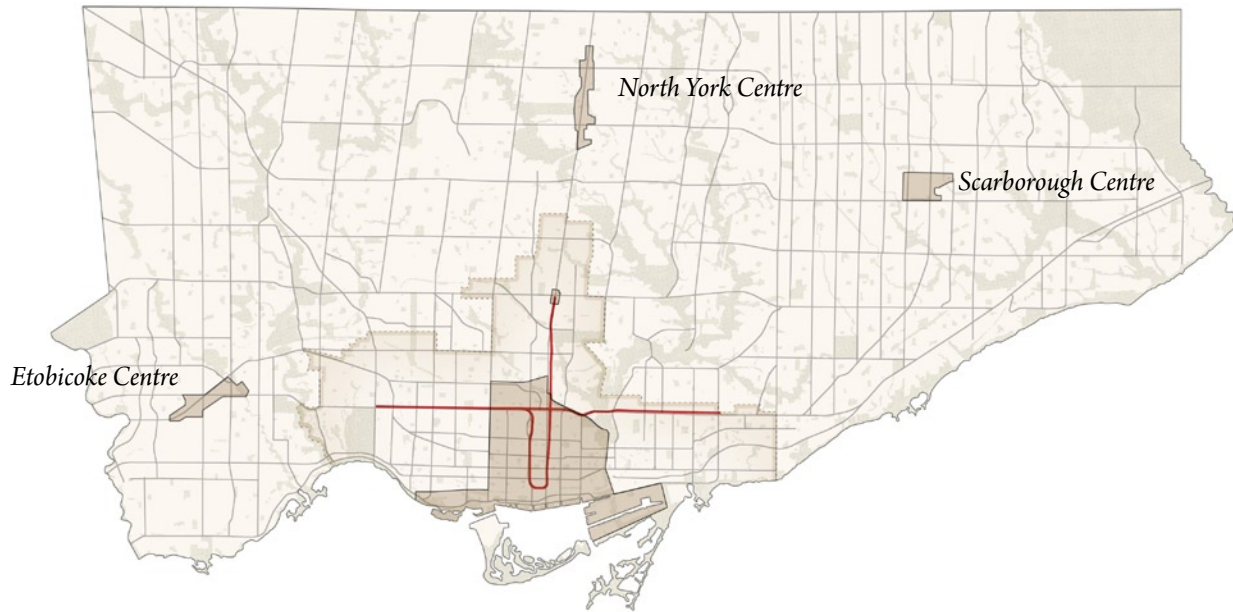


Fig. 1.20 Rapid Transit Network ca. 1966. The network was kilometres away from the three suburban centres at the time of their adoption as a planning concept



Fig. 1.21 Rapid Transit Network ca. 1985. The subway was extended using each of the centres as terminals, and points of transition to suburban bus networks.

terminal of the Bloor-Danforth Subway, with little existing population or employment to serve along the way. Nonetheless the Metro Toronto government had a mandate to provide an effective public transit service to the whole city. By extending subways to the other two major Centres it had successfully stimulated two-way demand in the subway, more effectively utilizing the infrastructure. Scarborough Centre needed to be connected to the rapid transit network, even though its location was not ideal for a subway extension.

Reaching Scarborough Centre

Metro Council had extended the Bloor-Danforth Subway to Kennedy Station in 1980, still over 6 km from the Scarborough Centre site. Scarborough Council wanted the subway extended the full distance to Scarborough Centre, but the TTC opted to pursue a cheaper option. Plans were drawn up for a streetcar operating in a private right of way; what would now be called light rail. Concurrently the province had begun promoting a new transit technology designed and fabricated in the province, the Intermediate Capacity Transit System (ICTS). The province convinced Scarborough Council and the TTC to use this technology for the line, paying for cost overruns due to necessary design changes.³⁶

The Scarborough Rapid Transit (SRT) opened in 1985, completing the link from the subway terminal to Scarborough Centre. However the line experienced problems with minor derailments and excessive noise due to an incomplete re-design from the original proposal. In the years since construction, these problems have been mitigated, but replacement of the line's proprietary technology with standard vehicles and rails is a planned upgrade, forcing a three year shut-down.

All three of Metro's suburban centres were now terminals for the rapid transit network; Etobicoke in the west, Scarborough in the east, and North York in the north, with downtown Toronto remaining the focus of the network in the south. This configuration of Metro's transit backbone bestowed a new regional significance to the three centres. They became gateways into the expanding suburban territories. Suburban bus services beyond Metro's boundaries were oriented to deliver riders into the three centres where the rapid transit system would carry them to their destinations within Metro Toronto. Parking infrastructure around the terminals allowed commuters to access the intermodal hubs by car. These terminal stations are among the busiest in the system.³⁷

A significant share of the investment in local and regional suburban bus services has gone to improving access to the centres. Service levels are continually increased while bus terminals in the 3 Metro Centres have been enlarged and upgraded to deal with increasing passenger levels. While the primary reason for this increased capacity of transport into the centres has been to feed commuters into the subway, it has the secondary effect of raising the attractiveness for private office and retail development within the centres. Outside of downtown Toronto, the three centres are the most widely accessible locations in the region by public transit. This has reinforced their role as the focal points for the suburban population, especially when combined with their excellent access by car.

After the establishment of Metropolitan Toronto's three sub-centres, several other regional sub-centres have emerged throughout the suburbs. Some are evolutions of older neighbourhoods or distinct historic towns consumed by the suburban expansion. Others are planned districts anchored by a mall and accessible by one or more highways. Some even have the same diverse programmatic mix as Metro's three sub-centres: high-density residential, office, cultural, civic institutions, and public spaces.

The sudden decline of greenfield development will have major economic impacts on suburban municipalities that have collected development fees for decades as their property tax base increased. The end of income from residential development fees could be a shock to suburban municipal budgets, leading to service cuts or property tax increases. The older parts of suburbs are now reaching an age that requires ongoing infrastructure maintenance and replacement. With low-density development generating relatively less property tax income relative to denser urban areas, suburbs in the region must find an ongoing source of income as they shift into mature, stable entities.³⁸

Suburban intensification plans address the economic problem in two ways: first by collecting development fees from high-density developments, and second by increasing the tax base without adding the infrastructure operation and maintenance costs of greenfield subdivisions. As municipalities run out of greenfield sites, intensification becomes a necessary means of maintaining their source of income without increasing long-term costs.

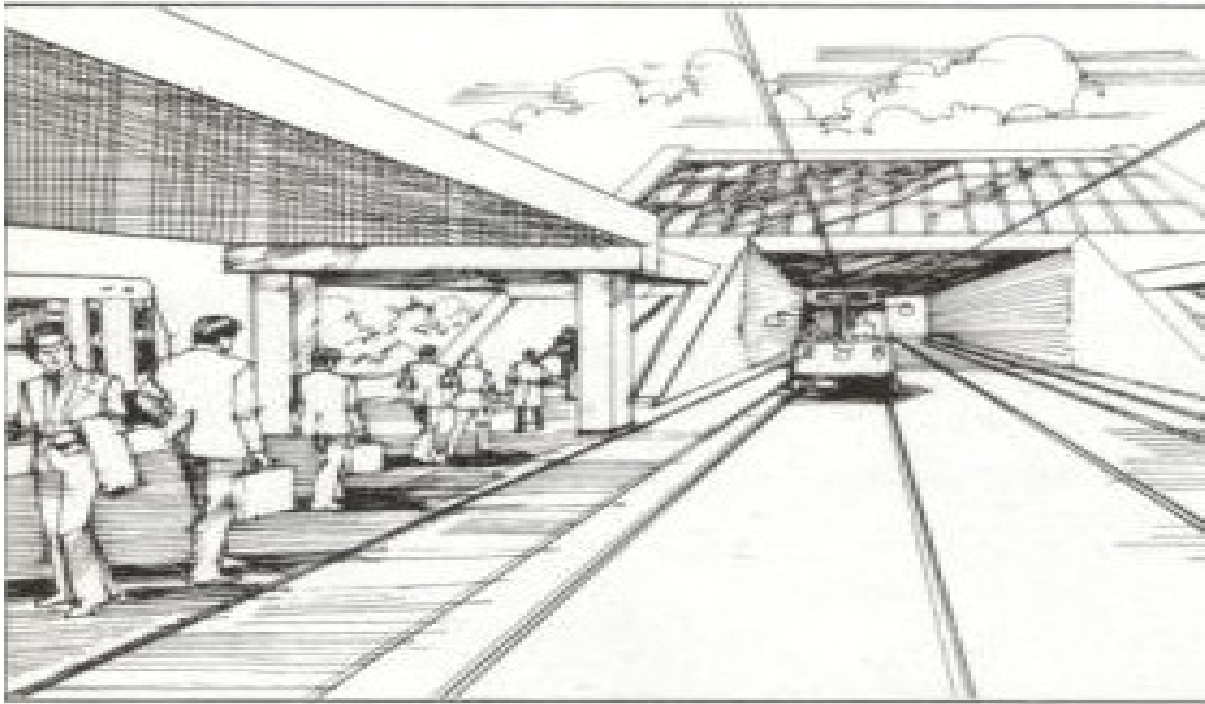


Fig. 1.22 Artist's conception of the future Scarborough Rapid Transit station.

These competing centres represent a risk for Metro's Centres. The newer and more remote suburban nodes may begin to capture a greater share of commercial development, and new cultural facilities may attract residents away from Scarborough, North York, and Etobicoke. For Metro's Centres to compete, they must become more accessible to suburban residents who will have more choice in where they engage in commercial and cultural activities, while also upgrading their programmatic offerings.³⁹

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2

The Emergence of Hybrid Mobility

Mobility Thresholds

The extension of the rapid transit network to the centres has fundamentally changed their role in the regional structure. No longer highway-adjacent office parks built to compete with the attractive cheap land and low taxes of neighbouring municipalities, they have since become significant nodes for commercial activity and residential density, linked to each other and to downtown by rapid transit. They serve as a transition point for Toronto's two dominant eras of transportation modes; a threshold between the high-capacity public transport routes of the old city and the extensive territories served by the automobile. The Centres are emerging as legitimately intermodal districts.

The suburbs were designed and built around the capabilities and opportunities of the private automobile. With no desire to create higher densities or finer grain programmatic distribution across the whole of the decentralized region, there is little possibility of replacing the car as the dominant mobility choice for suburban residents. The decentralized structure of the region beyond the city centre has generated a decentralized traffic pattern. Suburban residents commute from multiple origins to multiple destinations across the region. Without significant numbers of commuters travelling from the same origins to the same destinations, there are no routes with high enough ridership potential to make rapid transit a cost-effective solution. The mobility patterns in the suburbs are extensive, not intensive. The car is still the best suited option to meet the flexible demands of transportation within the suburbs.¹

As a corollary, the city centre and its relatively small residential suburbs built before 1940 are poorly suited for large volumes of private cars. Being designed and built before the widespread adoption of the car as a means of transportation for the masses, these areas have been

transformed where possible to permit the car to operate at reduced efficiency. However, there is a finite supply of road space and parking in the city centre and pre-war suburbs that limit the number of cars that can enter the core. Traffic congestion and expensive parking downtown are the symptoms of forcing a new transportation paradigm onto urban models that can't support it. As the city grows, the number of vehicles in the core cannot increase, forcing an eventual reduction in the proportion of commuters who drive to the city centre.

As more people commute within the region, a greater emphasis will be put on efficient use of the existing transportation networks. Intensive routes from suburbs to the downtown, and between major suburban centres will increasingly rely on public transit systems. Road congestion along high-demand routes will increase to the point where driving is not competitive with rapid transit, measured by time or cost. However, the highly complex network of trips beginning and ending within the decentralized suburbs will require the flexible mobility offered by the car. Public transit services will never be competitive for these trips due to their highly individual nature.

Regional Growth Directives

The evolving structure of the region as a whole and the City of Toronto (successor to Metropolitan Toronto) is governed by two legal documents. The 'Places to Grow' act is provincial legislation that establishes a greenbelt to limit the outward expansion of the region and adopts targets to direct growth into existing regional sub-centres and smaller nodes throughout the region.² It is based on similar principles as the Metropolitan Toronto Official Plan, which established the Centres

Fig. 2.1 Extensive parking lots and regional bus stations at Yorkdale and Wilson Stations collect suburban commuters



structure within the boundaries of Metro. The city's new 'Official Plan' directs the majority of growth into the centres and nodes within its borders, as well as linear 'avenues' along major thoroughfares.³ Neither document contains any radical re-positioning of the regional structure, instead they reinforce the existing focal points and avoid any politically sensitive plans to adapt or transform the low-density single-use residential and commercial zones in the suburbs.

The growth plans are critical policies recognizing the inability of the region to continue its present development patterns without negatively affecting the quality of regional mobility. The plans seek to direct the structure of the region into a hierarchical multi-polar system of density and program, connected with appropriate links between its disparate parts.

With these documents as a framework for regional growth it can be inferred that the low-density single-family residential neighbourhoods common to the outer sections of Metro Toronto and the other municipalities in the region will remain untouched by major development. There is no indication of any urge by planning departments or politicians to re-organize these areas to make them more amenable to public transit. There is no evidence to suggest that market forces will transform meaningful areas of suburban residential neighbourhoods into a higher-density mix of housing types. The underlying assumption of the form of these neighbourhoods has been the availability of the car as the primary means of mobility, and the growth plans make no attempt to deny or alter that.

The strategy aims to graft transit-oriented development onto the uniform territory of low density suburbs. A series of Centres and other nodes combined with densification of major road routes between them will absorb growth, but the existing residential fabric will remain. That morphology is difficult to serve with transit, and difficult to transform into higher density and more programmatically diverse neighbourhoods.⁴

Each of the government development plans is complemented by a transportation masterplan to direct future infrastructure investments; “The Big Move” by the regional transportation authority Metrolinx⁵ and the “Transit City” plan by the Toronto Transit Commission.⁶ The transportation projects and development goals are reciprocal. The expected population growth cannot be served without at least a corresponding growth in regional transportation capacity, nor can the infrastructure investment be justified without the expected ridership growth potential from the proposed new developments, along with the accompanying increases in local tax revenues to pay for the operation of the new infrastructure. Both transportation plans rely heavily on public transit as an efficient method of serving the dense population and employment nodes imagined by the development plans. The plans limit, and seek to eventually end, the development of new auto-dependent low-density suburbs in the region, reducing the need for costly highway and road improvements to serve them.

The regional plan includes some service improvements directed at the Toronto Centres. Etobicoke Centre is to be connected to Cooksville by LRT, and Mississauga Centre by BRT. A BRT project along Yonge St. is proposed to connect a series of bus routes originating in York Region to North York Centre. Scarborough Centre is planned as the terminal for an Ellesmere Road BRT serving express buses from Durham Region in the east. Each project is an upgrade of existing trunk bus routes from the centres to their nearest outer suburbs. These projects reinforce the position of the Centres as suburban downtowns, increasing their accessibility by transit to include both the city and parts of the suburbs.

Transit projects within the city have evolved from ‘Transit City’; a plan to upgrade major suburban bus routes to LRT to support development along arterial roads leading to major nodes and Centres. The only remaining funded project is the Eglinton LRT, which will convert the existing Scarborough RT line to standard LRT operation, and extend the route in a tunnel along Eglinton Avenue across the city.⁷ The project will provide more reliable service to Scarborough Centre, allow for a one-seat ride to the Yonge Subway and major north-south bus routes, and make several central Toronto neighbourhoods more accessible.

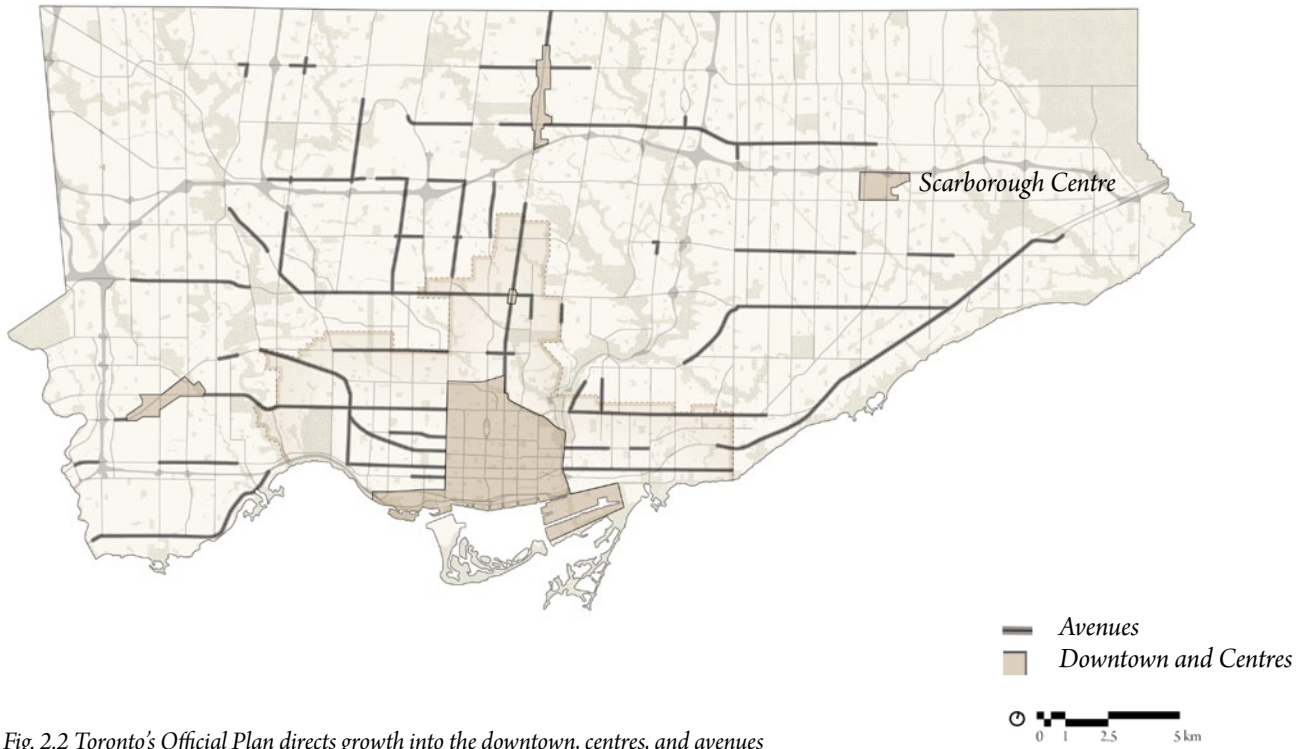


Fig. 2.2 Toronto's Official Plan directs growth into the downtown, centres, and avenues

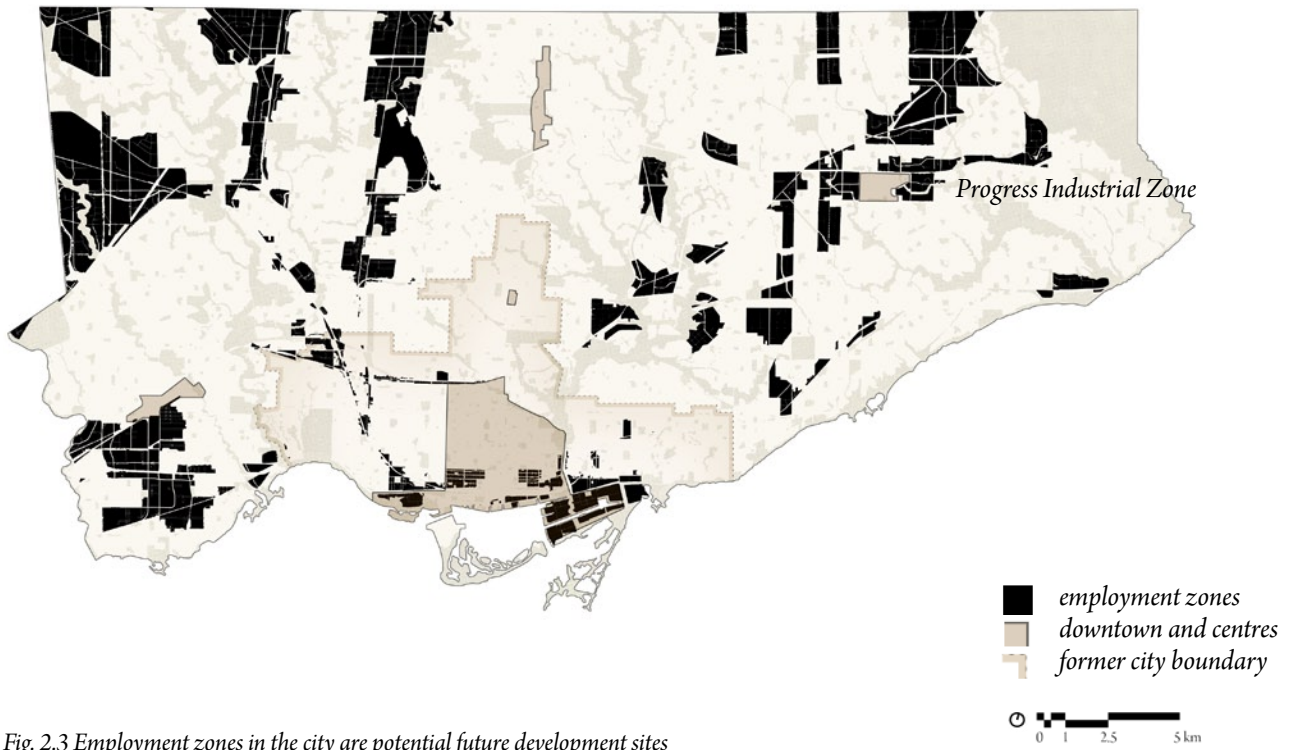


Fig. 2.3 Employment zones in the city are potential future development sites

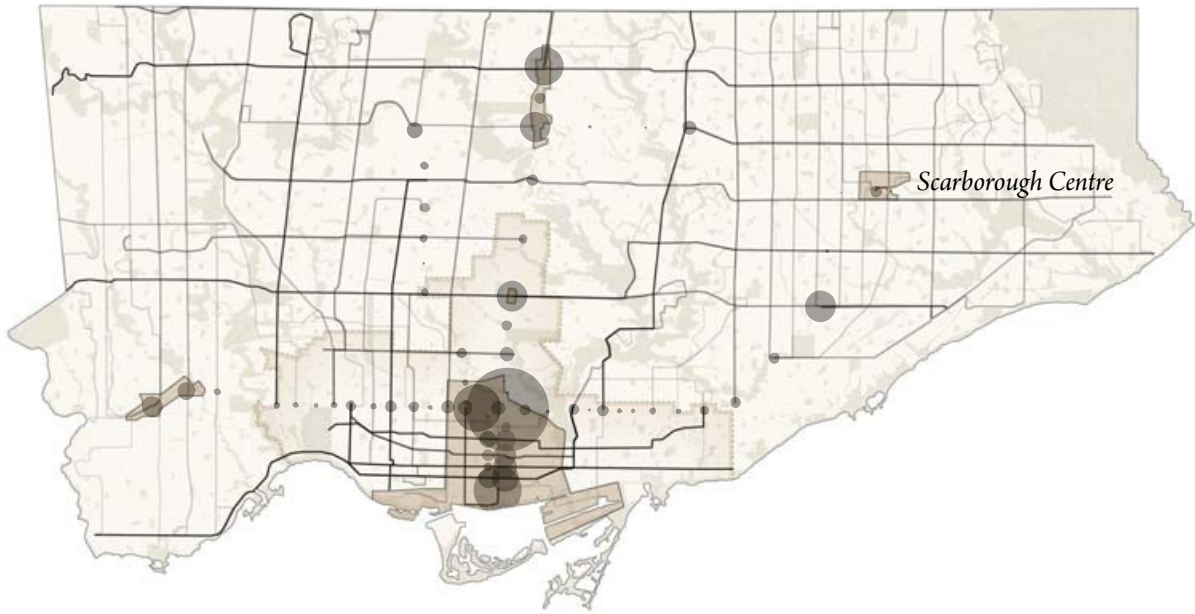
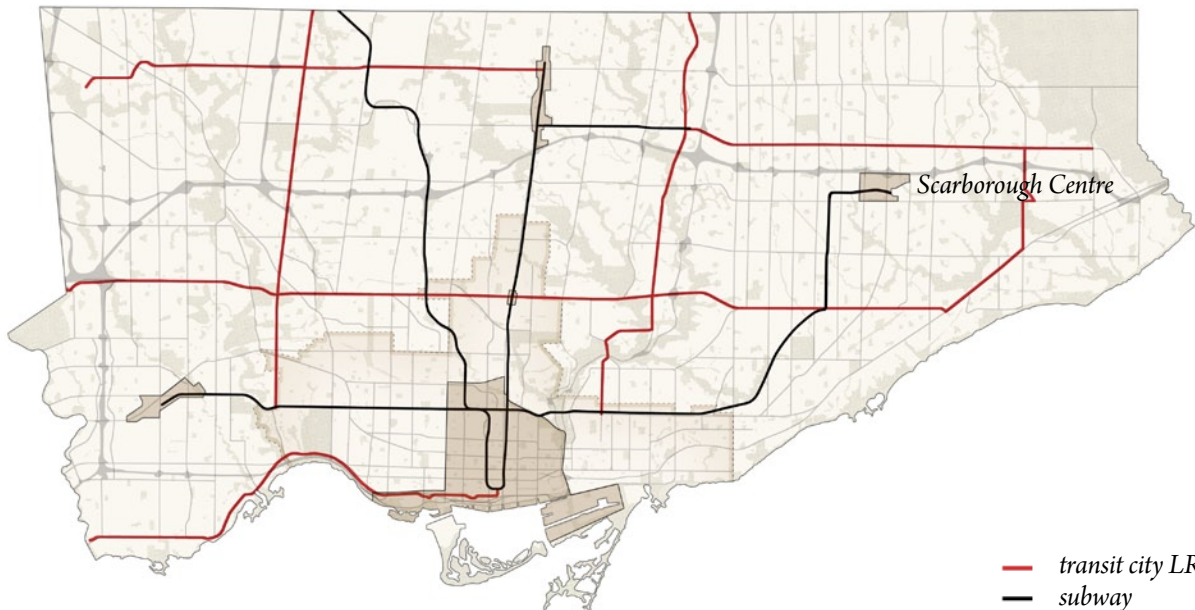
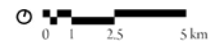


Fig. 2.4 TTC ridership



- transit city LRT route
- subway
- downtown and centres
- former city boundary

Fig. 2.5 Transit City Plan ca. 2006 proposed upgrading key bus routes to light rail.



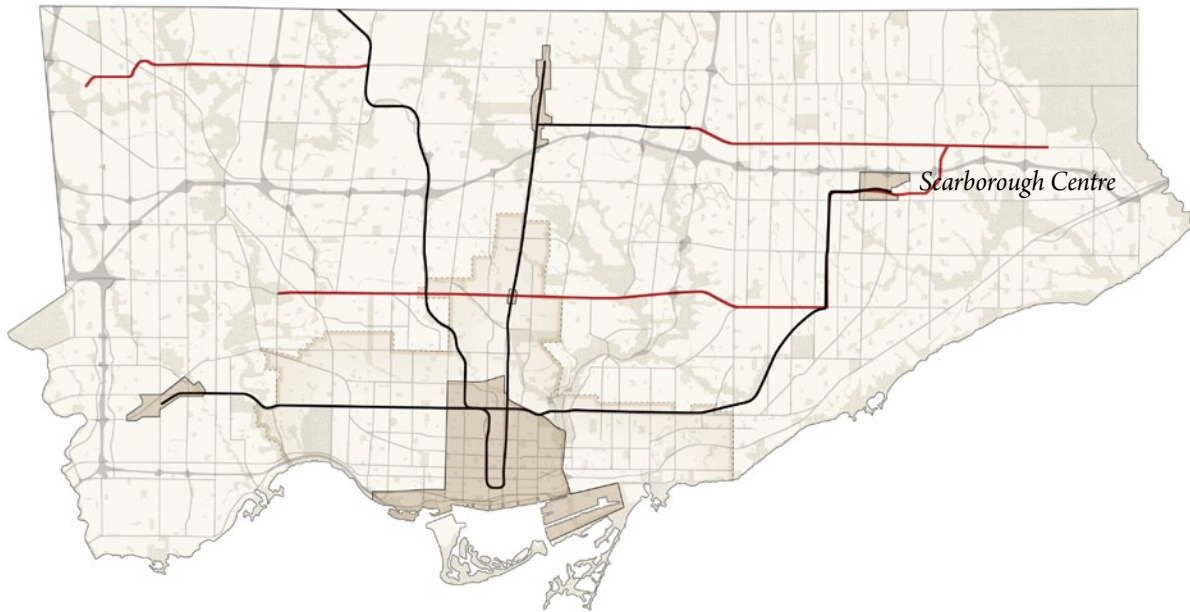
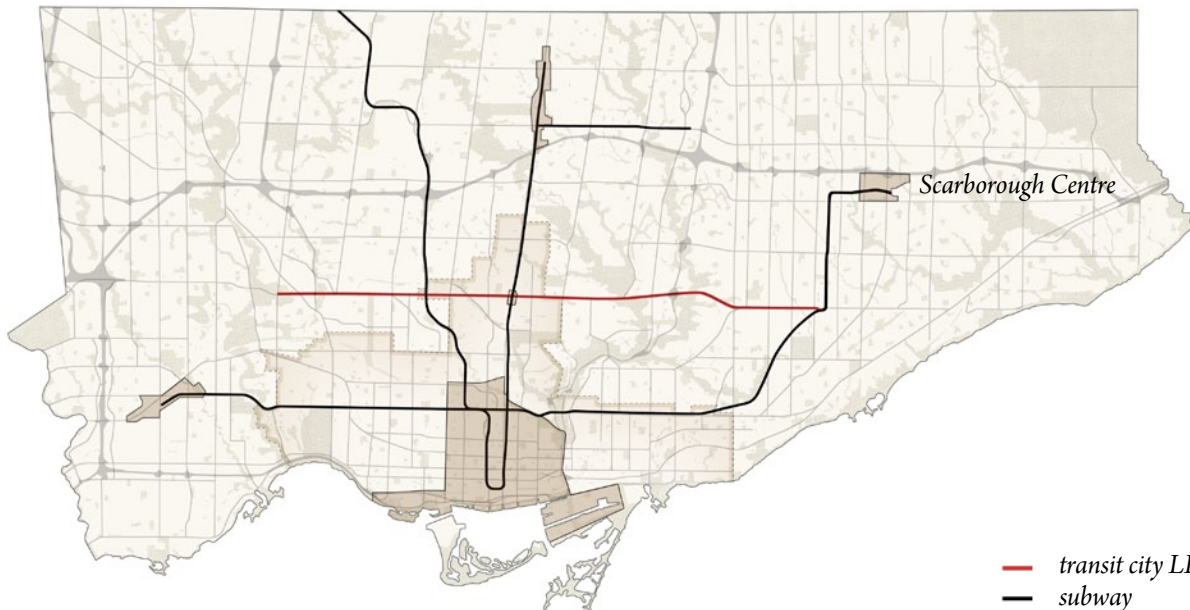


Fig. 2.6 Transit City Plan ca. 2010 was reduced in scope as a budget compromise



- transit city LRT route
- subway
- downtown and centres
- former city boundary



Fig. 2.7 Transit City Plan ca. 2011 includes only the Eglinton LRT as an extension of the SRT

Making The Centres More Accessible

The investment in transportation projects within the city is reinforcing the role of the Centres as intermodal districts, where the urban and suburban mobility systems intersect. Scarborough Centre sits at the transition between the high-capacity public transit system connecting to a small number of major urban nodes, and the low-capacity, but extensive road network connecting to a virtually limitless number of suburban destinations by car or bus.

The origins of the Scarborough Centre being suburban, much of the morphology there supports suburban mobility, ignoring the potential that exists for a hybrid of the two mobility networks that are present. The Centre is accessible by the public transit network, but the spatial structure of the central block of Scarborough Centre does little to accommodate the users of that system. Outside of the confines of the shopping mall and the public square adjacent to the SRT station, the car dominates the landscape.

As more people live in the Scarborough Centre superblock, there is a greater need for a public realm to accommodate their needs. This space needs to also function as a connective tissue that brings residents to the SRT station as well as other cultural and institutional amenities on the site. But the necessary expansion of the public realm cannot come at the cost of suburban accessibility. The superblock is a key point in the region's suburban mobility network, and cannot succeed in its role as a suburban downtown unless it is seamlessly accessible to all Scarborough residents.

The city's Official Plan creates the framework for increased population and employment in the Centre, and sets goals for increasing transit's mode share among commuters to and from the Centre, but offers no guidance on how to accomplish those goals.⁸ The decision to locate the Centre within a superblock rather than centred on a street limits the ability of developers to appropriate urban typologies to create a walkable environment, as in North York Centre. The public realm in Scarborough Centre remains unstructured; a formless negative space between independently planned buildings, unfamiliar to pedestrians and drivers alike. The hybrid mobility system evolving in Scarborough Centre requires a new model that deploys density, public space, program, and building typologies to respond to the overlapping requirements and limitations of each mobility network within the same space.

“One observer, commenting recently on transportation planning in Metro, declared that if Metro were the Bible, Scarborough would be the New Testament. But this is true not only of transportation but of urban planning in general. Scarborough is in a position to respond to new thinking in these fields in a dramatic and pace-setting way.”

-Scarborough Town Centre Land Use Study, 1974⁹

Notes

- 1 Joel Garreau, *Edge City: Life on the New Frontier* (New York: Doubleday, 1991), 126-127
- 2 Paula Dill and Paul Bedford, *Toronto: Official Plan* (Toronto: Urban Development Services, 2002) 17
- 3 Dill and Bedford, *Official Plan*, 20
- 4 Garreau, *Edge City*, 126-127
- 5 “The Big Move: Transforming Transportation in the Greater Toronto and Hamilton Area,” accessed May 3, 2009, http://www.metrolinx.com/en/regionalplanning/bigmove/big_move.aspx
- 6 “Other Transit Projects,” accessed December 11, 2011, http://www3.ttc.ca/About_the_TTC/Projects_and_initiatives/Other_Transit_Projects/index.jsp
- 7 “The Crosstown: New Transit for Toronto,” accessed December 11, 2011, <http://www.thecrosstown.ca>
- 8 Pierre Filion, *The Urban Growth Centres Strategy in the Greater Golden Horseshoe: Lessons from Downtowns, Nodes, and Corridors* (Toronto: Neptis Foundation, 2007) 13
- 9 Raymond Moriyama, Architects and Planners, *Scarborough Town Centre Land Use Study* (Toronto: The Scarborough Planning Board, 1974) ii



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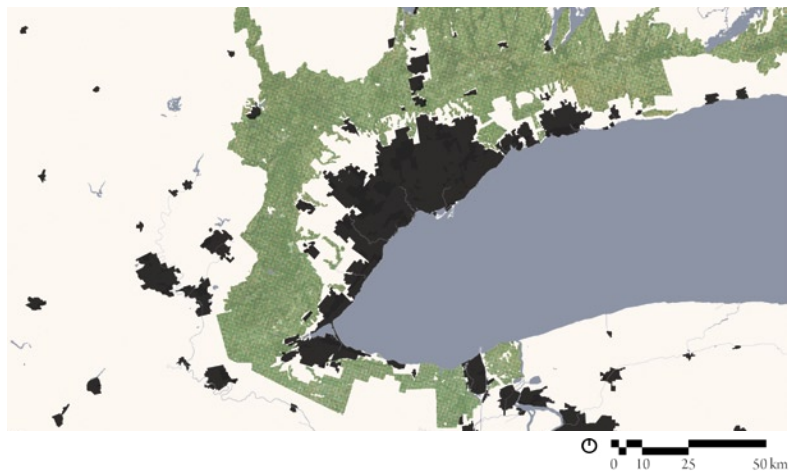
Urban Design Models

As the Toronto region grows, its suburban edges push further out into the productive farmlands and ecologically sensitive headwaters surrounding the city. Strong provincial legislation now protects much of this land through a greenbelt initiative, restricting the future outward growth potential of the suburban municipalities. With the Greater Toronto Area expected to add significant population through immigration, intensification within the built-up area of the region is necessary.

Inward intensification of the region is similarly limited. Low-density residential areas, parks, and natural areas occupy a significant share of the region's land but cannot be intensified in the current political climate. Many of the industrial and commercial zones are poorly served by infrastructure and lack the services necessary to support residential development. This situation has led regional plans to direct short-term growth to a small number of sites in the region that have developable land and are both well-connected and well-served.¹

Fig. 3.1 The Greenbelt around the Golden Horseshoe limits suburban growth to a tract of land just outside the current urbanised area

 greenbelt
 urbanised area



Combined with the shortage of greenfield sites at the edge of the region, is an increasing pressure on infrastructure as it reaches further into the hinterland without any significant growth in the core of the region. Every low-density subdivision built on the outskirts adds cars to the already-congested road and highway network, and increases the parking load in the core of the region. One of the goals of suburban intensification is to direct a greater share of commuters to public transit as a way to reduce strain on the road network, and to improve mobility for people and goods.² Without the will to increase capacity of the road network in the region's core, the demand must be reduced in order to absorb population and economic growth.

This chapter traces the provenance of suburban building typologies and urban design models, followed by a review of certain local plans for suburban centres. A critique of the current trends in suburban intensification is combined with observations about the realities of the suburban context to generate clear criteria for creating optimal conditions.

A variety of high-density suburban development models exist and are commonly used throughout the region, both in 'Urban Growth Centres' and elsewhere. Intensification masterplans typically select one or more models and deploy them in combinations to produce a high-density pocket intended to create some simulacrum of a walkable urban neighbourhood. Plans include both residential and office space as a means of sustaining activity throughout the day and create the potential for local commuting.

Typical Development Models

Suburban office models began with corporate campuses built in the early stages of suburban expansion. This model shows some signs of becoming uncompetitive, with workers preferring less isolated locations near services and amenities.³ Office towers have become common in both office parks and suburban centres. The building typology is similar to an urban office tower, but usually is isolated by large surface parking lots and includes certain retail tenants in the lobby as a concession to workers who often have little access to other local services without driving. This 'mixed use' design fulfils some planning conditions, but captures any activity it generates within a private building, unlike a mixed use urban neighbourhood.



Fig. 3.2 Greenfield development in Milton expands the urbanised area into sensitive agricultural areas around the region



Fig. 3.3 Suburban office campuses offered the full range of urban amenities in self-contained complexes

High-density residential models are more diverse, reflecting the market for different living accommodations among various demographic groups. Historically, the high density housing type associated with the suburbs has been the tower in the park. Based on utopian ideals of rising above the warren of urban streets and living within nature, the type is staunchly suburban.⁴ These tower blocks constitute much of Metropolitan Toronto's housing stock.⁵ The interstitial space surrounding these towers is notoriously underused and often perceived as dangerous. Inserted into walkable neighbourhoods, the tower residents are able to access local shops and services, though isolated tower complexes in suburban territories often lead to isolation of residents and ghettoization.

That typology has been adapted in the region to address its inherent problems, and also its negative perception. Tall point towers have replaced long slab buildings to reduce shadows and provide better views and a greater sense of exclusivity. Towers are pushed toward the edge of the street, and the space around them is internalized into private or semi-private courtyards and vehicle drop-offs. These leftover spaces are more structured and more highly programmed than the empty fields of grass surrounding older tower complexes.

The spaces remain underused, but landscaping and alternative uses such as surface parking and drop-offs reduce the perception of emptiness. Good marketing has turned a liability into an asset, trading the

Fig. 3.4 The tower in the park model is an early high density residential typology used extensively in Toronto's suburbs



dangerous spaces around older apartment towers for manicured private gardens and convenient vehicle drop-off facilities. Major developments like CityPlace rely on this strategy to occupy surplus space around their buildings.⁶ Some projects physically restrict access to non-residents with manned control points, while others imply restrictions through design elements meant to project a clear delineation between the a project and the surrounding public realm. Projects retain their suburban roots, creating insular communities catering to a single economic class, and further sorted in section by unit pricing.

Evolution of Towers-in-the-Park

A major part of the typological evolution was the introduction of the podium along streets. The adoption was driven by urban design guidelines aiming to replicate successful Vancouver models by creating an active street presence with retail or ground level residential units.⁷ Older towers are typically surrounded by vehicle dominated retail typologies, like the strip mall, but nonetheless generate pedestrian activity, which is forced to adapt to the vehicle-dominated landscape. The podium is an attempt to sustain that activity in a manner more amenable to pedestrians. However, the podium has also been a useful tool for developers.

The modern residential tower requires a significant amount of parking,⁸ usually provided underground in Toronto or in aboveground structures where land availability and cost allow. The efficiency of these parking structures requires a horizontal orientation to reduce the number of ramps and other vertical intrusions. However, the tower requires a vertical orientation to maximize views and limit unit depth. The podium negotiates between these two requirements, allowing developers to provide sellable space above the parking decks, typically up to the level of local building heights, where the tower emerges above.

The podium also allows for greater structural flexibility compared to a tower, providing an opportunity for the larger spaces often required by modern buildings, such as resident amenities, garbage rooms, loading docks, and parking ramps. The podium roof can be appropriated as a private outdoor space, often connected to the amenity spaces or used as unit terraces. Courtyards and roof terraces act to remove activity from the public realm by internalizing it within the building.



Fig. 3.5 The modern condo podium contains commercial units, but fails to attract a mix of tenants and generate pedestrian activity

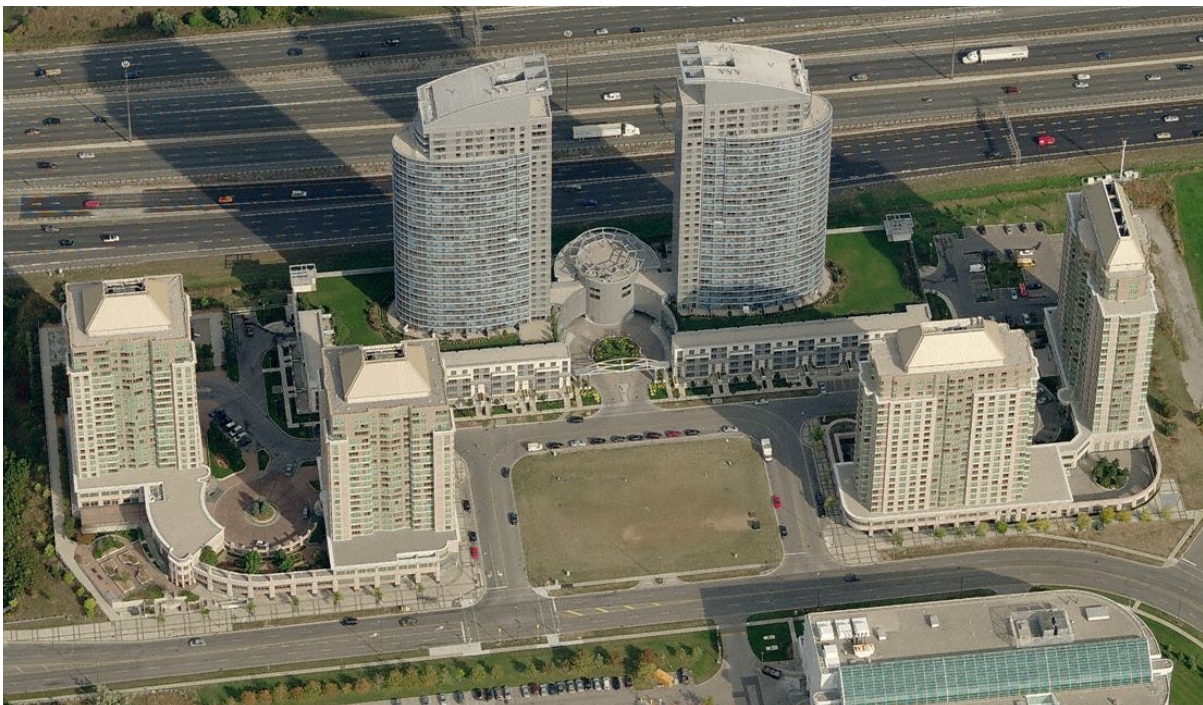


Fig. 3.6 Suburban condo complexes are designed to structure excess space at grade into distinct and useable parks and car drop-offs

Another benefit of the podium is its potential to contain the low value or difficult to sell units often required by city planners as a condition of approval. These include 3 bedroom units intended to attract families, or subsidized low-income units. By including these in the podium, it frees the more desirable space in the tower for profitable units. The podium reinforces the economic sorting of modern condos by floor, resulting in residents typically encountering only people from their own narrow economic class.

The ability of condo podiums to support retail is limited, even in high-density central locations. The units are costly compared to older commercial buildings or strip malls, and the local market for customers is often limited to the economic class supported by the condos. These factors limit independent specialized retail and services. Additional restrictions can be imposed by building operators, who may want to exclude disruptive uses, such as restaurants, that may impact the desirability of the units in the building, and therefore their resale value.⁹ Around Scarborough Centre, many commercial units are vacant while others are filled with convenience stores, medical professionals, chain coffee shops, hairdressers, and the like. Businesses must appeal to a high percentage of residents to survive. Areas dominated by podium retail have little pedestrian activity, even in central Toronto, as these businesses do not, by themselves, generate much activity. They cater to the local residents, but rarely attract customers even from nearby blocks.

As part of the provincial 'Places to Grow' Act, local municipalities have prepared a series of masterplans and vision documents to direct the implementation of intensification plans. One of the most complete plans is the Downtown 21 plan for Mississauga Centre.¹⁰ The plan is inventive in its response to local conditions, but is nonetheless indicative of the approach to suburban intensification and can be used as a case study to represent the prevalent design strategies for suburban centres in the Toronto region.

Planning for Mississauga Centre

Mississauga Centre is very similar to Scarborough Centre, given its provenance as a regional mall on a highway-adjacent greenfield site, aggregating civic programs as well as a major office cluster, and later high density residential developments. Despite its greater distance from central Toronto and lack of a rapid transit connection, Mississauga Centre has eclipsed Scarborough Centre in terms of development, and has become the de facto focal point for over a million of residents in the western suburbs. Its position in the regional hierarchy is equal to Scarborough Centre, partly due to the inability to declare a single centre in western Metro Toronto until the recent emergence of Etobicoke Centre.

The 'Downtown 21' plan seeks to reposition Mississauga Centre as a walkable destination, more recognizable as legitimate downtown.¹¹ To accomplish that, the plan cannibalizes the Square One Mall surface parking lots and other vacant or underused sites around the mall, and imposes a tight street grid around the existing developments. The small development blocks are generally filled with midrise buildings without



Fig. 3.7 Mississauga has completed a detailed masterplan for its Centre, intending to build a midrise urban fabric on the Square One Mall parking lots and other vacant sites

setbacks to establish a typically urban sectional condition. The plan has a particular focus on attracting office growth by competing with the lower-cost locations in suburban office parks or elsewhere.¹² Part of that strategy is to market the centre as a more desirable location for office workers, having a complete selection of retail, services, and public amenities nearby.

The transportation plan begins with imposing a dense street grid where possible, connecting to the highway and arterial roads at multiple points.¹³ The road network provides a high degree of redundancy, but the relatively short blocks create several new intersections, and a reliance on on-street parking only increases the potential for congestion. Arterial roads are tamed by removing traffic lanes for street parking and dedicated transit lanes in some cases, paired with significant streetscaping improvements.¹⁴ The street grid is also seen as an important step in improving the legibility of the centre, by avoiding the unexpected twists and turns of suburban grids, making for more predictable navigation. However, the level of friction introduced will slow local and through traffic.

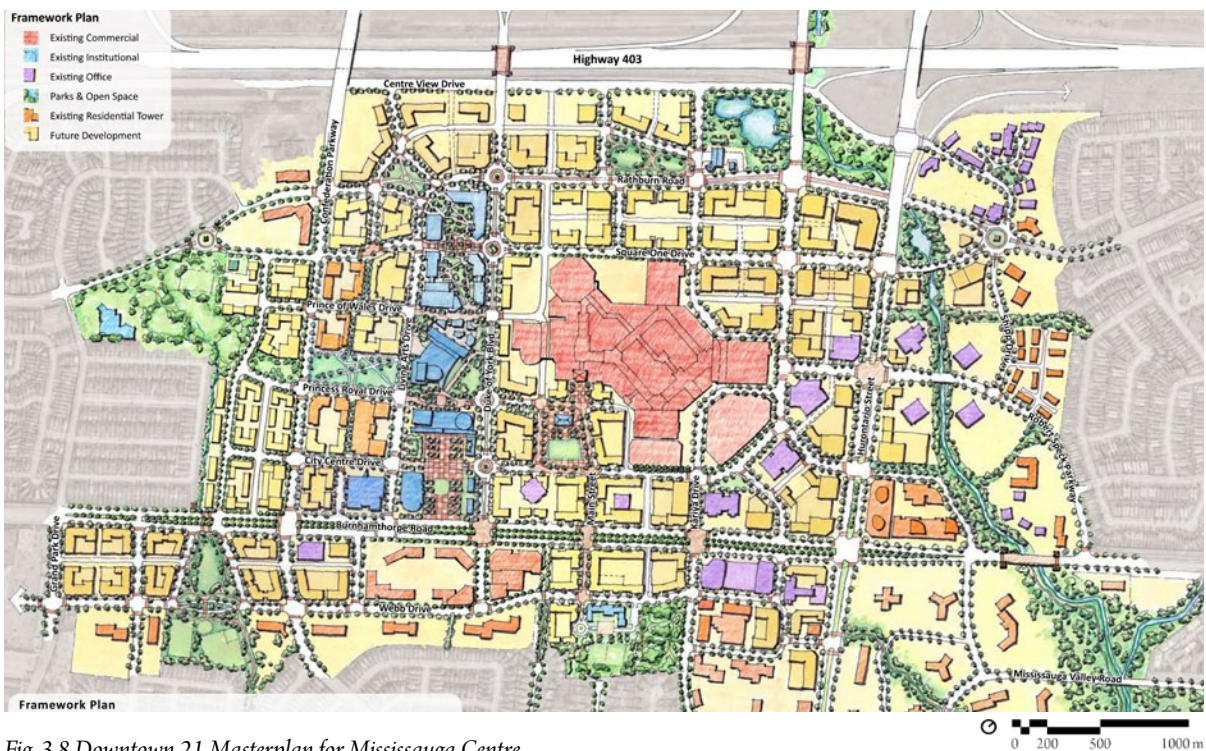


Fig. 3.8 Downtown 21 Masterplan for Mississauga Centre

The transit plan includes two major higher-order transit projects to serve the centre. Fitting its position deeper in the suburbs, Mississauga Centre will have several medium-capacity links to other regional centres rather than the single link to the downtown in Scarborough Centre. The first is a busway parallel to Highway 403 supporting high-speed bus links to other parts of Mississauga as well as Pearson Airport, Kipling Subway Station, and other nodes in the region.¹⁵ The busway includes a station along Rathburn Road, near the existing bus terminal, in the northern part of the site. The terminal also serves local routes that extend from the centre to other parts of Mississauga.

The second transit project is a light rail route along Hurontario St. (formerly Highway 10), linking the centre with Cooksville and Port Credit to the south and Downtown Brampton in the north.¹⁶ Because the size of the centre puts much of the western half outside of walking distance from Hurontario St., the LRT is proposed to split into two routes through the centre, one following Hurontario, and one looping around the superblock, for a total of five stations putting all future residents and jobs within walking distance of the LRT.¹⁷ This is a necessary step in serving a spread-out centre dictated by the mobility of the car with an intrinsically linear transport mode. It illustrates the challenge of adapting partially-developed suburban fabric to become more accessible by means other than cars.

The mall remains at the centre of the superblock as the major retail facility, but additional street retail is included in the plan in three clusters. Each cluster sits between the mall and a transit station, catalyzing routes for transit passengers bound for the mall as well as drivers arriving from arterial roads. It effectively uses the mall as a source of potential customers for the street retail while simultaneously acting as an outdoor extension of the mall.

The first phase of the project is the “Main Street” retail district, intended to prove the urbanization concept in a key location.¹⁸ The small neighbourhood extends from the south entrance of the mall toward a major residential cluster on Burnhamthorpe Road, also sitting mid-way between the office cluster to the east and the civic centre to the west. The plan includes two modest public spaces, one of which is designed to house the farmers market, using an existing regional draw to help generate vitality.

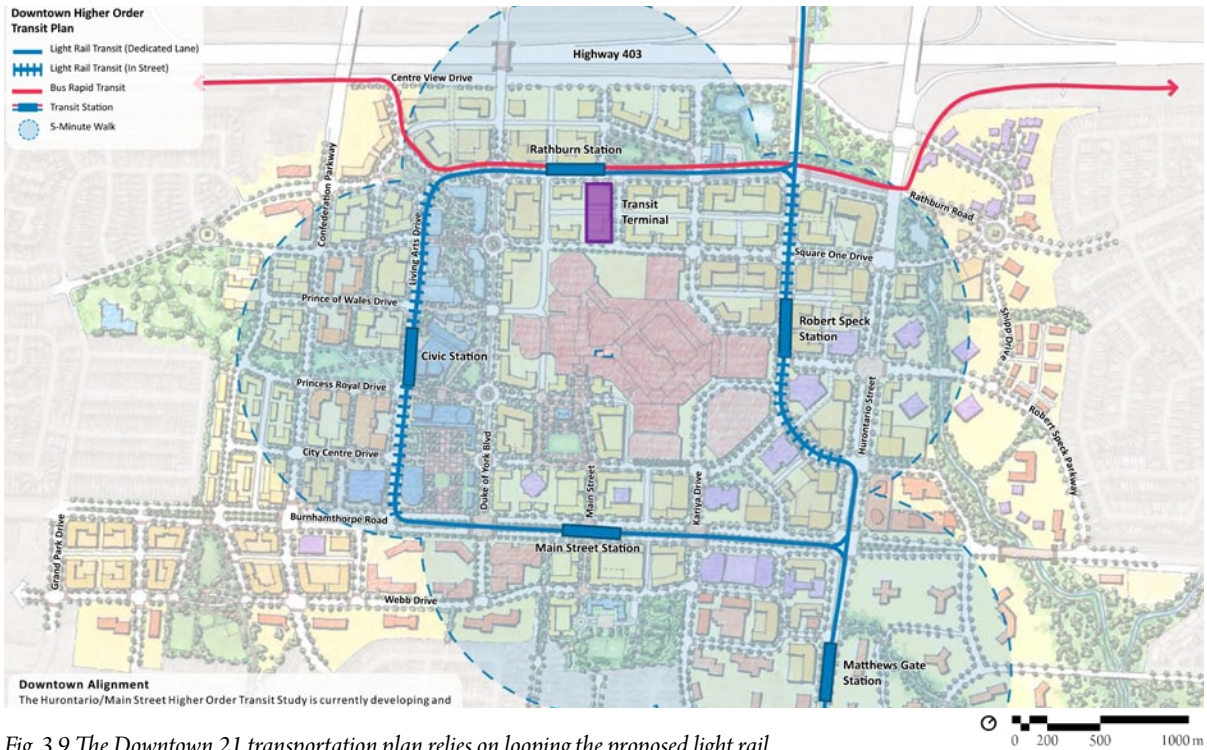


Fig. 3.9 The Downtown 21 transportation plan relies on looping the proposed light rail route around the Centre to access the western half of the site



Fig. 3.10 Proposed street sections aim to replicate urban fabric in scale and use

The parking strategy is left for future study, but the basic concepts can be inferred from the document. The plan relies on parking decks, underground and aboveground, for both residential developments and to replace the surface lots serving the mall. The distribution of the parking capacity presumably follows the distribution of the programs that attract people from outside the centre. Street parking is shown on most streets, and constitutes the only surface parking within the superbblock.

The Mississauga plan shows an enthusiasm for changing the status quo of the suburbs and creating a renewed conception of a suburban downtown. But the plan relies on appropriating certain pre-war urban design models that were optimized to serve very particular characteristics of streetcar services in a physically small city. The planning is based upon certain conditions that underlie the urban design models, but do not exist in Mississauga.

The paradox in suburban centres is that as they become structurally more like urban downtowns, they become less accessible to their surrounding populations. Unlike downtown Toronto, Mississauga and the other suburban downtowns will likely never have a high capacity transit network reaching out to their low-density hinterlands. As a consequence of their mobility context, suburban centres must be easy to drive to.

Primacy of the Street

The first major assumption for any urban design model is the use of streets as the mechanism for deploying public space. In urban Toronto, streets were the central element in the public realm, supporting the entire breadth of retail and services needed by local residents. Before the introduction of the car the streets carried little traffic, and at low speeds. Even today, main commercial streets have been adapted to carry significant traffic volumes, but are ill-suited to the task and traffic remains slow-moving. Sidewalks are often protected from traffic by curb lanes filled with parked cars and delivery vehicles. The conversion of downtown industrial space to other uses limits the commercial truck traffic downtown, and streetcars serve transit needs quietly and without local pollution.

Suburban arterials are designed from a different perspective. They are required to carry growing volumes of traffic at high speeds, including commercial truck traffic and major bus routes. Public space in the form of sidewalks is included, but the conditions for pedestrians are a secondary concern, outweighed by the push for vehicle speed and capacity on multi-lane roads.¹⁹ The public space function of streets has largely followed retail into the private realm of shopping centres and strip malls. Most strip malls do attract some pedestrian traffic, but even so, few concessions are made in providing connections for sidewalks to storefronts.

The Mississauga plan moves the retail from the major thoroughfares onto minor local streets that only allow small volumes of traffic. Their design is more amenable to supporting a vibrant public realm, but solves the problem by superficially replicating streetcar suburbs. Those streets had a base of local retail customers with few choices elsewhere who were directed into the street twice daily to use the streetcar. The mobility offered by the car has expanded our conception of local territory, giving us more choice in where we shop.

Mississauga uses a dense grid of smaller through streets, and connects them well to highway exits to draw traffic, also using traffic heading to mall parking lots as a source of activity. However, the changes introduce friction into the area's roads which may act to make the mall and other regional programs less attractive for drivers with nearby alternatives. The modern suburban interpretation of a commercial street is a contradiction: streets can either carry adequate traffic volumes to support



Fig. 3.11 Queen St., the first concession road, is a commercial strip anchoring a streetcar suburb just outside downtown Toronto



Fig. 3.12 Lawrence Av., the fifth concession road, was built to move traffic with no regard for the pedestrian realm

the retail, or create pedestrian-friendly conditions, but not both. Given this, the street may not be the ideal structure for supporting the primary public space network in suburban centres. Following the suburban model of disconnecting the public space from the road infrastructure, as in malls and plazas, is a better way to support both a viable pedestrian environment and an efficient road network. The challenges to that strategy are evident in tower-in-the-park schemes: unoccupied spaces feel empty, and therefore dangerous. The problem is exacerbated when ground floor retail and residential units are vacant, or too inwardly focused to contribute any activity to a space.

The separation of vehicle routes from the public realm as a conscious decision made in early suburban projects that sought to eliminate the dangers and irritations of high speed traffic in pedestrian areas. Ironically, while suburban projects in the Toronto region seek to re-integrate vehicles and pedestrians, many European urban design projects are doing the opposite; placing restrictions on vehicles within urban cores to create pockets of safe and attractive space for pedestrians. The closest analogy in North America is the enclosed mall which, despite the regulatory conditions that come with private ownership, are also vibrant, car-free urban streets of a sort.

Car-free projects, whether public housing estates or pedestrian streets, usually require a basic level of activity to succeed, otherwise spaces feel empty and strangers become menacing.²⁰ Suburban projects must balance the emptiness that usually accompanies low-density development with a sensual separation from vehicle traffic. Given the possibility to experiment on the relationship between space and traffic in under-developed suburban sites, reverting to a system developed in response to certain constraints, which no longer apply, is a lost opportunity.

The Logic of Streetcar Suburbs

The development patterns of a streetcar suburb were generated by very specific operating patterns of the routes. With a small city of short commutes the routes focused on accessibility over speed. Stops were, and still are, spaced apart 250m on average to reduce walking distances to the streetcars.²¹ The shortest walking distances from each lot were rationalized into the long narrow block pattern.

Fig. 3.13 Comparing streetcar stop spacing in New Toronto (shaded) with the SRT stations in Scarborough Centre (outline)

- SRT station (Scarborough)
- streetcar stop (New Toronto)



Higher-order transit routes today focus on speed, rather than accessibility, due to the increasing size of the region that has lengthened commutes. Stops are placed much more widely apart, relying on feeder bus routes rather than walk-ins to support the service. This means that the linear development model of the streetcar suburb doesn't translate to current LRT, BRT, or subway proposals where stop spacing is commonly over 1000m.

Large gaps are left between the walking-distances of two adjacent stations. Development that fills these gaps, along avenues for example, are poorly served by transit, unless an overlapping bus service fills the gaps, as on Yonge St., north of Eglinton Av. This makes nodal development a more logical choice, and also puts an emphasis on maximizing the amount of land within walking distance from the stations, both as an economic development strategy and for generating ridership. The typical streetcar suburb block pattern works poorly to serve these regional transit routes.

Mississauga Centre is essentially a nodal development, though it is served by more than one transit station. Mississauga solves the problem of accessibility at great cost, looping the LRT around the superblock and creating multiple stops, essentially adopting a streetcar operating pattern through the block, which slows down the travellers passing through the centre, and is far more expensive to build. Scarborough Centre has one centralized transit station, and the furthest development parcels must be put as close as possible to its entrance to maximize economic return on that property.

Retail Economics

Retail in streetcar suburbs was almost always at grade along commercial streets, using flexible spaces that can be endlessly re-purposed without conditions to suit the market demands. They now have the additional advantage of being old; the high capital costs of initial construction have long been paid off, so rents are lower in older buildings relative to newer ones in the same area.²² Commercial streets were positioned to take advantage of natural flows of potential customers, on streets with transit service, or where traffic was forced through a certain location due to geographic obstacles. The commercial activity was closely integrated with residential zones, putting it within walking distance of a base of customers, in an anti-hierarchical sense.

During suburban expansions, the retail sector followed the population out into single-use districts located at places accessible by car; the new mobility mode. Strip malls, plazas, indoor malls, and power centres are all isolated from residential districts. This was an efficient layout that took advantage of the car, allowing everybody to drive to a mall or plaza and do all their shopping in one area, or even one store. But the efficiency relies on high car ownership rates, cheap fuel, and free-flowing traffic.

Strip malls built in the 70s and 80s in the inner suburbs now enjoy the same advantages of old buildings, being cheap and flexible, partly due to lower land values. They typically support independent businesses that serve the local ethnic or social groups.²³ The podium typology has brought back the older strategy of locally-focused retail integrated with residential areas, however they function differently. Podium retail has less flexibility, as tenants typically rent their units, and have less ability to renovate. Also, condo operators can place restrictions on businesses and the units are more expensive than comparable spaces in older strip malls.

North York Centre is a case study in suburban retail economics. The retail there is focused along Yonge St., and includes the full range of units. The podiums built recently as part of residential developments support chain stores and other high-margin businesses. The old commercial fabric supports independent shops at grade level, while the upper floors support service businesses (hair dressers, tax offices, language schools, massage parlours, etc.). The nature of the tenant shows a high correlation with the typology and age of the building unit it occupies.



Fig. 3.14 Varying age and locations of retail units in North York Centre provide economic conditions to support a full range of shops and services

North York Centre benefits from its origins as a small urban neighbourhood built around a major street, and is not directly applicable to other suburban downtowns, like Scarborough and Mississauga Centres. However, its commercial fabric is representative of the forces driving retail economics, and the lessons observed from North York can be applied to the other centres. Ultimately, those lessons are to provide a rich variety of units, with a corresponding gradation in rent values.

The Mississauga plan clusters retail strategically into areas that will attract the greatest number of pedestrians and drivers. A problem faced both here and in Scarborough Centre is the existence of the mall as a dominating retail presence. The mall operators in Mississauga are unlikely to allow retail development on their surface parking lots if the future tenants compete with stores inside the mall. The retail must be made to complement the selections in the mall.

One possibility is for the units to mimic the successful strategy used around malls today, where outparcels are scattered at the edge of the parking lots to augment the mall's selection using a larger scale format.

The future retail could instead use a smaller scale format capable of housing independent boutiques and shops that generate reciprocal attractions between the internal mall and the shopping areas outside of it. Where outparcels are too large to fit inside a mall, future retailers could be too small to support the financial and spatial burdens of a mall unit. North York Centre shows that this retail type likely requires something other than the ground level podium spaces proposed in Mississauga, and existing in Scarborough.

The continued relevance of the mall is important to maintaining the centres' position as a regional focal point for retail and other services. Unlike the civic and cultural programs of the centres, the retail components face competition from several other malls that will only become more attractive to users if Square One, or Scarborough Town Centre, becomes less accessible to regional populations. Splitting the role of the centres into separate retail, civic, cultural, and employment nodes goes against their role as a suburban downtown combining those programs.

Another important factor for retail success is its accessibility to as broad a range of potential customers as possible. This includes those who drive, cycle, walk, and take transit. Mississauga has located the retail clusters adjacent to the future transit stations, and will be visible to drivers arriving at the mall. The major barrier is the lack of surface parking. The significant share of parking capacity is held in multi-level garages with some on-street parking augmenting the capacity close to the retail clusters.

However, it is unrealistic to assume drivers will freely switch to using parking garages for quick shopping trips in the suburbs. Garages include several barriers compared to surface lots in both finding spaces, and accessing the mall or retail cluster from a parking space. Even commercial streets downtown are served by occasional small surface lots and ample street parking in addition to the large-capacity garages for long-term stays. This is a concern for both the new retail development as well as the mall. Replacement of surface parking lots has the potential to reduce the mall's accessibility to drivers. The challenge is to allow the mall to fulfil its role as a regional shopping destination while simultaneously building a neighbourhood around it.

A related issue is the visibility of the retail to attract customers not already intending to stop there. Mississauga accomplishes this well for its new retail clusters, but blocks visibility of the mall from the arterial roads and Highway 403. The Mississauga plan is unsuccessful at developing a variety of retail types to attract a corresponding variety of tenants. North York Centre shows that reliance upon only the podium units will attract only a small number of different shops and services that can support the cost and other restrictions of those units. A mix of physical unit types is useful for developing a rich mixed-use environment more reflective of urban neighbourhoods that supports a greater demographic cross section.

Assessing Intensification Plans

The plan moves beyond the typical suburban planning paradigm and succeeds in some areas, but refuses to pose certain broad questions about the nature of suburban centres. Can the existing building typologies be expected to support the increases in transit mode share at a local scale? Can retail thrive in the particular context of the site, and how can it be accommodated architecturally and economically? How is public space structured and where is it distributed? Is the role of the suburban centre maintained for dependent populations? What advantages can attract residents and jobs over other suburban locations?

These questions are fundamental to the ability of suburban intensification schemes to generate a truly polycentric regional structure and support the infrastructural goals of the provincial plans. Increasing residential density alone cannot force a change in the suburban centres without the changes in planning that have always been implicit in the conception of these nodes. A complete design strategy for Scarborough Centre must ask these questions as a means of producing an urban design model that upholds the latent potential of the site to become a threshold in the intermodal metropolis, a suburban downtown.

In Toronto, the streetcar suburb will always be an important benchmark. They remain the familiar local example of successful and desirable neighbourhoods. Jane Jacobs has had a great influence on the direction of local urban planning due to her long-time residency and activism here, helping to preserve urban neighbourhoods against the forces of redevelopment often driven by the desire of suburban politicians and residents to increase their access into the city by cutting through the old suburbs.

Jacobs' ideas of street life were directly observed from places like Toronto's streetcar suburbs, but her observations never restrict the idea of 'streets' to the familiar long and narrow format with vehicles down the middle. There is an opportunity for suburban intensification to use Jacobs' observations to urbanize the suburban spatial models without replacing them.

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4

Morphology of Hybrid Mobility

Within the region there are two mobility systems acting somewhat independently, with each having an area of dominance while penetrating the other area as a secondary system. The two can be described as intensive and extensive. The intensive system dominates the central city where high densities and nodal development defines a small number of shared routes to finite destinations. It's a system reliant on high-capacity rapid transit combined with walking and cycling to extend its reach. The extensive system dominates the outer suburbs where decentralization of employment and population and a vast area dictates a high number of different routes to infinite destinations. It relies on private cars using road and highway networks as a door-to-door solution.

The furthest extents of the rapid transit system bring the intensive mobility network into the territory of the extensive. At these points—Ettobicoke Centre, North York Centre, and Scarborough Centre—the two systems interact. The development patterns driven by each system within its territory make it unlikely in the near future that one system will replace the other throughout the region and erase this basic regional division.

Each of the systems has a set of requirements, limitations, and narrative associated with it. Being sited in suburban territory, each of the Metropolitan Centres was planned around the capabilities of the private car. Despite the greater emphasis on pedestrian facilities compared to other suburban developments, the centres are clearly suburban; expressly built to serve populations outside the borders of the centres themselves.

Next Page: Fig. 4.1 Aerial view of Scarborough Centre and surrounding neighbourhoods





Current Market Demand

The demand for office space within the Centres has slowed while residential demand has increased rapidly in the last decade.¹ The residential population living within Scarborough Centre now rivals the number of office workers who arrive by car.² This shifting demographic changes the nature of the centre, and requires a greater emphasis on residential amenities and improved pedestrian connections to the rapid transit station. Concurrently, development plans aim to increase the public transit mode share for travel to and from the centres, reinforcing the need for a pedestrian realm able to extend the reach of the transit network to the entirety of the superblock. Maintaining access by car remains important to the specific goals of the suburban centres, and cannot be reduced without negatively affecting the economic and social potential of the centre. A pedestrian network must exist in parallel to the road network, with neither reducing the effectiveness of the other.

The central superblock in Scarborough Centre is fractured into a series of irregularly shaped large properties, developed independently and with only a cursory regard for the pedestrian environment. The prevalent condo typology involving multiple buildings sharing some access and parking facilities has generated the mentality of a gated community. Public amenities are sequestered within private buildings, and local services are easy to access by car from an underground garage.

The investments in improving the Scarborough RT require a similar investment in the public realm throughout the centre to support walking or cycling as a comfortable and viable method of covering the short distance between the transit station and the development parcels at the edge of the block. In addition, the building typologies must also support the public realm with appropriate ground-level program and without capturing activity within private space.

Scarborough Centre is a useful test case, as an underdeveloped centre, lacking a masterplan for its future growth. Its initial planning as a radical departure from street-based urban design makes it a good candidate for exploring the potential of suburban spatial typologies to support a rich and variable programmatic mix within a formal strategy that balances the needs of the hybrid of mobility systems.

Fig. 4.2 Satellite Photo ca. 1999



Fig. 4.3 Satellite Photo ca. 2002



Fig. 4.4 Satellite Photo ca. 2005





Fig. 4.5 Land use is coarsely divided by the arterial supergrid



Fig. 4.6 A series of high-rise clusters stand out from the mostly one and two-storey fabric



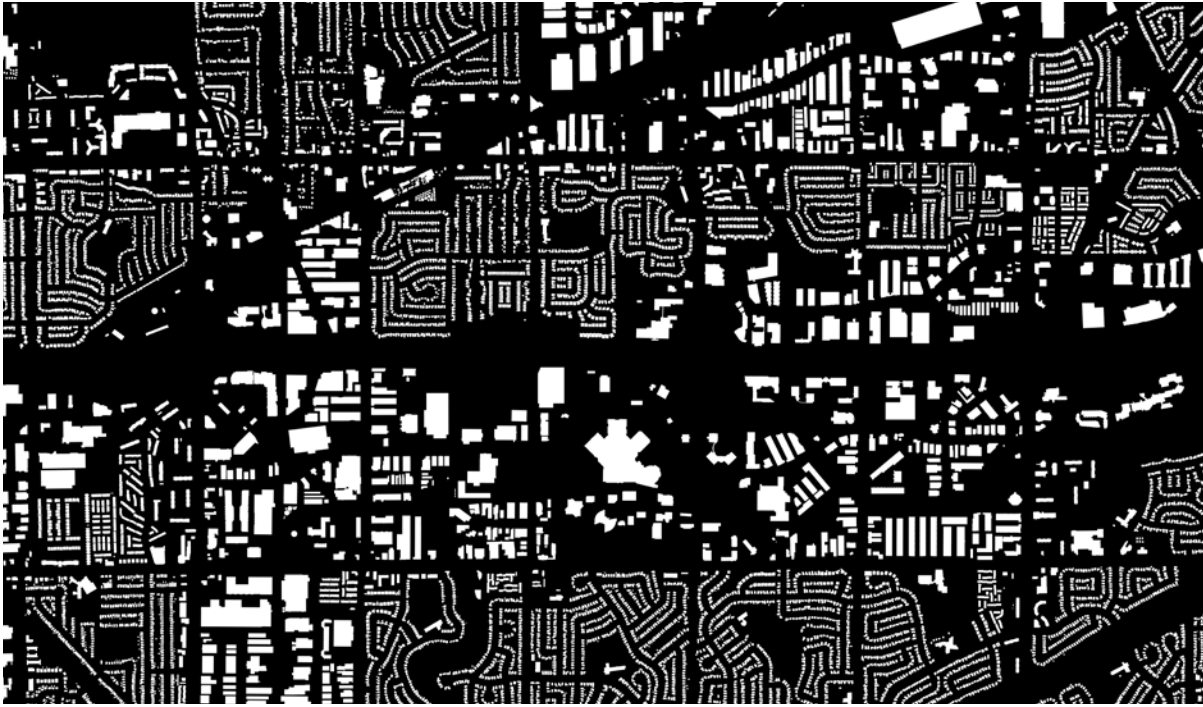


Fig. 4.7 The figure ground shows the unstructured negative space in Scarborough Centre and the adjacent industrial zone and apartment neighbourhoods

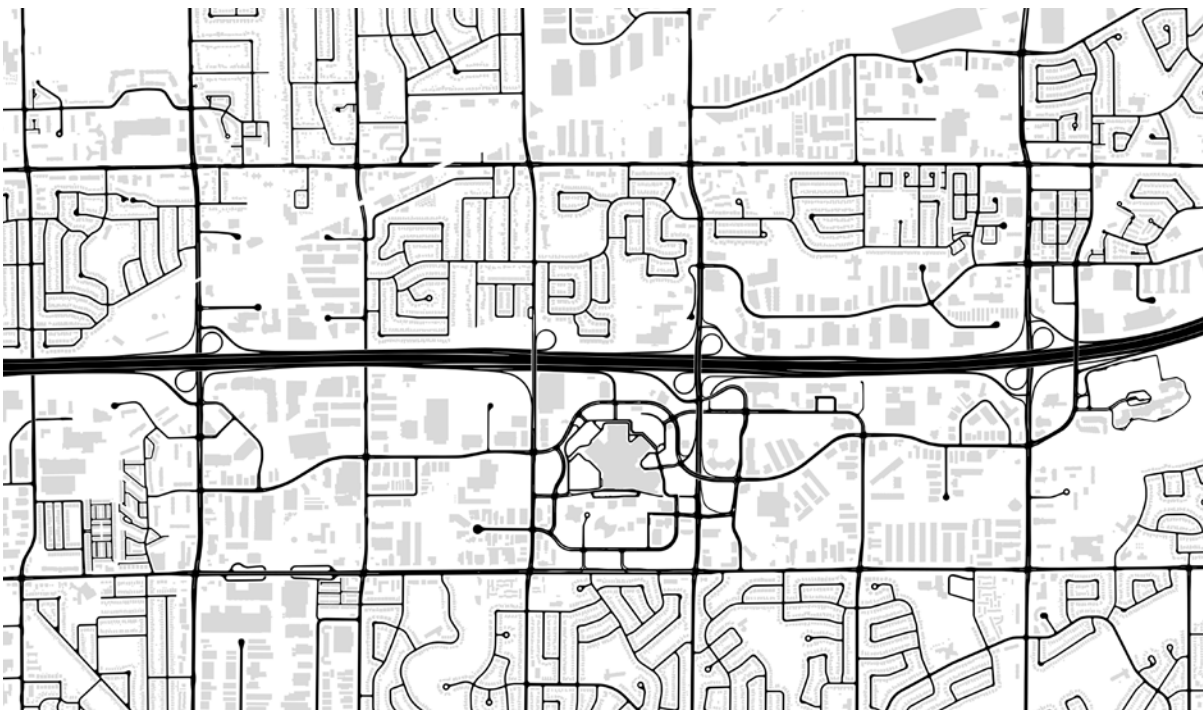


Fig. 4.8 The road network includes Highway 401, a supergrid of arterial roads, augmented with discontinuous collectors and local roads.



Fig. 4.9 Extensive surface parking lots and decks surround the mall on three sides



Fig. 4.10 Albert Campbell Square connects to a pedestrian bridge up to the SRT station entrance and the upper level of the mall

The Site

The Scarborough Centre site sits within the middle of a band of commercial-industrial development clinging to the south side of Highway 401. The site lies roughly in the southern half of the superblock defined by Brimley Road, Ellesmere Road, and McCowan Road, stretching east and west into parts of the adjacent blocks.³ Immediately to the east is a cluster of office and residential buildings surrounding the McCowan SRT station. Another residential node lies to the northeast along Corporate Drive, though has poor connections to the central superblock.

Outside of these developments, the industrial band remains intact to the east and west of the site. It contains a mix of warehouses, wholesalers, distribution, and manufacturing facilities. The building stock is comprised largely of multiple unit commercial-industrial rentals supporting small companies, and a few larger manufacturers. The Official Plan protects the employment uses in the district as an important source of local jobs.⁴

To the south of the industrial band is a low-density residential neighbourhood called Bendale. It is typical of Toronto suburban development, placing modest houses on winding streets with a park and school at the middle of each block. The Official Plan also protects this area,⁵ with only a few existing commercial sites along Ellesmere Road available for possible small-scale redevelopment.

History of Scarborough Centre

The site was planned and developed in the late 1960s. The first two buildings were the Scarborough Town Centre shopping mall in the north of the superblock, and the Scarborough Civic Centre (formerly Scarborough City Hall) immediately to the south. The Scarborough Centre SRT station was built between the two. Three office buildings were built around the Civic Centre soon after its completion, and the majority of the site lay empty in that state until a condo boom in the 90s produced several residential towers scattered around the block.

The shopping mall is surrounded by surface parking, and 3 single-level parking decks. A recent re-development has updated the interior finishes of the mall, and added a number of stand-alone retail buildings at the edges of the parking lot. Since its initial construction the mall has added a third anchor store and a cinema. It remains the largest mall in the eastern half of the region.⁶

The main pedestrian realm of the site is an armature connecting the Civic Centre to the mall. Albert Campbell Square sits at the north entrance to the Civic Centre and reaches to a set of ramps and stairs that leads to the concourse level of the SRT station. In turn this is connected by bridge to the upper level of the mall. The square branches out to provide pedestrian links to the development sites surrounding the civic centre.

The vehicle access in the southern half of the block is dominated by a ring road, Borough Drive, which encircles the mall and Civic Centre, and has links to each of the three surrounding arterial roads. Between the ring road and the residential neighbourhood to the south is a woodlot acting as a buffer. The arterial roads see heavy traffic, ranging from 5 to 7 lanes. The adjacent industrial uses bring heavy truck traffic in addition to cars and buses.

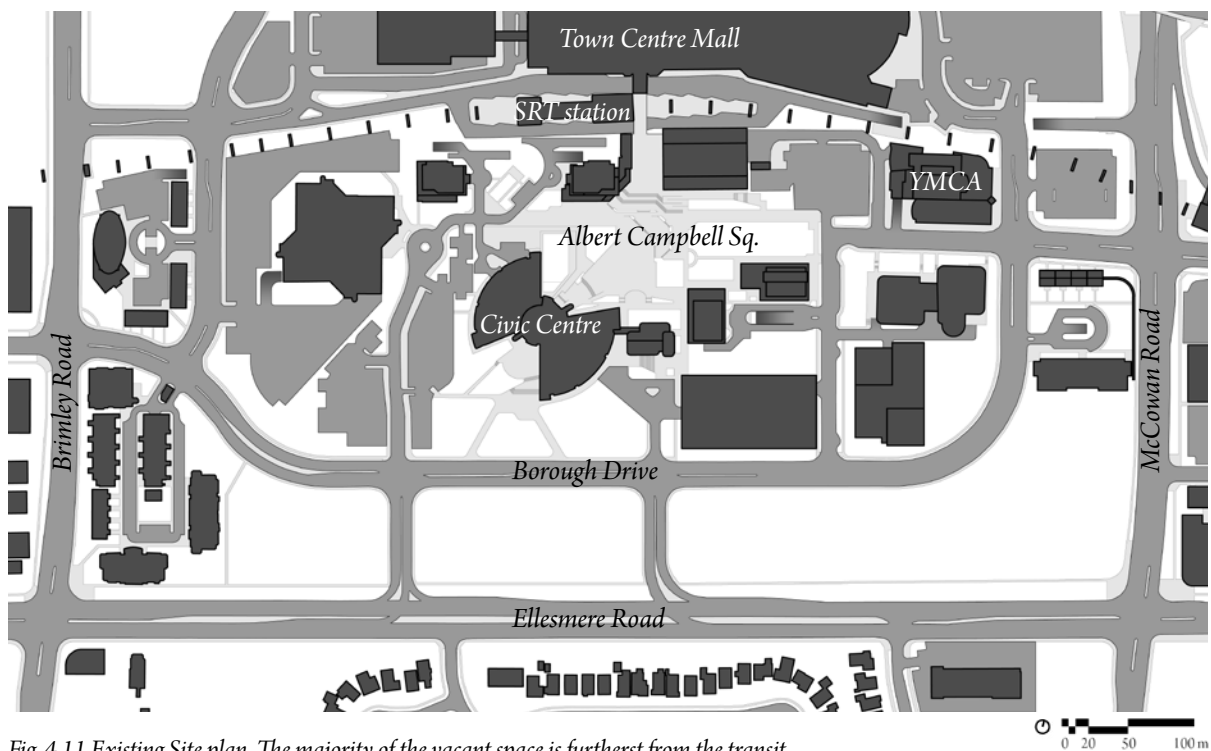


Fig. 4.11 Existing Site plan. The majority of the vacant space is furthest from the transit station, at the south edge of the superblock

Project Intentions

Observations about the changing structure of the region have shown that mobility is the generator of morphology in the Toronto region at a variety of scales. The growth at the leading edge of the region continues to be dictated by the private car as the primary mobility system. However, at the boundary between the suburban and urban fabric a hybrid of the two mobility systems is evolving, partly driven by shifting populations and commuting patterns, and partly by government policy.

The design project seeks to produce an urban morphology that supports both systems in parallel, deployed on the Scarborough Centre site. The design strategies emerge from the capabilities, opportunities, requirements, and limitations of the two systems, adjusted to serve the context of the Centre. The intention is to serve the mobility systems, without necessarily adopting the morphological typologies normally associated with them, rejecting the notion that 'new urbanism' planning can absorb significant changes to the mobility system that generated 19th century urban design. The project instead favours site observation and an understanding of the complex hybrid mobility possible there.

Many of the design decisions are underpinned by the position that human interaction and civic engagement are essential to the health of our society and the growth of our culture. There is no pre-conceived spatial structure that supports this, but it does carry a requirement for public spaces of different characteristics, and a ground plane with a broad variety of public and private activity.

An equally important guiding principle is that the scheme must support the economic growth of the site, by accommodating a wide range of local retail, leveraging the adjacent industrial zones as a commercial incubator, and providing affordable space for local entrepreneurs to open small businesses. The social value of creating an active public realm should be tied to maximizing the potential to generate wealth. This is important to ensuring the feasibility of the project in a development industry dominated by profits, and also to produce a cycle of re-investment within the community as an economically productive neighbourhood.

There is no focus on serving a particular demographic group, but rather a built-in flexibility that can adapt to changes in population over time. There is potential for the tower neighbourhoods to the east and west of Scarborough Centre to act as community incubators. Both are destinations for recent immigrant groups with limited economic resources. As these groups gain financial stability, they could transplant themselves easily to the superblock, remaining close to the shops and services that have grown around them to serve the particular needs of their community. A mix of housing types including townhouses, apartments, and highrise condos should allow occupation by families, couples, and singles from various income levels.

By broadly supporting intermodal accessibility, the centre will act as a threshold between city and suburb. For households having one commuter bound for the city and one for the suburbs, Scarborough Centre can offer a compromise location that inconveniences neither, and protects future options for both to change job locations without needing to move. This is expected to be a significant attraction for potential residents, and the corollary is also true for employers looking to locate in office space that is accessible from the entire region.

The plan embraces the Places to Grow Act and the Toronto Official Plan as a framework for development. The provincial legislation requires a minimum of 400 persons or jobs per hectare.⁷ At a size of approximately 30 hectares, the southern half of the superblock requires over 12000 residents or jobs. The design proposes a total of 5500 new residents for a total of 11600, and 4000 jobs for a combined total of 520 persons or jobs per hectare, 30% higher density than required by Places to Grow. As a comparison, this density is approximately equal to the CityPlace development on Toronto's rail lands.⁸

The project anticipates a continued trend in Scarborough Centre towards a viable and complete residential community, along with expansion of the regionally significant civic and cultural programs that attract residents from outside the immediate vicinity. However, the project rejects the idea that the car will, or should, remain as that single dominant mobility choice for the centre. The project is speculative in the sense that it requires a long-term outlook on the possibilities of replacing the prevailing development models in anticipation of changing mobility patterns, and the effect those changes will have on the economics of development in suburban centres.

Design Strategies

The overall design strategy begins with dividing the traditional functions of the street into two networks, each optimized to support one of the two mobility modes, following the typical suburban strategy of separating pedestrians and vehicles to allow each to exist without interference from the other. The first network supports the extensive mobility of the suburbs, providing a hierarchical road grid designed to move vehicles efficiently to and from the superblock and reducing friction for through-traffic passing the site on the adjacent arterial roads. The second network exists to serve the extensive mobility by deploying public space to create pedestrian links to and from the transit station.⁹

By reducing pedestrian accommodations to a minimum, the road network can concentrate on its primary purpose; moving vehicles locally and regionally. The full lane capacity is maintained on the arterial roads at the boundary of the superblock. Separated bike lanes are added to carry local cycling traffic between the superblock and the adjacent residential and industrial zones. Boulevards are created to mediate between the superblock and the arterial roads, allowing parking and local access



Fig. 4.12 Proposed Site Plan

to buildings along the edge without interfering with through-traffic on the main roads. They also provide a spatial buffer between the fast-moving traffic and the pedestrian spaces of the superblock interior. A legible and easily navigable grid of minor roads is extended through the site to subdivide the superblock and provide connections to interior development parcels. These roads provide minimal pedestrian amenity, as they are not intended to support any significant volumes of pedestrian traffic.

Once separated from vehicle traffic, the spatial protocols of the pedestrian realm need not conform to those of a traditional street. There is an opportunity to re-consider the shape and scale of public space without the necessity of following the inherently linear patterns of a road grid. The formal considerations can instead be based upon a more relevant set of criteria emerging from human senses, standard building dimensions, and development economics. A simple and flexible formal strategy must be able to contain and support a variety of programmatic and typological conditions.



Fig. 4.13 Contemporary condominium projects include spaces between buildings to provide access to light and air, and contain ground level car drop-offs and parking ramps.

An architectural response is to conceive of the public space network as a series of rooms, rather than corridors as in a traditional street grid. To avoid the problems inherent in the vaguely defined spaces of tower-in-the-park schemes, the public realm must be compartmentalized into discrete spaces that are easily identifiable, and have clear boundaries. These spaces continue the formal trajectory of ancillary spaces around contemporary condo projects, effectively replicating and extending the courts formed around and between recent development projects in Scarborough Centre. The scale must resist the suburban tendency towards oversized spaces so that all activity within individual spaces is within reach of the senses of any occupant.

The arrangement of the spaces is driven by the local mobility patterns of the site, as dictated by the location of the SRT station.¹⁰ The strategy is translated from the perpendicular long blocks of the streetcar suburb, which connected each development site as directly as possible within the limits of providing easily developable lots. Because of the much

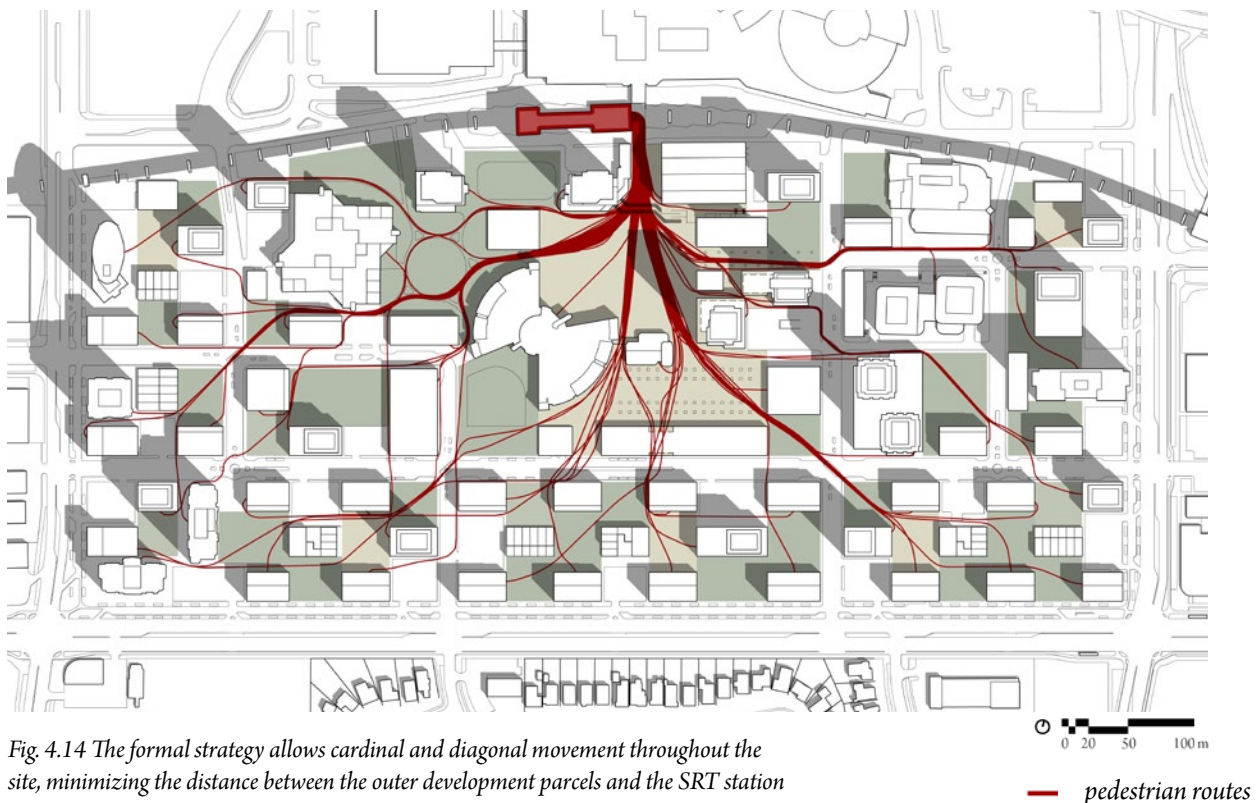


Fig. 4.14 The formal strategy allows cardinal and diagonal movement throughout the site, minimizing the distance between the outer development parcels and the SRT station

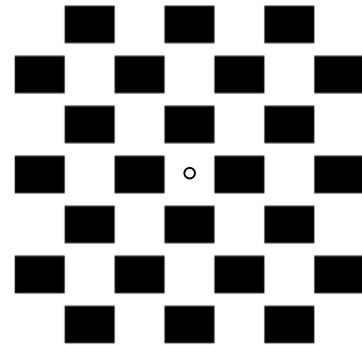
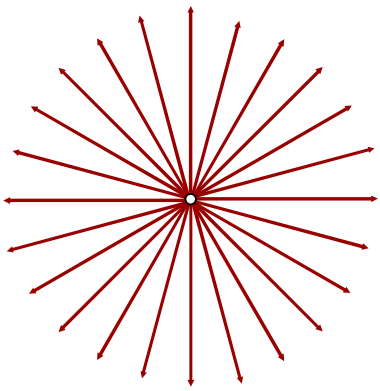
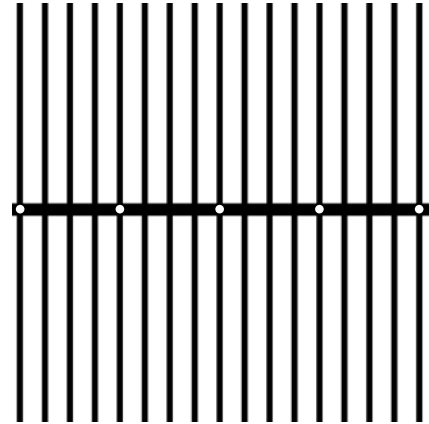
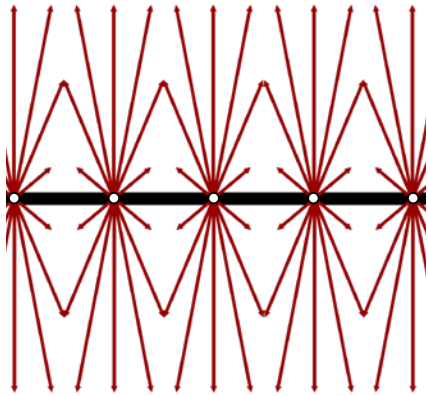


Fig. 4.15 The close stop-spacing of 19th century streetcar operations (top left) generated a pattern of long narrow blocks perpendicular to the main street, closely following the direct pedestrian paths. In contrast, the widely-spaced LRT operation characteristics of the Scarborough RT (bottom left) creates a series of radial paths, which is best accommodated by a series of alternating voids that supports both cardinal and diagonal movement.

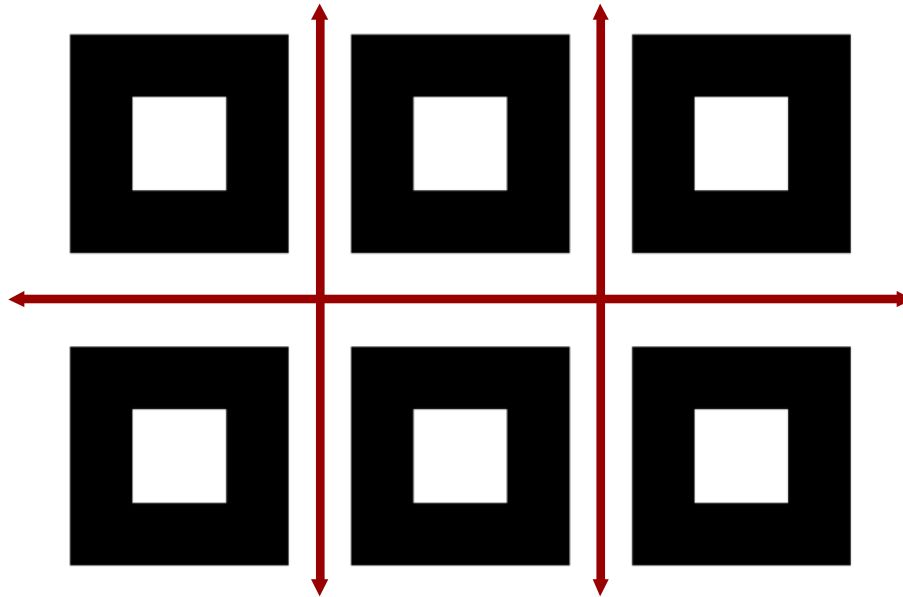


Fig. 4.16 Large blocks minimize pedestrian accessibility, while interior courtyards capture activity within private space.

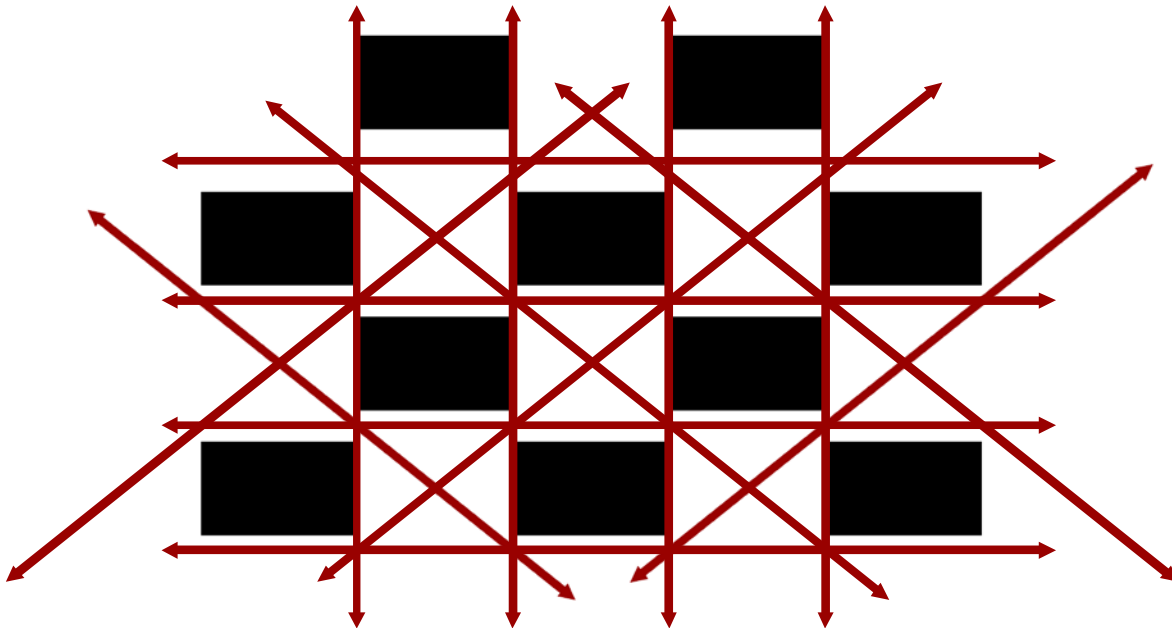


Fig. 4.17 Small blocks maximize pedestrian penetration, and all activity remains within public space.

wider stop spacing of modern LRT applications, the desire lines in Scarborough Centre are radial within a circular, rather than rectangular zone. To accommodate cardinal movement in the centre of the site, and diagonal movement at its corners, the arrangement of public spaces is formalized as a pattern of alternating solids and voids.

A series of diagonally adjacent spaces results, creating excellent pedestrian permeability throughout the site, and allowing for cardinal and diagonal movement. The furthest corners of the site are brought temporally closer to the SRT station compared to a traditional cardinal grid.¹¹

Fig. 4.18 GWL terrain in Amsterdam



Fig. 4.19 Turin Olympic Village



Formal Precedents

Precedents for this strategy exist in two European projects: GWL Terrein in Amsterdam¹², and the Olympic Village in Turin.¹³ Both projects act to create protected pockets of public space between midrise buildings while limiting access by car. Neither is an important regional or local centre, and therefore the space is occupied mostly by continuous park tissue, serving only the local residents. The pattern of built parcels and voids is driven by the limited penetration by car into the developments, removing the necessity to orient public spaces linearly. However, the projects do not utilize the formal strategy as a means of deploying programmatic relationships or maximizing pedestrian mobility as part of an integrated transit network.

Designing the Spatial Network

Once compartmentalized, the spaces can be divided into distinct types to serve the range of necessary functions. The first type is the square; a translation of the commercial street typology. The squares support the primary retail and service programming within the site, and act as local focal points distributed evenly throughout the superblock. The second type is the park; a diverse set of spaces covering recreational, scenic, productive, and natural program. These spaces are intended to distribute a full set of traditional urban activities throughout the site. By customizing their path through the spatial system, residents can tailor their experience to their lifestyle; active, peaceful, or a combination.¹⁴

The third type sustains the modern servicing requirements for buildings and surface parking capacity. Moving vans, garbage trucks, ambulances, delivery trucks, and taxis must all be able to access any buildings, and many require significant amounts of space for their operation, either occasionally or frequently. Combined with surface parking, these vehicle servicing demands will require a share of the available space, which must be isolated from other public space activities. A series of service courts accumulate these servicing requirements with unprofitable program such as mechanical rooms, loading docks, and garbage storage, keeping them away from the primary pedestrian realm.

Each service court is attached to two or three building sites, creating a single development parcel. This allows major developers to build up to three buildings at once, taking advantage of economies of scale and the possibility of phasing their development to reflect actual market demand and availability of capital. It relieves the developer of any necessity to provide relevant public space for their buildings, as the



Productive

Located at the entry point to each block, these ornamental community garden plots are a source of pride and identity for block residents.

*Fig. 4.20 Urban Eden Community Garden
Edmonton, Canada*



Commercial

The commercial core of each block, a paved square serving local retail needs and acting as a gathering space.

*Fig. 4.21 Campo Santa Maria Nova
Venice, Italy*

Natural

A space dedicated to habitats for native plant and animal species, with possible extended uses in education and stormwater management.



*Fig. 4.22 Point Fraser
Perth, Australia*



Social

A comfortable and quiet park space filled with benches and tables for easy socializing away from the bustling square. Edges include municipal amenities and live-work units.

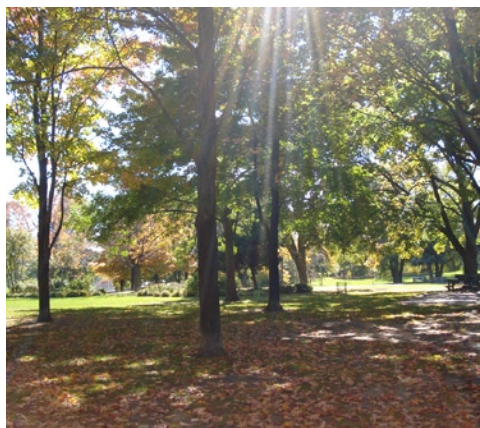
*Fig. 4.23 Bleecker Park
New York, USA*



Recreational

Playgrounds, sports fields, and wading pools, located deep within the block, away from the potential dangers of traffic.

*Fig. 4.24 Playground
Lyon, France*



Scenic

A simple, unprogrammed space filled with trees and grass

*Fig. 4.25 Withrow Park
Toronto, Canada*



Fig. 4.26 The public space network consists of three major types: main square, parks, and service courts, distributed throughout each block

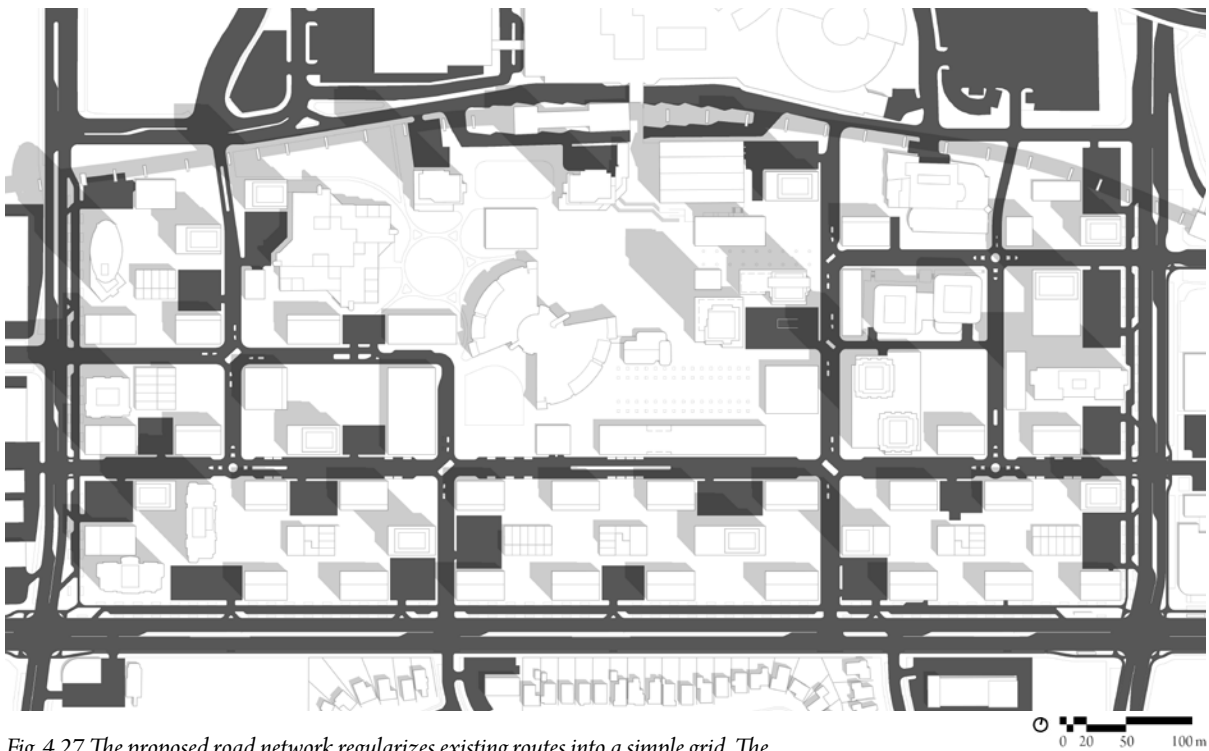


Fig. 4.27 The proposed road network regularizes existing routes into a simple grid. The service courts contain service activities for adjacent parcels.

only open space on their property is the service court. This creates a condition where each park or square is surrounded by at least two different development parcels, meaning no space is dominated by a single architectural language. This is important in avoiding the perception that spaces are actually privately owned, which is the case when a space is obviously at the centre of a single development parcel dominated by a single developer. It also adds a level of complexity and variety to the built environment as experienced from the major public spaces.

The service courts also contain a single ramp to underground parking levels, shared by the buildings surrounding the court. Underneath the courtyards there is space for public parking, for condo visitors, long term stays, or retail employees. Each building has its own parking supply underground, accessed from the public parking deck below the courtyard. The parking capacity for residential buildings is 1 space per unit, in line with typical suburban centre development. Multiple-car households can be accommodated by the excess parking capacity underneath the courts, or in unused spaces within their building.

The service courts are distributed so that each building is adjacent to either a service court or an arterial road. Two service courts are located diagonally adjacent to each main square, maximizing surface parking capacity near retail concentrations. This arrangement mimics the strip mall typology common to suburban arterials, but stretches the space between parking and retail to allow for a pedestrian dominated space between the two, re-orienting the access to capably serve both mobility modes.

Additionally, the courts are arranged so that each block has one court along each adjacent arterial or collector road, making it easy for any passing traffic to stop and park within the block. Although the service courtyards are primarily intended to serve loading and parking, they are useful in providing an alternative space for activities that are poorly accommodated in squares or parks. They fulfil the same role as many suburban parking lots or urban alleys, where disruptive or undesirable minor social groups can congregate freely, such as teenagers, smokers or skateboarders. The spaces are monitored from upper level residential units, but are partially isolated from the other major social and recreational spaces of the blocks.

The three spaces are direct translations of the basic elements of street-car suburbs. Commercial strips become the main squares, distributed as nodes rather than as a linear system, and lined with a mix of shops, restaurants, and services. Quiet residential streets become a series of small parks with townhouse units along their perimeter. Residential and commercial alleys become the service courts.

To extend vehicle access into the major blocks, a series of east-west laneways are proposed to run between the north-south roads in gaps opened between buildings. The lanes are designed to provide access to low-traffic uses within the blocks such as townhouse units, condo drop-offs, and some shops or services. They are equally accessible to cars, bikes, emergency vehicles, and pedestrians. The hierarchy of roads includes design details that clarify the transition from the car-dominated environment around the superblock, to the pedestrian-oriented realm within the blocks.

Details such as turn radii, lane width, signage, lane markings, traffic control, driving surface, and separation from other street users are modified at every different level of hierarchy. The effect on drivers entering the neighbourhood from the adjacent arterials is that their level of comfort and sense of control is reduced literally at every turn toward the interior of the superblock. The goal is to reduce speeds and increase driver awareness as the design gradually begins to favour pedestrians. Conditioning drivers is an important step in creating safe and attractive pedestrian routes within the superblock.

The system of service courts and internal laneways reacts against the complete separation of vehicles and pedestrians that has proven to be ineffective at generating active spaces. Drivers are able to visually scan spaces from the adjacent roads, and choose to stop and engage with the activities in the space, or continue driving. Pedestrians remain aware of the presence of nearby drivers monitoring the space, but are not unduly inconvenienced by the negative spatial effects of heavy traffic.¹⁵

Spatial Arrangement

The arrangement of spaces and subsequent division into three basic uses establishes a set of adjacencies and varying accessibility to each of the two mobility modes. This variation is used to distribute programmatic systems across the site, and deploy building typologies. Each block of the site has one hardscape square which supports retail at its edges. The square is positioned within the block at the location with the greatest accumulation of pedestrian traffic heading to the SRT station.

Each square has two service courts diagonally adjacent, aggregating surface parking capacity close to retail units. This allows drivers to access the site's shops and services with minimal friction, since the retail needs to attract both drivers and pedestrians to maximize their potential for profitability. Having full accessibility to both mobility systems should give the new units within the superblock a competitive advantage over the podium retail along Corporate Dr. and nearby strip malls.



Fig. 4.28 Density is distributed to create human scaled pockets within the superblock

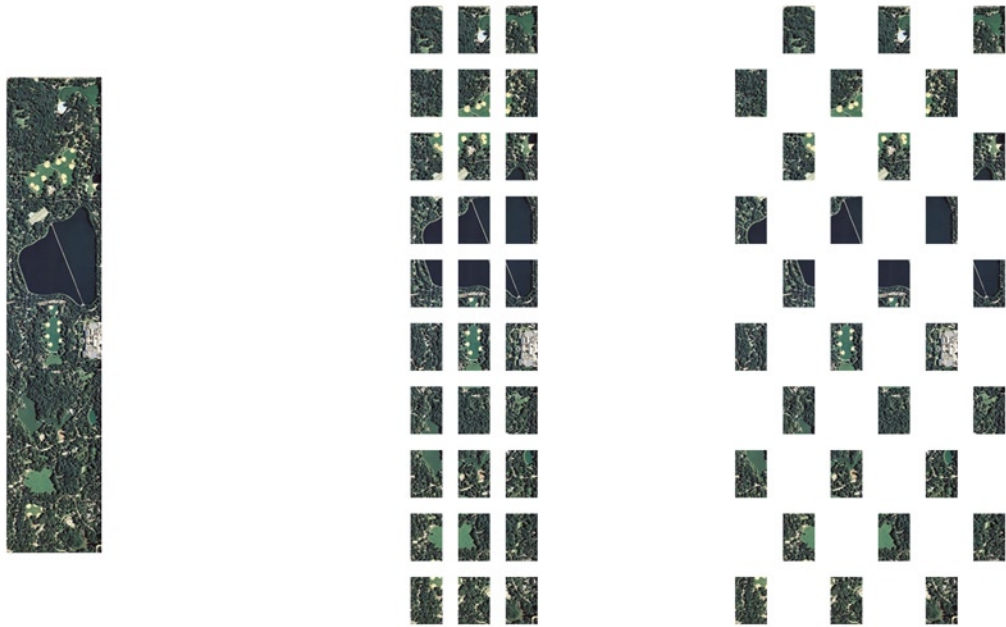


Fig. 4.29 The separation of the public space network into discrete parts allows parks and recreational program to be distributed across the site



Fig. 4.30 The linear nature of a commercial main street is transformed into a series of distributed squares while maintaining the traditional relationship between commercial uses and public space

The distribution of density throughout the superblock is responsive to the road and spatial networks. Density is high along the edge of the superblock, opposite of the existing void buffer zone, to act as a protective layer against the noise and pollution of the arterial roads. The interiors of the blocks are filled with lower density midrise and lowrise buildings, creating a human-scaled environment in contrast to the relentless highrise development common to the Centre. A series of point towers is inserted to carry density, distributed throughout the site to avoid overloading any single block, and used to mark the gateway conditions from the arterial roads into the superblock.

The lowrise block interiors are used to develop a more robust mix of housing and commercial units. Adjacent to squares, simple and inexpensive retail buildings sit, similar in functionality to the strip mall typology common to the suburbs. This type generates the lowest rental costs at grade, and even lower costs for services occupying the upper floors to attract the same mix of tenants as North York Centre's old commercial strips. The other lowrise buildings within blocks are programmed as rowhouses, oriented to face parks. Units with an adjacent surface parking lot also contain live-work units as a means of spurring economic development in the superblock and acting as a potential incubator for the surrounding commercial-industrial zone.



Fig. 4.31 Retail is distributed to a series of squares throughout the superblock, with a major concentration emerging from the existing cluster on the north and east edges of Campbell Sq

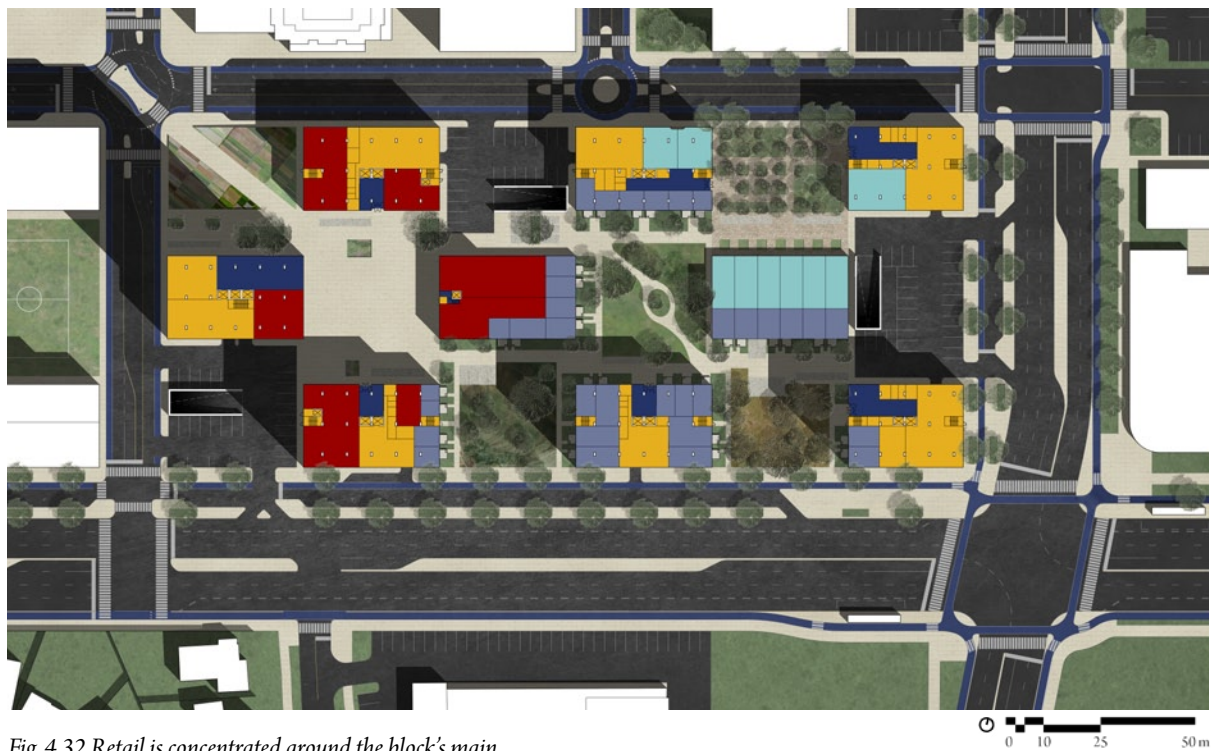


Fig. 4.32 Retail is concentrated around the block's main square, while residential uses at grade frame it's parks

- | | | |
|---|---|---|
| ■ retail | ■ lobby | ■ live-work & amenity |
| ■ townhouse | ■ service & loading | |

Architectural Response

The architecture of the buildings also responds to the different spatial characteristics surrounding them. Along the arterial roads, a unique typology combines lower-level units that look down to the boulevard with 2 storey units above having a view across the residential neighbourhoods to the south from public spaces and private rooms facing the quiet interior of the block. Buildings within the superblock are intentionally simple and do not deviate from existing construction practices.

Facades facing main squares have a high glazing ratio with balconies, aiming to animate the space from above by connecting the units to the outside activity. Facing parks, the facades include deep loggias, breaking down the division between interior and exterior, and providing ample space to overlook the parks. Openings are reduced facing service courtyards and internal collector roads to limit the noise in units. This arrangement takes advantage of the diversity of conditions generated by the spatial network to provide a greater variety of unit types, ensuring both desirable and less desirable units into most buildings to generate a mix of incomes, not just in section, but also in plan. The consistency of facades is in the voids, rather than the buildings, establishing the public spaces as the primary element of the design.

Although the current market trends do not support office growth in the centre, the plan makes an allowance for its inclusion. Considering the increase in accessibility locally and regionally combined with a rapidly growing local population, it is unlikely the local office demand will remain stagnant indefinitely. One building site in each block is set aside for office uses, located next to the main square in order to generate activity there and support businesses there during working hours. The squares themselves are located eccentrically within the blocks so that they are located near one or two other squares in nearby blocks. The office buildings then form a series of small clusters of two or three buildings each, to concentrate employees and the services they attract.

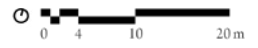
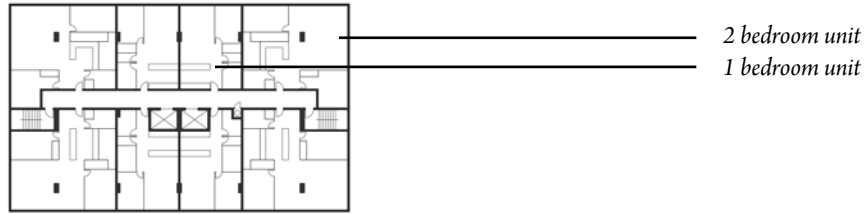


Fig. 4.33 Standards for double-loaded corridors establish the controlling dimensions of the spatial grid

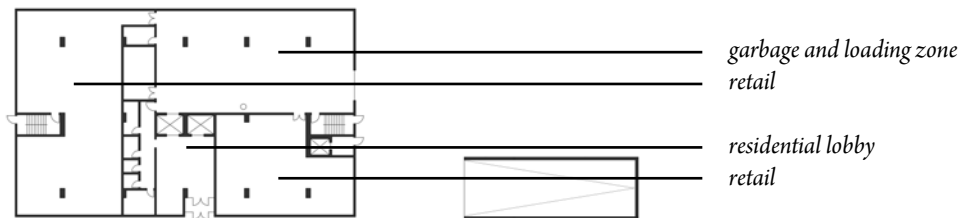


Fig. 4.34 Ground floor uses relate to the adjacent spaces

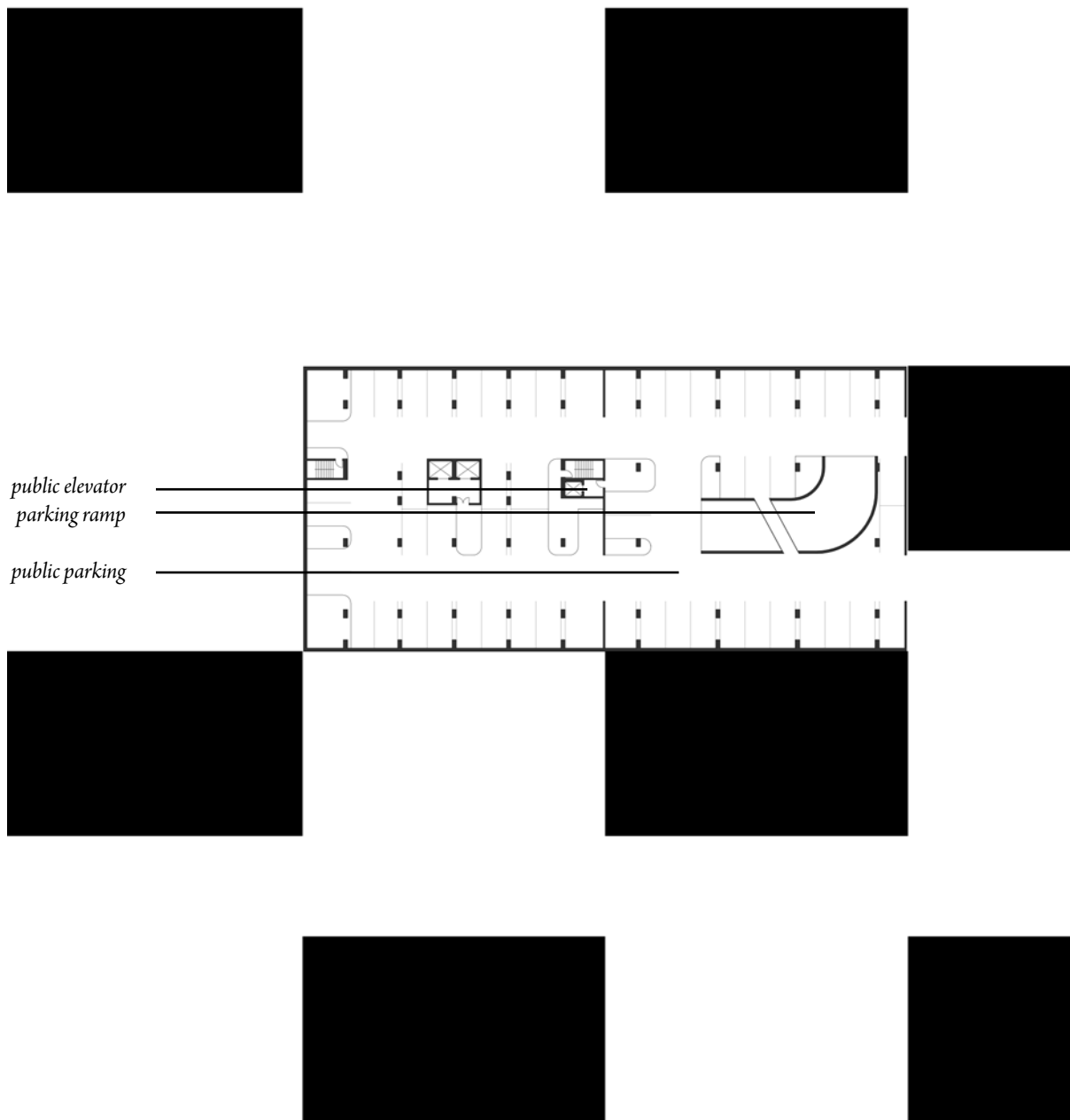


Fig. 4.35 The typical basement plan includes public parking and shared ramps underneath the service court, and resident parking under the building



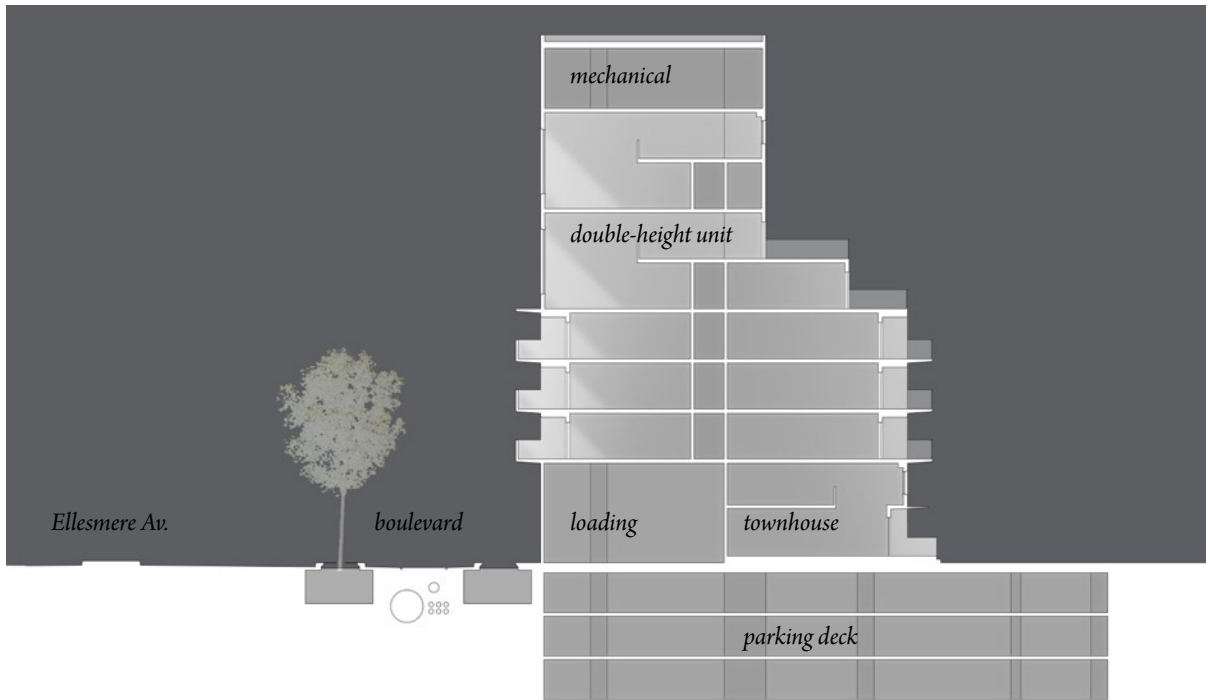


Fig. 4.36 Buildings adjacent to arterial roads include units oriented to the space of the boulevard, and double-height units above with views across the city, and to the block interior



Fig. 4.37 Facades facing parks use deep loggias to break down the barrier between inside and outside



Fig. 4.38 Facades facing main squares include high glazing ratios and balconies



Fig. 4.39 Facing service courts, facades are simple with minimized openings



Cultural Facilities

The existing cultural facilities in the centre are limited compared to other suburban centres. Scarborough does support an array of small performance art theatres, art galleries, and museums, but they are scattered throughout the former borough.¹⁶ The opportunity exists to aggregate some of them at the most accessible part of Scarborough as a part of this project, to create a cultural critical mass where people already live, work, and pass through daily.¹⁷

An already planned central library is included to anchor the south side of the Civic Centre, providing a focal point for delivery of educational and social services.¹⁸ The library is paired with a small theatre to be used by performance arts groups now operating out of remote high schools throughout Scarborough. An elementary school is located to the west of the Civic Centre anticipating the arrival of a number of families to the site. Combined with the Public Health Clinic and Civic Centre, the buildings create a civic cluster at the heart of the superblock to support a series of public spaces around them. This arrangement takes advantage of the established pedestrian routes to the SRT station by placing cultural and social infrastructure where commuter paths combine, maximizing visibility to the local population.

The arrangement of civic buildings combines with the grid to create the four primary spaces in the hierarchy of the network. Stretching between the transit station and the Civic Centre is the existing Albert Campbell Square. It is stripped of programming to become a simple void in the fabric supporting active retail edges. The reflecting pool is moved to the opposite side of the Civic Centre and enlarged to be a more useful size. The park space is moved between the curve of the Civic Centre and the Bell Office to create a large centralized greenspace. The southeast corner supports the library and theatre and includes a long narrow space defined by a row of trees and suitable as a new space for the farmers markets. A commuter parking lot underneath this space provides an additional flow of activity across the Campbell Square.

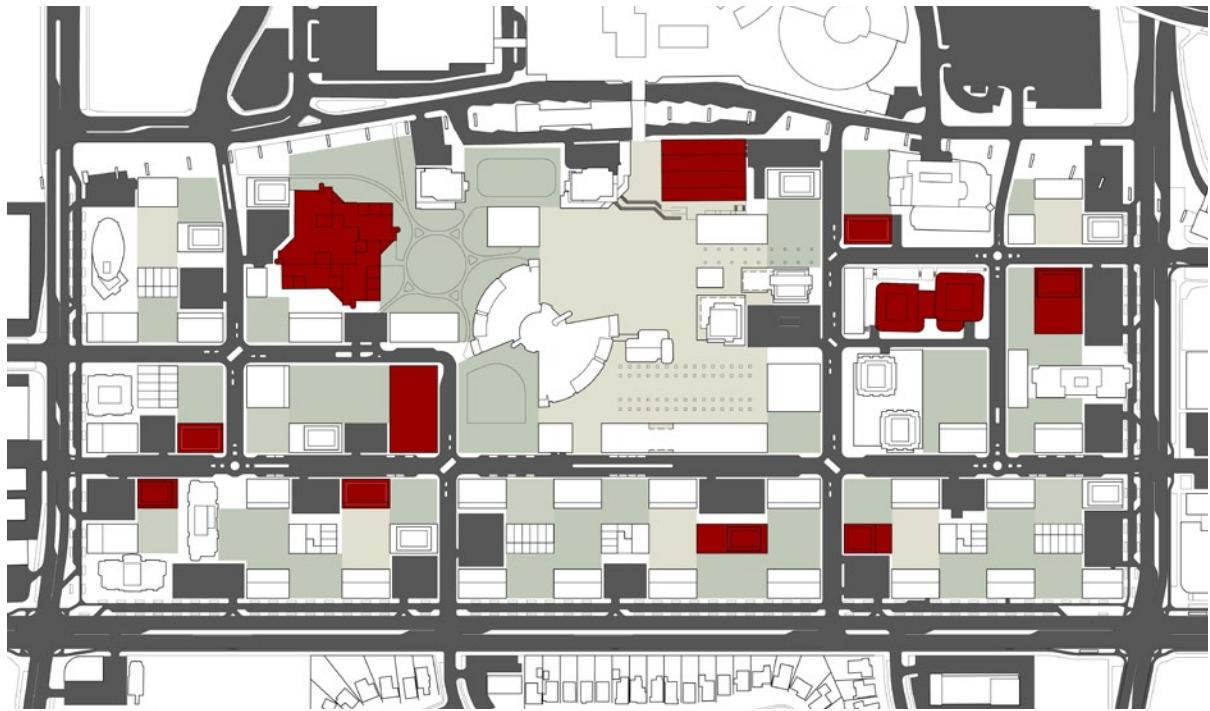


Fig. 4.40 Offices are distributed in loose clusters to avoid creating single-use localities

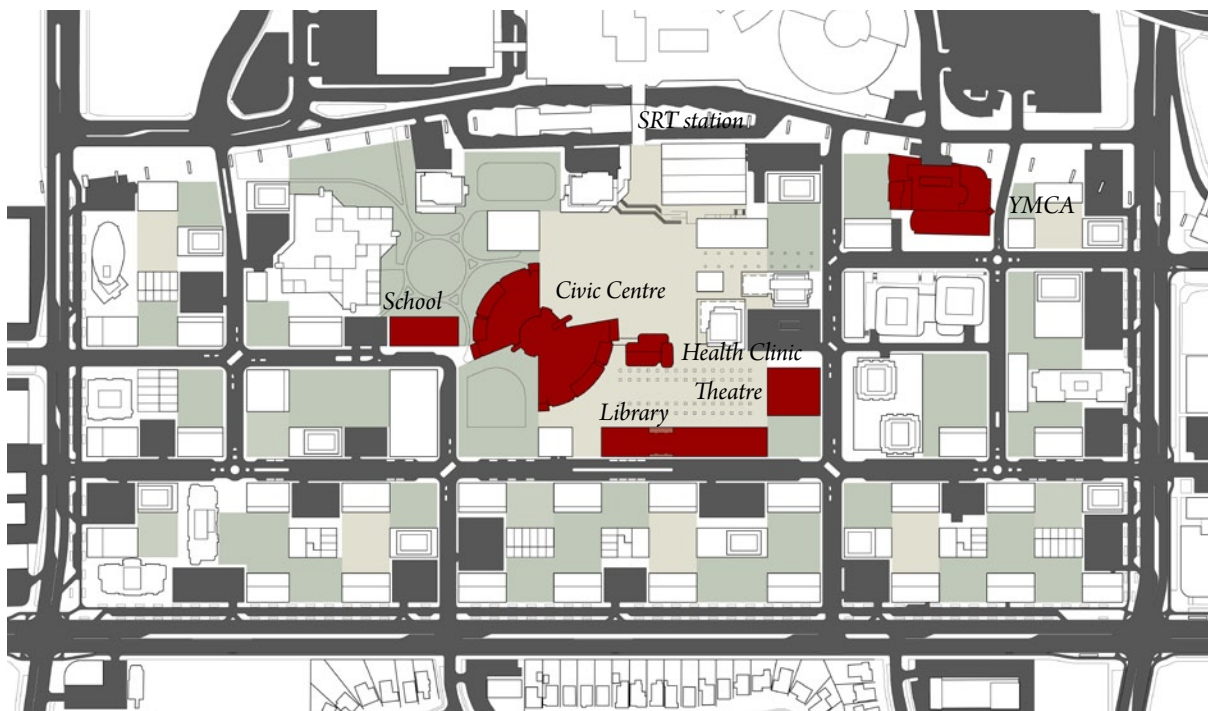


Fig. 4.41 Cultural and institutional facilities are located around the central squares in the centre of the superblock

Implications on Road Design

The establishment of separate networks for pedestrians and vehicles has implications on the design of the internal road grid and its intersections. The typical street is designed to support parallel pedestrian travel along the length of the road, with balanced crossing movements at intersections. However, in this scheme the primary pedestrian paths are typically perpendicular to the road. To accommodate this, continuous sidewalks are minimized and the layout of lanes allows for easy crossing at mid block locations. A central lane allows for left turns from the road and also provides a pedestrian refuge while crossing, and a route for emergency vehicles.

Due to the diagonal trajectory of pedestrian flows into some outer blocks, at certain intersections the vast majority of crossing movements are diagonal in a single direction. A typical intersection could accommodate this movement with two cardinal crossings, but a more appropriate design would allow direct diagonal crossings, without necessarily interrupting vehicle traffic. The proposed solution involves a partial diagonal diverter across the intersection that allows pedestrian to pass through the intersection on a protected island, while traffic flows in two opposing 'L' shaped streets. To allow through movements by both pedestrians and vehicles, the diverter includes two gaps at the curb to allow a roundabout phase, controlled by traffic lights. Effectively the intersection shifts from diagonal diverter to roundabout as traffic phases, instead of between north-south and east-west. Particular turns are favoured with this design which are used to dictate a priority path from each service court directly to an arterial road.

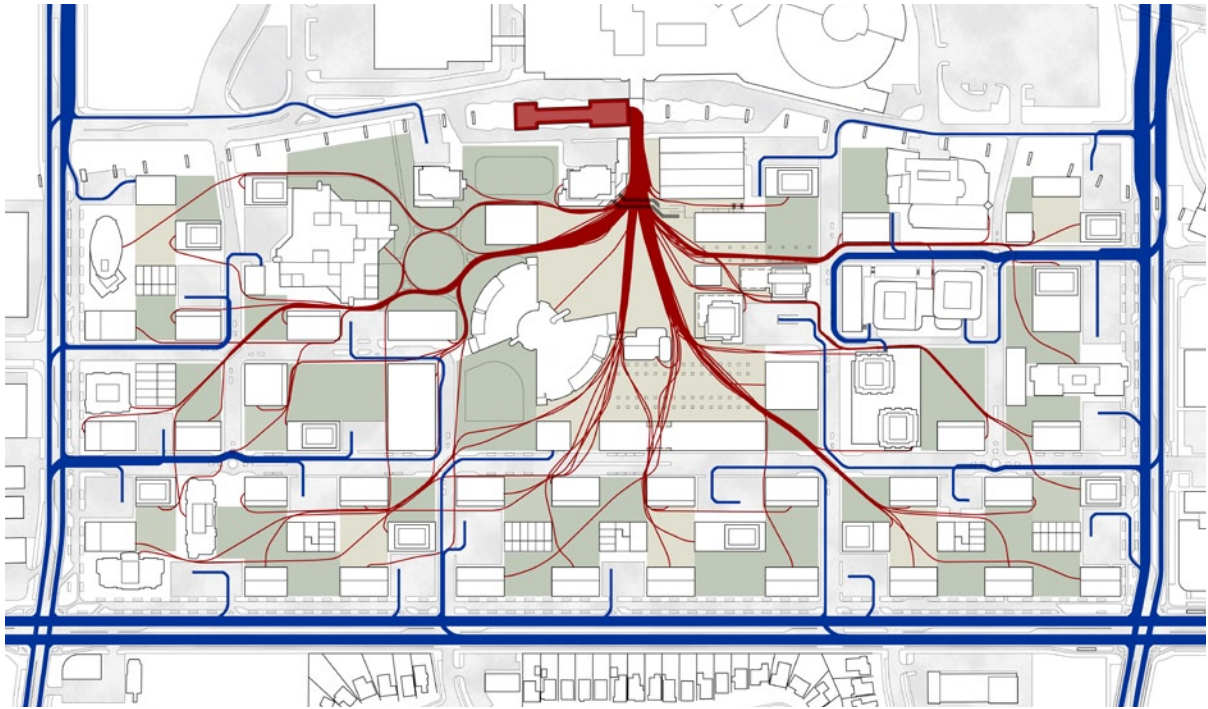


Fig. 4.42 Vehicle and pedestrian routes are managed to minimize points of conflict while allowing each full accessibility to any building

— pedestrian routes
— vehicle routes

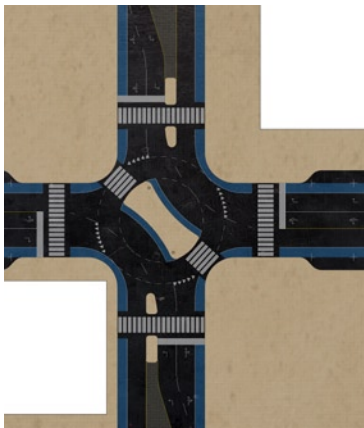


Fig. 4.43 Intersection design combines a diagonal diverter with a roundabout

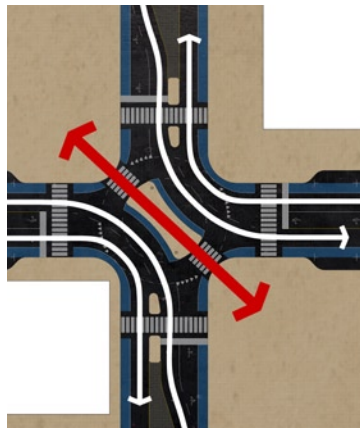


Fig. 4.44 The diagonal phase allows pedestrians to travel diagonally uninterrupted, with limited car movements accommodated

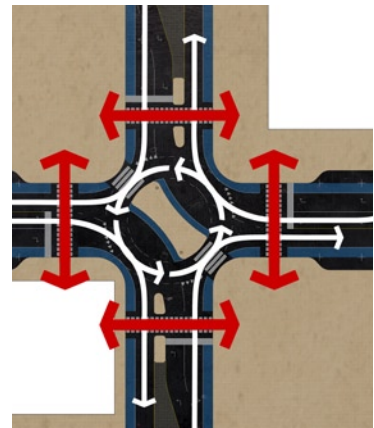


Fig. 4.45 The roundabout phase allows for all other movements, following standard roundabout operation

0 10 25 50m

— pedestrian routes
— vehicle routes

Phasing

The project relies on the Scarborough RT as the key component of the intensive mobility system, collecting pedestrians from the superbloc and sending them quickly and conveniently into the city. Due to the construction on the SRT needed to convert the line to operate as a standard LRT, the TTC plans to shut down the line for three years and operate a temporary replacement bus service connecting to the subway at Kennedy Station.¹⁹ During this period, the choice of commuting by car will become temporarily more attractive than transit for new residents. To avoid establishing patterns of vehicle dependency among new residents and employees, the phasing strategy includes a moratorium on most residential construction while the SRT is replaced with buses.

During this period, the first phase of construction will include the community amenity buildings, and the low-density commercial-residential buildings at the interiors of each block. The intention is for each to act as a catalyst for an adjacent public space before the majority of the residential population is introduced. The limited number of commercial buildings will house retailers and restaurants, with the intention that the activity from these uses will spill out into the spaces outside their entrances, to create the embryonic main squares in each block. This will be augmented by temporary retail buildings occupying some of the future residential development sites. The businesses will be accessible to the existing residential populations, as well as visible to traffic on arterial roads nearby. Public amenity pavilions will work similarly to define the future park spaces.

By the time major developments begin in 5 to 10 years, much of the activity and experience of the public space network may already exist before the spaces are explicitly built to accommodate them. Routines and local customs may be established which directly lead to the design of the spaces, with local residents having a stake in spaces they already use, and acting as custodians to guide the design of the spaces to support continued use. The goal is to create a process of organically creating the public space network by seeding key spaces with strategic activities in the earliest phase of the development.²⁰

A secondary goal of the process is to produce cheap retail spaces as soon as possible. In 5 years when the SRT has been re-opened, major residential development can begin, starting with buildings adjacent to the main squares in each block. As the temporary retail buildings are replaced by residential buildings, their tenants will be able to move into the new ground floor units. This process will continue until all parcels slated for residential use are filled. It is anticipated that the final office buildings completing each square will not be built for 15-20 years into the process when market demand reaches a high enough level to begin adding more space in the superblock. At this stage, each square will have a 15 year-old retail space from the first phase, several small 5 to 10 year-old units from the main residential phase, and new units within the office development.

The oldest units will have paid off some or all of the high capital costs required for initial construction, and will thus have lower rents, while the newer units will be more expensive but more desirable. This potentially will attract a mix of retail yields to each square, mimicking the traditional composition of urban commercial streets, and allowing low margin or low volume businesses to establish themselves. Combined with the low-value land and older buildings in industrial areas east and west of the superblock, this creates a gradient of rent values.²¹ The industrial zone can become an incubator for independent businesses looking for cheap space, eventually re-investing their profits into more expensive, but more visible and accessible, spaces within the superblock.



Fig. 4.46 Phase 1: Interior townhouse buildings are constructed first, along with temporary retail buildings around the main square to seed it with activity before most residents move in

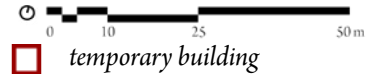


Fig. 4.47 Phase 2: After the re-opening of the SRT, buildings are opened on vacant parcels, gradually expanding the public space network

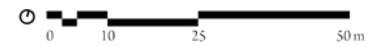




Fig. 4.48 Phase 3: Residential construction continues, and all temporary retail buildings are replaced with permanent ground floor units



Fig. 4.49 Phase 4: All buildings are completed, and all spaces are occupied

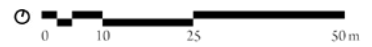




Fig. 4.50 Simple facade treatments characterize the road and service court areas



Fig. 4.51 Public squares sit at key points within each block

The experience of the site differs according to the mobility network. Drivers experience a relatively high speed, and a consistent rhythm as they pass through the pattern of solid and void, reinforced by the lack of architectural articulation facing the roads. The experience is easily digestible while driving, but contributes to an environmental awareness by forcing drivers eyes to alternatively scan spaces to the left then to the right.

Pedestrians experience a shifting sectional condition as they pass diagonally through spaces. In contrast to the static section of a traditional road, buildings move relatively further and closer as one passes diagonally through the spatial network. The programmatic grain of the buildings and the architectural articulation of the spaces generate a dynamic secondary rhythm that combines with the solid-void pattern to produce a rich experience. The conditions emerge from formal characteristics and typologies that are foreign to urban neighbourhoods, but respond to mobility characteristics using the same intelligence that generated the morphology of streetcar suburbs.

The resulting neighbourhood is neither fully urban nor suburban in the conventional sense, but provides the potential for residents to tailor their experience of living here within a range of possibilities spanning the two vague terms, beginning with their mobility choices and extending to all aspects of their lives. From the moment one floats into the superblock on the elevated SRT, the formal strategy can be legibly read as a spatial network set apart from suburban roads, and in opposition to the vast single-use tracts surrounding it. However, future residents may come to regard the district as a reorganization of the elements of central Toronto neighbourhoods grafted into the suburban context, rather than a radical departure from time-tested urban design models.

Next Page: Fig. 4.52 Overhead view of southeast block





0 4 10 20m

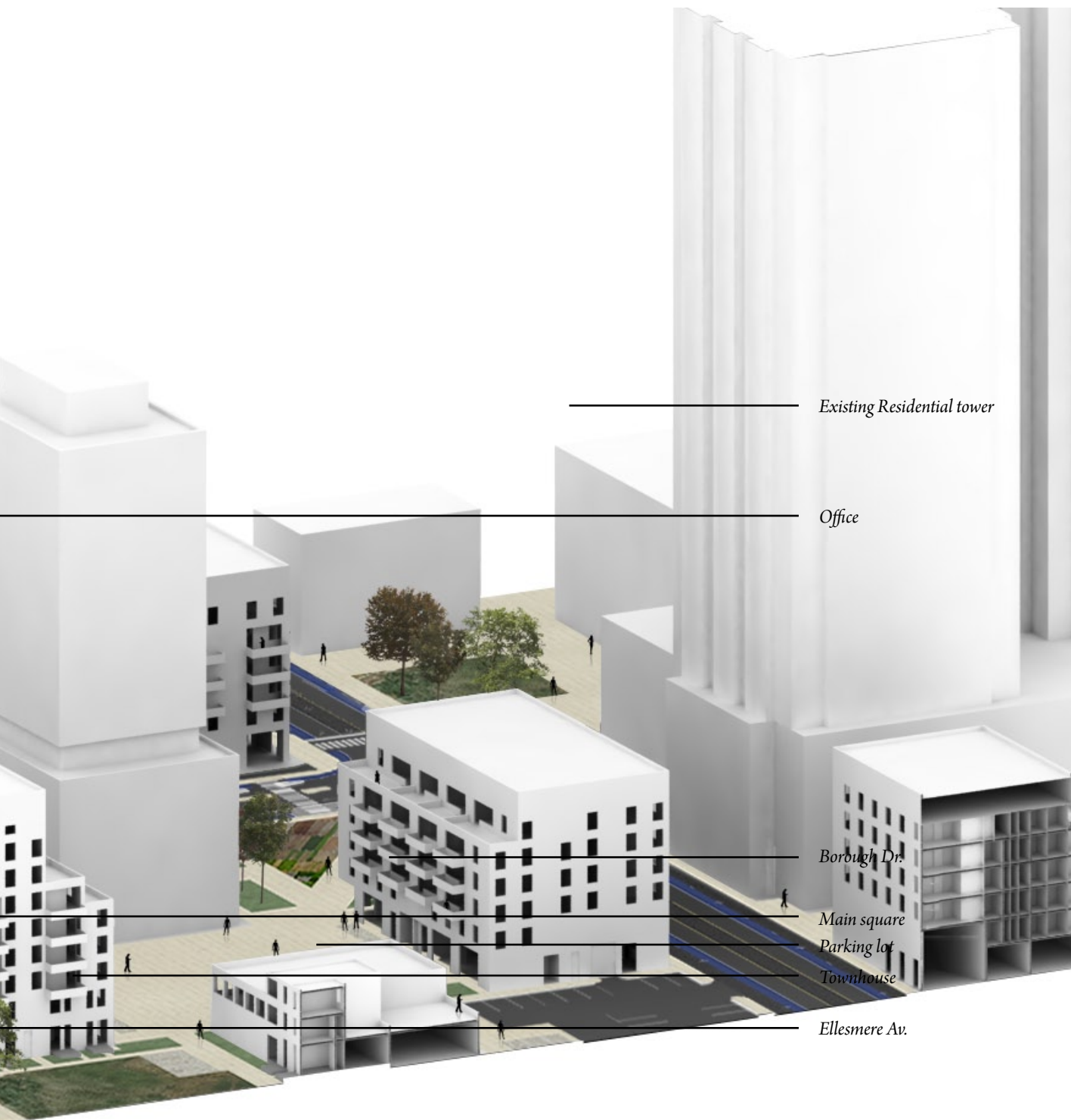


Fig. 4.53 Parks are broken down into small components, connected diagonally to adjacent spaces





Fig. 4.54 Cross-section through southeast block, showing massing and architectural parameters



Existing Residential tower

Office

Borough Dr.

Main square

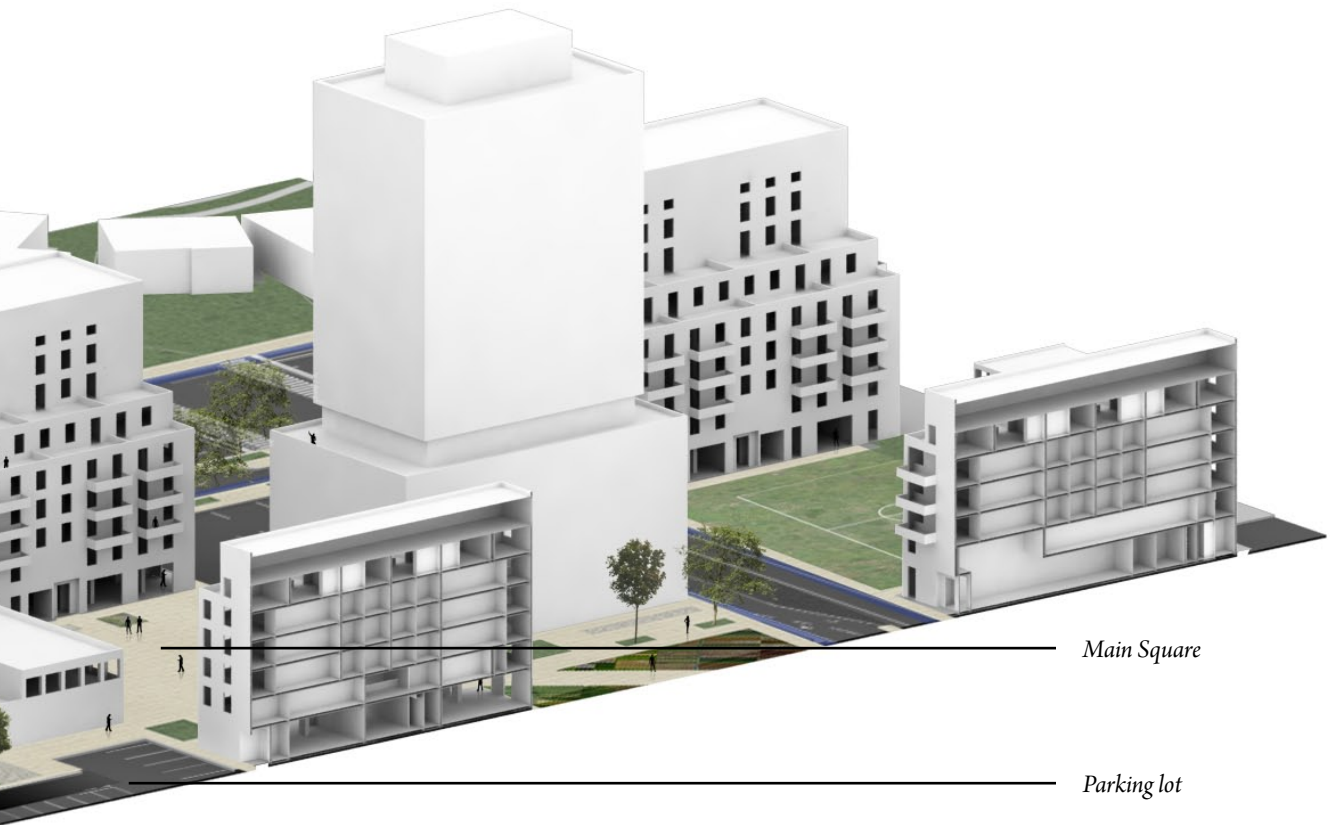
Parking lot

Townhouse

Ellesmere Av.



Fig. 4.55 Transverse section through southeast block, showing massing and architectural parameters



Main Square

Parking lot

Park

McCowan Rd.

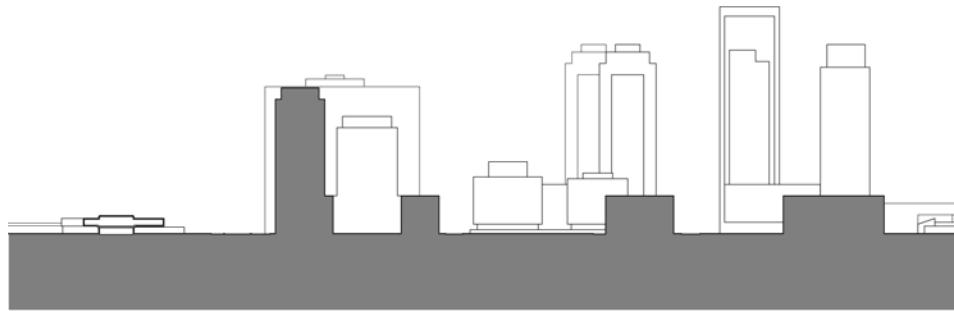


Fig. 4.56 Site Section



Fig. 4.57 Site Section

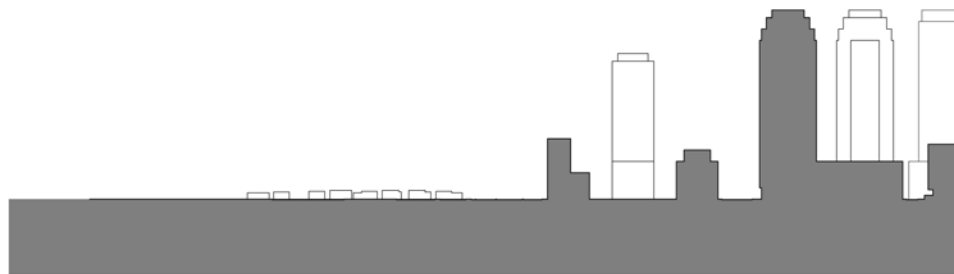
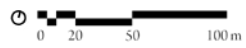
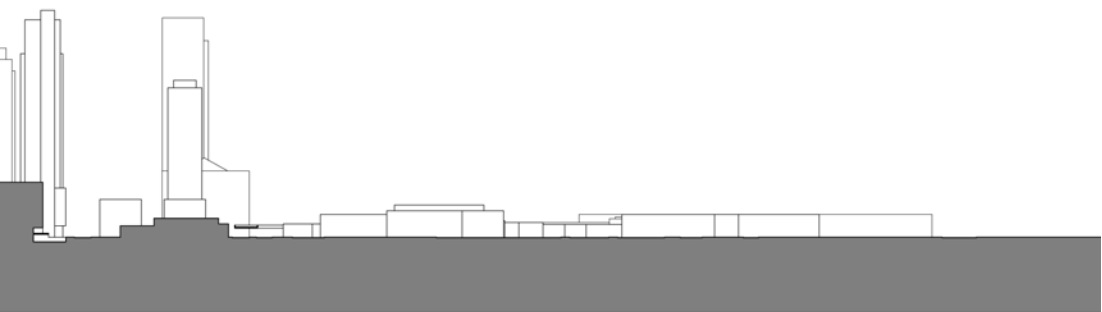
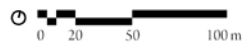
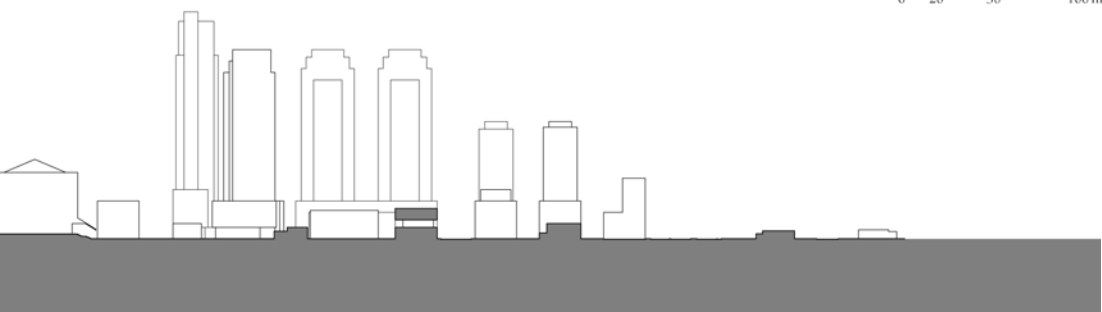
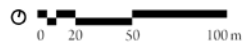
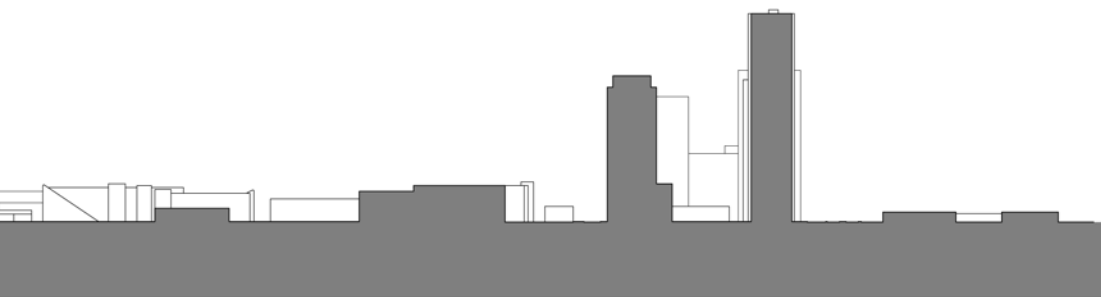


Fig. 4.58 Site Section



Notes

- 1 Pierre Filion, *The Urban Growth Centres Strategy in the Greater Golden Horseshoe: Lessons from Downtowns, Nodes, and Corridors* (Toronto: Neptis Foundation, 2007) 54
- 2 Filion, *Urban Growth Centres*, 41
- 3 Raymond Moriyama, Architects and Planners, *Scarborough Town Centre Land Use Study* (Toronto: The Scarborough Planning Board, 1974) 1
- 4 Paula Dill and Paul Bedford, *Toronto: Official Plan* (Toronto: Urban Development Services, 2002) 4-11 to 4-14
- 5 Dill and Bedford, *Official Plan*, 4-2 to 4-5
- 6 “Fact Sheet,” accessed December 11, 2011, http://www.scarboroughtowncentre.ca/Fact_Sheet.aspx
- 7 Ministry of Public Infrastructure Renewal, *Places to Grow: Growth Plan for the Greater Golden Horseshoe* (Toronto: Province of Ontario, 2005) 16
- 8 “Is CityPlace Toronto’s Next Ghetto?,” accessed November 28, 2011, <http://www.thegridto.com/life/real-estate/is-cityplace-toronto’s-next-ghetto/>
- 9 Peter Calthorpe, *The Regional City: Planning for the End of Sprawl* (Washington: Island Press, 2001) 215

- 10 City of Toronto, *Scarborough Centre Secondary Plan* (Toronto, 2002) 2
- 11 Alan Rabinowitz, *Urban Economics and Land Use in America: The Transformation of Cities in the Twentieth Century* (Armonk, NY: M.E. Sharpe, 2004) 71
- 12 “GWL Terrein,” accessed September 4, 2011, <http://www.gwl-terrein.nl/?english>
- 13 Cristina Bianchetti, ed. *Torino: il Villaggio Olimpico* (Rome: Officina Edizioni, 2005) 60-62
- 14 Luuk Boelens et al., *In Transit: Mobility, City Culture and Urban Development in Rotterdam* (Rotterdam: NAI, 2003) 87
- 15 Jane Jacobs, *The Death and Life of Great American Cities* (New York: Random House, 1969) 348
- 16 Moriyama & Teshima Planners, *Scarborough Civic Centre Site Development Study* (Toronto: Print Three, 1981) 87
- 17 Moriyama & Teshima Planners, *Scarborough Civic Centre*, 17
- 18 “A New Library for the Scarborough Centre Community!,” accessed July 3, 2011, <http://www.torontopubliclibrary.ca/renovations/scarborough-centre-branch.jsp>
- 19 Megan O’Toole, “Crosstown Transit Line Delayed until 2022 as Scarborough RT set to Close for Four Years Beginning 2015,” National Post, Dec 6, 2011, accessed December 6, 2011. <http://news.nationalpost.com/2011/12/06/crosstown-transit-line-delayed-until-2022-as-scarborough-rt-set-to-close-for-four-years-beginning-2015/>
- 20 Boelens et al., *In Transit*, 87
- 21 Jacobs, *Death and Life*, 187

Conclusion

With limited land available for outward sprawl, the Toronto region is primed to enter a phase of growth defined by increasing populations while maintaining a stable area. Inward intensification is becoming the primary mechanism through which growth can be accommodated, both in the central city and throughout the suburban territory. The focus of that growth in the suburbs will be contained within a limited number of appropriate sites.

As several suburban intensification projects around the region enter the planning stage, a preferred approach has emerged based upon superficially importing certain characteristics from local urban design models with some concessions to support suburban building types. Contrary to the popular rhetoric, the suburbs are not being 'urbanized', but rather replaced by urban design models that were developed prior to the widespread adoption of private cars. The urban model is adapted to accommodate the necessity of cars and support higher densities, resulting in a compromised design.

The reliance on using urban design models in the suburbs is rooted in a belief that after 50 years of suburban development, they have failed to produce the social and economic benefits of older cities, along with obvious environmental concerns. The cultural narrative of the suburbs is beginning to shift, as it reaches the point where the scale of suburban territory in many regions has eroded the quality of life that was originally sought. The reaction has been to discard the logic and intelligence of suburban design models without considering whether urban models will be able to generate vitality and social cohesion within the vastly different context of the suburbs.

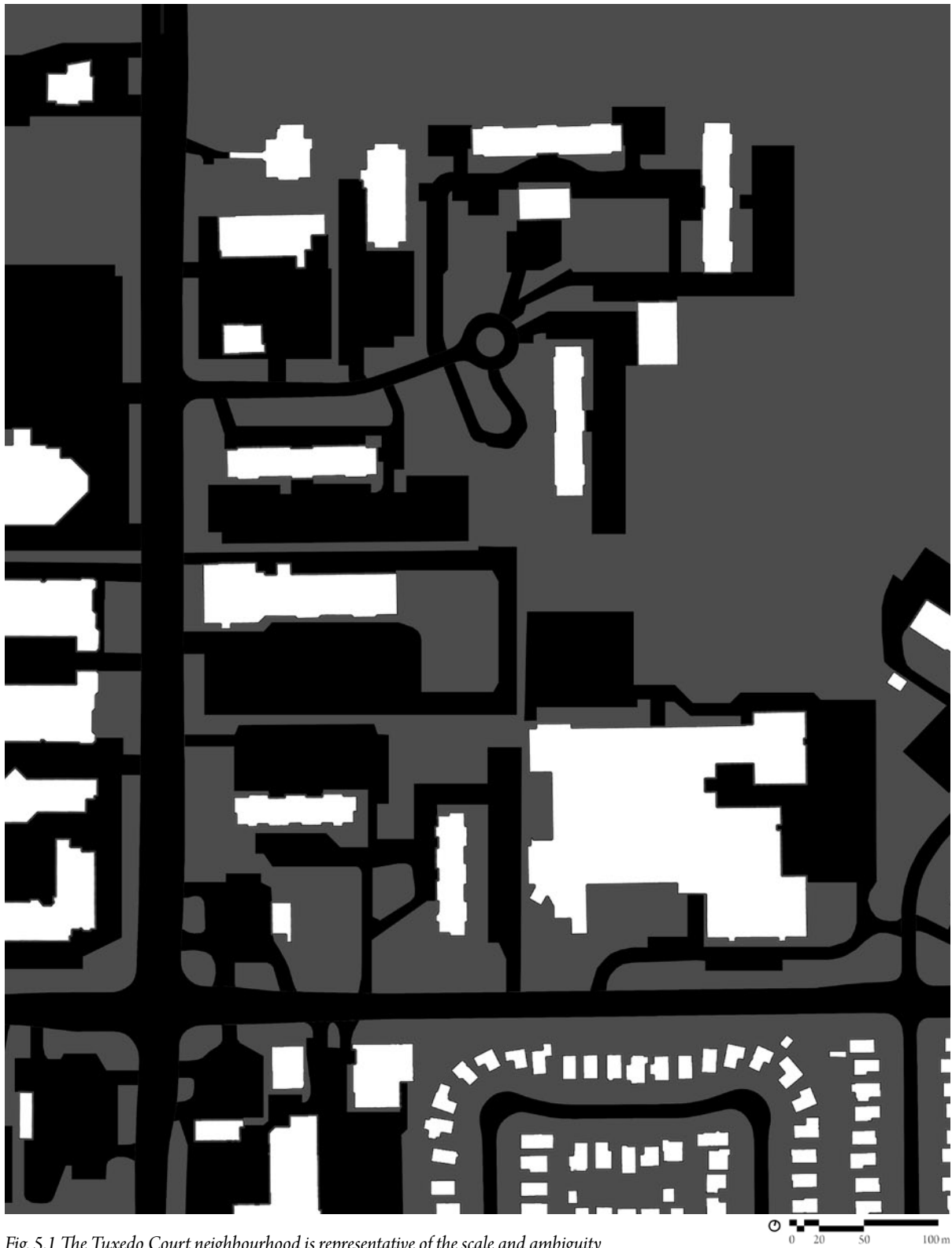
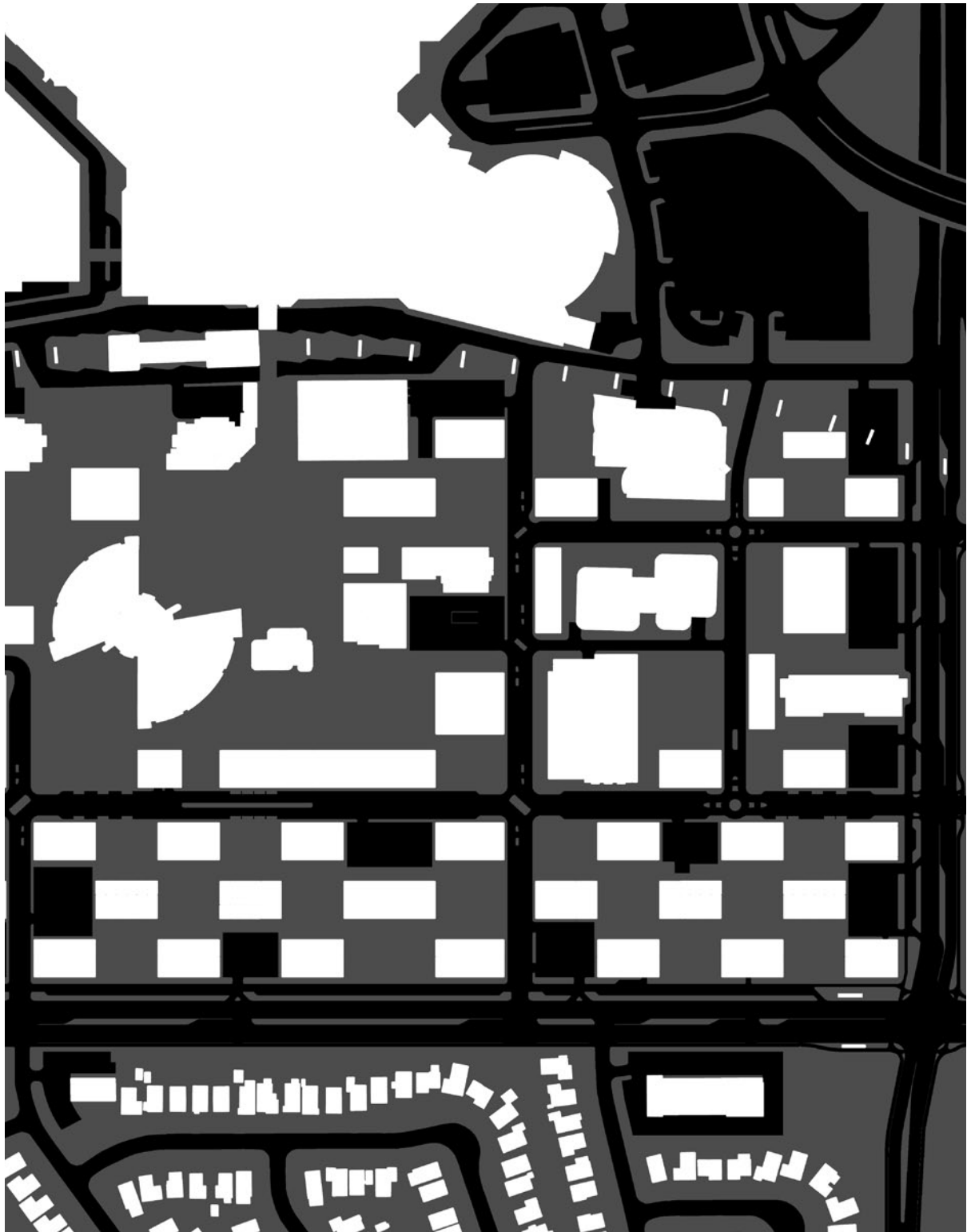


Fig. 5.1 The Tuxedo Court neighbourhood is representative of the scale and ambiguity typical of public spaces in the tower-in-the-park typology.



0 20 50 100m

Fig. 5.2 Scarborough Centre imports urban values of scale and spatial definition, deployed within the suburban planning paradigm that separates public spaces from vehicles

The suburban centre concept originated as a plan to distribute certain regional programs that were found only in downtown Toronto, following the population dispersion in the early stages of suburban development. They were established explicitly to serve as proxy downtowns that were more accessible to suburbanites, located centrally within each outer borough of Metropolitan Toronto, along major roads and highways. That mandate remains, and has expanded to include a more complete set of municipal, cultural, and commercial programs. As a downtown, mobility remains a key factor in the potential of these centres to fulfil their role. Certain physical changes must be made to support the expected increases in public transit use to and from the centres, but for the foreseeable future, these downtowns will continue to serve suburban populations that will rely on driving as a result of the structure of suburban neighbourhoods.

The use of older urban models for intensification of suburban centres defies their role as suburban downtowns, as the urban elements introduce friction into the extensive mobility systems within and around the centres. This thesis accepts that accessibility to suburbanites is essential to the metropolitan centres, and embraces the suburban spatial model that separates vehicle traffic from public space, allowing for an expanded and upgraded pedestrian realm that doesn't interfere with the functionality of the road network. Within the suburban planning strategy, the project generates certain urban conditions without appropriating the familiar morphology or structure of older urban areas. The resulting concept is an evolution of the suburban paradigm that re-evaluates choices of scale, grain, and programmatic distribution, but respects the separation of vehicles and public space as a necessary reaction to the primacy of the car in suburban mobility.

The design separates the two mobility modes into overlapping networks, minimizes the interaction between the two, and controls the points of intersection to manage the levels of accessibility and isolation in public spaces. Those conditions reflect the programmatic distribution, allowing each use to have differentiated mobility characteristics according to its needs. With the flexibility to optimize the accessibility to both the urban focused intensive mobility network, and the suburban focused extensive network, any parcel on the site can accommodate any program or building typology.¹

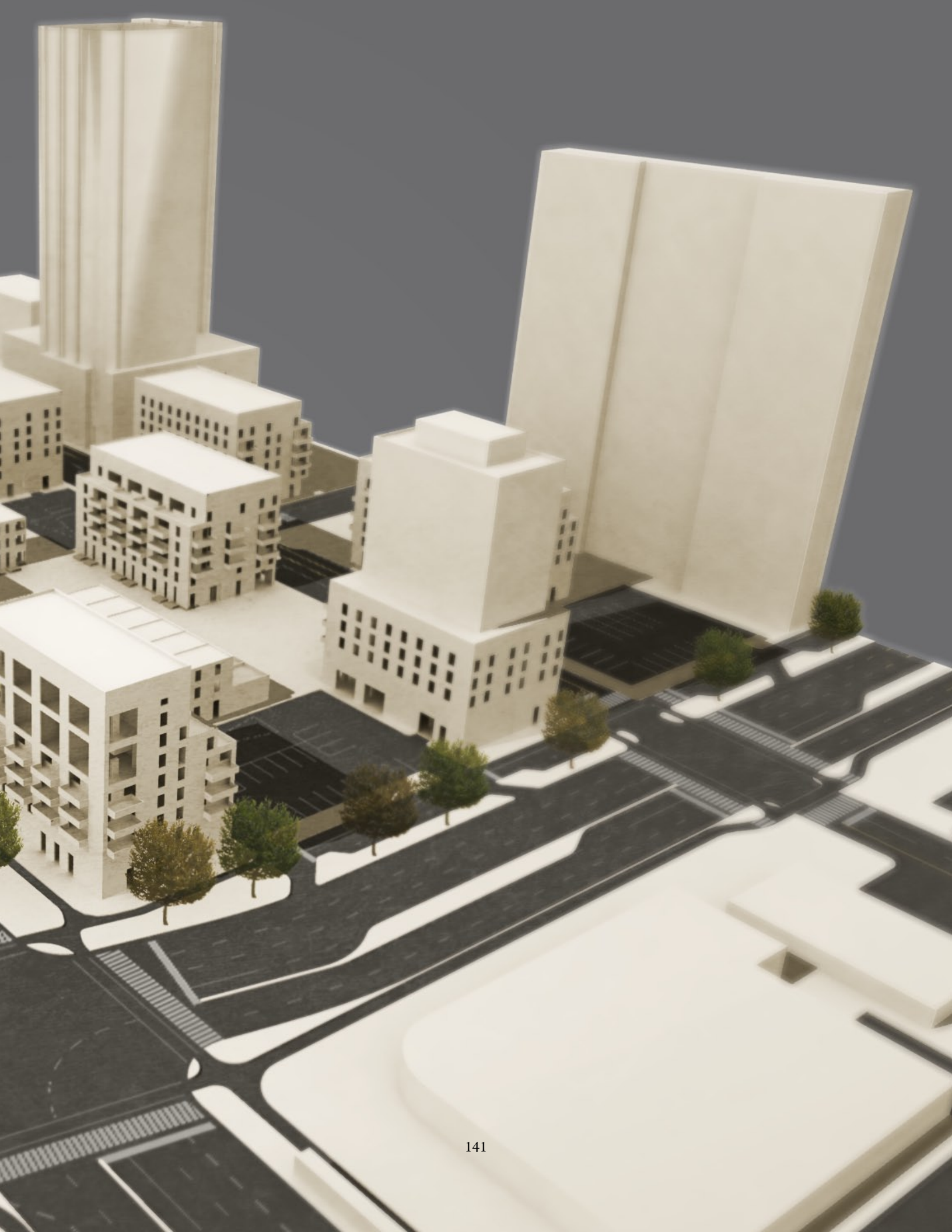
This flexibility to tailor mobility characteristics to program is lacking from the intensification plans in Mississauga and elsewhere. Those plans may succeed in creating a livable neighbourhood with an urban character and diverse set of uses, but by replacing suburban spatial models, it does so at the risk of making regionally significant program inaccessible to the suburban populations they are meant to serve. These isolated urban enclaves will not be able to compete with the more accessible commercial areas and cultural facilities scattered throughout the suburbs, undermining their position in the regional hierarchy.

Next Page: Fig. 5.3 View of southeast block, showing massing and architectural parameters

The best way to gauge the potential success of importing urban design models may be to compare them to the remnants of historic towns that survive within the suburbs, and were built with similar urban design characteristics.² These former towns have become pleasant and stable neighbourhoods, but little more. Their lack of parking and road access has limited their appeal to potential suburban visitors, and their vitality never matches that of nearby shopping malls and power centres.

This thesis declares that to be successful in their designated role, suburban centres must embrace the separation of vehicles and public space as the primary organizational element, driven by the necessity of supporting the two mobility systems of an intermodal metropolis.





Notes

- 1 Luuk Boelens et al., *In Transit: Mobility, City Culture and Urban Development in Rotterdam* (Rotterdam: NAI, 2003) 169
- 2 Historic towns remaining intact near Mississauga Centre include Streetsville, Downtown Brampton, and Woodbridge.

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