Muhammad Zulkarnain Hamzah

Can Transit and Spatial Planning Synergy Work at the Regional Scale?

Understanding Metropolitan Transit-Oriented Development Planning and Its Challenges in the Canadian City-Regions of Toronto, Montreal and Vancouver

Supervised Research Project

Submitted to Prof. Raphaël Fischler
School of Urban Planning
McGill University
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Abstract

Transit-Oriented Development, or TOD, is well-researched as a sustainability-promoting tool that reorients urban development patterns toward lines in the regional transit network. Scant attention, however, is given to TOD from a metropolitan planning perspective. Such a study on the three Canadian city-regions of Toronto, Montreal and Vancouver is timely as they attempt to bring synergy between spatial and transit planning in their respective land-use and transportation plans. For this synergy to work, a certain level of consensus must be attained between decision-making bodies and a certain level of compliance must be secured between local and metropolitan plans. This research project thus examines consensus-building and compliance-seeking approaches in metropolitan TOD planning together with its respective contexts, mandates, principles and progress in the three urban regions. It does so by means of a review of planning documents, the use of statistical data on development and a series of interviews with planning practitioners. The in-depth analyses on TOD-supportive planning tools and of a number of municipal case studies reveal the complexity of each city-regions' planning framework and processes. Contextual factors are inherent in the regions' consensus-building and compliance-seeking practices and in their outcomes. However, metropolitan TOD planning in the three city-regions is largely defined by the strength of the regional growth and transit planning mandates and by the reciprocity of commitments among public agencies and bodies from different government levels and sectors. It is hoped that planners will derive relevant insights on TOD policies and planning approaches from this research paper and adapt lessons to their metropolitan context.

Keywords: Transit-Oriented Development, Land Use and Transportation, Spatial Accessibility, Growth Management, Metropolitan Growth, Regional Growth, Metropolitan Planning, Regional Planning

Résumé

Le développement en fonction des transports collectifs ou TOD (*Transit-Oriented Development*) promeut la durabilité urbaine en orientant le développement urbain vers les lignes de transport en commun. Cet outil a fait l'objet de nombreuses recherches, mais rarement dans une optique de planification métropolitaine. Une étude de ce type est nécessaire pour évaluer le TOD dans les régions de Toronto, Montréal et Vancouver, alors que celles-ci essaient de créer une synergie entre la planification spatiale et la planification des transports. Pour que cette synergie réussisse, il faut qu'un certain niveau de consensus soit atteint entre divers organismes publics et qu'un certain niveau de conformité soit atteint entre les plans locaux et métropolitains. En conséquence, ce projet de recherche examine les approches utilisées en planification TOD au niveau métropolitain pour promouvoir le consensus et la conformité, ainsi que les contextes, mandats, principes et progrès de cette planification dans les trois régions urbaines. Il utilise pour cela une revue de plans et autres documents, des données statistiques sur le développement et une série d'entrevues avec des professionnels. L'analyse en profondeur d'outils utilisés pour promouvoir le TOD et d'un nombre d'études de cas municipales montre la complexité des systèmes et processus de planification dans chaque région. Des facteurs contextuels sont inhérents aux pratiques régionales dans la recherche de consensus et de conformité. Toutefois, la planification TOD dans les trois villes-régions est fortement définie par la force du mandat officiel qui autorise la planification du développement et des transports collectifs au niveau métropolitain et par la réciprocité des engagements entres les agences et organismes publics de divers niveaux de gouvernement et de divers secteurs. Le but de la recherche est de donner aux urbanistes et aménagistes une meilleure compréhension des politiques et plans en matière de TOD, en espérant qu'il saurant adapter ces enseignements au contexte métropolitain qui leur est propre.

Mots-clés : Transit-oriented development, TOD, utilisation du sol et transports, gestion de la croissance, croissance urbaine, croissance régionale, planification métropolitaine, planification régionale, aménagement du territoire

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1.0 Introduction

1.1 Research Problem

Transit-Oriented Development (TOD) is a concept that has been linked to many successful cases of integration of transit and urban development around the world. TOD is often presented in the planning literature as a virtuous tool to reshape car-oriented urban development patterns. TOD planning has gained traction among many North American metropolitan regions, including Canada's three major wealth-generating regions of Toronto, Montreal and Vancouver, in the face of contemporary metropolitan growth challenges.

In the past decade, the regions have been actively promoting TOD in their growth management agenda due to the persisting problems of regional transit and land-use mismatch, particularly productivity-dampening congestion, socially divisive housing, employment and infrastructural distribution, and environmentally damaging land consumption and travel behaviours. While Canada has been ahead of other countries in metropolitan-wide planning and governance, its city-regions face the common challenges of unclear regional authority, difficulties in setting up boundaries, selective metropolitan-wide representation, conflicts between lower and upper-level governments and uninvolved provincial governments (Hodge and Robinson, 2002).

As transportation and land-use components feed each other in a continuous feedback process, metropolitan-wide TOD planning is affected by a multitude of public sector-based decisions, especially pertaining to spatial growth directions and transit network expansions. The planning process involves vertical coordination among multi-level planning bodies (e.g. regional and municipal governments). Thus, the compliance of local plans with regional plans is essential in ensuring the success of TOD planning at the regional level.

The quality of a regional growth plan is as important as the degree of vertical compliance by the land-use plans and policies of the lower-level government units. Also not to be left out is the regional growth plan's horizontal conformance with the planning processes and prescriptions of similar or higher-level agencies, particularly on transportation strategies. As such, metropolitan TOD planning requires multi-sector collaboration among upper-level planning bodies, especially between regional planning and regional transit agencies.

For TOD to be planned at the metropolitan level, local planning activities must comply with the regional growth plans and regional planning strategies must conform with one another. In reality, such conformity and consensus-building exercises are profoundly challenging. Regional bodies face difficulties to solicit and sustain broad support of their regional TOD agenda from the municipalities.

Individual municipalities can be very protective of their 'local planning turfs', while groups others can easily commit to safeguard their 'collective regional interests' for a wide array of reasons and concerns that differ across varying city-region contexts. Furthermore, the diversity of planning priorities and jurisdictions among multi-sector public agencies can make the synchronization of spatial and transit planning arduous.

The three largest city-regions of Canada have exhibited visible signs of progress of TOD in the past couple of years. Yet, among the present body of literature, scant attention is given to TOD from the perspective of metropolitan planning. TOD is "both a regional and local issue" due to the regional nature of metropolitan commuting patterns (Brinklow, 2013:51). Regional interventions to promote TOD include not only regional growth prescriptions, but also transport planning prescriptions, such as the integration of intra- and inter-municipal transit systems and the facilitation of local TOD site planning.

Attempts to integrate metropolitan spatial and transit planning face conflicting priorities between local and provincial government, as the former controls regional transit investment and the latter controls local land-use planning. The nature of conflict varies as the control over regional land-use planning and the centralization of transit planning differs among the three city-regions. Furthermore, the regions have different kinds of relationships between different forms and levels of government.

As the three city-regions have mandated TOD planning through their metropolitan growth and transit plans, this research paper aims to examine the alignment between regional plans and municipal plans and the harmonization of the metropolitan TOD planning exercise with other relevant planning tools.

This research paper also seeks to document not only the consensus-seeking and compliance-building process within the metropolitan TOD planning exercise, but also the opportunities and challenges faced by metropolitan and local planners in collaborating with each other to implement their TOD plans. It is hoped that the appreciation of the planning tools and processes in light of these opportunities and challenges would afford a greater level of understanding among planners on the relative strengths and weaknesses of TOD planning at the metropolitan scale.

1.2 Methodology

This research paper seeks to examine the consensus-building and compliance-seeking approaches of local and metropolitan planning agencies in planning for TOD in the three city-regions of Toronto, Montreal and Vancouver. The examination requires familiarity with the contexts of TOD and metropolitan planning and the understanding of the mandates, prescriptions and progress of TOD planning in the regions under study. Thus, this research paper relies extensively on documentary analysis and interviews to reconstruct the contexts, realities, challenges and prospects of metropolitan TOD planning. The geographic scope of the regions is based on the present political city-region boundaries that closely match Statistic Canada's Census Metropolitan Area boundaries: Greater Toronto Area, Montreal Metropolitan Community and Greater Vancouver Regional District boundaries.

The author has systematically reviewed diverse regional and local TOD planning documents and reports from multiple governmental jurisdictions, together with the relevant publications from academicians and non-governmental sources. He also has sought to utilize the latest official planning documents as much as possible, and to not rely on documents that have been published for more than five years.

Due to the vast scope of local municipal planning in each of the metropolitan regions, the analytical scan of official planning documentations to determine municipalities' compliance with their regional plans has been limited to upper-tier municipalities (or local governments in the case of Vancouver region) with foreseeable TOD potential (based on the anticipated frequent rapid transit expansion and phasing of the regions' transportation plans).

The author has singled out the local plans of the lower-tier municipalities of Brampton, Mississauga and Deux-Montagnes for further study. The first two municipalities rank well above the other lower-tier municipalities in terms of population size and upper-tier municipality's population share. The municipality of Deux-Montagnes is unique among Montreal suburban municipalities due to its recent local TOD planning efforts and its well-established frequent and all-day rapid transit.

New housing unit data compiled from the Canada Mortgage and Housing Corporation (CMHC) has been statistically analyzed to assess recent progress of housing-based intensification, and qualitative observation on the distribution of new housing projects for the three city-regions has been obtained through the online housing project search catalogue buzzbuzzhome.com.

As the official literature does not systematically address the issues of local-to-regional consensus and compliance-seeking approaches, opportunities and challenges, the author has conducted semi-structured interviews with local and metropolitan planners and metropolitan transit planners from each of the metropolitan region. The semi-structured interview format not only allows the author to retrieve spontaneous yet thoughtful qualitative input, but also provides the flexibility for both the author and the interviewee to explore "topical trajectories in the conversation that may stray from the guide when he or she feels this is appropriate" (Cohen and Crabtree, 2006:1).

In addition, two politicians from the Montreal region and a planning expert from the Toronto region volunteered to participate to further complement the interview-based findings. The standard sets of interview questionnaires and ethics review documents can be found in Appendix A. The list of interviewees, who had been contacted through various contact leads from many different institutions and agencies, is as follows:

Table 1 List of interviewees

Organization	Interviewee	Position
Greater Toronto Area		
Ontario Growth Secretariat, Ministry of Infrastructure	Anonymous	Planner
Metrolinx	Anonymous	Planner
University of Waterloo	Prof Pierre Filion	Associate Director, School of Planning
City of Brampton	Alex Taranu	Manager of Architectural Design, Department of Planning, Design and Development
City of Brampton	Janice Given	Manager of Growth Management and Special Policy, Department of Planning, Design and Development

Organization	Interviewee	Position
Montreal Metropolitan Community		
Communauté métropolitaine de Montréal (CMM)	Anonymous	Planner
Agence Métropolitain de Transport (AMT)	Ludwig Desjardins	Head of Strategic Planning
Montreal's Borough of Côte-des-Neiges	Helen Fotopulos	President of CMM's Executive Committee (until 2012) and Councillor for the Borough of Côte-des-Neiges
Town of Mont-Saint-Hilaire	Michel Gilbert	Council Member of the CMM and Mayor of Mont-Saint-Hilaire
Montreal's Borough of Verdun	Benoît Malette	Chief Planner
City of Deux-Montagnes	Anonymous	Planner
Greater Vancouver Regional District		
Metro Vancouver	Raymond Kan	Senior Regional Planner, Department of Planning, Policy and Environment
TransLink	Lyle Walker	Senior Transportation Planner
City of Surrey	Don Luymes	Chief Planner (Surrey) and Chair of Regional Planning Advisory Committee (Metro Vancouver)

The findings from the documentary analysis and the semi-structured interview are complemented with the results from relevant news article searches to ensure the regions' metropolitan TOD planning narratives are smoothly constructed.

1.3 Structure of the Report

This research paper documents the consensus-building and compliance-seeking approaches that are involved in metropolitan TOD planning together with its contexts, mandates, principles and progress in the three city-regions of Toronto, Montreal and Vancouver. An introduction of the important concepts and principles of TOD is given in Chapter 2.

The city-regions have complex and distinct planning contexts, and thus the third chapter of the paper is dedicated to give an overview on the way the city-regions integrate their spatial growth and transit planning in the past. Chapter 4 reviews the growth and transportation plans of the city-regions, compares the principles of metropolitan TOD planning between the city-regions and evaluates the municipal compliances to these regional plans. The chapter ends with quantitative and qualitative assessments of the plans' progress.

Chapter 5 outlines the major TOD-supportive planning tools that complement the regional plans. A thorough analysis on the tools' implementation gives context to metropolitan TOD opportunities and challenges, which is explored in depth in Chapter 6. The chapter elaborates on the actors of metropolitan TOD planning and the consensus-seeking and compliance-building processes that are involved. The chapter includes a closer look on TOD planning processes at the local level for four case study areas. The final chapter concludes the key findings of this research paper, and provides recommendations of how metropolitan TOD planning can be improved in the three city-regions.

2.0 TOD and Metropolitan Planning

2.1 Early Groundwork for TOD

TOD is an urban planning concept that ties land-use and transit planning together. Although it was an architect by the name of Peter Calthorpe who popularized the TOD acronym in the 1990s, the concept of the closed loop feedback between mass transit provision and urban growth is long grounded in the works of classical planning theorists and practitioners such as Ebenezer Howard and Frederick Olmstead, with rail stations as axes for new urban development (Carlton, 2009).

Post-WW2 spurts in both private motorization and suburban growth drove the heavy reliance on modernist and car-based planning tools. Community-led backlashes against the deterioration of urban life in the late-1960s further gave way to the Smart Growth and New Urbanism movements which gained traction in the 1980s (Grant, 2006). The movements' fight against car-oriented urban sprawl and exclusionary planning had its roots in Jane Jacobs' advocacy of density, diversity of land-use and building age, and pedestrian-oriented street blocks to reverse inner-city decay, which were extensively exhorted in her influential book *The Death and Life of Great American Cities*.

2.2 TOD Principles

Although the key principles of Smart Growth and New Urbanism do not directly address the element of transit, they provide the context to understand TOD in North America. In 1989, Calthorpe, who was one of the founders of the Congress of New Urbanism, envisaged the "Pedestrian Pocket" as a circular cluster of residential and commercial buildings with the transit station in the centre (Carlton, 2009: 18). Nonetheless, the concept was marketed as an alternative lifestyle choice rather than a region-wide solution to integrate land-use with transportation planning (ibid.).

Table 2 Comparison of Smart Growth, New Urbanism and TOD principles

Smart Growth	New Urbanism	TOD
1. Diversity of land-uses 2. Compact building design 3. A range of housing opportunities and choices 4. Walkable neighborhoods 5. Distinctive, attractive communities with a strong sense of place 6. Preservation of open space, farmland, natural beauty, and critical environmental areas Development intensification and focus towards existing communities 7. Provision of variety of transportation choices	1. Livable streets arranged in compact, walkable blocks. 2. A range of housing choices to serve people of diverse ages and income levels. 3. Schools, stores and other nearby destinations reachable by walking, bicycling or transit service.	1. Compact and transit-supportive organization of regional growth 2. Commercial, housing, jobs parks, and civic uses placed within walking distance of transit stops 3. Pedestrian-friendly street networks that directly connect local destinations 4. Diversity of housing types, densities, and costs 5. Preservation of sensitive habitat, riparian zones, and high-quality open space

Smart Growth	New Urbanism	TOD
8. Development decisions that are predictable, fair, and cost-effective 9. Encouragement of community and stakeholder collaboration in development decisions	4. An affirming, human-scaled public realm where appropriately designed buildings define and enliven streets and other public spaces	6. Public spaces as focus of building orientation and neighbourhood activity

Sources: **Adapted from Emerine et al., *This is smart growth* (Smart Growth Network, 2006), 4, Leccese and McCormick, *Charter of the new urbanism* (McGraw Hill, 1999), 5-10, and Dittmar and Ohland (Washington, DC: Island Press, 2003), 1-17.**

Early execution of Smart Growth and New Urbanism-inspired developments near rapid transit access nodes occurred in California's Bay Area, and was mainly driven by local preference for self-contained urban environments that feature neo-traditional urban forms and designs rather than by the location advantage afforded by access to rapid transit service (ibid.). The subsequent collaboration between Calthorpe and Prof Robert Cervero, an academic expert in the transit-land-use coordination field, in backing up transit-supportive city zoning guidelines for Sacramento with empirical evidence led to the abandoning of the "Pedestrian Pocket" concept and later the coining of the acronym TOD in the New York Times (ibid.).

Ewing et al. (2011) compared the characteristics of TOD, Smart Growth, and New Urbanism and found striking commonalities in the elements of density, mixed-use, jobs-housing balance, transit access, pedestrian-oriented street, and designated activity cores. Cervero and Kockelman (1997) formulated the "three Ds" of density, diversity and design as the key defining characteristics of urban form that influence travel demand. Ewing and Cervero (2010) added destination accessibility and distance to transit to make up the "five Ds", and acknowledged the relevance of demand management and demographics as the sixth and seventh Ds as valid controlling factors for travel demand. Chatman (2013) found residential diversity and relaxation of minimum parking requirement, together with sub-regional density and local bus service, to greatly influence TOD-supportive travel behaviour as compared to proximity to rail-based transit, and suggested land-use planners to prioritize built form and parking criteria over mere train access in planning for TOD.

Nonetheless, Ewing and Cervero's (2010) meta-analysis on the relationship between travel and built environment found travel behaviour to be inelastic to the change in built environment, although there is a significant relationship between walking and pedestrian-oriented land-use indicators, namely land-use mix, junction concentration, and the amount of walkable point of interests. The same study showed that among the 7 Ds, destination accessibility has the most significant impact on auto dependency in travel. Hansen (1959: 1) defined accessibility as "the potential of opportunities for interaction," which can be measured in terms of cumulative or relative numbers of employment, retail or other opportunities that can be reached in a given time. Thus, public sector-driven strategies regarding to destination accessibility and distance to transit, such as transportation expansion and investment policies and local street network plans, do play a role in facilitating TOD.

Table 3 Land-use measures that directly relate with TOD's 7Ds principles

TOD's "D" Variable	Land-use Measures
Density	Total sum of activity (e.g. housing, employment, commercial units) per land unit
Diversity	Variety of land-uses (e.g. degree of mixtures of residential, retail, employment, institutional uses)
Design	Street network characteristics in terms of pedestrian-friendliness (e.g. sidewalk coverage, setbacks, permeable street layouts, welcoming street fronts)
Destination Accessibility	Access to opportunities for non-local activity-based interactions (e.g. number of metropolitan jobs and services reachable in a given travel duration)
Distance to Transit	Shortest path to transit (e.g. length of walking path to the nearest transit stop)
Demand Management	Implementation of incentives and disincentives to travel behaviours (e.g. parking restrictions, relaxed parking requirements)
Demographics	Inclusion of land-use facilities that serve diverse population groups to sustain ridership catchments and demand levels (e.g. allocation of social and family housing, presence of youth and senior-based institutions)

2.3 TOD at the Metropolitan Scale

Newman and Kenworthy (2006) discovered a global pattern that shows an evident exponential increase in private vehicle count and energy use with declining densities. Cities with low densities have been shown to consistently yield lower rates of mass rapid transit utilization than other denser cities worldwide (Bertraud et al., 2004). The US Environmental Protection Agency reported that an average suburban household who resides in energy-saving single-family housing and earns green vehicle mileages falls behind an average household who lives in a conventional but more compact TOD (Chavis, 2012). In view of the high transportation and pollution costs resulting from urban sprawl, many car-dependent cities in the developed world are beginning to adopt nodal land-use intensification (Newman, 2009). Thus, economic and environmental imperatives are among the key drivers behind metropolitan-wide TOD planning.

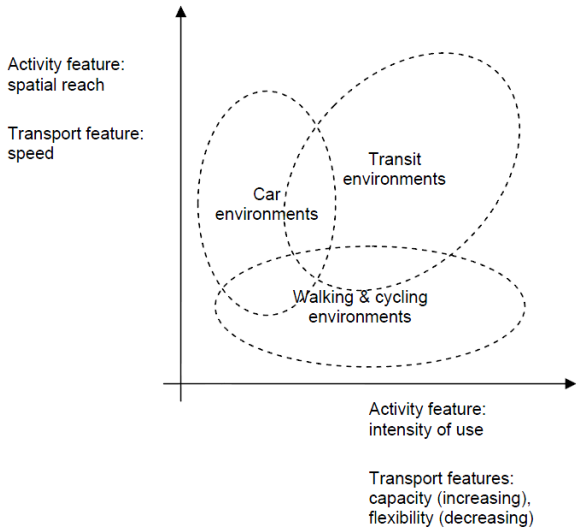
The social dimension is also found to be relevant in addressing the spatial and transportation mismatch problem of many metropolitan regions. In the British Columbia (BC), density had been found to not only positively correlate with higher public infrastructure usage optimization and lower private vehicle reliance, but also to negatively correlate with housing affordability and access to public parks (Alexander and Tomalty, 2002). Smart Growth and TOD-inspired land-use regulation has been argued to bear a negative impact on metropolitan-wide housing affordability in North America (Cox, 2013).

Yet, cheaper accommodation can translate into pricier commute, and in the United States the total transportation expenses of transit-accessible households accounts for less than half of that of the average household (Carlton et al., 2008). Total housing and transportation costs were

found to be the lowest in compact, mixed-use and transit-oriented neighbourhoods in Southern California (Carreras, 2010). A report for CMHC has found that the number of available rental units that can suit Calgary's low-income households can increase thirteen-fold if car ownership and operating expenses are to be avoided (Keough, 2011).

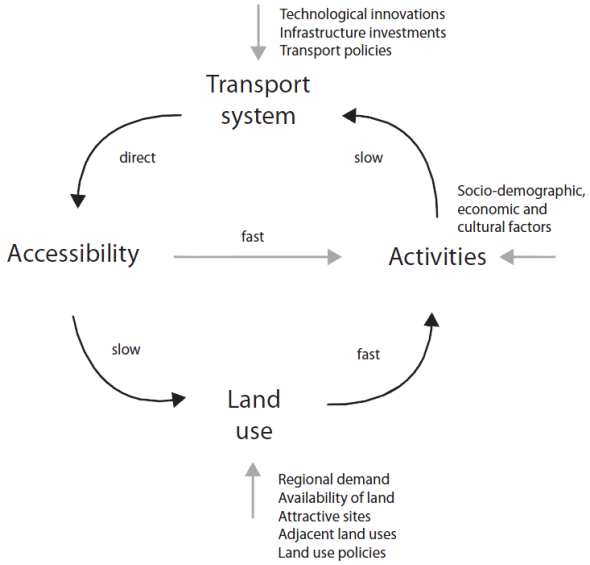
TOD has been considered as an important component of the land-use-transportation integration strategies in many metropolitan plans worldwide (Tan, 2012). In North America, TOD was first prescribed into planning regulations by planners from the City of Sacramento, California, and nearly all of the other major American cities that are served by rapid transit followed suit (Carlton, 2009). TOD's importance within the sustainability agenda of many metropolitan regions has been growing ever since, as the mitigation of unsustainable suburban sprawl requires densification and diversification of transit nodes and corridors (Filion, 2001).

Figure 1 **Land-use and transportation correlation**



Source: **Bertolini et al., *Planning for Transit Oriented Development: Introduction. Chapter 1 in Curtis C, Renne J, Bertolini L (2009, Eds) Transit Oriented Development–Making it Happen* (Farnham, UK: Ashgate, 2009), figure 1.1.**

Figure 2 **Land-use and transportation feedback cycle**



Source: **Chorus, *Station area developments in Tokyo : and what the Randstad can learn from it* (University of Amsterdam, 2012), figure 2-1.**

Bertolini et al. (2009: 44) conceptualized TOD as a transit-friendly environment that reaps the benefits of both "spatial reach" and "land-use intensity." The former is associated with regional mobility and speed as the latter is to localized interactions and opportunities. The TOD concept combines the advantages of the high speed of transit and the numerous interactions of compact forms of built environment, which can't be attained by either private transport or non-motorized modes alone. Bertolini and Spit (1998: 9) also considered TOD areas as both 'nodes'

and ‘places’; the former represents access points within a metropolitan transit network, and the latter represent the spatial structures and functions within a metropolitan built-up region.

The relationship between land-use and transportation is commonly represented by the land-use transport feedback cycle. Metropolitan governments utilize land-use policies to shape the desired land-use activities around the intended transport nodes, and transportation policies to shape the desired accessibility levels of the intended urbanized places (Chorus, 2012).

The categories of planning tools that metropolitan planners worldwide typically use to shape urban growth trajectories are land regulations, infrastructural investments and taxation policies (Bertaud, 2004). Without continuous political will and synergy in metropolitan governance, these key tools would have limited impact on development patterns, as stronger financial and property market forces would prevail over weaker public sector-driven initiatives (ibid.). The public sector champions of these key tools often have different goals, and coordination between different metropolitan agencies is always lacking (ibid.).

Figure 3 Copenhagen’s ‘finger plan’ with growth axes along rail lines

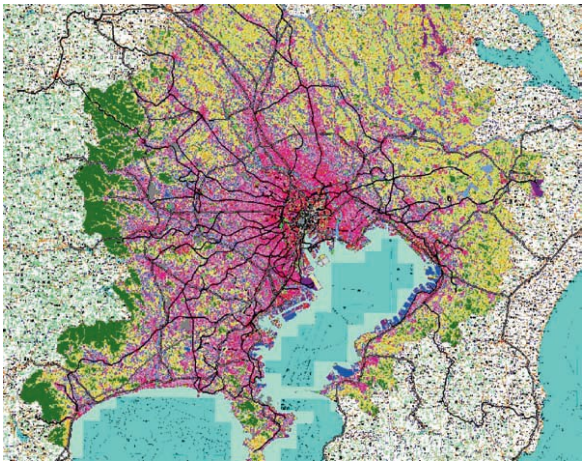
Source: Cervero and Murakami, *Rail+Property Development: A model of sustainable transit finance and urbanism* (UC Berkeley, 2008), figure 2.2.

Successful rail-based intensification at the metropolitan level in the past is often associated with the ‘palm-and-fingers’ profile of aerial view of built-up areas, with each finger forming a ‘necklace of pearls’ pattern of high density and rail-served satellite towns and the palm representing the metropolitan region’s densest urban core. Stockholm’s urban planners invented the ‘finger plan’ more than fifty years ago to channel town centres that cater new residential and employment around the city-centric rail line. As a result, the city has freed itself from auto-dependency and the flow of regional commuting is almost perfectly balanced for inbound and outbound travels (Cervero and Murakami, 2008).

The metropolitan regions of Stockholm, Copenhagen and Tokyo are among the few global metropolitan regions that have long demonstrated metropolitan TOD planning success through the ‘finger plan’ and the ‘palm-and-fingers’ approaches (Ieda, 2010; Bertolini et al., 2009; Cervero and Murakami, 2008). Other metropolitan regions that manage to steer concentration and intensification of new growth near access of rapid transit include Randstad, Singapore,

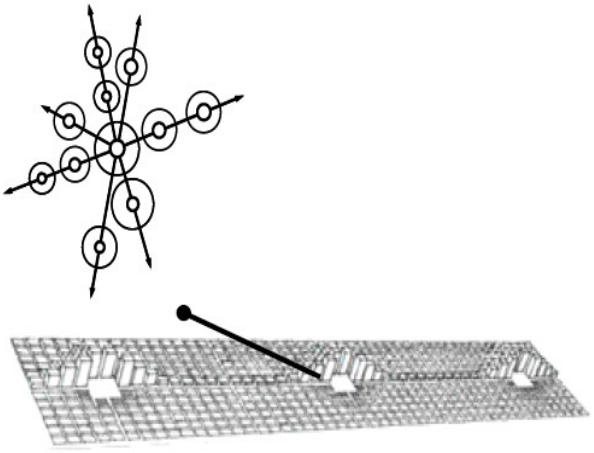
Hong Kong, Curutiba and Washington DC. Except for the latter two regions, strict measures of private vehicle restraint are applied to increase the metropolitan-wide TOD growth share.

Figure 4 **Metropolitan Tokyo's 'palm-and-fingers' plan**



Source: **Ieda, *Sustainable Urban Transport in an Asian Context* (Tokyo: Springer, 2010), figure 4-6.**

Figure 5 **Township patterns in Copenhagen and Stockholm resembling 'necklace of pearls'**



Source: **Cervero and Murakami, *Rail+Property Development: A model of sustainable transit finance and urbanism* (UC Berkeley, 2008), figure 2.1.**

In the case of North American city-regions, where private vehicle use prevails over transit ridership, TOD incentives have largely been under the domain of land-use planning regulations due to the lack of political will and public acceptance of auto-restraint policies that are implemented in Europe and the Asia Pacific. Many metropolitan regions adopt density rules to encourage densification surrounding these nodes.

Equally important are metropolitan planning tools that limit demand for outward expansion through urban growth management, such as growth boundary policies applied by the US state of Oregon (Ewing et al., 2011). Failure to tackle demands of urban growth beyond the planned TOD areas had led to the failures of metropolitan governments in China to replicate Hong Kong's TOD-based urban growth intensification and successes of land value capture strategy (Tang et al., 2004).

Deriving from the TOD's 7Ds principles, metropolitan-wide TOD strategy can be viewed from the three angles of regional growth management, local placemaking tools, and transportation demand management, such as shown in Table 4. This research paper intends to explore metropolitan-wide TOD policy implementation in Canada's three major metropolitan regions of Toronto, Montreal and Vancouver.

Table 4 Metropolitan-wide TOD aspects from the angles of smart growth and TOD principles

Smart Growth Principles	Transit-supportive growth pattern, preservation of sensitive areas	Diversity of housing, community-friendly public spaces	Pedestrian-scaled street connectivity, walkable destinations from transit	Transit-supportive growth pattern (disincentives against cars)	Transit-supportive growth pattern (incentives towards transit use)
Transit Oriented Development's 7Ds	Density	Diversity, Demographics	Design, Diversity, Distance to Transit, Destination Accessibility (Local)	Demand Management	Destination Accessibility (Regional)
Regional Growth Management: Sources: Regional growth plans	Metropolitan growth concentration and containment policies	Metropolitan employment/ other regional land-use policies			
Local Placemaking Tools: Sources: Local plans and policies		Land-use prescriptions that promote housing and commercial diversity and vibrancy, and enhance non-motorized accessibility and comfort		Local parking strategy	Transit-priority and other active transport facility provision
Transportation Management: Sources: Transit plans and policies				Metropolitan rapid transit investment strategy (taxation proposals)	Metropolitan rapid transit service quality enhancement and expansion proposals

The central theme of this paper is regional growth management, in which metropolitan TOD plans, the plan's consensus-seeking approach among various metropolitan stakeholders, the plans' compliance by local municipalities, and the related metropolitan-wide TOD progress and planning challenges will be explored.

The paper will also discuss metropolitan-wide planning tools that pertain to TOD's aspects of placemaking and travel demand. Due to the large geographical scope, this paper will not get into nuances of area-specific built environment bylaws and building codes with regard to local placemaking tools. This paper will also focus on land-use policies, and not on real-estate (e.g. mortgage) and transportation (e.g. road and energy pricing) policies despite their impact on overall metropolitan housing and transportation demand.

3.0 Historical Context of Metropolitan TOD Planning in Canada

3.1 Metropolitan Planning in Canada

Metropolitan planning in Canada is commonly entrusted to municipalities and provincial agencies by the powers enacted at the provincial level. Historically, the federal government's involvement in local planning matters was short-lived through the Ministry of State for Urban Affairs in the 1970s, and even then its scope was limited to policy research and coordination (Cullingworth, 1987). The legislative power of municipal affairs belongs exclusively within the provincial jurisdiction, and the scope of municipal planning of the federal government is limited to its role as a financier to assist the provinces in executing their mandates (Sancton, 2005). The most visible tools that the federal government uses to impact spatial development are federal contribution towards public infrastructure projects through Infrastructure Canada, and public housing and neighbourhood transformation projects through Canada Mortgage and Housing Corporation (CMHC).

Figure 6 Location of the three Canadian city-regions of Toronto, Montreal and Vancouver

Source: Adapted from Google Maps, maps.google.ca, accessed 1 August 2013.

This chapter's narratives on the historical contexts of metropolitan land-use and transportation planning of the three regions of Toronto, Montreal and Vancouver [Figure 6] are synthesized from Tomalty (1997), except where noted. The need by the provincial and municipal governments to coordinate infrastructure provision and urban development across lower-level planning jurisdictions becomes the impetus for metropolitan-level planning agencies. The metropolitan regions of Toronto, Montreal and Vancouver, which first saw reform of metropolitan coordination in the mid-nineteenth century, have different contexts and challenges of institutional restructuring. The metropolitan boundaries of the two former regions have drastically changed and their central municipalities have gone through unpopular amalgamation processes in the past decade.

The historical contexts of metropolitan planning play a major role in defining the present alignment between transportation and land-use planning in the Toronto, Montreal and Vancouver regions. The three regions exhibit highest concentration of urban activity in the

inner-city cores, considerable density and compactness of built environment in the inner-suburbs, and car-oriented urban forms and connections in the outer-suburbs. The latter region exhibit large-scale and car-oriented developments in the suburban centres and postwar suburban housing landscape surrounding the suburban centres, albeit at varying degrees and in different patterns. The three regions also have considerable grade-separated rapid-transit corridors connecting inner-city cores with the regions' inner-suburbs.

Topological factors have an impact on the regions' land development and work commute dynamics. Highway bypasses and their surrounding suburban areas are more dispersed in the flatter and more contiguous Toronto region. Montreal region's suburban developments are less contiguous as the North Shore, the Laval Island, the Montreal Island and the South Shore are linked by only a handful of bridges, but outward growth has been a major concern for the South and North Shores whose territories are not significantly bounded by natural barriers and are increasingly served by regional highways.

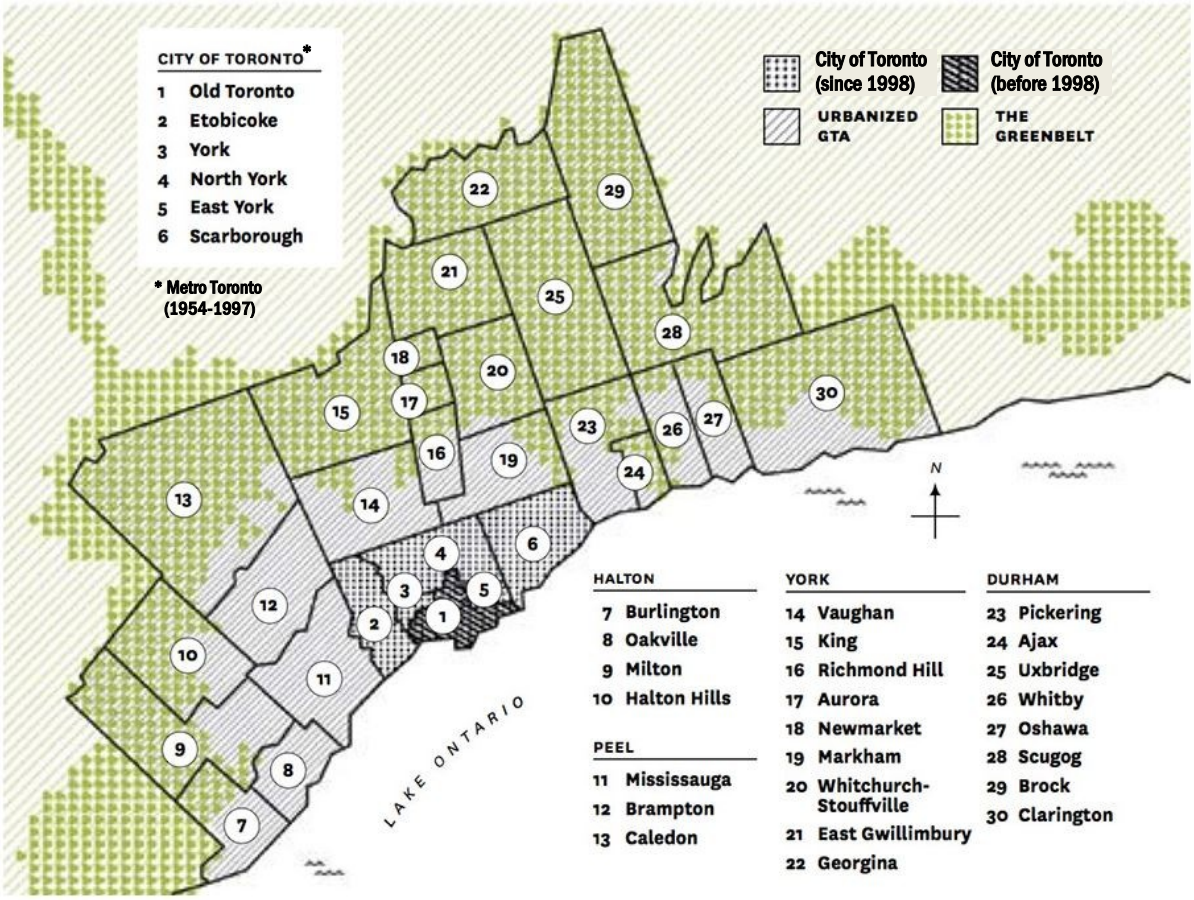
The mostly geographically-constrained region of Vancouver has the least comprehensive highway network and its denser centres and sparser suburbs are located on the opposite edges of the regional territory, hence the region's relatively higher pressures for intensification in built-up areas near transit. Among the three regions, the Toronto region has the most prevalent polycentric work commuting pattern in which suburban-based business parks dissipate the region's office job concentration away from the City of Toronto towards the adjacent regional municipalities. The region also has the biggest proportion of suburban downtowns that are both further away from the region's core and are only connected to the metropolitan-wide mass rapid transit network via infrequent Commuter Train services.

3.2 Metropolitan and TOD Planning in the Greater Toronto Area

Toronto is Canada's largest city and busiest financial hub, and North America's fifth most populous city after Mexico City, New York City, Los Angeles and Chicago. Originally named the Town of York, the city was founded in the late 18th century by the British Crown. The city's borders have expanded multiple times through amalgamation with surrounding local governments. The Greater Toronto Area (GTA) consists of the City of Toronto and its four surrounding regional or upper-tier municipalities of Halton, Peel, York and Durham [Figure 7]. The upper-tier municipalities coordinate the administration of thoroughfares, public services, utilities, and land-use planning with their respective lower-tier municipalities (Association of Municipalities of Ontario, n.d.).

The Province of Ontario formed the Municipality of Metropolitan Toronto (Metro Toronto) in 1954 to administer the smaller local governments that existed within the present boundary of Toronto [Figure 8]. Metro Toronto's metropolitan planning was once seen as a standard of successful city-region governance in North America, particularly due to the area's two-tiered government structure with representations from the central city and its surrounding suburban communities.

Figure 7 **Greater Toronto Area municipal boundaries**



Source: **Adapted from John Lorinc, *How Toronto Lost Its Groove: And why the rest of Canada should resist the temptation to cheer* (The Walrus, 2011), illustration no.4.**

The same year saw Metro Toronto's first subway service along the city's Yonge Street corridor, together with high-density zoning spurred high-rise office and residential construction between Bloor and Eglinton stations in the next twenty years (Levy, 2013). Nonetheless, many apartment towers popped up haphazardly across Metro Toronto's suburban municipalities in the same period. The extensive land-use densification along the Yonge corridor failed to be replicated along the subsequently inaugurated Bloor-Danforth subway line. The key barrier towards intensification around the subway stations was the strong neighbourhood-based oppositions to vertical development, despite the planners' desire for transit-based intensification to increase municipal revenues and decrease servicing costs (ibid.).

The first attempt to coordinate GTA's regional infrastructure and growth planning was the Toronto-Centred Region (TCR) Plan, which contained the concept of concentration of new developments near existing and planned public infrastructure. The plan was aimed to cap growth, stimulate growth in suburban centres and redistribute the regional growth pressures from the west towards the east. Despite being adopted by the province in 1971, the plan failed due to the non-conformities of infrastructural planning by the province and of land-use planning by the suburban municipalities (Tomalty et al., 2005). The increasing bargaining power of the once rural GTA townships was attributed to the provincial government's

introduction of a two-tier municipal governance system in the early 1970s, which intensified the competition for new tax-producing developments between the new suburban municipalities and Metro Toronto (Lorinc, 2011).

Most of the population growth within the GTA has occurred outside of Metro Toronto since 1970, driven by the highway constructions and subsequent suburban developments across the regional municipalities. The subsequent subway line extension by Metro Toronto, which adopted the suboptimal choice of the "ravine route" along Allen Road, was done out of the regional body's convenience over its land ownership of the cancelled Spadina Expressway alignment (Levy, 2013). Subway-station-based intensification did not occur due to the lack of integration of the access nodes with the existing well-populated areas, especially along the bustling Bathurst Street corridor, in which a subway station proposal was cancelled due to intense local oppositions (ibid.).

Figure 8 **Municipal boundaries of pre-amalgamated Toronto**

Source: **Wikimedia Commons, *Old Toronto Locator*, http://upload.wikimedia.org/wikipedia/commons/a/a6/Old_Toronto_locator.png, accessed 1 August 2013.**

The provincial government later softened its subsequent intervention style (from compliance-seeking to consensus-building approaches) after the bold resistance from suburban constituents north of Metro Toronto over the province's attempt "to make the TCR Plan legally binding" and the government's near political defeat in the 1975 provincial election (Boudreau et

al., 2009: 115). It formed the Office for the GTA (OGTA) in 1988 with an informal role in balancing regional development among the region's upper-tier local governments. The region's increasing traffic congestion led to an agenda of more holistic and integrated spatial and infrastructural planning, although the general public's apathy towards the issue of suburban sprawl continued to persist. By the late 1980s, GTA's transportation backbone, which was mostly built in the 1950s and the 1960s, could barely cope with the growing transportation demand. The region's water and sewerage lines were so overburdened that the western municipalities had to temporarily withhold permits for new development (Tomalty et al., 2005).

In the early 90s, the OGTA adopted the "GTA Vision" plan as the region's growth strategy, which was GTA's first attempt at linking transit and land-use planning together. The plan stressed the concentration of houses, jobs and urban activities within four types of rapid transit nodes: central (downtown Toronto), major, intermediate and local nodes. The identified major nodes were Etobicoke, Mississauga, North York, Scarborough and Oshawa. Out of the twenty-three designated intermediate nodes that were identified as urban growth gravity centres for the upper-tier municipalities, ten were located within Metro Toronto.

The era also saw the region's first attempt to codify standards for transit-supportive development through the province's Transit-Supportive Land-use Planning Guidelines. The guidelines were aimed to encourage the lower and upper-tier municipalities to incorporate nodal and corridor-based spatial densification strategies, taking into account the targeted size, density and variety of land-uses which should correspond to the planned service level of transit provision. Although the province through its Commission on Planning and Development Reform had passed down its role in approving Official Plan amendments of the lower-tier municipalities to the upper-tier municipalities, the latter acted more as agents for the lower-tier municipalities whose vested interest is skewed towards expanding their tax bases.

The former City of Toronto was ahead of other GTA municipalities in smart growth progress, although its intensification strategy for its main commercial streets, dubbed the Avenues, was weakened by disincentives of rental unit provision, pressures for mandated parking, low demand of above-retail residential units, and fragmentation of land ownership. Private developers in Metro Toronto's suburbs weren't interested in redeveloping sparse suburban land parcels for compact and mixed land-uses due to fragmented land ownership, lack of construction expertise and related hardship to secure loans, deep rivalry from prevailing car-oriented retailers and community-based resistance against the perceived increase in traffic congestion. The GTA's suburban municipalities fared the worst, as they were able to skirt around the GTA Vision's objectives through their promotion of land-use intensification in the suburban fringes instead of the already built-up areas and their vocal community-backed opposition against the province's push for supplementary unit allowances.

The Canadian Urban Institute in 1997 found serious inconsistencies between the GTA Vision plan and its region-wide implementation. Gilbert (2003: 10) claims that the adoption of an excessive number of nodes and the failure of planners to execute the plan exhibit a "clear pattern of planning without integrity." Tomalty (1996) described the plan's implementation as

incomplete due to a lack of clarity in terms of both the targeted intervention areas and the OGTA's decision-making function.

There was neither a baseline target nor a standard definition for what constitutes urban intensification, and the required duration of the supply of greenfield lands for new construction was unreasonably short that the requirement became the easiest score point for all GTA municipalities. The lack of smart growth progress on the ground can be attributed to the lack of ownership among municipalities to enforce smart growth, as they referred crucial decisions on smart growth planning mostly to the Ontario Municipal Board (OMB), which is an administrative tribunal set up by the province to adjudicate municipal and local planning disputes (Blais, 2003).

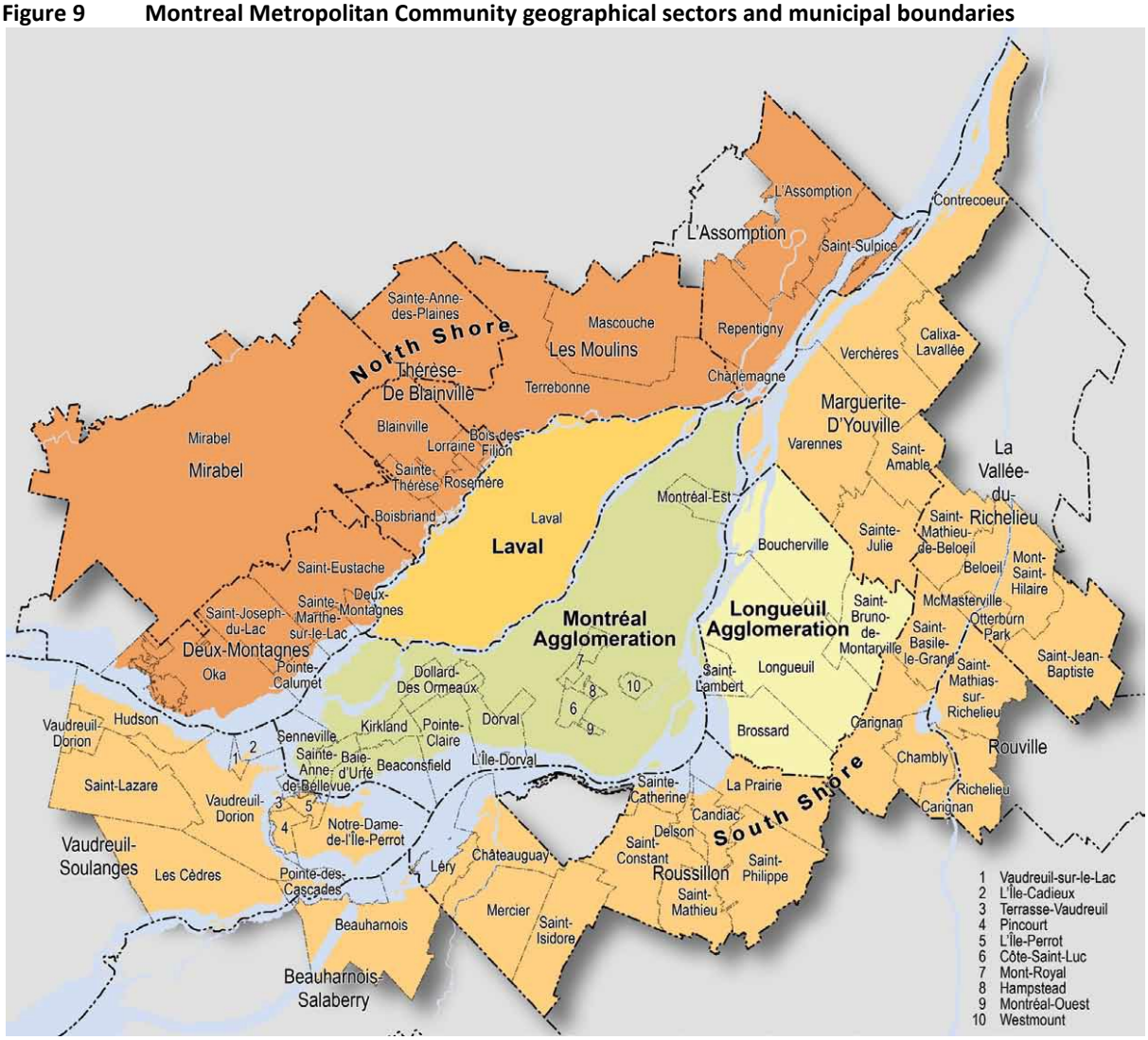
The province created the Greater Toronto Services Board (GTSB) in 1998 to replace both the ineffective OGTA and the irrelevant Metro Toronto (following the amalgamation of the former City of Toronto and its inner suburbs), but the GTSB too ceased to exist in 2001, not too long after it demanded a stronger mandate to impose its GTA-wide Growth Management Strategy. The province then initiated the Smart Growth Ontario program, whose recommendations covered the entire Southern Ontario Golden Horseshoe area. The Greater Toronto Transportation Authority (GTTA), or Metrolinx, was subsequently established in 2006 with a provincial mandate to develop and implement an integrated transportation plan for the Greater Toronto and Hamilton Area.

GTSB's growth strategy was revamped to feature nodes connected by rapid bus corridors, and provided the early groundwork for *Places to Grow* Act of 2005, the Greater Golden Horseshoe's Regional Growth Strategy of 2006 (*Places to Grow*) and the Regional Transportation Plan for the Greater Toronto and Hamilton Area of 2008 (*the Big Move*). The act provides the much needed legislative strength for the land-use planners in the GTA to pursue spatial and transit integration plans that are consistent with *Places to Grow* and *the Big Move*. The plans' contents, consensus-building approaches, compliance status, and execution challenges will be thoroughly examined in this research paper's subsequent chapters.

3.3 Metropolitan and TOD Planning in the Montreal Metropolitan Community

Montreal is Canada's second-largest city after Toronto. It is also the world's second-largest Francophone city after Paris. The city, which is famed for its cosmopolitan arts and culture scenes, was named after Mount Royal, a picturesque hill located on the downtown's immediate northwest. The city is situated at the southeast edge of the Island of Montreal, which is located at the confluence of the Saint Lawrence and Ottawa Rivers in southwest Quebec, near the Ontario and the United States borders. The municipalities on the island form the Urban Agglomeration of Montreal (Agglomération de Montréal). The Urban Agglomeration of Montreal, together with the Urban Agglomeration of Longueuil (located across the river from downtown Montreal), the City of Laval (another island located northwest of the Island of Montreal), and the other smaller municipalities within the region's North Shore and South Shore form the Greater Montreal Area [Figure 9].

Figure 9 Montreal Metropolitan Community geographical sectors and municipal boundaries



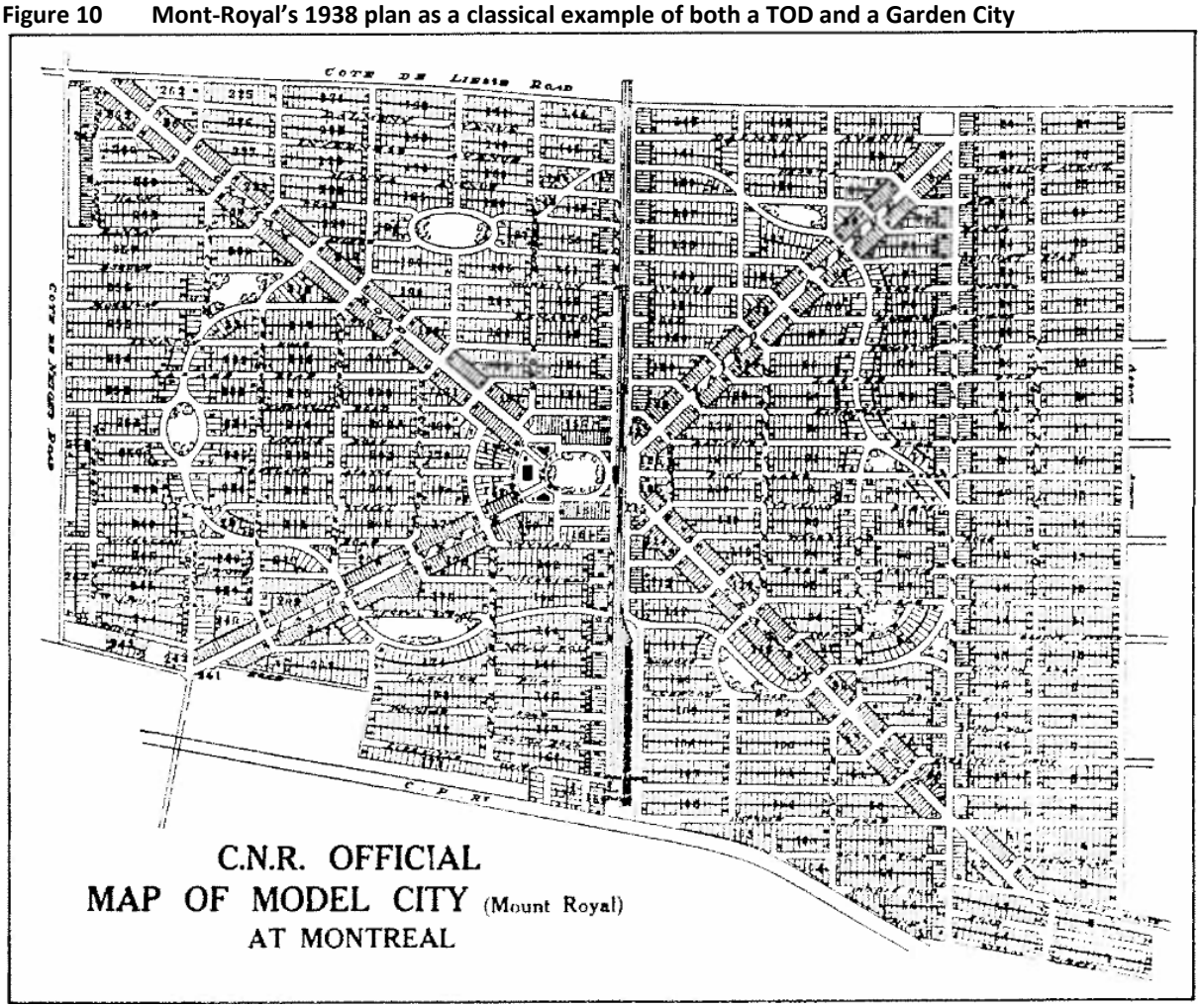
Source: **CMM, *The CMM, its Five Geographical Areas, 14 RCMs and 82 Municipalities* (CMM, 2012a), map 1.**

Historically, the first TOD plan for Montreal was conceived for the Town of Mont-Royal in 1911 [municipality #7 in Figure 9, and Figure 10] by Frederick G. Todd (Jacobs, 1983). The Garden City town was part of CN Railway's proposal to build a tunnel under Mont-Royal to the CNR Terminal in the present downtown Montreal (ibid.). The town, which featured diagonal streets that merge at the town's centre where the train station is situated, is probably the country's "most successful real estate venture ever" (ibid.: 31). While over the years the TOD function declined, it is now making a nice recovery with condos around the station areas.

Up to the late 1960s, metropolitan planning in the region had been limited to the amalgamation of some suburban municipalities on the Island of Montreal into the City of Montreal. By then, two underground metro lines, which consisted of two short lines (that connected the downtown core with Henri-Bourassa on the northern tip of the island via Rue St-Denis and with Longueuil on the other side of the St Lawrence River) were already completed. In 1970, the province of Quebec initiated the region's first regional governance by creating the Montreal Urban

Community (MUC) and giving it jurisdiction over all municipalities on the Island of Montreal for police and for regional planning services.

Figure 10 Mont-Royal's 1938 plan as a classical example of both a TOD and a Garden City



Source: Jacobs, *Frederick G. Todd and the creation of Canada's urban landscape* (Association for Preservation Technology, 1983), figure 6.

Three years later the MUC initiated the region's first attempt to consolidate growth and transit infrastructure. The plan, which proposed a loose land-use intensification concept in the form of the island's western and eastern urban activity nodes and expansion of mass transit, was not adopted due to disagreements between the central city and its suburban counterparts. The fault lines were driven mostly by the political differences between the primarily Anglophone suburbs and the central city, which had overriding authority within the MUC council (Rothblatt, 1994). The era had also seen Toronto surpassing Montreal for the first time in terms of population and economic rank.

By 1984, the metro network consisted of three lines which stretched the original network northwards to Cote-Vertu via Decarie Expressway, and eastwards and westwards to Angrignon and Honore-Beaugrand respectively. The MUC introduced a new development plan for the Island of Montreal in 1986 with a stronger emphasis on transport and land-use integration through intensification areas around the metro station, a growth boundary on the West Island, and three areas designated for nodal intensification (Ville d'Anjou, Ville St. Laurent and Point

Claire). Nonetheless, these nodes, despite being initially objected to by the City of Montreal due to their potential impact of weakening of downtown core (Peritz, 1985), had their growth momentum driven mostly by the private sector prior to their nodal designation.

By the late 1980s, the new metro network addition of the east-west Blue Line did not reach any of the three areas, as the province decided to extend the metro's Orange Line to Laval instead. Thus, the original commitment to the MUC's nodal strategy plan was abandoned. Nonetheless, the municipalities in Verdun, Pointe-Claire and Pierrefonds had adopted some of MUC's effective intervention policies, such as flexible development regulations that allow mixed-uses and infill developments of up to six floors, zoning rules that promote densification near metro stations and pedestrian enhancement programs. Unlike Toronto, Montreal's neighbourhood opposition trends were more driven by gentrification than densification issues.

The smart growth agenda failed to take hold outside of the MUC, partly due to the abundance of developable land opportunities and the lower taxation in the suburban municipalities. In 1979, the province passed the Land-use Planning and Development Act partly to streamline the silo planning practices of the region's tens of municipalities outside of the MUC through the creation of an upper-tier municipal level known as *municipalité regionale de comté* (MRC; English: Regional County Municipality). Yet, the MRCs failed to halt the region's rapid outer-ring area growth and the MUC's decline in regional population share due to their negligible clout in local planning. Intensification policy was not made mandatory, and political leadership was absent except in Laval and Longueuil, where there is considerable desire to add more density into the existing urban cores. The off-island suburban municipalities had rigid zoning regulations that discourage small-scale, multiple-use and higher-density developments, which were perceived to strain the existing municipal services and invite unintended social problems.

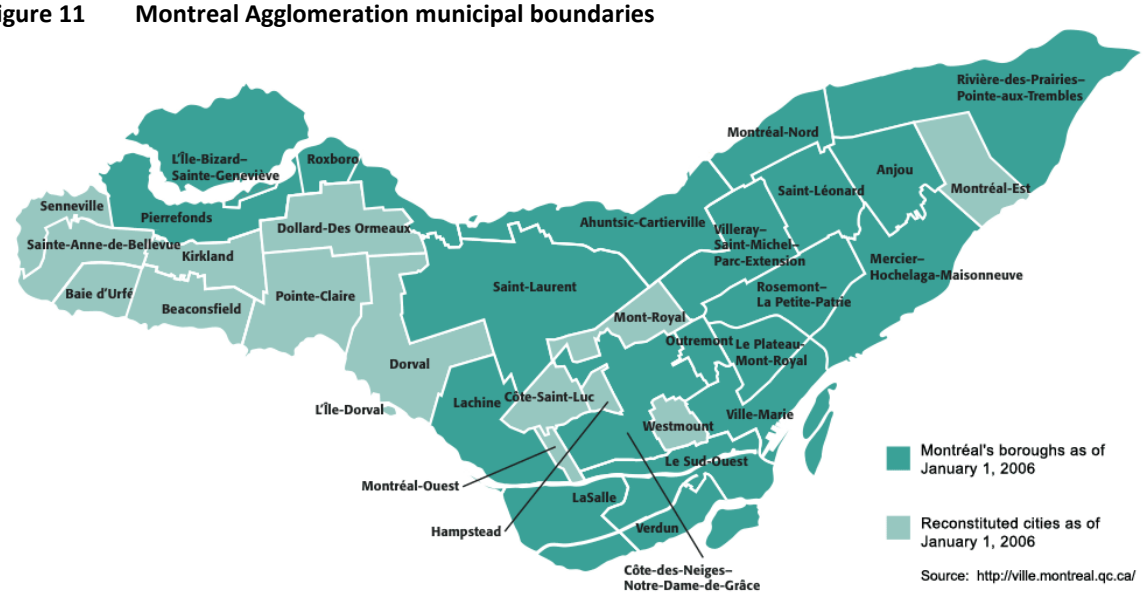
The suburban municipalities' rivalry to expand their residential and commercial tax bases intensified in 1990 when a provincial reform substantially reduced fiscal transfers to local governments. The most powerful pressure from public bodies for regional governance reform came from the Board of Trade of Metropolitan Montreal, as the region's sprawl and resulting economic externalities threatened to reduce Montreal's economic competitiveness. The province again intervened in 1994 through Ministry of Transport guidelines for MRCs to streamline spatial and commuting strategies and to raise densities along principal transit routes. It also passed a legislation to allow municipalities to partially shift the cost burden of new development infrastructure onto the developers (Tomalty, 2005).

In 1995, the province created the *Agence métropolitaine de transport* (AMT; English: Metropolitan Transportation Agency) to comprehensively manage the provision of transit services at the regional scale beyond those provided by local transit agencies, and in 2000, the Ministry of Transport planned for a significant share of mass transit investment to reduce the region's auto dependency (ibid.).

Nonetheless, the province's turning a blind eye towards the region's outward-based low-density residential expansion was to be blamed for the central city's financial woes, which fueled the reassertion of the then-mayor Bourque of the previous mayor Drapeau's "one island, one city"

campaign to not only scale back the central city's cost burden, but also to elevate the central city's political standing vis-à-vis the larger metropolitan community (Fischler and Wolfe, 2000).

Figure 11 **Montreal Agglomeration municipal boundaries**



Source: **City of Montreal, *Municipal Organization - Territory,* http://ville.montreal.qc.ca/portal/page?_pageid=5977,88899589&_dad=portal&_schema=PORTAL, accessed 1 August 2013.**

With the merger in 2002, all MUC municipalities agglomerated into the new Urban Agglomeration of Montreal [Figure 11]. Two years later, some mayors from the newly formed city, especially from the English-speaking West Island, fought and won over a de-amalgamation referendum due to the perception of the constituencies of the new city's taxation inequity. The reconstituted municipalities, together with the post-referendum City of Montreal, formed the new *Conseil d'agglomération de Montréal* (CAM; English: Montreal Agglomeration Council) in 2006.

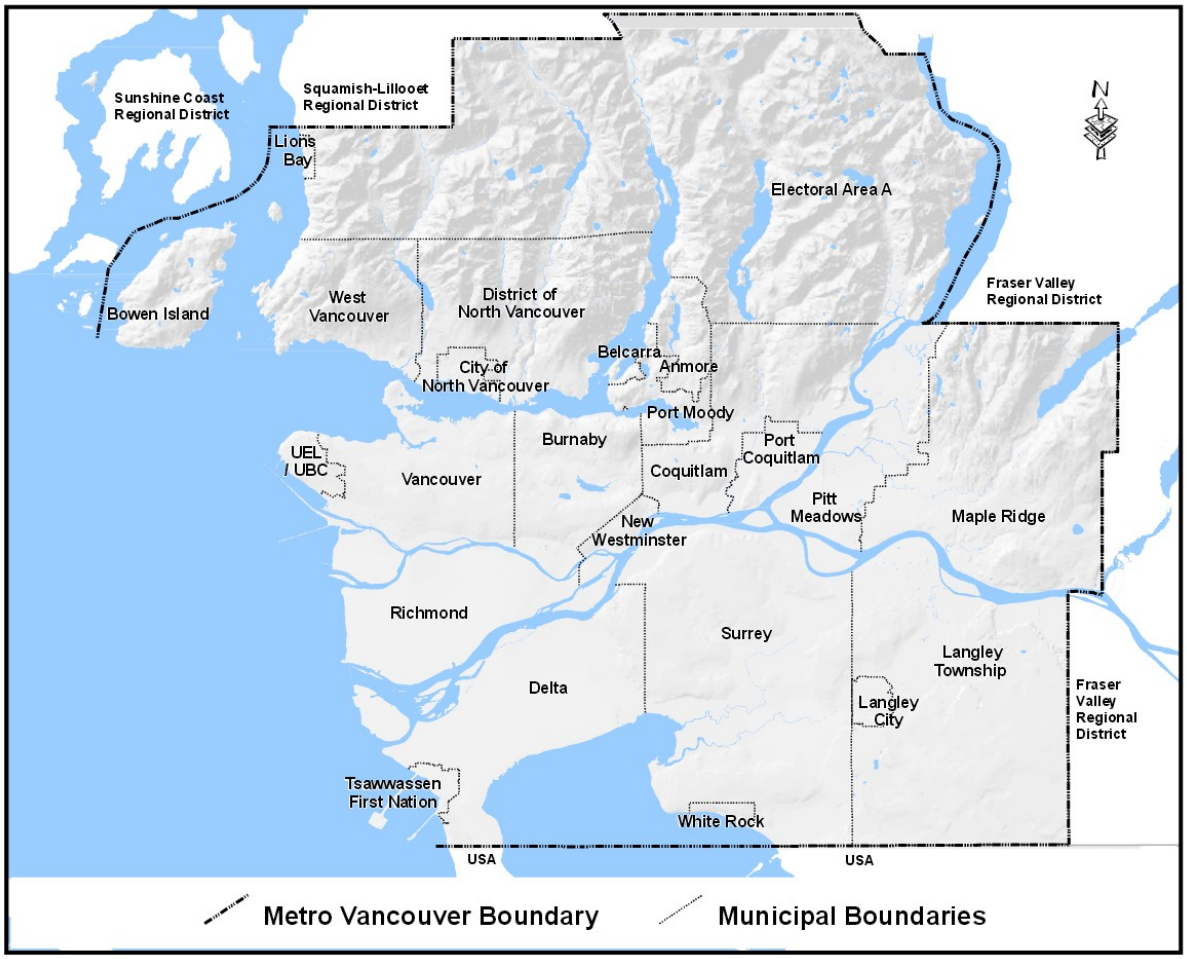
The newly-formed *Communauté métropolitaine de Montréal* (CMM; English: Montreal Metropolitan Community), which took over MUC's dissolved metropolitan role in 2001, expanded the metropolitan jurisdictions to over 80 municipalities within the new Urban Agglomerations of Montreal and Longueuil, the City of Laval and the North and the South Shores (Kellas, 2010). The Town of Saint-Jérôme, despite its commuting relationship with the Greater Montreal region which affords its inclusion within Statistics Canada's Census Metropolitan Area (CMA) boundaries, was excluded from the CMM due to the importance of segmenting the town's role as a distinct service centre to its surrounding Laurentian region (Dusseault, 2006). On the contrary, the Town of Contrecœur, which is not part of the Montreal CMA, was included due to the existence of a port whose function is integral to the City of Montreal (ibid.).

The CMM's subsequent planning exercises were met with challenges and disagreements from municipalities, and the *Plan métropolitain d'aménagement et de développement* (PMAD; English: Metropolitan Land-use and Development Plan), which emphasized regional land-use and transit integration, was finally adopted by all CMM members in 2011.

3.4 Metropolitan and TOD Planning in Metro Vancouver

Although the CMM is relatively denser than the Vancouver metropolitan region, the latter's central city, which is the City of Vancouver, is Canada's most dense city. The coastal city of the province of British Columbia (BC) is renowned for its high "liveability" ranking in many western business publications. The city's metropolitan region, known officially and colloquially as the Greater Vancouver Regional District (GVRD) and Metro Vancouver respectively, is the country's third most populous after the GTA and the CMM. Metro Vancouver comprises twenty-four local governments, including one First Treaty Nation and one electoral area (which made up the region's unincorporated areas, including the University of British Columbia). Metro Vancouver's most important cities with six-digit population counts after Vancouver are Surrey, Burnaby, Richmond and the Township of Langley [Figure 12]. Other major municipalities include the Corporation of Delta, the districts of North Vancouver and Maple Ridge and the cities of New Westminster, Port Coquitlam and North Vancouver.

Figure 12 Metro Vancouver municipal boundaries



Source: Greater Vancouver Regional District, *Metro Vancouver Municipal Boundaries*, http://public.metrovancouver.org/planning/development/strategy/LandUseDesignationMapsJan11/Map1.pdf, accessed 1 August 2013.

The region's metropolitan governance history began in 1949 when the BC Ministry of Municipal Affairs first created the Lower Mainland Regional Planning Board (LMRPB), only to dissolve it nineteen years later with the LMRPB's duties handed down to four newly-created regional

districts, which include the GVRD. Although the GVRD managed to coordinate inter-jurisdictional planning functions and successfully came up with the region's first sophisticated planning scheme titled the Livable Region Strategy in 1976, its ambiguous authority led to disagreements between member municipalities, and the province removed the GVRD's regional planning power in 1983 due to a conflict with regards to the land preservation status of certain private agricultural areas (Proft, n.d.).

The strategy outlined each municipal's job and population growth goals, with a fifth of the region's new employment growth assigned to the City of Vancouver and the rest channelled mostly to four regional town centres (Burnaby Metrotown, Downtown New Westminster, Coquitlam Centre and Whalley-Guildford). The strategy also proposed construction of rapid transit to connect these centres together and conservation of the region's recreational lands. Nonetheless, the GVRD remained powerless in ensuring that regional growth was executed according to the strategy, as the body never once barred sewer and water extension to new suburban areas. In 1990, the GVRD successfully sought agreements from its municipal members to a regional-local coordination framework via "service agreements" and updated the Livable Region Strategy with the theme "Creating Our Future" in 1990 (ibid.).

Six years later, the region's first regional growth plan, the Livable Region Strategic Plan (LRSP), was introduced. The plan emphasized environmental protection over urban growth, and marked the region's first attempt to integrate metropolitan spatial and transportation planning together through vertical collaborations among provincial, metropolitan and local governments. The plan also inherited from the previous strategy the hierarchical urban node concept, consisting of municipal town centres, regional town centres and the metropolitan core.

The province had been successful in spurring local spatial change through the funding of the SkyTrain mass rapid transit project (with the first corridor completed in the mid-80s) to provide regional transit access to municipalities in exchange for their agreement on new growth allocations. As a demonstration of the plan's compliance, the City of Vancouver created secondary plans to allow land-use densification and diversification in SkyTrain station areas, and the intensification was most evident in Burnaby's Metrotown, Westminster Quay and Lonsdale (which is served by a SeaBus terminal instead of a SkyTrain station) during the 1990s. The province's decision to expand the SkyTrain to Surrey (by 1994) instead of Coquitlam was criticized as the latter, not the former, was identified as one of the four intended growth centres by the Livable Region Strategy plan of 1976.

In other municipalities, smart growth opportunities were hampered by the prevalence of single-family detached housing zones, particularly in suburban sections far from the SkyTrain stations. The outer suburban municipalities employed exclusionary zoning, subdivision and development control bylaws and development charges that favour lower densities through rates that were based on development type and average cost rather than floor area and marginal cost. In the late 1980s, employment growth accelerated in Richmond, the northeast sector, Surrey, Delta, White Rock and Burnaby, while almost no jobs were added within the City of Vancouver itself. In 2011, the LSRP was replaced with the region's latest Regional Growth Strategy (RGS) under the theme "*Shaping Our Future*".

3.5 Metropolitan TOD Progress in the Last Decade

There is a scarcity of available documentation on metropolitan TOD planning, policy prescriptions and progress for the city-regions of Toronto, Montreal and Vancouver. Most of the relevant literature addresses regional urban intensification from the perspectives of limiting growth within the metropolitan core and built up area boundaries, which may not be necessarily related to spatial and transit integration.

Filion et al. (2010) studied the variation of the three regions' change in housing intensification pattern between 1971 and 2006 by urban zones that radiate from each of the metropolitan core, and found the variation to be affected by the region's topography, prevailing built form, urban lifestyle, market and social forces, governance structure and spatial and accessibility policies. The authors detected re-consolidation, scattering and strengthening trends of housing intensification for the regions of Toronto, Montreal and Vancouver respectively: the GTA, in spite of its weakening central city, saw densification in suburban nodes, the traditional suburban development continued to persist in the CMM's North and South Shores, and there was a significant reverse in Metro Vancouver's outward expansion trend in which newer development has concentrated in the central city and, to a lesser extent, around regional and transit nodes. Tomalty et al. (2005) qualitatively analyzed the three regions' smart growth policies and found that the smart growth agenda was not progressing well on the ground despite some positive reforms in policy statements and directions.

Based on Haider and Tomalty's (2013) report on smart growth progress of the three metropolitan regions' CMAs from 1996 to 2005, smart growth progress in the Montreal and Toronto regions was less than desirable whereas the Vancouver region saw partial improvements. The report was based on empirical study of changes in the observed share of intensification in residential and employment within the regions' pre-1986 urban areas and on changes of the metropolitan travel behavior between 2001 and 2006. The Vancouver region has been the most successful in directing population growth both towards the older built-up areas and away from the non-mature areas. Toronto region's recent residential intensification has been mostly avoiding the older built-up areas, but has stopped short of encroaching much into the rural areas, while Montreal's intensification trend had been occurring both in the older urban areas and in the newer suburban fringes.

The proportion of new housing in pre-1986 built-up census tracts of the Toronto region was very low at 8%, compared to 33% and 28% for Montreal and Vancouver regions respectively. For the least urbanized census tracts (with less than 800 people per square km as of 2006), the shares of new residential units in Vancouver and Toronto regions were low at 10% and 11% respectively, compared to Montreal region's 37%. The employment areas developed between 1996 and 2005, when compared to similar developments prior to 1981, have been more compact in the Vancouver region, have never been more spread out in the Toronto and Montreal regions, and have seen positive job-to-housing ratio improvements in the Montreal and Vancouver regions (Haider and Tomalty, 2013).

The region's central business districts or downtowns can be considered as 'giant TODs' in view of the convergence of the regions' rapid transit corridors in the areas. The observed residential growth within two kilometers of the downtown core between 1991 and 2001 was 17%, 6% and 28% for Toronto, Montreal and Vancouver respectively (Filion and Gad, 2006). Between 2001 and 2006, downtown population growth had further increased by 9% and 61% for Toronto and Vancouver respectively (Canadian Urban Institute, 2012). The two downtowns' growth was and still is firmly led by waterfront-based condominium developments. Although Montreal's downtown growth has been more tame compared to Vancouver and Toronto, it still saw impressive growth in certain sectors, especially in Old Montreal and its adjacent western and eastern *Faubourgs* which saw a 26% population increase between 1996 and 2001, as compared to 1% and 2% for the Island of Montreal and the Ville-Marie borough (downtown area) respectively (City of Montreal, 2012).

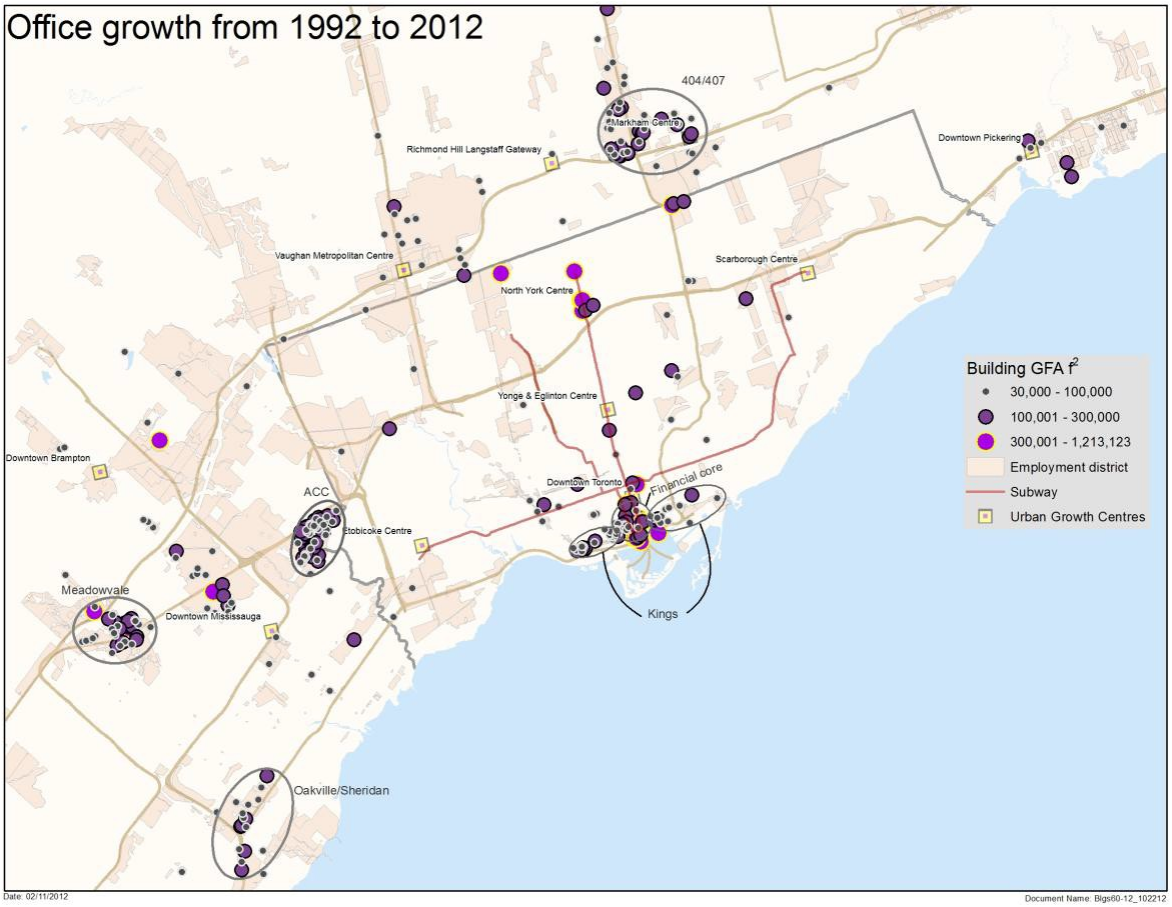
Most of the other literature that link smart growth with rapid transit access focuses on a particular metropolitan region. Filion and McSpurren (2007) went through an exhaustive body of literature and found that attempts to institutionalize transit-based urban growth policies in the GTA from the 1950s through the early 2000s had faced the issues of limited political and planning capacity, conflicting priorities, resistance from government agencies and municipal bodies, and reluctance from residents to accommodate higher densities, and that the public sector's capacity to intensify transit-oriented land-uses can be enhanced through bolder land-use prescriptions and transit investments. Filion (2009) later found that the region had experienced mixed rapid successes of transit-based smart growth, and suggested a more integrated land-use and transit planning that complements corridor-based intensification with urban growth centres, and transit-supportive land-use incentives with firm car-oriented land-use restrictions.

Based on the examination by Feldman et al. (2012) on the TODs around the Montreal region's Commuter Train stations from the private developers' perspective, the public sector has a determinant role in facilitating TOD creation through red tape reduction of TOD approvals in the region's outskirts, improvements of transit service and quality, TOD-supportive agenda buy-ins among elected municipal officials, assurances of attractive urban characteristics and standardization of TOD interpretations among developers. A report issued by the planning think-tank Neptis on *Places to Grow*'s intensification nodes and corridors revealed the potential for suburban nodes to attract land-use densification and diversification in the future. The report recommended a heterogeneous intensification approach that takes into account pre-existing urban parameters (such as traditional downtowns, car-oriented centres, urban transformation areas and greenfield sites) and the distance from downtown Toronto (Filion, 2007).

Another report by Neptis entitled '*Growing Cities*' tracked the location of intensification-based developments that occurred between 1991 and 2001 in the Toronto and Vancouver regions and found that the latter had a much greater share of intensification activities within the regionally-planned intensification nodes, most of which were served by rail rapid transit. The report suggested that policy intervention remains relevant in charting future metropolitan growth

pattern (Taylor and Neptis Foundation, 2010). Through extensive documentary and policy reviews, Warsh (2013) found that the higher intensification results along the Yonge subway line as compared to the Spadina subway line can be attributed to the city's TOD planning intervention which favours the former line through higher density allowances and provision of secondary plans.

Figure 13 Concentration of office development in the GTA from 1992 to 2012

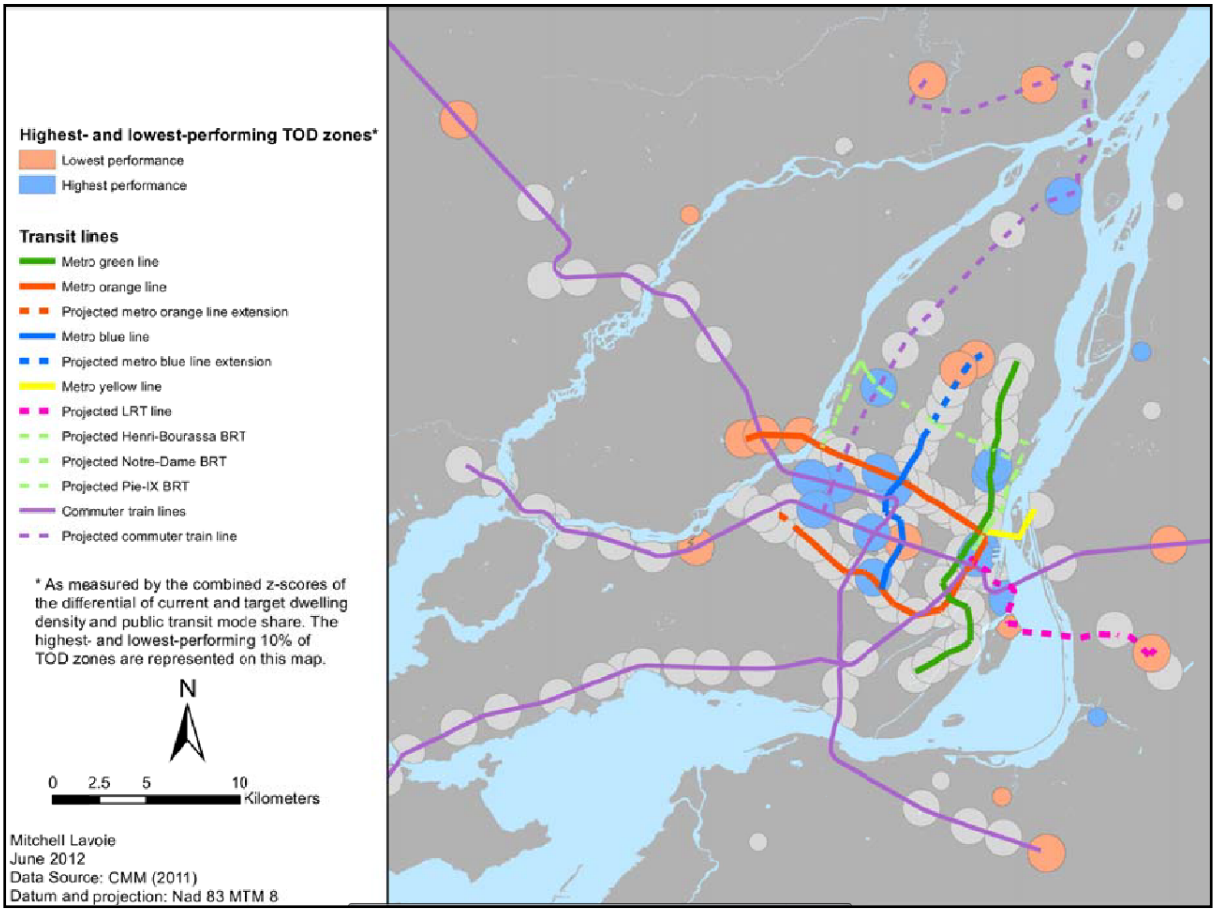


Source: Dobson et al., *Strategic Regional Reseach: A Region In Transition* (Toronto: Canadian Urban Institute, 2013), page 47.

Canadian Urban Institute, through its report '*A Region in Transition*', highlighted the Toronto region's ongoing mismatch between employment and rapid transit as a result of the region's fragmented economic development, spatial planning, and transit implementation policies (Dobson et al., 2013). Figure 13 shows the mismatch between GTA's new office space growth and the existing subway lines.

Using a Geographic Information System (GIS), Lavoie (2012) analyzed the CMM's TOD zones in terms of the zones' differential between present (2011) density and the PMAD's targeted (2031) density and the zones' transit mode share. The results suggested that the suburban zones are in the direst need for TOD planning [Figure 14]. The study also found that two-thirds of the zones are below the 2031 targets, especially the zones around the suburban Commuter Train station, and suggests early public-driven investment to capture TOD potentials in the suburban areas.

Figure 14 Location of TOD zones with highest and lowest-performing TOD zones in the CMM



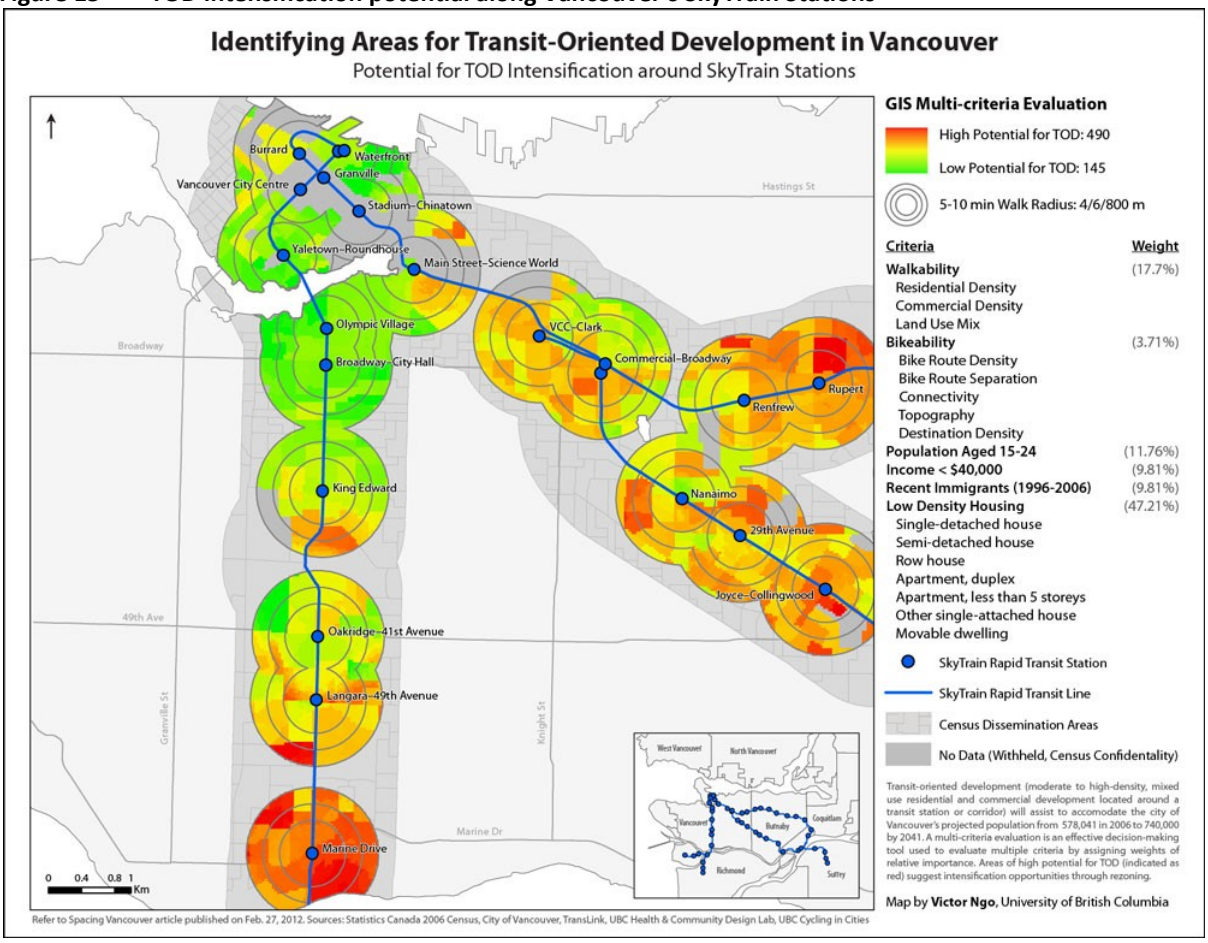
Source: **Lavoie, *Characterizing land use and transportation for transit-oriented development in the Montreal metropolitan regio*n (Toronto: Canadian Urban Institute, 2013), figure 4.7.**

Likewise, Ngo (2012) conducted a GIS analysis on the potential of TOD intensification around SkyTrain Stations in Vancouver based on multi-weighted criteria (of active transportation-friendliness, demographics and housing density). Ngo found that the potential is greater for TOD buffers that are the farther away from the downtown core, especially along the Cambie Street stretch nearest to Marine Drive Station [Figure 15].

From Brinklow's (2010) examination of the TOD success of Vancouver's Collingwood Village [Figure 16], the site has an astoundingly high ridership share, site commute time and one-car households, and relatively wealthier and smaller households as compared to the Metro Vancouver average. The area residents are found to assume a proactive role in improving the station area's feel (ibid.).

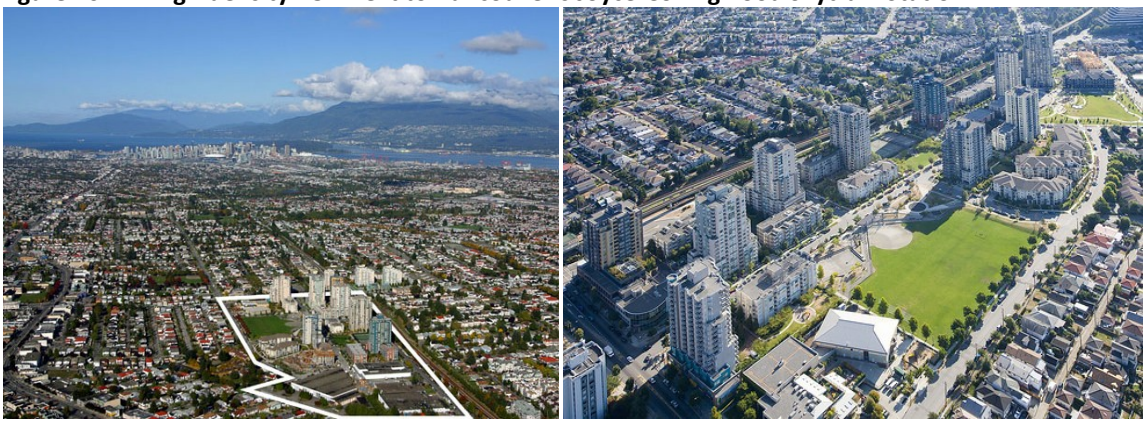
This indicates the high TOD awareness among not only the TOD project's residents, but also the surrounding neighbourhood, who was opposed the project when it was proposed not long after the station was constructed in the 1980s. Nonetheless, the city's participatory planning process had successfully led to the "symbiosis" between the planners' TOD intensification strategy and the community's desire to take advantage from the intensification to reinforce their neighbourhood character (Davison, 2011).

Figure 15 TOD intensification potential along Vancouver's SkyTrain Stations



Source: Ngo, *Identifying Areas for Transit-Oriented Development in Vancouver* (Vancouver: UBC Geography Department, 2012), figure 4.7.

Figure 16 High-density TOD next to Vancouver's Joyce-Collingwood Skytrain Station



Source: Concert Properties, *Collingwood Village*, *www.flickr.com/photos/mconcertproperties/5717330988*, accessed 27 August 2013.

The most relevant literature to date on metropolitan-wide TOD approach in the three metropolitan regions of Toronto, Montreal and Vancouver is a study of the prevalence of nodal intensification strategy within the regions' growth plans by Filion and Kramer (2011). The study noted the suitability of the nodal strategy in channelling growth to areas that combine the synergy of having access to regional transit and being the centre of local activities. The paper excluded the recent nodes of the Montreal and Vancouver regions and the recent corridor-based

strategies of some municipalities within the Toronto and Vancouver regions, although it rightfully observed the lack of emphasis of the Montreal region's draft PMAD on its nodes' multi-functionality and hierarchy when compared to the other regional plans.

In a nutshell, metropolitan TOD implementation for the Toronto, Montreal and Vancouver regions had been spotty and limited to certain inner city areas, with Vancouver's Metrotown and Toronto's North York as excellent examples of TOD that emerged rapidly after rapid transit line construction but failed to be emulated in the subsequent rapid transit expansions. Generally, the creation of new access nodes to the regional rapid-transit network did not necessarily affect local land-use intensification around the nodes, and the provincial priorities in expanding the regional rapid-transit network did not necessarily match the land-use intensification priorities of the local municipalities.

TOD planning at the metropolitan scale had been hampered by limited regional coordination capacity and political consensus to collectively curb car-oriented urban sprawl and promote transit-supportive developments, especially in the Toronto and Montreal metropolitan regions. Furthermore, public opposition against regional-level cooperation and sharing of resources had been the most intense in the GTA, followed by the CMM and Metro Vancouver. Nonetheless, regional coordination efforts to integrate transportation and land-use planning have seriously picked up since the 1990s, and there was no other time in history where the three regions' metropolitan TOD planning schemes and mandates were stronger.

The study of metropolitan TOD planning would involve the understanding of the regional planning processes involved among transit and land-use planning authorities and stakeholders in achieving agreements that are well-received at both the municipal and metropolitan levels. The regional-to-local calibration of TOD planning could be indicated by the municipal compliance of the regional growth plan through planning for local land-use intensification that is tied back to the regional transit, and the subsequent iteration of planning for expansion or upgrade of the regional transit to support greater land-use intensification in the future. The iteration process may be straightforward due to local and regional planning issues, and this paper aims to examine in depth the various regional and local official plans and documents in order to better understand the opportunities and challenges behind the metropolitan spatial and transit integration.

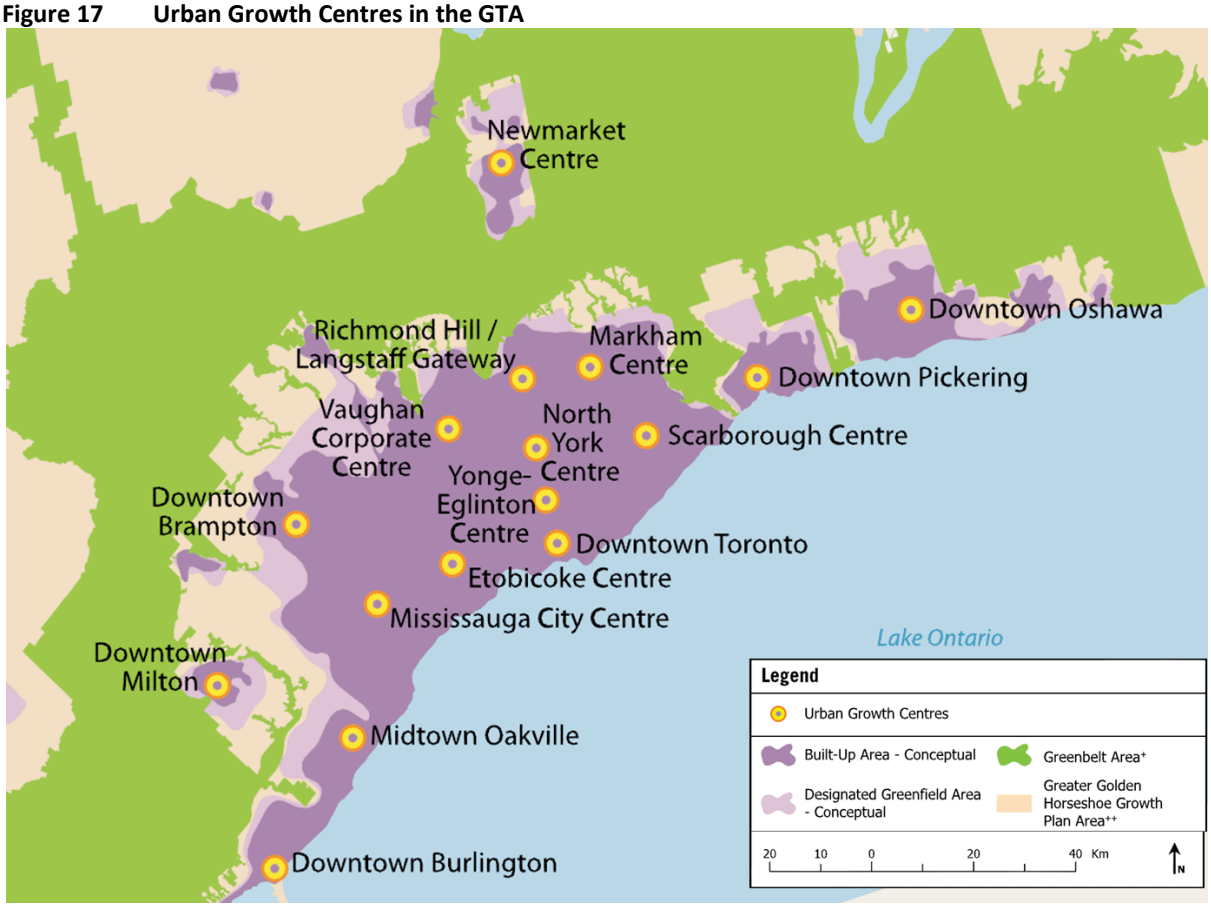
TOD planning tools are not just limited to land-use and transit plans. The effectiveness of the planning tools, which may not necessarily be framed from the regional TOD planning perspective by the administering agencies, varies according to unique local and regional contexts, progress, incentives and challenges. It is hoped that this research paper, with its intended exploration of TOD planning schemes, compliances, prescriptions, progress, incentives and challenges in Canada's 'big three' metro areas, will help to enhance the present understanding of metropolitan-wide TOD planning among planning practitioners and researchers.

4.0 Metropolitan TOD Planning Approaches in Toronto, Montreal and Vancouver

4.1 Governance and Growth Strategy

The most recent metropolitan growth plans for the three metropolitan regions of Toronto, Montreal and Vancouver indicate the general consensus towards promoting integration between land-use and transit planning. The plans seek to rein in urban sprawl by linking density with rapid transit network, assigning hierarchy of urban growth that is centred on transit nodes and corridors, and limiting built-up area expansion through a growth boundary. The plans' adoption is a milestone for the Greater Toronto and Greater Montreal Areas, considering the previous failures in achieving implementable inter-municipal consensus and co-ordination on regional spatial and transportation planning.

Figure 17 Urban Growth Centres in the GTA

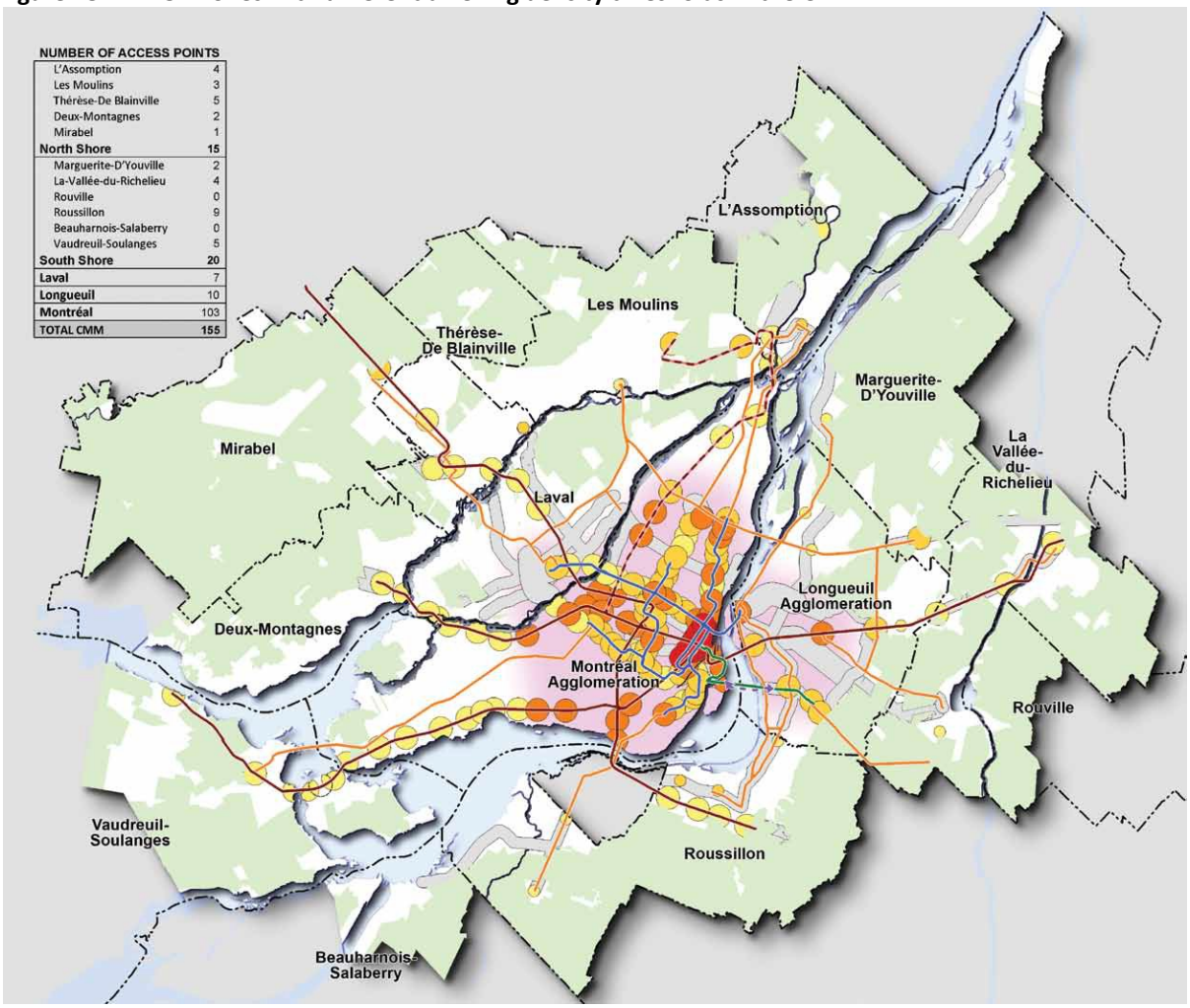


Source: Ontario Ministry of Infrastructure, *Growth Plan for the Greater Golden Horseshoe, 2006* (Queen's Printer for Ontario, 2013), schedule 4.

Metropolitan planning in the GTA is part of a wider provincial growth strategy of the Greater Golden Horseshoe (GGH) region, known as *Places to Grow* (Ontario Ministry of Infrastructure, 2013/7). The GGH covers Toronto's exurban and satellite towns that are related to the city's larger natural resource and ecosystem base and, to a lesser extent, to the city's socioeconomic function [Figure 17]. Although all three metropolitan regions have received legislative metropolitan planning mandates by the respective provincial governments, *Places to Grow* stands out among other policies as the metropolitan planning model with the strongest

provincial leadership. The metropolitan planning program is directly administered by the Ontario Growth Secretariat, which stands in between the relevant provincial ministries and agencies and the upper and lower-tier municipalities.

Figure 18 TOD zones with different dwelling density thresholds in the CMM

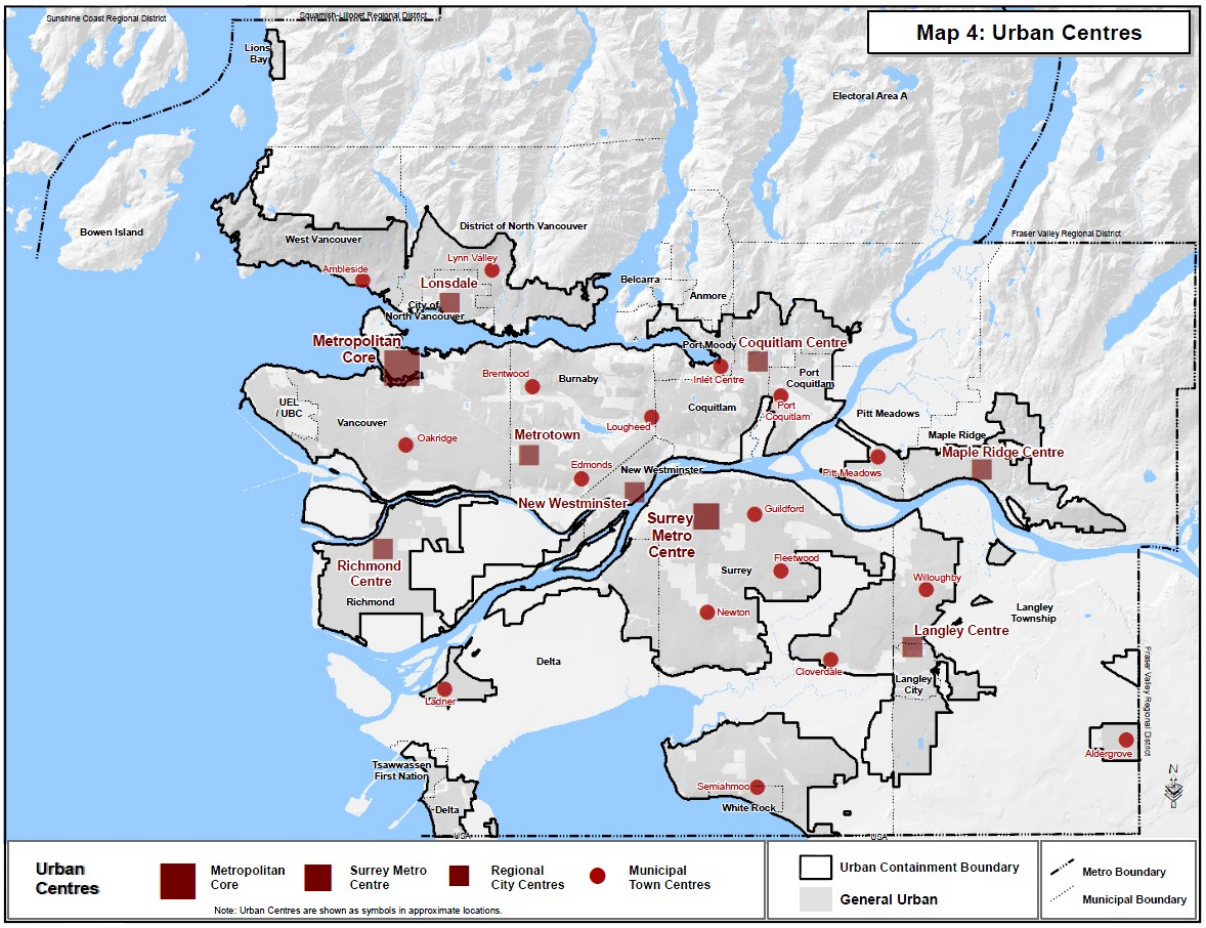


Source: **CMM, *Metropolitan Land-use and Development Plan - An Attractive, Competitive and Sustainable Greater Montreal* (CMM, 2012a), map 7.**

The CMM exhibits a more co-operative approach to metropolitan planning through the Metropolitan Land-use and Development Plan or PMAD (CMM, 2012a). The CMM council has a near-proportional MRC representation, in which the Mayor of the City of Montreal retains Chairmanship and the Montreal Agglomeration holds an overall 50:50 decision-making equity with its suburban MRC counterparts [Figure 18].

Metro Vancouver has a similar co-operative governance model which it inherited from its previous RGS which was the LRSP. The region's second RGS, which has the theme *Shaping Our Future*, underlines the region's metropolitan planning approach that is more supervisory and prescriptive than the PMAD (GVRD, 2011b). The GVRD board of directors include representatives from each of the region's local governments whose voting equity is tied to the municipal population [Figure 19].

Figure 19 Urban Centres in Metro Vancouver



Source: **GVRD, *Regional Growth Strategy: Metro Vancouver 2040 - Shaping our Future* (GVRD, 2011b), map 4.**

4.2 TOD Planning and Growth Management

The gist of the metropolitan plans boils down to the concentration of future growth in the areas along regional transit corridors and around transit-connected regional nodes. The similarities and differences of these plans are detailed out in Table 5.

The *Places to Grow*, PMAD and RGS assign population and household growth by upper-tier municipality, regional sector, and local municipality respectively. The first and the third include employment growth as well in their forecasts. The intensification nodes' growth targets in *Places to Grow* and PMAD are stated in residents and jobs combined/ha (without indicating the desired ratio) and dwellings/ha (excluding other land-uses) respectively.

The RGS does not specify housing and employment targets for its Regional City Centres and Municipal Town Centres. Instead, it allocates the proportion of the projected new housing and employment growth by intensification categories (Metropolitan Core, Surrey Metro Centre, Regional City Centres, Municipal Town Centres, Frequent Transit Development Areas (FTDA) and General Urban Areas).

While *Places to Grow* did not really establish fine-tuned intensification targets that indicate regional intensification priorities (a UGC in the GTA is targeted to contain either 200 or 400 residents and jobs combined per hectare by 2031), it is the most specific in terms of

intensification node boundary. The exact opposite is true for the other two plans. The RGS's intensification node boundaries are not explicitly defined, although the node placements align with the existing centres of urban and suburban activities.

The intensification nodes in the PMAD are even more conceptual with 155 radiuses that have quite a high degree of overlapping. The radiuses are centred on the mostly downtown-centric rapid transit stations, which may not reflect the presently established focal locations of urbanized activities, especially in the suburban municipalities.

The PMAD also assigns density targets to each of the radial-based TOD zone. For each TOD zone, the target of gross household density is determined by the CMM based on its proximity to downtown Montreal, characteristics of surrounding built environment, and sufficiency of municipal infrastructure provision (CMM, 2010).

All of the metropolitan plans identify density thresholds for non-transit areas as a measure to contain urban sprawl. The RGS sets specific non-TOD growth share thresholds and allocates 31% of growth to urban areas outside of the plan's intensification nodes or corridors, and 1% to non-urban areas.

The PMAD requires exurban municipalities on the South and North Shores to reach certain minimum density thresholds by 2016, prior to CMM's future review and adoption of higher density thresholds by 2031. Although *Places to Grow* does not specify any density targets outside of the intensification nodes (with the expectation that the lower level governments are better suited to allocate their own targets), it requires at least 50 residents and jobs/ha for greenfield developments.

All three plans feature precise geographical limitations for future urban expansions. Provincial acts and decisions exist to preserve the GGH Greenbelt Area (which excludes the Agricultural and Rural Area), the non-urban regional land-uses bordering the Metro Vancouver Urban Containment Boundary and the CMM's permanent agricultural zones that shape the plan's 2031 metropolitan boundary.

Metro Vancouver also classifies regional land-use classifications to include not only Rural, Agricultural Land Reserve and Conservation and Recreation Areas, but also Industrial and Mixed Employment Areas (industrial and low-density commercial) in view of the region's increasing real-estate competition and shrinking industrial land base.

Table 5 Comparison of metropolitan growth plans

Metropolitan Region	**Greater Toronto Area**	**Montreal Metropolitan Community**	**Metro Vancouver**
Metropolitan Plan	**Growth Strategy for the Golden Horseshoe Area, 2006**	**Metropolitan Land-use and Development Plan, 2011**	**Metro Vancouver's Regional Growth Strategy, 2011**
Theme	*Places to Grow*	An Attractive, Competitive and Sustainable Greater Montreal	Shaping Our Future
Custodian/Planning Agency	Ontario Growth Secretariat	Montreal Metropolitan Community (CMM)	Greater Vancouver Regional District (GVRD) or Metro Vancouver
Governance Units	The GTA region consists of the City of Toronto (44 wards), and the surrounding 25 smaller municipalities which fall under the two-tiered municipal governance system: • Regional Municipality of Peel • Regional Municipality of York • Regional Municipality of Halton • Regional Municipality of Durham	The formal CMM region covers 82 municipalities under 14 Regional County Municipalities or MRCs (including Montreal and Longueuil Agglomerations and the City of Laval). The City of Montreal (19 boroughs), together with the other 15 reconstituted cities within the Island of Montreal make up the Montreal Agglomeration.	The Metro Vancouver region, which is not governed by a multi-tier municipal structure, consists of 23 local governments and one electoral area. The local governments are: • Cities of Vancouver, Burnaby, Surrey, Richmond, North Vancouver, Coquitlam, Port Coquitlam, New Westminster, Langley, Port Moody, Pitt Meadows and White Rock • Township of Langley • Districts of Maple Ridge, North Vancouver and West Vancouver • Regional Districts of Fraser Valley and Squamish-Lillooet • Corporation of Delta • Villages of Anmore, Belcarra and Lions Bay • Tsawwassen First Nation

Table 5 Comparison of metropolitan growth plans , cont.

Metropolitan Region	Greater Toronto Area	Montreal Metropolitan Community	Metro Vancouver
Metropolitan Plan	**Growth Strategy for the Golden Horseshoe Area, 2006**	**Metropolitan Land-use and Development Plan, 2011**	**Metro Vancouver's Regional Growth Strategy, 2011**
Statutory Framework	There is no inter-jurisdictional cooperative body since the dissolution of OGTA. The Province of Ontario takes a leadership role in regional planning of the Greater Golden Horseshoe Area through formation of *Places to Grow* Secretariat under the Ministry of Infrastructure, with the enactment of *Places to Grow* Act, 2005.	The Province of Quebec provided the metropolitan planning mandate to the CMM Council (which consists of 28 elected members and is chaired by the Mayor of Montreal) in 2001 through amendments of Provincial Acts on CMM formation and on land-use planning and development at the local and MRC levels.	The Greater Vancouver Regional District Board (which consists of representatives from all local governments), founded in 1968 to facilitate inter-jurisdictional planning, has its metropolitan planning mandate secured by the Province of British Columbia's Local Government Act (Chapter 323 Part 25 — Regional Growth Strategies).
Year in Effect	June 2006 (with few outstanding disagreements between the Province and the regional municipalities as of 2013).	March 2012 (subsequent to provincial approval and PMAD's acceptance by all municipality members).	July 2011 (upon consensus of all local governments to replace the previous 1996 Regional Growth Strategy).
Compliance Deadline	January 2015 (for all municipalities to allocate at least 40% of growth to built-up areas). GTA Regional Municipalities' compliance status is listed in Appendix B.	March 2015 (for MRC plans [SAD] to comply with PMAD). The compliance status of main CMM upper and lower-tier municipalities is listed in Appendix C.	July 2013 (for Official Community Plans' [OCPs] Regional Context Statement [RCS] to comply with RGS). The compliance status of main GVRD municipalities is listed in Appendix D.
Planning Period	2006 to 2031 (with recent proposed amendments to 2041).	2011 to 2031.	2011 to 2041.
Growth Intensification Principles	Curb sprawl through nodal intensification that channels new growth within GTA's downtown core and 15 identified Urban Growth Centres (UGC). Most of the proposed transit lines that connect the UGCs bypass Toronto's downtown core.	Promote sustainable development through 155 rapid transit-centric intensification zones (TOD zones), which form corridors that branch out from Montreal's downtown core towards the outskirts of the region's centre.	Enhance the current compact development approach to shape urban form through intensification of 27 Urban Centres (UC) and rapid transit corridors along TransLink's Frequent Transit Network [FTN], which includes not only the SkyTrain but also the present and future [conceptual] high-frequency bus lines.

Table 5 Comparison of metropolitan growth plans , cont.

Metropolitan Region	Greater Toronto Area	Montreal Metropolitan Community	Metro Vancouver
Metropolitan Plan	**Growth Strategy for the Golden Horseshoe Area, 2006**	**Metropolitan Land-use and Development Plan, 2011**	**Metro Vancouver's Regional Growth Strategy, 2011**
Growth Containment Principles	The provincially-defined Golden Horseshoe's Greenbelt Area limits the land available for new developments. The Whitebelt Area, which stands between the greenbelt and the present built-up areas, is reserved for agricultural and future development uses.	CMM's agricultural zone forms the formal limit of urban expansion.	Present plan builds on previous plan's Urban Containment Boundary, which confines the built-up areas of the region from encroaching towards the mostly agricultural areas in the south, rural areas in the east and conservation areas in the north.
Key Intensification Targets	40% of new dwellings are mandated to occur in built-up areas starting 2015. For areas that already exceed the requirement in 2006, the achieved rates are the new standards to be followed.	Regional average of 40% (ranging from 8% for the North Shore to 73% for the Montreal Agglomeration) of new dwellings is mandated to occur within the TOD zones. The 40% average figure could be increased to 60% upon successful implementation of mass transit projects.	40% of new households and 50% of new jobs are mandated to be created within the UCs. 28% of new households and 27% of new jobs are mandated to be created within the Frequent Transit Development Areas (FTDA).
TOD Definition	Major Transit Station Area, which refers to area within 500m radius of existing or planned higher-order transit station or major bus depot in an urban core.	TOD Zone refers to an area within a certain radius of an existing or planned mass-transit access point. The TOD Zone radius for Metro, LRT and Commuter Train is 1km, and the TOD Zone radius for BRT, Tramway and Bus Feeder Service is 0.5km.	FTDA refer to areas within 800m of a frequent rapid transit station or within 400m of a frequent transit corridor. Intensification targets may not cover the entire FTDAs, as the RGS aims intensification at 'appropriate locations' within those areas.

Table 5 Comparison of metropolitan growth plans , cont.

Metropolitan Region	Greater Toronto Area	Montreal Metropolitan Community	Metro Vancouver
Metropolitan Plan	**Growth Strategy for the Golden Horseshoe Area, 2006**	**Metropolitan Land-use and Development Plan, 2011**	**Metro Vancouver's Regional Growth Strategy, 2011**
Intensification Hierarchy	No target is set for Major Transit Station Areas. By 2031, the downtown core and 5 UGCs within the City of Toronto are targeted to contain 400 residents and jobs combined per hectare; 10 other UGCs within the adjacent regional municipalities are targeted to contain 200 residents and jobs combined per hectare.	Locations of targets are strictly tied to rapid transit. By 2031, household density per hectare (depending on varying designated priorities of low/medium/high/very high) should reach: • 60-150 for Metro/LRT TOD zones • 40-110 for Commuter Train TOD zones • 30-80 for Tramway/BRT/Feeder TOD zones	TOD density targets vary for different UCs. Area targets for different milestone years are driven by the various planned growth rates for dwelling units/no. of jobs: • 5%/10% for Metropolitan Core • 6%/5% for Surrey Metro Centre • 16%/19% for Regional City Centres • 13%/16% for Municipal Town Centres
Targets Outside of Intensification Zones	50 residents and jobs combined per hectare for the Whitebelt Area.	For non-TOD zones outside of the Agricultural Zone, the 2031 household density per hectare targets are: • 60 for Central Montreal • 35 for Central Longueuil • 30 for other Montreal and Longueuil areas • 30 for Laval • 23-27 for North Shore (18-21 by 2016) • 22-25 for South Shore (16-19 by 2016)	32% and 24% for residential and employment growth respectively in all other areas. Only 1% dwelling units' growth in Rural, Agricultural, Conservation and Recreation Areas.
Growth Plan Review	Population forecast review at least every five years. June 2013 review was the first for GTA since the launch of the plan. GGH's Greenbelt Areas are up for review in 2015.	Density threshold review is planned beyond 2017.	Policy targets are subject to periodic review in response to changes in growth projection, Regional Context Statements and strategic transportation planning directions.

Sources: Extracted from Places to Grow (Ontario Ministry of Infrastructure, 2013), PMAD (CMM, 2012a) and RGS (GVRD, 2011b)

4.3 Growth Distribution

The three metropolitan plans generally project higher growth rate for areas farther away from the downtown cores of the regions' central cities. Such a regional growth allocation pattern is most evident in *Places to Grow* and least evident in the RGS. In the GTA, the Durham Region is projected to grow four times faster than the City of Toronto. In the CMM, Laval's and North Shore's projected growth rates are 26% and 34% respectively, as compared to Montreal's 14%.

In Metro Vancouver, the highest projected growth rates go to mostly SkyTrain-served municipalities outside of the City of Vancouver. The City of Coquitlam (which will benefit from the future opening of SkyTrain's Evergreen Line) is projected to more than double its population, whereas the Corporation of Delta's population is projected to increase by only slightly more than a third.

In terms of growth share allocation, the PMAD stands out among other plans through its highest allocation of new residential growth share (of 38%) to its core urban sector (which is the Island of Montreal). The *Places to Grow*'s distribution of projected growth shares is fairly balanced across the GTA's five upper-tier municipalities, and this reflects the plan's nodal intensification strategy that seeks to leverage on the presently polycentric regional transportation network to focus new growth in multiple sub-centres while strengthening downtown Toronto's role as the region's focal growth centre.

Metro Vancouver's RGS assigns the highest growth target proportion to Surrey, to the extent that the City of Surrey is projected to be on par with the City of Vancouver in terms of population in 2041. Local municipalities' growth shares are almost similar for the cities of Vancouver, Burnaby, Richmond and Coquitlam and the Township of Langley, indicating the region's trend towards consolidation of growth in multiple nodes that are strongly anchored to both downtown Vancouver and downtown Surrey. The growth assignments also reflect the crucial role of the region's present SkyTrain network (together with the anticipated Evergreen line and the proposed Broadway and Surrey-Langley rapid transit corridors) in shaping the region's land-use.

4.4 Transit Planning and Governance

Metrolinx, AMT and TransLink are the regional transit authorities for Greater Toronto and Hamilton, Greater Montreal and Metro Vancouver, respectively. The PMAD and RGS derive their future transit alignment plans from AMT's *Vision 2020* transit plan and TransLink's *Transport 2040* transportation plan respectively (AMT, 2008); TransLink, 2008).

Metrolinx's transportation plan, dubbed *the Big Move,* inherits its long-range rapid transit network plans from *Places to Grow*'s proposed network of rapid transit, which the province often refers to as higher-order transit (Metrolinx, 2008). Despite Metrolinx, AMT and TransLink having provincial mandate over their respective metropolitan transit planning activities, neither of these agencies can override the local authorities' jurisdiction over transit-supportive land-use and development regulations.

Nonetheless, TransLink's land-use advisory role is stronger than that of Metrolinx and AMT. TransLink is considered as an affected local government that is a signatory party to the Metro Vancouver's RGS, and the RGS made it mandatory for a local municipality to have the transit agency involved in the local planning process to integrate transit and land-use components together. TransLink's involvement would primarily involve its facilitation for proper identification of Frequent Transit Development Areas (FTDA) in the municipality's Official Community Plan (OCP), but provincial law prohibits TransLink from enforcing the adoption of FTDA recommendations in the municipal land-use plans (Walker, personal communication).

The municipal strategy for transit and land-use synergy should be reflected in the municipality's Regional Context Statement (RCS), which is scheduled to be submitted to Metro Vancouver two years after the adoption of the RGS. TransLink has a three-way governance approach: technocrats to run the day-to-day administration, a council of mayors to approve executive decisions and a commissioner to advise on critical decisions.

Metropolitan transit provision and governance in the CMM and the neighbouring Town of Saint-Jérôme is assumed by the AMT through the operation of mostly suburban Commuter Train services. In comparison, the role of Montreal's transit agency *Société de transport de Montréal* (STM; English: Montreal Transit Corporation) is more prevalent on the Island of Montreal due to its comprehensive bus and Metro service provisions and administrations.

Three CMM representatives, including one representative from the CMN's Transport Commission sit on the AMT's Board, which reports to the Quebec's Minister of Transport. No AMT representative is officially included in CMM's decision-making committees, but AMT executives work very closely with CMM on the coordination of TOD and transit service planning (Desjardins, personal communication).

Like the AMT, the involvement of Metrolinx in transit planning is limited to regional bus and commuter rail planning and operation, regional rapid transit infrastructure planning and funding and cross-agency fare integration. Planning for integrated transit in the GTA is challenging due to local bus planning of the local and regional municipalities that do not necessarily interface with Metrolinx's metropolitan-wide rapid transit planning. Unlike the AMT and TransLink, Metrolinx's administration includes prominent community or business sector leaders but excludes elected officials and municipal representatives. Unlike the AMT, Metrolinx has no role in the funding of the capital expenses of municipal transit agencies.

4.5 TOD Planning

The metropolitan planning agencies typically have the exclusive mandate to define the locations and specifications of primary metropolitan-level intensification nodes or corridors. For the GTA, *Places to Grow* identifies sixteen Urban Growth Centres (UGCs) and defines Major Transit Station Area as the area within 500m of a higher-order transit service. The *Places to Grow*'s primary and secondary node assignments (in requiring people plus job densities of up to 400/ha and 200/ha respectively) can be reasonably linked to the level of planned rapid transit provision.

The Big Move complements *Places to Grow*'s TOD designation through its identification of additional nodes of intersecting rapid transit corridors on top of the UGCs. Metrolinx considers the UGCs as Anchor Hubs, the additional nodes as Gateway Hubs, and the combination as Mobility Hubs. *The Big Move*'s Mobility Hubs are linked by the plan's metropolitan rapid transit lines which involve the following modes: (grade-separated) Subway, (full-day and two-way) Regional Commuter Rail, (segregated) Automated Guided Transit (AGT), (mixed-grade) Light Rail Transit (LRT) and (at-grade) Bus Rapid Transit (BRT). Unlike the UGCs, no density requirement is assigned to the Gateway Hubs.

PMAD's TOD zone radius is 1km for Metro, Commuter Rail and LRT, and 500m for BRT, tramway and bus feeder services. This raises the question whether a peak-only, unidirectional Commuter Train service suits a wider TOD area coverage category, and whether the anticipated Pie-IX BRT, which has LRT-like right-of-way and can easily run as frequently as the Metro, deserves a smaller TOD area.

The PMAD assigns density to TOD zones based on transit mode and development priorities. BRT-based TOD zones have 50% lower density targets than LRT-based TOD zones, despite their both having a similar development priority. PMAD's overall rapid transit network that serves the TOD zones is mostly downtown-Montreal-centric, and does not follow STM's suggestion for TOD zones to include areas served by its existing frequent and express bus lines that criss-crossed the island (STM, 2012a).

Nonetheless, the minimum density thresholds set by PMAD are designed to be distinguished by different types of TODs, namely regional, urban centre, suburban and neighbourhood, based on the CMM's consultation with its municipal partners during the two years preceding the plan's adoption (CMM, 2012a). The PMAD does not elaborate on the TOD types' density thresholds and assignment criteria, although the CMM's *Guide for TOD Planning Areas* outlines TOD types by six types: downtown, inner-city, urban centre, regional suburban centre, suburban centre, urban neighbourhood, and suburban neighbourhood, together with their density range, location character, and urban morphology (CMM, 2011b).

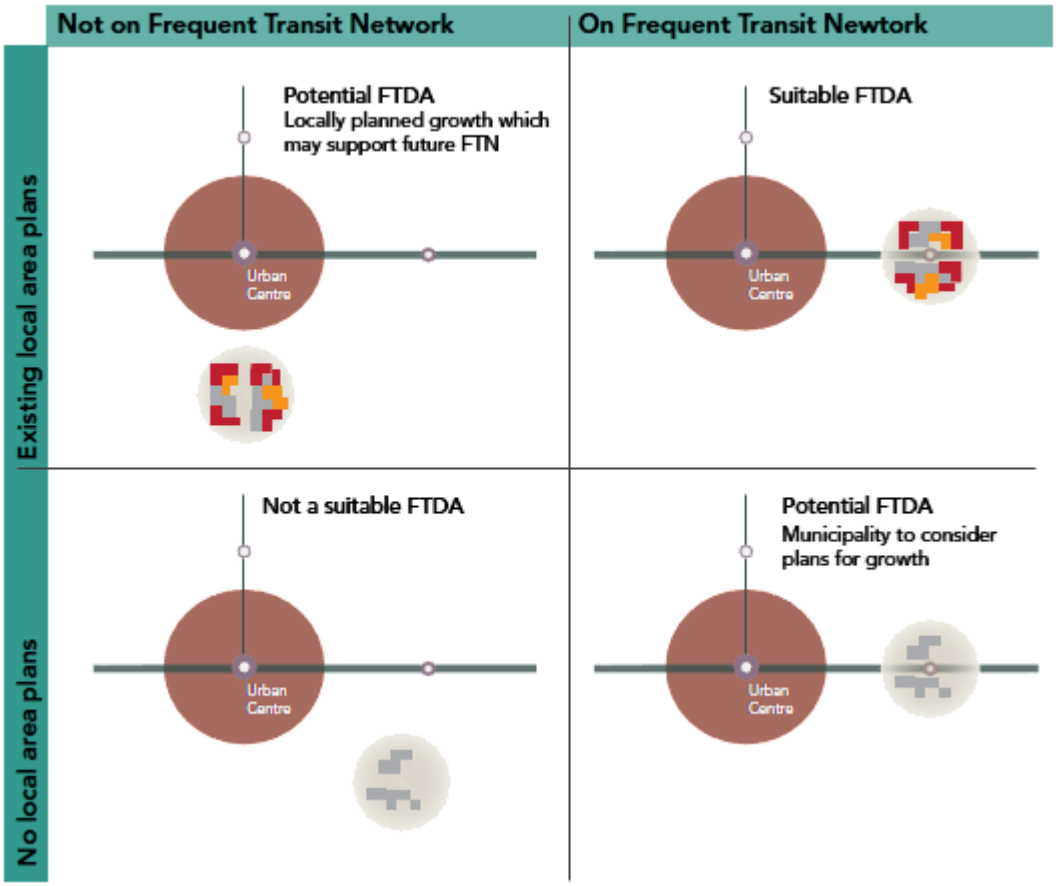
The RGS firmly designates twenty-seven Urban Centres (UCs) for Metro Vancouver as intensification nodes. All of the nodes are linked to each other by at least one present or projected rapid-transit line, although some of the lower-priority nodes are not expected to be served by rapid transit anytime soon.

Metro Vancouver's and TransLink's regional land-use and transportation documents use the term Transit-Oriented Communities (TOC) for the region's TOD areas. TOCs could be assigned through the identification of Frequent Transit Development Areas (FTDA), which are locations within 400m of both rapid transit and high-frequency bus corridors, and locations within 800m of rapid transit stations.

The RGS allows Metro Vancouver municipalities to assign their own FTDAs according to the RGS's FTDA assignment guideline [Figure 20], although written comment from TransLink and final approval from Metro Vancouver are required. TransLink's rapid transit definition includes

SkyTrain (as a form of Rail Rapid Transit or RRT), BRT, and LRT, and excludes the peak-hour-only West Coast Express Commuter Rail Line. Rapid transit lines together with the frequent Downtown-Lonsdale SeaBus ferry service and high-frequency bus lines make up for the region's Frequent Transit Network.

Figure 20 FTDA assignment guideline with respect to Metro Vancouver's local area plans



Source: **Greater Vancouver Regional District, *Regional Growth Strategy Implementation Guideline #4: Identifying Frequent Transit Development Areas* (Metro Vancouver, 2013), figure 4.**

Except for Vancouver Metropolitan Core (downtown peninsula and Broadway corridor) and Surrey Metro Centre (downtown Surrey), where most the region's proposed rapid transit lines converge, no specific growth shares are assigned to particular nodes. Overall, the RGS targets 40% of Metro Vancouver's residential and employment growth to go to UCs and 28% to FTDAs.

Metro Vancouver's inclusion of the present and future high-frequency bus corridors into its FTDA affords the region the flexibility to induce smoother growth gradient patterns through new job and housing allocations in between the nodal TODs (around rapid transit stations and within targeted urban activity centres) and the outlying areas (where sparser urban forms are projected to take place). TransLink's high-frequency bus service is more frequent and reliable than the typical local bus service due to the simplified bus routes and the provision of bus priority measures such as traffic signal priority and queue jump, but stop short of being classified as a bus rapid transit (BRT), which typically has its own exclusive right of way.

4.6 Transit Accessibility Strategy

As destination accessibility is the most significant predictor of travel behaviour, it is essential for the metropolitan growth plans to locate and prioritize TOD nodes based on the level of transit-based accessibility of the nodes. Equally important is for the metropolitan transportation plans to commit towards regional transit network enhancement that increases the competitiveness of transit-based accessibility vis-à-vis auto-based accessibility.

The Big Move and *Vision 2020* provide targets in terms of transit-based commute share increase in a given period. The former looks at GTHA-wide enhancement in transit commute and its comparison with auto-based commute, while the latter only deals with downtown Montreal-bound transit commute. No transit accessibility improvement target is set by Metro Vancouver's *Transport 2040*, and the latest preparatory document on the plan's review targets the share of walking, cycling and transit to increase from 27% in 2011 to 50% in 2045 (TransLink, 2013b).

Transport 2040 outlines the need to pre-empt the cycle of auto-oriented circulation and auto-dependent development through early investments that reinforce the building of TOCs, which should offer local accessibility benefits of compact and active transportation-friendly built-environment and the regional accessibility benefits of frequent transit to the local community members.

Committed transit projects within the GTA are located in the City of Toronto (Eglinton, Finch West and Scarborough LRTs and Spadina Subway extension to Vaughan Corporate Centre), the Region of York (Rapidways BRT) and the City of Mississauga (Transitway BRT). Other GTA municipalities may also anticipate increases in transit accessibility via CBD-centric commuter rail upgrades for more frequent and all-day GO Train service by 2020 (GO Transit, 2013), as part of *the Big Move*'s Next Wave projects that are planned to be funded by Metrolinx's Investment Strategy.

The strategy mainly seeks to fund inter-municipal rapid transit projects that expand GTA's circumferential rapid transit network to serve the intensification nodes of the regions of Halton and Durham and the City of Brampton. One-fifth of the Next Wave projects' budget would be channeled to municipal transit agencies in order to improve the last-mile connection of the regional rapid transit network.

The CMM's ongoing and future new rapid transit constructions include the Mascouche Commuter Line, the Pie-IX BRT, the A-10 corridor LRT and the Metro system extension (AMT, 2012). The last one, whose alignments are still being studied, consists of the proposed extensions of the Blue Line eastwards to Anjou, of the Yellow Line southwards to central parts of Longueuil and of the Orange Line northwards to form a loop in southern Laval.

Although *Vision 2020* features various plans on future upgrades of the present Commuter Train system, there is no indication on funding for frequent and all-day services on AMT Commuter Train lines other than the Deux-Montagnes line, which stands to be AMT's only all-day and electrified service line. Nonetheless, the AMT is seriously looking at the West Train project to relieve the anticipated congestion from the future works on Montreal's Turcot interchange.

The project involves double-tracking the Vaudreuil-Hudson commuter line to increase service frequency for the western half of the Island of Montreal (Desjardin, personal communication). Almost a third of AMT's 2013-2015 transit capital expenditure is allocated to bus lanes, bus priority measures and bus terminals (AMT, 2012).

Transport 2040 aims to connect all of the RGS's secondary intensification nodes (Regional City Centres) by rapid transit. For the foreseeable term, TransLink aims to prioritize regional rapid transit extension to Vancouver's Broadway corridor and Surrey City Centre-Guildford, Fleetwood and Newton corridors (TransLink, 2013b).

Nonetheless, Metro Vancouver's 2013 Base Plan only list SkyTrain Evergreen Line to Coquitlam and Phase 1 of Surrey's King George Blvd B-Line (instead of a full-fledge BRT) projects, and emphasize on TransLink's focus to optimize its present delivery of transit service (through service reduction on some bus routes) due to its operating budget shortfall for 2013-2015 (TransLink, 2012c).

Table 6 Comparison of metropolitan transit strategies and governance

Transportation Plan	Regional Transportation Plan	Strategic Development Plan for Public Transit	Regional Transportation Strategy
Title	***The Big Move*: Transforming Transportation in the Greater Toronto and Hamilton Area**	**Vision 2020: The Future of Public Transit for the Greater Montreal Area**	**Transport 2040: A Transportation Strategy for Metro Vancouver, Now and in the Future.**
Integration of Regional Growth and Transportation Plans	The regional land-use and transport plans are well integrated: the former locates UGCs on strategic intersections of present and projected rapid transit lines, and the latter proposes staggered expansion of rapid transit network by mode, enhancement strategy and priority, and identifies 48 Mobility Hubs within the GTA. The hubs comprise 15 UGCs (Anchor Hubs) and 33 TOD areas (Gateway Hubs) at areas where rapid transit lines intersect.	The regional land-use and transit plans are fairly integrated. The former emphasizes future TOD zones only on the LRT A-10 and Blue Line extension to Anjou corridors, and not on the Pie-IX BRT and Orange Line Loop extension corridors, where the latter identifies all four lines as major planned projects. TOD zones are absent within the regional transit plan.	The transit maps on both plans are exact replicas, with conceptual alignments of proposed BRT/LRT and high-frequency bus lines connecting the Metropolitan Core with the Surrey Metro Centre and the Regional City Centres. Municipal Town Centres are absent on the transit maps, and through visual comparison with UCs map it seems that all UCs are connected to at least a high-frequency bus line except for Cloverdale and Willoughby.
Year in Effect	November 2008	July 2008	November 2011
Planning Period	2009-2035	2011-2020	2010-2040
Governance Units	Greater Toronto Transportation Authority (Metrolinx) runs the regional GO Transit service (GO Bus and GO Train). Local bus provision is managed by different upper-tier or lower-tier municipal transit agencies: Toronto Transit Commission (TTC), York Region Transit, Mississauga Transit (MiWay), Brampton Transit, Burlington Transit, Durham Region Transit, Oakville Transit and Milton Transit. TTC operates the region's only streetcar and subway network.	*Agence métropolitaine de transport* (Metropolitan Transportation Agency) runs the regional AMT commuter rail and metropolitan express bus services. There are three main local transit agencies within the region, namely *Réseau de transport de Longueuil* (RTL), *Société de transport de Laval* (STL) and *Société de transport de Montréal* (STM), and 9 intermunicipal boards covering the North and the South Shores. STM operates the region's metro network.	South Coast British Columbia Transportation Authority (SCBCTA or TransLink) manages and operates both regional and local transit operations, including the SkyTrain rail rapid transit, the West Coast Express Commuter Train and the SeaBus ferries.

Table 6 Comparison of metropolitan transit strategies and governance , cont.

Transportation Plan	Regional Transportation Plan	Strategic Development Plan for Public Transit	Regional Transportation Strategy
Title	***The Big Move*: Transforming Transportation in the Greater Toronto and Hamilton Area**	**Vision 2020: The Future of Public Transit for the Greater Montreal Area**	**Transport 2040: A Transportation Strategy for Metro Vancouver, Now and in the Future.**
Statutory Framework	The province created the regional transportation authority under the Metrolinx Act (2006) to plan, coordinate and integrate transportation systems within the Greater Toronto and Hamilton Area (GTHA). Metrolinx's governance structure (after 2009 merger with GO Transit) consists mostly of GTHA technocrats, and no political representatives from the provincial and municipal levels are involved.	The province created the regional transportation authority under the province's AMT Act (1995) to coordinate and integrate public transit services within the Greater Montreal Area (including Saint-Jerome, which falls outside of CMM's jurisdiction). AMT's board consists of a provincially-appointed Chair, also the President, three provincially-appointed non-political representatives and three CMM delegates (including one from the City of Montreal).	The province created the region's first transportation authority through the SCBCTA Act (1998). TransLink has a three-way governance model of direct supervision by Board of Directors (appointed by GVRD Mayors' Council), funding and planning approvals from Mayors' Council (consists of all local government heads) and approval advisories from an independent commissioner (appointed by Mayors' Council).
Destination Accessibility Targets	Expansion of regional rapid transit service via new BRT and LRT lines and frequent, two-way and all-day commuter rail lines is expected to increase transit accessibility of regional destinations. The plan projects 52-56% of transit-based commutes in 2033 to be under 45 minutes, compared to 38% in 2008 (and almost no change for auto-based commute).	Overall improvements are projected to increase destination accessibility for downtown-bound transit users, with 40% of users expected to travel less than 40 minutes in 2020, compared to 30% in 2010.	The plan does not indicate hard targets for regional transportation accessibility improvements by 2040.

Table 6 Comparison of metropolitan transit strategies and governance , cont.

Transportation Plan	Regional Transportation Plan	Strategic Development Plan for Public Transit	Regional Transportation Strategy
Title	***The Big Move*: Transforming Transportation in the Greater Toronto and Hamilton Area**	**Vision 2020: The Future of Public Transit for the Greater Montreal Area**	**Transport 2040: A Transportation Strategy for Metro Vancouver, Now and in the Future.**
Regional Transit Expansion Progress	**Ongoing accessibility-improving projects [Figure 21] include:** • TTC's Toronto-York Spadina Subway Extension (by 2016) [#16] • York Region's Rapidways BRT [#29 & #35] • TTC's Eglinton Crosstown LRT [#31] • MiWay's Mississauga Transitway BRT [#23] • TTC's Scarborough Rapid Transit (RT) Replacement [#37] • TTC's Finch West (LRT) [#30] • GO Train's Georgetown South Project [#5]	**The listed projects [Figure 22] that are being committed to are:** • AMT Commuter Rail's Mascouche Line (by 2014) [#3] • BRT along Pie-IX corridor (by 2017) [#4] • Reliability enhancement of STM Metro (through new cars) and of AMT Commuter Rail service (through double tracking for Blainville-St-Jérôme Line and Mont-Royal tunnel capacity upgrade for Deux-Montagnes and Mascouche Lines)	**The committed projects listed in the 2013 Base Plan are:** • SkyTrain Evergeen Line to Coquitlam and Port Moody (by 2016) • High-frequency bus line upgrades for Highway 1 Rapid Bus Project, Phase 1 (Carvolth to Braid) and King George Blvd B-Line, Phase 1 (Guildford to Newton)
Regional Transit Expansion Plan (without Funding Plan)	**The Next Wave projects (that rely on Metrolinx's Investment Strategy) are:** • Brampton Queen Street RT [#28] • Downtown Relief Line (new subway or frequent local GO Train service) • Dundas Street BRT [#21] • Durham-Scarborough BRT (Scarborough Centre to downtown Oshawa via Pickering, Ajax and Whitby) [#38] • All-Day GO Train Network • Hurontario-Main LRT (Port Credit GO to Brampton GO) [#25 & #26] • Yonge North Subway Extension [#17]	**Other proposed longer-term projects (with noncommittal funding) include:** • Track improvements for Vaudreuil-Hudson line (up to Ste-Anne-de-Bellevue) [#6] • Metro Blue Line extension to Anjou (budget allocation of a 3-year study) [#1] • A-10 LRT corridor from downtown to the South Shore via the Champlain Bridge (currently under study phase) [#2] • Metro Yellow Line and Orange Line extensions to Longueuil and Laval respectively (budget allocation of a 3-year study) [#1]	**Other proposed longer-term projects with noncommittal funding [Figure 23] include:** • Vancouver's Broadway Rapid Transit (BRT or RRT) • Surrey Rapid Transit (BRT, LRT and/or LRT combinations for Surrey-Guildford, Surrey-Fleetwood/ Langley and/or Surrey-Newton/ White Rock corridors) • Capacity upgrade of the SkyTrain's Expo Line

Table 6 Comparison of metropolitan transit strategies and governance , cont.

Transportation Plan	Regional Transportation Plan	Strategic Development Plan for Public Transit	Regional Transportation Strategy
Title	***The Big Move*: Transforming Transportation in the Greater Toronto and Hamilton Area**	**Vision 2020: The Future of Public Transit for the Greater Montreal Area**	**Transport 2040: A Transportation Strategy for Metro Vancouver, Now and in the Future.**
Commuter Train Plan	Big Move's Next Wave projects in the next 15 years include commuter line upgrades that allow frequent services on Richmond Hill and the key stretches of Milton, Kitchener, Barrie, and Stouffville lines (up to Meadowvale, Mt Pleasant, E Gwillimbury and Mt Joy). Presently, infrequent off-peak GO Bus lines complement these rush-hour GO Train lines, as only the Lakeshore lines have two-way and all-day service (30-mins headway at most times). Frequent all-day GO Bus lines along the peripheral Hwy. 403, 407, and 401 corridors are planned by 2020, connecting Midtown Oakville with Mississauga City Centre, York Region's three main UGCs and Downtown Pickering.	No timeline for proposed electrification and all-day service of AMT Train lines other than the Deux-Montagnes line (which is already electrified and runs throughout the day). Among the proposed project items, AMT is prioritizing its plan to improve service frequency on the Montreal West Island's section of the Vaudreuil-Hudson line (Desjardins, personal communication). There is no plan for high-frequency bus lines to complement rush hour-only lines, although the AMT runs frequent *Chevrier Express 90* bus line on the future A-10 corridor and peak-hour only *Trainbus 935* bus line from Parc Metro station to Lucien-L'Allier station.	No plan for all-day West Coast Express. The RGS does not consider the Commuter Train line as part of the region's FTN.
Parking Management	Multi-modal transfer amenities that prioritize bike and car-share spaces over car parking would enhance the integration between transit nodes and the surrounding spatial fabric. These amenities are planned to be provided at the Mobility Hubs. Surrounding areas shall be governed by parking by-laws that discourage surface parking.	More park-and-ride lots are planned to shift commuters from cars to transit. Improvements of pedestrian and bicycle paths and introduction of bicycle parking and shelters (*AMT Bikezone*) are also in the pipeline.	The long range plan does not spell out any demand management initiative. Nonetheless, TransLink's 2013 Base Plan (which is *Transport 2040*'s sub-component) introduces new park-and-ride variable pricing policy. The RGS stipulates member municipalities to reduce parking requirements in UC where appropriate.

Table 6 Comparison of metropolitan transit strategies and governance, cont.

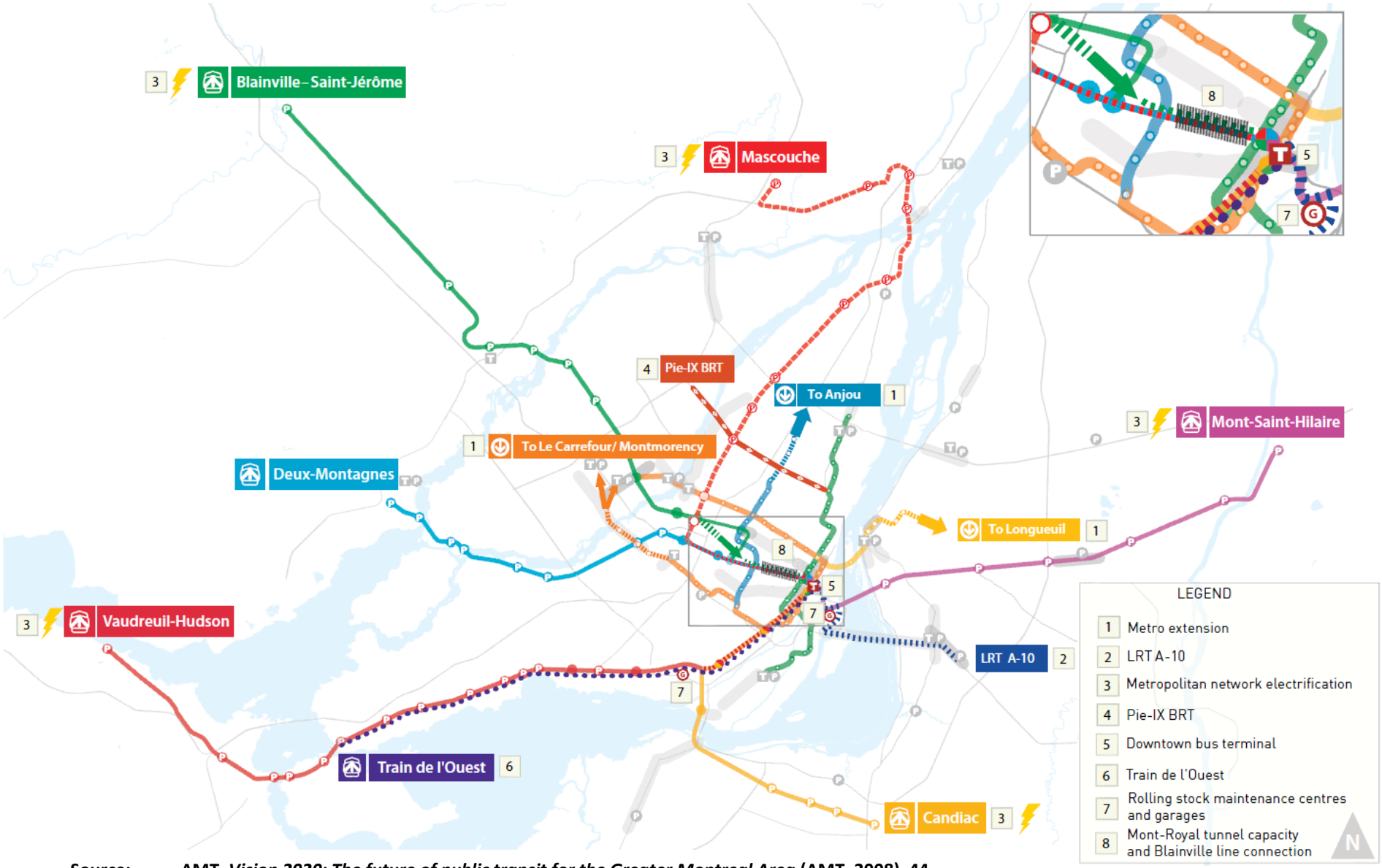
Transportation Plan	Regional Transportation Plan	Strategic Development Plan for Public Transit	Regional Transportation Strategy
Title	***The Big Move*: Transforming Transportation in the Greater Toronto and Hamilton Area**	**Vision 2020: The Future of Public Transit for the Greater Montreal Area**	**Transport 2040: A Transportation Strategy for Metro Vancouver, Now and in the Future.**
Placemaking (Density, Diversity and Design) Principles	The plan features a map on focus areas for cycling and walking (with the highest density of short trips in downtown Toronto and its vicinity, followed by downtown Milton), new infrastructure to address barriers to cyclists and pedestrians (such as rivers, highways, railroads and missing sidewalks) and suggestion for municipalities to prepare detailed master plans that "optimize TOD potential" for each mobility hub and important major transit station areas (through tools such as reduced development fees). Intensification Corridors along rapid transit corridors (that are not on expressways) shall be equipped with transit priority measures, minimum density targets (that match planned transit service levels) and active-transport-friendly streetscaping.	The plan proposes public-private partnerships (PPP) to develop strategic areas along transit corridors, and encourages partnerships with municipalities to integrate urban development with the mass transit network.	The plan's top priority is to pre-empt the lure of car-based urban growth through early investments in transit, cyclist and pedestrian infrastructure and facilities to promote TODs.
Transportation Plan Review	Provincially-mandated comprehensive review is required by 2016.	The plan is likely to be replaced near the end of the planning phase (in 2020).	TransLink's next 5-year review of the plan is in 2013.

Sources: **Synthesized from the *Big Move* (Metrolinx, 2008), the *Big Move* Update Report (Metrolinx, 2013a), GO 2020 Strategic Plan (GO Transit, 2013), *Vision 2020* (AMT, 2008), AMT's *Le programme triennal d'immobilisations* (AMT, 2012), *Transport 2040* (TransLink, 2008), TransLink's 2013 Base Plan (TransLink, 2012c) and TransLink's Draft Strategic Framework for (Regional Transport Strategy Review) Consultation (TransLink, 2013b)**

Figure 21 Rapid transit expansion plan for the GTA

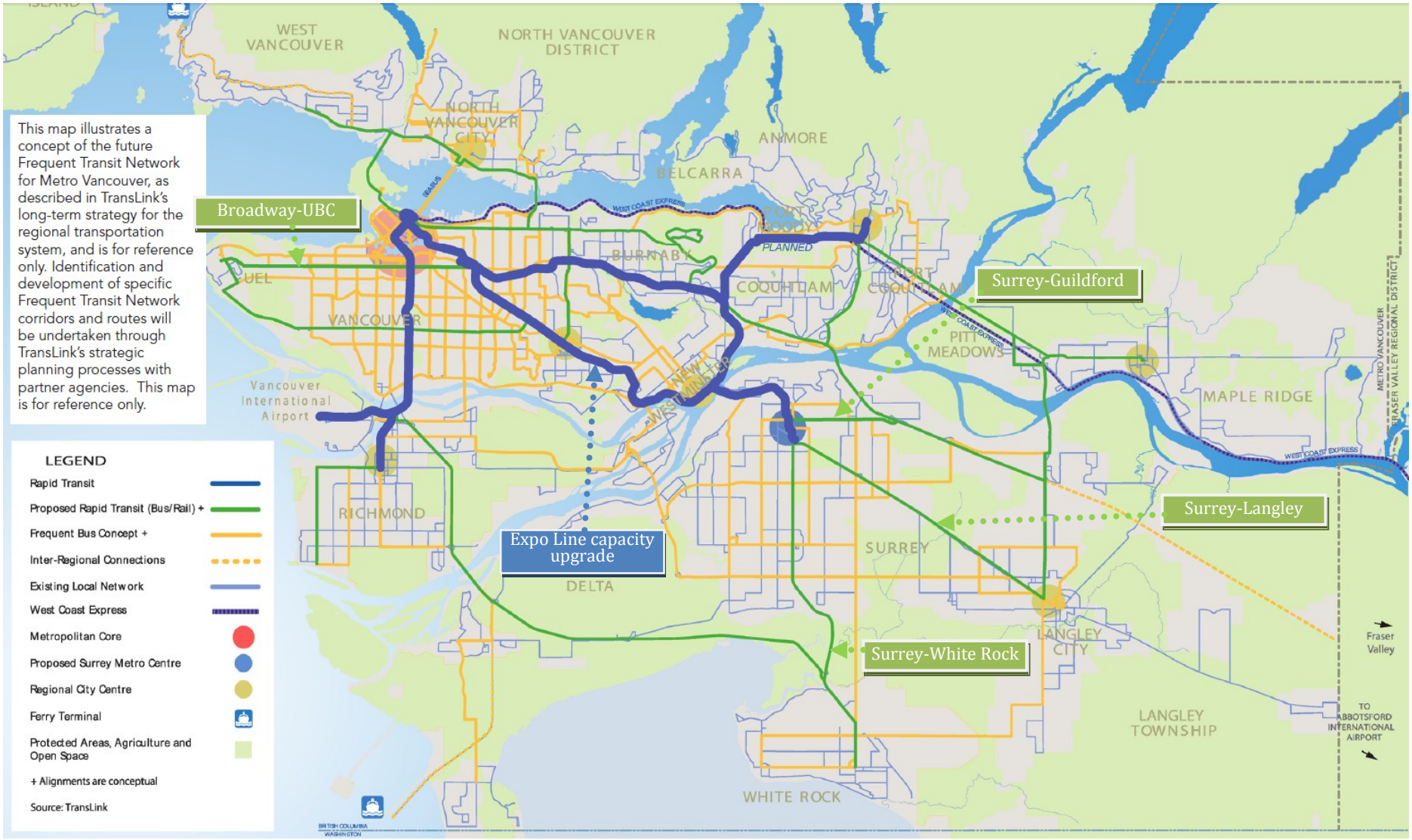
Source: Metrolinx, *The Big Move - Transforming Transportation in the Greater Toronto and Hamilton Area* (Metrolinx, 2008), schedule 1.

Figure 22 **Rapid transit expansion plan for the Montreal Metropolitan Community**



Source: **AMT, *Vision 2020: The future of public transit for the Greater Montreal Area* (AMT, 2008), 44.**

Figure 23 Frequent Transit Network (FTN) expansion plan for Metro Vancouver (priority projects are marked with arrows)



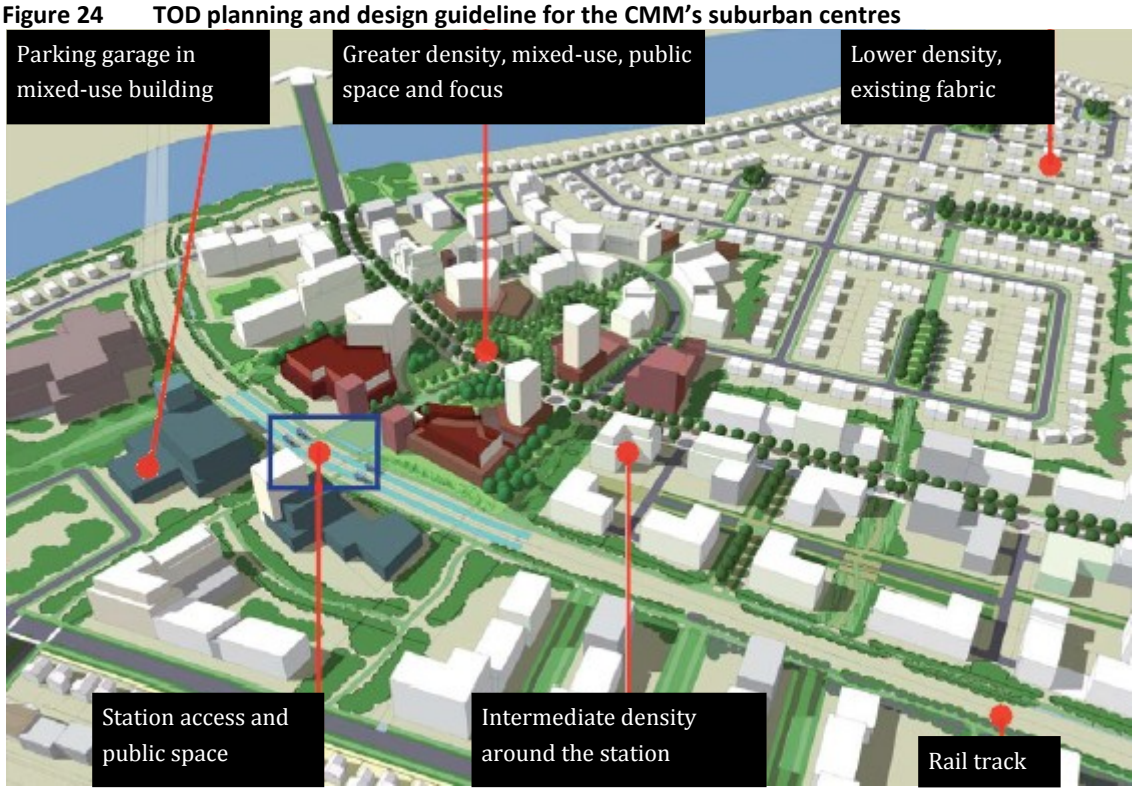
Source: **Adapted from GVRD, *Regional Growth Strategy: Metro Vancouver 2040 Shaping our Future* (GVRD, 2011b), map B.1.**

4.7 TOD Guidelines and Tools

Metropolitan planners in the three regions have introduced TOD planning guidelines, albeit with varying central themes and formats, to impart TOD land-use prescriptions and best practices to local municipalities. Metrolinx's involvement in localized TOD planning is more evident than that of the AMT and TransLink through its comprehensive planning guidelines on metropolitan-level rapid transit nodes and their surrounding municipal-level transportation and land-use patterns. Metrolinx (2011) has issued *Mobility Hub Guidelines* which details TOD planning principles and guidelines for pedestrian-friendly and multimodal station facilities, modular parking, and a vibrant built environment.

The CMM's *Guide for TOD Planning Areas* frames TOD planning from the New Urbanism perspective (CMM, 2011b). The plan offers rich details of urban design templates that suit the region's various street morphologies and urban fabric patterns. The CMM (2013a) has also issued a guide on planning for TOD parking which recommends best parking practices in transit-intensification areas but stops short of prescribing TOD-based parking guidelines.

Figure 24 TOD planning and design guideline for the CMM's suburban centres



Source: Translated from CMM, *Guide for TOD Planning Areas* (CMM, 2012a), 68.

TransLink's TOC Design Guidelines and Key Concepts documents are more academic and formulaic, as specific TOD-based prescriptions are structured according to TOC's 6Ds principle: destinations, distance, design, density, diversity and demand management (TransLink, 2011; TransLink, 2012a; TransLink 2012b). The guidelines emphasize transit network design and TOC checklists that pertain not only to site-specific interventions, but also to improvements at the scale of the transit corridor.

The guidelines reflect the metropolitan planners' responses to the unique strengths and challenges faced by each metropolitan region. Integrative solutions remain central in Metrolinx's TOD planning documents, as the GTA's smart growth progress has been historically marred by fragmented transit and

land-use planning. The CMM's suburban areas that surround the downtown-centric train stations consist mostly of idyllic and family-oriented neighbourhoods, and thus the CMM's TOD guide seeks to alter the prevailing perception that density may be disruptive to the neighbourhoods' peaceful character and quality of life. Metro Vancouver's co-operative model has always centred on the agenda of sustainable regional planning ever since the adoption of the LRSP. Together with the encompassing jurisdiction of TransLink over both local and regional transportation, the region's governance model enables transit and land-use planning exercise to be conducted iteratively at the municipal level.

4.8 TOD Planning Compliance

Based on the author's extensive reviews over local planning documents, the progress of the local plans' adoption of the metropolitan growth plans has been mixed. The detailed status of municipal compliances to metropolitan TOD prescriptions for the GTA, CMM and Greater Vancouver is listed under appendices B, C and D respectively.

The land-use plans and related planning documents of the GTA and Metro Vancouver municipalities are generally aligned with the intensification nodes, growth boundaries and major rail transit alignments of the metropolitan growth plans. As the CMM's upper-tier municipalities are given until 2015 to comply with the PMAD, relevant intensification strategies have yet to appear in the official plans of the upper-tier municipalities, although many TOD prescriptions have been featured in other relevant documents, such as mobility plans and sustainability policies. In all three regions, the majority of the main upper-tier or local municipalities that are connected to the planned regional rapid-transit network acknowledge the importance of transit-supportive developments and the necessity to utilize placemaking and transport demand management tools to promote TODs.

All of the GTA's upper-tier municipalities and most of Metro Vancouver's major municipalities are already planning for new parcel-specific intensification nodes which are considerably aligned to the regional growth plans. Although the RGS does not really delineate its UC areas, the borders of the UC areas that were indicated in the draft submissions of RCSs of municipalities roughly follow the census tract-based UC boundaries that appeared on Metro Vancouver's 2006-2011 population growth bulletin (GVRD, 2012a). None of the CMM's major MRCs have specified any demarcation of intensification areas that correspond to the PMAD's TOD zones in their current draft strategies or plans.

In all of the metropolitan regions, most of the land-use plans or draft plans of municipalities served (or planned to be served in the foreseeable future) by at least one all-day rapid transit line do not include a TOD intensification hierarchy, and only a few assign specific growth shares to intensification nodes. In other words, in many municipalities, intensification activities outside of the regionally-identified intensification nodes may tend to take place in general urban areas rather than in specific areas that are served by rapid transit (and high-frequency bus lines for the case of Metro Vancouver).

Furthermore, in many cases the intensification strategies of the cities of Toronto, Montreal and Vancouver fall behind those of some of the suburban municipalities. There is no intervention strategy to intensify the underdeveloped sections of TTC's Bloor-Danforth and STM's Angrignon-Honoré-Beaugrand decades-old underground metro lines. The Toronto's OP review process is slower than that of its more transit-deprived northern and eastern neighbours. The current OP review documents do not indicate whether the city's Mobility Hubs will be subjected to intensification (let alone other less important GO

Train station areas) and whether the new OP will prioritize one intensification node or corridor over the other (City of Toronto, 2012b; City of Toronto, 2013c; City of Toronto, 2013b).

Despite the emphasis of land-use and transit integration, the present master plan of the City of Montreal does not feature any fundamental update to its parcel-based intensification planning of the city's individual boroughs to reflect the PMAD's TOD zones (City of Montreal, 2004). The master plan features a map on areas deemed for intensification near specific Metro and Commuter Train stations (ibid.), but the plan does not set any intensification targets for density or population growth share as employed by the cities of Toronto and Vancouver (City of Toronto, 2010b; City of Vancouver, 2013).

The draft plan of the City of Montreal *Demain Montreal*, which would serve as a future template for the city's master plan revision, identifies urban activity nodes and employment poles in the Montreal Island that are vaguely related to the PMAD's 'palm-and-fingers'-shaped metropolitan TOD plan (City of Montreal, 2013). Vancouver RCS's designation of intensification areas outside of the Metro Core is limited only to street-fronting parcels of Cambie Street Corridor and Oak Ridge Centre, and it does not specify any intervention plan for other stretches of SkyTrain and high-frequency bus lines which have potential for infill-based intensification (City of Vancouver, 2013).

4.8.1 Greater Toronto Area

Places to Grow set January 2015 as the deadline for municipalities to allocate at least 40% of new residential growth in built-up areas. The GTA's upper and lower-tier municipalities were expected to amend their respective regional and local OPs to conform to *Places to Grow* by 2009, but there are still a few pending amendments and nonconformities as of June 2013. Disagreements between the province and the upper-tier municipalities are typically brought forward to the OMB.

Within the GTA, the plans of the Region of York and the City of Mississauga are the most reflective of the intentions of *Places to Grow*. The plans' intensification nodes and corridors are aligned to the proposed regional rapid transit lines. York's plan in particular is the only upper-tier municipal plan so far in the GTA that establishes intensification hierarchy and assigns growth shares to the region's intensification nodes and corridors.

Not all of the intensification nodes and corridors proposed by the plans of the City of Halton and the regions of Halton and Durham align with Metrolinx's committed and Next Wave rapid transit projects, and thus a weak intensification focus is a definite concern for these municipalities. The City of Toronto is in the process of reviewing its OP as of June 2013, and the preliminary OP review documents primarily emphasize employment-based intensification surrounding the present and anticipated rapid transit nodes. The current City of Toronto OP (2010) seeks to focus growth in one-quarter of the city's territory, which consists of mostly sparse Employment Districts, followed by Avenues (which are the city's main street intensification corridors), denser Downtown and Central Waterfront areas and the three other UGCs of North York, Etobicoke and Scarborough City.

The City of Toronto's inner-core intensification in recent years has been led mostly by condominium developments along the waterfront. Development proposals to the city from 2007 through 2011 were skewed towards residential development, with a ratio of residential to non-residential floor area of 3:1 (City of Toronto, 2013b). In addressing the city's imbalance in job-to-residential ratio and strong

competition from the suburban business parks, the city is looking at policies to increase office-based employment in the CBD and in the present and future rapid transit station areas. For Employment Districts, the OP proposals named a few business parks with vast surface parking areas as potential sites for TOD-based infill development, but it is unclear whether the future OP will prioritize TOD intervention areas in the lower-density areas of the city.

The City of Mississauga's transit-based intensification planning shows a similar office-based intensification focus, as its OP indicates higher job and housing mix targets for its downtown and transit station areas, with the exception of station areas within business parks, in which multi-storey office buildings are targeted. Most of the future growth is projected to occur in Mississauga City Centre, whose core area is dominated by a low-density shopping centre surrounded by large surface parking lots. In the future, the area could possibly be Peel Region's most dominant urban activity centre, as *the Big Move*'s proposed Hurontario-Main LRT corridor in combination with the ongoing Transitway BRT project would put the area on the crossroads of the region's north-south intensification axis (between Port Credit and Brampton urban centres and GO Stations) and the region's east-west rapid transit corridor (between Toronto and Halton Region).

The Region of York is GTA's only upper-tier municipality that assigns growth shares to the intensification nodes identified by *Places to Grow*. Availability of vacant lands is a key factor in the region's nodal-based growth assignment. The City of Markham already designates Markham Centre UGC, which is projected to absorb more than half of the region's nodal intensification, as the city's downtown area. The downtown core area, which is served by York Region's BRT and Unionville GO Train stations, consists of contiguous vacant land parcels that are being currently developed and branded as Downtown Markham under a major developer-led initiative. But the centre will not receive its all-day Commuter Train service any sooner than the extension of the Yonge Subway Line to Vaughan Corporate Centre UGC (despite the latter growth share which is only a quarter of that of Markham Centre). Peter Calthrope himself was responsible for the New Urbanism-based Markham and Langstaff Gateway projects, which are the York Region's two most important development projects (Gombu, 2011b).

4.8.2 Montreal Metropolitan Community

The CMM's MRCs are required to adopt a by-law to modify their planning and development schemes (French: *Schéma d'aménagement et de développement* or SAD) in accordance with the PMAD by March 2015. As an upper-tier municipality, the MRC acts as a platform for local municipalities to interface with the CMM, in which compliance of local municipal planning by-laws is expected within six months of the adoption of the SAD. The SAD acts as a template and guideline for the local municipality to develop its local land-use plan, or *Plan d'urbanisme* (PU). The CMM's consultative approach towards getting the member municipalities to adopt the PMAD involved a lengthy consensus-seeking process between the PMAD's first draft in 2005 and the final version of the PMAD which was finally adopted in 2011 (CMM, 2012a).

Municipalities typically rely on Special Planning Programs (French: *Programme particulier d'urbanisme* or PPU) to amend TOD-supportive by-laws. Despite requiring a public consultation process, a PPU can't be overturned by a public referendum. A referendum is allowed under the provincial planning law to prove the arbitrariness of the municipalities in spot-zoning and subdivision practices. Nonetheless, a referendum is not enforceable under the PPU, as the latter's comprehensiveness precludes any possibility

of capricious planning judgments by the municipality. The PPU area must be reflected in the overall municipal plan, and the intervention scope must be comprehensive enough not only to take into account its impacts on neighbouring areas, but also to consider the PPU's relevance from the wider territorial and regional perspectives (MAMROT, 2012).

As of June 2013, all MRCs that are presently served by at least an all-day rapid transit line have yet to update their SADs to reflect PMAD's TOD zone assignments and density projections. The relevant planning documents reveal the tendency of MRCs and municipalities to assign intensification priorities that are only loosely linked to PMAD's densification priorities and thresholds.

The present land-use master plan of the City of Montreal (2004) does not have specific growth intensification targets, and the City of Montreal's (2013) *Demain Montreal* identifies a few intensification sectors but stops short of assigning specific growth share targets to each of the sectors. *Demain Montreal* projects that new housing growth, which is mostly projected to occur near present or future rapid transit stations, would be 42% higher than PMAD's projection. This projection gap is hardly surprising, as PMAD's 2031 density targets for Metro station-based TOD zones outside of downtown Montreal have been surpassed in 45 out of 62 the TOD zones even as of 2006 (CMM, 2011c).

Demain Montreal focuses on shifting the attractiveness of the region's new residential market from the off-island municipalities towards the Island of Montreal, and identifies major revitalization projects to stimulate more high density housing construction near downtown and the Metro Lines. It is not too far-fetched to say that the plan cherry picks on strategic and developable station areas farther away from downtown as intensification nodes where urban renewal and greenfield development opportunities are greater.

An urban intensification project planned in Pierrefonds-Ouest happens to be outside of PMAD's western feeder bus corridor, although *Demain Montreal* anticipates the area to be served by regular bus service with a preferential lane. Nonetheless, this site is located within the city's designated "ecoterritory", and was planned to be developed at higher density in order to justify the developer forgoing development on ecologically sensitive lands (Brown, 2013).

The plan also identifies four urban activity nodes and three employment intensification nodes outside of downtown Montreal. The prevailing development pattern of the majority of the nodes is mostly car-oriented and not really linked to the provision of rapid transit services, as De-la-Savane node is the only identified urban activity node that is located on the present Metro network. Furthermore, the western and eastern employment nodes are presently no more than clusters of car-oriented and highway-linked business parks with very minimal overlapping with the walking radius of the present Commuter Train stations. The northern nodes appear to be better connected by the planned regular STM bus routes with reserved highway lanes, and both *Demain Montreal* and the PMAD do not specify any intensification target for the areas adjacent to the highway bus routes.

The latest vision and strategy documents of the City of Laval and Longueuil Agglomeration feature mixed-use intensification nodes surrounding the areas' present and future Metro and Commuter Train stations, and propose improvements that would enhance the station areas' pedestrian and bicycle circulation (City of Laval, 2011a; City of Laval, 2011b; City of Laval, 2011c; Agglomeration of Longueuil, 2012b;

Agglomeration of Longueuil, 2012c). Not all of the Metro and Commuter Train stations are identified for intensification in Laval, and Longueuil (Agglomeration)'s nodal intensification strategy is driven by the upper-tier municipality's desire to balance the need to preserve the present TOD zones' land-use strengths and the desire to attract denser, more diverse creative-based employments within the TOD areas.

The City of Deux-Montagnes, which is the North Shore's only municipality to be served by an all-day commuter rail, is attempting to intensify selective road corridors around the Grand Moulin Commuter Train station for low to mid-rise intensification through a PPU. The draft PPU lists environmental and social enhancement initiatives to accompany intensification-based developments, and requires new developments to integrate with the small town atmosphere of the station areas (City of Deux-Montagnes, 2013a).

4.8.3 Metro Vancouver

The RGS requires the GVRD's municipalities to adopt new RCSs that are consistent with the growth plan. The RCS gives a set of fundamental planning principles and framework for municipalities to develop a more comprehensive and detailed OCP. Provincial legislation allows RCS disputes to be brought to the provincial level, where binding or non-binding dispute resolution process could be applied (GVRD, 2013c).

The relevant planning documents for the local municipalities that are either served or anticipated to be served by at least one SkyTrain line, which are listed under Appendix D, generally allocate future residential and job growth to the nodes identified by the RGS. Except for the cities of Surrey, Coquitlam and Port Moody, other municipalities do not target all of the SkyTrain stations as intensification nodes.

Most of the municipalities have yet to designate high-frequency bus-based intensification corridors into their land-use and transportation maps. This is despite the alignment of some of the municipalities' lower-level nodes with the present FTN, and despite the stated commitments in their RCSs towards improving bus service reliability (through queue jump, traffic signal priority or other bus preferential measures).

The City of Vancouver (2013) seeks to assign slightly less than half of the city's projected residential growth to both the city's downtown metropolitan core (including Uptown/Broadway West areas) and the other more general non-FTDAs. FTDA designation is limited to the city's Cambie Street and Broadway Corridors, and not to other SkyTrain station and corridor areas.

The City of Surrey's OCP features neighbourhood-level nodes, but not all of the nodes are linked to the regional FTN. Although Surrey's population would match Vancouver's population by the end of the regional planning period, no specific growth share allocation has been assigned to the city's primary and secondary intensification nodes.

Both the cities of Coquitlam and of Port Moody incorporate detailed TOD planning (of anticipated SkyTrain Evergreen Line station areas) within their draft OCPs (City of Coquitlam, 2013; City of Port Moody, 2013). The designation of TOD area by City of Coquitlam takes a middle path between the conceptual 800m-radius-circle and the prevailing street patterns, and the city looks at increasing density targets for land parcels closer to the station.

The City of Burnaby has yet to update its planning documents, and it is too early to know whether the city, which has the most SkyTrain stations after the City of Vancouver, would expand its intensification efforts to the SkyTrain station nodes other than the established Metrotown, Brentwood, Edmonds and Lougheed UCs. TOD planning within the City of New Westminster (2012) is mostly limited to SkyTrain station areas nearer to the city's downtown, which is one of few suburban downtowns in the region with a well-established and tightly-knit street grid.

4.9 Metropolitan Smart Growth and TOD Progress

Although the Ontario Growth Secretariat, CMM and Metro Vancouver have yet to produce conclusive reports on the progress made on their respective metropolitan TOD and intensification plans, the three metropolitan regions have seen mixed growth distribution patterns since the adoption of the growth plans.

The actual versus target comparison of metropolitan growth distribution for the GTA, CMM and Metro Vancouver is listed in Table 7, Table 8 and Table 9 respectively. The traffic-light colouring of the figures in the actual columns indicates the achieved performance[1]: red indicates major setback, amber indicates slight setback and green indicates target accomplishment.

The GTA has seen its central municipality exceed the originally targeted metropolitan growth share, despite *Places to Grow*'s regional growth allocation which is more widely-distributed as compared to the PMAD and RGS. On the other hand, the Montreal Island has attracted fewer housing starts than expected, as its metropolitan growth share falls short of PMAD's target despite the plan's intent to concentrate almost two-fifth of all growth on the island. Still, almost two-thirds of new housing starts from 2010 through 2012 within the CMM consisted of multi-family housing (as compared to 61% and 54% for Metro Vancouver and GTA respectively).

Table 7 **Dwelling growth in the GTA against *Places to Grow* targets.**

Upper-Tier Municipality	Growth in Dwellings			Metropolitan Share of New Dwellings				
	Actuals		Target	Actual	Target	Actual	Targets	
	2006-2011	2011-2013[2]	2006-2041	2006-2011	2006-2011	2011-2013[3]	2011-2016	2011-2041
Durham	**10%**	**2.8%**	94%	**9%**	8%	**8%**	12%	18%
York	**17%**	**6.1%**	73%	**24%**	19%	**23%**	23%	21%
Toronto	**7%**	**4.2%**	28%	**34%**	27%	**45%**	34%	27%
Peel	**12%**	**3.3%**	37%	**22%**	30%	**15%**	19%	18%
Halton	**14%**	**4.2%**	80%	**11%**	17%	**10%**	12%	16%

Sources: **Calculated based on CMHC's 2011 and 2012 new housing data for the GTA (CMHC, 2012b:30; CMHC, 2013b: 30) and *Places to Grow*'s revised 2006-2041 dwelling projection (Hemson Consulting, 2013: 83).**

A greater proportion of lower-density housing starts was seen in the GTA (41%) than in the CMM and Metro Vancouver (30% and 26%). Within the same period, the GTA saw the steepest growth in multi-family housing starts (214%), and both the CMM and Metro Vancouver saw steady decline in detached and semi-detached housing starts (-22% and -21%).

[1] Note that the results do not necessarily reflect the degree of transit-based intensification.
[2] CMHC housing start figures are for both Year 2011 and 2012.
[3] Ibid.

Table 8 **Dwelling growth in the CMM against PMAD targets.**

Regional Sector	Growth in Dwellings			Metropolitan Share of New Dwellings		
	Actuals		Target	Actuals		Target
	2006-2011[4]	2011-2013[5]	2011-2031	2006-2011[6]	2011-2013[7]	2011-2031
Montréal	9%	1.2%	14%	46%	28%	38%
Longueuil	10%	2.7%	15%	10%	13%	8%
Laval	11%	3.0%	26%	9%	12%	13%
North Shore	17%	4.2%	34%	19%	26%	23%
South Shore	17%	4.6%	29%	16%	20%	17%

Sources: **Calculated based on CMHC's 2011 and 2012 new housing data for Montreal CMA[8] (CMHC, 2012a: 12; CMHC, 2012a: 11) and PMAD's 2006-2041 dwelling projection (CMM, 2012a: 88).**

Table 9 **Dwelling growth in Metro Vancouver against RGS targets.**

Local Government	Growth in Dwellings			Metropolitan Share of New Dwellings			
	Actuals		Target	Actual	Target	Actual	Target
	2006-2011	2011-2013[9]	2011-2041	2006-2011	2006-2021	2011-2013[10]	2011-2041
Vancouver	8.4%	2.8%	20%	23.0%	14.9%	23.9%	11.0%
Surrey	20.1%	4.5%	89%	28.3%	26.4%	22.4%	25.4%
Burnaby	12.7%	3.2%	71%	10.6%	12.0%	8.8%	12.1%
Richmond	11.2%	5.7%	69%	7.4%	8.6%	12.3%	9.3%
Coquitlam	11.9%	5.4%	107%	5.3%	8.8%	7.8%	9.6%
Delta	4.3%	2.3%	36%	1.5%	2.1%	2.5%	2.6%
Langley Township	13.3%	5.6%	118%	4.8%	6.8%	6.6%	8.5%
Electoral Area A	18.9%	N/A	160%	1.0%	2.0%	N/A	1.7%
Maple Ridge	12.5%	3.1%	84%	3.3%	3.6%	2.8%	4.6%
New Westminster	16.3%	1.9%	51%	4.7%	3.2%	2.8%	3.0%
North Vancouver District	1.5%	2.2%	42%	0.5%	2.2%	1.8%	2.8%

Sources: **Calculated based on CMHC's 2011 and 2012 new housing data for Vancouver CMA (CMHC, 2012c: 31; CMHC, 2012c: 31), Metro Vancouver's 2006-2041 dwelling projections (GVRD, 2011c: viii) and Metro Vancouver's 2011 census bulletin (GVRD, 2012a: 3).**

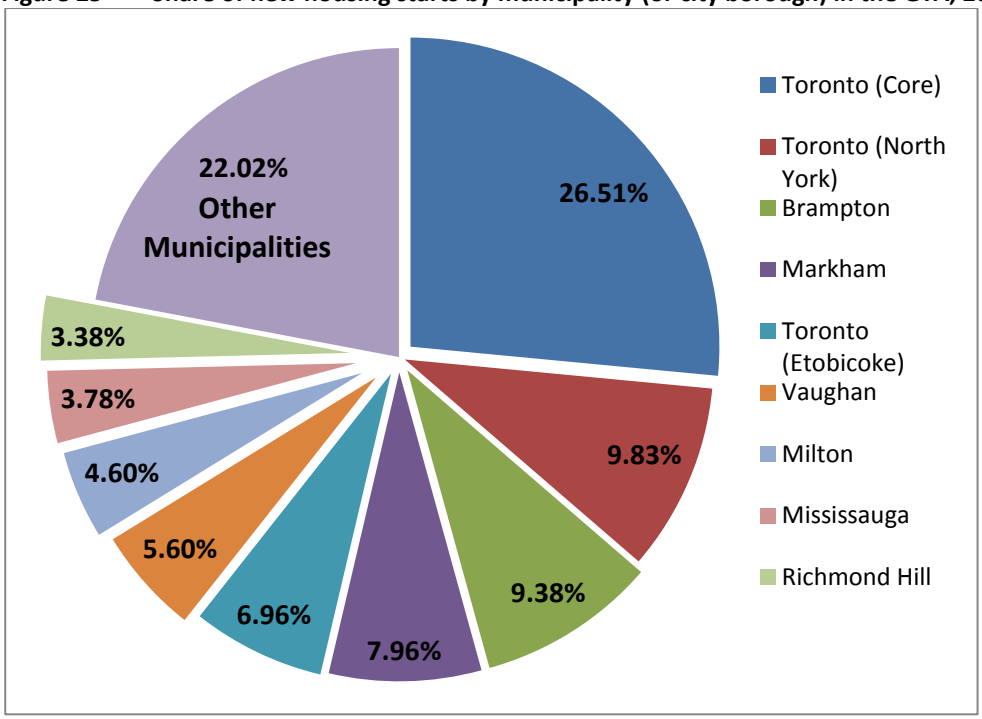
[4] 2011 dwelling data is based on Statistics Canada's 2011 Census.
[5] CMHC housing start figures are for both Year 2011 and 2012.
[6] 2011 dwelling data is based on Statistics Canada's 2011 Census.
[7] CMHC housing start figures are for both Year 2011 and 2012.
[8] CMHC's CMA-based data for Longueuil includes La Prairie (part of South Shore's Roussillon MRC) but excludes Boucherville and Saint-Bruno-de-Montarville (part of Longueuil Agglomeration MRC), which is accounted for within the South Shore figure. The CMA-to-CMM calibrated data already accounts for Saint-Jerome exclusion, with negligible overall regional dwelling over-count (of less than 0.1%) due to the inclusion CMA's lower-tier rural municipalities (Vaudreuil-Soulanges MRC's rural municipalities west of Les Credres, L'Épiphanie and Saint-Placide) and the exclusion of CMM's lower-tier rural municipalities (Contrecœur, Calixa-Lavallée and Saint-Jean-Baptiste).
[9] CMHC housing start figures for both Year 2011 and 2012.
[10] Ibid.

4.9.1 Greater Toronto Area

The GTA's residential growth has mostly favoured the central city since *Places to Grow* came into place. Roughly four-fifths of all development within the City of Toronto has occurred in the city's UGCs, Employment Districts, and Avenues since the city's OP was adopted in 2002 (City of Toronto, 2012e).

From 2007 through 2011, 82% of the city's housing Gross Floor Areas (GFAs) and 55% of the non-housing GFAs were created within the city's UCGs, Avenues and other Mixed-use Areas. Within the same period, 78% of new dwellings built were condo units, and Toronto's share of GTA's residential unit completions rose from 20% to nearly 50% (City of Toronto, 2010b). The influx of young professionals and families attracted to condo units in downtown Toronto has led to downtown Toronto's population growth surpassing growth in the surrounding regional municipalities for the first time (Fong, 2013). Although the same can't be said for employment growth, the downtown condo boom is already attracting new downtown office developers to take advantage of the increase in downtown-based employees (Moloney, 2013).

Figure 25 Share of new housing starts by municipality (or city borough) in the GTA, 2011-2012



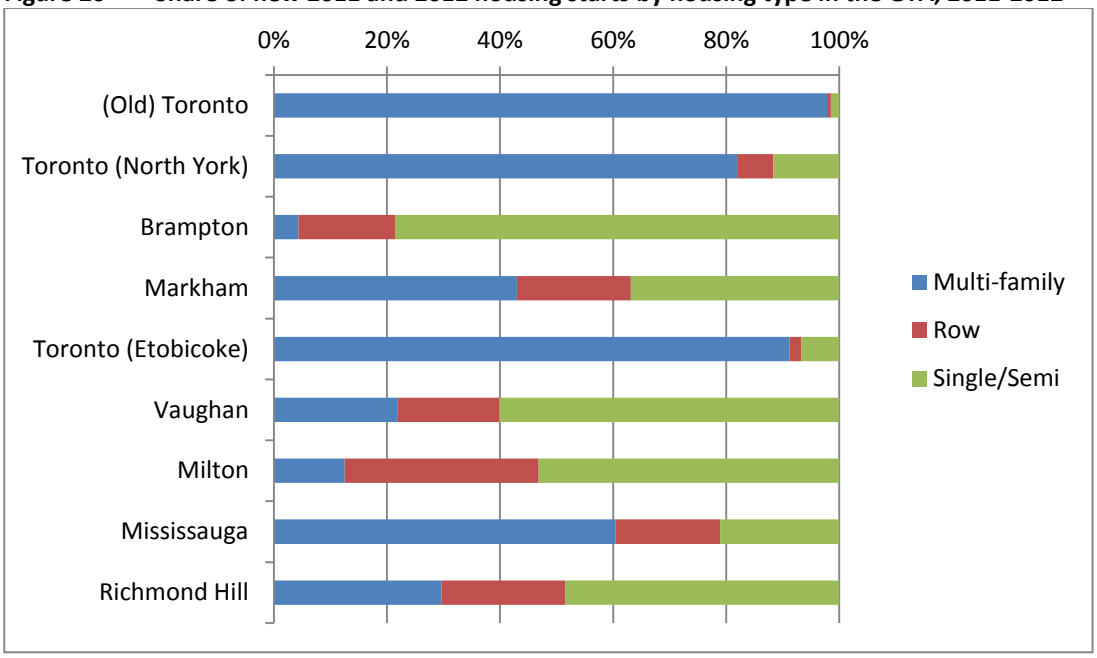
Sources: Calculated based on CMHC's 2011 and 2012 new housing data for the GTA (CMHC, 2012b; CMHC, 2013b)

From 2011 to 2012, the regions of Halton and Durham saw fewer new housing units than targeted, while the City of Toronto nearly doubled its allocated regional housing growth share. The downtown core's housing starts, which were 98% high density residential, represented almost a quarter (24.6%) of GTA's housing growth. Toronto's North York ranks the second in GTA growth share (9.1%). Considering that most of the GTA's ongoing big-ticket transit projects went to the city, the city's recent trend of housing intensification in downtown and near rapid transit bodes well with the city's lobbying for a greater share of rapid transit infrastructure investment from the province, despite the perception of unfairness by its surrounding suburban municipalities.

On the other hand, for the same period, some of the GTA's major suburban municipalities recorded insignificant proportions of higher density housing starts and a greater share of lower density housing starts. The City of Brampton's 2011 and 2012 regional housing growth share was GTA's third highest (8.7%) and yet higher density residential units only accounted for 6% of the city's overall housing starts. Conversely, higher density residential units represented 72% of all housing starts in Mississauga, although the city's regional housing growth share was lower at 4.7%.

When compared to 2010, 2012 saw low-density housing starts increased more than two-fold in Brampton and Markham. Nonetheless, the same year saw low-density housing starts decreased by more than two-thirds in Vaughan and apartment housing starts increased more than four-folds in Brampton, Mississauga, Markham, Richmond Hill, Vaughan, Pickering, Whitby, Oshawa and Clarington. This indicates a reduction in developable land supply, as the price of GTA's new detached housing has been on the upward trend due to developers' difficulty in finding available lands and securing approvals from the municipalities (Ladurantaye, 2012).

Figure 26 Share of new 2011 and 2012 housing starts by housing type in the GTA, 2011-2012



Sources: Calculated based on CMHC's 2011 and 2012 new housing data for the GTA (CMHC, 2012b; CMHC, 2013b)

Although the share of downtown Toronto's office development market has plummeted from 63% in 1982 to 24% in 2010 (Dobson et al., 2013), there are vital signs that the trend is slowly reversing. From 2007 to 2012, employment in downtown Toronto had increased by 8%, and among the city's four other UGCs, significant office-led growth and manufacturing-led decline were observed for Scarborough Centre and Etobicoke Centre respectively (City of Toronto, 2013a). In past five years, the downtown area has seen the construction of five office buildings (with 4.6 m sq ft of GFAs), and there were twenty-two ongoing and planned office construction projects in downtown Toronto as of early 2013 (Arnoldi and Rogowski, 2013).

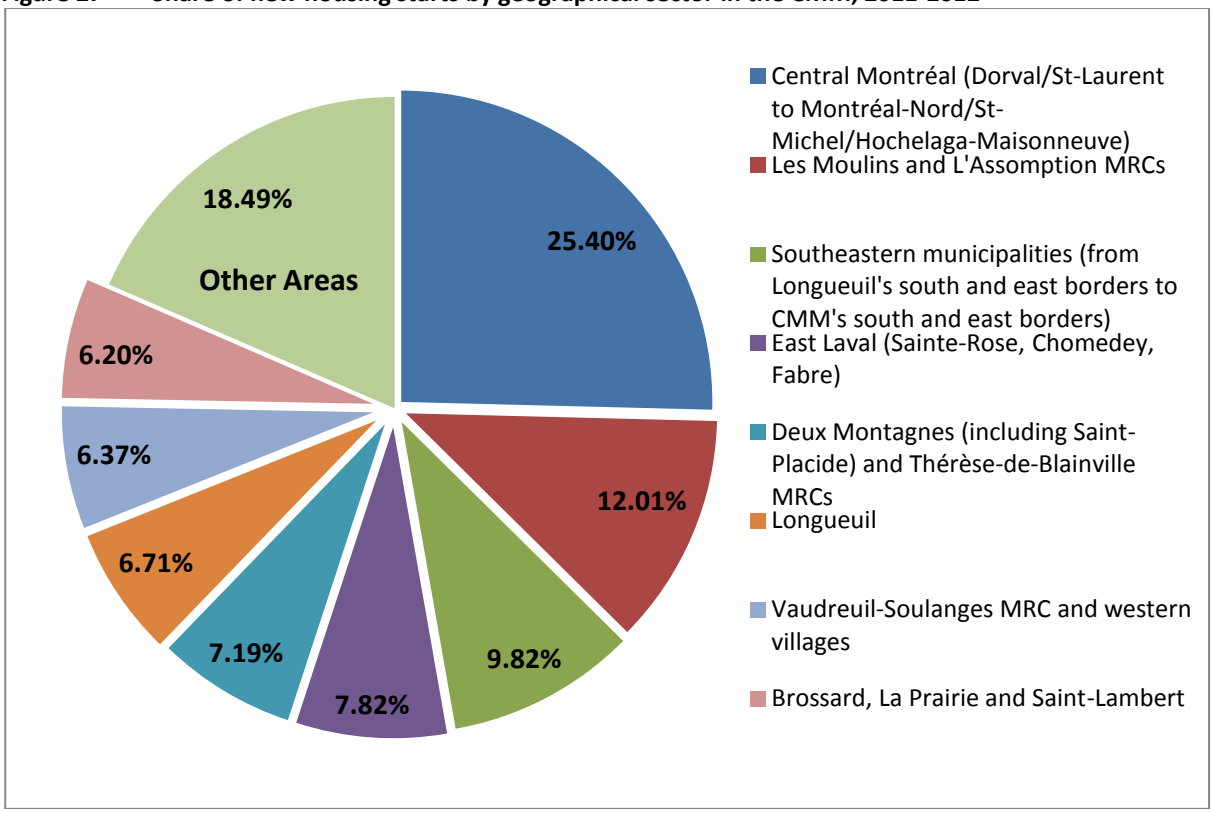
4.9.2 Montreal Metropolitan Community

Almost half (46%) of the CMM's residential growth occurred on the Montreal Island between 2006 and 2011, beating PMAD's 2011-2031 regional growth share target of 38%. Yet, the Montreal Island is not

quite on track to meet *Demain Montreal*'s 2031 population goal (which is 42% higher than the PMAD's target), as from 2011 to 2012 Montreal Island's share of new housing starts had plummeted significantly to 28%. Within the same period, Longueuil Agglomeration and South Shore MRCs had recorded a combined regional growth share of 33%, as compared to the PMAD's regional growth share projection of 25%.

Nonetheless, high-density residential projects represented a major proportion of new 2011 and 2012 housing starts in many suburban municipalities with at least a 5% regional growth share, such as Longueuil (76%), Laval's Chomedey, Sainte-Dorothée and Laval-sur-le-Lac (73%), Brossard, La Prairie and Saint-Lambert (72%), and Terrebonne and Mascouche (57%), where extensions or improvements of the present Metro and commuter lines are planned. Low-density housing starts were most prevalent in Deux-Montagnes (45%) despite the city being served by AMT's most frequent Commuter Train line.

Figure 27 Share of new housing starts by geographical sector in the CMM, 2011-2012



Sources: Calculated based on CMHC's 2011 and 2012 new housing data for the Greater Montreal Area (CMHC, 2012a; CMHC, 2013a)

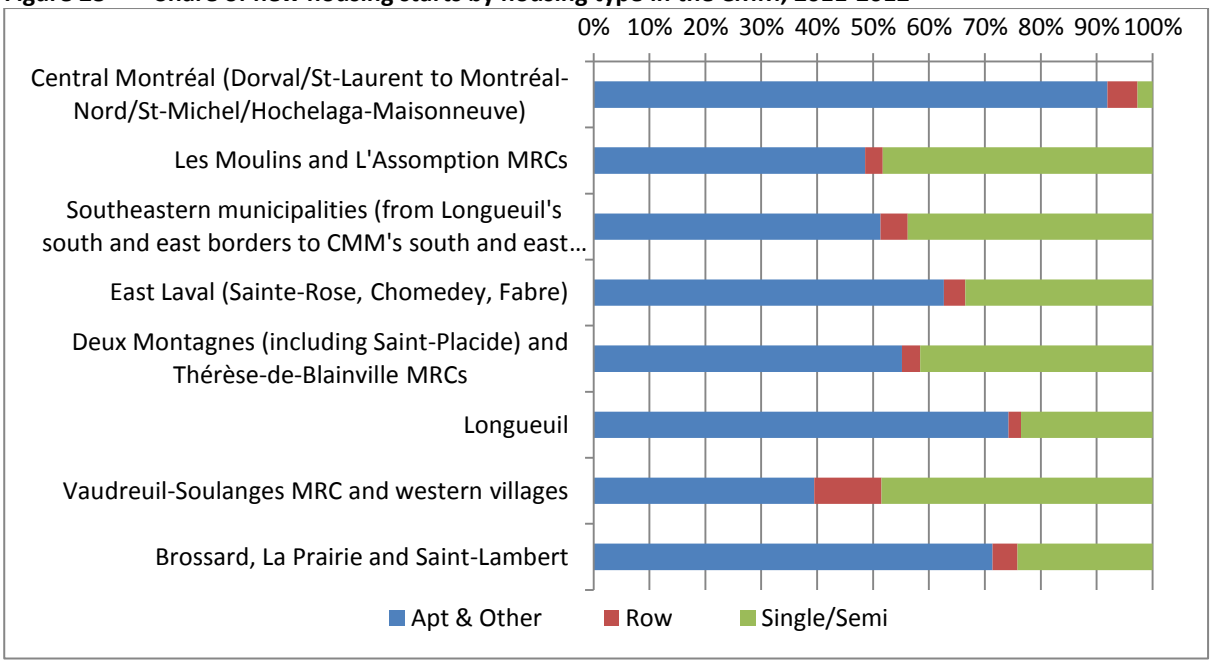
An overall jump of the CMM condominium starts from 33% in 2007 to 60% in 2012 reflects an increasing preference for condominiums among young couples who find pricier lower density housing less appealing. The preference is also attributed to the region's increasing proportion of seniors and single person households (CMM, 2013b).

Housing starts on Montreal Island in 2011 and 2012 were strongly dominated by high-density housing, except for the rapid transit-deprived Montréal-Est, Pointe-aux-Trembles and Rivière-des-Prairies (the latter two boroughs would be served by the Mascouche commuter line in the near future), where 42% of the area's housing starts were detached and semi-detached homes. Nonetheless, the areas' housing starts

represented less than 2% of the CMM's total housing starts. On the contrary, multi-family housing represented two-thirds (67%) of all housing starts in the West Island (excluding Dorval).

Most of Montreal Island's new housing starts occurred in inner-suburbs, as only 2.5% of CMM's new housing starts occurred in downtown. Although downtown Montreal's condo boom was smaller than Toronto's, recent high-density developments have been numerous. They have been led by Griffintown's urban transformation project and followed by other high-density developments near Metro stations close to future employment-generating mega-hospitals currently under construction in east downtown and Notre-Dame-de-Grâce (Bruemmer, 2013a). Old Montreal and its adjacent western and eastern *Faubourgs* continued to accelerate in urban intensification activities as their population increased by an astounding 108% between 2001 and 2011, as compared to 4% and 12% for the Island of Montreal and the Ville-Marie borough (downtown area) respectively (City of Montreal, 2012).

Figure 28 Share of new housing starts by housing type in the CMM, 2011-2012



Sources: Calculated based on CMHC's 2011 and 2012 new housing data for the Greater Montreal Area (CMHC, 2012a; CMHC, 2013a)

Downtown Montreal's office space market is seeing heightening competition from the suburban markets, especially on the South Shore and in Laval, as employers seek to relocate closer to suburban-based employees. Like the GTA and Metro Vancouver, the CMM's most-pricey office space is located in the CBD area, but downtown Montreal's office vacancy rate is on the rise (Maravita et al., 2013).

Furthermore, the mostly residential-based intensification in downtown Montreal may create future residential and employment mismatch, as reflected by a Griffintown developments' public consultation report which called for mixed-use zoning to protect potential employment-generating land-uses from being crowded out by high-end residential uses (Bruemmer, 2013b).

It is premature to assume the office space market in downtown Montreal's will remain weak, as there was a notable lag between downtown Toronto's recent office-based employment market pickup and the preceding condominium boom which began in the past decade. Office developments are directly related

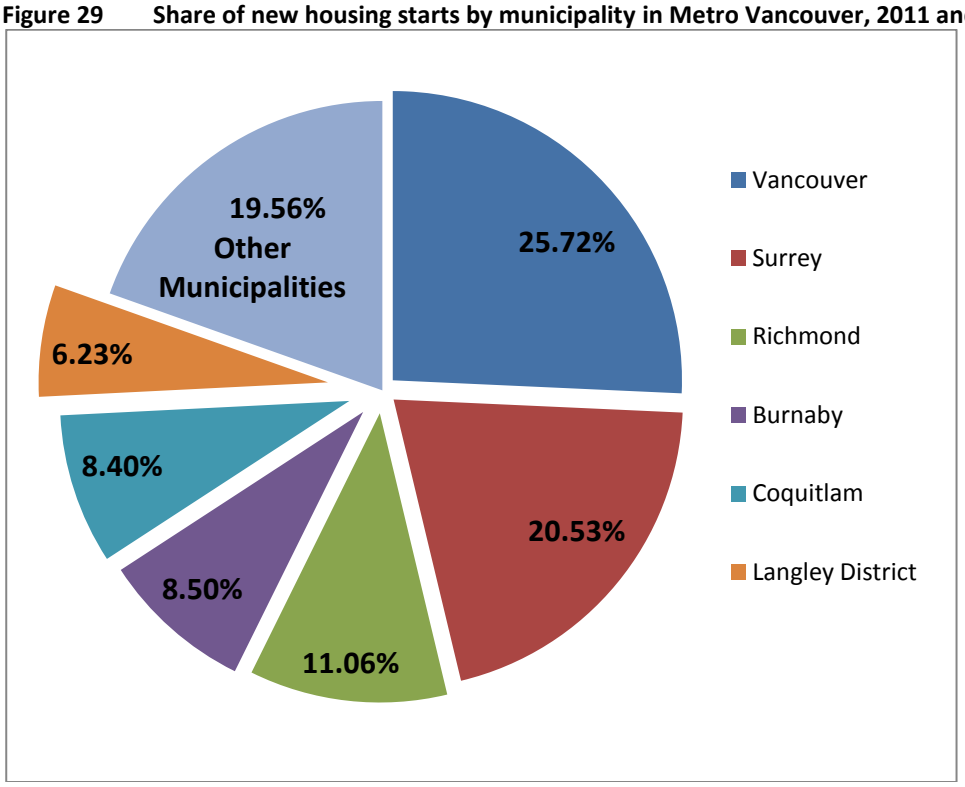
to broader economic trends, which tend to be more favourable in the GTA and Metro Vancouver as compared to the CMM.

4.9.3 Metro Vancouver

Metro Vancouver's 2011 Census Bulletin reported that the 2006-2011 population increase within the region's intensification nodes (which were identified by census tract boundaries) accounted for almost one-third of the overall population increase in Metro Vancouver, close to the RGS's long-term target of 35% (equivalent to 40% housing growth). Population growth in the Metropolitan Core represented one-quarter of Metro Vancouver's overall nodal-based growth in its UCs, and approximately two-thirds of the City of Vancouver's total growth (GVRD, 2012a).

From 2006 to 2012, the city's share of regional housing growth had increased by 23%, which surpassed the RGS's 2006-2021 projection of 15%. The share of regional housing growth for Surrey was 3% higher than the regional plan's target of 26% for the 2006-2011 period, but slumped to 4% below target from 2011 to 2012. Burnaby's growth share had declined from 11% (2006-2011) to 9% (2011 and 2012) against the regional plan's long-term target of 12%.

Figure 29 Share of new housing starts by municipality in Metro Vancouver, 2011 and 2012



Sources: Calculated based on CMHC's 2011 and 2012 new housing data for the Vancouver CMA (CMHC, 2012c; CMHC, 2013c)

Housing starts from 2011 to 2012 in Vancouver were predominantly multi-family projects, except in a few of the cities' southern and western neighbourhoods. More than one-third of Surrey's housing starts were row houses, especially in Guildford (which would be served by a future rapid transit line that links to the Surrey City Centre).

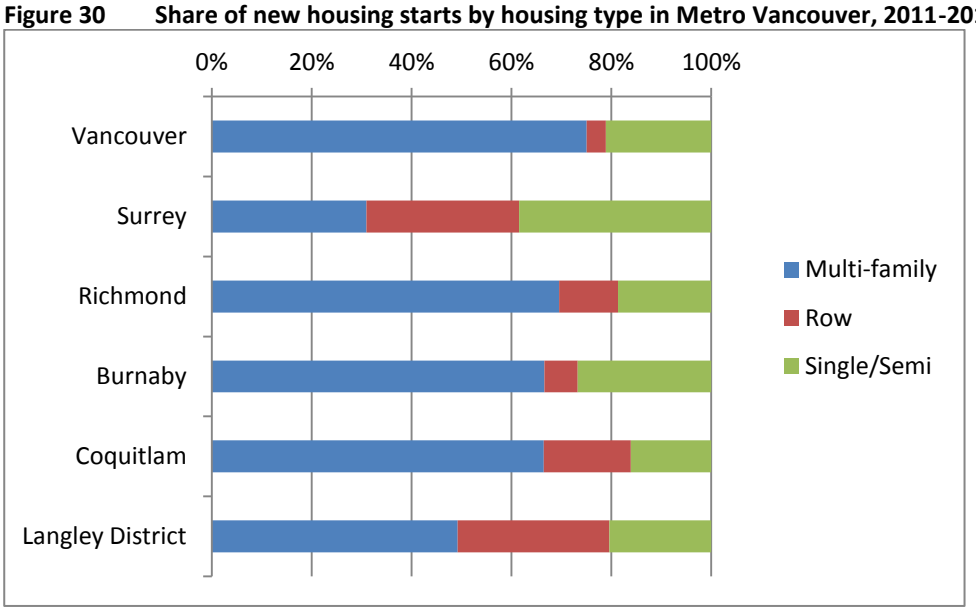
Higher density apartment starts were mostly concentrated in downtown Surrey (where the SkyTrain's Expo Line ends). Most of Surrey's new residential growth had occurred in the city's northern and

southern parts and the central-eastern part just west of Langley City, where new housing starts were most likely to consist of townhouses and detached homes than apartments, and these low-density housing starts comprise more than one-tenth of Metro Vancouver's overall growth and more than a quarter of the region's low-density starts.

For the same period, the City of Richmond ranked third in regional housing growth share (12%), and almost four-fifths of all housing starts consisted of multi-family residential buildings. The City of Burnaby, which ranked fourth in regional housing growth share, had its greatest concentration of high-density housing starts in Central Park (the area surrounding the city's Metrotown UC), which accounted for almost one-fifth of the city's housing starts. The City of Coquitlam and Township of Langley had 67% and 56% of housing starts respectively consisting multi-family housing.

From early 2010 to late 2012, Maple Ridge, New Westminster, Vancouver's False Creek and Kitsilano districts and Burnaby's Central Park area had sustained significant increase in multi-residential family constructions, and Surrey's low-density housing starts, which have traditionally been the region's highest, were more than halved.

Figure 30 Share of new housing starts by housing type in Metro Vancouver, 2011-2012



Sources: Calculated based on CMHC's 2011 and 2012 new housing data for the Vancouver CMA (CMHC, 2012c; CMHC, 2013c)

Metro Vancouver's office-based employment has largely been concentrated in the Metropolitan Core, which in 2011 holds ten times more office spaces than the Surrey City Centre, which is the region's second largest intensification node. From 1990 to 2011, the Metropolitan Core, City Centres, Municipal Town Centres and FTDA had accommodated 27%, 13%, 6% and 29% of office space growth respectively (GVRD, 2013a). Demand for office space is increasing in areas near SkyTrain stations and decreasing in lower-density business parks in the suburban areas. Nonetheless, the predominance of local employers and the relative attractiveness of residential developments outside of the Metropolitan Core reduce the prospect of major office space development in smaller and outlying intensification nodes (ibid.).

4.9.4 Metropolitan TOD Progress

Overall, the GTA, the CMM and Metro Vancouver are making fairly good progress in promoting smart growth at the metropolitan level. The central cities in the three metropolitan regions have managed to attract better-than-expected new housing starts since 2006, although the CMM's suburban fringes have seen worse-than-expected new housing starts in recent years.

Still, a large proportion of the housing projects consist of high-density housing. The GTA has seen remarkable growth in the downtown area and considerable contraction of lower-density residential projects in the main suburban municipalities (except Brampton). Metro Vancouver is well on target with regards to its distribution of new housing starts than the other two regions. Furthermore, its fastest-growing municipalities (except Surrey) have high shares of multi-family housing starts.

None of the metropolitan planners who were interviewed had any specific comment on TOD progress for their respective metropolitan regions, as all of them agreed that it is too early to judge how well the targeted intensification nodes have progressed in the past few years, especially considering that the process of adopting metropolitan growth plan into local land-use plans by local municipalities is still underway.

The Ontario Growth Secretariat described the TOD progress in the GGH since 2006 as promising (Ontario Growth Secretariat Planner, personal communication). Prof Filion attributed the condominium construction boom in downtown Toronto and, to lesser extent, in Mississauga City Centre, North York Centre and Scarborough Centre to the increasing demand for such housing in response to the GTA's worsening commuting time, and not to the implementation of the growth plan itself.

A planner from Metrolinx observed some TOD progress in terms of new public facilities and quality public spaces near some GO Train stations, and noted a positive shift among the municipal planners in their attitude and support towards transit-supportive intensification since *Places to Grow* came into place (Metrolinx planner, personal communication).

Based on the author's qualitative evaluation of the list of ongoing and recently completed housing projects in the GTA (BuzzBuzzHome, 2013b), there are several notable concentration of high-density starts outside of Toronto's downtown and waterfront areas. They are mostly located in the UGCs of North York, Mississauga City Centre, Midtown Oakville, Vaughan Corporate Centre, and Markham Centre, in the Gateway Hubs of Yonge-Bloor and Yonge-Eglinton, along the Sheppard Line and the Yonge BRT's stretch near Richmond Hill's South Hill shopping centre, and around Humber Bay and Mount Joy GO Station. Low-density housing construction is still prevalent north of Whitby and east of Vaughan and Brampton.

In the CMM, young families are shifting towards more affordable low rise apartments and condominiums near suburban Commuter Train stations. Despite the recent slowdown in the overall housing demand in the first half of 2013, condo units remain popular for first-time purchasers and seniors (Lampert and Magder, 2013). Based on the BuzzBuzzHome catalogue (2013a), the CMM's TOD progress outside of downtown Montreal has been mainly positive for areas around Vaudreuil, Blainville, Sainte-Therese, Mascouche, Terrebonne, Parc and Bois-Franc Commuter Train stations and Namur, Angrignon, Saint-Michel, Pie-X, Frontenac and Rosemont Metro stations.

Based on the same online listing site (BuzzBuzzHome, 2013c), Metro Vancouver is seeing new residential TOD growth (that is outside of the Metropolitan Core) around North Vancouver's SeaBus Terminal and future Burquitlam and Lincoln SkyTrain stations and along the Canada and Expo SkyTrain Lines, particularly in Metrotown, Brentwood, downtown New Westminster, Surrey City Centre, Richmond Regional Centre and along the Cambie Street corridor. As densification pressure continues to build up in the region, higher-density apartments are replacing the lower-density ones in Metrotown, the main shopping centre of which is currently being planned for a pedestrian-friendly makeover to accommodate seven new mixed-use towers (Burrows, 2012; Seccia, 2013).

Burquitlam, which represents 24% and 55% of City of Coquitlam's affordable housing units and overall rental stocks respectively, would face difficulties in accommodating lower-income households as the anticipated opening of the Evergreen SkyTrain Line would increase the real estate and intensification pressures in the area (Sinoski, 2013b). As for Surrey, whose projection of population increase was the highest in the region, at least ten high-rise buildings, including a luxury hotel, are anticipated for the Surrey City Centre in the next ten years (Sinoski, 2013a).

5.0 TOD-Supportive Planning Tools

5.1 TOD Site Planning

Among the three metropolitan regions, the GTA has the most organized approach to TOD site planning, in which particular attention is given to the interchangeability of various transportation modes and the permeability of pedestrian and cycling networks. Out of the GTA's 15 UGCs, eight have a car-oriented street pattern, large surface parking lots and large building footprints. Metrolinx is actively engaged in the station area planning for the UGCs (and also *the Big Move*'s Anchor Hubs) of Midtown Oakville, Richmond Hill-Langstaff Gateway, Markham Centre and Etobicoke Centre. Metrolinx is also involved in eight of the region's thirty-three Gateway Hubs (Metrolinx, 2012b), and out of the eight hubs, five have significant issues in pedestrian connectivity.

Some of the Mobility Hub plans and studies manage to touch on all of TOD's 7Ds principles, including the destination accessibility factor, through proposed improvements of rapid transit access that simplify intermodal transfers. Midtown Oakville stands out as the UGC with the most extensive TOD planning involvement from Metrolinx. Its Mobility Hub Study assists the City of Oakville in planning towards a pedestrian and cycling-supportive circulation system and built environment, in line with Metrolinx's goal of a three-fold increase in active transportation-based share of station access mode by 2031 (Metrolinx, 2012c).

In terms of placemaking strategies, city-driven streetscaping and public space enhancement are being planned for Scarborough Centre UGC, Mississauga City Centre UGC and Vaughan Metropolitan Centre (which includes Vaughan Corporate Centre UGC). The City of Mississauga's (2010) *Downtown21 Master Plan* features the breaking of the existing large surface parking blocks in the city centre into smaller and developable blocks of compact and mixed-use developments with vibrant street-level retail and cultural activities. TOD planning for Markham Centre UGC (which includes the area's flagship Downtown Markham development) and Richmond Hill/Flagstaff Gateway UGC are mainly driven by developers, and as these UGC sites are greenfield areas, it is fairly easy for developers to plan the TODs from scratch.

No site-specific TOD plan has been conceived for Downtown Pickering, Downtown Milton and Newmarket Centre UGCs, perhaps due to the areas' exclusion from Metrolinx's list of priority regional rapid transit improvements (Metrolinx, 2013a). For the former UGC, Metrolinx already invested in a pedestrian crossing over a busy expressway that formed a barrier between downtown Pickering and Pickering GO Train station, which is served by the frequent and all-day Lakeshore West GO Train service.

The TOD site planning agenda is slowly picking up importance in the CMM through negotiations with the province for the latter to fund local TOD studies and TOD-supportive infrastructure works (CMM Planner, personal communication). The Province of Quebec stated in its Action Plan for Climate Change 2013-2020 that municipalities shall be granted with financial incentives to move towards environmentally-sustainable community development, and the provision could also cover municipal TOD planning and design expenditures (CMM, 2012c).

The CMM has a TOD-based real-estate development strategy which calls for tripartite municipal-CMM-provincial funding to assist municipalities in implementing TOD-based real-estate interventions. The funding would be in accordance to the respective share of the municipalities' territorial population, and

not to their respective share of TOD zone population (ibid.). This reflects the metropolitan planners' calculated approach to jumpstart the momentum of the TOD planning intervention among the more car-oriented off-island municipalities as compared to the already dense municipalities.

For a start, the CMM has identified seven residential-based TOD pilot projects which are well-distributed across the region's North and South Shores. The projects would be jointly-funded by the CMM and the province (CMM, 2013b). The TOD planning criteria that the CMM municipalities have to meet to be eligible for the demonstration projects correspond to five of the TOD's 7Ds principles, which are density, diversity, design, demographics and demand management. But the criteria do not address the distance to transit as there is no mention of any strategy to increase the TODs' walking or cycling coverage from the rapid transit station. It is also unclear at this stage whether the pilot projects will include direct involvement from the AMT on local and regional transit integration in order to enhance the TODs' destination accessibility (CMM, 2012c).

Although the AMT is responsible for advising the CMM municipalities (with AMT train stations) on TOD site planning and implementation, there are some municipalities that have not worked with the AMT from the beginning on their TOD concept plans. There are many municipalities that fail to consider the areas with the closest proximity to stations as the central core element within their TOD plans. Some municipalities demand better commuter service provision, but at the same time are reluctant to allow train equipment and facilities to be provided within the station areas (Desjardins, personal communication).

TOD site planning in Metro Vancouver is more subdued at the regional level, and is mostly being championed by individual municipalities, with low-profile participation from TransLink. Incentives for TOD site planning in Metro Vancouver vary by individual local municipalities. The cities of Coquitlam and Port Moody, which will benefit from the region's latest SkyTrain expansion in the next few years, have been the most proactive in coming up with their own local TOD strategies for each of their station areas.

Surrey and Coquitlam city centres, downtown Langley and downtown Maple Ridge are among the region's intensification centres with concepts of TOD-supportive street layout intervention that precede the RGS adoption in 2011, as part of the municipals' strategy to attract vibrant and employment-generating commercial activities to their city cores (City of Coquitlam, 2008; City of Langley, 2007; City of Surrey, 2010b; District of Maple Ridge, 2008).

TransLink generally recommends that municipalities base their TOD site planning approaches to TransLink's TOC Design Guidelines. The transit agency is mandated to provide feedbacks on transit and land-use integration based on the municipalities' FTDA assignments. The FTDA assignments, which would be part of their OCPs, would require the final approval from Metro Vancouver.

The TransLink planner who was interviewed, Mr Lyle Walker, believed that cost-sharing incentives between TransLink and the municipalities and greater support from TransLink to assist municipalities in their TOD plans (especially on pedestrian-based intervention) will be beneficial to achieving successful TOD planning partnerships in the region (Walker, personal communication).

The planner also anticipates greater collaboration opportunities in the future, as many municipalities' awareness of TransLink's mandated role to review OCPs is still lacking. Presently, TransLink is working

closely with roughly eight key municipalities, and similar collaboration has yet to be achieved with respect to the other remaining municipalities (ibid.).

5.2 Development Incentives

The Province of Ontario's planning legislation allows municipalities to offer various financial incentives for strategic redevelopments, including grants and up-front assistance for brownfield rehabilitation studies, Tax Increment Equivalent Grants (TIEG) and development fee waivers (Ontario MMAH, 2012). The use of TIEG in fostering TOD is best exemplified by the City of Toronto's present attempt to enhance the city's ongoing Imagination, Manufacturing, Innovation and Technology (IMIT) incentive program, which seeks to increase the city's economic competitiveness against its surrounding suburban municipalities. Under the proposed IMIT enhancement program, the rate of municipal tax rebate would be increased by up to 70% over a ten-year period for office-based development that consists of at least 5,000sqm of GFA and is located within 800m of present or anticipated rapid transit stations.

Development fee waiver programs can be used to promote infill developments in land-scarce urban renewal areas where redevelopments are not likely to add significant cost in new infrastructural provision. In the GTA, the City of Brampton currently offers development charge waivers towards redevelopments of underutilized buildings or lots within its main intensification node in the downtown area and along the city's future Queen St BRT corridor as part of the city's Community Improvement Plan (City of Brampton, 2011). The waiver rate depends on the development's proximity to intermodal and major transit nodes, diversity of uses, creativity of urban design, improvements of public spaces and compliance with environmentally-friendly standards. The city also provides façade and building improvement grants to revive the downtown's heritage atmosphere and to promote greater utilization of older buildings (City of Brampton, 2012b), which could promote higher concentration of employment and retail land-uses.

In Metro Vancouver, development grants and fee waivers are less applicable in the more urbanized areas due to the region's intensification pressures which are largely driven by land scarcity, although they could still be effective in channelling new development in some the UCs that have yet to be linked by TransLink's rapid transit network. The District of Maple Ridge (2013), which is served by a high-frequency bus line, offers building permit fee discount and temporary property tax exemption to promote commercial, mixed-use and multi-residential developments and building renovation projects within its town centre.

From 2009 through early-2011, the City of Surrey had granted three-year property tax exemption, building permit fee and development charge discounts, and density bonus waiver to developers of multi-million-dollar residential and commercial projects in the City Centre Investment Zone (City of Surrey, 2010a). The incentives reflected the city's strategy to solidify its city centre, which is served by three SkyTrain stations, as the region's second most important attractor of private investment and commercial activities.

In her book *Perverse Cities*, Blais (2003) has argued that a development charge program that fails to account for the marginal cost of infrastructural provision does a disservice to smart growth through its promotion of low-density suburban development and sprawl. Such development cost programs across

the GTA have been blamed for reducing the competitiveness of transit-supportive developments (Hume, 2013).

Nonetheless, the observation can't always explain the metropolitan region's trend of non-transit-supportive housing development. The City of Toronto's development charge has always been significantly lower than in the surrounding suburban municipalities, and its former budget chief has claimed that the city's development charge does not fully recoup the city's infrastructural provision burden (Moussaoui, 2013a).

The city is currently considering the option of roughly doubling its development charges, which would still be thirty-percent short from recouping the full cost of providing the supporting infrastructure, under the pretext that the time is right for the city to reap the rewards of its success in spurring more condo developments in the past decade (Moloney, 2013).

Ironically, land area-based development charge may have also worked to promote suburban sprawl in the GTA. The York Region, which development cost structure was praised for its exemplary role in incentivizing smart growth (Blais, 2003), has been accused of pressuring its lower-tier municipalities to capitalize on development charge collection from lower-density detached housing projects to help settle the region's debt (which is the highest in the GTA after the City of Toronto) (Javed, 2012).

In contrast with the City of Toronto, the City of Vancouver has development charges that are higher than those of its surrounding suburban municipalities. The city has been criticized for this disparity in its Development Cost Levy (DCL), but it claimed that the revenue goes towards providing affordable housing and other public facilities, which are expensive due to the city's tight land market (Sherlock, 2013a). The city is also contemplating on funding its Broadway rapid transit corridor through development charges (Sherlock, 2013b).

A similar idea for funding source of rapid transit investment, which has been traditionally the provincial budget, towards local development charges has been mentioned in Metrolinx's Investment Strategy to fund the Next Wave projects (Metrolinx, 2013b), but the proposal had been rejected outright by the GTA's local-elected representatives (Gee, 2013; James, 2013).

The CMM is one of the few places in North America that does not have a standard development charge mechanism. The reliance of the CMM municipalities on future municipal assessments of new developments to cover the necessary costs of utility extension is financially unsustainable, and the negotiation process between the municipalities and developers to agree on the right development charge is oftentimes cumbersome, untimely, unreliable and expensive (Fischler et al., 2011c).

Nonetheless, coming up with a fixed development charge formula for large-scale developments can be arduous, and despite the City of Vancouver's plan to give its development charge mechanism a predictable structure, it plans to maintain its case-by-case review for major projects where land value increase can't be easily attributed to added density (Sherlock, 2013a).

As a significant proportion of the city's 2012 budget was funded by negotiated development charges, developers who bought expensive land along the SkyTrain-served Cambie Street Corridor have expressed their discontent over the high additional development charge burden, and some residents of the city's

rezoned areas have even questioned the merit and transparency of the charging mechanism (Bula, 2012b).

5.3 Density Bonusing and Public Investment

Density bonusing, which gives developers an incentives to build beyond the zoning by-laws' density caps in exchange for public benefits, is a municipal tool that is provided under the planning laws of Ontario and B.C., but not Quebec. In Quebec, the mechanism is included in a draft bill that attempts to revise the planning law, but the move is currently stalled in the province's National Assembly (Fischler, personal communication).

In Metro Vancouver, the City of North Vancouver has earned the reputation of being the most rigorous municipality in pursuing its developers to provide community-oriented amenities in exchange of density cap relaxation, but recent public arguments over a density bonusing proposal of a site near the city's future rapid transit corridor have led the city to commission a study on whether density bonusing can be made more transparent and efficient through a cash-based calculation (Polly, 2012; Richter, 2013a; Richter, 2013b).

The density bonusing provision in the Province of Ontario's Planning Act has been criticized for conveying multiple meanings, as the Ministry of Municipal Affairs and Housing encourages density bonusing to facilitate transit-supportive smart growth (e.g. through the provision of bus bays or shelters) while the OMB insists on density bonusing contributing directly to the surrounding community (e.g. through the provision of affordable housing and public spaces) (Moussaoui, 2013a).

Density bonusing can not only be rigid or vague, but also redundant, which often results in the provision of municipal facilities that do not really add value for the public. The City of Toronto's density bonus allowances in the past decades are associated with the creation of many presently deserted privately-owned public (POP) spaces in its downtown area. As developable land becomes scarcer, the city council gets more applications for infill developments on POP spaces, and hence the city is attempting to increase the public's awareness of the existence of such spaces (Tapper, 2012).

Another common planning tool for land-use intensification is direct public facility investment, which is widely applied in the cities of Toronto, Montreal and Vancouver. The Port Lands revitalization project, which seeks to speed up the area's redevelopments and intensification (WATERFRONToronto, 2013), is one of the city's planned recreational projects in which the operational budget would be partially funded by the city's latest development charge hike proposal (Moussaoui, 2013b). Port Lands area is located close to the proposed Downtown Relief Line rapid transit alignment, which, despite its uncertainty of funding, had been recently prioritized in Metrolinx's Next Wave projects (Metrolinx, 2013a).

Demain Montreal seeks to bank on the City of Montreal's global reputation in arts, culture, healthcare, research and education for greater downtown-based intensification through significant urban transformation investments in three spots in the downtown core. The spots are located at the *Quartier des spectacles* (where international festivals and events are hosted), the east section of Ville-Marie expressway (anchored by the ongoing development of McGill University Health Centre (MUHC) mega-hospital) and the south of Peel Basin (which covers the Griffintown and Bonaventure Expressway urban renewal sectors).

Similar investments are planned for the areas surrounding another MUHC project near Vendome Metro station, the Hippodrome residential project near Namur Metro station, the *Université de Montréal*'s Outremont campus development near Acadie and Parc Metro and AMT Commuter Train stations, and a biodiversity-themed Space of Life project in the Olympic Park area near Viau Metro station.

Some Metro Vancouver municipalities such as the City of Vancouver utilize Community Amenity Contribution (CAC) as a density bonusing tool to fund community-based projects. The city seeks to utilize more than a-tenth of its CAC revenues in 2012 for new public facilities in the Cambie Corridor and Southeast False Creek (Sherlock, 2013b). The move by the city would promote greater TOD intensification in the two areas which are served by the Canada SkyTrain Line (especially for the former area since the city has identified the areas as the city's FTDA).

The City of Surrey is creating in its city centre a new Civic Centre, which comprises an open plaza, a performing arts centre, a library and commercial spaces to accommodate future medical and academic facilities (City of Surrey, 2010b). The new landmark would afford to sustain the present momentum of high density office and residential development, which had earlier been driven by the city's development charge waiver and other tax incentives (ibid.).

New public facility upgrades and attractions can also encourage many infill developments in areas where large-scale intensification is difficult. Unlike the downtowns of most suburban municipalities, downtown Brampton has fewer developable surface lots and a more tightly-built building masses and street grid. Nonetheless, the city's contribution to build attractive public facilities, walkways and plazas had attracted a considerable level of infill-based intensification activities in the downtown area (Region of Peel, 2010).

5.4 Infill Development and Inclusive Housing

One main important component of TOD is diversity in demographics and housing choices, as redevelopment projects can result in the displacement of lower-income renters and households. Gentrification, which refers to the displacement of poor residents, has been found to correlate with the proximity to mass rapid transit lines in Toronto and Montreal, but not in Vancouver (Grube-Cavers and Patterson, 2013).

Both Toronto and Vancouver have rental control bylaws that require rental unit replacement for redevelopment projects (Sinoski, 2013b). The City of Toronto's bylaw is specific to new mid-rise redevelopments along the city's built-up and transit-served Avenues. A study commissioned by the city in 2012 found that the rental replacement policy had no impact on market demand for infill development along the city's Avenues (City of Toronto, 2012d).

The interest in wood-frame construction has picked up lately in the three metropolitan regions due to its relative affordability which makes mid-rise infill development attractive as compared to concrete construction. A change in the construction code by the Province of B.C. has allowed Metro Vancouver's mid-rise housing market to benefit from six-floor wood-frame construction since 2009 (MEMNG of British Columbia, n.d.), but the region only saw its first six-floor wood-frame apartment almost three years later (Sherlock, 2012). Wood-frame construction may not be attractive in the City of Vancouver where land cost can easily match building cost (Ditmars, 2013).

It may be attractive for the more affordable commercial street areas in the older urbanized parts of the GTA and CMM with tight massing of two to three-storey pre-war buildings. The interviewed Metrolinx planner is confident that the affordability of wood-frame construction can promote greater mid-rise intensification along many of the GTA's planned rapid transit corridors (Metrolinx planner, personal communication).

Construction and wood industry lobbyists in both Ontario and Quebec have pressured the provinces to modify the building code to allow the present height limitation for wood-frame housing to be increased from four to six storeys (Payne, 2013; Van Praet; 2013), and Quebec has just recently adopted the same rules as in B.C. to allow wood-frame construction up to six storeys in height (Fischler, personal communication).

The City of Toronto, where the proportion of postwar rental tower units in the housing stock is the highest in Canada (Suttor, 2009), is looking at rehabilitating many of the aging towers under guidance by the city's Tower Renewal Office. Most of the towers are strategically located along the city's present and anticipated rapid transit corridors (City of Toronto, 2012a). Current rigidity of zoning by-laws in density limitation, mixed-use prohibition and setback clearance requirement discourages infill developments on idle and empty surfaces around these towers, and a report commissioned by the office suggested zoning by-law changes and collaboration in tower renewal activities between private and non-profit and public bodies (Stewart et al., 2012).

The office is currently looking at four pilot improvement sites, three of which are located near present and anticipated rapid transit stations, through retail-based infill developments, pedestrian network improvements and enhancement of public space to increase its utilization (City of Toronto, 2011). TOD-based infill development projects are not limited to post-war towers, as there are varied proposed residential infill projects near the city's present and future rapid transit lines as of end-2011 (City of Toronto, 2012a).

Traditionally, the allowance for accessory housing units in the GTA had been limited to the City of Toronto, but since the adoption of *Places to Grow*, many municipalities have allowed accessory units, such as the City of Mississauga and the Region of Durham where the presence of detached houses near the targeted intensification nodes and corridors is quite considerable (City of Mississauga, 2013; Region of Durham, 2008).

In the CMM, there has been no indication that municipalities with single-family detached homes are planning to relax their zoning by-law restrictions on basement units, although additional housing units can be created on the other floors. However, the trend for basement housing allowance may have already picked up on the Island of Montreal. For instance, in the Borough of Saint-Laurent (identified by the *Demain Montreal* as one of the city's three urban activity intensification node), a bylaw amendment in 2011 has allowed new basement housing for semi-detached and multiplexes (Borough of Saint-Laurent, 2011). Nonetheless, basement occupancy within the city has been overrepresented by recent immigrants with high tolerance to poorer living conditions due to their limited housing choices (Rose et al., 2011). Thus basement unit allowance as part of TOD's inclusiveness strategy should be accompanied by specific standards that ensure safe, proper and comfortable living environment.

Metro Vancouver's real-estate market is the least affordable among the three regions with its ratio of house price to annual household income of 9.5, as compared to 5.9 and 5.2 for Toronto and Montreal regions respectively (Cox, 2013). Scarcity of developable land in Metro Vancouver influences planners to take up creative approaches to accommodate intensification pressures. The city's densification report produced in late-2012 suggests unconventional ideas to increase the density of its single family housing areas, including a suggestion to reclaim streets and alleyways for new housing (Hutchinson, 2012). Nonetheless, the report was vehemently rejected by twenty-six resident associations (ibid.).

The City of Vancouver has a laneway housing bylaw that permits conversion of rear-alley garages into additional housing units. The city has issued more than nine-hundred laneway housing permits since 2009 (Pickering, 2013), but the bylaw has not really facilitated residential intensification near transit as the spatial distribution of approved laneway housing sites has no discernible relationship with their proximity to TransLink's SkyTrain stations or high-frequency bus lines.

An experimental high-density development which combines residential, industrial and retail use all in one place is being proposed in the city's Downtown Eastside (along Hastings St, which is served by a high-frequency bus line) (GVRD, 2012d). The development is proposed to take place in an industrial zone, in spite of the RGS's prohibition of non-industrial land-uses in the plan's designated industrial areas as the region is expected to run out of developable industrial space by the late-2020s (GVRD, 2013b).

The development plan features an unorthodox combination of medium-density industrial uses that face the back lane, affordable apartment units on the upper floors and retail stores facing the main street. Nonetheless, the city's decision on the developer's rezoning application is still pending in spite of the developer's assurance of compatible industrial uses that do not invite "smell, noise or traffic" and the community oppositions to potential gentrification of the surrounding lower-income and lower-density neighbourhood (Bula, 2012).

5.5 Parking Management

The cities of Toronto, Montreal and Vancouver are the only municipalities in their respective metropolitan regions to have a parking relaxation strategy that is related to transit proximity, although the strategy has been recommended by Metro Vancouver to its member municipalities, suggested by consultants as part of municipal parking strategies of the GTA municipalities of Richmond Hill and Markham, and listed within the sustainable planning visions of the cities of Longueuil and Laval.

Montreal leads the pack in terms of parking relaxation incentive for development near grade-separated rapid transit, with a 50% reduction in parking space requirement (on top of the already bare minimum requirement of 0.5 spot per downtown-based family unit), followed by a 20% reduction in Vancouver (including areas near the intersections of TransLink's high-frequency bus lines and areas around the future LRT and BRT stops) and 17-25% reduction in Toronto (and up to 63% for a bachelor condo unit in downtown) (GVRD, 2012c).

The City of Toronto's present formula of apartment parking requirement reflects the earlier recommendations from a parking study commissioned by the city in 2007. The study, among others, suggested that the parking requirement for the city's Avenues and Centres served by the TTC subway lines exceeded the actual demand by between 9 and 45 percent (Cansult, 2007).

According to Prof Filion, the City of Toronto's Avenue program, which aims to promote transit-supportive and mid-rise intensification along the city's main commercial arterials in the past two decades, has been largely unsuccessful partly due to issues related to parking requirements (Filion, personal communication). The city planners' attempt to relax parking requirements had been opposed by the city's traffic department and the local communities, and the Avenues' tight massing of buildings further discourage the developers from building cost-effective underground parking garages (ibid.).

A parking study commissioned by Metro Vancouver found that parking requirements of strata apartments are up to 35% higher than necessary. The study also found that residential parking demand is no different in areas with access to high-frequency bus and SkyTrain lines despite the former's higher parking requirement (GVRD, 2012c). Nonetheless, many municipalities in the region already require less parking for areas that offer car-sharing and bicycle racks, mixed-use areas that offer shared parking or rental, social or senior housing areas where car ownership is low (ibid.).

The City of Surrey, for example, is contemplating having an Interim Parking Strategy, whereby new parking reduction regulations can be made palatable to developers through the city's allowance for their temporary holding of surface parking area that would be released with the introduction of frequent transit service (Luymes, personal communication).

Parking taxation in Metro Vancouver and Montreal has been successful in reducing the demand of downtown parking. Downtown Vancouver has seen underutilized parking surface conversion to more efficient land-uses after the region's latest round of increase in the parking sales tax and in TransLink parking levy, for a combined taxation rate of up to thirty-five percent in 2010 (Bula, 2012a). Downtown parking demand significantly declined one year after the City of Montreal's parking tax of $5-20/sqm was applied (Lombardi, 2011). Montreal city officials are hoping that the city's recent tax hike, which brings the new tax rate to $30/sqm for outdoor surface parking, will encourage much-needed residential intensification in the downtown area (Lampert, 2013).

Nonetheless, a more systemic approach to metropolitan-wide parking demand and station access management may be required, as the issue of last-mile access to rapid transit (whereby commuters living far away from rapid transit stations will still find it convenient to drive to take the transit) merely shifts the final location of vehicle parking from pricey downtown parking garages to cheaper suburban surface lots near downtown-bound rapid transit.

In Metro Vancouver, underutilized suburban land parcels not far from SkyTrain stations have been converted to new parking lots after the region's parking tax hike (Bula, 2012a). Parking demand at most AMT train stations in the West Island have outstripped supply to such an extent that local councils have not only adopted new regulation to forbid out-of-town users to park on the surrounding neighbourhood streets (Cornacchia, 2013), but also attempted to ban out-of-town users from taking up the locals' commuter parking spots (Boudjikanian, 2009). GO Train parking area congestion has seen some users parking their cars more than a kilometre away from the platform in the morning rush hour, and others taking up to an hour to exit from the parking lot in the afternoon peak (MacLeod, 2012).

The AMT has been under pressure from certain municipalities to allow surface parking redevelopment to generate more municipal tax revenues in some train station areas in the West Island and on the final

stretches of the Mascouche Line. The AMT has been rejecting the requests because of its projection that users of its Commuter Train services will continue to depend on private vehicles to access the stations (Desjardins, personal communication). Nonetheless, opportunities for service improvement in last-mile transit provision exist for the AMT.

The agency is looking at potential ways to enhance its current incentive of 50-cent per user subsidy to transit agencies responsible for providing feeder bus services to suburban train stations (ibid.). It is also planning to offer more *Bikezone* bicycle garages to frequent train users at its suburban Commuter Train stations. The first *Bikezone* implementation at Deux-Montagnes station includes a bicycle repair corner (Martin, 2013), which bodes well with the small town's anticipation of more bicycle paths being built to reduce car-oriented travel behaviours.

Roughly sixty-percent of GO and AMT Commuter Train users drive to train stations presently, and the transit agencies are planning to reduce the share to fifty-percent (MacLeod, 2012; Desjardins, personal communication). Both transit agencies are struggling to catch up with increasing demand of station area parking.

Proper TOD implementation for the stations' parking sites could alleviate the burden of the Commuter Train agencies of subsidizing free parking to their customers in the long term, especially if the areas have great redevelopment potential. The net fiscal benefit (with ridership revenue factored in) for transit agencies' swapping of free surface parking for paid parking and development incomes of a station area has been found to be positively linked to the area's density, land-use mix and alternative station access mode (Willson and Menotti, 2007).

Metrolinx's *Mobility Hub Guidelines* suggests modularly-designed parking parcels, such as shown in Figure 31, that allow redevelopments to phase in smoothly as the right opportunities arise (Metrolinx, 2011). Historically, GO Transit parking supply, which is the second largest in North America, has been expanded in tandem with the continuous increase in ridership.

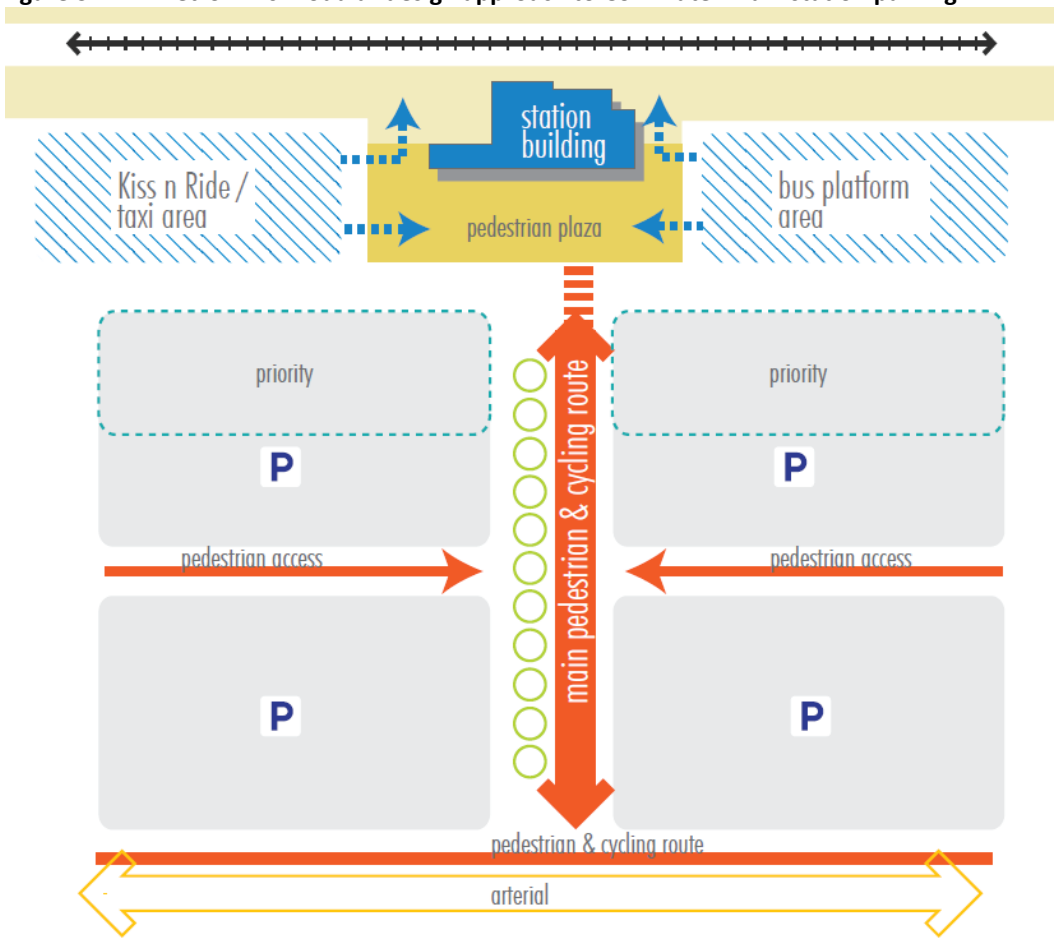
Metrolinx is already constructing multi-level parking spaces as part of its Mobility Hub's strategy to redevelop most of its surface parking lots in Midtown Oakville UGC, although it is unclear whether the agency would fully absorb the parking construction costs prior to the completion of its first mixed-use development phase.

Metrolinx's suggestion that it would charge the use of its 62,000 parking lots was heavily criticized by many social media users (Kitching, 2013), although another study commissioned by Metrolinx reported that almost a third of surveyed users who drive to the station would not mind switching to other transport modes to get to the station (MacLeod, 2012). Cost recovery-based underground parking prices of $10-12 per spot can't be palatable with customers who can always shift to free parking offered by big box retailers elsewhere (Filion, personal communication), unless the station areas offer a high level of commercial activity and attractions for the parking fees to be acceptable.

A parking report commissioned by Metrolinx (2013c) projected the present parking expansion trend to slightly taper off and stabilize as both ridership and TOD momentum continue to garner pace. The report suggests, among others, partnership with developers for shared and integrated parking facilities, provision of active transportation access and facilities, local bus service improvements, bus loop

relocations, and priority measures in order for GO Train stations to cope with future ridership increases (ibid.).

Figure 31 Metrolinx's modular design approach to Commuter Train station parking



Source: Metrolinx, *Mobility Hub Guidelines* (Metrolinx, 2011), figure 4.2.

Excessive surface parking provision is incongruent with the aim of creating built environments that are pedestrian, bicycle and transit-friendly. The viability of compact development within a predominantly low-density and parking-oriented suburban milieu depends on whether pedestrian-oriented activities can be sustained. In order for a considerable level of mixed urban uses to be sustained, a higher degree of active transportation-based accessibility is required. Transit-based accessibility should not to be forgotten, as auto-dependent residents and businesses elsewhere who would be attracted to the TOD areas' richer and more diverse offerings of employment, retail and other opportunities may still find parking-friendly and car-oriented business parks and big boxes cheaper or more convenient.

5.6 Metropolitan Transit Planning

Rapid transit planning is probably the most contentious metropolitan TOD planning aspect in the GTA, CMM and Metro Vancouver. Without further investment and expansion in regional transit, the desired intensification targets of the growth plans would not probably be realized because the majority of the plans' intended growth would have to occur around nodes and corridors of new, upgraded or expanded transit lines that have been proposed in the regions' transit plans.

Although the CBD-centric AMT and GO train networks are already well-established, without the upgrade in Commuter Train service frequency and the provision of frequent transit that addresses travel needs between suburban communities, the future development around the train stations may only meet the TOD's density requirement and not the other 6Ds of TOD.

Metropolitan rapid transit planning and operations in Canada fall exclusively under provincial jurisdiction. Shortfalls in operating expenditures for metropolitan and municipal transit services are typically covered by the provinces and municipalities respectively. A major portion of rapid transit infrastructural financing comes from the province, with the rest covered mostly by the lower-level governments. Except for federal government's Gas Tax Fund, whose continual disbursement to provinces is based on per capita allocation, other federal transit funding tool generally lacks structure, predictability and transparency (Hjartarson et al., 2011). Thus, metropolitan transit planning in the three metropolitan regions falls largely in the provincial domain, where provincial-municipal politics play a definite role in the decision-making process over rapid transit investment.

Oftentimes, local governments compete against each other for their share of transit investment from the province. This is especially true in the GTA and Metro Vancouver. In the GTA, the provincial transit agency Metrolinx has been active in soliciting for the municipalities' commitment and concurrence over its infrastructural planning and funding strategies.

The timing of the agency's recent proposal of its regional transit investment strategy, which requires resource-sharing commitments from the local municipalities, seems to be closely tuned with the generally-improving optimism among the municipalities on metropolitan TOD planning. From the list of compliances of metropolitan TOD planning by the GTA municipalities [Appendix B], although the municipalities seem to comply with the provincial directives on transit-supportive intensification in principle, their plans aim to limit TOD intervention only to areas with present rapid transit service and areas that would see committed investment in rapid transit expansion.

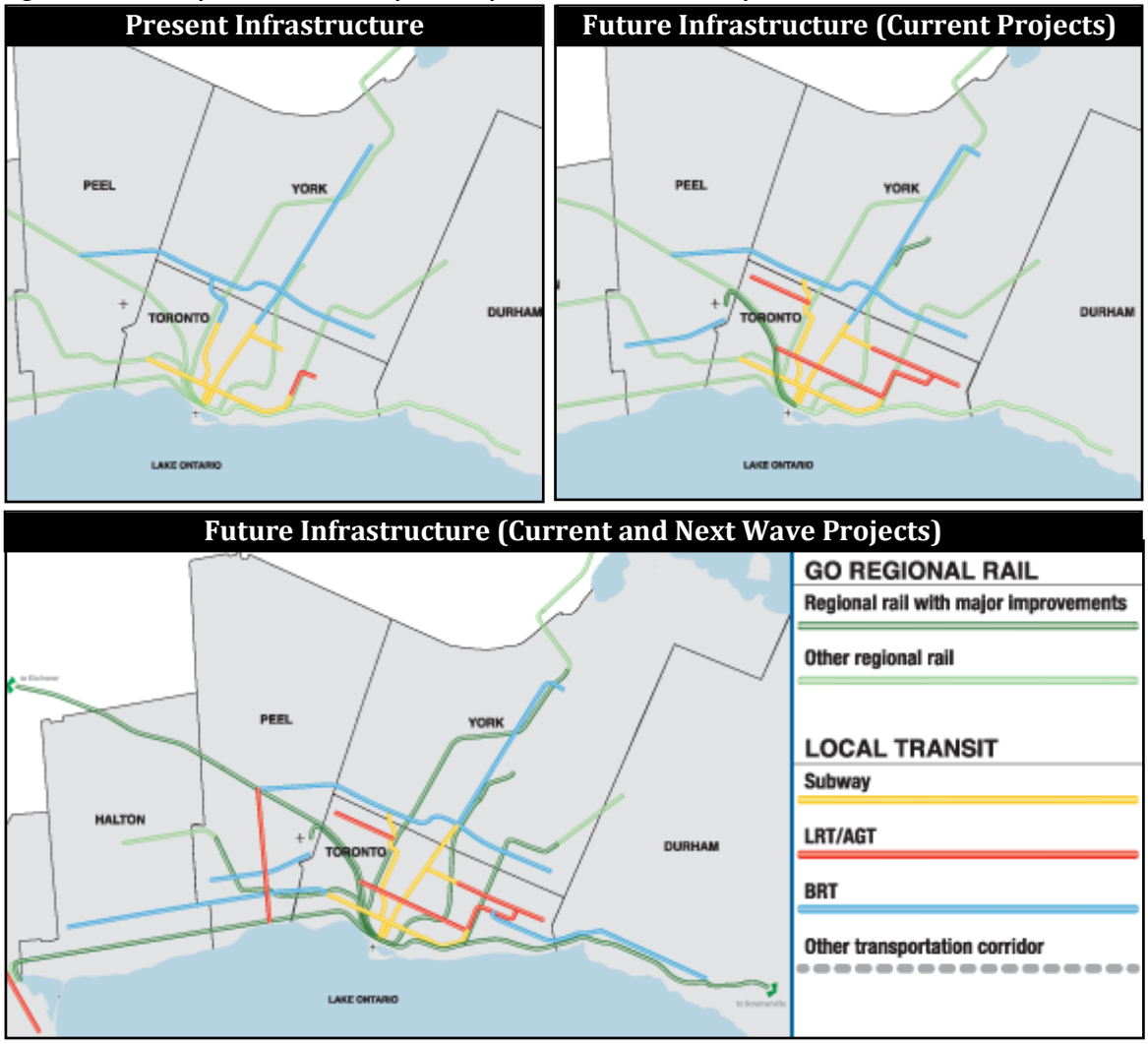
The competition for provincial transit investment is less pronounced in the CMM and is limited to the debate whether transit investment should be prioritized within the Montreal Island or expanded to its off-island neighbours. Nonetheless, despite the province's optimistic tones in the media over the region's rapid-transit proposals, the CMM is in no better situation than Metro Vancouver in terms of clarity of its rapid transit implementation and funding strategy. On the positive side, most of the suburban TOD zones are already served by the region's Commuter Train service. Some of the suburban TOD zones are already attracting young families and professionals who work in downtown.

In Metro Vancouver, the RGS affords TransLink with greater mandate to advise the municipalities on local land-use planning that fits the provincially-based transit agency's long-term transportation agenda. Nonetheless, the region and the province have yet to agree on a firm transit funding strategy and transit expansion timeline. This would create uncertainty among the suburban municipalities on future transit upgrades that are necessary to support their TOD plans. The possible cutbacks of TransLink's present transit operations would jeopardize the transit agency's collaboration with the affected municipalities on transit-supportive intensification.

5.6.1 Greater Toronto Area

Metropolitan transit planning in the GTA has been the most challenging as compared to the other two regions. This is due to the lack of a collaborative framework between multiple municipal transit agencies and the mistrust of local municipalities toward the fairness of Metrolinx's transit funding proposal. Prior to Metrolinx's restructuring by the province in 2009, Toronto's TTC had its chair sitting on Metrolinx's board together with other GTA's municipal representatives. Metrolinx staff saw its chair's preference for TTC to resort to a more open payment system as a major hindrance to the agency's regional integration efforts, and the TTC, which has long prided itself as the largest North American transit agency without any assistance from the upper-level governments, saw Metrolinx as unnecessarily simplistic in limiting the region's agenda for seamless integration of regional transit to just the unification of the region's complex fare systems into a provincially-run scheme of a single and contactless payment mechanism (Addie, 2013).

Figure 32 The present and anticipated expansion of the GTA's rapid transit network



Source: **Metrolinx, *Metrolinx's Interactive #BigMove Activity*, www.bigmove.ca/investing-in-our-future/learn-more/merlin, accessed 1 August 2013.**

Nonetheless, Metrolinx's metropolitan transit plans and investment strategy have been more comprehensive and forward-looking than the plans of TransLink and AMT which do not contain specific

timeline for the implementation of crucial rapid transit projects. Yet, the GTA sees a much greater degree of debates on rapid transit strategy due to political disagreements among its municipalities.

Most of the Next Wave projects that Metrolinx plan to implement in the next 25 years would benefit suburban municipalities [Figure 32], but this would require an annual dedicated budget of $2 billion (Metrolinx, 2012a). Furthermore, the GTA's elected local representatives tend to avoid risking their local political support over the perceived inequality of distribution of provincial transit investment. They would rather be vocal in their opposition to politically risky taxation measures, and quietly accept the least controversial suggestions of municipal contribution behind closed doors.

For example, Mississauga politicians have accused Metrolinx of prioritizing provincially-funded first wave projects for rapid transit expansion in Toronto over new rapid transit construction in other GTA municipalities (Grewal, 2013; Clay, 2013), and Toronto politicians have rejected almost all of Metrolinx's suggestions of revenue tools which had earlier been endorsed by the city's business and community groups (Gee, 2013).

Regional transit investment decisions are also being argued at the municipal level, for instance in the LRT-versus-BRT tug-of-war between the cities of Mississauga and Brampton. The former city has been banking on LRT to spur intensification along the north-south Port Credit-Downtown Brampton corridor (which mostly falls under Mississauga's territory), and the latter wants Metrolinx to downgrade the LRT into a BRT and use the savings to cover the city's expected funding shortfall for its east-west Queen BRT corridor (which is the city's present priority for transit-supportive intensification).

In mid-2013, upon extensive consultation with municipalities, interest groups and residents, Metrolinx issued its Investment Strategy which proposes a sales tax increase to cover two-thirds of the required annual revenue stream of the Next Wave projects, with the rest to come from a business parking levy, the fuel tax and development charges (Metrolinx, 2013b).

Metrolinx's strategy also suggests the revenues to be dedicated to a metropolitan transit fund, which reflects the agency's attempt to pre-empt political opposition to new provincial taxation in view on the province's recent public spending and transparency issues. The taxation measures are still currently being discussed internally by GTA's local municipalities, although the Town of Oakville has publicly announced its agreement over the strategy as long as the region's property taxes are not in any way impacted (Oakville Beaver, 2013).

5.6.2 Montreal Metropolitan Community

The competition for metropolitan transit investment among the CMM municipalities is less pronounced in the public sphere, mainly due to the presence of elected representatives from each of the CMM's regional sectors on the AMT board and the relatively generous level of provincial funding to municipal transit agencies. Between 2006 and 2010, AMT's provincial subsidies had almost doubled (AMT, 2008), and STM's ability to drastically increase its transit service provision (by 25%) between 2007 and 2012 was due to the province's equal matching to the contribution made by the Montreal Agglomeration towards its transit improvement program (STM, 2012b).

Moreover, the CMM's role as a regional consensus-seeking platform on acceptable transportation pricing mechanism helps to diffuse the perception of unfairness among municipalities in the distribution of

provincial transit investments (CMM, 2012b). Unlike Metro Vancouver and the GTA, the CMM has a higher level of agreement between upper and lower-level governments and between suburban and central city municipalities on a user-pays pricing approach. Thus, transit investment decisions in the CMM are less politically divisive.

Despite the general agreement among the CMM's municipalities to increase user-based taxation for transit improvements, there has been no proposal to revise the present resource-sharing model of regional transit funding which disproportionately put more burden of municipal taxation on the Montreal Island residents. The City of Laval's success in getting the province's green light over the Metro Orange Line expansion across the Rivière des Prairies (from Montreal to Laval) is attributed to behind-the-scene political lobbying (The Montreal Gazette, 2011). The competition for transit expansion projects between Montreal and suburban municipalities will intensify if the province does not have enough money to fund the region's three metro line extensions. To date, there has yet to be a decision from the province on how it should fund the region's rapid transit expansion.

Furthermore, the AMT and STM do not necessarily agree with the elected officials on some transit planning issues. The removal of the previous AMT chief had been influenced by the province's dissatisfaction with AMT's lack of fiscal prudence as it rushed to complete the Mascouche commuter line project on time (Bisson, 2012). The STM was quick to point out that the province's green light on the new A10 LRT project over the Champlain bridge would endanger Montreal's interest in finally securing sufficient provincial funding allotments for its West Island commuter rail improvement and Blue line metro extension projects. Nonetheless, the LRT proposal receives strong backing not only from South Shore mayors, but also from politicians from the City of Montreal itself (Riga, 2013c), indicating the region's unique municipal-provincial political symbiosis in important infrastructural decisions.

Regional discontent towards the federal government over transit funding and investment is more pronounced in Quebec. This is unsurprising considering the province's political clashes among both sides of the sovereignist-federalist divide, especially in the recent years. Montreal's transportation plan and CMM's transit investment report demanded that Ottawa refund revenues it collects from goods and services tax (partially) and gasoline excise tax (fully) back to the municipalities and the provinces respectively (City of Montreal, 2008; CMM, 2012b).

More recently, the provincial government denounced the refusal from Ottawa to include the proposed LRT as part of the federal government's budget to replace the ageing Champlain bridge. The province was further upset by Ottawa's plan to collect toll charges from users to recoup the bridge's capital cost instead of to fund the proposed LRT project. Nonetheless, the federal government claimed that the past Quebec government itself had utilized the federally-administered Gas Tax Fund payouts to build more highways instead of transit. The share of the received payouts that has been utilized for transit by Quebec in the recent years is a mere 10% as compared to 68% and 52% for Ontario and British Columbia respectively (Riga, 2013d).

Commuter Train reliability remains an issue for the GTA and for the CMM as commuter rail services mostly operate on tracks that are highly frequented by CN and CP freight trains. GO Transit service disruption was expected when the possibility of strike from CP rail workers became eminent (Dylan,

2012), and "inadequate track-maintenance planning and a communications gap" had delayed AMT's three Commuter Train lines that merge in downtown's Lucien L'Allier station (Riga, 2013b).

The AMT had been criticized for its secrecy over the soundness of its commuter rail electrification study and the subsequent purchase of diesel-electric locomotives, which were supposed to improve the commuter rail system's reliability. Nonetheless, the AMT claimed that the study's confidentiality is necessary to safeguard its negotiation process with CN and CP, which are the main owners of the country's rail tracks (Riga, 2013a).

5.6.3 Metro Vancouver

Metro Vancouver's new rapid transit infrastructure outlook is uncertain considering the region does not possess the GTA's longer-term transit funding and phasing strategy and the CMM's municipal-provincial consensus on future transit expansion. TransLink's *Transport 2040* is as vague as AMT's *Vision 2020* in terms of implementation strategy, but in addition Metro Vancouver does not share the CMM's well-spread regional rail infrastructure. The high-frequency bus lines that appear on future transit maps in the RGS and *Transport 2040* are not completely realistic, as the interviewed planner from TransLink admitted that the future FTN maps in both of the plans would be scaled down and adjusted to reflect the future regional transit strategy (Walker, personal communication).

It is still uncertain at this point which areas will receive new rapid transit lines, but areas in North Surrey, North Delta, North Vancouver and the tri-cities of Coquitlam, Port Moody and Port Coquitlam can expect to see high-frequency bus line extensions in the future (Walker, personal communication). The region's FTN coverage has almost doubled between 2007 and 2012 mainly due to TransLink's fiscally-unsustainable high-frequency bus line expansion, and future FTN expansion is expected to occur at a much steadier rate and be limited to transit-supportive areas, with emphasis on "bringing development to frequent transit" instead of vice versa (TransLink, 2013a: 57).

Compared to Metrolinx and the AMT, Translink has an administration structure that receives a more equitable oversight by Metro Vancouver's elected municipal representatives. Nonetheless, Translink's report on governance review issued in early 2013 suggests the agency to replicate Metrolinx's participation of the GTHA community leaders in its board for better accountability, as the highly heterogeneous and fragmented representation of the Mayors' Council reduces the decision making capacity of TransLink's board members whose appointment were fixed by the council (Acuere Consulting, 2013). The report also urged the GVRD Mayors' Council on Regional Transportation to restructure TransLink's governance through its board's inclusion of directors that are appointed by the regional body and its management's inclusion of the prominent leaders from the board and the community (ibid.).

Despite deriving revenues from parking, fuel and property taxes, and a levy on electricity bills, TransLink still faces annual budget shortfall to maintain its present level of service. On top of that, the progress of transit expansion has been brought to a stalemate by municipal and provincial politicians who refuse to risk losing their political support over local property tax hike (by the municipality) and additional user-pays pricing measures (by the province) (Spencer and Cooper, 2013).

Over time, the unpredictability of transit funding (that are oftentimes dedicated for costly one-time projects) from the province has impacted TransLink's ability to incrementally assess the viability of its

transit expansion plan and progressively relinquish its budgetary deficits (Rasmussen, 2010). Meaningful progress on Metro Vancouver's rapid transit network expansion may not be achieved prior to the province-led public referendum planned in late 2014 for citizens to directly vote on the right taxation strategy for TransLink. The move was criticized by Surrey's mayor for pitching voters in transit-rich areas against voters in transit-deprived areas (The Province, 2013).

Discussions on regional rapid transit among the elected officials have largely focused on territorial interests: Vancouver has been lobbying TransLink for the more expensive SkyTrain option to be chosen for its Broadway rapid transit corridor (Sinoski, 2013c), the University of British Columbia (UBC) would want a cheaper option that allows the line to be expanded to the university (Bula, 2012d), and Surrey officials have requested TransLink to spare the city three cheaper LRT lines that blend in with the city's planning vision of having more aesthetic, human-scaled and pedestrian-friendly streets (Nagel, 2012).

5.7 Local-Regional Transit Integration

From the perspective of transit planning integration between municipalities and regional authorities, Metro Vancouver is in a better shape than the GTA and the CMM. Metro Vancouver has better municipal-regional transit integration due to TransLink's mandate over both local and regional rapid transit planning and operations. Metro Vancouver's inclusion of TOD targets to include the corridors of the high-frequency bus lines as FTDAs affords the region the flexibility to induce smoother growth gradient patterns through new job and housing allocations in between the nodal TODs (around rapid transit stations and within targeted urban activity centres) and the outlying areas (where sparser urban forms are projected to take place).

TransLink's high-frequency bus service is more frequent and reliable than the typical local bus service due to the simplified bus routes and the provision of bus priority measures such as traffic signal priority and queue jump. The region's FTN features a fair degree of interlacing of high-frequency bus lines and rapid transit lines, which would theoretically increase the region's transit-based accessibility and attract more employments in the intensification nodes outside of downtown Vancouver and Surrey City Centre.

Local-regional transit integration is also evident for GO Transit-based Mobility Hubs intensification nodes in the GTA, where downtown Toronto-centric GO Train lines are projected to intersect with municipal-oriented rapid transit lines. Similar integration may be problematic in other GO Train station areas where employment-based intensification is promoted, such as Mississauga's Meadowvale station (which is located at the edge of City of Mississauga's Meadowvale business park). As the station sits at the end of the anticipated all-day Commuter Train stretch of the GO Train's Milton line (as part of *Big Move*'s Next Wave projects) it would be hard to get the business park workers to leave their cars home unless local bus service is ramped up to serve the city's local employment catchment base.

The CMM's plan for local-regional transit integration is unclear for off-island areas not served by the Metro. Since all Commuter Train lines (except the Deux-Montagnes line) rarely operate outside of peak hours, the CMM is considering more all-day *Trainbus* services between the train stations (CMM planner, personal communication). The *Trainbus* services could potentially open up more localized transit access to the TOD zones of the suburban Commuter Train lines, but at the expense of slower regional transit travel time due to the lack of transit right-of-way on the region's suburban arterial roads and major thoroughfares.

A major hurdle for CMM's local-regional transit integration is the AMT's downtown Montreal-centric zonal-based fare structure which penalizes non-downtown-bound suburban users (Champagne, 2012b) and causes dissatisfaction of some inner-zone municipalities that have to contend with the high utilization by the outer-zone users of the already scarce AMT parking spaces (Champagne, 2012a).

Vision 2020 plans on the constitution of 'corridor committees' as the AMT's way of enhancing collaboration between the agency and the municipal and sub-regional transit agencies. The plan proposes several expressway corridors to be traversed by future local bus and express bus lines in linking the CMM's sparser areas in the outer suburbs with the region's rapid transit network (AMT, 2008).

Yet, it is unclear how the areas covered by some of these feeder services would be intensified, as there are many bus feeder lines in PMAD's TOD zone map that are not designated as transportation corridors intended for intensification. Committees have been established for the A15 corridor (along Blainville-Saint-Jérôme commuter line stretch) and the Taschereau/R132 corridor (from Candiac commuter line corridor crossing the anticipated A10 LRT corridor towards Longueuil), and further intensification and development planning for the areas flanking the corridors would be led by the CMM (AMT, 2013).

5.8 Summary of TOD-Supportive Planning Tools

Other than the regional growth and transit plans, the three metropolitan regions are equipped with various TOD-supportive planning tools that suit their unique contexts. The obvious tools that directly promote metropolitan TOD implementation are regional schemes for TOD site planning and regional strategies for rapid transit funding, Commuter Train parking and integration of local and regional transit systems. The transit and parking strategies are more defined in the GTA than in the other three metropolitan regions.

Metro Vancouver does not have a dedicated scheme to assist local municipalities in TOD site planning and funding, and the CMM's TOD guidelines are less comprehensive than those of the GTA and Metro Vancouver. Metro Vancouver stands out among the rest in terms of the region's publication of series of reports and guidelines that assist local municipalities in comprehensive land-use strategies for transit-supportive developments. The strategies cover the aspects of public realm, affordable housing, parking relaxation, design of transit facilities and corridors, and pedestrian and bicycle circulation. Nonetheless, Metro Vancouver, like the CMM, does not have a regional transit investment strategy.

Other than the metropolitan schemes for TOD site planning and strategies for transit and parking, most of the planning tools are not necessarily meant to promote transit-supportive intensification per se. A clear example of this is the City of Vancouver's laneway housing program, which is aimed towards increasing the housing stock among the lower-density areas, although some of the areas are covered by TransLink's FTN.

Nonetheless, the City of Toronto's development charge waiver incentive for office-based development, which is aimed to improve the city's regional competitiveness in attracting new office employments, is limited to areas around the city's present and future rapid transit nodes. In general, most of the local planning tools that promote TOD are confined to the local municipalities' downtowns, urban centres and main streets, and not to the more general urban areas that are connected by rapid transit.

Table 10 Summary of the strength of planning tools in supporting the TOD's 7Ds

Planning Tools	Key Driver or Leader	Density	Diversity, Demographics	Design, Distance to Transit	Demand Management	Destination Accessibility
Greater Toronto Area						
TOD site planning schemes	Metrolinx (limited to selected Mobility Hubs)	Medium	Medium	Medium	Medium	Medium
Development incentives	City of Toronto	Medium	High	Low		
Density bonusing and investment in public facility	City of Toronto	Medium	Medium	Medium		
Infill development and inclusive housing	City of Toronto (limited to the Avenues)	Low	Medium	Low		
Parking strategy	Metrolinx, City of Toronto			Medium	Medium	
Transit investment strategy	Metrolinx				Medium	High
Local-regional transit integration strategy	Metrolinx					Low
Montreal Metropolitan Community						
TOD site planning schemes	CMM (financial commitment is still pending)	Medium	Medium	Medium (low on distance to transit)	Low	Low
Development incentives	City of Montreal	Low	Low	Low		
Density bonusing and investment in public facility	City of Montreal	Medium	Medium	Medium		
Infill development and inclusive housing	City of Montreal	Low	Low	Low		
Parking strategy	AMT, City of Montreal			Low	Low (high only for downtown area)	
Transit investment strategy	AMT				Low	Low
Local-regional transit integration strategy	AMT					Low

Planning Tools	Key Driver or Leader	Density	Diversity, Demographics	Design, Distance to Transit	Demand Management	Destination Accessibility
Metro Vancouver						
TOD site planning schemes	TransLink	Low (High if evaluation is limited to the comprehensiveness of TransLink's TOC guidelines)				
Development incentives	City of Surrey	Medium	Medium	Low		
Density bonusing and investment in public facility	Cities of Vancouver, North Vancouver and Surrey	Medium	Medium	Low		
Infill development and inclusive housing	City of Vancouver	Medium	Medium	Medium		
Parking strategy	TransLink, City of Vancouver			Low	Medium	
Transit investment strategy	TransLink				Low	Low
Local-regional transit integration strategy	TransLink					High

6.0 Metropolitan TOD Opportunities and Challenges

6.1 Mandate and Resources

The regional growth and transit plans and the TOD-supportive planning tools explain much of the What, the Where, and the Why, but not the How of metropolitan TOD planning. The consensus-seeking process among the various stakeholders and the opportunities and challenges that the planners face along the way form the behind-the-scene activities of metropolitan TOD planning, which will be thoroughly explored in this chapter's subsections. The metropolitan planning agencies of the GTA, CMM and Metro Vancouver could not have conceived their present regional growth and transit plans without the proper mandate and resources.

The adoption of *Places to Grow* was driven by strong leadership from the province, as opposed to inter-municipal cooperation as in the CMM and Metro Vancouver. The GTA's suburban municipalities have a lot of clout over metropolitan politics due to their relative importance in regional employment, which makes them formidable competitors to the core city in regional planning. Provincial involvement is also necessitated by the ecological interactions and the sheer regional planning scale and complexity of the larger GGH region (Filion, personal communication).

The Province of Ontario's Ministry of Municipal Affairs and Housing initiated the early groundwork for *Places to Grow* in 2002 by appointing the Central Ontario Smart Growth Panel. The panel consisted of selected leaders of municipalities, pressure groups, public agencies and private sectors, and was chaired by Mississauga's mayor and co-chaired by GO Transit chair (Central Ontario Smart Growth Panel, 2003).

The panel's recommendations revolved around the key themes of balanced growth and prioritized rapid transit investments, which were further refined into a regional discussion paper upon which subsequent multi-stakeholder consultations and workshops were based. The Ontario Growth Secretariat received several hundred submissions as part of the feedback process for the first draft of the growth plan (Ontario Growth Secretariat Planner, personal communication). The *Places to Grow*, 2005 Act was enacted to provide the necessary legislative power for the ministries of Public Infrastructure Renewal and of Municipal Affairs and Housing to ensure the local OP compliance with the regional growth plan (Ontario MPIR, 2006).

The province's influence over TOD planning compliance at the local level is limited to the density requirements of the UGCs and the general intensification principles of major transit station and corridor areas as set by the growth plan. Other more specific TOD plans as proposed by *the Big Move* and the *Mobility Hub Guidelines* are not similarly enforceable. Metrolinx is hoping for the province's Ministry of Transport to issue a Provincial Policy Statement for *the Big Move* to be given its due "legislative teeth", and the prospect seems to get dimmer due to the now weaker ruling Liberal government which had earlier benefited from its majority government status to push for the adoption of *the Big Move* and *Places to Grow* (Metrolinx planner, personal communication).

The Province of Quebec provided the metropolitan planning mandate to the CMM Council in 2001 through amendments of Provincial Acts on CMM formation and on land-use planning and development at the local and MRC levels. The 28-member CMM council administration, which is chaired by the mayor of Montreal and vice-chaired by the mayors of Laval and Longueuil, is proportionally represented by mayors

and elected officials from the MRCs (with 12 appointed members from the Montreal Island). In 2003, the council announced its regional planning goal under 'Vision 2025' with the theme "*Charting Our International Future: Building a Competitive, Attractive, Interdependent and Responsible Community*" (CMM, 2012a).

Regional planning engagements between the CMM and the municipalities had not gone well in the beginning, as the CMM's attempt to have its first PMAD draft adopted in 2005 had been unsuccessful due to the prevailing perception that it would weaken sub-regional planning autonomy among the MRCs and the resistance to intensification from many suburban municipalities, especially in the North Shore (Frenette, 2011).

The resistance from the MRCs was based on their negative perception of the PMAD's overlapping jurisdiction over sub-regional planning. Nonetheless, the suburban MRCs had not really been monitoring the conformity of the lower-tier municipalities' plans to the sub-regional plans. The interviewed planner from the CMM noted that by 2006, none of the local municipalities had ever complied with their upper-tier governments' SADs (CMM planner, personal communication).

The following three years of attempts to get all municipal members to endorse the draft PMAD were unsuccessful mainly due to the CMM professional staff's tendency to rely mainly on findings from external consultants rather than input from the local councillors (Fotopulos, personal communication). Discussions had mainly occurred within bureaucratic circles and not much effort was being put into soliciting participation from the other stakeholders (CMM planner, personal communication).

The proposal to collaborate on regional planning garnered momentum from 2007 through 2010, and a resolution to maintain RCM's upper-tier municipal governance structure and influence was adopted in 2010 by all of the CMM members (CMM, 2010). The resolution also crystallized the members' agreement to work together towards Greater Montreal's regional competitiveness in economy, quality of life and environmental protection (ibid.). The lengthy process that led to the adoption of the PMAD in 2011 by the CMM's member municipalities had largely been driven by a proactive multi-stakeholder participatory process led by the CMM.

Hatzopoulou and Miller (2008) claimed that the AMT, which is governed by a council with slight majority representation by provincial appointees, had its mandate of regional transit planning reduced with the formation of the CMM. The province has a better leash on the AMT over transit funding priorities and the CMM has the power to override the plans and proposals from the AMT (ibid.), but there has not been any significant difference in transit expansion strategies between the PMAD and *Vision 2020*. Nonetheless, the CMM has a superior role in TOD planning at the local level, and the region's TOD planning guidelines have mostly been published by the CMM.

Metro Vancouver's metropolitan planning journey towards the adoption of the RGS picked up from where the previous LRSP left, considering the region's observed execution shortfall in regional growth management and transportation and land-use coordination. Unlike the CMM and the GTA, Metro Vancouver does not have an upper-tier municipal governance structure. Metro Vancouver's Board of Directors consists of at least one representative from each local government, which carries voting weight that is proportional to its constituents' share of the region's overall population.

The review process of the previous RGS began in 2005 with Metro Vancouver's issuance of *Advancing the Sustainable Region* report that highlighted the need to give a more meaningful direction to the LRSP's previous policies on growth management and on regional transit and land-use planning integration (GVRD, 2005). The region's latest success in adopting the RGS lies on the region's "long standing tradition of regional planning and the durability of the Livable Region Strategic Plan's principles" (Kan, personal communication). TransLink, as an affected local government for the RGS's acceptance purposes, had agreed on the RGS's transit-supportive growth policies, and periodically invites input from Metro Vancouver on the transit agency's long range and strategic transportation plans' alignment with the RGS (ibid.).

Metro Vancouver has a more comprehensive land-use and transit integration strategy than the GTA and CMM due to TransLink's established jurisdiction of transit provision at both the local and the regional levels, and the RGS's requirement for the agency's feedbacks to the local governments on their transit and land-use integration plans. Nonetheless, like Metrolinx and the AMT, TransLink can't enforce its recommendations upon the local municipalities, as local land-use matters exclusively fall under municipal jurisdictions (as spelt out under the provincial land-use planning legislation) (Walker, personal communication).

6.2 Consensus and Consultation

Across the three metropolitan regions, opposition to the regional growth plans by the municipalities was largely related to the perception of erosion of municipal autonomy in local land-use planning, unfairness of intensification-based prescriptions in view of the shortfall of rapid transit investment by upper-level governments, and political resistances from the local voter base. Metropolitan TOD planning in the GTA is unique as the province takes a direct leadership role over both GTA's regional growth and transit planning. The municipalities are not represented in the administration of both the Ontario Growth Secretariat and Metrolinx, although there has been a considerable collaboration of TOD planning activities between the municipalities and the provincial agencies at the professional working level.

The success of PMAD adoption in the CMM is linked to the regional council's outreach to a wide range of metropolitan planning stakeholders, which eroded the defenses of municipal officials who were previously against the council's recommendations due to fear of losing their political support. In Metro Vancouver, mutual trust and understanding among municipal partners on the need for regional coordination and inter-municipal accountability had a major impact on the success of the RGS's adoption by all member municipalities.

6.2.1 Greater Toronto Area

The acceptance of *Places to Grow* by the majority of the municipalities had surprised Ontario's smart growth and regional planning expert Prof Pierre Filion. The municipalities were attracted to the plan's nodal intensification proposition as it "gives the opportunity to many (GGH) suburban municipalities or smaller towns to have their own major downtowns" (Filion, personal communication).

Prior to the region's assignment of nodal intensification, the Ontario Growth Secretariat provided a background guide on UGC definition to the lower-tier municipalities, and both the municipal and metropolitan planners were involved in the process of defining the UGCs (Given, personal communication). Unlike the PMAD and the RGS, *Places to Grow* does not assign any particular density or

growth share targets to rapid transit corridors outside of the UGCs, and thus relieving the municipalities of the burden of intensifying the region's much broader areas that are going to be served by the future rapid transit network.

Nonetheless, the growth plan does limit the amount of developable areas and assign specific population and employment forecasts to upper-tier municipalities, which put indirect pressures to municipalities to realize their own smart growth and transit-supportive development agenda. As a result, the municipalities, whose territories require new investment of rapid transit infrastructure from the province to support new growth, are inevitably involved in the metropolitan planning discourse. Still, all of the GTA municipalities had presumably been given the opportunity to provide feedback on the growth plan's forecasting methodology and growth scenarios prior to the provincial approval of the growth plan (Given, personal communication).

During the early post-adoption period of the growth plan, the actual intensification progress on the ground had been consistently challenged by municipal oppositions. The local municipalities had not really assumed their stewardship roles in driving Smart Growth strategies seriously. They tended to side with the complaining local residents whose awareness of the growth strategy prescriptions crystallized only after new developments had been proposed at town hall meetings, and not during *Places to Grow*'s consultation sessions which had received lower levels of public participation (Filion, personal communication).

Many of the controversial metropolitan planning issues have been related to the municipals' encroachment of the Whitebelt Area, which is the area between the GGH's Greenbelt Area and the formal urban boundaries. A panel member of Ontario's Smart Growth coalition argued that the City of Brampton managed to get away with suburban sprawl through its annexation of agricultural areas within its urban boundary prior to the adoption of *Places to Grow* (Gombu, 2013a). Yet, the city's prevailing low-density development is a done deal due to its approval prior to the adoption of the growth plan (Taranu, personal communication).

A local group of sustainability activists claimed that the City of Vaughan managed to circumvent the growth plan by accelerating new townhouse constructions in the Whitebelt Area without any opposition from the York Region. The group claimed that this was done in spite of the presence of ample opportunities for infill development and that the upper-tier municipality was in dire need to recoup its infrastructural costs in other parts of the region (Citizens Environmental Coalition, 2012).

Nonetheless, the province and some municipalities have staunchly stood behind the growth plan in many cases. Developers had been unsuccessful in pushing for the municipalities of Markham, Caledon and Peel to allow for more development within the Whitebelt Areas (Gombu, 2013a). The province has sided with the Town of Ajax and various environmental groups in overturning the Durham Region's OP amendment to allow new development in the City of Pickering to encroach its farmland areas that share Ajax's sensitive ecological watershed (Hatherly, 2012). Apparently, the region's council justified its support to expand the region's badly-need employment areas and accused its opponents of relegating the status of the region to a mere bedroom community serving its richer neighbours (Oshawa This Week, 2009).

As of mid-2013, the OMB had few pending cases of amendments within the subsections of the GTA's Regional OPs, and most of the amendments pertain to development-specific cases and not to the growth plan's intensification principles. The Region of Durham holds firm to its long-held position that the growth plan, which restricts the region's job-to-resident ratio to 1:3, does not provide the region with sufficient employment opportunities and is asking the province to allow the region to create one new job for every three new residents by 2031 (Region of Durham, 2013). As rapid commercial development in the preceding decades has taken place mostly in the western parts of the GTA, it is not surprising that the economically-lagging Durham feels as if *Places to Grow* prevents the region from finally getting its own share of the GTA's suburban-driven employment growth (Filion, personal communication).

On the other hand, the Region of Halton has argued that its municipalities couldn't adapt to the projected rapid increase in residential and employment growth due to the province's lack of commitment to sufficiently provide the region with its much-required supporting infrastructure (Region of Halton, 2007). Halton has a low employment density compared to other regional municipalities due to its abundant supply of post-deindustrialization warehouses, but it has plenty of areas to grow given the province's commitment towards transit and water infrastructure expansions (Filion, personal communication). Although the disagreement has been settled with the province, the region, whose upper-tier municipal population is the smallest within the GTA, is demanding that the financial burden of OMB appeals for growth strategy conformity exercises (from municipals' and developers' objections) be absorbed by the province (Carr, 2012).

Metrolinx's approach towards regional consensus in TOD design and objectives seemed to be the most participative among the three metropolitan regions, as its *Mobility Hub Guidelines* went through an iterative consultation process which include internal workgroups (including officials from GO Transit, Ministry of Transport and Ontario Growth Secretariat), multi-stakeholder workshops (involving municipal agencies, professional institutions and real-estate bodies) and public outreach campaigns.

The GTA municipalities' reactions over Mobility Hub designations were mainly positive, with concerns on development funding, transit improvements and redevelopments of GO Transit's parking areas (Metrolinx Planner, personal communication). According to a policy planner from the City of Brampton, the municipal consultation on the *Mobility Hub Guidelines* was "well done" and the workshops were "productive" (Given, personal communication).

6.2.2 Montreal Metropolitan Community

The adoption success of the PMAD can be attributed not only to CMM's consensus-seeking process (which assured autonomy of sub-regional planning among the MRCs), but also to the buy-in from the elected suburban councils on the local benefits of the TOD zones around the suburban Commuter Train stations (that are planned for almost all of the MRCs).

The present CMM Executive Committee member and mayor of Mont-Saint-Hilaire, Mr Michel Gilbert, believes that commuter station-based TOD remains acceptable to the many small towns in the North and South Shores as long as the current residents can be assured that the 'urban village' atmosphere would be preserved. He also believes that the residents' mindset of density, which has been shaped by poor densification examples in other areas, can be changed. Residents, the mayor asserted, should be assured

of the collective benefits of more inclusive and mixed housing and commercial opportunities without sacrificing the small town environment and livability.

The CMM's public consultation sessions for PMAD in 2011 garnered the attendance of approximately 1,400 people and submissions of 344 written briefs (CMM, 2011a). Out of the total submissions, 62% were from civic organizations and interest groups, two-thirds were delivered in form of presentation to the CMM, and almost one-half was related to the rapid transit-based metropolitan growth structure (ibid.).

The then-president of the CMM's Executive Committee, Ms Helen Fotopulos, said that the CMM had underestimated the number of off-island participants in public consultation sessions as the attendance by suburban participants had exceeded the sessions' seating capacity (Fotopulos, personal communication). Ms Fotopulos listed proactive organizational teamwork and tactful outreach strategies as the key factors behind the committee's success in garnering support for the PMAD. The committee's role shifted from that of passive and reserved bureaucratic administrators to approachable facilitators and motivators in galvanizing constructive participation and ownership from the elected municipal representatives in order to get them to work together towards a common goal.

Prior to the engagement work, it was hard to get the CMM municipal members to collectively articulate decisions based on a regional perspective as officials from different MRCs were working in silos. The absence of any meaningful regional discussion platform had resulted in inputs being exchanged in a bilateral manner among different municipal partners. Moreover, due to the lack of planning expertise, many elected councillors did not take the views of planning practitioners seriously, although some municipal planners managed to empower their councillors on the mutual interests of all metropolitan partners for a more cohesive land-use and transit integration agenda.

The team showed mutual trust and respect in breaking the defences of the PMAD's opponents by sharing their perspectives with other participants with relevant challenges, particularly on the intensification of built-up areas, the preservation of countryside living experience and access to the metropolitan transport network. According to Ms Fotopulos, the CMM's participatory approach and publicity of the consultation process allowed for equitable representation from diverse stakeholders in reclaiming their stakes in the metropolitan planning exercise. The consultation and engagement sessions were the last straws that broke the pro-sprawl camel's back, as certain elected suburban representatives and lobbyists opposed to the PMAD had to grapple with the realities that their opinions and interests were not supported by the majority.

The interviewee was of the opinion that presently, the off-island members of the CMM are more attached to the PMAD's vision than the Island of Montreal itself. She believed that the City of Montreal's ongoing work on its land-use and development plan, which does not emphasize the PMAD's TOD zones, is "disconnected" from the PMAD. According to her, the city planning attitude is unappreciative of the CMM's spirit of cooperative and synergistic governance, and pointed out that regardless of political differences, Montreal has to realize that the economic interdependence between the central city and its suburbs is crucial in keeping the Montreal metropolitan region functioning the way it does (e.g. downtown Montreal's cultural hub status depends on the resources supplied by its surrounding suburban industrial and human resource base).

The CMM Executive Committee member Mr Gilbert notices that different upper-tier municipalities have different understandings of the PMAD, and that as of mid-2013, no MRC has yet to review its SAD in concordance with the PMAD, except for MRC de la Vallée-du-Richelieu (which has thirteen lower-tier municipalities, including Mont-Saint-Hilaire) (Gilbert, personal communication). The CMM is currently in the process of introducing a mechanism to streamline the planning compliance process between the local municipalities and the CMM through *réglements de concordance* (compliance agreement) (ibid.).

There are many suburban municipalities with notable gaps between their present and targeted TOD zone densities. During the CMM's latest metropolitan conference on TOD in early-2013, the City of Saint-Bruno had complained that the city had not received any assistance towards integrating the intensification, transportation and environmental planning aspects together (Wion, 2013). Nonetheless, the CMM is currently discussing with the province on securing the necessary funds for the implementation of the TOD-based real-estate strategy that will better assist local municipalities in TOD planning and provision of supporting infrastructure (CMM planner, personal communication).

The CMM, and not the AMT, is the most influential party to empower elected municipal officials on TOD site planning, as the region's TOD guide has been commissioned by the former instead of the latter. Moreover, the CMM has sent a delegation of some of the region's elected municipal officials to Washington, DC to acquaint them with the city's best practices in TOD adaptation strategies (CMM, 2013b).

6.2.3 Metro Vancouver

Unlike the GTA and CMM, Metro Vancouver has faced fewer challenges in pursuing collective buy-ins of its smart growth agenda from local municipalities who have long understood the importance of concentrating new growth within the limits of the present infrastructure. According to the interviewed planner from Metro Vancouver, the regional planning body's real challenge is on striking the right balance between regional oversight and intervention and unchecked local planning autonomy (Kan, personal communication). While the former disenfranchises the decision-making capacity of elected local representatives, the latter discounts the local councils from being accountable of the spillover impacts of local planning.

The RGS's metropolitan planning process started with Metro Vancouver's preliminary review exercise of the now-obsolete LRSP, in which options for the RGS were laid out for discussion. It was followed by a series of extensive public consultations, which involved public meetings, council presentations and outreach to planners from other public agencies, business groups, non-profit organizations and First Nations communities.

The public meetings were attended by roughly 700 people (with the highest participation rate in Vancouver and Maple Ridge). The themes of concern for the region, listed by priority, were transportation, housing affordability and growth management (GVRD, 2008). Prior to the Metro Vancouver Board's first and second deliberation of the RGS in late-2010 and its final adoption in late-2011, three rounds of drafts were proposed from 2009 to 2010, and they were followed by a series of public and multi-stakeholder consultations.

A sustainable planning advocate from the City of Langley alleged that Metro Vancouver had compromised with some municipalities' request for designation of new Mixed Employment Areas in return for their acceptance of the RGS (Pachal, 2013). If such allegation is true, it could have likely been driven by the desire to earn more municipal income.

The City of Pitt Meadow has requested for a new Mixed Employment Area designation in view of complaints of increasing tax burdens from its residential ratepayers (Melnychuk, 2013). Nonetheless, the RGS requires high-density commercial developments in the region's Mixed Employment Areas if the areas fall within the UCs and FTDAs, and lower-density retail and commercial establishments are allowed in Mixed Employment Areas outside of the UCs and FTDAs as long as they are served by transit.

The RGS's final adoption was delayed by objections from Coquitlam (2011) over the perceived loss of municipal land-use planning autonomy and from Port Moody (2011) over the lack of regional commitment over the city's transportation expansion needs. Both cities had managed to attract more growth in their regional intensification nodes in anticipation for the Evergreen SkyTrain Line, and were subsequently frustrated by the provincial decision to prioritize the Canada Line construction for the 2010 Olympics to the benefit of the less-prepared City of Vancouver (GVRD, 2013c).

In 2011, Port Moody pursued a 'no-transit-no-growth' bargaining strategy in its demand for regional commitment towards funding the city's long-awaited bottleneck-relieving road connector as part of its deal on the Evergreen Line (Coyne, 2011). The city later dropped the demand for the road connector, presumably due to the positive progress of the Evergreen Line construction (Tri-City News, 2013). In the same year, the province instructed for a non-binding mediation between Metro Vancouver and the City of Coquitlam, whose councillors were against the RGS due to the regional body's alleged preference of entertaining regional land-use amendment requests from the larger municipalities (Warren, 2011a; Warren, 2011b).

The dispute resolution process ended with both parties coming to terms with a change in the RGS's procedural bylaw that requires the plan to be reviewed every five years and the regional body to provide support for member municipalities to initiate reviews and amendments through municipal workshops and meetings with public stakeholders and regional councils (GVRD, 2011a; Warren, 2011c).

The interviewed Metro Vancouver planner asserted that despite the validity of certain aspirations municipalities might have, the metropolitan planners can only outline transit expansion priorities and not infrastructural funding strategies (which are the responsibilities of TransLink and the province) (Kan, personal communication). During the collaboration process to develop the RGS, compromises on the roles of regional district and municipalities had been sought, and the metropolitan planners had facilitated continuous dialogues among all municipal partners to exchange their perspectives on the RGS's stake, role clarity, implications and limitations in a frank and mutual manner (ibid.).

The chair of Metro Vancouver's regional planning advisory committee Mr Don Luymes, attributed the RGS's consensus to frequent and extensive collaboration among the planning directors of major municipalities in mid-2010, in which disagreements on the regional body's regulatory oversight were ironed out as planners began to appreciate the significance of the broader metropolitan planning issues:

> *The degree of shared understanding in this region is pretty high. I would not say that there is divergence of opinion between the central city of Vancouver and the outlying municipalities. I think the local governments are always cautious of freeing too much of local autonomy in land-use, but there is recognition that issues like transit, agricultural lands, employment and industry are of regional significance and it is not something where municipality can go in its own way.* (Luymes, personal communication).

The collaboration process does not stop with the RGS adoption, as Metro Vancouver continuously conducts frequent meetings with planning directors, municipal planners and relevant local and provincial agencies (including the Agricultural Land Commission (ALC), which is a provincial agency in charge of approving agricultural land conversions) to discuss or share opinions, provide updates and present findings on issues of regional interests (Kan, personal communication). The hiring of some regional planning staff with municipal experience has, in some ways, helped Metro Vancouver maintain good working relationships with its municipal counterparts (ibid.).

Agricultural land conversion can be major obstacle to the region's TOD progress as traditional suburban developments in the region's outskirts may hamper the attractiveness of transit-supportive housings in the suburban municipalities. A coalition of developers and business groups considered the RGS to unnecessarily create another layer of land conversion approval authority that stands in the way between municipalities and the ALC (Kenward, 2011).

Nonetheless, the Metro Vancouver planner insisted that the regional body's role is not to dictate but to coordinate decisions among member municipalities based on the shared agreement framework established by the RGS (Kan, personal communication). Municipalities' amendment proposals with regional significance would have to go through a vote at the Metro Vancouver Board, and municipalities would have to get their proposals thoroughly fleshed out prior to their amendment requests as those will trigger the need for further regional deliberations (ibid.).

Metro Vancouver is not provincially mandated to review ALC's decision, and suburban local councils could be tempted to refer to the ALC to bypass the RGS's two-thirds majority voting requirement for regional land-use classification amendments in order to develop their farmland. The suburban municipality of Langley Township has recently been criticized for supporting a redevelopment proposal on the region's agricultural land (Frank, 2013).

Yet, the town insisted it is the ALC's sole prerogative (without any mention of the Metro Vancouver's regional role) to approve its application for conversion of agricultural land based on the commitment of the development plan to restore non-productive farmland and create new public amenities (Fox, 2013). The Metro Vancouver planner considered the instance as one of the post-RGS acceptance challenges that highlight the need for the region to "remain vigilant upholding the RGS agreement that was signed on to by the affected local governments" (Kan, personal communication).

The RGS gives GVRD municipalities the flexibility to identify their FTDAs on their own in their RCS submissions to Metro Vancouver, as long as they do so in consultation with both Metro Vancouver and TransLink (ibid.). From the RCS submissions [Appendix D], most municipalities have been conservative in their FTDA identification and avoid high-frequency bus-based FTDA altogether in their RCS submissions.

To date, only about a dozen FTDAs have been proposed, and this is understandable given the fact that the municipalities have to undergo local planning processes prior to their identification of new growth areas (ibid.). Although the submitted RCSs seem to leave out many potential FTDAs, the metropolitan planners noted that the municipalities are at different stages of planning and consultation processes and that more FTDA assignments can be expected in the future (ibid.).

TransLink's approach towards coming up with its TOC Design Guideline, which is aimed to support the municipalities' TOD planning efforts for their FTDAs, followed its standard stakeholder engagement process. The year-long process involved workshops with Metro Vancouver and municipal officials, reviews by technical and regional planning advisory committees and recommendations to GVRD's standing committees, and generally the municipalities have been very satisfied with its outcome (Walker, personal communication).

6.3 Case Study: TOD Planning in the City of Brampton

The City of Brampton is the GTA's second most-populated suburban municipality after the City of Mississauga, and Canada's ninth most-populated municipality after the City of Vancouver. The core of downtown Brampton, which is on the intersection of Main and Queen streets, continues to be the municipality's central point of urban activity since the 1820s (City of Brampton, n.d.). The population grew from about 500 people in 1853 (the year Brampton formally became a village) to about 40,000 people in 1971 (the year Brampton and Peel was incorporated as a city and regional municipality respectively) (ibid.). Today, there are about half a million people living in Brampton, and the rapid population increase over the past decades is associated with the GTA's postwar suburban expansion.

Brampton's TOD intervention strategy is mainly anchored to its downtown, Bramalea City Centre, Hurontario-Steele and Mount Pleasant community areas. The city also targets for infill intensification along the connecting arterials of present or planned rapid-transit corridors [Figure 33]. Brampton Transit currently operates the Züm buses and BRT services. Its BRT services were launched along sections of Queen and Main streets and Steeles Avenue in late 2012 through a tri-partite federal-provincial-municipal infrastructural funding, and a BRT expansion to Bovaird Drive is expected by 2017 (Transport Canada, 2012).

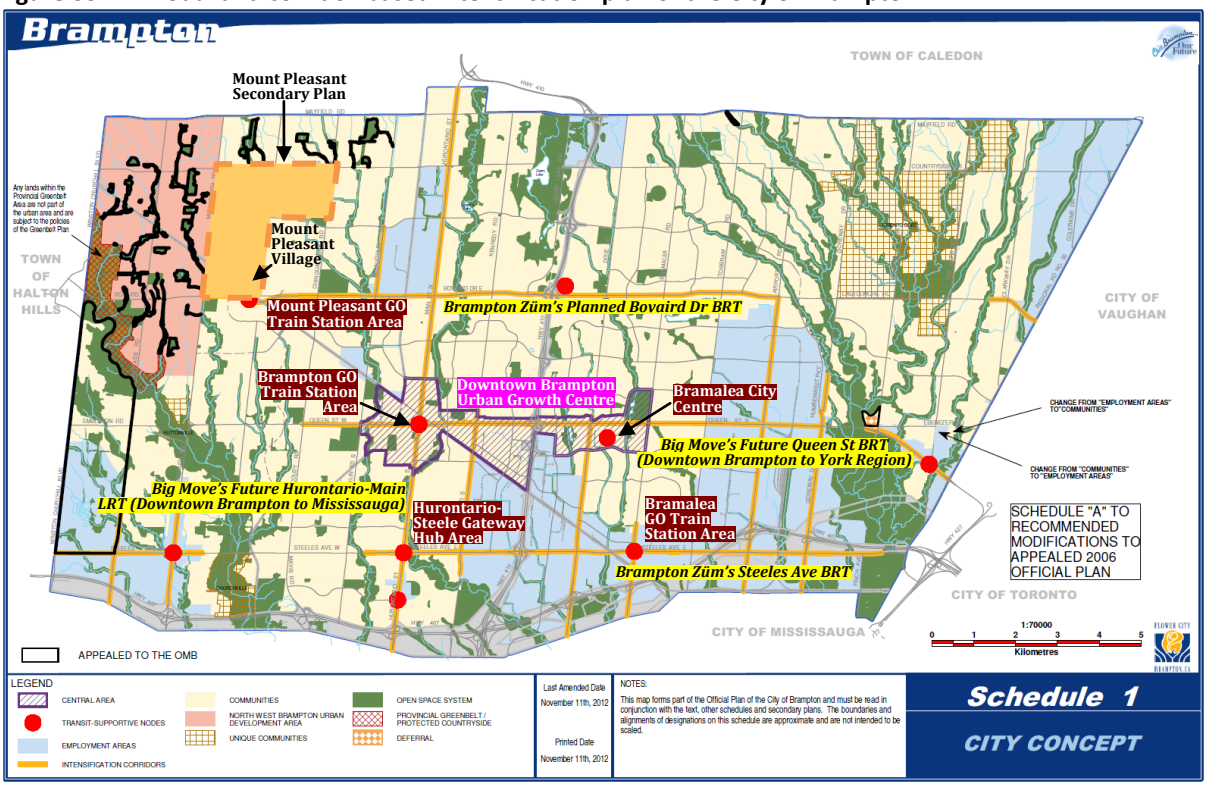
The same funding program saw the upgrade of a Züm bus terminal near downtown Brampton's GO Station and the construction of two new terminals near Bramalea City Centre Shopping Mall (at the eastern side of the Downtown Brampton UGC) and at Shoppers World (which area is designated by *the Big Move* as Hurontario-Steeles Gateway Hub)(ibid.).

The early work on linking the city's intensification plan with the metropolitan growth plan involved a consensus-seeking process between the city's policy planners and the metropolitan planners on the growth plan's designation of the city's UGC boundary and density:

> *Brampton staff (that are) under my direction undertook considerable analyses to define suitable boundaries and met directly with (Ontario Growth) Secretariat staff to properly define the UGC boundaries, making sure that it properly reflected the portions of the downtown that could achieve all of the UGC objectives, including the minimum densities. We were successful at having the boundaries amended as per our recommendation.* (Given, personal communication).

Neither the growth plan nor the Peel Region's OP specifies density targets for the city's intensification corridors and major transit station areas. The planners from the city's growth management and urban design departments developed a hierarchy of intensification that takes into account the elements of land-use, built environment (including building density, height, and massing), and transit patronage (ibid.). The hierarchy, which was almost entirely "supported" by the Peel Region and was "approved, on consent," by the OMB, ranks the UGC as the top-priority intensification node, followed by the Gateway Hubs and the major transit station areas (ibid.). As the city's intensification corridors were designated prior to the growth plan adoption, the city has amended its OP to divide the corridors into primary and secondary intensification corridors, with the primary ones highlighted in yellow in Figure 33.

Figure 33 Nodal and corridor-based intensification plan of the City of Brampton



Source: **Adapted from City of Brampton, *Schedule 1 of the Official Plan (OMB-approved growth plan amendments as of March 1, 2013)*, http://www.brampton.ca/EN/Business/planning-development/projects-studies/GrowthPlanResponse/Documents/9-Schedule_1_NOV_11_2012.pdf, accessed 1 August 2013.**

The following analysis on TOD planning in Brampton is based on the author's interview with the city's manager of Architectural Design, Planning, Design and Development, Mr Alex Taranu (Taranu, personal communication). Mr Taranu is generally optimistic on the planners' role in facilitating successful TOD implementation. The incremental prescriptions of TOD planning that are sensitive to changes in market preferences and transit service upgrades have been crucial to the city's TOD progress.

While developers and commercial land owners have been very receptive to Brampton planners' TOD planning prescriptions, the major TOD planning obstacles come from securing infill development buy-ins (from residential land owners) and funding for transit and TOD studies (from the upper-level governments). Oftentimes, municipal initiative to conduct its own planning study can be important, as the city had conducted a thorough planning study for its Züm BRT strategy prior to its success in lobbying the senior governments for transit funding. Admitting that there is "no magic wand" to attain TOD success,

Mr Taranu believes that planners should aim for the "best policies, regulations, flexibility, dedicated resources, and knowledge" prior to being optimistic about their TOD planning outcomes.

Mr Taranu considers the province's Transit-Supportive Guideline and the Metrolinx's *Mobility Hub Guidelines* as useful starting point of reference that complement their TOD planning work, and criticized the latter for its vague density and zoning recommendations and its lack of incremental steps to transform Mobility Hub areas. Nonetheless, the Mr Taranu admits that the GTA's TOD transformation experience is at its infancy, and hopes that Metrolinx will issue a more refined guideline that can assist planners in confronting the detractors of TOD projects at the OMB level (with arguments such as why a gas station can't be situated near a major transit node).

The Bramalea GO station is the only Mobility Hub in Brampton where Metrolinx is actively engaged in (Metrolinx, 2012b). Mr Taranu indicated that Metrolinx's study of the station area, which has not seen any real TOD progress, is limited only to the station access instead of the surrounding land-use. Nonetheless, Metrolinx's choice for Mobility Hub study funding has always been based on the candidate site's scale of infrastructural investment and availability of Metrolinx-owned land parcels (Metrolinx Planner, personal communication). Despite the lack of senior government support, the Brampton planner acknowledged the need to be proactive to make use of the available local planning capacity to grab local TOD opportunity as it arise:

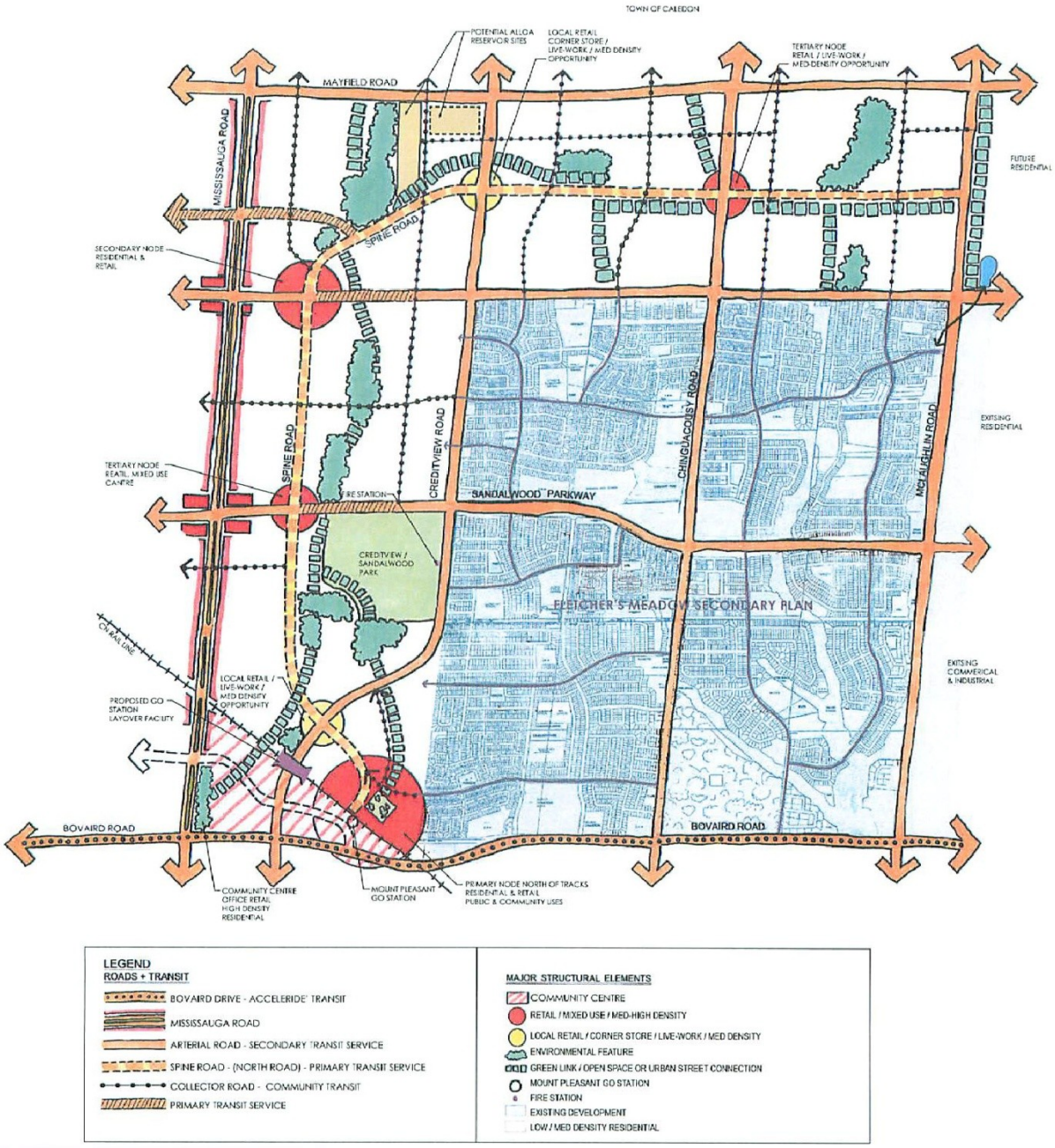
> *I would almost (want to) say, make mandatory those Mobility Hub studies. But the question is, if you (planners) make them mandatory, who pays for that? (Knowing that the response from Metrolinx would be,) 'We don't have the money', that is when you (planners themselves) should (initiate to) do the studies. The next level (for the city's TOD planning) is the transit corridor, and that's where we're doing these two studies, which are guidelines for transit-supportive mid-rise and townhouse development.* (Taranu, personal communication).

The Mount Pleasant community area [Figure 34] is an inverse L-shaped greenfield development site that the city planners eye for medium density TOD, and the recently-completed Mount Pleasant Village development portion of the site had won the Building Industry and Land Development Association's best low-rise *Places to Grow* community award in 2012 (Bascaramurty, 2013).

Brampton's planning documents refer to the site as a Gateway Hub due to the site's fulfilling criteria of having two rapid transit lines (present Kitchener GO Train and future Bovaird Züm BRT lines) intersect with each other, but neither the hub nor the BRT line designations were identified in *the Big Move*. This was despite the city's submission of "professional transportation planning evidence" to Metrolinx on the site's suitability for the Gateway Hub designation (Janice, personal communication). Nonetheless, the train service is infrequent, and the Next Wave project implementation has already been delayed. Mr Taranu lamented on the province's lack of transparency in pushing for the train service upgrade despite it being the city's top rapid transit improvement wish list.

Despite the shortcomings, the Brampton planners rely on incremental improvements of right-of-way priority to its Züm buses to support early land-use intensification along the city's future rapid transit corridors. They hope that prospective developers will buy into the TOD concept with the expected gradual improvements from the bus corridors and elevate the TOD implementation to a higher level.

Figure 34 Secondary Area Plan concept for Brampton's Mount Pleasant



Source: **City of Brampton, *Status Report: Mount Pleasant Secondary Plan Ward 6* (City of Brampton, 2008), figure 2.**

The future plan for Mount Pleasant, which the interviewee considered as the city's crucial pilot TOD project, features a "transit spine" that provides easy pedestrian access from the adjacent townhouse clusters and connects the area's well-distanced and mixed-use nodes together. Due to the early transit planning, the Mount Pleasant Village has seen encouraging transit ridership. The site is now dominated by one-car households, which is a rarity for a GTA suburb.

Another critical success factor is the stringent planning control mechanism that had been put in place, such that even architectural compliance had to be reported to the city planners (Bascaramurty, 2013). Although the promotion of mixed-use development can be challenging during the early TOD phase, the interviewee had noticed that the market is very receptive to the city's recent trend of three-storey

townhouse construction that fulfills the Leadership in Energy and Environmental Design (LEED) criteria. That helps to provide the necessary transition for developers to shift from conventional low-density and single use construction towards more sustainable medium to high-rise, mixed-use construction in the future.

In the downtown Brampton UGC, the city has been offering development charge waiver incentives to promote high-rise urban renewal in the downtown core and mid-rise infill developments along the heritage stretch north of the downtown core. As a result, 1,500 new housing units have been built in the downtown core since 2007. The planners are looking forward to introduce more sophisticated planning tools to boost the city's downtown intensification strategy.

The city is presently conducting a land-use study for the Queen Street West area, which is located west of the Urban Growth Centre (City of Brampton, 2013). The study features brownfield renewal opportunities, in which mid-rise residential development will allow for the breaking up of the area's larger industrial blocks into smaller walkable blocks (ibid.). Like the downtown's heritage sector, the study area will likely see faster development application process, as the city plans to utilize the province's Development Permit System to merge and accelerate the zoning, minor variances and site plan approval process (ibid.).

Mr Taranu indicated that the city does not really face any serious problem in getting the TOD buy-ins from the local residents, as the general population is aware of the advantage of the young population in supporting the city's vibrant commercial activities. The activities are mainly driven by the presence of the city's anchoring academic institutions and commercial activities: the Steeles Avenue corridor connects Sheridan College near Shoppers World with Humber College just across the city's eastern border, and the Queen Street corridor links downtown Brampton with York University. Furthermore, the Queen Street BRT remains the city's second regional transit improvement priority after the GO Train service upgrade, as it provides the city direct regional access to the eastern UGCs via the future York Region's Viva BRT and York TTC subway connections.

The city pursues an overall intensification strategy that favours mid-rise intensification along spread-out corridors as opposed to high-rise intensification in concentrated nodes. This is in order to avoid unnecessary opposition from the established neighbourhoods around the planned intensification nodes and corridors and to promote urban massing transition that respects the unique characters of the city's suburban neighbourhoods. The planners are currently working on transit-supportive guidelines for mid-rise and townhouse development, and would consider tax and non-financial incentives (such as up-zoning of land-uses and priority processing of development application) to promote greater infill intensification along both Queen and Main streets.

So far, the TOD progress in the Bramalea City Centre has been positive due to the area's main land owner who has been very receptive to infill-based intensification, structured parking and placemaking elements. Nonetheless, the planners are facing challenges to intensify the Shoppers World area due to the prospective developers' mindset to prefer a more suburban development. Mr Taranu hopes that the new bus terminal and the introduction of a finer pedestrian network plan will finally motivate the area's land owners to buy into the TOD concept.

The city's developers are generally well-acquainted with the sustainable growth management principles that the city planners endorse. The Brampton planners are learning from each other to advance their planning activities, and have good working relationships with the Peel Region and the provincial agencies.

The planners also have close working relationship with the City of Mississauga with regards to inter-municipal transit provision (with MiWay and Züm buses reaching Shoppers World and Mississauga City Centre respectively) and planning of the future future Hurontario-Main LRT corridor. This is despite the cities' elected officials who seem to compete with each other for funding priority from the provincial government.

6.4 Case Study: TOD Planning in Montreal's Verdun Borough

The Borough of Verdun, which is one of Montreal's oldest inner suburbs, was founded in 1671 and merged with Nuns' Island[11] (which saw rapid urbanization since the 1970s) in 1956 and with Montreal in 2002 when it became a borough of the city. The PMAD assigns the borough six TOD zones, which surround the present La Salle, De l'Eglise, Verdun and Jolicoeur Metro stations and the future Pointe Nord L'Île-des-Sœurs LRT station.

The head of Verdun planning department, Mr Benoit Malette, whose input serves as a basis for the observation made in this subsection, considers provision of more green space and less surface parking as important in the borough's TOD promotion efforts (Malette, personal communication). To the chief planner, successful TOD planning lies on the ability of planners to come up with implementable and attainable goals that take into account the perspectives of all stakeholders.

Verdun planners typically set their goals prior to meeting developers, and seek to collaborate with the developers' planning consultants to ensure the crucial elements of a TOD are met. According to Mr Malette, successful TOD planning is about getting buy-ins from all of the affected stakeholders.

As the TOD zones within Old Verdun [Figure 35] are already dense (and even exceed PMAD's density requirement), the borough's public consultation process to comply with its downtown densification goal (and the City of Montreal's vision to pursue intensification in its rapid transit-served areas) faces a unique challenge: many duplex and triplex owners who are opposed to intensification have yet to realize that they're already reaping the advantages of living in a walkable TOD and that it is in everyone's best interest to sustain the compact environment milieu.

The borough has a "big tradition of consulting", noted the interviewee. When planning for public consultations related to intensification projects in the past, Verdun planners strategically organized public meetings to include both opponents and proponents of densification, and approached the participants with an open mindset to understand instead of to convince them.

The planners also brought in non-profit activists with expertise in Smart Growth and heritage appreciation, and conducted a non-profit documentary movie screening (viewable at sagacitymovie.com) that highlighted the virtues of TOD. Eventually, the audience, particularly grocery shop owners, became

[11] In 1956, the island was annexed to its neighbouring municipality of Verdun (Borough of Verdun, n.d.).

more supportive as they understood the economic importance of sustaining old Verdun's vibrant commercial streets.

Figure 35 TOD zones and density plan in Montreal's Borough of Verdun

Source: Adapted from City of Montreal, *Montreal Master Plan Part II: Chapter 24 - Borough of Verdun* (City of Montreal, 2011), 34.

Out of the four recent intensification and redevelopment proposals in old Verdun, one six-storey social housing building, one four-storey concrete apartment building and one triplex building were approved. The planners are always keen to approve mid-rise apartments as the developers can be required to add to old Verdun's much-needed green public spaces in order to balance the heat island effects of the area's predominantly impermeable surface areas.

Due to neighbourhood opposition, only the six-storey social housing was successfully approved as a mid-rise apartment building. This is due to the neighbourhood around the social housing development which consists mostly of renters with lower motivations to oppose against intensification projects. The approved four-storey and triplex developments had initially started out as mid-rise apartment proposals.

In the author's interview with Ms Fotopulos, the borough was singled out as an illustrative case for Metro-based densification success in Montreal (Fotopulos, personal communication). Apparently, the CMM had focused its TOD promotion efforts towards the CMM's suburban municipalities, as opposed to the City of Montreal's inner-boroughs. Its publicity campaign for PMAD's TOD-based intensification had mentioned Verdun as an already dense area that lower-density municipalities should be aiming for. That caused a headache for the Verdun planners as it gave extra ammunitions to some local residents who would like intensification to occur in other lower density areas outside of Verdun.

The interviewed planner from the CMM justified the minimum density requirement as a standard baseline for the already dense TOD zones to ensure potential redevelopments do not pull down the

present density to a level which the CMM thinks would jeopardize the areas' established significance in the metropolitan-wide context. Nonetheless, the CMM planner admitted that PMAD's TOD approach may have worked better if the already dense areas in the Island of Montreal where PMAD's minimum density thresholds had been exceeded could be required to at least maintain their present density levels (CMM Planner, personal communication).

Old Verdun's long and narrow street grid influences the areas surrounding its main Metro stations (De l'Eglise and Verdun) two walkable pedestrian axes that accommodates diverse and vibrant land-uses well. Nonetheless, lively commercial activities, pedestrian-friendly streetscapes, and traffic calming measures are more prevalent along Wellington Street than along Verdun Street (both directly served by De l'Eglise and Verdun stations respectively).

Mr Malette attributed the disparity to the well-established size and strength of the Wellington Street business community, whose concerted effort to work with the borough to spruce up the street's commercial attractiveness under *Societé de Development Commercial Wellington* (SDC) paid off handsomely. The SDC's establishment in the late-90s helped the street to effectively compete with the newer Carrefour Angrignon shopping mall west of the borough (SDC Wellington, 2013). Nonetheless, the chief planner remained optimistic about the TOD potential along the Verdun Street, whose allure could be improved through incentives for streetscaping and business signage improvement.

Simultaneous changes in both land-use density and diversity for tightly built-up areas like old Verdun can be difficult. An eight-storey residential brownfield redevelopment project near the edge of De l'Eglise and Verdun TOD zones [listed as 24-T1 in Figure 35] could not accommodate mixed-uses due to the development area's lack of commercial pull in comparison with the borough's main commercial streets nearer to stations. Nonetheless, the borough has been planning on mixed-use and high-rise TOD on the Nuns' Island since the 1990s in anticipation of the future rapid transit line running on Champlain Bridge. Unlike Old Verdun, the amount of developable land on the island pretty much enables the planners to "start on scratch on a white paper" in planning for TOD ahead of time.

6.5 Case Study: TOD Planning in the CMM's Suburban Fringes

Mixed-use intensification in low-density suburban fringes can even be more difficult, as was shown in the case of Mont-Saint-Hilaire's *Le Village de la Gare* TOD project which has seen its commercial development phase delayed more than once due to the lack of population base to support it (Diotte, 2007). The metropolitan region's biggest challenge at the moment is to get more mixed-uses included in the suburban TOD zones, which is difficult partly due to the lack of familiarity of local developers with more compact and mixed-use development practices (CMM Planner, personal communication).

Local resistance is one of the major barriers of suburban TOD identified by developers, and its significance depends on the clout the residents have on their elected municipal officials (Feldman et al., 2012). Nonetheless, the collaborative spirit of the CMM municipalities towards PMAD's agenda of metropolitan TOD planning has improved since 2010 (CMM Planner, personal communication). Generally, there has been more communication between councils and residents on the importance of TOD in many TOD-related PPU proposals and public consultation sessions.

In the case of a TOD-related PPU in the West Island's Town of Ste. Anne de Bellevue, only two of the town's seven councillors are fighting for citizen mobilization against the plan ("How can we stop the PPU?", 2012). Their criticism is largely focused on the town's lack of developable areas and the anticipated influence of market-driven development on the town's leftover green spaces. However, the CMM regards this as a non-issue due to PMAD's strict rules governing the preservation of green space (Beaudin, 2012; Lemieux, 2012).

Nonetheless, other suburban councils do see tough local resistance to TOD plans. Among the North Shore municipalities, the City of Deux-Montagnes [Figure 36] has probably received the harshest criticism during public consultation sessions mainly due to the size of its TOD zones, which comprises more than two-thirds of the city's almost fully-developed territory. In view of the scarcity of land, the city can't easily shift the tax burden from more established residents to newer businesses in exchange for greater public support for TOD. The city has been struggling to manage its municipal spending, which has almost tripled since joining the CMM in 2002 due to the absence of industrial activities and the city's overreliance on property tax revenues (Champagne, 2012c).

The recent public consultation presentation for a PPU which covers the City of Deux-Montagnes' (2013) Grand Moulin TOD Zone focused on the importance to both expand the municipal tax base and maintain the present small-town charm (City of Deux-Montagnes, 2013b). The presentation stressed on the municipality's commitment to harmonize future developments with the existing small-town fabric through the application of a *Plan d'implantation et d'intégration architecturale* (PIIA; English: Architectural Implementation and Integration Plan). The PPU would require the use of environmentally sound construction practices to improve heat island and water runoff management in areas near the proposed developments (ibid.).

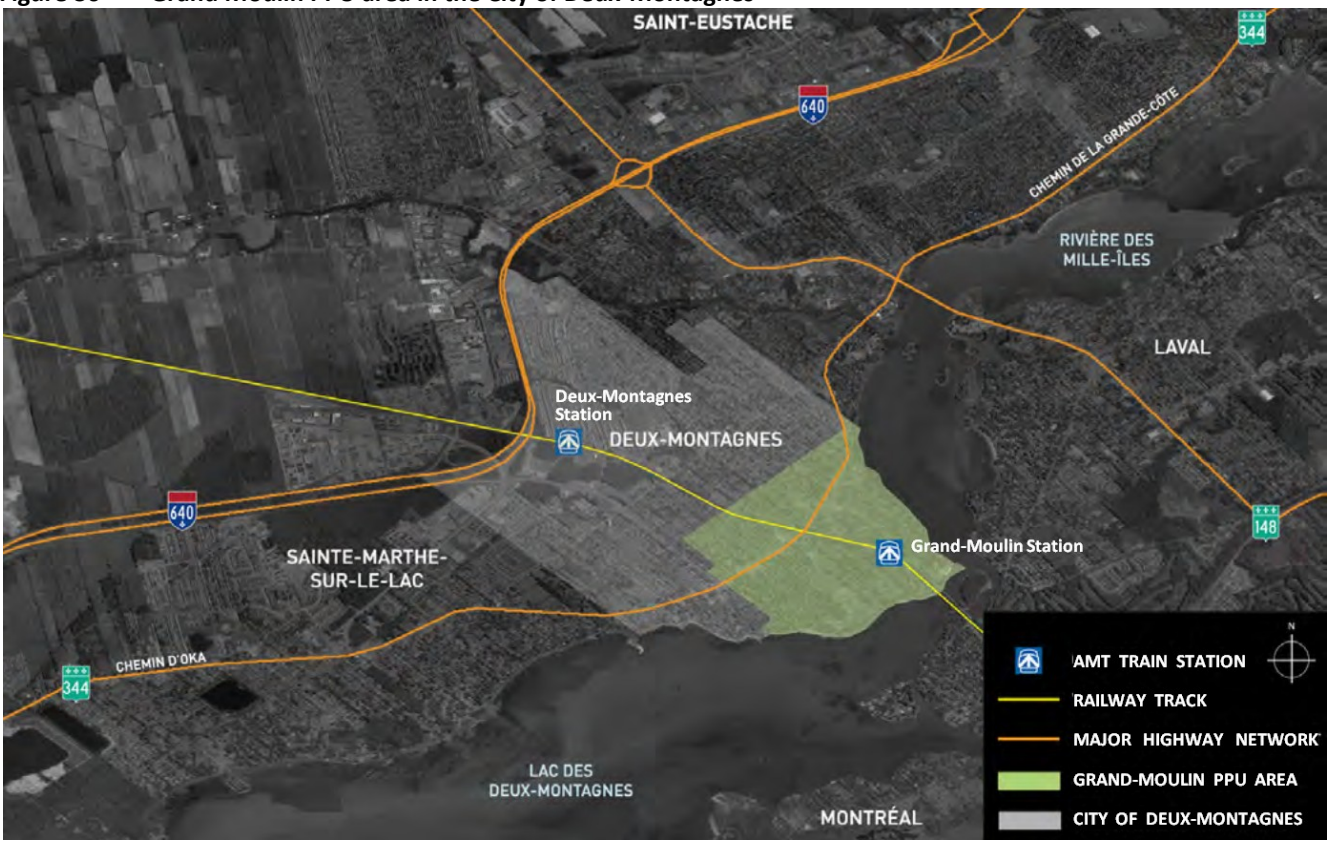
Despite the PPU's proposals for architectural protection along the area's main street, active transport-friendly street design, double-tracking of the Deux-Montagnes commuter line's final stretch, improvement of local transit service, and the assurances that redevelopment and land subdivisions will not involve forced expropriations, the consultation session was marred by heckling and jeers from local residents (City of Deux-Montagnes, 2013c). The oppositions were mainly based on the fear that the developments will bring unnecessary traffic, noise and stress, destroy the small-town character, take up the remaining green spaces, devalue the residents' single-family home purchase, and deny the families access to child-friendly environment (ibid.).

The West Island town of Île Perrot has also faced similar opposition from local residents who feared that the city's proposed pedestrian-supportive intensification would increase traffic and pollution, and disrupt the area's low-density building massing (Low, 2013). In their concluding defenses to their confrontational audiences, the mayors of both Deux-Montagnes and Île Perrot justified their intensification proposals as an unavoidable and agreed-upon regional transit-based intensification imperative that is beyond the local councils' control. The use of a PPU in the two suburban municipalities to allow intensification within the TOD zones has been criticized as an illegal spot zoning exercise and an affront to democracy by the opposing residents. Although the law requires a PPU to undergo public consultation, its adoption can't be objected to via public referendum.

The following analysis is based on the author's interview of a planner the City of Deux-Montagnes except where noted (Deux-Montagnes planner, personal communication). The planner asserted that the city's decision to intensify its TOD zones was made not because of the regional pressure to conform to the PMAD, but because of the need to increase municipal income through greater land-use diversity and higher property values. Previously, the mayor at the City of Deux-Montagnes, Mr Marc Lauzon, had fought against the PMAD, which seeks to more than double the density of the city's two TOD zones in less than twenty years.

Apparently, through the Grand Moulin PPU, the city is now one of the very few CMM suburban municipalities that have enforced the PMAD's TOD prescriptions in their land-use plans. The Deux-Montagnes planner claimed that the CMM has not been able to provide timely assistance to municipalities in promoting real-estate development in the TOD zones.

Figure 36 Grand Moulin PPU area in the City of Deux-Montagnes



Source: Translated from City of Deux-Montagnes, *Programme particulier d'urbanisme: Chemin d'Oka & Gare Grand-Moulin* (City of Deux-Montagnes, 2013a), plan 1.

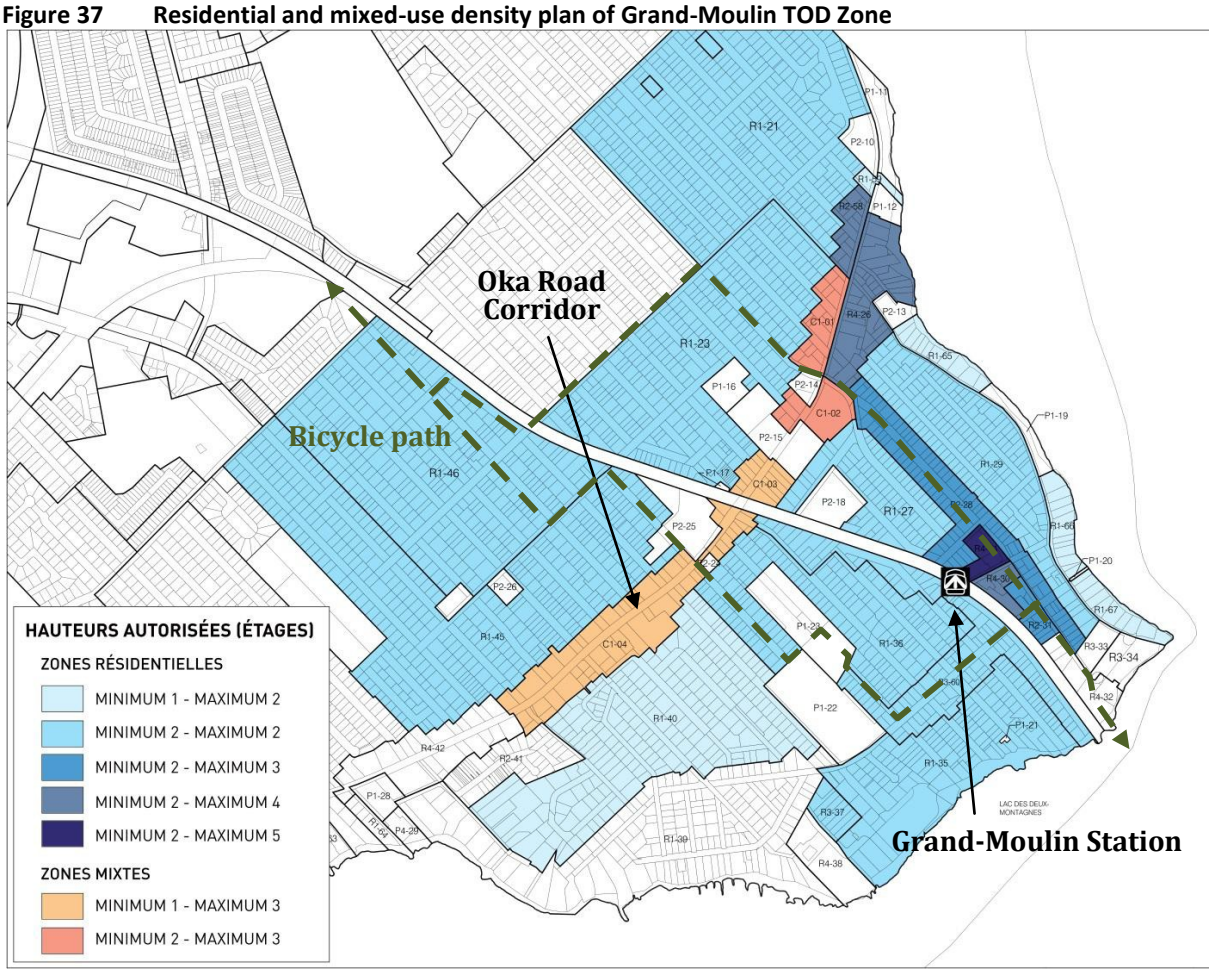
The $100,000 budget granted by the CMM for a TOD demonstration project in the city is insufficient, and the city does not have the financial resource to purchase lands from low-density home owners for new intensification projects. The city would like to see single-family houses in the Grand Moulin TOD Zone to accommodate additional bachelor units (City of Deux-Montagnes, 2013c), and the planners have to rely on "time" as their "best friend" when it comes to infill development in the area (Deux-Montagnes Planner, personal communication).

The city planners find that the most convenient location for TOD intervention is on a private forest on the west side of the Deux-Montagnes AMT station. The TOD plan for the area would include higher-density housing development with ground-level retail units and possesses the characteristics of new urbanism.

Nonetheless, Mayor Lauzon is not seeking for a re-election, and he was criticized for being a lame-duck politician by the opponents of the Grand Moulin PPU (City of Deux-Montagnes, 2013c). The planners are uncertain whether similar PPU can be planned for the Deux-Montagnes AMT station area due to the pressures by the city's mayoral candidates who claimed that the city lacks its new mandate to pursue another TOD Zone planning and due to a legal threat by opposing residents.

The planners are seeking to revive higher-density and mixed land-uses along the Oka Road, which is the Grand Moulin TOD Zone's most important corridor (City of Deux-Montagnes, 2013b). The road used to be a vibrant commercial street that supports various year-round local activities decades ago [Figure 37]. In order to boost the area's connection to the corridor, the PPU considers integrating the corridor with the city's bicycle network (ibid.). Moreover, the city is studying on electric car-sharing as a mid-term solution to address the issue of the Commuter Train station's last mile connection.

Figure 37 Residential and mixed-use density plan of Grand-Moulin TOD Zone



Source: **Adapted from City of Deux-Montagnes, *Assemblée publique de consultation sur les programmes particuliers d'urbanisme (PPU)* (City of Deux-Montagnes, 2013b), 42.**

The PMAD only assigns residential-only intensification targets, and not employment targets, to its TOD zones. The interviewed CMM planner admitted that the PMAD excludes employment from its regional

sector and TOD zone density targets due to the inability of the economists engaged by the CMM to be confident of their projections.

Nonetheless, the CMM does request its member municipalities to aim for land-use diversity in their TOD zones (CMM Planner, personal communication). PMAD's TOD prescriptions do not directly address the potential challenges of attracting mixed-use development in the suburban TOD zones where the immediate station area is disconnected from the larger area's established commercial anchors, clusters or streets.

Housing affordability and inclusivity may be the prevailing TOD planning theme for the CMM, as young professionals are shifting to cheaper mid-rise apartments in the suburbs with fast (albeit infrequent) Commuter Train access to downtown-based workplaces. The mayor of Mont-Saint-Hilaire Michel Gilbert expressed concern over the lack of land affordability of his small town for the younger generation (Gilbert, personal communication). Mayor Gilbert envisaged TODs in the CMM's suburban fringes to replicate Quebec's rural tradition of attaining a "village density" (of up to 30/ha) where the young and the old do not have to worry about owning or maintaining large parcels of land, and travel long distances to run basic errands:

> W*hat I want to say to our citizens is that we (the CMM) are inventing nothing new; we are (actually) trying to retrieve back what used to be the heritage of our villages.* (Gilbert, personal communication, translated by Jihad Tichioui).

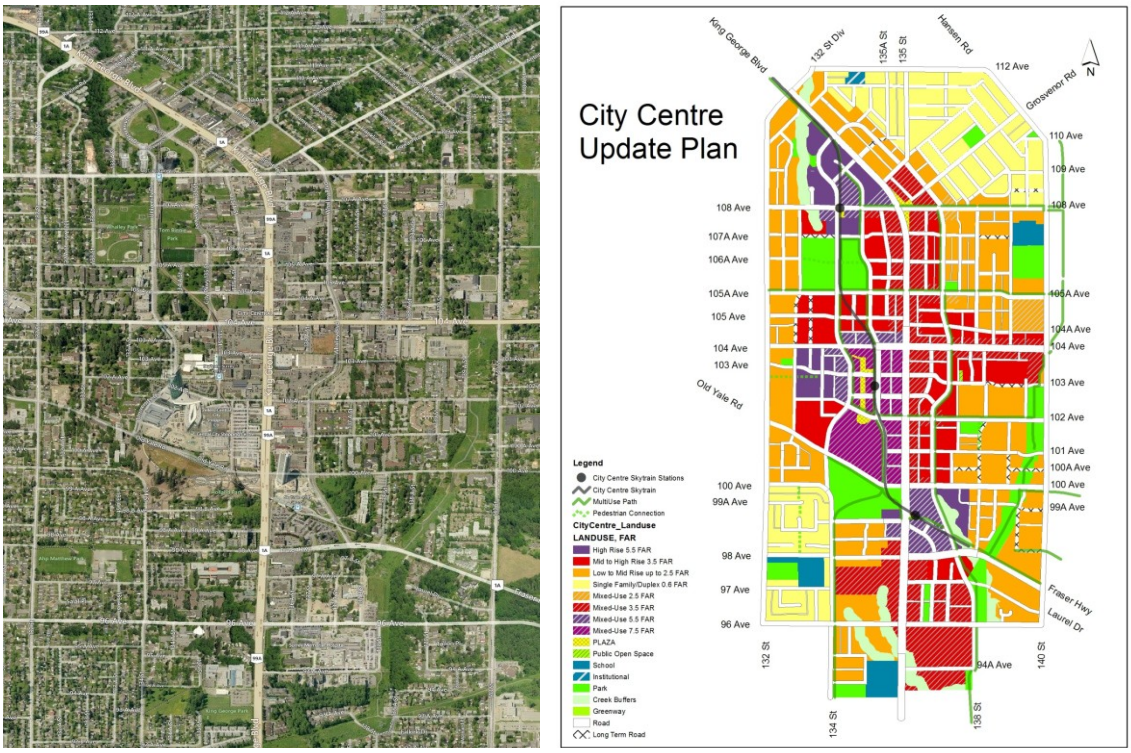
6.6 Case Study: TOD Planning in the City of Surrey

The City of Surrey is BC's second most-populated municipality after the City of Vancouver. Surrey had seen its first European settlement in 1879, and was incorporated into a city in 1993 in the midst of the Metro Vancouver's suburban boom. The city is currently planning to permit more land-use intensification activities in many strategic areas along the city's future rapid-transit corridors as part of its OCP review process. The process complements the city's recently-drafted RCS, whose compliance to the RGS is required for all Metro Vancouver municipalities. Except where noted, the following analysis is based on the author's interview with the city's chief planner, Mr Don Luymes (personal communication).

Surrey planners measure the success of their TOD planning success with three major criteria: timely implementation of the plans, quality of urban design, and change in market value. The first gauges the planners' ability to translate market realities into clear and comprehensive plans that would not invite unnecessary amendments. The third reflects the planners' success in attracting investments from developers.

The planners also consider urban design and family-oriented appeal as critical factors in determining TOD success. Desirable design characteristics of built forms and walkways, and a harmonious transition between the private and public spheres are seen to contribute to land-use diversity and further increase the attractiveness of TODs. Nonetheless, reflecting on the Surrey City Centre's new condominium projects which have not yet been able to attract families as much as they attract bachelors, the chief planner only consider the city's plans to be holistic if they can result in developments that are inclusive to families.

Figure 38 Comparison between the present bird's eye view and future plan of Surrey City Centre



Sources: **Microsoft Bing Maps, maps.bing.com, accessed 1 August 2013; City of Surrey, *Draft Surrey OCP 2013: Regional Context Statement* (City of Surrey, 2013), figure 46.**

The Surrey City Centre, which is the region's second-most important intensification node, is the city's main focus for TOD. At the moment, the city is still relying on incentives for higher density developments in the area, as the development pressures are not strong enough to justify the levy of development charge such as seen in other areas of high market demand in the region such as Vancouver. Nonetheless, the city is well-positioned to extract more community facilities from new developments near transit in many parts of the city, especially in the southern Town Centres.

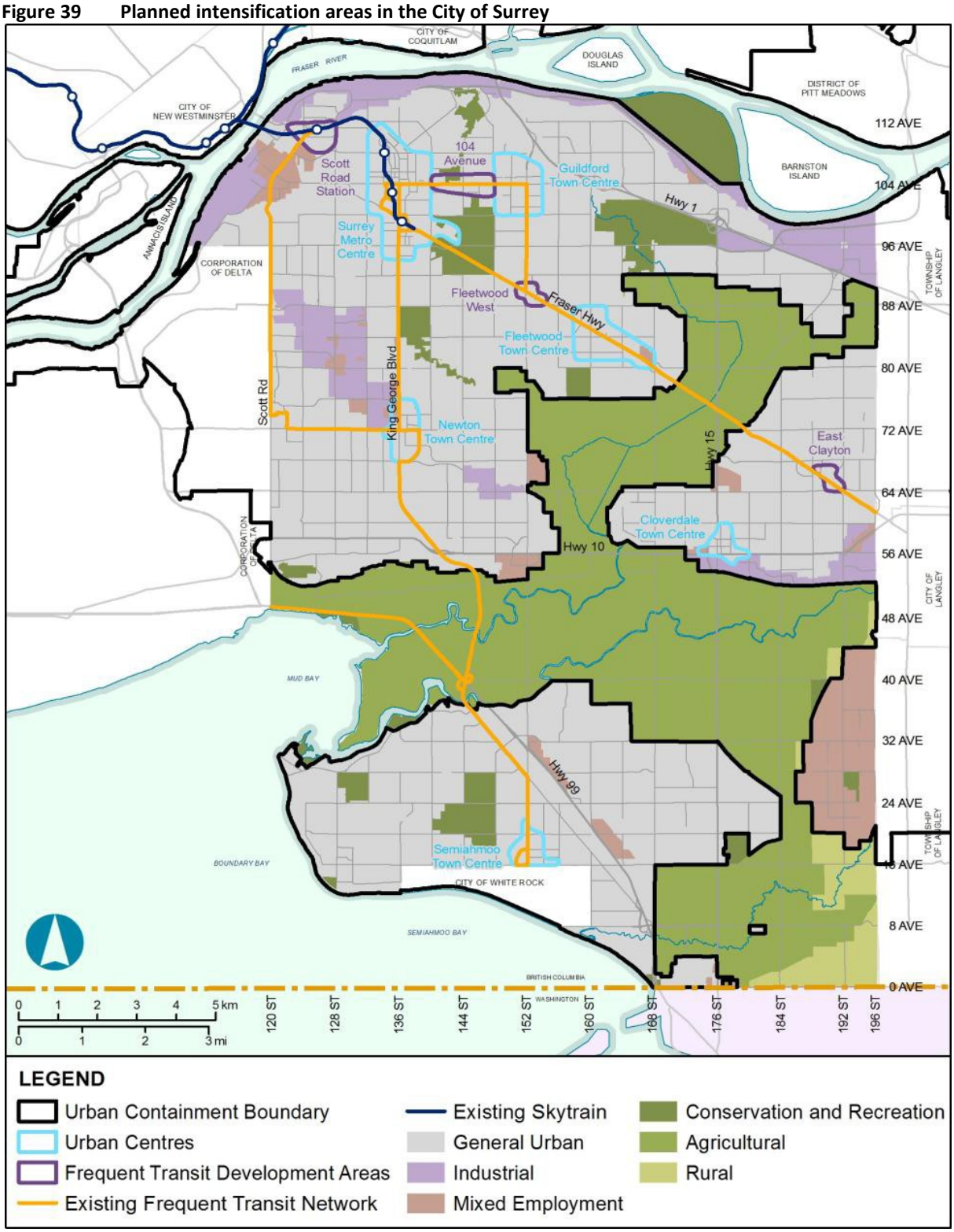
The city is also undertaking a major initiative to retrofit the large block pattern into what the city calls a Finer Grained Road Network [Figure 38]. Smaller street block pattern can not only enhance pedestrian circulation and promote ground-level commercial vibrancy, but also increase the walking coverage of rapid transit. The planners also devise a pedestrian-oriented street scheme called 'lane walk', in which 12m-wide streets with wide walkways and shade trees would be integrated within the planned city centre street layout.

As the city centre is still characterized by large blocks that are occupied by big box retail and parking structures, the Finer Grained Road Network initiative is a gradual process that will not succeed overnight. The planners would try to strike new opportunities for reduction of street block sizes when negotiating with the prospective developers and predetermine the required development intensity prior to setting aside the public pathways.

The initiative's biggest challenge is the developers' reluctance to provide public pathways due to reasons related to underground parking costs. Developers prefer to utilize the entire land parcel for a cheaper and more contiguous underground parking facility rather than breaking the facility into two in order to make

space for the city's public street in between. Nonetheless, in some cases the planners have successfully sought the provision of public right-of-ways on private land through negotiation.

Figure 39 Planned intensification areas in the City of Surrey



Source: City of Surrey, ***Draft Surrey OCP 2013: Regional Context Statement*** **(City of Surrey, 2013), figure 46.**

The city's present OCP designates neighbourhood centres that have lower intensification priority than Town Centres (assigned by the RGS). Although the draft RCS's land-use maps do not locate the

neighbourhood centres, most of these centres are located on the junctions of the city's secondary roads, which would be served by TransLink's high-frequency bus lines in the long term [Figure 39]. A few neighbourhood centres with less intensification pressures such as the long-established Ocean Park Shopping Centre (located on the territory's southwestern tip) would not be expected to be included within the areas served by the city's future FTN.

The city's draft RCS specifies four FTDAs, and three of them are located along the present corridors of high-frequency bus service. The preparatory works for TOD planning on these locations had started prior to the city's adoption of the RGS. A Neighbourhood Concept Plan and a Secondary Plan are the TOD planning tools that the planners use for the two FTDAs nearer to the city centre due to the areas' maturity of built environment. The planners also have to consider the presence of low-density neighbourhoods along the future rapid transit corridors.

In most cases, FTDA assignment is unfeasible due to the long duration of planning and consultation process with the affected communities. For example, the city gave lower intensification prioritization to areas along the Surrey City Centre-Newton Town Centre stretch of King George Blvd corridor, which is one of the city's three major rapid transit alignments, due to the considerable presence of manufactured homes and trailer parks.

The city's site-specific TOD planning requires multiple series of iterations of planning work with the local neighbourhoods, and the process leading to the council's approval can take several years. The planners would normally invite community groups for input and feedback, and form citizen advisory committees to ensure equitable participation from local and long-term residents and interest groups.

Opposition to neighbourhood intensification is expected, and the planners have to undertake a series of planning activities to locate suitable areas for intensification, such as areas along the arterial roads, and to preserve the adjacent areas' more suburban character. Hence, due to the long planning and consultation processes, the city expects that the FTDAs would be expanded to many more strategic areas along the FTN in the long-term.

Regional planning dynamics also stand in the city's way towards TOD planning, as the ambitious planners are caught up in a catch-22 situation with the cash-strapped TransLink. The city planners face difficulty in pursuing its intensification agenda in absence of sufficient transit service as TransLink seeks to observe demonstrated commitment to greater densification from municipalities prior to fulfilling the required rapid transit investments:

> *They (TransLink) will be likely telling us that if we (Surrey planners) want to see rapid transit investment along these corridors we need to demonstrate higher densities than we have in the past. It's a difficult conundrum. Our perspective on it is that we are making it clear that higher densities can be expected along these corridors, but realizing that those densities may not occur until we get a better indication that the transit service is imminent. There's a certain amount of trust and good faith in making those commitments both [sic] from the city, committing to the regional transit authority that we will support higher densities, but not realize those densities until we have a firmer commitment from Translink on extended service. So, it is a difficult conundrum.* (Luymes, personal communication).

The planners' TOD agenda is further challenged by negative public perception of transit-supportive intensification based on the observed frustrations of residents with recent higher density projects, such as the residents in the recent East Clayton townhouse developments, where anticipated improvement in transit service has not been realized.

The situation is not limited to the Lower Fraser Valley, but also affects the region's Lynn Valley, in which municipal frustration is exemplified by Port Moody's suspension of its city centre development in response to delays in the Evergreen SkyTrain Line project (Sinoski, 2013d). Although Coquitlam's Burke Mountain started out as a TOD project four years ago, the area is still waiting for transit and parked cars are already clogging the narrowly-designed streets (ibid.).

The RGS's FTDA Assignment Guideline calls for the alignment of FTDAs and local centres with the present and future FTN [Figure 14] as mandatory and recommendable respectively (GVRD, 2013c). Nonetheless, the future FTN map in *Transport 2040* [Figure 23] features future high-frequency bus alignments that are not realizable. Based on collaboration with all partners, TransLink plans to revise the FTN (as part of its upcoming *Transport 2040* update) to feature more realistic high-frequency bus corridors that the municipalities could refer to in the future for their FTDA assignment (Walker, personal communication). However, it is likely that some of the pockets of presently ongoing higher density development would not be directly served by the future FTN, in which a last-mile transit coverage strategy (via bicycle or feeder bus routes) may be required.

Despite the regional planning challenges, Surrey planners have a close working relationship with both TransLink and Metro Vancouver. The city has four representatives on TransLink's Partner Advisory Committee for its regional transportation strategy review process, and TransLink is invited to the city's transportation and infrastructure committee's monthly meeting in the presence of half of the city's council members.

The Surrey chief planner himself is the chair of Metro Vancouver's Regional Planning Advisory Committee, which is the regional platform for inter-municipal coordination. According to the chief planner, the metropolitan planners were satisfied with the Surrey planners' recently-drafted RCS, and there had been no major noncompliance issues affecting both stakeholders.

Inter-municipal relationships are also important in regional TOD planning. When compared to the GTA and CMM, the Metro Vancouver region has a significant proportion of unevenly-shaped municipalities, and there are many regional intensification nodes that straddle municipal boundaries [Figure 12]. Surrey and Langley planners have been working closely with each other on the TransLink's Surrey-Langley rapid transit study for the past three years.

The city's western neighbour, the Corporation of Delta, has designated a segment of the municipalities' shared border (Scott Road corridor) as an FTDA, and planners from both municipalities collaborate with each other in studying the corridor's development proposals. Furthermore, the planners from both municipalities do touch base with each other on the corridor's planning process through their participation in Metro Vancouver's bi-weekly Regional Planning Advisory Committee.

The Surrey chief planner did not believe that the RGS has made any fundamental change to the way the city plans for its TOD, and it is very likely the case with many other municipalities as well, in which TOD-

related intervention strategies have been implemented prior to the adoption of the RGS. Nonetheless, the chief planner considered the RGS to be one of the many milestones in the regional planning timeline, which comprises an intricate series of planning designs and approaches.

7.0 Conclusion

7.1 Key Findings

The real challenge of metropolitan TOD planning is to strike the right balance between regional planning oversight (regions "see" the big picture) and local planning autonomy (locals "know" best). While the former weakens the decision-making authority of local representatives, the latter undermines their accountability on the regional spill-over effects of local planning. The suburbanization of the three city-regions has increased cross-municipal commutes, decreased the role of the central city, and created outward population and employment sprawl. Thus, it is no surprise that the consensus-building process on metropolitan TOD planning among the local municipalities has been affected by competition for provincial transit funding and municipal property tax revenue.

Regional transit requires regional oversight, and local TOD requires local empowerment. It is clear that well-coordinated TOD planning at the metropolitan scale requires not only synergy between land-use and accessibility planning, but also synergy between local and regional planning. Metropolitan transit planning in Canada can't escape provincial politics, whose influence also shape the style of metropolitan governance in the three city-regions.

Although the city-regions differ in governance style, with the authoritative 'help-us-to-help-you' style in the GTA, the advisory 'together-we-can' style in the CMM and the supervisory 'do-it-yourself' style in Metro Vancouver, the success of TOD planning at the metropolitan level can be generally attributed to:

1. strong provincial growth and transit planning mandates
2. productive collaboration among various stakeholders
3. interdependent relationships between different levels of government (municipal-provincial, suburban-central city and regional-municipal)

Given the heterogeneous planning contexts of the three city-regions, *Places to Grow*, the PMAD and the RGS, together with the regional transportation plans and the supporting TOD site planning schemes and transit investment strategy, are well-positioned to steer new developments around regional transit nodes. Other land-use tools and incentives are found to relate with regional TOD planning efforts, but their implementation is not necessarily framed to promote TOD. Nonetheless the regional TOD planning framework somewhat formalizes the existing local planning prescriptions among the municipalities in achieving local-to-regional TOD planning compliance.

Based on the research paper's thorough documentary and qualitative examination of the alignment between regional and local plans in the three city-regions, we can conclude that the degree and speed of TOD planning compliance among the local municipalities depend much on the:

1. convenience of large-scale development opportunities (e.g. York, Brampton's Mount Pleasant, Surrey City Centre, Deux-Montagnes, TOD zones of the AMT's Mascouche Line)
2. opposition from residents against intensification in mostly built-up area (e.g. Deux-Montagnes, Verdun)
3. full implementation of transit projects (e.g. Coquitlam, Toronto, York, Brampton)
4. certainty of transit investments (e.g. Toronto, Mississauga, Coquitlam, Port Moody)
5. assistance on TOD site studies and planning activities (e.g. GTA's Mobility Hubs)

6. extent of relevant planning activities established prior to the adoption of the growth plan (e.g. Vancouver, Surrey, Brampton)
7. political pressure to reframe the regional agenda to defend local interests, such as need to generate employment or municipal revenue (e.g. Durham, Deux-Montagnes)

From the short-term TOD progress of the city-regions, intensification results have been mixed, but mostly positive for the downtowns of central cities and important regional nodes. Nonetheless, broader economic trends and regional market preferences are also responsible in promoting growth (e.g. waterfront development in Toronto and Vancouver and condo-based densification around suburban train stations in Montreal).

7.1.1 Greater Toronto Area

In the GTA, the province has strict control over the planning of both regional growth and transit, but the region's growth and transport plans have tactfully given the local municipalities autonomy in TOD planning in return for their contribution to reaching a regional consensus on transit funding and phasing strategy. *Places to Grow*, as an instructive and concise manual, gives municipalities their autonomy to decide on lower-level node and corridor planning. The growth plan, together with the region's transit plan and investment strategy, gives the province a pragmatic approach to coordinate spatial growth and curb sprawl.

The provincial mandate to enforce the growth plan is the most critical factor for the success of the local planners in pushing for a more serious TOD planning agenda at the municipal level. There is a good amount of collaboration between the municipalities and Metrolinx on both transit and TOD planning. In terms of planning compliance, most municipalities, especially those with less developable land, do not assign any definite targets or hierarchy for their intensification corridors outside of the UGCs due to the uncertainty of rapid transit investments.

Progress in the GTA has been mixed. The metropolitan planners in the GTA got more than what they initially bargained for as the population growth in the downtown core has been stronger than expected, and some station areas and intensification nodes have made really good TOD progress mainly due to congestion pressures and suburban land scarcity. It is still too early to assess the success of intensification along suburban rapid transit corridors.

Last-mile regional transit connectivity remains an issue for many major transit station areas in the suburban municipalities. The example of the mismatch of TOD planning priority between Brampton's Mount Pleasant 'Mobility Hub' and Metrolinx's Bramalea GO Mobility Hub indicates the negative impact of the fragmentation of GTA's sub-regional and local transit planning on the alignment between regional and local TOD planning.

7.1.2 Montreal Metropolitan Community

The CMM builds on local planning autonomy and provincial support as part of its consensus-seeking deal on growth that is tied to downtown-centric regional transit lines, with large TOD zones that afford flexible local planning intervention. The PMAD is a multidimensional and comprehensive blueprint that translates the collective pro-sustainability desires of multiple stakeholders. The interest in commuter train station-based intensification in many small suburban towns and areas reflects the region's consensus to strengthen the central city position as the region's key generator of economic prosperity, and towards

extending new urbanism and smart growth benefits, including social inclusivity and environmental protection, to its suburban fringes.

The CMM sees greater market and political acceptance of TOD in suburban areas mainly due to its social inclusivity and housing affordability benefits. Its earlier consultation and engagement activities with a diverse range of stakeholders had successfully galvanized a strong TOD planning momentum. Nonetheless, tough resistance from small town residents will likely derail the momentum in the region's suburban fringes, especially on the North Shore, unless the CMM and the AMT can provide early financial assistance on 'quick-win' pilot projects (e.g. Oka Road beautification and CITL inter-suburban bus service improvement in Deux-Montagnes).

The region's early success in concentrating growth in its central city may not be sustained if the city's employment nodes outside of downtown are not served with reliable rapid or frequent transit. The Verdun case study shows that there is room for infill development around the city's mature station areas, and that the CMM's reduced focus on inner-borough TOD zones may cause the region to miss out on the potential for greater mixed-use intensification around the present Metro stations.

The issues of land-use diversity, last-mile transit connection and mismatch between regional transit nodes and local activity centres are the major challenges that need to be tackled by the planners to avoid turning suburban TOD zones into purely bedroom communities. Furthermore, there is a lack of clarity over the phasing and funding plans of the rapid transit projects despite the prevailing regional and provincial optimism and consensus over the regional rapid transit plan.

7.1.3 Metro Vancouver

Metro Vancouver's regional consensus approach to growth planning has reached a new level of sophistication with regards to the synchronization of local TOD planning with the planning of regional growth and transit. The latest RGS's approach builds on the region's collaborative implementation of its previous RGS (the LRSP). The RGS's emphasis on planning roles and prescriptions is understandable considering the fragmentation of local municipalities and regional land-use constraints. The supervisory governance model of Metro Vancouver has worked well to generate consensus among the municipalities on stricter TOD prescriptions (such as the FTDA requirement).

The region's main municipalities have close working relationship with TransLink, especially in planning for transit expansion and FTDA. Furthermore, Metro Vancouver provides the platform for municipalities to touch base with each other on inter-jurisdictional matters. There has been a considerable level of TOD planning activities prior to the adoption of the RGS, as exemplified by the Surrey case study. Despite the RGS's more detailed prescriptions and procedures of regional TOD planning as compared to *Places to Grow* and PMAD, there has not been any significant compliance issue in the municipalities.

Metro Vancouver is well on track to intensify its two most important intensification centres and its other important SkyTrain station areas. Prospects for TOD along the corridors of high-frequency bus lines which would be upgraded to future rapid transit are also positive for the less-developed suburban municipalities. Transit funding shortfall is a major issue, and could hamper the region's TOD progress in many suburban areas, such as in south and east Surrey and in Langley Township. The antagonism

between the municipalities and the province on transit funding strategy, if not healed, will likely increase the resistance by suburban municipalities against the region's transit-supportive intensification plans.

7.2 Recommendations

While this research paper can't specifically recommend how metropolitan TOD planning could be improved in view of the complexity of each of the city-regions' political structures, the metropolitan planners can surely learn from each other on effective TOD planning incentives, prescriptions and policies.

The CMM and Metro Vancouver should be more proactive in providing assistance on TOD planning at the local level. The strategies employed by Metrolinx in rapid transit funding and phasing can help municipalities to assign potential sites with the right TOD priorities. The proposals for transit taxation and investment scenarios from the AMT and TransLink will help to create greater transparency between the municipalities and the province and their respective political constituents on the fairness of new taxation and transit expansion schemes. The clarity in transit investment decision will lead to better readiness among the municipalities to properly refine the regional TOD strategy according to the local context.

The CMM and GTA should replicate Metro Vancouver's high-frequency bus line strategy as a phase-in strategy to jumpstart an intensification momentum along the regions' future inter-suburban rapid transit corridors (that can also alleviate parking problems at commuter train stations). They should also synchronize plan-making among local land-use, regional transit and local transit planners through collaborative consensus-seeking approaches such as councils with cross-jurisdictional supervision and participation.

The Brampton case study shows that TOD can be done in tandem with local transit improvement. Fragmentation of transit planning is a serious concern in the GTA, and efforts to integrate different transit systems should include elimination of the transfer penalty and synchronization of schedules and routes, and not just be limited to an integrated contactless fare system. As for Montreal Island, TOD planning should be expanded to include high-frequency STM bus lines which do a better job in serving Montreal's present suburban activity nodes.

Although the CMM's adoption of a growth plan is more recent than that of the GTA and Metro Vancouver, the region offers a useful approach to public empowerment on metropolitan TOD's broader interests. Such a strategy can be useful to tame down antagonistic suburban-central city and local-provincial politics, as it encourages the 'silent majority' to be involved in the advocacy process of metropolitan TOD planning, and orients the decision-makers to the true wishes of their constituents.

7.3 Future Research

The wide geographical scope of the research paper does not afford the author the liberty to dwell further into the local-regional planning nuances of every single local municipality. The representativeness of the selected interviewees may not be perfect, and holding focus groups, in which a greater collaboration between planning practitioners and researchers is achieved, may help in that respect. The inclusion of non-public sector actors, primarily developers and real-estate experts, would further enrich the findings

of this research, as actual urban development in the three city-regions is shaped by the public sector's dependency on private builders to change the built environment (Filion, personal communication).

Assessment of performance in regional TOD implementation could be an interesting topic for future metropolitan TOD planning researchers. There has yet to be a reliable report on how the regional growth plans have performed on transit-oriented intensification, and this can be attributed to the general critique on the elusiveness of planning activities: "Planners rarely evaluate plans that they produce. Planning is a field that suffers from lack of evaluation and knowledge of what works and what doesn't work" (Filion, personal communication).

The Ontario Growth Secretariat provides grants for researchers to undertake a performance study that measures the growth plan's progress. Metro Vancouver's RGS indicates the region's pioneering commitment to a five-year review based on the monitoring of certain land-use and transportation indicators. The CMM makes information available online on regional performance indicators (observatoire.cmm.qc.ca), but the published indicators are not directly linked to PMAD's TOD zones and their density targets.

Finally, future quantitative studies on metropolitan TOD progress could employ GIS mapping not only to calculate new residential and employment growths (density) within the regional intensification nodes and corridors, but also to study changes in land-use mix (diversity), street plans (design), pedestrian connections (destination to transit), housing mix (demographics), excess parking supply (demand management) and transit-to-auto regional accessibility or travel time ratio (destination accessibility).

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8.2 Interviews

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9.0 Appendices

Appendix A: Interview Consent Form

Informed Consent Form

For the purpose of research entitled "Transit-Oriented Development Polices in Toronto, Montreal and Vancouver Metropolitan Regions"

Student Researcher: Muhammad Zulkarnain Hamzah, muhammad.hamzah@mail.mcgill.ca
Thesis Supervisor: Prof Raphaël Fischler, raphael.fischler@mail.mcgill.ca

Thank you for agreeing to be interviewed as part of my research. My Supervised Research Project, which is the final requirement for my Master in Urban Planning program at McGill University, aims to understand how Transit-Oriented Development (TOD) strategies are being used in Canada's three largest metropolitan regions. The interview process has been approved to conform to the ethical standards established by the McGill Research Ethics Board.

Research Objectives

Attempts to institute TOD policies have faced obstacles from limited political and planning capacity, conflicting priorities, resistance from transit agencies and municipal bodies, and NIMBY reactions from residents. How planners in different cities overcome these obstacles is critical knowledge for the implementation of TOD. Interviews with transit and land-use planners at the metropolitan and municipal levels will help to understand how planning for TOD can be fostered in practice.

The research aims to answer the following questions:
1. What political mandate did planners receive to foster Smart Growth and TOD?
2. What resources did they have to create TOD plans?
3. How did they build consensus on TOD objectives among municipalities in the metropolitan region?
4. How did they build public support for their TOD plans?
5. How do planners evaluate the plans that they produced? In what way do they think they were successful and in what way to they think they failed?
6. What factors do planners believe were most critical for the strengths and for the weaknesses of their work?

Organization of the interview

The interview is expected to take about 45 minutes of your time. You are under no obligation to participate, and you are free to refuse to answer any question, or to end the interview completely, at any time and without giving a reason. In addition, you may withdraw your consent to participate in this study at any time and withdraw all or part of your responses if you wish.

If you are in Montreal, you can choose to be interviewed in person, by phone, by Skype or by e-mail. If you are not in Montreal, you still have the option whether to have the interview done through the phone, Skype or e-mail. There is a minimal risk of interception of data transmitted via the internet, and rest assured that I will take the necessary steps to reduce the risk through the use of password-protected and university-based e-mail access and firewalled home internet connection.

It would be helpful to my research if I could record the interview. For interviews conducted in-person, by phone and by Skype, you may request that the interview *not* be recorded. If the interview is recorded, you will have the option to receive the digital copy of the recording.

Confidentiality

If you waive your right to confidentiality, I will use your name and title in my research report. If you request confidentiality, I will quote from your interview but will not use your name, title or any other information that may lead someone to identify you.

In the event that a translator is involved during the interview session, I will ensure that the translator agrees to treat all of the interviewee's responses with utmost confidentiality prior to the interview session.

All data gathered for this research (e-mails, recordings, etc.) will be stored on my personal computer and on a back-up device and will be shared only with my Supervisor, Prof. Raphaël Fischler, who will also treat it with total confidentiality.

My research report and articles I may derive from it will contain only information that I was explicitly allowed to make public. The research report will be made available to the public through the McGill University library system. Articles would be published in professional or academic journals.

To confirm your consent to be interviewed, please put down your signature at the bottom of this page. Please choose one of the two confidentiality options offered.

Thank you for your contribution and I welcome any thoughts you have that might improve this research. For queries regarding ethical aspects of this project, you may contact the McGill Reseaerch Ethics Officer Lynda McNeil at 514 398 6831 or lynda.mcneil@mcgill.ca

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Informed Consent and Confidentiality Agreement

I consent to be interviewed by Muhammad Zulkarnain Hamzah for the purpose of his research entitled "Transit-Oriented Development Polices in Toronto, Montreal and Vancouver Metropolitan Regions." I understand that I may withdraw this consent at any time and that I may refuse to answer any question, without giving a reason for it.

I accept / refuse that my interview be recorded. *[Please circle the term of your choice.]*

I accept / refuse that my name and title be used in the research report and other publications. *[Please circle the term of your choice.]* If I request confidentiality, I understand that passages from my interview may be quoted but that no information will be used that could help to identify me.

Name:

Signature: Date:

McGill

Research Ethics Board Office
James Administration Bldg, room 429
845 Sherbrooke St West
Montreal, QC H3A 0G4

Tel: (514) 398-6831
Fax: (514) 398-4644
Ethics website:www.mcgill.ca/research/researchers/compliance/human/

Research Ethics Board I
Certificate of Ethical Acceptability of Research Involving Humans

REB File #: 509-0513

Project Title: Transit-Oriented Development Polices in Toronto, Montreal and Vancouver Metropolitan Regions

Principal Investigator: Muhammad Zulkarnain Hamzah **Department:** Urban Planning

Status: Master's Student **Supervisor:** Prof. R. Fischler

This project was reviewed by delegated review.

Rex Brynen, Ph.D.
Delegated Reviewer, REB I

Approval Period: __24 May 2013_____ **to** ___23 May 2014_____

This project was reviewed and approved in accordance with the requirements of the McGill University Policy on the Ethical Conduct of Research Involving Human Participants and with the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans.

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* All research involving human participants requires review on an annual basis. A Request for Renewal form should be submitted 2-3 weeks before the above expiry date.

* When a project has been completed or terminated a Study Closure form must be submitted.
* Should any modification or other unanticipated development occur before the next required review, the REB must be informed and any modification can't be initiated until approval is received.

Appendix B: GTA Municipal Compliance with *Places to Grow* (as of mid-June 2013)

Municipality	Growth Management Tools	Placemaking Tools		Transport Management Tools
	Density	Diversity, Demographic	Design, Distance to Transit, Destination Accessibility (Local)	Demand Management
City of Toronto Source: Reports for Official Plan/Municipal Comprehensive Review of the City of Toronto's Official Plan (adopted by the City in 2002, approved by the OMB in 2006 and consolidated latest in 2010) (City of Toronto, 2012b; City of Toronto, 2012c; City of Toronto, 2012d; City of Toronto, 2012e; City of Toronto, 2012f; City of Toronto, 2013a; City of Toronto, 2013b)	The reports call for office-based densification within rapid transit nodes' walking distance. Retail-based employment zones shall encourage multi-storey retail instead of big boxes. Application of Site and Area Specific Policy shall be applied to intensify employment-based development in small parcel areas (e.g. Wilson TTC, Mimico and Scarborough GO Stations). The proposals also seek to promote new office GFAs near rapid transit nodes through tax incentives to compete for the region's new office developments. Employment-based intensification is generalized to all Avenues (without prioritizing the present subway-served Avenues of Bloor and Danforth, and the future LRT-equipped Avenues of Eglinton and Sheppard).	The reports stress the necessity of specific planning tools that aim at promoting net gain in job-based gross floor area (GFA) due to imbalance residential-to-job ratio. Employment-based rezoning along transit corridors faces synchronization issues with the City's incomplete studies on Eglinton Crosstown, Sheppard E and Finch W LRT corridors. Residential redevelopments of site with at least 100 sqm of GFAs (criticized as too low by consulted parties) shall be required to increase non-residential GFAs for rapid transit areas that overlap with Mixed-use and Regeneration Areas. The diversity of housing choices shall be secured through continuation of existing rental replacement policy for redevelopment projects on Avenues (as it has insignificant impact on intensification demand).	The reports look at requiring large street-fronting retail development to provide pedestrian-friendly entrances, and promoting continuous pedestrian-oriented streetscape through infill developments on parking-related setbacks. The reports also call towards the encouragement of transit use through safe and comfortable pedestrian conditions between transit nodes and workplaces. Secondary Plans and Site and Area Specific Policies could be leveraged in setting the minimum standards for commercial development within walking distance of transit node.	The expression 'existing and approved and funded rapid transit' is widely applied in all documents to ensure intensification tools are focused to only areas with committed transit upgrades. The proposals call for improved service levels that connect Employment Areas with Residential and Mixed-use Areas, and seek to introduce new policies that facilitate the city towards prioritizing transit investment options.

Municipality	Growth Management Tools	Placemaking Tools		Transport Management Tools
	Density	Diversity, Demographic	Design, Distance to Transit, Destination Accessibility (Local)	Demand Management
City of Mississauga Source: City of Mississauga's Official Plan 2011 (partially in-effect as of 2013) (City of Mississauga, 2013)	The plan promotes TOD-based intensification in Major Station Areas (of present GO Train and future Mississauga Transitway BRT stations), with Local Area Plans for Mississauga City Centre (one of regional UGCs), Port Credit and Southdown (both areas have GO Train stations). Bonus zoning is encouraged for developers in exchange for public improvements (with site-specific review criteria to ensure densification's travel demand impact can be accommodated)	The plan allows secondary suits within detached houses, which may diversify housing options near transit, and attempts at prohibiting ground floor residential uses for middle and high-rise developments, Higher density employment uses are required within Major Transit Station Areas. Among density bonusing-related public improvements proposed include inclusionary housing options, streetscape enhancements, office space allocation (to improve job-to-house ratio), and inter-modal transit facilities.	For intensification areas, the plan commits towards the reconfiguration of existing larger street blocks towards more permeable walking network, and the continuity of principal streets' frontages. The plan attempts to require potential developers to prepare a master plan for Corridor or Major Transit Station Areas (if review for these areas is incomplete within 5 years of the development application), and to disapprove zoning by-law amendments for new drive through facilities (with disruptive impact on streetscape).	The plan looks to link parking requirements and demand management with transit service levels, prioritize underground and on-street rather than surface parking and solicit phasing plans for surface parking reduction. The plan attempts for reduction in growth forecasts if transit service and infrastructure provision (especially higher order transit on Hurontario and Dundas Streets) is unsatisfactory
City of Brampton Source: City of Brampton's Official Plan 2006 (approved by the OMB in 2008, with proposed amendments consolidated by 2012) (City of Brampton, 2012a)	The plan assigns intensification nodes for Major Station Areas (surrounding the city's three GO Train stations including one in Downtown Brampton, and six other future rapid transit nodes in which four of them intersects with future rapid transit corridors) and intensification corridors along future Hurontario-Main St, Queen St and Steeles Ave rapid transit corridors.	The plan suggests development applications review to facilitate high density mixed-uses along existing and planned rapid transit corridors. Its TOD policies prescribe TODs to be 'sustainable and affordable', to locate ground floor retail uses and to provide continuous sidewalks with shades on both sides of the street.	The plan suggests support for pedestrian-oriented developments applications, and also suggests subdivision and site plans to provide convenient walking pathways to transit facilities. Subdivision plan reviews shall be leveraged to reduce the walking distance from dwelling units to transit. Mixed-use development policies prescribe built form orientation and streetscapes that facilitate pedestrian walkability and interactions.	The plan attempts to ensure funding and provision of transit network and services are secured prior to allowance for new growth. Sufficient park-and-ride at GO Train and bus stations are proposed to stimulate transit use. The plan seeks to set parking standards that are sensitive to parking demand circumstances, including enhanced transit provision.

Municipality	Growth Management Tools	Placemaking Tools		Transport Management Tools
	Density	Diversity, Demographic	Design, Distance to Transit, Destination Accessibility (Local)	Demand Management
Region of York Source: Region of York's 2031 Intensification Strategy, Region of York's Official Plan 2010 (with proposed amendments in 2013), (Region of York, 2009; Region of York, 2013)	38% of the required new dwelling growths are strategized to concentrate within York's four UGCs. The intensification strategy prioritizes UGCs, followed by rapid transit corridors and GO Train station areas. Most of the UGC growth share goes to Markham Centre UGC (53%), followed by Richmond Hill/Langstaff (25%) and Vaughan Corporate Centre (13%) UGCs. The plan targets half of residents to live at most 200m away from transit stops, ensures a minimum of 10-year residential land supply (which consists of both designated Greenfield and built-up areas lumped together), and attempts at minimum FAR densities of 2.5-3.5 for UGCs and BRT corridors.	The plan attempts on requiring local municipalities to prepare comprehensive secondary plans for UGCs and key development areas along the BRT corridors, with 35% of new dwellings for low to mid-income households, all-season activity-generating uses at the ground level (including 'human and personal services') and highest development density and mix levels nearest to rapid transit nodes.	The plan requires secondary plans to include fine-grained street grid for pedestrians and cyclists (with plan for sheltered paths), sidewalk-facing site design, urban greening, public realm enhancement (with 1% of capital budget allocated for public art) and placement of public facilities and services. The plan also attempts to offer bonus zoning for intensification areas in exchange for transit station enhancements, direct walkways and other public facilities.	The plan requires secondary plans to include reduced parking requirements (relative to distance to transit), and promotion for shared and non-surface parking alternatives. The four UGCs are linked to each other via the planned vivaNext Rapidways BRT lines, which also connects to the present GO Train and future TTC Subway stations.

Municipality	Growth Management Tools	Placemaking Tools		Transport Management Tools
	Density	Diversity, Demographic	Design, Distance to Transit, Destination Accessibility (Local)	Demand Management
Region of Durham Source: Region of Durham's Regional Official Plan Consolidation 2008 (with proposed amendments in 2013) (Region of Durham, 2008)	One of the plan's designated Corridors aligns with the future Durham-Scarborough BRT, connecting Downtown Pickering UGC, Ajax, Whitby and Downtown Oshawa UGC together. Centre status is emphasized for Oshawa, followed by Pickering; both have their downtowns close to the GO Train stations, which are served by the frequent Lakeshore East GO Train line. Of the other six smaller Centres, two are aligned to the future BRT line. The plan's general policies for Urban Areas mention the principles of compact urban form that supports transit and meets the growth targets.	The region has a pending dispute with the province on its job-to-resident growth ratio target of 2:1 (instead of the regional plan's 3:1). The plan's general policies for Urban Areas mention the principles of mixed-uses for Centres and Corridors (without assigning priorities to the future BRT corridor). The plan supports residential unit development above commercial uses near transit routes. Rental affordability shall be maintained through prohibition of condo conversion if the region's rental vacancy rate (issued by CMHC) drops below 3%, and municipal plans shall offer option of detached homes' conversion to multiple units in Urban Areas.	The plan's general policies for Urban Areas mention 'good urban design principles' and 'linkages for pedestrians and cyclists'. The plan delegates the responsibility of setting up transit-supportive standards and guidelines for the Centres to local municipalities (via Secondary Plans). In Centres, buildings should be directly accessible from the street.	The plan promotes parking areas to be sited at the rear or within buildings in Centre areas. New developments adjacent to the future BRT corridor shall have limited surface parking, with potential redevelopment of existing surface parking.

Municipality	Growth Management Tools	Placemaking Tools		Transport Management Tools
	Density	Diversity, Demographic	Design, Distance to Transit, Destination Accessibility (Local)	Demand Management
Region of Halton Source: Region of Halton's Regional Official Plan 2006 (with proposed amendments in 2009) (Region of Halton, 2009)	The plan identifies seven Intensification Corridors along major arterials (three of which follows the regional transportation plan's future rapid transit lines along Queensway Expressway and Dundas-Brant Streets) and eight Major Transit Station Areas (surrounding seven existing and one proposed GO Train stations). Local municipalities shall prioritize job and dwelling densities within UGCs and Mixed-use Nodes, and around existing and planned transit infrastructure through Community Improvement Plans. Intensification Areas have to be prioritized for upgrades in water, sewage and transit provisions.	The plan seeks to achieve compatible mix of developments consisting of housing, office, institutional and commercial units for the Intensification Corridors and the Major Transit Station Areas. 50% and 30% of new dwellings shall be townhouse or multi-storey units, and affordable housing units respectively.	The plan requires municipalities to prepare Area-Specific Plans to each Intensification Area for pedestrian and cyclist-friendly urban design guidelines, and for complete integration between active transportation, local transit and inter-municipal/regional higher order transit networks.	The plan seeks to achieve multi-modal transport access options (pedestrian, bike parking and passenger pick-up/drop-off) and local services (recreational, cultural and entertainment) for the Major Transit Station Areas and the Intensification Corridors respectively. Local municipalities are encouraged to adopt parking standards within Intensification Corridors and Major Transit Station Areas.

Appendix C: CMM Municipal Compliance with the PMAD (as of mid-June 2013)

Municipality	Growth Management Tools	Placemaking Tools		Transport Management Tools
	Density	**Diversity, Demographic**	**Design, Distance to Transit, Destination Accessibility (Local)**	**Demand Management**
Agglomeration of Montreal Source: City of Montreal's Draft Discussion Paper of *Plan de développement de Montréal* (*Demain Montreal*) (City of Montreal, 2013)	The plan suggests the Island of Montreal's capacity to absorb new housing to be 42% higher than PMAD's 2031 target, and 63% of it is planned by 2017 in 22 locations (4 in or near downtown, 7 near present Metro stations and the rest near present or anticipated train or LRT nodes except for two sites in Nuns Island and West Pierrefonds) to halt middle-class family migration to the suburbs and maintain the downtown core's prominence as the CMM's regional centre. The plan identifies four Urban Activity Intensification Sectors (De-la-Savane, Chabanel, Anjou and Bois Franc; the latter three sectors are anticipated to be served by the Mascouche Commuter Train Line project and the Metro's Blue and Orange Line extension plans) and three economic poles, but stops short of addressing intensification plans of the highway corridor-centric western and eastern poles, which fringes are served by commuter stations.	The plan generally calls for more affordable housing supplies for families, low-income households and seniors through partnerships with private and social stakeholders and support from the upper-level governments. Pertaining to land-use diversity, the plan suggests the need to secure adequate provision of retail and public service outlets in local neighbourhoods.	The plan generally seeks to strengthen local district characters of neighbourhoods, and to prioritize active transportation within the Island of Montreal. Architectural and landscape upgrades are to be identified in many downtown sites to promote more residential developments that will lead to healthier job-housing mix, in which taxation and site planning tools will be employed. Outside of downtown, there are 13 major ongoing and planned urban projects (which involve public realm improvements); all of them are connected to the present and anticipated rail lines, except for the Pierrefonds-West project).	The city seeks to encourage the use of transit through secure bicycle parking and promotion of folding bike use to STM and AMT stations. The plan does not touch on parking management, although it mentions the need to green surface lots to mitigate heat island effects. By 2020, the plan aims for 240km of bus priority measures within the Island of Montreal so that buses can compete more effectively with cars.

Municipality	Growth Management Tools	Placemaking Tools		Transport Management Tools
	Density	**Diversity, Demographic**	**Design, Distance to Transit, Destination Accessibility (Local)**	**Demand Management**
City of Laval Source: City of Laval's Sustainable Planning Policy, Summary of City of Laval's Sustainable Mobility Plan , City of Laval's Active Mobility Plan (City of Laval, 2011a; City of Laval, 2011b; City of Laval, 2013)	The policy quotes *Institut de la statistique du Quebec*'s 2006-2031 population growth of 29% (against PMAD's 2011-2031 growth projection of 29%). One of the policy's main goals is to optimize density. Its primary intensification agenda is to consolidate urban growth in its central area, where current and proposed Metro stations are located. The policy identifies these stations together with the Sainte-Rose and Vimont Commuter Train stations and major bus corridors as key TOD sectors to be prioritized for development. Special Urban Planning Programs (PPU) are planned for Cartier and De-la-Concorde Metro station areas and for corridors providing access to the Cartier Metro station. There is no indication whether the areas surrounding Sainte-Dorothée and Île-Bigras Commuter Train stations (on the Island of Laval's western tip), Montmorency Metro station (in downtown Laval) and five proposed Metro stations (west of downtown) are considered for TOD planning. The Sustainable Mobility Plan indicates the need to concentrate employment nodes within the City to reduce work commute distance.	Another main goal of the policy is to prioritize land-use diversity. Concentration of activities in compact built environment is expected to promote active transportation as a viable alternative to private auto use. The key TOD sectors would feature multi-purpose environments. Diversity of housing is not mentioned in any of the plans.	The policy aims for the city to attain quality urban forms through high-quality pedestrian facilities. The Active Mobility Plan aims at increasing the City's active transportation share from 7% in 2008 to 15% by 2031 through existing streets' reconfigurations (as opportunities arise), traffic-calming measures and pedestrian barrier removal.	The Sustainable Mobility Plan indicates the city's willingness to vary parking standards according to proximity to mass transit infrastructures. The plan also suggests the addition of environmental-friendly park-and-ride facilities and reserved car-sharing and carpooling parking spots, and indicates future plans towards incremental gasoline tax increase to compensate for reduction of SAAQ private vehicle premium at time of registration.

Municipality	Growth Management Tools	Placemaking Tools		Transport Management Tools
	Density	**Diversity, Demographic**	**Design, Distance to Transit, Destination Accessibility (Local)**	**Demand Management**
Agglomeration of Longueuil Source: *Schéma d'aménagement et de développement (SAD) de Longueuil* (bylaw passed in 2006 and updated as of 2012), Draft of *Énoncé de vision stratégique 2035 - Vers le nouveau schéma d'aménagement de l'agglomération de Longueuil*, Draft Summary of the *Projet du Plan de mobilité et de transport de l'agglomération de Longueuil* (Agglomeration of Longueuil, 2012a; Agglomeration of Longueuil, 2012b; Agglomeration of Longueuil, 2012c)	Both MRC Longueuil Development and Planning Scheme (SAD) and Vision 2035 documents' spatial organization concept designates seven multifunctional nodes in absence of hierarchy. In the SAD, two nodes overlap with present transit stations (Longueuil Metro and Saint-Hubert Train stations), and the Vision 2035 ties the remaining nodes with Saint-Lambert Train station, two proposed Metro stations west of downtown and two proposed LRT stations east of downtown (in accordance with PMAD). The SAD outlines future residential density targets of 29 units/ha for Vieux-Longueuil, 22 units/ha for Saint-Hubert and 20 units/ha for the Agglomeration by 2021, against the PMAD's targets of 110 units/ha for Longueuil Metro TOD, 60 units/ha for Saint-Hubert Train TOD and 30 units/ha for other non-TOD areas outside of Central Longueuil by 2031.	Both the SAD and the Vision 2035 consider the nodes to be the centres of employment, retail and other mixed-uses. The Vision 2035 highlights the need to leverage on the Agglomeration-wide planning to maintain the complementarities of the present residential, commercial and industrial land-uses, and proposes sustainable urban planning guideline to promote creative-based employments. Industrial diversification and intensification of higher density employment areas along the present and future rail lines are also proposed. The Vision 2035's social and cultural diversity and housing affordability strategies are applied to the Agglomeration in general without any indication on transit proximity.	The Vision 2035 specifies the need for pedestrian safety and non-motorized and transit access improvements to Train and Metro stations. It also seeks to selectively revitalize older main streets (which is mostly located within downtown area) with commercialization potential. The Mobility and Transport Plan ranks transit and active transportation improvements as number one priority (contrary to the present SAD), and aims for continuous pedestrian and cycling network and bike station networks at trip-generating areas.	The Vision 2035 promotes public transport infrastructure provision in four traffic routes, and improve road access to employment centres in ways that enhance transit service provision. The Mobility and Transport Plan calls for imposition of regulations that limit the amount of parking allowances for both off-street and on-street parking in the main travel corridors to promote transit use.

Municipality	Growth Management Tools	Placemaking Tools		Transport Management Tools
	Density	**Diversity, Demographic**	**Design, Distance to Transit, Destination Accessibility (Local)**	**Demand Management**
City of Deux-Montagnes Source: City of Deux-Montagnes' *Programme particulier d'urbanisme (PPU) du chemin d'Oka et de la Gare Grand-Moulin* (City of Deux-Montagnes, 2013a)	The Special Planning Program (PPU) covers Grand-Moulin Train station area, which is located near the City's shoreline. The PPU border covers the lower third of the City's territory, and its distance from the station ranges between 400-1,600m. The PPU focuses on approaches for the TOD zone to meet PMAD's 40 units/ha density target, including 2-4 storey building allowance along Oka Road (the area's main street, which distance ranging between 600-1,300m from the station) and residential redevelopment on underutilized lots along the area's four important thoroughfares. The PPU also designates the middle stretch of Oka Road that is the closest to the station as the City's institutional node (to build on the stretch's weak concentration of schools, churches and municipal buildings).	The PPU aims at enhancing mixed-uses along Oka Road through ground floor retail, rear parking and street frontage alignment requirements. The PPU also seek to increase housing supply for small households.	The PPU seeks to diversify the housing supply to reflect the market demand, and to ensure multi-storey buildings have quality shared and private spaces. Residential-based redevelopments have to ensure landscaping and architectural continuity or enhancement of the surrounding neighbourhood (through application of Site Planning and Architectural Integration (PIIA)). The PPU also proposes street furniture for Oka Road.	The PPU seeks to reduce parking lot congestion through the City's cooperation with CITL to improve feeder services, pedestrianization between Oka Road and the station, creation of bike paths to reach schools and parks and addition of bike racks at the station. The PPU also suggests shared and structured parking to replace surface parking whenever such opportunity arises.

Appendix D: Metro Vancouver Municipal Compliance with the RGS (as of mid-June 2013)

Municipality	Growth Management Tools	Placemaking Tools		Transport Management Tools
	Density	Diversity, Demographic	Design, Distance to Transit, Destination Accessibility (Local)	Demand Management
City of Vancouver Source: City of Vancouver's Regional Context Statement (RCS) Development Plan, City of Vancouver's Transportation 2040 Plan (City of Vancouver, 2012; City of Vancouver, 2013)	The RCS content is mostly framed after the city's ongoing plans and policies. The RCS's 2006-2041 housing and job growth targets for the Metro Core are 50% and 35% higher than those set by the RGS. Slightly less than half of the city's growth in new dwelling units are assigned within the Metro Core, and 6% of it is assigned to the city's only two other remaining intensification areas of Cambie Corridor (parallel to Canada Line SkyTrain) and Oakridge Centre (identified in the RGS as a Municipal Town Centre) leaving the other significant growth share to the rest of the city's built-up areas. The Cambie Corridor is the only area identified for FTDA designation (apart from the Broadway Corridor, in which transit investment decision is pending).	The downtown area is positioned as the region's financial, cultural and entertainment centre, with more plazas, parks and greenways, and residential uses will be restrained. The RCS seeks diversity in employment and housing types for Oakridge Centre and Cambie Corridor. Multi-age and multi-income dwellings, retail expansion and office space prioritization requirement are planned for Oakridge Centre. Interim Rezoning Policy offers allowance for 20 rental and affordable housing-based rezoning applications, with up to 6-storey allowance on transit-served arterial roads.	The RCS prioritizes active transportation-oriented planning for Metro Core and Oakridge Centre. The Transportation Plan prioritizes sidewalk widening for the present and anticipated SkyTrain station areas, and along East Hastings, 41st Ave, 49th Ave, Main, Fraser, Commercial and Victoria corridors (which the city, and not necessarily the RGS, plans to be served by future rapid transit). The Transportation Plan also requires transportation decision to prioritize pedestrians, followed by bicyclists, transit and taxi/car-sharing, and calls for implementation of bike-sharing system, bike-transit multi-modality and barrier-free transit systems.	The RCS mentions the city's present parking bylaw standards, which are the most restrictive nearer to downtown and to selective Metro Core's sub-areas. TDM strategies are more focused to Oakridge Centre, with possibility for 'blended parking ratios'. Parking relaxation along Cambie Corridor should not result in higher on-street parking demand. The Transportation Plan calls for unbundling of parking and housing costs, and on-street car-sharing space prioritization.
City of Surrey Source: City of Surrey's Official Community Plan (adopted in 2002) (City of Surrey, 2012)	The plan generally promotes RGS' nodal development-based intensification, but stops short of assigning growth shares. It provides rough classification of housing types for each intensification node (from high to low-density: City Centre, Town Centre, Neighbourhood Centre, Multiple-Family Neighbourhood and Neighbourhood). The City and Town Centres are linked to the RGS' UCs and are clearly marked, but the Neighbourhood/Commercial Centres' subnodes are scattered mostly outside of the TransLink's present Frequent Transit Network. Gradual decrease of density is planned for Neighbourhood Centres, from 50 units/ha in the core towards 30 units/ha on the	The plan seeks to increase housing choice in Neighbourhood Centres (and surrounding areas), but higher density housing is expected within and surrounding the City and Town Centres. The plan generally looks at street-oriented, larger scale townhouses and low rise apartments with mixed-use component (commercial and/or institutional) within 400m radius of a Neighbourhood Centre.	The plan's Pedestrian Orientation Guidelines require prioritization of pedestrians (including amenities) in future road work plans, and discourage elevated walkways (that are non-supplementary to street-oriented development) and street-level walking barriers in the UCs. Quality civic spaces (through reorientation of urban forms and elimination of surface parking) are targeted within one-mile radii of Neighbourhood Centres. The plan's Transit-Friendly Road Patterns Guideline encourages breaking down of large street blocks and creation of pedestrian	The plan's Pedestrian Orientation Guidelines discourage vehicular access points and surface parking in high pedestrian traffic areas. The plan also calls for discouragement of Single-Occupant Vehicle use and parking.

Municipality	Growth Management Tools	Placemaking Tools		Transport Management Tools
	Density	Diversity, Demographic	Design, Distance to Transit, Destination Accessibility (Local)	Demand Management
	outside fringes.		shortcuts, without targeting the interventions to any particular transit node or intensification hierarchy.	
City of Burnaby Source: City of Burnaby's Community Plan Information - General Land-use Maps of Metrotown Regional Town Centre and the Town Centres of Brentwood, Edmonds and Lougheed (City of Burnaby, 2010a; City of Burnaby, 2010b; City of Burnaby, 2010c; City of Burnaby, 2012)	There's no recent indication on how TOD is planned other than the present land-use maps of the city's Regional and Municipal Town Centres. The borders of the UCs are clearly demarcated by the predominance of low-density residential sections outside of the area borders (e.g. Lougheed UC's eastern border where low-density housing pattern begins is a mere 200m away from the SkyTrain station edge). The densification gradient in Metrotown and Edmonds UCs is not totally SkyTrain Station-oriented, as the density peaks along the Kingsway and Edmond St corridors.	Except for Edmonds UC, other UCs feature mixed-uses for the higher density areas. Residential areas surrounding the Edmonds SkyTrain Station are mostly zoned for low to medium multiple family residential densities.	The maps only feature general land-use designation key elements.	The maps only feature general land-use designation key elements.
City of Richmond Source: City of Richmond's Draft Regional Context Statement (RCS), previous OCP was adopted in 1998 (City of Richmond, 2012)	The RCS content indicates the proposed alignment of the city's OCP 2041 with the RGS. The OCP's housing and employment growth projections are consistent with the RGS. 41% of housing and half of employment growths are targeted to concentrate within Richmond UC. FTDA has yet to be identified. The OCP proposes an FAR of 3 for the UC area (which encapsulates all SkyTrain stations by at least one arterial street block) and an FAR cap of 1.5 for trip-generating land-uses outside of the UC, where large institutional and commercial uses are allowed on a limited basis. The RCS does not specify any local subcentres, despite the territory being served by an east-west high-frequency bus line (with direct link to other SkyTrain lines to Upper Fraser Valley and bus	The OCP encourages office uses near transit through non-residential reserves and density bonusing. The OCP also allows infill development for richer diversity of housing types at low-density areas (not necessarily located near the rapid transit nodes). Industrial uses are allowed within non-residential areas near Bridgeport and Aberdeen SkyTrain Stations.	The OCP encourages safe and efficient cycling, walking and rolling (defined as wheelchair and scooter use). It generally calls for the creation of pedestrian-friendly street network.	The OCP encourages commercial and residential parking relaxation by 40% and with TDM measures for areas within 400m of the Canada Line.

Municipality	Growth Management Tools	Placemaking Tools		Transport Management Tools
	Density	Diversity, Demographic	Design, Distance to Transit, Destination Accessibility (Local)	Demand Management
	lines to Lower Fraser Valley).			
City of Coquitlam Source: City of Coquitlam's Transit-Oriented Development Strategy (TDS), City of Coquitlam's Draft Citywide Official Community Plan - Part 1 (Introduction and Regional Context Statement) (City of Coquitlam, 2012; City of Coquitlam, 2013)	The OCP Part 1's content indicates the proposed RCS. The overall housing and employment growth projections follows the RGS, with 29%, 7% and 7% growth share in the Coquitlam Regional City Centre, the southeastern parts of the Lougheed Municipal Town Centre (of the City of Burnaby), and the FTDA of the anticipated Burquitlam SkyTrain station respectively. No specific targets are set for the City's six other anticipated SkyTrain station areas. Out of the plan's four local sub-centres, only Maillardville is served by a high-frequency bus line. The TDS classifies intensification strategy to three categories: Core (with high density), Shoulder (with transitional density) and Transit Corridor (areas between stations with frequent at-grade transit and bike components) Station Areas. The Station Area boundaries are based on the conceptual 400-800m radius and the present street layout connectivity, with precise geographical identification of land parcels that fall under each TOD zone of each station. Leapfrogging densities and non-contiguous building forms are discouraged.	The OCP promotes mixed-uses and office developments within the UCs, and the TDS requires highly diverse trip-generating land-uses within the Core Station Areas, with at least 50% and 25% of the lot area dedicated towards job floor spaces in the City Centre and in Burquitlam and Lougheed respectively. The OCP proposes a network of both denser and complete communities as a city-wide policy, and the TDS proposes interim rental housing strategies (including purpose built rental development requirements and incentives) within Burquitlam's TOD zone.	The OCP seeks for high quality public space for Coquitlam Regional City Centre, and refers to the City's Strategic Transportation Plan for promotion of safer and efficient walking and cycling. The TDS discourages out auto-oriented uses land-uses and promotes pedestrian-friendly streetscape, building massing and density transition within the Core Station Areas. The TDS also lists density bonusing and Community Amenity Contributions (CAC) as tools to create attractive local destinations.	The OCP's Zoning Bylaw seeks to reduce parking in the TOD zones, and proposes parking requirement variances to developments close to frequent transit within the City Centre. The TDS encourages parking management strategies, such as unbundling of parking charges and conversion of unsold parking stalls to strata.

Municipality	Growth Management Tools	Placemaking Tools		Transport Management Tools
	Density	**Diversity, Demographic**	**Design, Distance to Transit, Destination Accessibility (Local)**	**Demand Management**
City of Port Moody Source: City of Port Moody's Draft Official Community Plan (City of Port Moody, 2013)	The OCP's RCS section has yet to be updated to reflect the present RGS. Although there is no specific designation of node hierarchy or growth target, the OCP proposes three medium-to-high density 'Evergreen Line Subareas' along major streets surrounding Moody Centre and Inlet Centre SkyTrain Stations. The Inlet Centre Station TOD Subarea overlaps with RGS-identified Inlet Centre Municipal Town Centre, and the OCP proposes building heights of up to 30-floors within the Subarea. The OCP also designates a present sawmill site (500m northeast of the Moody Centre) for future 'Oceanfront District' subarea with high density developments (with future potential SkyTrain station near its southwest border).	The OCP plans for mixed-uses within the higher density Subareas. The OCP also supports the provision of affordable housing within the Moody Centre TOD Subarea.	The OCP seeks to add more pedestrian connections across the present CP tracks that separate the northern Oceanfront District and the Murray Street Blvd (a land strip destined for mid-density and mixed employment uses) Subareas from the southern Subareas that mainly lie along the anticipated SkyTrain corridor. Among the proposed pedestrian-friendly streetscaping strategies for the TOD Subareas include weather protection, at-grade retail uses and mid-block pedestrian and bicycle links.	The OCP lays down the general principle of parking requirements that reflect the city's aim to reduce car dependency. Under the Transit and Future Road Improvements Section, the OCP indicates the residents' demand for increased parking surrounding the Port Moody Commuter Train Station and the city's commitment to encourage TransLink to enhance feeder services. Considerations to relax parking provision will be given on developments near general transit nodes, and surface parking is generally discouraged.

Municipality	Growth Management Tools	Placemaking Tools		Transport Management Tools
	Density	**Diversity, Demographic**	**Design, Distance to Transit, Destination Accessibility (Local)**	**Demand Management**
City of New Westminster Source: City of New Westminster's Official Community Plan (City of New Westminster, 2012)	The OCP's RCS section has yet to be updated to reflect the present RGS. There is no specific designation of node hierarchy and the city's population and employment targets for 2021 are slightly higher than the targets set by RGS. The OCP-designated Downtown Area Geographical Sector overlaps with the RGS-identified New Westminster Municipal Town Centre. Intensification proposal is mostly framed through Geographical Sectors rather than proximity to the city's five SkyTrain Stations. The OCP designates SkyTrain Precincts (based on 5-mins walking radius) for the downtown's two SkyTrain station areas. OCP's Schedule B (Downtown Community Plan) indicates the downtown's positioning as a regional business centre with population share growth from 15% in 2008 to 22% in 2031 through expected addition of apartment units. Outside of downtown, the OCP's Growth Management Options plan for multi-family housing redevelopments near 22nd St and Sapperton SkyTrain Stations. The city is served by two high-frequency bus corridors between Burnaby and downtown New Westminster via Western and Central West Sectors, but only the latter Sector (nearer to downtown) is planned for mid-rise intensification.	One of the Downtown Community Plan's key goals is the provision of diverse residential options to cater for diverse age groups within the downtown area. The OCP's affordable housing strategy considers the prioritization of higher density housings within the SkyTrain Precincts (when mere car ownership cost savings do not necessarily make high density developments affordable to low income families). The OCP encourages vibrant street activities and prioritizes employment-generating floor spaces for the SkyTrain Precincts. The OCP's Land-use Concept shows that mixed-use zoning is not widely applied for the three SkyTrain station areas outside of downtown.	The Downtown Community Plan calls for reduction of active transportation gaps between the waterfront and the finer downtown street grid, and improvement of sidewalks and crosswalks. Part of the community objectives of the plan is to reduce street homelessness. The OCP encourages cultural placemaking activities and pedestrian and cycling-friendly public realms for the SkyTrain Precincts.	The Downtown Community Plan encourages car-sharing, cost recovery-based on-street parking pricing, restriction of off-street parking and parking availability and wayfinding signage. The plan also states the need to pressure the Provincial Government to enact parking-related legislations (such as unbundling of parking requirements for new developments).