PLANNING FOR PROSPERITY

GLOBALIZATION, COMPETITIVENESS, AND THE GROWTH PLAN FOR THE GREATER GOLDEN HORSESHOE

Pamela Blais
Metropole Consultants
with assistance from
Vishan Guyadeen

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EXECUTIVE SUMMARY

Ontario's Greater Golden Horseshoe region has been undergoing a dramatic economic transformation and painful restructuring over the past decade. This vast area, made up of 110 municipal jurisdictions, is reeling from the loss of almost 200,000 manufacturing jobs since 2001, mostly in older industrial areas. These losses are part of a broader transformation of the economy of the region and changing employment patterns.

The transformation is linked to freer trade and globalization, which open up new markets and growth opportunities for GGH businesses, but also expose them to wider and intensified competition. It is underpinned by new information and communications technologies that allow the production of goods and services to be managed at a distance and the inexpensive and instantaneous flow of information, ideas, capital, and digital products around the world.

This study argues that the conventional explanation of the economic restructuring currently under way – often described as a shift from manufacturing to service industries – does not accurately capture the dynamics of change nor provide decision makers with the kind of information they need to plan effectively for a competitive city-region. The change is better described as a shift from low-value-added to high-value-added activities, from low-knowledge-content to knowledge-intensive activities, and from routine to creative and executive activities. This distinction holds whether the activities are in the manufacturing or services sector and calls for a more nuanced understanding of what is happening on the ground.

The Growth Plan for the Greater Golden Horseshoe is the long-range plan established by the Province of Ontario in 2006 to manage jobs and growth and to curb sprawl.

It and *The Big Move* (the regional transportation plan for the Greater Toronto and Hamilton Area) are intended to work together to promote prosperity in the region.

This study shows that the Growth Plan and *The Big Move*, which are currently under review, do not address the challenges and opportunities of a globalizing regional economy or the reality of a transforming economic landscape.

The Growth Plan's focus has largely been on managing residential growth rather than non-residential and employment-related development. Indeed, the Growth Plan is based on shockingly little hard evidence on the evolving economy of the region. Plans for city-regions a fraction of the size of the GGH typically involve more economic research, analysis, and evidence.

This report tackles the evidence gap in planning for a more competitive region by describing key aspects of economic restructuring, the evolving economic geography of the region, and its current spatial structure using Labour Force Survey data, Census Place of Work data, and data from the Transportation Tomorrow Survey.

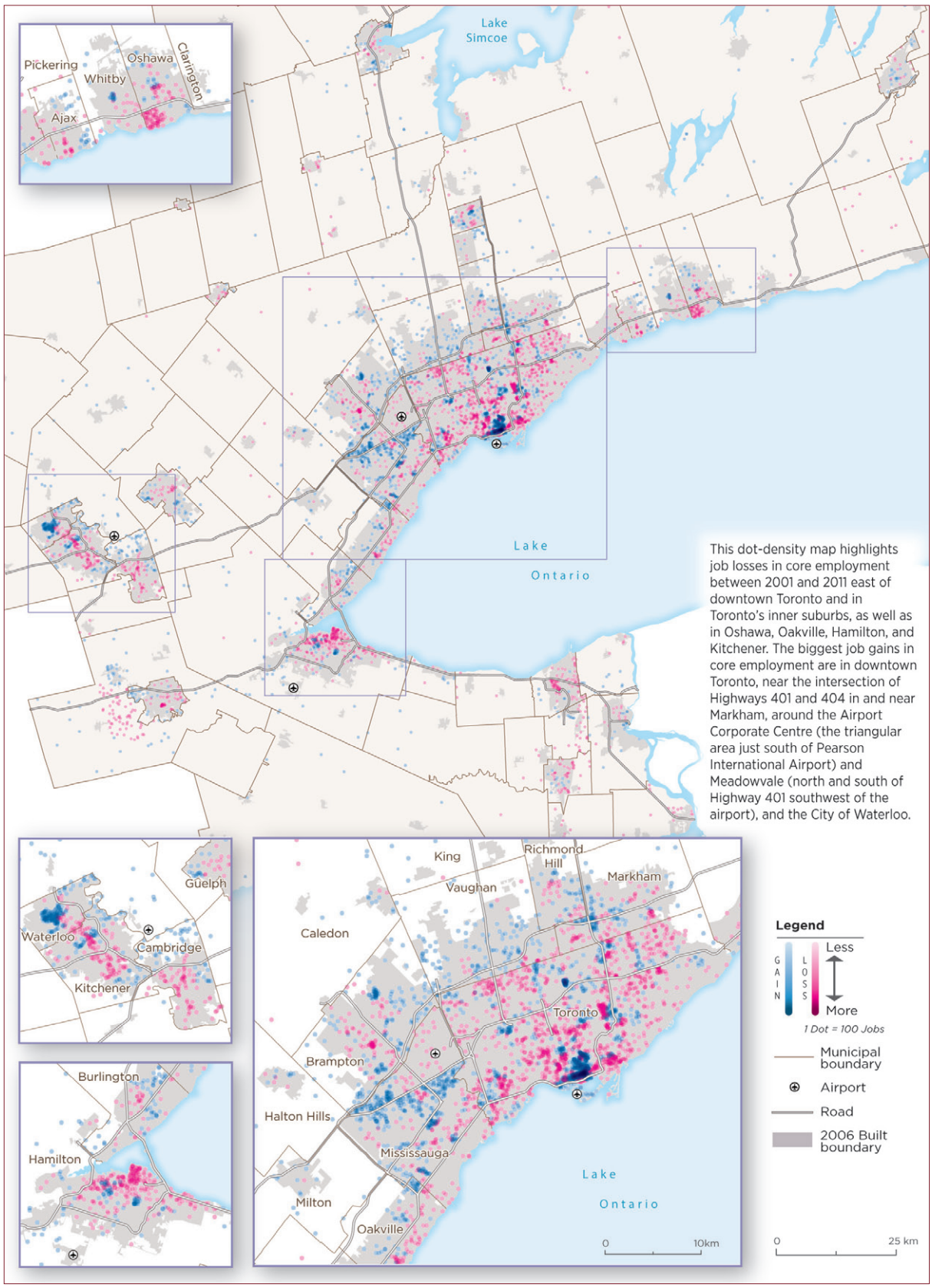
The analysis, which looks at job loss and gain across the region between 2001 and 2011 (and in some cases 2014), focuses on the "tradeable" sectors – also termed "core" employment. These jobs produce goods and services that can be exported, or that draw income into the region. They are distinct from "population-related" employment or "local" services (see Map E1).

What emerges from the analysis is the outline of a region characterized by a very dense Downtown Toronto employment area with almost 465,000 jobs, as well as three large and significant multi-jurisdictional suburban employment areas with tremendous potential and challenges that need to be addressed, yet for which there is no discernible provincial or regional strategy. We call these three areas employment "megazones"; together they contain about 543,000 jobs.

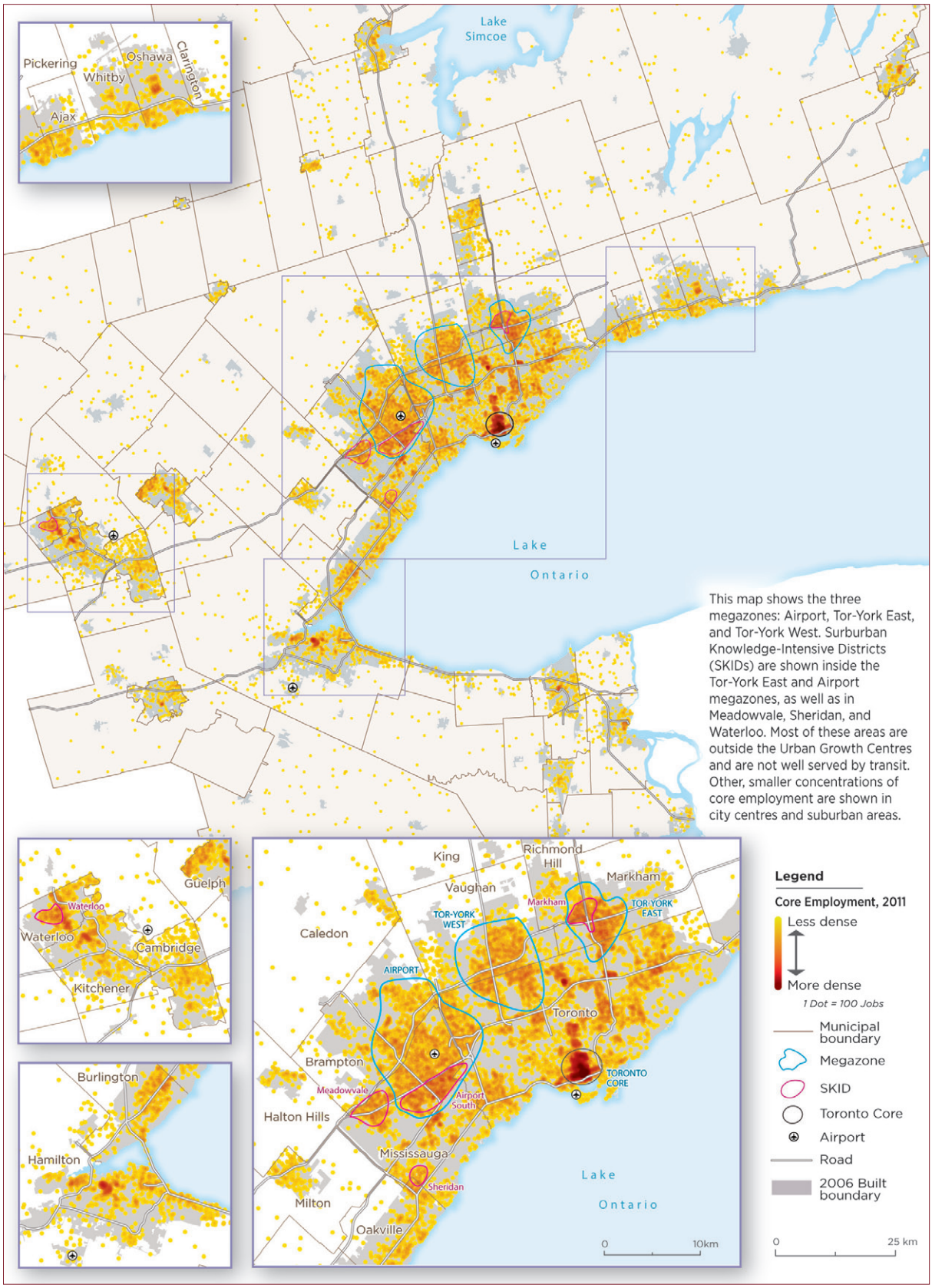
The megazones, along with Downtown Toronto and several concentrations of knowledge-intensive firms (which we call Suburban Knowledge-Intensive Districts or SKIDs), have attracted a significant share of job growth. Core employment in these areas grew 10% between 2001 and 2011, whereas the rest of the region experienced a 6% decrease in these types of jobs. Together with Downtown Toronto, the megazones and SKIDs account for 31% of all employment and 41% of the GGH's core employment. Moreover, more than 80% of the jobs in the megazones and SKIDs are core employment activities, compared with 62% for the GGH as a whole.

The first megazone (Airport) encircles Pearson airport and is the second-largest concentration of employment in Canada, after the Toronto core. It represents about 300,000 jobs, more than the individual central business districts of Montreal, Vancouver, or Calgary, and it is continuing to grow. The second (Tor-York East) is centred on the 404/407 highway interchange. The third (Tor-York West) stretches from the intersection of Highways 400 and 407 east to Keele Street and south into Toronto.

The economic importance of Downtown Toronto, the three megazones, and the five SKIDs, as well as their implications for planning, cannot be overstated. Most of the net core employment growth in the region has also been focused on Downtown Toronto, the megazones,



MAP NO. E1 CHANGE IN CORE EMPLOYMENT, 2001–2011



MAP NO. E2 SPATIAL ECONOMIC STRUCTURE OF THE GGH, 2011

and SKIDs. Between 2001 and 2011, Downtown Toronto grew by 12% or about 43,000 jobs, while core employment in the rest of the City of Toronto fell by 12% or about 63,400 core jobs. Meanwhile, the megazones grew by 4% (about 17,500 jobs), and the SKIDs collectively grew by 27% (about 35,500 jobs).

The growth in Downtown Toronto, the megazones, and the SKIDs is particularly remarkable since the GGH as a whole experienced a net *decline* of 0.1% in core employment between 2001 and 2011, reflecting, among other things, the loss of manufacturing jobs – particularly in older urban areas. Similar job losses are widespread in older industrial areas across the whole region as well as in older, inner suburban business parks.

What sets the megazones and SKIDs apart from Downtown Toronto is the fact they are not well served by transit. In fact, the three multi-jurisdictional megazones alone account for about one million automobile trips daily, making them a heavy contributor to traffic congestion in the region.

Moreover, the megazones and SKIDs are not recognized in the Growth Plan or *The Big Move*, which focus on future, aspirational growth locations, particularly the Urban Growth Centres (UGCs). Outside Toronto and Mississauga City Centre, UGCs do not represent significant concentrations of employment; some have even lost employment in the years since the Growth Plan was established in 2006.

The competitiveness of businesses and of the region itself requires a regional structure that supports, among other things, access to transit and efficient intra-regional mobility. Workers in knowledge-intensive industries in particular are increasingly demanding work environments that offer mixed uses, local meeting places, a range of services, and accessibility without the need to use a car for all travel.

In a global economy, the region faces intense competition from other city-regions in attracting highly mobile skilled workers as well as investment in new production facilities or corporate offices. In this context, certain characteristics of the physical environments of city-regions may support or hinder the competitiveness of business and regional prosperity.

There is an opportunity for the Growth Plan to recognize and address the reality of the GGH's spatial economic structure (see Map E2). This could include a review of office uses in the region, of the role of the UGCs, and of the relationship between *The Big Move* and key employment areas. The success of billions of dollars in planned transit investment will depend upon aligning those investments with a regional structure and an urban form that attract large numbers of new riders to transit.

Although the Growth Plan is, not surprisingly, focused on managing and accommodating growth, many areas of the region are experiencing job loss. These changes call for the strategic reurbanization of existing employment areas and a focus on replanning existing areas, rather than simply adding new employment land at the urban edge to accommodate new businesses.

At the same time, the land supply process could be updated and modified to better reflect the dynamics of economic restructuring. There is an opportunity to think of employment not just as something to be "accommodated," but also in terms of its economic development potential and its role in shaping the urban environment and supporting transit investments.

The report concludes with suggestions for further research to create the evidence base needed for effective regional planning. The absence of a regional economic development strategy for the Greater Golden Horseshoe, such as the one created by the Greater London Authority in the United Kingdom, makes the task of aligning planning

policy with economic development challenging. The development of such a regional strategy, as called for by others, including the Toronto Region Board of Trade, would be extremely helpful.

While a globalizing economy presents many challenges, the good news is that there are many natural synergies between economic restructuring and competitiveness, on one hand, and the Growth Plan and city-building on the other. Proximity, concentration, diversity, interaction, accessibility, efficiency, and the quality of the urban environment – these elements are at the core of the evolving economy.

The Greater Golden Horseshoe represents one-quarter of the national economy and two-thirds of the provincial economy. Public investments of billions of dollars in infrastructure are pending. Grounding the Growth Plan and *The Big Move* in an understanding of the dynamics of economic restructuring is essential to their success, and to the prosperity of the region and province.

THE SPATIAL ECONOMIC STRUCTURE OF MEGAZONES AND SUBURBAN KNOWLEDGE-INTENSIVE DISTRICTS IN THE GGH IS DISCONNECTED FROM THE REGIONAL STRUCTURE UNDERPINNING THE GROWTH PLAN AND *THE BIG MOVE.*

INTRODUCTION

AN ECONOMY UNDERGOING TRANSFORMATION

In recent years, the economy of the Greater Golden Horseshoe has been undergoing a remarkable transformation and restructuring, driven by two powerful, interrelated forces: a globalizing economy and rapid technological change. Freer trade opens up new markets and growth opportunities for local businesses, while exposing those firms to wider competition and intensified competitive pressures. New information and communications technologies allow production of goods and services to be managed at a distance as well as the inexpensive and instantaneous flow of information, ideas, capital, and digital products around the world.

These forces are transforming not just the makeup of the economy, but the region's economic landscape. The transformation has important implications for planning in general and more specifically for the regional plan, *Growth Plan for the Greater Golden Horseshoe* (2006). In addition to managing population growth and curbing urban sprawl to ensure an efficiently functioning region, the Growth Plan is intended to support prosperity and competitiveness in the GGH. Indeed, the Plan places prosperity at the centre of its policies:

> *This Plan will guide decisions on a wide range of issues – transportation, infrastructure planning, land-use planning, urban form, housing, natural heritage, and resource protection – in the interest of promoting economic prosperity. It will create a clearer environment for investment decisions and will help secure the future prosperity of the GGH (Ministry of Public Infrastructure Renewal, 2006, p. 6).*

Yet the Growth Plan is based on shockingly little hard evidence on the current and evolving economy of the region and its implications for land use planning. Plans for cities a fraction of the size of the GGH typically involve more research, analysis, and evidence. The Plan's focus has largely been on managing residential growth rather than non-residential development and employment-related activities.

The Province is currently undertaking the 10-year review of the Growth Plan as part of the coordinated review of the Growth Plan, Greenbelt Plan, Oak Ridges Moraine Plan, and the Niagara Escarpment Plan.

This report is intended to assist that review and address the knowledge gap by examining the changing structure of the Greater Golden Horseshoe's economy, mapping the evolving geography of employment, and making important connections between planning and economic development.

A NOTE ON DATA SOURCES

Two primary sources are used in this report for employment data. The first is the Statistics Canada Labour Force Survey, used in relation to the GGH as a whole. The data represent the nine Census Metropolitan Areas within the Greater Golden Horseshoe, and are available annually up to 2014.

The mapping and sub-regional analysis are based on employment data from the Census of Canada Long Form Census (for 2001 and 2006) and the National Household Survey (for 2011). The data cover the entire GGH. The data are related to place of work, and therefore include only those jobs that have a usual place of work. For 2011, these jobs totalled about 3.5 million in the GGH. Not included are some additional 772,000 jobs without a usual place of work, as well as jobs carried out at home or outside the country. Unemployed workers are also not included.

A change in the method used for the 2011 Census has raised some issues about the reliability of this data, and its continuity with previous years. It is also important to note that there are discrepancies among these data sources, and the overall totals for employment vary according to the source. Appendix C provides more detail about the data used.

We have also drawn on commuting data from the Transportation Tomorrow Survey (TTS) for 2011.

A SHIFT FROM ROUTINE TO KNOWLEDGE-INTENSIVE ACTIVITIES

The economic restructuring currently under way is often described as a shift from manufacturing to service industries. This characterization, however, does not capture the dynamics of change nor provide the kind of information needed to plan effectively for a competitive city-region.

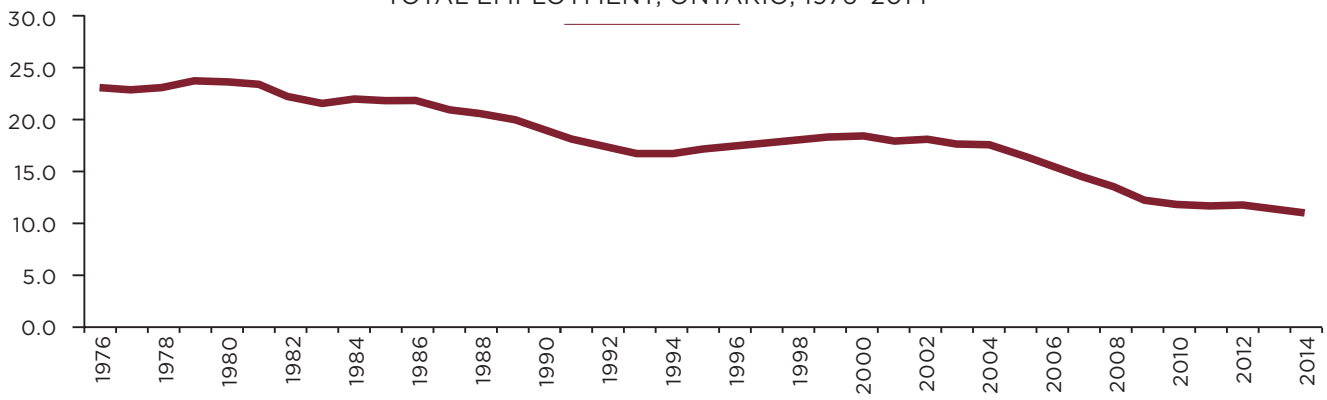
It is true that employment in manufacturing in the Greater Golden Horseshoe has dropped in recent decades. Indeed, the declining role of manufacturing employment is a long-standing trend in Ontario,[1] going back to at least 1980[2] (Figure 1). By 2013, manufacturing, once the largest sector in the province, accounted for about 11% of total jobs.[3] In the GGH, some 200,000 manufacturing jobs were lost between 2001 and 2014 – a decline of 28%, while almost one million jobs were created in other sectors.

In earlier decades, manufacturing industries suffered job losses, but managed to maintain output levels through increased efficiency and productivity. Since about 2001, however, the situation has changed, as the manufacturing sector has been characterized by both job losses *and* diminished output. Manufacturing sector[5] output in Ontario declined from $93 billion in 2001 to $75 billion in 2013, almost 20% in terms of real annual GDP.[6] Meanwhile, the provincial GDP as a whole grew by 20%.

But this is not the whole story. Traditional industry classifications mask a lot of heterogeneity within each category. If we dig a little deeper, we see that certain manufacturing activities are not only *not* declining, but have experienced growth in output, while not all service industries are growing (see text box on opposite page).[7]

FIGURE NO. 1

MANUFACTURING EMPLOYMENT AS A SHARE OF TOTAL EMPLOYMENT, ONTARIO, 1976–2014[4]



1 In this section we include data for Ontario to show long-term employment trends, and for GDP because detailed sectoral data is not available at the metropolitan level. However, given the prominence of the GGH region in the Ontario economy, we can assume that provincial trends are indicative of regional trends.
2 Statistics Canada, CanSIM 282-0008: Labour Force Survey Estimates (LFS), by North American Industry Classification System (NAICS), Sex and Age Group, Annual.
3 All employment figures for Ontario from Statistics Canada, CanSIM Table 282-0008, as above.
4 Sources for this and all other figures are found in Appendix C.
5 NAICS 31-33.
6 All GDP figures in this section from Statistics Canada, CanSIM Table 379-0030, Gross domestic product at basic prices, by North American Industry Classification System (NAICS), provinces and territories, annual. All figures are in constant 2007 dollars.
7 Statistics Canada, CanSIM Table 379-0030, Gross domestic product at basic prices, by North American Industry Classification System (NAICS), provinces and territories, annual. Selected industries, based on GDP growth above the provincial average for services or manufacturing as a whole, 2001–2013.

For example, although pulp and paper manufacturing has declined dramatically in Ontario, high-value-added activities, such as engineered woods, are still produced and exported. And while clothing production has largely moved offshore, fashion design and brand development activities are successful in the GGH. On the other hand, some service-sector activities such as employment agencies, travel agents, call centres, business service centres, and credit bureaus[8] have seen declining output. "Back-office" functions like record-keeping and billing have shown below-average GDP growth.[9]

CERTAIN MANUFACTURING ACTIVITIES ARE NOT ONLY *NOT* DECLINING, BUT HAVE EXPERIENCED GROWTH, WHILE NOT ALL SERVICE INDUSTRIES ARE GROWING.

WHAT KINDS OF INDUSTRIES HAVE BEEN GROWING?	WHAT KINDS OF INDUSTRIES HAVE BEEN DECLINING OR SLOW GROWTH?
Electric power engineering construction	Textile manufacturing
Meat products	Pulp & paper mills
Aerospace	Iron & steel mills
Steel products	Communications equipment manufacturing
Pharmaceuticals & medical products manufacturing	Electrical equipment manufacturing
Wholesale & distribution	Furniture manufacturing
Software developing & publishers	Non-internet newspaper, periodical & book publishing
Computer systems design services	Insurance
Telecom services (incl. cable, satellite, broadband, telephone providers)	Employment services
Architectural & engineering service	Travel services
Financial investment services	Business support services, e.g., call centres, billing centres
Universities	
Selected industries, based on GDP growth above the provincial average for services or manufacturing as a whole, 2001–2013	*Selected industries, based on GDP growth below the provincial average for services or manufacturing as a whole, 2001–2013, last three based on 2007–2013*

8 NAICS 5613, 5614, 5615.
9 7% growth for NAICS 5611.

The economic restructuring under way is therefore more accurately described as a shift from low-value-added to high-value-added activities, from low-knowledge-content to knowledge-intensive activities, and from routine to creative and executive activities. This distinction holds whether the activities are in the manufacturing or services sector.

Figure 2 captures the underlying dynamic of restructuring under way in the GGH.[10] Employment in the highest-skilled, most knowledge-intensive types of work has grown by 33% since 2001, well above the regional average of 21%. Examples of jobs in this category are managers, information systems analysts, engineers, investment professionals, and teachers. Unskilled jobs, that typically cannot be moved off-shore or automated (e.g., cleaners or caregivers), have also been increasing. Employment in the low-skilled segment, where routine jobs are concentrated, has experienced very little growth. In fact, although there was marginal growth overall in this category, many types of routine jobs saw net losses, including 19,000 assembly-line workers, 23,000 machine operators, 24,000 secretaries, and 11,000 finance and insurance clerks.[11]

FIGURE NO.2

CHANGE IN EMPLOYMENT BY SKILL LEVEL, GGH, 2001–2014 (%)

10 Statistics Canada, Labour Force Survey, 2001 and 2014.
11 Statistics Canada, Labour Force Survey, 2001 and 2014.

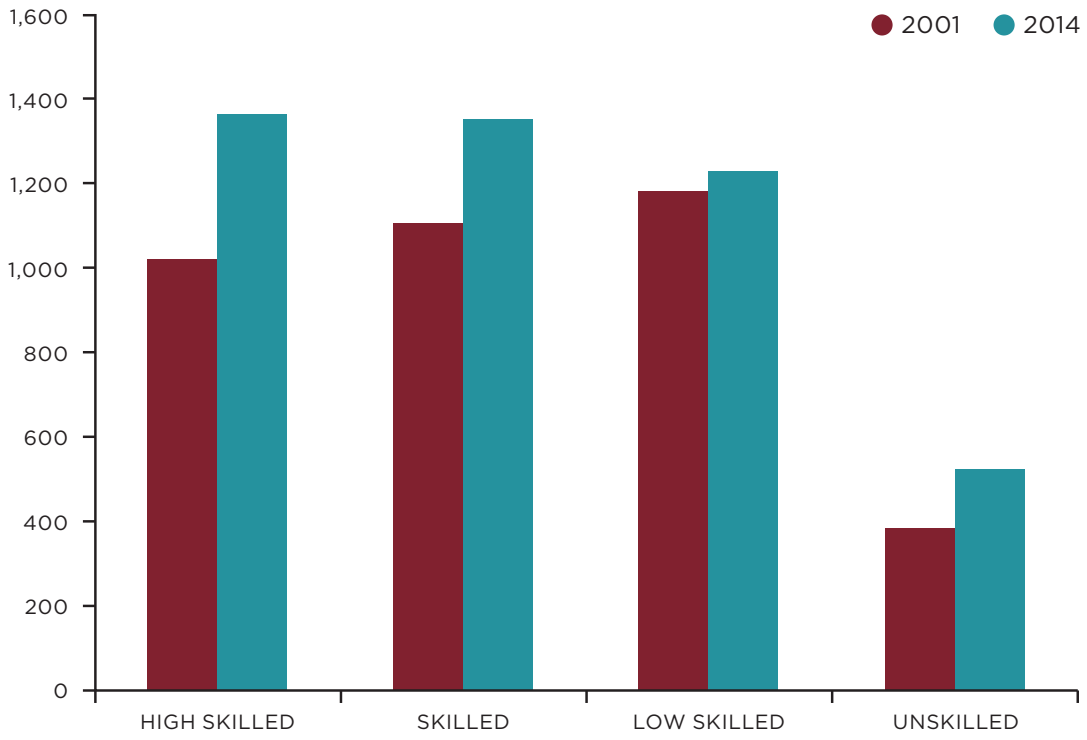
TRANSFORMATION IS NOT ONLY ABOUT THE GROWTH OF EMPLOYMENT, BUT ALSO ABOUT JOB LOSSES IN CERTAIN SECTORS AND LOCATIONS.

Figure 3 shows employment change by skill level in terms of the number of jobs.[12]

In terms of achieving the objectives of the Growth Plan, this restructuring has important implications for the kinds of economic activities we are planning *for*. Moreover, transformation is not only about the growth of employment, but also job losses – a fact that can sometimes be obscured when regional planning is based solely on *growth* projections.

FIGURE NO. 3

EMPLOYMENT BY SKILL LEVEL, GGH, 2001 AND 2014 (000s OF JOBS)



12 Statistics Canada, Labour Force Survey.

THE IMPORTANCE OF CORE EMPLOYMENT

Given the focus on implications for the Growth Plan and long-term planning, this report is concerned with the dynamics of long-term, structural change brought about by globalization and evolving technology, not cyclical market fluctuations. Especially critical are products and services that can be exported, or that draw income into the region, and so are the foundation of economic development. Sometimes referred to as the "tradeable" or "basic" sector, here we call them "core" economic activities.

They include employment in manufacturing, finance and business services, tourism, arts and culture, wholesale trade, research and development, major hospitals, and higher education. (Except where noted, in the following sections we do not consider in depth the remaining component of employment – "population-related" or "local" services – as these depend on the core economic activities. They include retailing, personal services, and elementary and secondary education.)

What does a transforming economy mean to the review of policies in the *Growth Plan for the Greater Golden Horseshoe*?

The targets and policies in the Growth Plan focus mainly on managing residential growth. Yet several key objectives of the Growth Plan depend on non-residential development activity or "employment uses" for their success. These objectives include:

- A compact, transit-supportive urban form
- A regional structure anchored by Urban Growth Centres
- A high degree of intensification
- The creation of complete communities
- The efficient use of existing and new infrastructure.

These objectives take on added importance with the planned investment of billions of dollars on new regional transit infrastructure. The success of this investment will depend upon achieving a regional structure and urban form that attract large numbers of new riders to transit.

With so much at stake, it is critical to ensure that the policies and objectives of the Growth Plan are grounded in the reality of a transforming regional economy. Other regions show the potential downside of ignoring the connections between planning and the regional economy. For example, with its sprawling development pattern, Silicon Valley is essentially built out to the point at which growing firms like Google are having difficulty finding space to expand. The lack of affordable housing also creates a barrier to attracting the young talent that drives the computer and software industry there. This situation threatens the continued development of that economically dynamic region (Brown, 2015).

At the same time, an important opportunity has been emerging with the growth of knowledge-intensive activities. Not only is economic activity more focused on cities as sites for the production of goods and services, but urban and regional environments contribute directly to the competitiveness of individual businesses and of the region as a whole. Currently, the main policies in the Growth Plan[13] that explicitly address competitiveness are those relating to the land supply – that is, policies both to provide land for growing employment uses, and to preserve existing employment areas for future economic opportunities. As we shall see, the changing economic context provides for a much broader and stronger role for planning to support regional competitiveness and prosperity.

13 Appendix A contains a summary of Growth Plan policies related to employment and the economy.

RESEARCH QUESTIONS

This report therefore addresses two questions:

1. How is the GGH economy changing, and what are the implications of its emerging geography for the Growth Plan policies and spatial vision?

2. How can the Growth Plan support the economic competitiveness and prosperity of the Greater Golden Horseshoe?

This report builds on the limited research that has been done on the evolving economy of the Toronto region, including previous Neptis Foundation research (Canadian Urban Institute, 2011; Gertler, 2000, 2003; GHK, 2009; Ministry of Public Infrastructure Renewal, 2008; Strategic Regional Research, 2013).

URBAN AND REGIONAL ENVIRONMENTS CONTRIBUTE DIRECTLY TO THE COMPETITIVENESS OF INDIVIDUAL BUSINESSES AND OF THE REGION AS A WHOLE.

THE ROLE OF PLANNING AND THE COMPETITIVE CONTEXT

The restructuring of the regional economy is driven by freer markets and a globalizing economy, which place intense competitive pressures on GGH firms. As the GGH economy shifts toward knowledge-intensive activities, the sources of competitiveness for regional firms have changed too.

At the beginning of the industrial era, firms (and the cities in which they were established) benefited from being located near water – for transportation or as a power source. As transportation and other technologies advanced and markets grew, proximity to railroads and then highways became key sources of competitiveness for firms and cities. At the same time, industries were protected from competition by high tariffs, a branch plant economy prevailed in Canada, and both markets and production tended to be more localized.

Today, highway access and cheap land are no longer the main locational criteria for many firms, especially those in the growing knowledge economy sector. Instead, the sources of competitiveness include access to skilled labour, ideas, and knowledge; the ability to innovate; increases in productivity; and new ways of organizing the production of goods and services. In making investment decisions, companies seek locations that offer the combination of inputs that optimizes their competitiveness and productivity, for example, access to a specific skill set, markets, or related suppliers.

In a global economy, investment and skills are highly mobile. The GGH thus faces intense competition from other city-regions in attracting investment in new production facilities or corporate offices. In this context, certain characteristics of the physical environments of city-regions may support or hinder the competitiveness of business and regional prosperity.

The following discussion outlines some of the ways that planning can contribute to economic development in an emerging knowledge economy.

SOURCES OF COMPETITIVENESS IN THE KNOWLEDGE ECONOMY

Innovation and skilled labour: The creation of new or improved products – or new or improved means of producing them – is essential to the growth of restructuring economies like that of the GGH. Innovation and the skilled labour that drives it are increasingly central to an economy based on high value-added, knowledge-intensive activities.

Productivity: Usually measured in terms of output per worker, high productivity is important to firms' ability to compete globally, attract investment to the region, and sustain high wages and a high standard of living. At present, the GGH is characterized by *declining* productivity: the Toronto region was recently ranked last out of 12 North American peer regions on this factor of competitiveness (Toronto Region Board of Trade, 2014).

Flexibility: Firms can gain a competitive edge by their ability to adapt their products or production processes rapidly to changing market demand.

Network production models: At the start of the last century, all aspects of production were often contained under one roof. Today, production of goods and services typically occurs through inter- and intra-firm networks of various kinds, in which different stages of production are undertaken by specialist establishments.

Clusters: "Clusters" are spatial concentrations of firms that benefit from shared resources, skills, knowledge flows, and collaboration. A recent study identified 56 clusters in the GGH (Spencer, 2014). The competitiveness of key clusters has been identified as essential to the economic future of the region (Toronto Region Board of Trade, 2014).

PLANNING FOR PRODUCTION ENVIRONMENTS THAT SUPPORT COMPETITIVENESS

Different types of economic activities have different requirements of the urban environments in which they operate. These environments include what are typically called "employment areas" – that is, single-use suburban industrial and office parks – as well as downtowns and mixed-use, older urban areas. (In this report we call all urban environments in which core employment activities take place "production environments.")

Certain qualities of cities have been identified by researchers such as Florida (2002) and Luis (2009) as essential to attracting and retaining mobile skilled labour, including safety, livability, ease of movement, and cultural life. Workers in knowledge-intensive industries in particular are increasingly demanding work environments that offer mixed uses, local meeting places, a range of services, and accessibility without the need to use a car for all travel. These characteristics are increasingly important elements in the competitiveness of a city-region.

As well, innovation is increasingly understood as a collaborative, open process that draws on the density, diversity, and specialization of firms, skilled workers, and other resources found in cities. Research points to the importance of informal social networks, chance encounters, and a walkable urban environment in innovation related to arts, culture, and design, for example (Currid and Connelly, 2008). Production environments that support open innovation tend to be those that cluster different types of firms, institutions, amenities, and services, and provide easy accessibility and a walkable environment (see, for example, Katz and Wagner, 2014).

Lastly, networks and clusters benefit from production environments that support the linkages and flows of intermediate goods between firms, and the co-location of connected firms, including manufacturing, business services, logistics, and transport, and, increasingly research facilities, universities, or community colleges.

Current planning policy, land use regulation, and urban design, however, do not sufficiently take the changing needs of business into account. For example, planning and zoning restrictions can prevent the co-location of connected firms. Official Plans and zoning often mandate the separation of different types of employment uses. Suburban employment areas in particular tend to be low-density and single-use: industrial activities are relegated to specific areas, while office uses are segregated into office parks.

Cluster- and innovation-friendly urban environments call for land use frameworks that permit co-location of connected but different activities, such as offices, research labs, light manufacturing, education, or business services. They also need to support greater flexibility for firms to adapt to changing market conditions, that is, to expand, contract, or modify their activities.

As well, the quality, character, and design of production environments are increasingly important, especially for knowledge-intensive industries. In the GGH, planners and developers have paid little attention to urban design or placemaking in employment areas, even in the "planned" suburban office and "prestige" business parks.

PLANNING FOR A REGIONAL STRUCTURE THAT SUPPORTS MOBILITY

One of the major competitive advantages of a region as large as the GGH is that the labour market supports highly specialized, skilled, productive workers. But businesses need access to workers with the needed skills. And workers need to be able to get to and from jobs within the confines of a workday. A reasonable commute time is essential. Intra-regional mobility is central to the efficient functioning of the regional labour market and productivity.

When a region becomes congested and lacks transit alternatives, the regional labour market becomes fragmented and operates less efficiently, with potential productivity losses. Recent research shows that transit supports the efficient matching of jobs with skills, resulting in productivity gains.[14]

The primary implication here is that planning should foster a regional structure that supports the significant transit investment contemplated by the Province in *The Big Move*[15] and other planned investments.

PLANNING FOR AN EFFICIENT, COST-EFFECTIVE URBAN FORM

Municipal service costs are an input cost to businesses, affecting their bottom line and competitiveness. They take the form of user fees, utility rates, or property taxes. As well, development charges are generally incorporated into property prices, and absorbed by businesses either in purchase prices or commercial rents.

Efficient development patterns have been demonstrated to incur significantly lower infrastructure and servicing costs – in the range of 20% to 60% lower.[16] These lower costs could be reflected in utility rates, user fees, and

14 These gains do not tend to be accounted for when assessing the economic benefits of transit. See for example, Chatman and Noland (2012).

15 *The Big Move* is the Province of Ontario's transit plan that complements the Growth Plan.

16 A large body of research has established that a more compact, efficient urban form can reduce the capital and operating costs of infrastructure by 20% to 60% – depending on the type of infrastructure and the magnitude of the shift in development pattern; see, for example, Burchell et al. (1998) and Linner et al. (1999). A recent report that reviewed the impact of urban form on infrastructure costs across a range of American cities, for example, found that more compact urban forms reduce up-front capital costs by one-third, and that on average, compact development returns 10 times more tax revenue per acre than conventional suburban development (Smart Growth America, 2013).

17 This is, of course, assuming that development charges, user fees, and property tax rates are structured in a way that is accurate and that actually reflects cost factors – like usage, location, and density – avoiding inadvertent cross-subsidies.

property taxes – lowering input costs for business and supporting their competitiveness.[17]

Efficient urban form is achieved through both intensification and denser greenfield development. The Growth Plan does not have specific policies in place to address the intensification of employment lands. Greenfield densification is addressed through the greenfield density targets contained in the Plan, which apply to the sum of population and employment, but not to employment specifically.

MAXIMIZING THE BENEFITS OF MAJOR PUBLIC INVESTMENTS

There is also an important opportunity to capitalize fully on the potential of existing regional assets and future investments. This means fully leveraging the economic and planning potential of provincial investments in health care facilities, higher education facilities, or courthouses, as well as local investments in community, cultural, and recreation facilities.

These facilities can play a broader role in economic development, area regeneration, or catalyzing development in key locations, such as transit station areas or urban growth centres.

For example, investments in health care facilities are being used elsewhere to kick-start urban regeneration and local economic development, through strategies such as buy-local procurement programs or linking investments to local workforce development (Initiative for a Competitive Inner City, n.d.). Major institutional facilities can stimulate nearby development, for example, in the case of hospitals, with hotels, shops and restaurants, special housing (e.g., nurses' residences), or ancillary offices or research facilities. Universities, research institutes, or large firms are being used in cities like Boston and Philadelphia to anchor innovation districts – areas that contain a mix of uses and amenities, and are designed to support open innovation (Katz and Wagner, 2014).

Too often, these related uses and synergies are not planned for at the outset, the design of the facilities and urban contexts and the planning frameworks do not support them, and potential positive spinoffs are unrealized. The Growth Plan could ensure that major investments are strategically located to fully leverage their broader economic and urban development potential, and that integrated planning, design, and economic development frameworks are put in place.

* * *

The above discussion has demonstrated some of the many important linkages between planning and competitiveness, and the potential for the Growth Plan to play a key role in supporting regional competitiveness and prosperity. The connection is not limited to simply ensuring a supply of land for future businesses that is the major linkage currently highlighted in the Growth Plan.

CURRENT PLANNING AND ZONING RESTRICTIONS CAN PREVENT THE CO-LOCATION OF CONNECTED FIRMS.

THE GEOGRAPHY OF ECONOMIC RESTRUCTURING IN THE GGH

As the economy evolves under globalization, we see a concentrating effect. This takes many forms, for example, a concentration of wealth in the highest income groups. Spatially, there is a concentration of certain economic activities in cities, especially in the largest cities and city-regions. For example, the share of Canada's population found in the five largest city-regions has increased from 25% in 1951 to 40% in 2006 (Bourne et al., 2011). This means that the GGH as a whole can expect its economic pre-eminence in the country to consolidate further as globalization proceeds.

At the same time, new spatial patterns are emerging *within* cities and city-regions, related to globalization and technological change and the economic restructuring those drivers are bringing about.

SPATIAL PATTERNS VARY WITH THE TYPE OF ECONOMIC ACTIVITY

Different economic activities exhibit different spatial patterns of change within the region. These patterns depend upon their current geography, how those activities experience the pressures of global competition and technological change (for example, whether they are routine or knowledge-intensive), and at what stage they are in the restructuring process.

So the changing geography of the GGH can be understood as the layering of distinct spatial patterns of different types of economic activity. Below, we illustrate some of these layers by exploring recent patterns of employment change for key economic activities – one occupational grouping ("STEM," or science, technology, engineering and mathematics employment) and two industry sectors (finance and manufacturing). Each has its own unique geography. We present a selection of maps here to illustrate the diversity of spatial patterns; maps for other sectors are in Appendix B.

A NOTE ON MAPPING

In interpreting the maps, note that the dots representing employment do not correspond to a specific point location but to census tracts. Each dot represents 100 jobs and is randomly located within the census tract to which it applies. The boundaries of the census tracts are not shown in order to illustrate other data layers more clearly.

STEM EMPLOYMENT

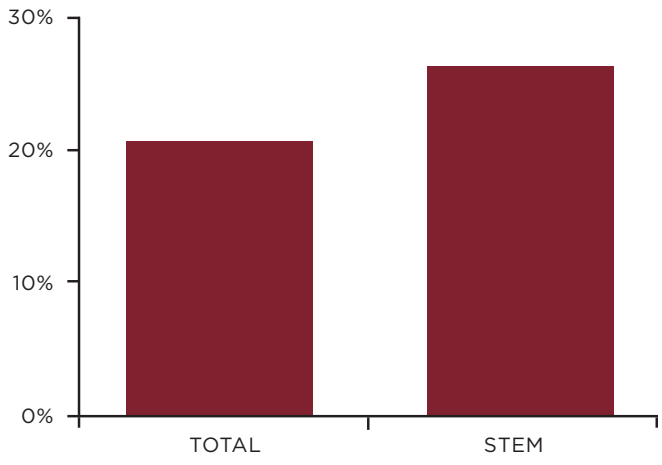
STEM occupations include professionals and technicians in science, technology, engineering, and mathematics.[18] These are among the jobs driving the successful transformation of the GGH to a knowledge-based economy. All STEM jobs are considered to be high-skilled or skilled. Figure 5 shows that STEM jobs have increased by 26% since 2001 (an increase of about 75,000 jobs) compared with 21% for the economy as a whole.[19]

STEM employment exhibits a particular geography, focusing on a few locations in the GGH (Map 1). There is a significant, extremely dense concentration in Downtown Toronto.[20] Other important concentrations are found in suburban business parks: around the Airport Corporate Centre and Meadowvale in Mississauga, around the 404/407 highway interchange to the northeast of Toronto, the Sheridan Business Park area in Oakville, and in the City of Waterloo.

In recent years, STEM job growth has been increasing in these suburban business parks, along with Downtown Toronto (Map 2). There are also areas of STEM job loss, including older corporate campuses in Toronto's postwar inner suburbs, such as the Don Mills and Eglinton area.

FIGURE NO. 4

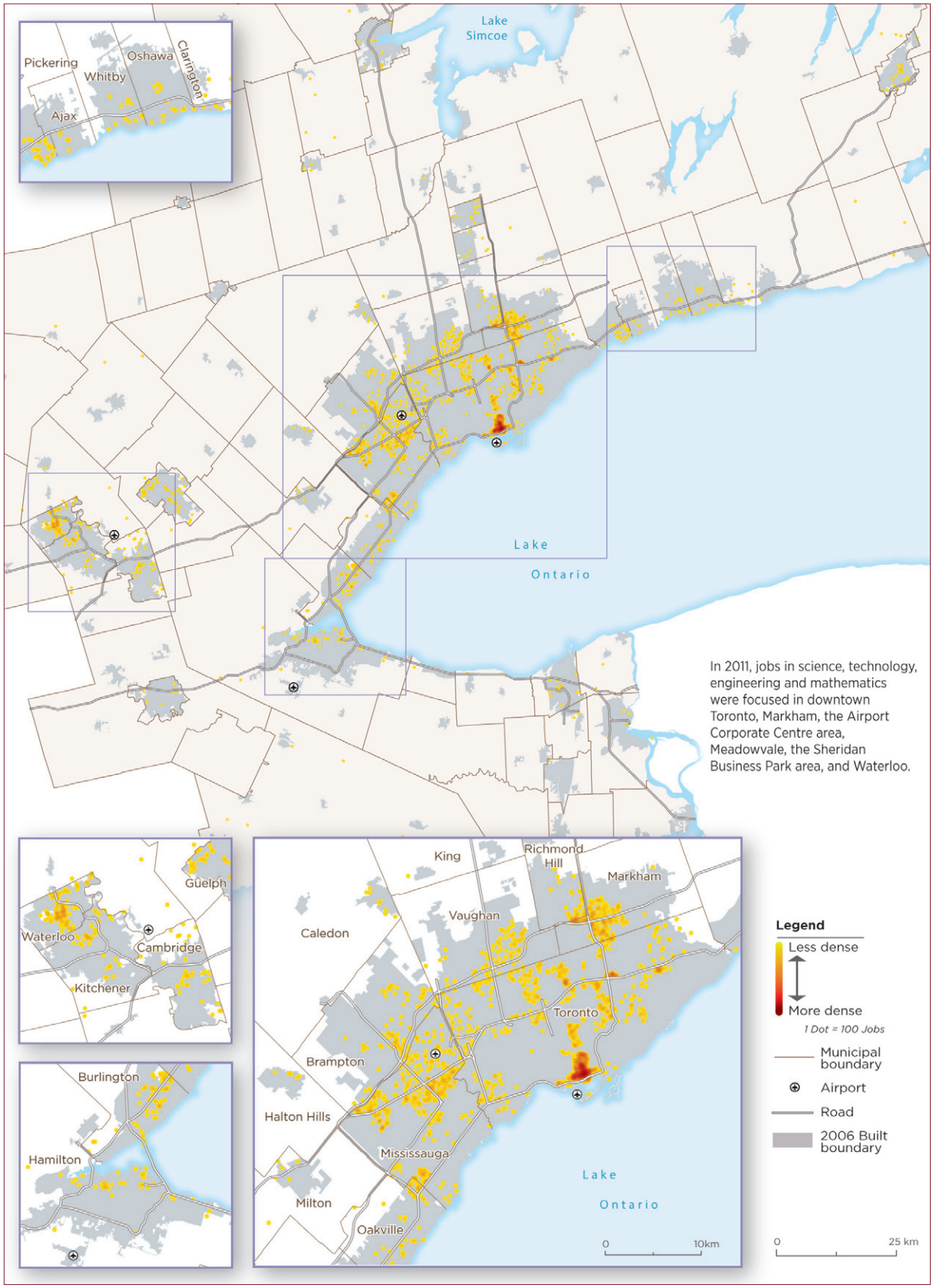
CHANGE IN GGH EMPLOYMENT, 2001–2014, TOTAL EMPLOYMENT AND STEM (%)



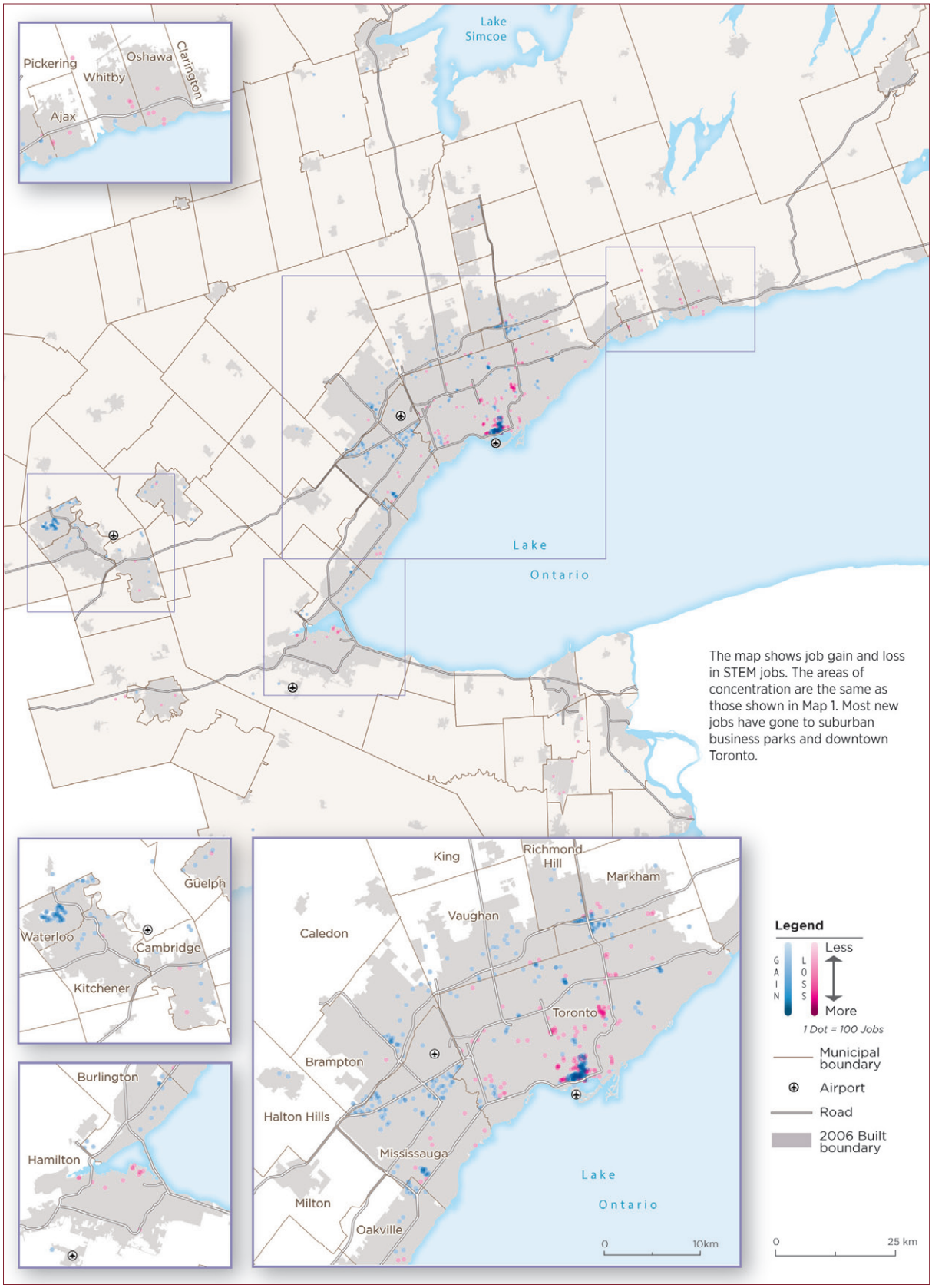
18 STEM jobs do not include teachers or university professors in those fields. The classification is based on occupations, not employers, and these jobs are found in various sectors, including manufacturing and services.

19 Statistics Canada, Labour Force Survey.

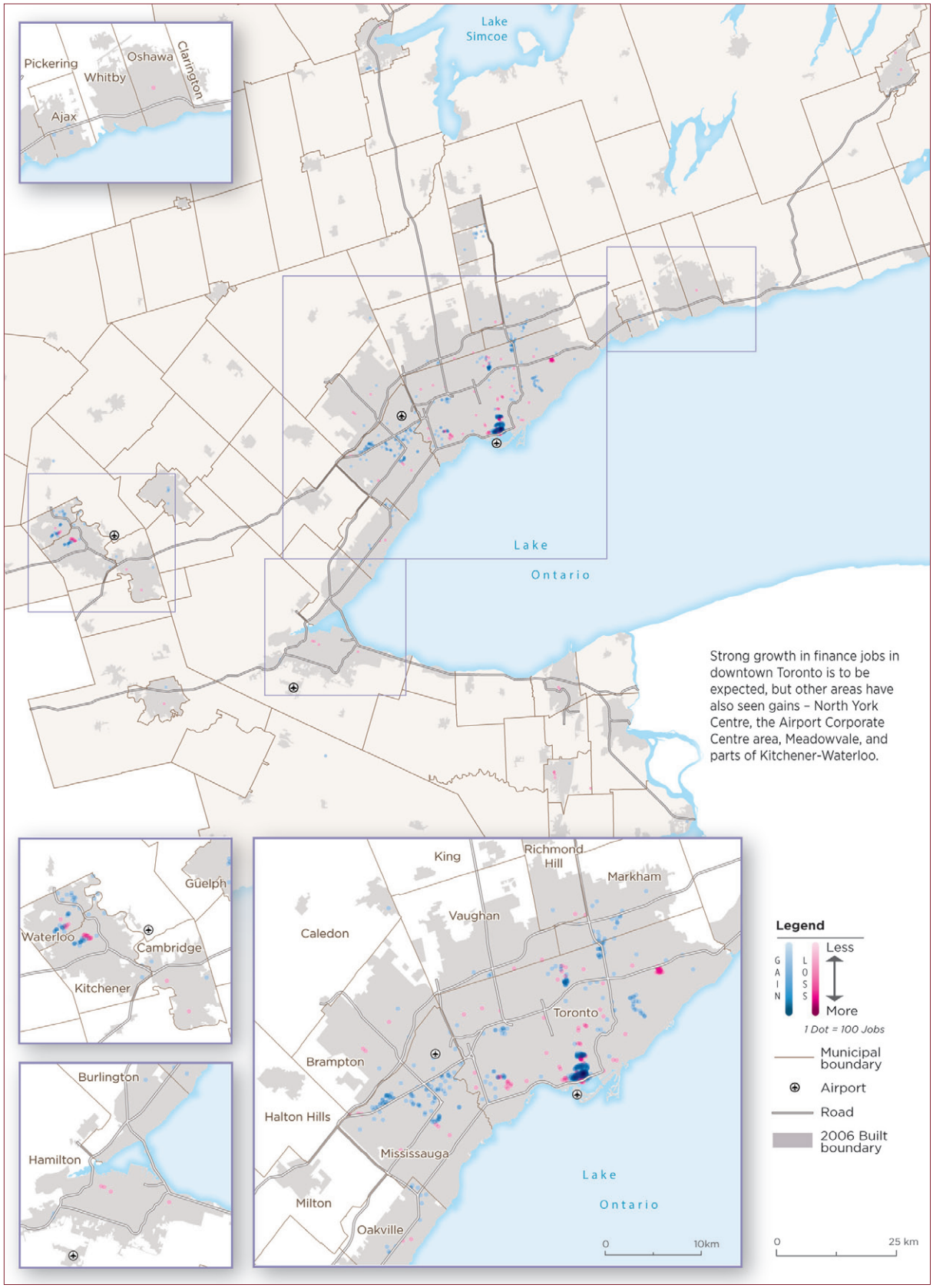
20 In this report, we use the name of the Urban Growth Centre designated in the Growth Plan to indicate the central business district of Toronto, known elsewhere as the "Toronto core," in order to avoid confusion with the term "core employment."



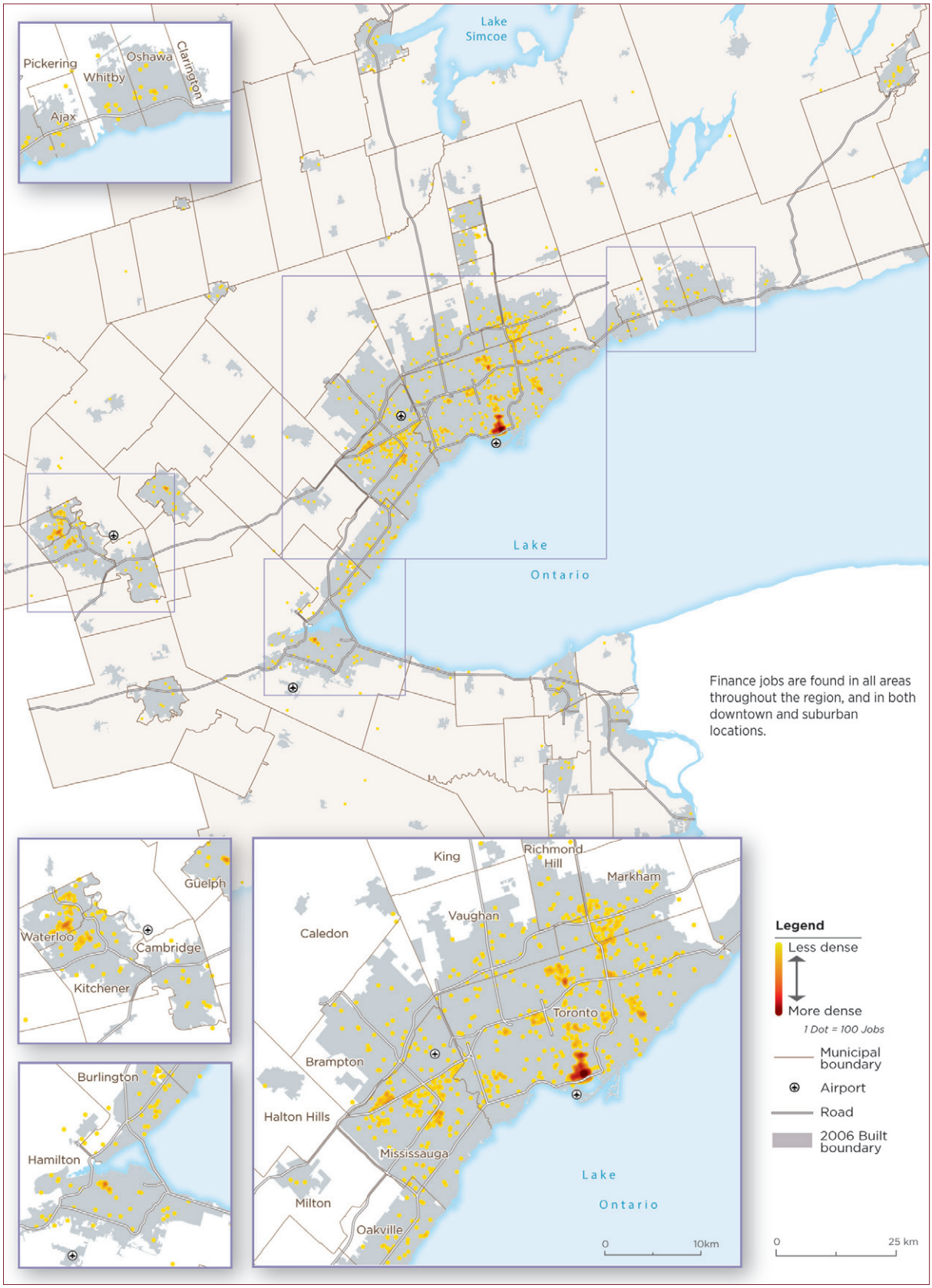
MAP NO. 1 STEM EMPLOYMENT, 2011



MAP NO. 2 CHANGE IN STEM EMPLOYMENT, 2001-2011



MAP NO. 3 EMPLOYMENT CHANGE IN FINANCE, 2001–2011



MAP NO. 4 EMPLOYMENT IN FINANCE, 2011

THE FINANCE SECTOR

Between 2001 and 2014, employment in the finance sector grew by about 40% versus 21% of all employment growth for the GGH[21] (Figure 6).

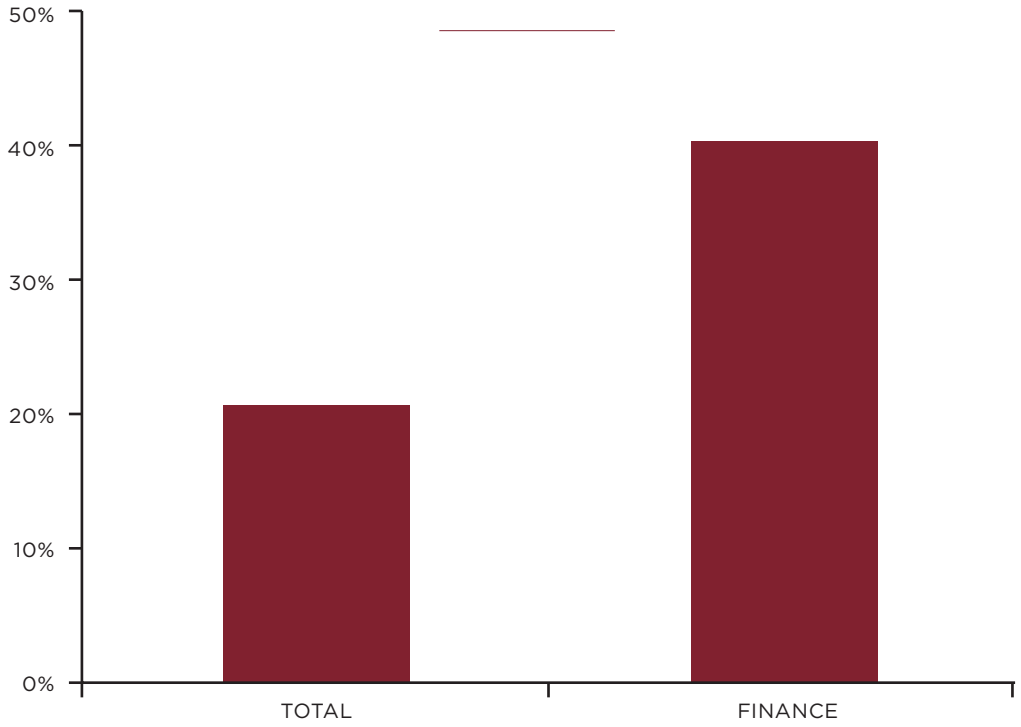
Job growth in finance has occurred in Downtown Toronto, as well as suburban business parks such as Meadowvale and the Airport Corporate Centre, and the 404/407 highway interchange (Map 3). There are also areas of job loss, such as Scarborough City Centre, and parts of Downtown Toronto, too. This pattern is related to the loss of routine finance jobs. All of the 90,000 new jobs in the finance sector were high-skilled or skilled. Low-skilled finance jobs experienced a loss of 2,000 positions.[22]

Employment in the finance sector has a strong tendency to concentrate. This is not surprising, given that the sector is heavily weighted towards knowledge-intensive activities, in a fast-paced and volatile sector that relies on formal and informal knowledge flows in a dense environment.

The current pattern of employment (Map 4) shows some locations of finance employment outside Toronto's financial district – along the Yonge subway line, or in some suburban business parks. But Toronto's financial district remains the dense, dominant centre of the industry.

FIGURE NO. 5

CHANGE IN GGH EMPLOYMENT, 2001–2014, TOTAL EMPLOYMENT AND FINANCE (%)



21 Statistics Canada, Labour Force Survey.
22 Statistics Canada, Labour Force Survey.

MANUFACTURING EMPLOYMENT

Despite the significant job and business losses of the last decades, manufacturing retains a strong presence and economic role in the GGH, accounting for about 500,000 jobs in 2014.[23] The region lost almost 200,000 manufacturing jobs between 2001 and 2014, but this is a net number, so there was also some growth, albeit small, in a few categories, such as beverages, bakeries, meat products, and aerospace. This employment growth can be found mostly scattered in the newer employment areas, such as the western reaches of Mississauga and in Waterloo.

Nevertheless, the dominant pattern is that of widespread employment loss across the GGH. Jobs were lost across all skill levels, but more than half of the loss was in routine jobs. About 115,000 of the almost 200,000 manufacturing jobs lost between 2001 and 2014 were in the low-skilled, "C" category.[24] The job loss was also felt across the spectrum of manufacturing.[25]

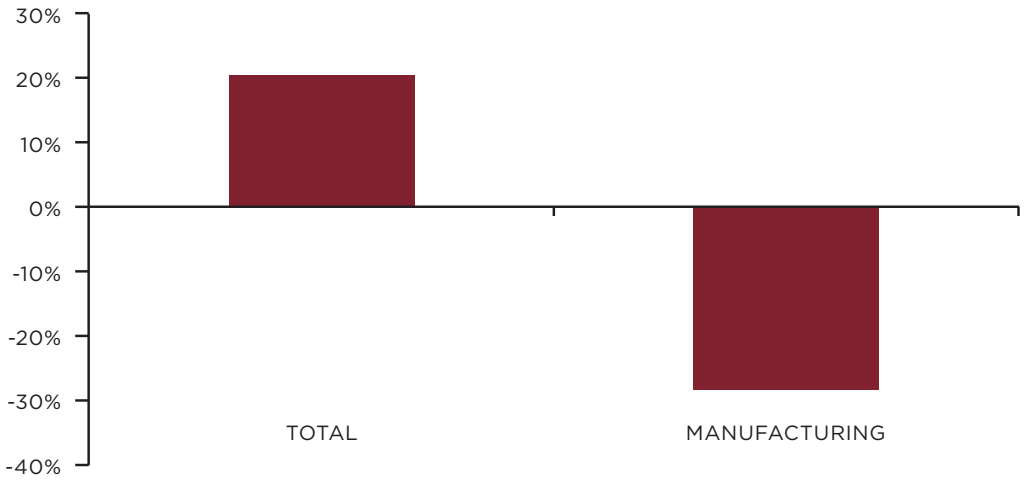
Figure 7 shows the change in percentage terms in employment in that sector between 2001 and 2014 relative to all GGH employment.[26]

Manufacturing tends to locate along major expressways, such as Highways 401 and 407 and the Queen Elizabeth Way, and near intermodal terminals. Significant areas of manufacturing employment are found around Pearson International Airport, the Highway 400 corridor in Vaughan, and the interchange of Highways 404 and 407 (Map 5).

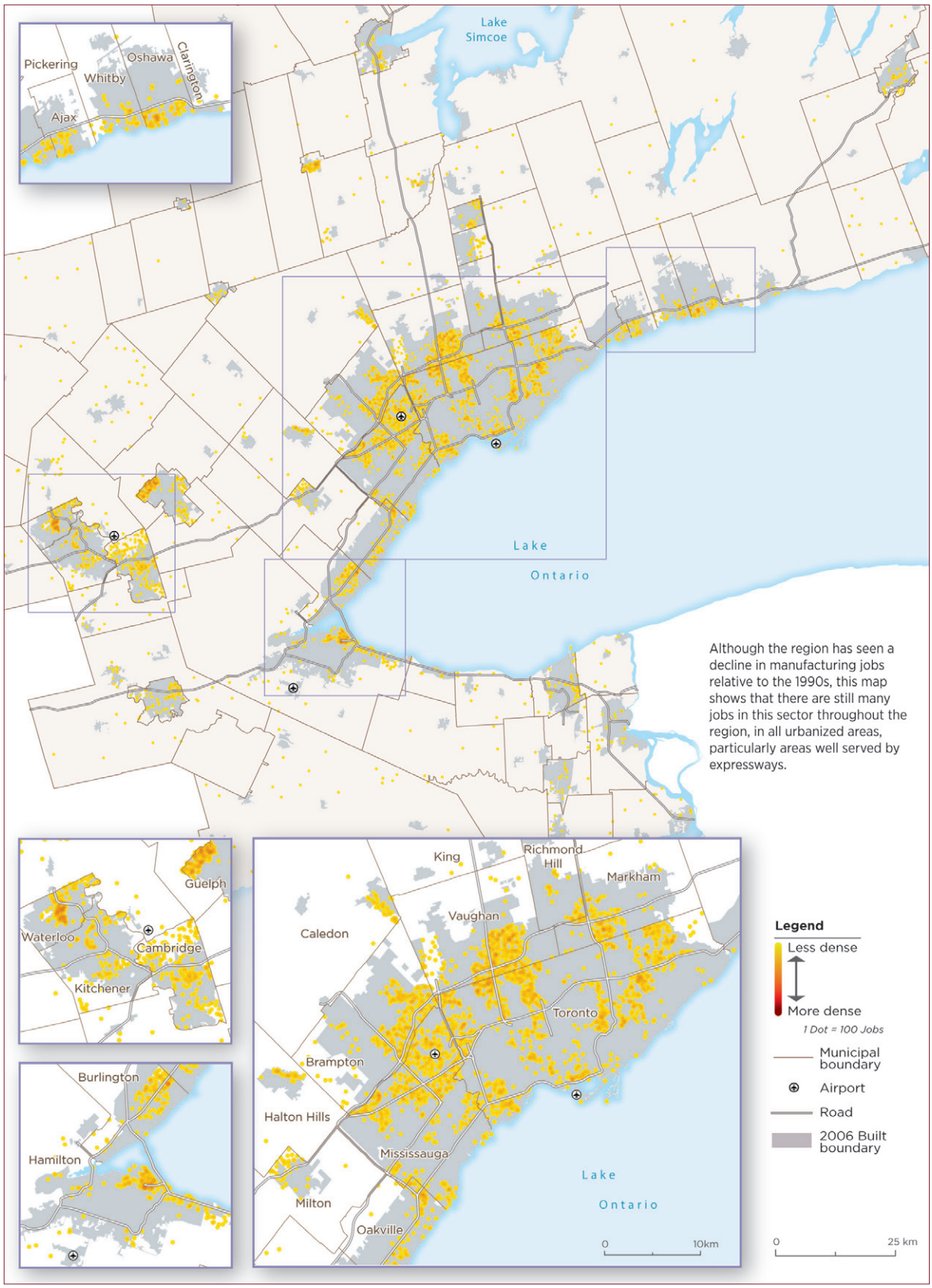
Map 6 shows how employment change in the manufacturing sector from 2001 to 2011 has played out geographically. Areas of job loss tend to be found mostly in the older industrial areas – in Toronto's inner suburbs, along the lakeshore, and in cities like Hamilton and Oshawa.

FIGURE NO. 6

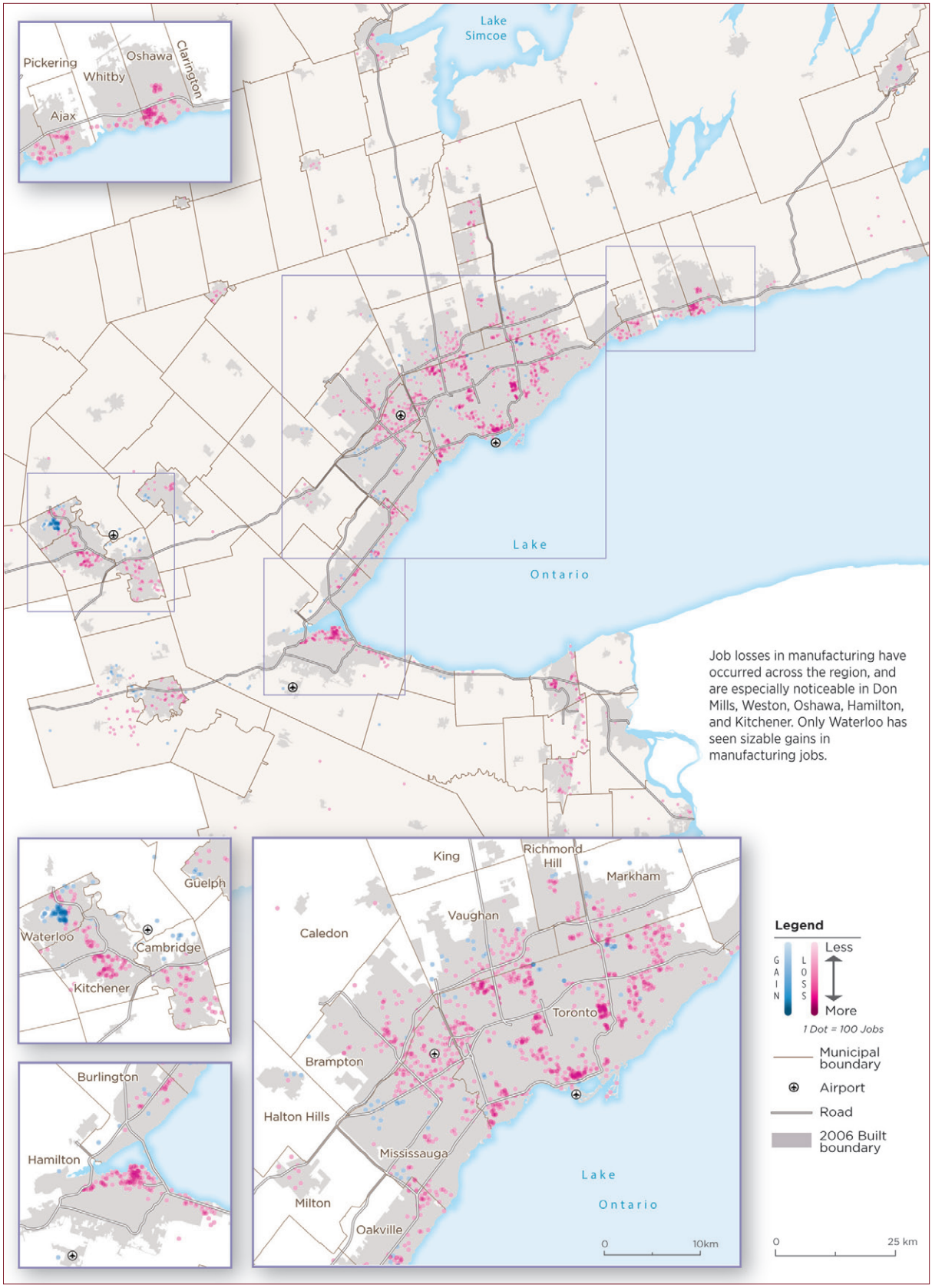
CHANGE IN GGH EMPLOYMENT, 2001–2014, TOTAL EMPLOYMENT AND MANUFACTURING (%)



23 Statistics Canada, Labour Force Survey.
24 Statistics Canada, Labour Force Survey.
25 Based on Statistics Canada's Labour Force Surveys, 2001–2014.
26 Statistics Canada, Labour Force Survey.



MAP NO. 5 EMPLOYMENT IN MANUFACTURING, 2011



MAP NO. 6 EMPLOYMENT CHANGE IN MANUFACTURING, 2001–2011

THE GEOGRAPHY OF CORE EMPLOYMENT

Map 7 shows the change in core employment between 2001 and 2011. This is employment that draws or has the potential to draw income into the economy; it excludes population-related employment such as retailing, personal services, food services, religious organizations, and local schools.[27]

The map shows intense job growth (shown in blue) focusing on the centre of the City of Toronto, as well as considerable growth in the suburban business parks in Mississauga and around the 404/407 highway interchange in Markham and northeast Toronto. There is also a notable concentration of growth in the City of Waterloo.

Not all growth is concentrated, however. Much of the employment gains have occurred in a suburban arc from Halton Region in the west to Durham Region in the east, in newly urbanized areas at the edges of the built-up area. This growth includes a fair amount of dispersed employment. As there has been very little manufacturing employment growth in the region, this dispersed growth likely represents jobs in warehousing and distribution (particularly jobs located near the multi-modal terminals in Brampton and Vaughan), or construction.

For the most part, job growth has not replaced loss (shown in red) in older urbanized areas across the region. Most municipalities experienced a combination of growth in some areas (mostly outer suburban), and loss in others (mostly urban or inner suburban). And a few municipalities experienced relatively little growth, while sustaining significant job losses (for example, the cities of Oshawa, St. Catharines, and Hamilton).

Mapping core employment as a whole provides an overall picture of employment change in the GGH. However, it also obscures diverse patterns of employment change related to different types of economic activity.

As we have seen, manufacturing has experienced substantial job loss, especially in routine activities. These losses have occurred mainly in the older industrial areas across the GGH. Meanwhile, STEM and finance employment has demonstrated strong growth, especially in Downtown Toronto and certain suburban business parks. Appendix B contains maps showing the geographical patterns of other sectors and employment types.

Some of the key overall patterns of employment change reflected in the mapping are:

- The concentration of knowledge-intensive activities in Downtown Toronto
- The suburbanization of some knowledge-intensive activities in corporate business parks
- The dispersal of non-manufacturing industrial uses such as warehousing and distribution to suburban industrial areas
- Job loss in older industrial and inner suburban areas.

This kind of analysis, which considers the dynamics of regional economic change, rather than simply extrapolating trend lines, will help us better understand where growth pressures might be and where decline might take place in future, and in relation to what kinds of economic activity. That is, it provides the detailed information needed for effective planning.

This brings us to the overall picture of the geography of employment in the GGH. The distribution of core employment in the GGH in 2011 is shown in Map 8.

The region has a clear, dominant, and dense employment district in the centre of the City of Toronto. Other dense concentrations of employment in the city include North York City Centre, the Yonge-Eglinton area, Consumers Road (near the intersection of Highways 401 and 404), as well as in the centres of older cities such as Kitchener, Waterloo, and Hamilton.

27 Population-related or "local services" dependent on core economic activities, as expected, are scattered across the region more or less evenly. See Appendix B, Map A9. The composition of core employment is detailed in Appendix C.

The map also shows three extensive employment zones, clearly related to the 400-series expressways: one surrounding Pearson International Airport, one in the area surrounding the 404/407 highway interchange, and a third straddling the boundaries of Vaughan and Toronto along the southern extent of Highway 400.

Otherwise, GGH core employment is found in suburban employment areas associated with the expressway network, such as those in Toronto along the Don Valley Parkway and in Oakville along the Queen Elizabeth Way.

The maps also indicate the impact of the 400-series highways on the evolving employment geography of the region. The 407 corridor, for example, has attracted significant amounts of STEM jobs and office employment in the finance sector, along with industrial employment.

Table 1 summarizes some of the key changes and shifts in the regional economic geography.[28]

The table indicates the strength of downtown Toronto, which, having already significantly deindustrialized before 2001, has continued to add jobs in areas such as government, hospitals, higher education, and business and financial services. But the table also shows net losses in the rest of the City of Toronto outside the downtown area, primarily reflecting deindustrialization.

For the region as a whole, core employment shows a net loss of some 3,000 jobs, mainly owing to the decline of manufacturing employment, which outweighs job growth in other core activities such as finance, government, logistics, and business services.

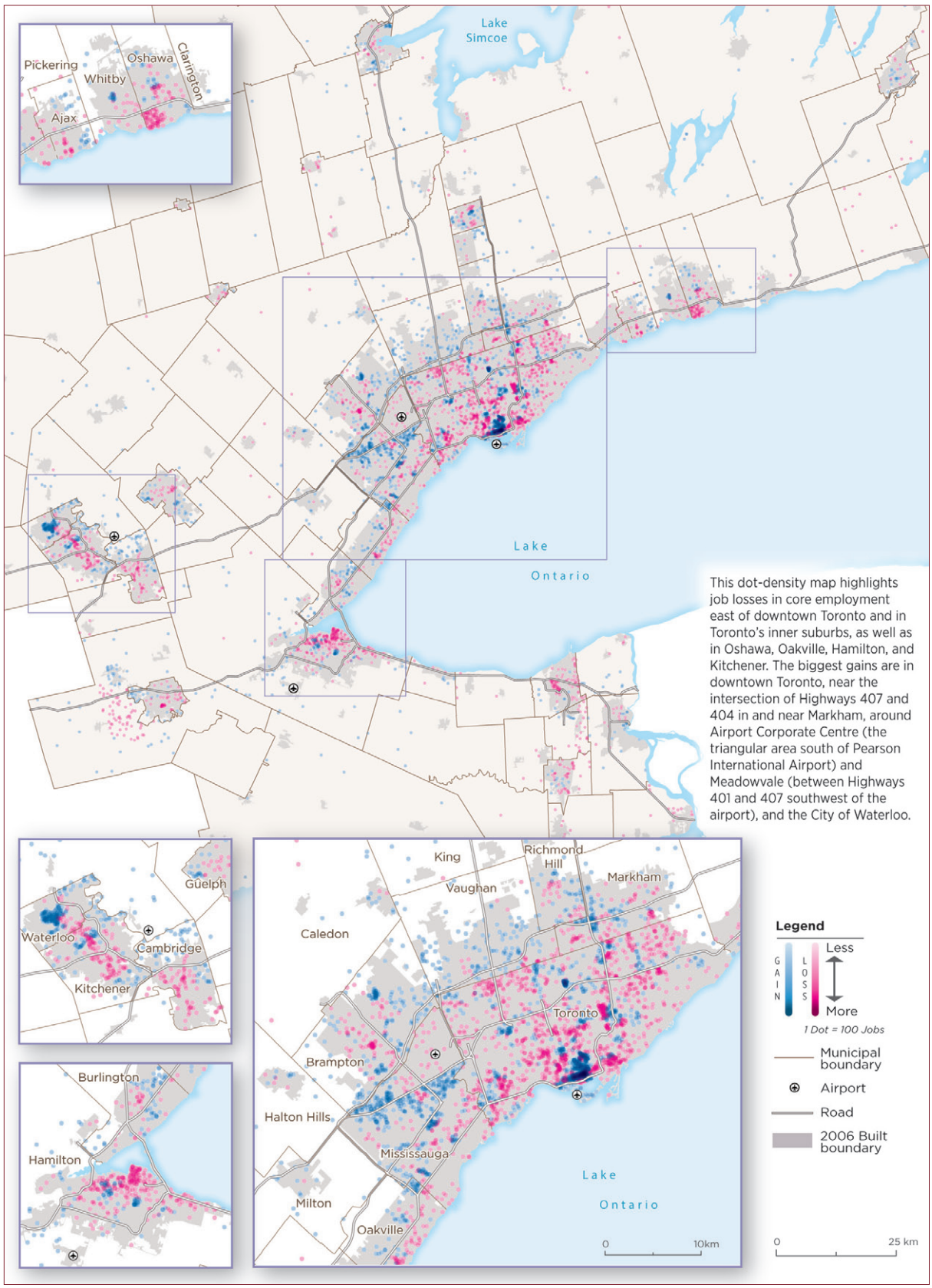
The implications of this employment geography for the region's spatial economic structure are addressed in the next section.

TABLE NO. 1

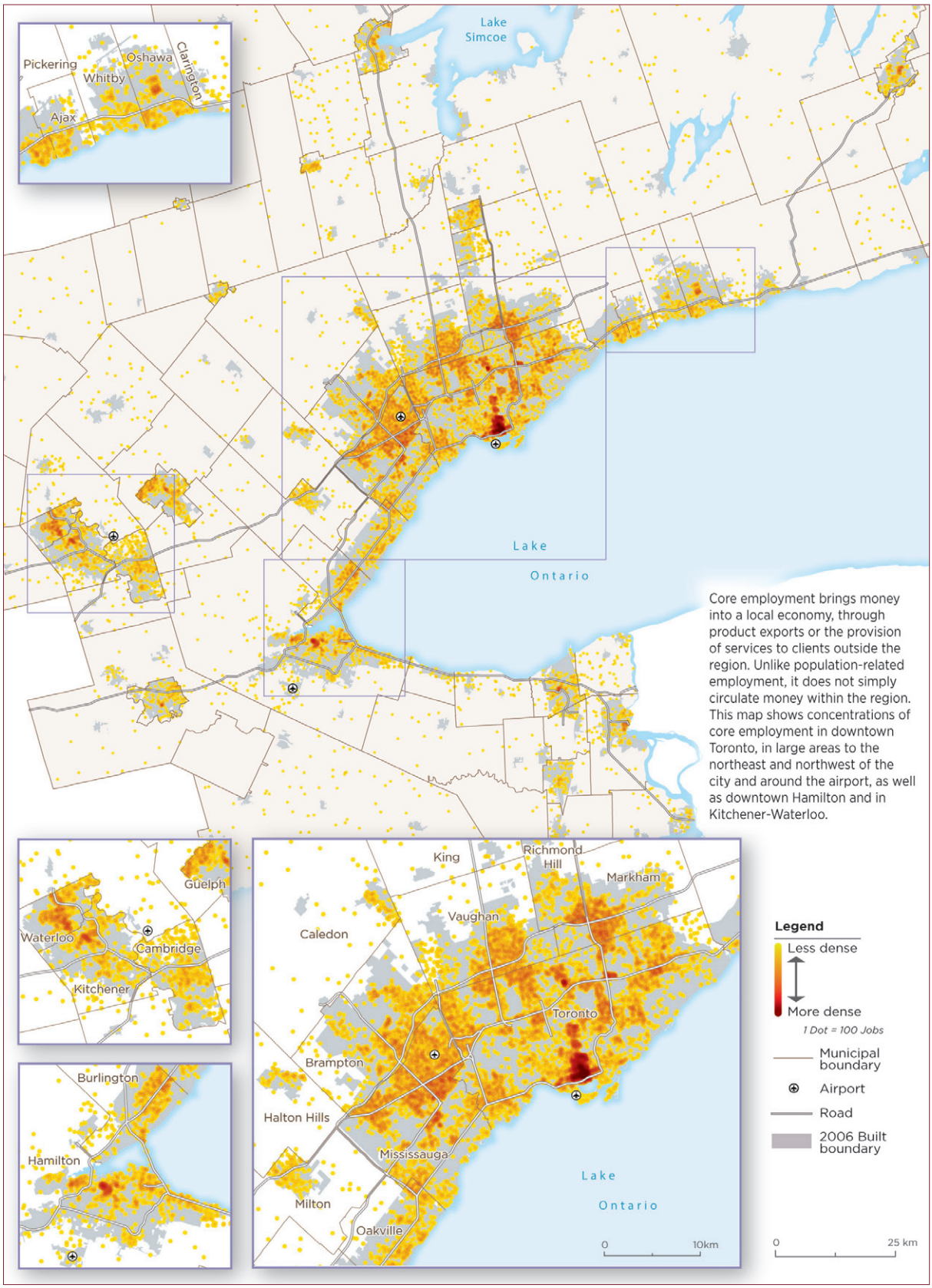
GREATER GOLDEN HORSESHOE, 2011 EMPLOYMENT AND 2001–2011 EMPLOYMENT CHANGE

	CORE EMPLOYMENT, 2011 (%OF GGH)		CORE EMPLOYMENT CHANGE 2001–2011 (%)		ALL EMPLOYMENT, 2011 (% OF GGH)		ALL EMPLOYMENT CHANGE 2001–2011 (%)	
INNER RING (GTHA)	1,755,900	80%	4,050	0.2%	2,759,300	78%	238,070	9%
DOWNTOWN TORONTO	385,490	18%	42,290	12%	464,650	13%	48,120	12%
TORONTO (WITHOUT DOWNTOWN)	487,240	22%	-63,380	-12%	826,070	23%	-11,170	-1%
905 (INNER RING WITHOUT TORONTO)	883,170	40%	25,140	3%	1,468,580	42%	201,120	16%
OUTER RING	442,660	20%	-7,160	-2%	779,600	22%	69,450	10%
GGH	**2,198,560**	**100%**	**-3,110**	**0%**	**3,538,900**	**100%**	**307,520**	**10%**

28 The figures in the table represent jobs with a usual place of work only. "Outer Ring" and "Inner Ring" correspond to areas defined in the Growth Plan: the Inner Ring is the Greater Toronto and Hamilton Area and the Outer Ring is the area beyond that, outside the Greenbelt.



MAP NO. 7 CHANGE IN CORE EMPLOYMENT, 2001–2011



MAP NO. 8 CORE EMPLOYMENT, 2011

THE REGIONAL ECONOMIC STRUCTURE OF THE GGH TODAY

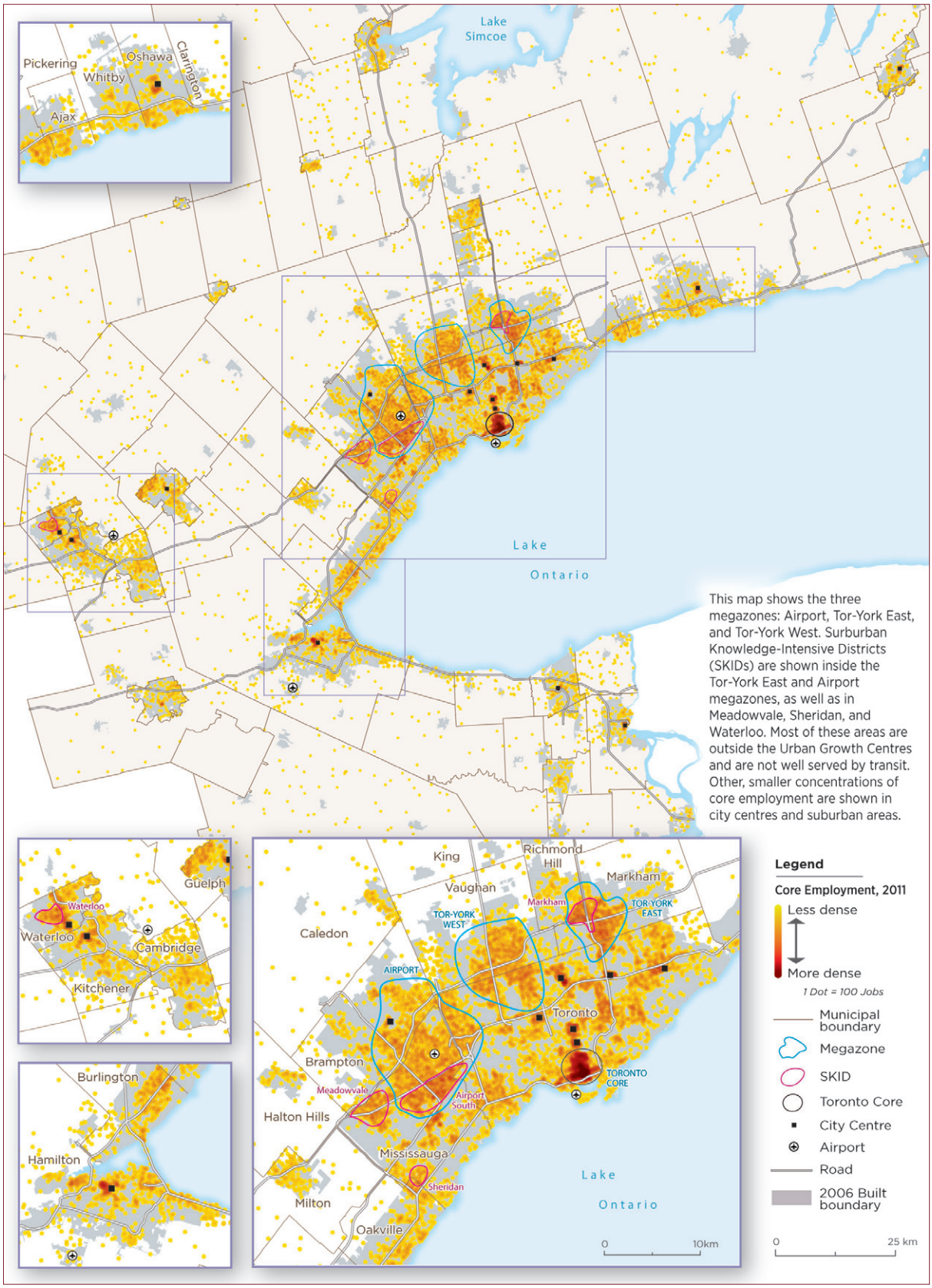
As we have seen, the economic restructuring of the GGH is accompanied by shifting spatial employment patterns and an evolving regional economic geography. Needless to say, it is essential that the Growth Plan policies and structure concept reflect the reality of that regional structure – the key elements of which we describe below.

The structure of the GGH today is characterized by the very dense Downtown Toronto area, along with several other dense, mixed use concentrations of employment across the region. These include the suburban city centres in Toronto and the downtowns of the GGH's older cities.

We have also noted some large and important suburban employment areas, which we call employment "megazones," that straddle municipal boundaries and are poorly served by transit, so they contribute to traffic congestion in the region.

The first megazone, which encircles Pearson airport, we will call the "Airport megazone." The one centred on the 404/407 highway interchange, which includes parts of Markham, the Beaver Creek business park in Richmond Hill, and extends south into the City of Toronto, we will call "Tor-York East." The third – "Tor-York West" – stretches from Highway 400 east to Keele Street in Vaughan and also south into Toronto.

The economic importance of these three megazones, as well as their implications for planning the region, cannot be overstated. Map 9 shows these as well as other important employment areas.



MAP NO. 9 SPATIAL ECONOMIC STRUCTURE OF THE GGH, 2011

DOWNTOWN TORONTO

With almost half a million jobs, Downtown Toronto and its surrounding areas form the region's, and indeed the country's, most significant employment area. Downtown Toronto attracts high value-added and knowledge-intensive industries, such as:

- Media
- Design and architecture
- Digital industries
- Finance
- Business services (law, accounting, advertising, etc.)
- Tourism
- Arts
- Research
- Major institutions, both educational and medical
- Engineering
- Information and communications technology.

Downtown Toronto contains the GGH's most significant concentration of STEM workers, senior managers, and other professional jobs, as well as senior executives in finance, insurance, and business services, representing corporate headquarters and large downtown firms.

Other high-skilled business services occupations (including middle managers and professionals such as accountants, investment analysts, brokers, and management consultants) are also concentrated in Downtown Toronto, along with government workers of all kinds. Routine types of work found in this area include accounting clerks and administrative assistants supporting finance and business services. Overall, Downtown Toronto accounts for 17.5% of core employment in the GGH. Between 2001 and 2011, Downtown Toronto grew by about 42,000 core jobs.

THE MEGAZONES

The Airport megazone, one of the three employment megazones outside Downtown Toronto, is the second-largest concentration of employment in Canada, after Downtown Toronto. It represents almost 300,000 jobs, more than the central business districts of Montreal, Vancouver, or Calgary individually.[29]

Together, the three megazones represent 543,000 jobs (see Table 2). By comparison, Downtown Toronto has about 464,700 jobs. Yet the Growth Plan contains no formal recognition of these areas, let alone any insight into their make-up, their jurisdictional challenges, areas of job gain and loss, or potential for reurbanization.

It is also important to consider the automobile traffic associated with the three megazones. Together, the three megazones generate almost 500,000 daily commuting trips in the morning peak period, of which about 475,000 are car trips. More than half of the work trips are more than 10 kilometres, further exacerbating congestion.[30]

And this number represents only work trips to the megazones. With an equal number of return trips, the contribution of these three employment areas to GGH congestion is substantial – nearly one million car trips daily. In comparison, of the roughly 450,000 daily work trips to Toronto's central business district, only 133,000 are made by car. That is, more than 70% of commuting trips to central Toronto are by walking, cycling, or transit.[31]

In general, the megazones are focused on core employment activities (Table 2). More than 80% of the jobs in the megazones are considered core employment, compared with 63% for the GGH as a whole.

29 We calculate the areas surrounding the airport to represent just under 300,000 jobs in total, roughly the same number today as in 2006. Data cited in Shearmur and Hutton (2011) suggests that in 2006 the CBD of Montreal represented 243,000 jobs, the Vancouver CBD 203,000 jobs, and Calgary's CBD 150,000 jobs.

30 Transportation Tomorrow Survey.

31 Transportation Tomorrow Survey, trips are to Planning District 1, which corresponds to Downtown Toronto.

TABLE NO. 2

MAJOR GGH EMPLOYMENT ZONES, KEY STATISTICS, 2011

	AREA (HA)	ALL EMPLOYMENT, 2001* (% OF GGH)		ALL EMPLOYMENT, 2011* (% OF GGH) (MEGAZONES) DOWNTOWN TORONTO		EMPLOYMENT GROWTH, 2001–2011 (%)		% CORE EMPLOY-MENT 2011	% BY CAR	% OVER 10KM	# AUTO TRIPS
ALL MEGAZONES	25,600	504,540	16%	543,140	15%	38,600	8%	82%	93%	59%	476,000
AIRPORT	15,230	275,440	9%	297,990	8%	22,550	8%	82%	93%	61%	251,000
TOR-YORK WEST	6,690	132,470	4%	138,890	4%	6,420	5%	81%	89%	58%	117,000
TOR-YORK EAST	3,670	96,640	3%	106,260	3%	9,630	10%	85%	94%	53%	92,000
DOWNTOWN TORONTO	2,540	416,540	13%	464,650	13%	48,120	12%	83%	29%	54%	133,000
GGH	3,346,710	3,231,380	100%	3,538,900	100%	307,520	100%	62%	**	**	**

* These figures include only jobs with a usual place of work. Jobs with no usual place of work are excluded.
* These figures include only jobs with a usual place of work. Jobs with no usual place of work are excluded.
** Information on commuting for the GGH as a whole is not available because the Transportation Tomorrow Survey does not cover the entire region. Haldimand County, and parts of Peterborough, Northumberland, and Wellington counties are not included in the TTS.

Source: Statistics Canada, National Household Survey; Transportation Tomorrow Survey. These figures should be considered estimates only.

Clearly, the megazones are a major driver of the regional economy, representing 20% of all core jobs in the region.[32] The megazones are not uniform, however; each represents different industry mixes, economic roles, and functions (see Table 3).

The Airport megazone comprises a range of activities. Not surprisingly, there is a significant concentration of jobs in warehousing, transportation, and logistics – almost 90,000 jobs in these sectors. Industrial uses (manufacturing, construction, and utilities) also have a significant presence – almost 80,000 jobs.

The Tor-York West megazone is more squarely focused on industrial activities, with about 60,000 of its 140,000 jobs in this sector. Warehousing and transportation are also significant, with 23,000 jobs.

The Tor-York East megazone is composed of fairly distinct subareas. It is much more focused on finance and business services, with more than 45,000 of its 100,000 jobs in this category, mainly in the suburban business districts, such as Beaver Creek and Allstate business parks. The remaining jobs are equally split between industrial and warehousing/transportation.

TABLE NO. 3

EMPLOYMENT, SELECTED SUBURBAN EMPLOYMENT AREAS, 2011

LOCATION	CORE							POPULATION-RELATED	TOTAL
	MANUFACTURING, CONSTRUCTION, UTILITIES	WAREHOUSING, TRANSPORTATION	FINANCE, BUSINESS SERVICES	VOLUNTARY SECTOR, GOVERNMENT	HIGHER EDUCATION, HOSPITALS	CULTURE, TOURISM	BROADCASTING, LABORATORIES		
TOR-YORK WEST	57,990	23,150	19,460	3,600	6,930	560	920	25,140	138,890
TOR-YORK EAST	19,190	20,580	45,620	2,130	860	640	1,050	14,630	106,260
AIRPORT MEGAZONE (ALL PARTS)	78,560	87,690	60,340	9,320	390	5,540	3,360	50,870	297,990
AIRPORT CENTRAL	35,690	50,680	20,110	4,790	120	4,510	1,730	18,140	135,980
AIRPORT SOUTH	15,210	21,740	29,010	3,010	200	720	940	16,980	88,610
AIRPORT NORTH	27,670	15,280	11,220	1,530	70	310	690	15,750	73,410
ALL MEGAZONES	155,740	131,420	125,410	15,050	8,170	6,730	5,320	90,640	543,140

Source: Statistics Canada, National Household Survey. These figures should be considered estimates only.

32 Among jobs having a usual place of work.

THE SUBURBAN KNOWLEDGE–INTENSIVE DISTRICTS (SKIDs)

A significant amount of skilled, knowledge-intensive economic activity takes place in suburban business parks and campuses, which we call Suburban Knowledge-Intensive Districts or SKIDs. The jobs in these areas include finance and business services, as well as STEM occupations.

We have identified five SKIDs in the Greater Golden Horseshoe (see Map 9). All of them are suburban business parks, accessible mainly by automobile.

Two are in Mississauga: a sub-area in the southern part of the larger Airport megazone and Meadowvale Business Park. Mississauga's knowledge-intensive business parks contain many life sciences firms, as well as several Canadian head offices, such as GE Canada, General Mills, and Dupont Canada.

A third SKID is part of the Tor-York East megazone in Markham. Markham's business parks include information technology, engineering, finance, insurance and business service firms.

The fourth is in Waterloo, which has a significant number of STEM and ICT (information and communications technology) jobs.

The last major area is centred on the Sheridan Business Park in Oakville.

Table 4 summarizes total employment and core employment statistics for Downtown Toronto, the megazones, and the SKIDs (those located outside the megazones). Core employment is concentrating in these major employment areas, increasing from 37.5% of total GGH core employment in 2001, to 41% in 2011.

KNOWLEDGE-INTENSIVE ACTIVITIES: URBAN VERSUS SUB-URBAN ENVIRONMENTS

Some science-based activities exhibit a strong predilection for corporate, suburban environments, while other knowledge-intensive activities are drawn to Downtown Toronto.

The pattern shown in the mapping is consistent with other research that shows different spatial patterns for different types of knowledge-based industries: "creative" firms (such as media, advertising, design, technology, and software) gravitate to dense, mixed-use, often older urban environments, and science-related firms such as pharmaceuticals or information and communications technology (ICT) to suburban business park locations (Spencer, 2015). This is because inter-firm networks are more important for innovation in creative industries, while larger, science-based companies rely more heavily on intra-firm networks and interactions.

An understanding of the dynamics of location and the importance of the urban environment to economic development has important implications for planning.

TABLE NO. 4

EMPLOYMENT AND CORE EMPLOYMENT, DOWNTOWN TORONTO, MEGAZONES AND SKIDs, 2001–2011

	CORE EMPLOYMENT, 2001 (% OF GGH)		CORE EMPLOYMENT, 2011 (% OF GGH)		CORE EMPLOYMENT CHANGE, 2001–2011 (%)		ALL EMPLOYMENT, 2001 (% OF GGH)		ALL EMPLOYMENT, 2011 (% OF GGH)		ALL EMPLOYMENT CHANGE, 2001–2011 (%)	
DOWNTOWN TORONTO	343,200	16%	385,490	18%	42,290	12%	416,540	13%	464,650	13%	48,120	12%
MEGAZONES (ALL AREAS)	430,300	20%	447,830	20%	17,530	4%	504,540	16%	543,140	15%	38,600	8%
MEGAZONES EXCLUDING SKIDs*	337,300	15%	340,380	16%	3,080	1%	397,040	12%	416,600	12%	19,560	5%
SKIDs WITHIN MEGAZONES	93,000	4%	107,450	5%	14,450	16%	107,500	3%	126,540	4%	19,040	18%
SKIDs OUTSIDE MEGAZONES**	38,960	2%	60,000	3%	21,040	54%	46,530	1%	70,290	2%	23,770	51%
ALL SKIDs	131,960	6%	167,450	8%	35,490	27%	154,030	5%	196,830	6%	42,810	14%
REST OF GGH	1,377,090	63%	1,291,300	59%	-85,800	-6%	2,247,980	70%	2,443,140	69%	195,160	9%
GGH	2,201,670	100%	2,198,560	100%	-3,110	0%	3,231,380	100%	3,538,900	100%	307,520	10%

*The 3 SKIDs that are not already included in the megazones: Meadowvale, Sheridan, and Waterloo.
** Two SKIDs are found in megazones: the Airport South SKID and the Markham SKID.

INDUSTRIAL DISTRICTS

In addition to the industrial areas contained in the megazones, other areas of employment in manufacturing, construction, and utilities are found across the GGH (Map 10). These areas tend not to represent dense concentrations of employment. Areas with significant numbers of such jobs outside the megazones include northeast Scarborough, Pickering, Oshawa, northwest Guelph, Waterloo, and Hamilton.

For industrial occupations, different skill levels tend to be integrated into the same areas; that is, strong patterns of specialization by skill level for these industries is not evident, at this level of analysis.

DISTRIBUTION DISTRICTS

In addition to the concentration of transportation and warehousing employment in the Airport and Tor-York West megazones, distribution activities tend to locate near the region's six intermodal terminals (shown on Map 11) and 400-series highways.

Distribution and logistics activities are a significant and growing sector of the GGH economy. Such facilities include distribution centres for companies such as Indigo, Hudson's Bay, Walmart, Best Buy, and Canadian Tire.

The expansion of these facilities is driven in part by the growth of online shopping, which has reduced the demand for physical retail space relative to sales. Distribution centres are extremely land-consuming uses: one Canadian Tire Distribution centre in Brampton consists of 1.7 million square feet (158,000 square metres) of floor space on 180 acres (73 hectares) of land.

The transition to online shopping is likely still under way. This suggests that distribution and logistics activities are poised for continued growth. For example, the City of Brampton is currently considering a planning application proposing 5.3 million square feet (500,000 square metres) of warehouse distribution and office space, in 11 buildings, each between 300,000 and 400,000 square feet (28,000 and 37,000 square metres), on 320 acres (130 hectares) of greenfield land.

Given the scale of these facilities and their implications for the regional economy, direction from the Growth Plan on where these uses are best located and the amounts of land that should be allocated would help reduce conflicts with other uses, and take efficient infrastructure requirements into account.

CITY CENTRES

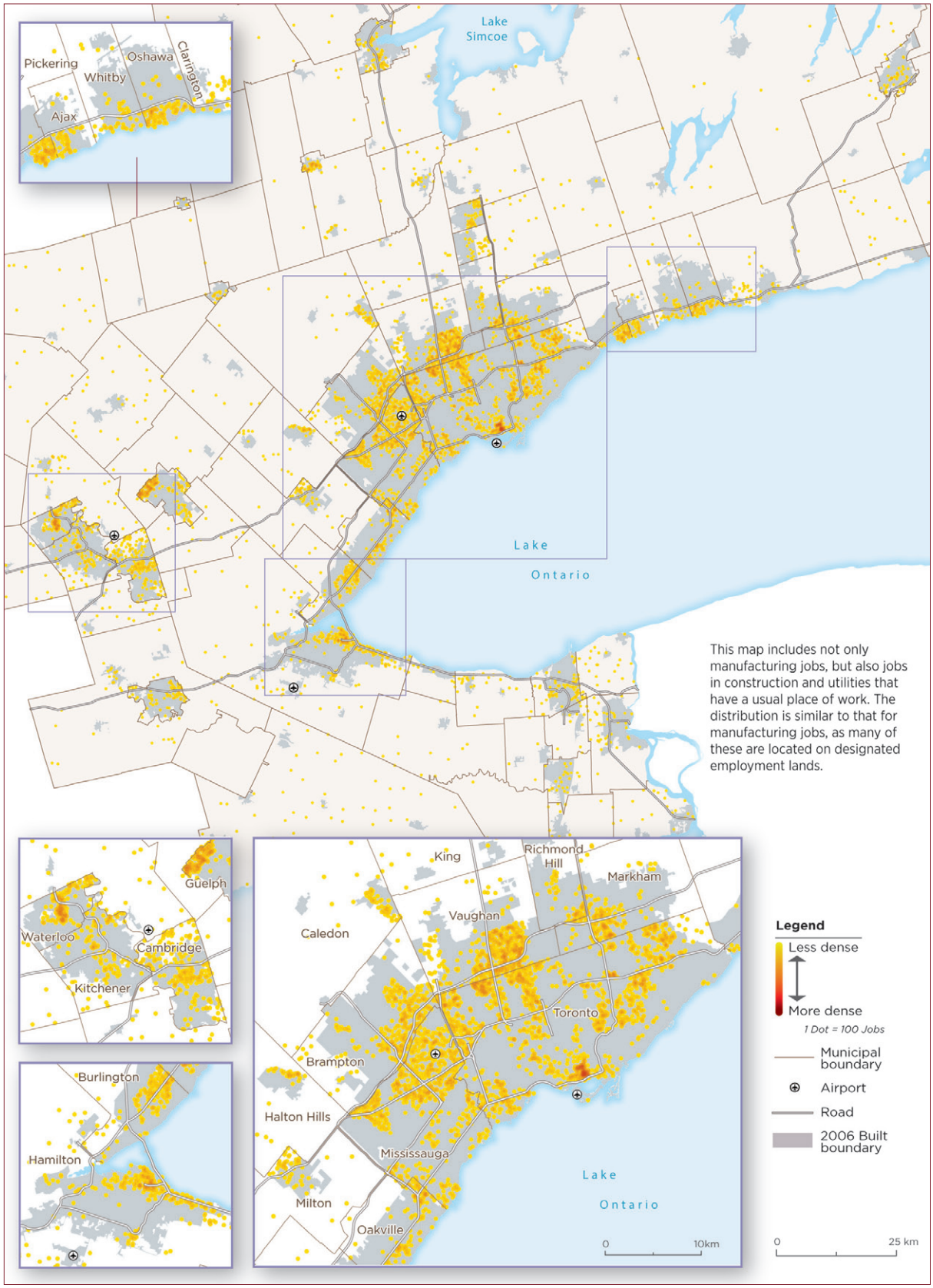
There are of course, many older downtowns in established cities in the region, such as in Hamilton, Burlington, Oshawa, or St. Catharines, as well as suburban centres in Toronto and Mississauga. These areas are distinguished by their higher density, and wide mix of employment uses, as well as residential development.

SPECIAL AREAS

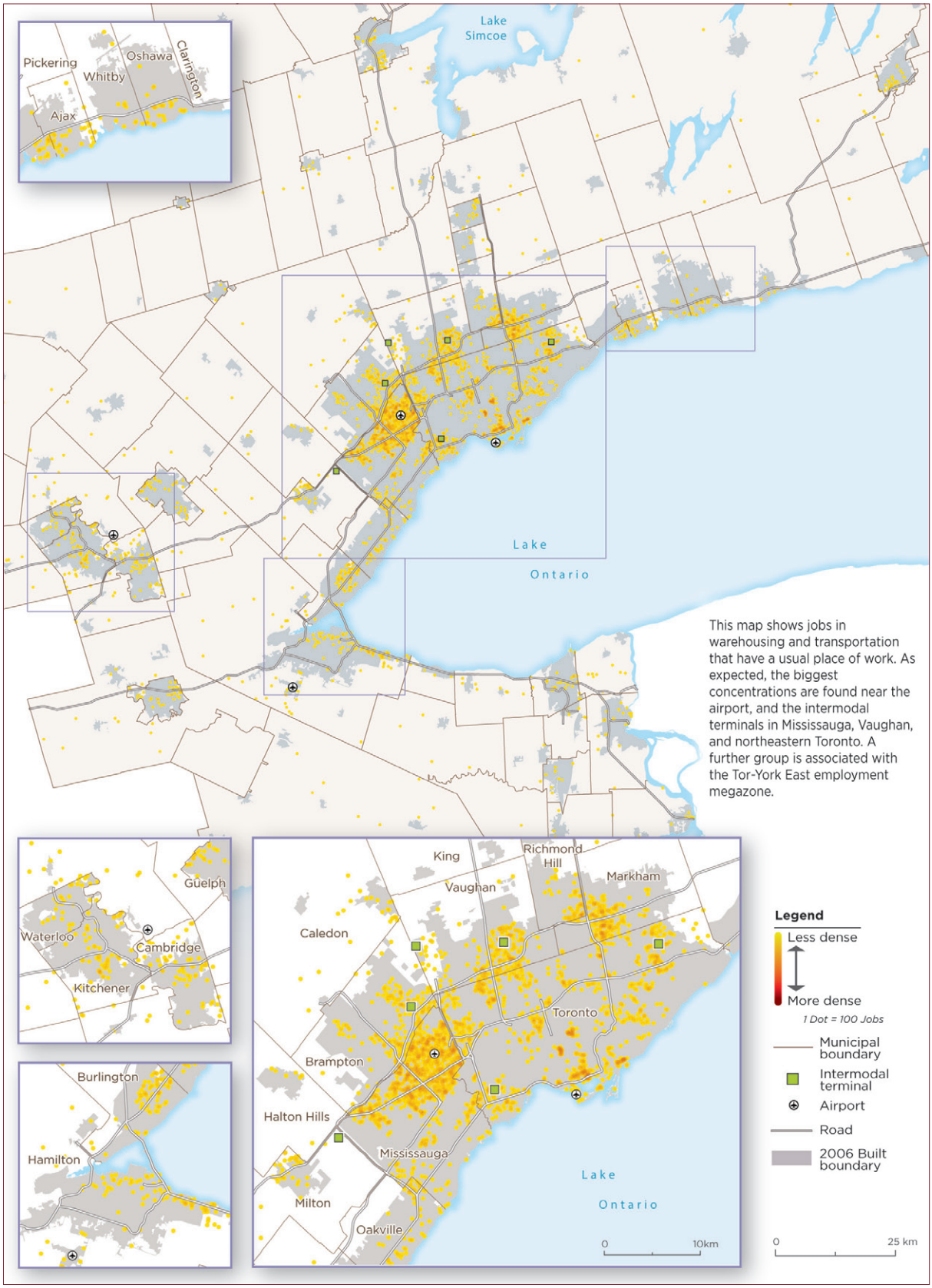
The region's economic geography includes unique or specialized economic areas such as Niagara's wine and tourism industry. Other types of special area may be focused on a specific industry cluster, such as aerospace for example, or a particular economic asset, such as a university or research institute.

***

The Growth Plan does not reflect this regional economic structure. How the Growth Plan might better do so, while taking into account the dynamics of economic change and competitiveness, is addressed in the following section.



MAP NO. 10 INDUSTRIAL EMPLOYMENT, 2011



MAP NO. 11 WAREHOUSING AND TRANSPORTATION EMPLOYMENT, 2011

A TRANSFORMING REGIONAL ECONOMY AND THE GROWTH PLAN

We have seen how the Greater Golden Horseshoe's economy has been transforming in response to competitive pressures stemming from ongoing globalization and technological change.

Does the Growth Plan in its current form address the changing competitive context and spatial economy of the GGH? How could or should the Growth Plan address economic restructuring and promote regional competitiveness? This section addresses these questions, beginning with a summary of the key findings of the analysis.

THE GGH'S CHANGING SPATIAL ECONOMY: KEY FINDINGS

The success of the Growth Plan in achieving key objectives – such as the Urban Growth Centres, compact urban form, supporting a shift to transit, intensification, making efficient use of infrastructure – depends in no small part upon non-residential development. But to date, the Growth Plan has focused primarily on managing residential growth. It has not comprehensively addressed the role of non-residential development in achieving key Growth Plan objectives. Nor has the non-residential element of the Plan been checked to ensure that policies and the spatial vision for the region are grounded in economic reality.

The economic transformation of the GGH presents an opportunity for the Growth Plan to support the competitiveness and prosperity of the regional economy. Urban and regional environments are increasingly central to businesses' ability to compete successfully on a global stage. The Growth Plan could contribute to prosperity with policies that maximize the planning and economic benefits of major investments; encourage built environments that support innovation and networks; and foster an efficient urban form and a regional structure that support transit and labour mobility.

The GGH economy continues to restructure as competitive pressures persist or intensify. The restructuring is often described as a shift from manufacturing to service industries. But the key underlying dynamic is a shift from routine to knowledge-intensive activities.

The shifting economic structure means a shifting regional economic geography. There are clear spatial patterns according to type of activity. Knowledge-intensive activities, such as finance, software creation, or biomedical services, tend to concentrate in a limited number of locations in the GGH. These include Downtown Toronto and the Suburban Knowledge-Intensive Districts (SKIDs). Knowledge-intensive activities have different locational requirements and demands of their built environments compared with more traditional industries; these demands include the quality and character of the work environment, and locations accessible by transit, walking, or cycling.

Other activities, such as construction, manufacturing, or the growing distribution sector, show more dispersed locational patterns, including three suburban employment megazones that dominate the region's economic geography. The biggest of these, the Airport megazone, is the second-largest employment concentration in Canada after Downtown Toronto.

A striking feature of the geography of economic restructuring is the decline of manufacturing across the region, especially in the older industrial areas, which reflects the loss of 200,000 manufacturing jobs since 2001.

How does the Growth Plan address these challenges and opportunities? In the following analysis, we consider our two research questions:

- How is the GGH economy changing, and what are the implications of its emerging geography for the Growth Plan policies and spatial vision?

- How can the Growth Plan support the economic competitiveness and prosperity of the Greater Golden Horseshoe?

ADDRESSING THE REALITY OF THE GGH'S REGIONAL ECONOMIC STRUCTURE

RECOGNIZING AND PLANNING FOR THE MEGAZONES

The economic geography of the GGH is dominated by significant employment concentrations, including Downtown Toronto and the three suburban megazones: Airport, Tor-York West, and Tor-York East. However, these employment megazones are not recognized in the Growth Plan – neither in terms of their economic role and potential, nor in relation to Growth Plan objectives.

Each of the megazones crosses municipal boundaries, both lower-tier and upper-tier. Because of municipal fragmentation, however, these expansive, auto-dependent, single-use, generally low-density employment areas are not comprehensively and uniformly planned. As a result, they are underperforming with respect to Growth Plan objectives such as compact development, complete communities, and a transit-supportive urban form.

- The Growth Plan policy framework and regional structure concept needs to recognize and plan for the three employment megazones.

A COMPREHENSIVE PLAN FOR THE AIRPORT MEGAZONE

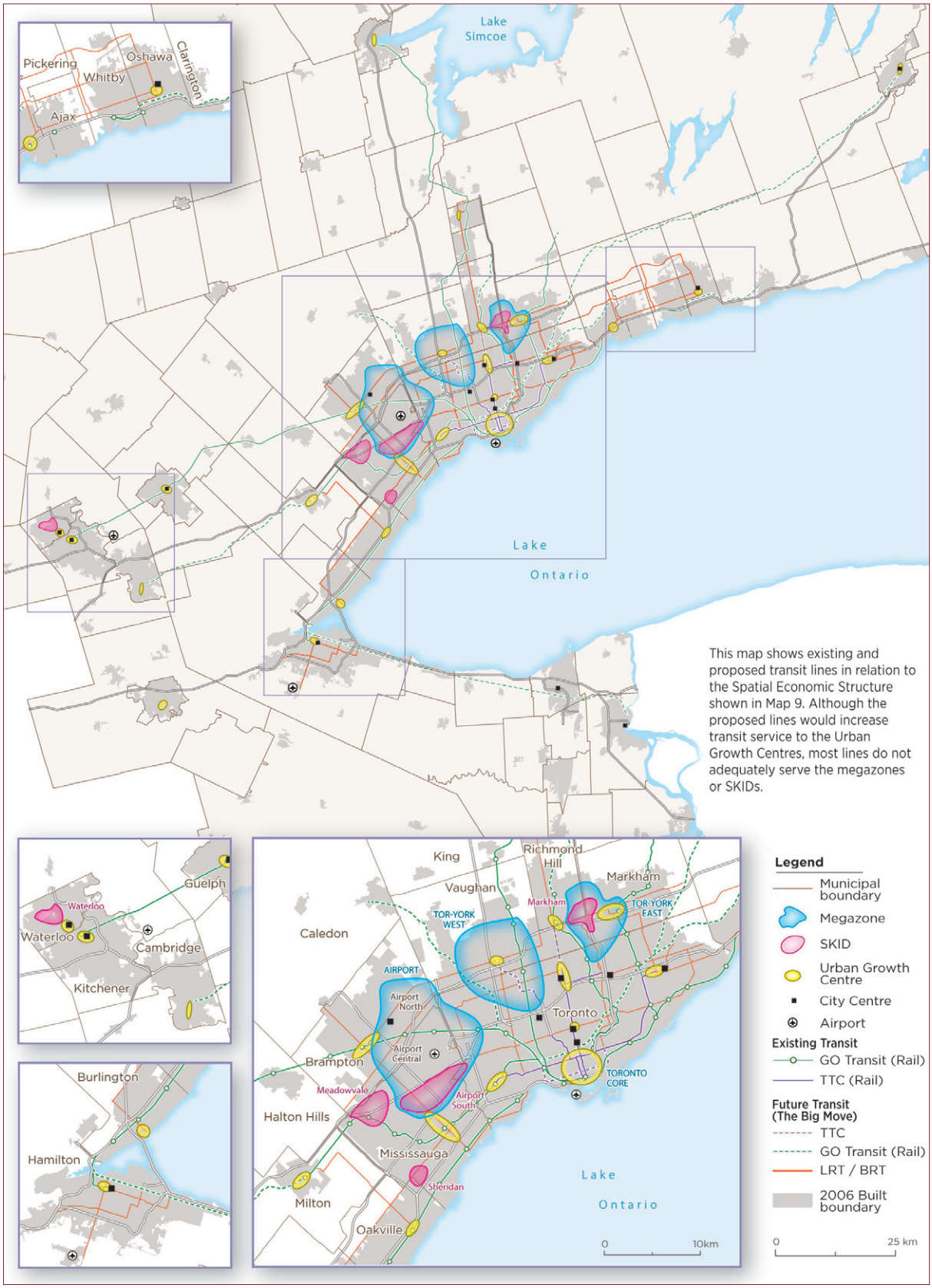
Despite being the second-largest concentration of employment in the country, the Airport megazone is not even mentioned in the Growth Plan.

- With its municipal partners, the Province could initiate a comprehensive planning and reurbanization strategy for the Airport megazone, aimed at significantly reducing auto trip generation by integrating transit, walking, and cycling access; identifying reurbanization and redevelopment potential; broadening the range of employment uses to support clusters and provide amenities to the working population; and creating flexible, responsive land use planning frameworks.

THE RELATIONSHIP BETWEEN THE MEGAZONES AND THE BIG MOVE

Regional transit planning focuses on the UGCs. But the megazones are likely the single biggest source of congestion in the region, and they are not being adequately addressed by current transit planning. Map 12 shows the region's economic structure in relation to *The Big Move* plan for transit. This document, first developed in 2008 by the regional transportation agency Metrolinx and since modified, contains the regional goals for transportation in the Greater Toronto and Hamilton Area, including proposed rapid transit lines.

THE MEGAZONES ARE LIKELY THE SINGLE BIGGEST SOURCE OF TRAFFIC CONGESTION IN THE REGION, AND THEY ARE NOT BEING ADEQUATELY ADDRESSED BY CURRENT TRANSIT PLANNING.



MAP NO. 12 SPATIAL ECONOMIC STRUCTURE OF THE GGH AND THE BIG MOVE

The new transit lines proposed in *The Big Move* plan do not adequately address the employment geography of the region and the primary sources of congestion in the Greater Golden Horseshoe. The plan focuses largely on future, aspirational growth locations, such as the Urban Growth Centres (UGCs), while hundreds of thousands of existing jobs, including many in office uses, remain un- or underserved by transit, especially in the three megazones. Consider the level of transit service to downtown Montreal, for example (68 stations on four subway lines), and compare it with the service contemplated for the Airport district, which has a higher number of jobs.

Recent transit improvements, such as the Mississauga Transitway, and announced plans, such as the Hurontario LRT, will provide some improved transit access to the edges of the Airport District. But the Union-Pearson Express launched in 2015 provides little benefit to the 300,000 workers in the airport area (Kalinowski, 2015).

- *The Big Move* review presents an opportunity for the close integration of planned transit and existing employment concentrations. An integrated, comprehensive approach to providing transit service to the megazones is needed.

- The tension between expressway investments, which have played a decisive role in shaping the employment geography of the region, and transit investments needs to be carefully considered and resolved in conjunction with the regional structure expressed in the Growth Plan.

THE ROLE OF URBAN GROWTH CENTRES

The Growth Plan identifies 25 Urban Growth Centres (UGCs). These are the major element defining the regional structure and the intended focus for denser, mixed-use development and planned transit investment. In the words of the Plan, the UGCs are "to serve as high-density major employment centres that will attract provincially, nationally or internationally significant employment uses [and] to accommodate a significant share of population and employment growth" (Ministry of Public Infrastructure Renewal, 2006, p. 16).

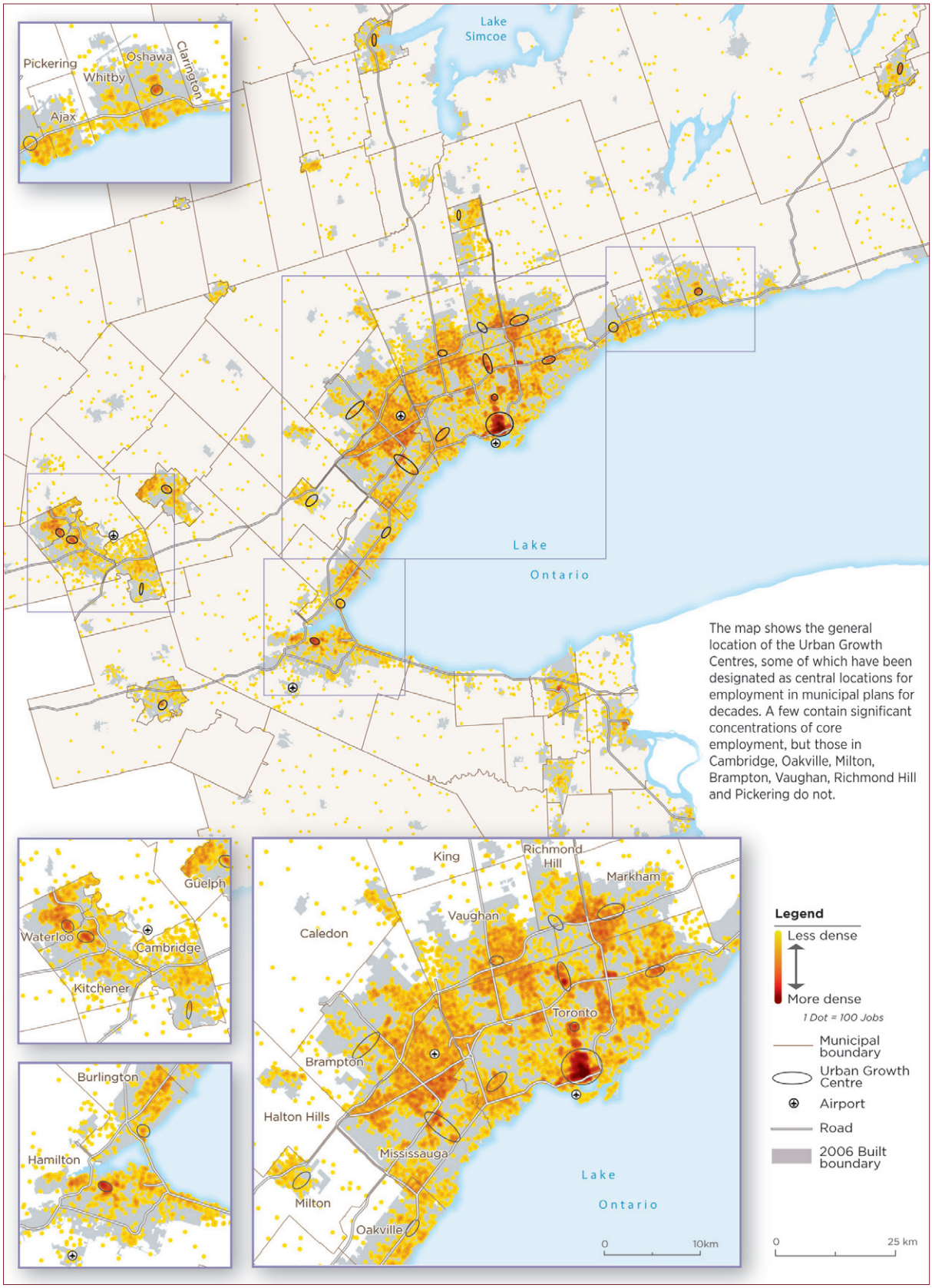
Map 13 shows the 2011 distribution of core employment as well as the UGCs.

The UGCs fall into four categories: Downtown Toronto, the other Toronto centres, planned centres in urbanizing cities, and the downtowns of older established cities. Employment data for each UGC is provided in in Table 5.[33]

Within the City of Toronto, the UGCs do represent significant, dense concentrations of employment, including Downtown Toronto, North York City Centre, the Yonge-Eglinton area, and Scarborough City Centre. All are centred on higher-order transit.

However, outside Toronto – and Mississauga City Centre, which does have a concentration of employment – UGCs in the rapidly growing suburban areas that surround Toronto do not represent significant concentrations of employment. This includes UGCs in Pickering, Markham, Richmond Hill, Milton, and Oakville. Employment levels in these UGCs pale in comparison with those in the megazones and other employment areas.

33 Figures in Table 5 are from MMAH, n.d., and the source is the National Household Survey Place of Work data.



MAP NO. 13 CORE EMPLOYMENT (2011) AND THE UGCs

	2011 JOBS	2006–2011 CHANGE
CITY OF TORONTO		
DOWNTOWN TORONTO	470,400	48,000
YONGE-EGLINTON CENTRE	17,445	2,080
NORTH YORK	38,230	3,960
SCARBOROUGH CENTRE	13,905	-950
ETOBICOKE CENTRE	8,545	-1,070
PLANNED CENTRES		
MISSISSAUGA CITY CENTRE	32,575	3,870
VAUGHAN CORPORATE CENTRE	2,215	155
MARKHAM CENTRE	7,640	-5
RICHMOND HILL/LANGSTAFF	1,840	135
NEWMARKET CENTRE	3,615	-310
DOWNTOWN PICKERING	5,365	135
DOWNTOWN MILTON	3,615	845
MIDTOWN OAKVILLE	2,560	260
OLDER DOWNTOWNS		
DOWNTOWN BRAMPTON	6,755	-3,845
DOWNTOWN BURLINGTON	5,375	-200
DOWNTOWN HAMILTON	19,260	-760
DOWNTOWN OSHAWA	7,695	170
DOWNTOWN BARRIE	5,910	170
DOWNTOWN BRANTFORD	4,650	-1,165
DOWNTOWN CAMBRIDGE	1,795	-765
DOWNTOWN GUELPH	6,345	-770
DOWNTOWN KITCHENER	11,075	365
DOWNTOWN PETERBOROUGH	8,075	-1,010
DOWNTOWN ST. CATHARINES	7,850	-1,465
UPTOWN WATERLOO	7,325	655
TOTALS		
DOWNTOWN TORONTO	470,400	48,000
OTHER CITY OF TORONTO UGCs	78,125	4,020
PLANNED CENTRES	59,425	5,085
OLDER DOWNTOWNS	92,110	-8,960

Source: Ministry of Municipal Affairs and Housing (2015)

TABLE NO. 5

EMPLOYMENT IN URBAN GROWTH CENTRES, 2006–2011

URBAN GROWTH CENTRES IN THE OTHERWISE FAST-GROWING MUNICIPALITIES SURROUNDING THE CITY OF TORONTO HAVE NOT SEEN MUCH EMPLOYMENT GROWTH TO DATE.

Although the Growth Plan was adopted in 2006, most UGCs had been established in regional and municipal Official Plans many years before that date. These include Brampton City Centre, Mississauga City Centre, and Markham Centre. So all else being equal, we would have expected to see growth in these areas by now. However, UGCs in the otherwise fast-growing municipalities surrounding the City of Toronto, which hold the greatest promise in the near term to support the Growth Plan's polycentric regional structure vision, have not seen much employment growth to date.

This fact is illustrated in Map 13, which shows the change in core employment since the adoption of the Growth Plan in 2006. Despite significant core employment growth in these municipalities, most has occurred in auto-dependent business parks and not in the UGCs. In particular, areas in the Airport megazone south of the airport (including the Airport Corporate Centre), as well as business parks in the Highway 404/407 area, Meadowvale, and Waterloo saw substantial employment growth since 2006 – in other words, in the SKIDs (see Table 6).[34]

Much of the employment growth in these areas was in financial and business services, which tend to occupy office buildings and thus have the potential to contribute to denser, more transit-supportive urban form.

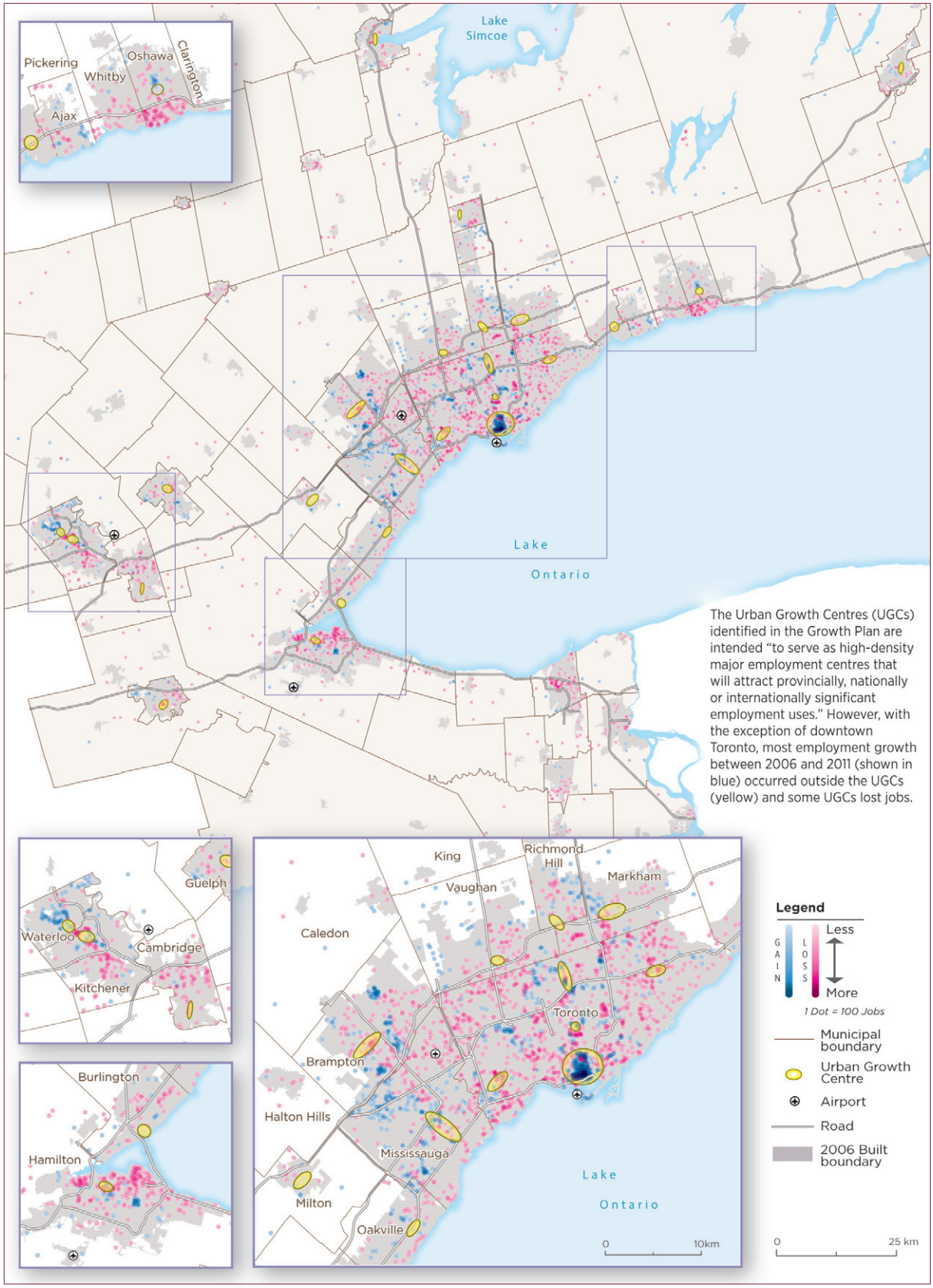
UGCs in the downtowns of established cities have seen declining employment since 2006, with the exceptions of small positive changes in Oshawa, Kitchener, and Waterloo. Many older downtowns are struggling in the wake of ongoing restructuring of the region, suggesting that the success of transit investments in these locations will require an approach that closely integrates economic development.

MISSISSAUGA	
MISSISSAUGA CITY CENTRE UGC	3,870
AIRPORT SOUTH SKID	3,870
MEADOWVALE SKID	6,660
SHERIDAN SKID	1,350
MARKHAM	
MARKHAM CENTRE UGC	-5
MARKHAM SKID	635
WATERLOO	
UPTOWN WATERLOO UGC	655
WATERLOO SKID	4,295

TOTAL EMPLOYMENT CHANGE IN SELECTED UGCs AND SKIDs, 2006–2011

TABLE NO. 6

34 While the *Performance Indicators* report (Ontario Ministry of Municipal Affairs and Housing, 2015) states that a significant portion of office development since 2006 *has* located in UGCs and major transit station areas, most of this transit-oriented development has occurred inside the City of Toronto. About three-quarters of the new office space built in the Greater Toronto and Hamilton Area but outside the City of Toronto – about 6 million square feet – was *not* located in UGCs, but in auto-dependent suburban business parks.



MAP NO. 14 CORE EMPLOYMENT CHANGE (2006-2011) AND THE SELECTED UGCs

Why are many Urban Growth Centres not attracting new jobs?

It is important to understand the reasons behind the lack of employment growth in many UGCs, particularly as these centres are considered key to the success of transit in the region, and to potential transit investments in the billions of dollars.

One set of reasons relates to economic restructuring and the locational preferences of businesses in emerging and growing sectors. We have already noted the tendency of many creative industry firms, as well as finance and business services, to concentrate in dense, mixed-use, accessible urban environments, such as Downtown Toronto. In fact, there is anecdotal evidence of firms relocating from suburban business parks to Downtown Toronto to better attract skilled workers. At the same time, some science-based firms show a preference for suburban business parks over UGCs. Furthermore, the impact of information and computer technologies in slowing the growth (or hastening the decline) of routine, clerical, and back-office uses has added to the lack of demand for suburban UGCs. For many UCGs, especially those without a significant existing critical mass of employment, institutional, public-sector, and population-related office uses will be needed to create a viable centre.

Other explanations have to do with planning and market dynamics. UGCs in suburban areas are competing with office and business parks for development. In general, office and business parks provide cost-competitive locations, with available parking and a permit-ready planning context, providing for relatively certain development timelines and costs. In UGCs, providing adequate parking where transit is not yet in place adds costs that make these locations uncompetitive – especially where structured or underground parking is required. Moreover, in the absence of prezoning that allows for higher densities, office development in UGCs is faced with a longer, uncertain, and more costly planning approvals process.

Finally, attracting development to UGCs is only one-half of the equation. A too-plentiful supply of competing development opportunities in suburban office parks and other locations could undermine the development potential of the UGCs. For example, there are significant office uses, not just in the suburban business parks, but also in many suburban industrial areas. The Tor-York West megazone, for example, which tends to be more industrial than the other two megazones, includes about 20,000 office-type jobs. The Airport megazone and Meadowvale together represent about 75,000 office-type finance and business service jobs (see Table 3, above).

In effect, the Growth Plan itself may be undermining the UGCs: 25 UGCs compete with each other to attract office development, along with 333 Major Transit Station Areas (MTSAs) identified in Official Plans,[35] as well as with intensification corridors, the megazones, and the SKIDs.

- An evidence-based, strategic regional planning approach to office uses is required that is realistically and deliberately integrated with transit planning, and identifies priority office locations. This approach will require a region-wide assessment of future long-term demand for office uses, taking the geography of structural economic change into account, and the potential supply implied by planning policies. Obstacles to development at priority office locations, such as restrictive planning frameworks or financial misincentives could be identified and strategies for overcoming them proposed.

- Planning policy for the UGCs needs to address both demand, by creating appropriate, competitive development opportunities, and supply, by limiting competing opportunities.

35 Ontario Ministry of Municipal Affairs and Housing (2015), page 10.

ADDRESSING ECONOMICALLY SIGNIFICANT AREAS

STRATEGIC EMPLOYMENT LANDS

Lands that are regionally significant by virtue of being associated with strategic industry sectors or clusters could benefit from identification and special designation in the Growth Plan. A regional-scale approach can prevent the overdesignation of lands, usually greenfields, that results from competition among municipalities. Municipalities usually want to keep large sites available in case an important new business or manufacturing operation requiring such a site wants to locate there. However, if all municipalities in the GGH do this, the result is the overdesignation of greenfield lands.

- The Growth Plan could identify strategic employment lands at the regional level, so they can be managed more effectively from a regional land supply and infrastructure perspective, and planning can be better coordinated with regional economic development.

OPTIMIZING EXISTING ASSETS AND FUTURE INVESTMENTS

The Growth Plan does not contain policies to maximize the economic and planning potential of major investments. There is an important opportunity for the Province to coordinate its many ongoing investments in infrastructure and facilities such as universities, hospitals, or court buildings with planning and economic development. The key is to consider significant investments in facilities and institutions in broader economic and urban terms, in order to realize their potential.

- The Growth Plan could contain policies to strategically locate major facilities to fully leverage their broader economic and urban development potential. In addition, policies could be adopted to coordinate land use, design, planning, and economic development frameworks around major assets.

MUNICIPALITIES USUALLY WANT TO KEEP LARGE SITES AVAILABLE IN CASE AN IMPORTANT NEW BUSINESS WANTS TO LOCATE THERE, BUT IF ALL THE MUNICIPALITIES IN THE GGH DO THIS, THE RESULT IS THE OVERDESIGNATION OF GREENFIELD LAND FOR EMPLOYMENT.

ACKNOWLEDGING AND ADDRESSING DECLINE

The Growth Plan is, not surprisingly, focused on managing growth. But the ongoing restructuring of the region's economy also involves decline in certain sectors and locations. The loss of 200,000 manufacturing jobs in the space of a decade is a sharp indicator of the dual-edged nature of globalization. While in some localities, employment in new and emerging sectors is compensating for job loss, some municipalities are suffering job loss without the prospect of new jobs.

- The Growth Plan could identify key areas for strategic reinvestment, including those most affected by restructuring, closures, and job loss, to which future development and investment could be directed. This approach would not only support Growth Plan objectives such as reurbanization, but also support regional economic development.

REURBANIZATION OF EMPLOYMENT AREAS

Although intensification is mentioned in the Growth Plan as an objective for both population and employment, there are no specific policies in the Plan to bring about employment intensification.

Employment intensification in the GGH to date has tended to focus on the intensification of main streets and the redevelopment of brownfields, but the reurbanization of other kinds of employment areas is equally important. There is a tendency to designate new employment lands without adequately taking into account changes in existing employment areas or considering their potential to accommodate growth. Indeed, most municipalities in the GGH are experiencing job loss in their older employment areas at the same time as job growth in newer, peripheral areas. These older employment areas represent a potential supply of employment land that could reduce the need to expand at the urban edge.

Reurbanization of existing employment areas should be a central thrust of the Growth Plan. There are many compelling reasons to promote employment intensification and the reurbanization[36] of employment areas in the Growth Plan (see text box on the next page).

36 The Growth Plan uses the term "intensification" to mean development or redevelopment within the existing urban area. Here we use the term reurbanization to signal a more comprehensive approach to the renewal and replanning of already urbanized areas.

WHY REURBANIZE?

- Reurbanization of production areas is central to achieving Growth Plan objectives relating to compact urban form, transit-supportiveness, "optimizing the use of the existing land supply," and "a new approach to city-building in the GGH, one which concentrates more on making better use of our existing infrastructure, and less on continuously expanding the urban area."
- Reurbanization is central to creating an urban environment in production areas that supports their continued vitality and ability to respond to the changing demands associated with economic restructuring. In particular, there is a need to renew and update many industrial and office areas to make them attractive to emerging and growing economic activities.
- Reurbanization can boost the competitiveness of existing businesses, by providing more, and more varied, types of development opportunities, while supporting clusters, innovation, and an efficient urban form.
- Reurbanization means building upon, rather than abandoning, existing economic assets, such as physical infrastructure, established businesses, and accessible locations closer to residential areas.
- Reurbanization takes advantage of the development potential of low-density employment areas with relatively small building footprints and large surface parking lots.
- Reurbanization provides an opportunity to increase the transit-supportiveness of employment areas. Reurbanization could help improve the efficiency of the megazones, and reduce the road congestion associated with them.

A differentiated strategy is called for, since not all employment areas are alike and have similar features or problems. Certain industrial districts, for example, could be replanned to provide more diverse development opportunities to accommodate an evolving industry mix or clusters of related firms. In business parks, the quality of the urban environment could be improved to attract investment and economic activity, make more efficient use of land and other embedded assets, and integrate redevelopment with transit investments. Reurbanization plans must promote the competitiveness of production areas, while avoiding the introduction of destabilizing land uses.

Despite the compelling rationale for reurbanization, current planning tends to be proactive for greenfields development, but reactive – and therefore slow, costly, and uncertain – for development in already urbanized areas. The playing field should be levelled by (1) proactively planning for reurbanization, and (2) putting as-of-right frameworks in place, particularly in economically strategic locations.

To this end, the Growth Plan could include policies to require municipalities:

- to review their inventory of employment lands to identify priority areas for reurbanization based on their need for renewal, redevelopment opportunities, potential to reduce automobile trips, demand related to long-term economic restructuring, and other criteria identified in the Plan
- to create and implement planning frameworks that facilitate as-of-right development and appropriate urban design frameworks in areas identified for reurbanization
- to report regularly to the Province on their inventory of employment development and redevelopment potential, and track new development on greenfields versus within the urban boundary.

THE LAND SUPPLY PLANNING PROCESS

The main policies in the Growth Plan that explicitly address competitiveness are those aimed at ensuring an adequate supply of land for employment uses.

The Province creates employment projections for the Greater Golden Horseshoe, currently to the year 2041. Employment growth is then allocated amongst the municipalities in the region. Each municipality undertakes a "land budget" to determine how much, if any, greenfield land must be designated for employment in order to accommodate the allocated growth. Then municipal Official Plans must be amended to reflect the allocated growth and new designations (the "conformity" phase). In fact, a current round of conformity to bring Official Plans into line with recently updated population and employment projections is now under way.

INCORPORATING THE DYNAMICS OF ECONOMIC RESTRUCTURING IN DEVELOPING EMPLOYMENT PROJECTIONS

The current method for forecasting employment in the GGH (Hemson Consulting, 2012) derives total projected employment numbers from population forecasts. Some adjustments are made to reflect structural changes and trends. Employment growth is allocated to four categories:

- population-related
- major office
- "employment lands employment"[37]
- rural-based.

These employment categories are very broad, and mask a great deal of diversity. Our analysis of economic change suggests that each category would include a range of diverse activities, some growing, some contracting; with diverse spatial patterns within the region, and diverse and changing requirements regarding preferred urban environments, building types and location.

The Growth Plan requires municipalities to provide for employment uses "taking into account the needs of existing and future businesses" and the "range and choice of suitable sites." The forecasts do not help much in this regard. And this requirement is not accompanied by any further guidance – based on an analysis of the changing nature of the regional economy and changing locational and work environment preferences – on what those needs might be.

Moreover, the use of very broad categories – especially "major office" and "employment lands employment," sets up a planning process that can lead to planning primarily for only two types of urban production environment when a more nuanced, differentiated approach is needed.

- The Growth Plan employment forecasting approach needs to be reviewed and updated to place more emphasis on the dynamics of change and the economic geography of restructuring in the region, providing more detailed information to inform the planning process.

THE GEOGRAPHY OF DEMAND AND THE ALLOCATION OF EMPLOYMENT TO MUNICIPALITIES

The Growth Plan requires each municipality to accommodate a certain amount of employment growth, based on the forecasts to 2041. Forecasted employment is allocated geographically to municipalities based on planning itself. "The distribution of future employment growth considers where growth is directed through planning and the ability of municipalities in the GGH to accommodate different types of employment."[38]

37 Employment lands employment refers to employment accommodated "primarily in low-rise industrial-type buildings, the vast majority of which are located within business parks and industrial areas" (Hemson Consulting, 2012, p. 30).

38 Forecasts are prepared for each of five "Sub-Forecast Areas." Within each Sub-Forecast Area, total employment is broken down into the four land use categories and allocated by type to municipalities within the Sub-Forecast Area (Hemson Consulting, 2012).

But demand may not materialize where planning documents and vacant lots suggest, so this directive approach likely overstates the influence of planning over business location. This supply-side approach can also put municipalities at a disadvantage if demand for employment uses does materialize, but their Official Plans do not permit it in the form and location demanded – prompting time-consuming amendments to zoning or plans, or resulting in the proposed development locating elsewhere. The opposite issue also causes problems, if growth is planned for and infrastructure investments made, but employment does not materialize in those locations.

- When allocating forecasted employment to GGH municipalities, the realistic demand for different types of economic activities in different locations within the region should be taken into account, as well as the potential supply of development opportunities.

LAND BUDGETS AND THE GEOGRAPHY OF ECONOMIC RESTRUCTURING

The Growth Plan requires municipalities to accommodate their allocation of forecasted employment by providing an "adequate" supply of lands, and by protecting existing employment lands from conversion to other uses.

The Province's *Projection Methodology Guideline*, developed in 1995,[39] outlines four categories to be included in the preparation of an inventory of employment lands to be used in establishing land need:

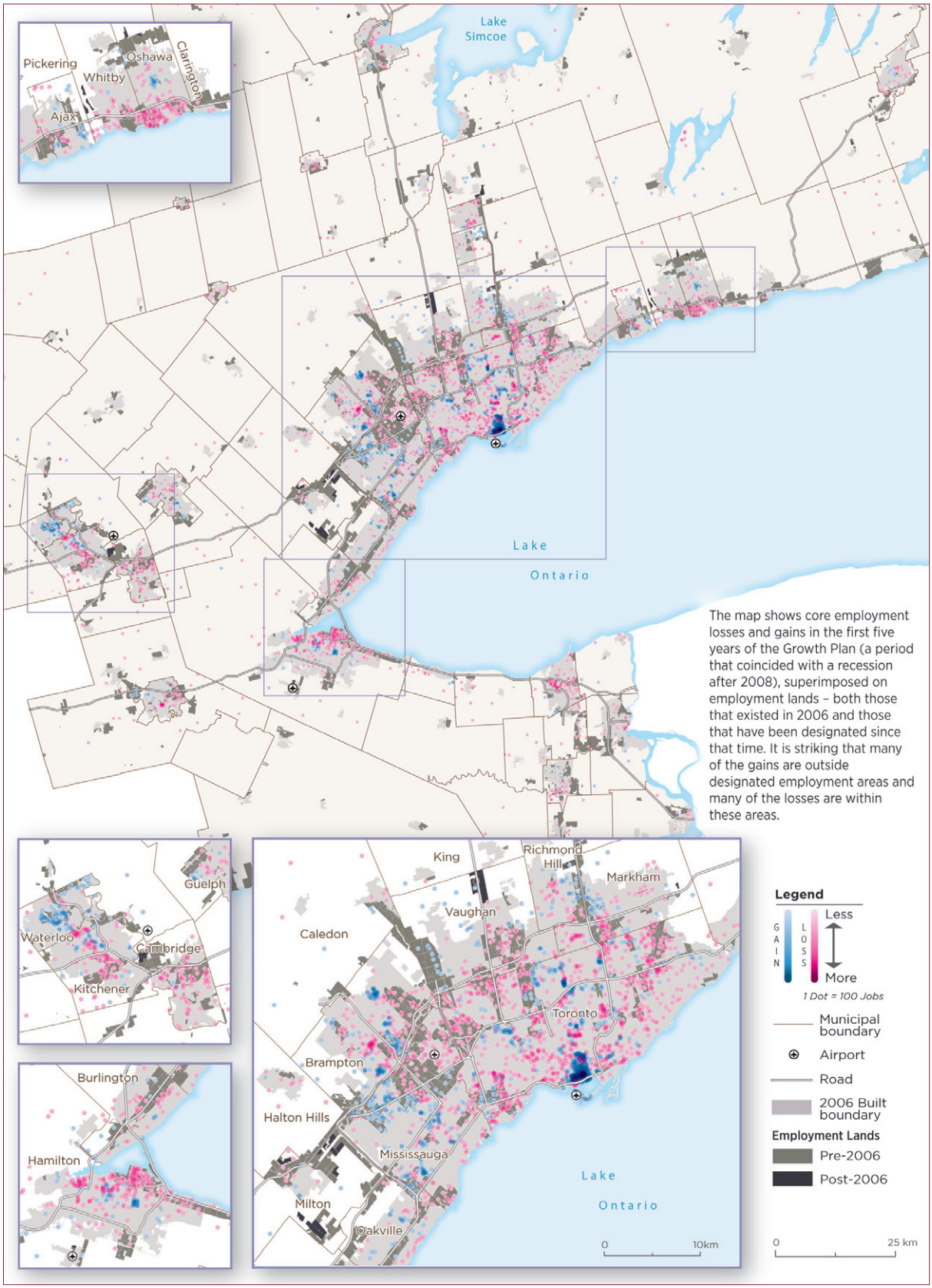
- existing developed employment lands
- registered lots and blocks
- draft-approved lots or blocks
- designated lands with or without an application.

The last three categories generally refer to greenfield sites in various stages of approval. With respect to the first category, it is not altogether clear what types of development or development opportunities are to be considered as contributing toward available supply. Vacant floorspace? Underutilized sites? Vacant sites in the already urban area? What is included will affect the determinations of additional greenfield land needed for employment uses. The issue is of course critically linked to Growth Plan objectives, such as compact urban form, intensification, and the efficient use of land and infrastructure.

The issue is particularly important in the context of the geography of economic restructuring. Do the determinations of land supply need take into account a restructuring regional economy and job loss? Is the land budgeting analysis dynamic, that is, does it consider *future* land supply opening up on what are today occupied employment lands? The past round of land budgeting could have, for example, entrenched an oversupply of greenfield lands, if deindustrialization was not adequately taken into account.

Map 15 shows designated employment lands, differentiating lands that have been newly designated since the Growth Plan was adopted in 2006. It also shows change in core employment between 2006 and 2011.

39 Although the Growth Plan does not require municipalities to use a specific method in developing a land budget (a problem in itself that can lead to inconsistencies), in practice, many use some form of the *Projection Methodology Guideline* developed by the Ontario Ministry of Municipal Affairs and Housing in 1995 (MMAH, 1995). It is cited in section 4.2.1 of *Planning for Employment in the Greater Golden Horseshoe* as "the current framework for the municipal analysis of land availability."



MAP NO. 15 CORE EMPLOYMENT CHANGE (2006-2011), AND EMPLOYMENT LANDS

The map indicates substantial and widespread employment loss in employment lands. At the same time, new employment areas were established in greenfield areas, notably in Simcoe County and the City of Vaughan. While some growing employment uses may not be suitable for existing or older urban areas, such as distribution centres, it is important both for achieving Growth Plan objectives and for economic competitiveness that the amount of employment land needed is not overestimated, and that the geography of economic restructuring is factored into the determination of land uses.

- Economic restructuring, deindustrialization, and other important dynamics of change have important implications in terms of the type and location of land uses and development opportunities that must be planned for, as well as for the potential supply in existing employment areas. The land budgeting process could be reviewed and updated to better account for these dynamics.

THE CONFORMITY PROCESS

The trouble with the GGH employment forecasts is not just the forecasts *per se*, but how they are used in the planning process. The approach is rigid: regional and single-tier municipalities are given a precise number of jobs and population growth to plan for, in combination with a requirement to provide an adequate supply of land to accommodate the allocated growth.

Lower-tier Official Plans must then be brought into conformity with upper-tier plans, which themselves must conform to the Growth Plan. As of mid-2015, many municipalities still had not completed the Official Plan conformity process.[40] With the Growth Plan review process currently under way, we confront the possibility of initiating the next round of the conformity process before the first round is complete.

Furthermore, if the employment allocation is overestimated for a particular municipality, then too much greenfield land may be entrenched in an Official Plan, undermining Growth Plan objectives for compact urban form. If too little land has been designated, then either a development that exceeds the requirements may have to be forfeited or a lengthy planning process is required to bring it about. This lack of flexibility encourages municipalities to be generous in determining the land needed to accommodate employment in the Growth Plan conformity process, to keep their options open. This may be one reason why the land designated for urbanization in Official Plans as a result of conformity was about equal to the amount the Growth Plan was originally intended to constrain (Allen and Campsie, 2013).

This lengthy and cumbersome conformity process is a problem in and of itself, in relation to costs, flexibility, and responsiveness. It is estimated that auto-dependent suburbs

40 Revised official plans for the Regions of Durham, York, Halton, Waterloo, and Niagara, the cities of Toronto, Hamilton, Kawartha Lakes, and Barrie, and the counties of Northumberland, Simcoe, Dufferin, and Brant are not yet in effect, either because they have not yet been approved or because they have been appealed in whole or in part to the Ontario Municipal Board (Ontario Ministry of Municipal Affairs and Housing, 2015).

grew by about 380,000 people in just the first five years since the Growth Plan was adopted, in the Toronto CMA alone (Gordon and Janzen, 2013). On the non-residential side, the region may have "benefited" from the fact that development was slow during this period – given the financial crisis of 2008 and ongoing de-industrialization – moderating the demand for greenfield development during that period.

- It may be useful as part of the review of the Growth Plan to explore ways of streamlining the conformity process, and providing options for municipalities to respond flexibly and efficiently to evolving economic demand, while securing key planning objectives.

For example, forecasts might be used as a useful baseline; but informed by more in-depth qualitative analysis provided by the Province of changing industry structure and conditions and drivers of change.

DO CURRENT DETERMINATIONS OF LAND SUPPLY TAKE INTO ACCOUNT JOB LOSSES? DOES THE LAND BUDGETING PROCESS CONSIDER FUTURE LAND SUPPLY OPENING UP ON WHAT ARE TODAY OCCUPIED EMPLOYMENT LANDS?

MAKING PLANNING MORE FLEXIBLE AND RESPONSIVE

The question of embedding forecasts in the Growth Plan raises an important broader issue, which is the tension between an increasingly dynamic and evolving regional economy on the one hand and a slow and static planning system on the other. The dynamics of employment uses are more complex and diverse than those of residential development. Firms seek competitive advantage by being responsive to the market, which requires flexible and adaptable production. As well, the integration of the GGH into a global economy can mean more volatility and uncertainty, as we saw with the financial crisis of 2008.

The suggestions provided above, such as employment projections that provide more detail on the changing nature and geography of economic activity, would support more effective planning. But ultimately the best answer lies in finding innovative ways to make planning frameworks and processes inherently flexible and responsive. A critical component is supporting innovative local planning frameworks for production areas that address needs of business, through, for example, urban design and greater flexibility of uses.

- The Province could undertake to explore and promote innovative planning frameworks and processes that provide greater flexibility and address the needs of GGH businesses.

THE NEED FOR EVIDENCE-BASED POLICY

The Greater Golden Horseshoe represents one-quarter of the national economy and two-thirds of the provincial economy (Brown and Rispoli, 2014). Public investments of billions of dollars in infrastructure are pending. Grounding the Growth Plan in an understanding of the dynamics of economic restructuring is essential to the prosperity of the region and province.

The need to provide a strong evidence base on the economic context for the Growth Plan cannot be overstated. For example, it would be useful to have a better understanding of where the GGH is in the restructuring process. Is more deindustrialization and loss of routine activities to come? If so, in what sectors or activities? What other sectors show strong growth potential?

At this point, we do not have a detailed answer to these questions. But it is likely that different parts of the region are at different points in the restructuring process. For example, the oldest industrial areas, which housed the most traditional manufacturing industries, were found in the centres of older cities. Many of these areas have already undergone deindustrialization and are now experiencing regeneration. For example, former industrial buildings west of downtown Toronto have been successfully repurposed and are now occupied by a range of new economy firms or converted to residential use. In other parts of the region, the deindustrialization process may still be under way – as with the pending closures of production lines at the Oshawa GM plant, for example.

The next wave of job loss is likely to occur in low-value-added, routine economic activities – so it would be useful to have a better understanding of where these kinds of activities are currently located.

Further analysis can also help identify areas of opportunity that have development potential and embedded economic assets that can be built upon. For example, knowledge-intensive and high-value-added activities, like finance, ICT services, life sciences, or engineering tend to concentrate in Downtown Toronto and the suburban knowledge-intensive districts (SKIDs). Given that these industries are well positioned for future growth, their geographical distribution can help us understand where future growth pressures are like to occur.

Another question is related to the current and future locations for "creative" activities, which tend to cluster in mixed-use, diverse, dense, walkable, and cycle-friendly urban environments. These activities not long ago inhabited vacant factory space on the edges of downtown Toronto. They have since been forced farther out to the next post-industrial ring (such as the West Queen West/Lansdowne area) as sites closer to downtown become more expensive and factories are converted to apartments and offices. If these industries are poised for further growth, and as former factory and warehouse spaces in the older urban areas get used up, where will they be accommodated?

The absence of a regional economic development strategy for the Greater Golden Horseshoe makes the task of aligning planning policy with economic development challenging. The development of such a strategy, as called for by others, including the Toronto Region Board of Trade, would be extremely helpful.

This report has pointed to some key areas for further research and information-gathering to support the Growth Plan.

- Research is needed that provides more detail and analysis on the process of economic restructuring. At what point is the GGH in the restructuring process? How much more deindustrialization can be expected, where, and in what kinds of economic activities?

- More detail on the spatial patterns of change with respect to different types of economic activity would be helpful. What and where are the growing industry clusters and activities? What are the key factors for their success?

- At the moment there is no regional employment or non-residential building data bank that can be drawn upon to inform planning. The Province could, in collaboration with municipalities, address the data and analysis deficit by collecting, analyzing, and making available key spatial, development, and economic data for the region.

- As well, the Province could support local planning by providing research and evidence to municipalities, for example, on best planning practices and innovative planning frameworks in other urban regions that support flexibility, innovation, and clusters. There are some excellent models for this, including the Initiative for a Competitive Inner City's "What Works for Cities," and the U.K. government's "What Works Centre for Local Economic Growth."[41]

- More detailed tracking of planning and non-residential development patterns is needed to provide ongoing input and feedback to the planning process. The Province could establish an inventory and track the designation of employment lands, as well as non-residential development in the GGH. Municipalities could be required to report regularly on these matters using the provincial model of Financial Information Return reporting.

41 See the list of references at the end of the paper for weblinks to these initiatives.

THE CO-ORDINATED REVIEW OPPORTUNITY

The Growth Plan can support the prosperity of the Greater Golden Horseshoe. Regional structure, urban form, planning and providing for the right kinds of economic activity, and the quality and characteristics of the urban environment all contribute to the competitiveness of GGH firms. At the same time, grounding the Plan in an understanding of economic change is central to achieving key planning objectives, such as a transit-supportive urban form, efficient infrastructure, and complete communities.

The current Co-ordinated Review offers an opportunity to create a plan for the GGH that makes the most of our investments, and is anticipatory, flexible, focused, and based on an understanding of the dynamics of economic change in the region.

For example, there is an opportunity to think of "employment" in relation to regional planning in a new way – not just as something to be "accommodated" by providing a supply of land, but also in terms of its economic development potential and its role in shaping the urban environment and supporting transit investments.

There are challenges. Dealing with the ongoing uncertainty and volatility of a regional economy that is increasingly globally integrated is one. There is also a tension between the economic need for responsiveness and flexibility, and traditional planning approaches, which tend to be rigid and static. Some types of economic activities, such as distribution centres, do not align well with conventional planning objectives, and need to be strategically addressed. And of course, there is the need to plan appropriately for areas of the region negatively impacted by restructuring.

But the good news is that there are many natural synergies between economic restructuring and competitiveness, on one hand, and the Growth Plan and city-building on the other. Proximity, concentration, diversity, interaction, accessibility, efficiency, and the quality of the urban environment – these elements are at the heart of the evolving economy. With the right policy approach, these synergies can be exploited to support a livable, sustainable, economically dynamic region.

THERE ARE MANY NATURAL SYNERGIES BETWEEN ECONOMIC RESTRUCTURING AND COMPETITIVENESS ON THE ONE HAND, AND THE GROWTH PLAN AND CITY-BUILDING ON THE OTHER.

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APPENDIX A: GROWTH PLAN POLICIES ON EMPLOYMENT AND THE ECONOMY

The main Growth Plan policies for employment and competitiveness are summarized below.

ACCOMMODATING PROJECTED EMPLOYMENT GROWTH

The current version of the Growth Plan contains population and employment forecasts to 2041 for the GGH. For employment, the 2041 projection is for 6.3 million jobs. This projected growth of 1.8 million jobs is then allocated amongst the upper- and single-tier municipalities that make up the region. Plans in these municipalities must reflect and accommodate their growth allocation.

THE SETTLEMENT AREA

The Growth Plan defines a settlement area. The settlement area comprises two parts: existing urban areas, termed *"built up areas,"* and greenfield areas that have been identified for urbanization, and have been so designated through a municipal Official Plan – called *"designated greenfield areas."*

Urban growth is to be directed to settlement areas. [S 2.2.2] So the settlement area defines a de facto urban boundary for the region. Expansions to settlement area boundaries can take place only through a municipal comprehensive review, and are subject to certain criteria, including a requirement that employment lands in expansion areas serve a maximum 20-year demand outlook. [S 2.2.8]

EMPLOYMENT LANDS POLICIES

The main way in which the Growth Plan seeks to promote competitiveness is by ensuring an adequate supply of land for employment uses. Key policies in this regard relate to employment lands. [S 2.2.6]

The Growth Plan requires municipal official plans to ensure a supply of land that will accommodate their share of projected employment growth, in terms of both the amount of land and the ability to accommodate a range of employment uses. [S 2.2.6]. The Growth Plan directs municipalities to provide for an "appropriate" mix of industrial, commercial and institutional uses and a range of sites, taking into account "the needs of existing and future businesses."

This requirement includes planning policies for employment uses in relation to major infrastructure:

> *Municipalities are encouraged to designate and preserve lands within settlement areas in the vicinity of existing major highway interchanges, ports, rail yards and airports as areas for manufacturing, warehousing, and associated retail, office and ancillary facilities, where appropriate. [S 2.2.6]*

The Plan also includes policies relating to planning for, protecting, and preserving employment areas for current and future uses. *Employment areas* are defined as those areas "designated in an official plan for clusters of business and economic activities including, but not limited to, manufacturing, warehousing, offices, and associated retail and ancillary facilities."

The Plan also contains robust policies aimed at maintaining the existing supply of employment lands by protecting *employment areas* from conversion to other uses. In particular, sites in *employment areas* can be converted to non-employment uses only through a municipal comprehensive review.

The Plan does not identify specific employment lands in the GGH, except for four in the Simcoe Sub-area Plan, the subject of an amendment to the Plan (see below).

In the Growth Plan, "employment lands" is not a defined term, and seems to include all kinds of districts that contain employment, including Urban Growth Centres, downtowns, and Major Transit Station Areas. But the term "employment lands" more colloquially is used to refer to industrial areas, or business or office parks, rather than areas of more concentrated, mixed uses like downtowns or UGCs.

DIRECTING OFFICE USES

A key intention of the Plan is to direct *major office uses* (defined as buildings greater than 10,000 square metres or those containing over 500 jobs), as well as major institutional uses, to transit-supported locations, including Urban Growth Centres (UGCs) and Major Transit Station Areas (MTSAs), as well as "areas with existing frequent transit service, or existing or planned higher order transit service." [S 2.2.6]

UGCs are envisioned as "high density major employment centres that will attract provincially, nationally or internationally significant employment uses." [S 2.2.4] There are 25 UGCs identified across the GGH. The Growth Plan imposes density targets on UGCs – 400 residents plus jobs per hectare for the more urban ones, and 150 residents plus jobs per hectare for the less urban ones.

DESIGNATED GREENFIELDS

Designated greenfield areas (DGAs) are to achieve a minimum density of 50 residents plus jobs per hectare, measured across a municipality's total designated greenfield area (and excluding areas such as designated natural areas, wetlands, etc.).

INTENSIFICATION

The Plan contains explicit intensification targets for residential development: 40% of new residential development must be accommodated within the built-up area. There is no comparable target for non-residential uses. However, the plan states that a "significant portion" of both population and employment uses will be directed to built-up areas. [S 2.2.3]

SUB-AREA ASSESSMENTS

The Plan provides for sub-area assessments, intended to provide a greater level of regional economic analysis and identify provincially significant employment areas [5.3]. Only one such assessment has taken place to date, for the Simcoe Sub-area.

The Simcoe Sub-area Plan contains policies to allow employment growth in strategic *settlement employment areas* and *economic employment districts*.

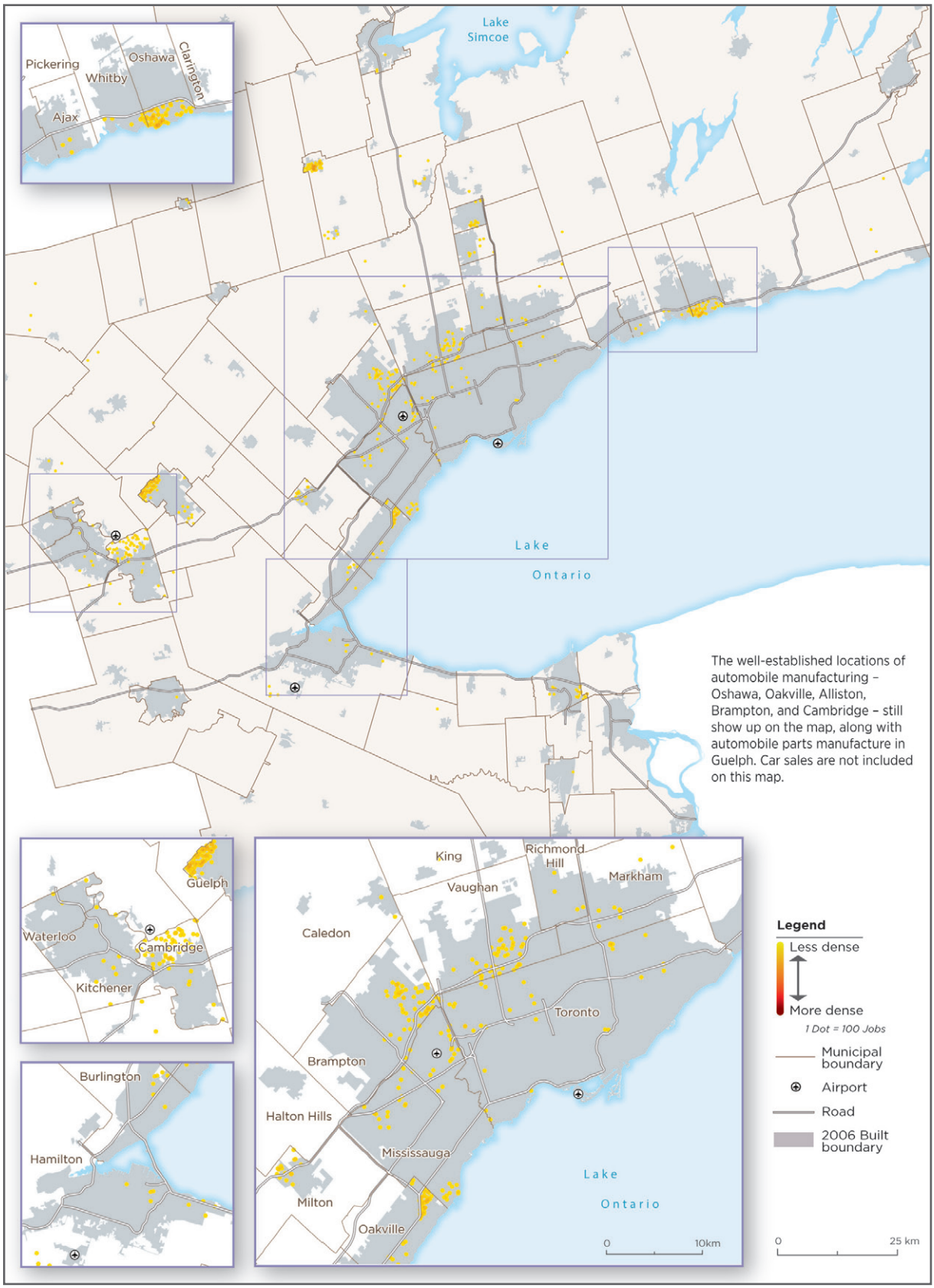
CONFORMITY

Official Plans for upper- and single-tier municipalities are required to conform to the policies of the Growth Plan. This means, for example, demonstrating where and how allocated population and employment growth will be accommodated, and including policies to achieve the required density and intensification targets.

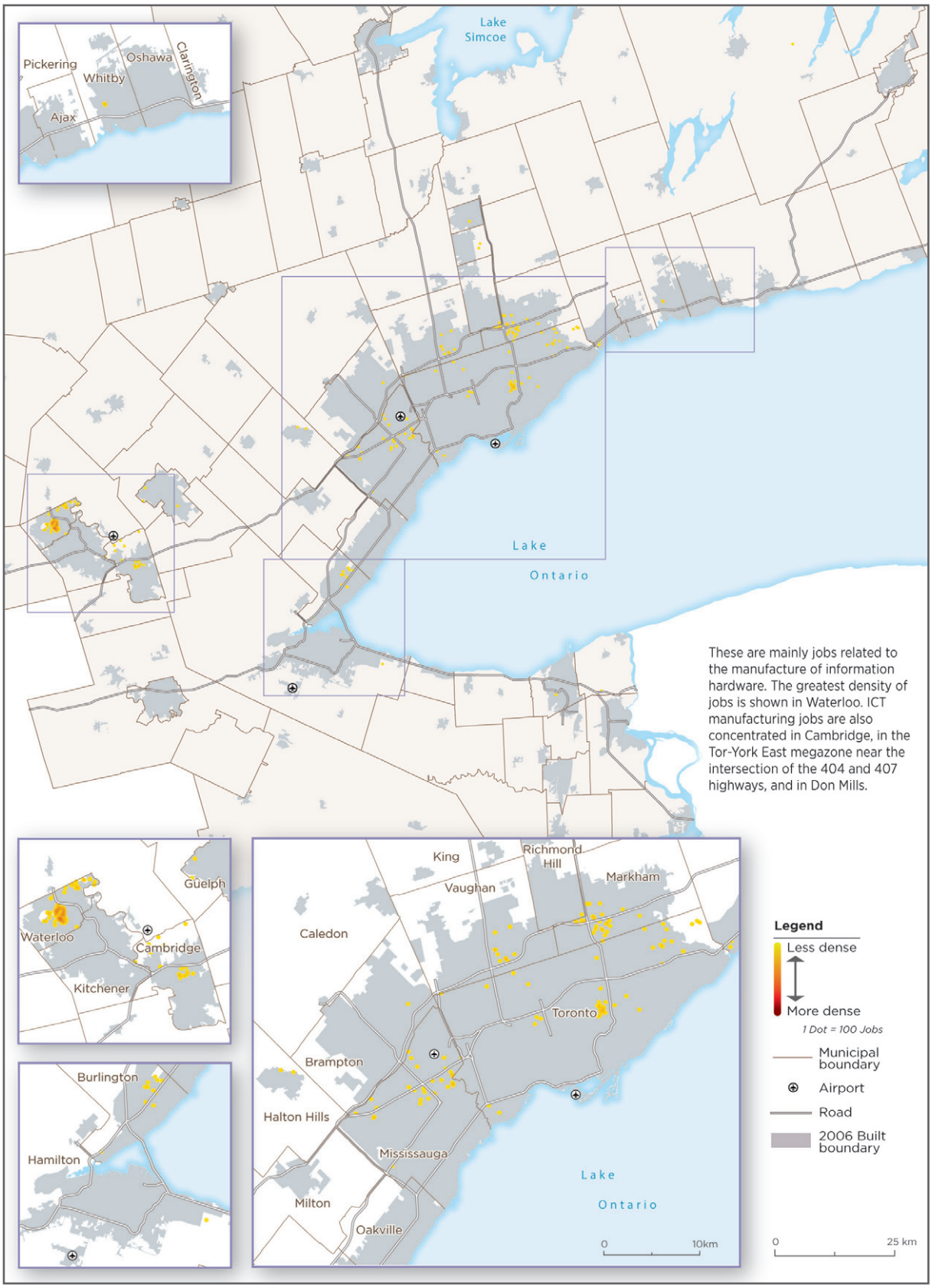
In two-tier municipalities, this means that the Official Plans of lower-tier municipalities must also be amended to conform to the revised upper-tier plans.

THE GROWTH PLAN CONTAINS EXPLICIT TARGETS FOR RESIDENTIAL INTENSIFICATION; THERE ARE NO COMPARABLE TARGETS FOR NON-RESIDENTIAL LAND USES.

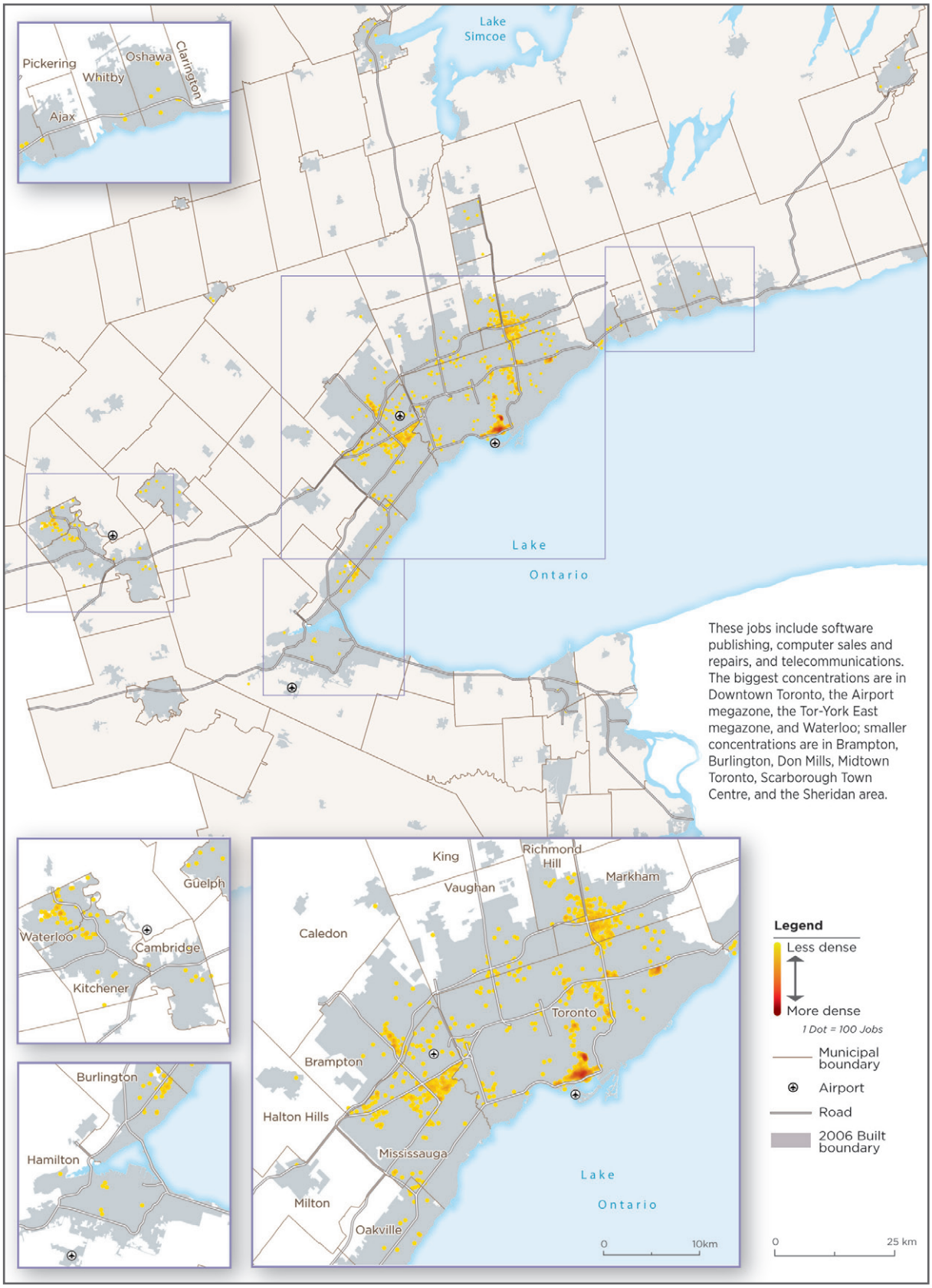
APPENDIX B: ADDITIONAL MAPS



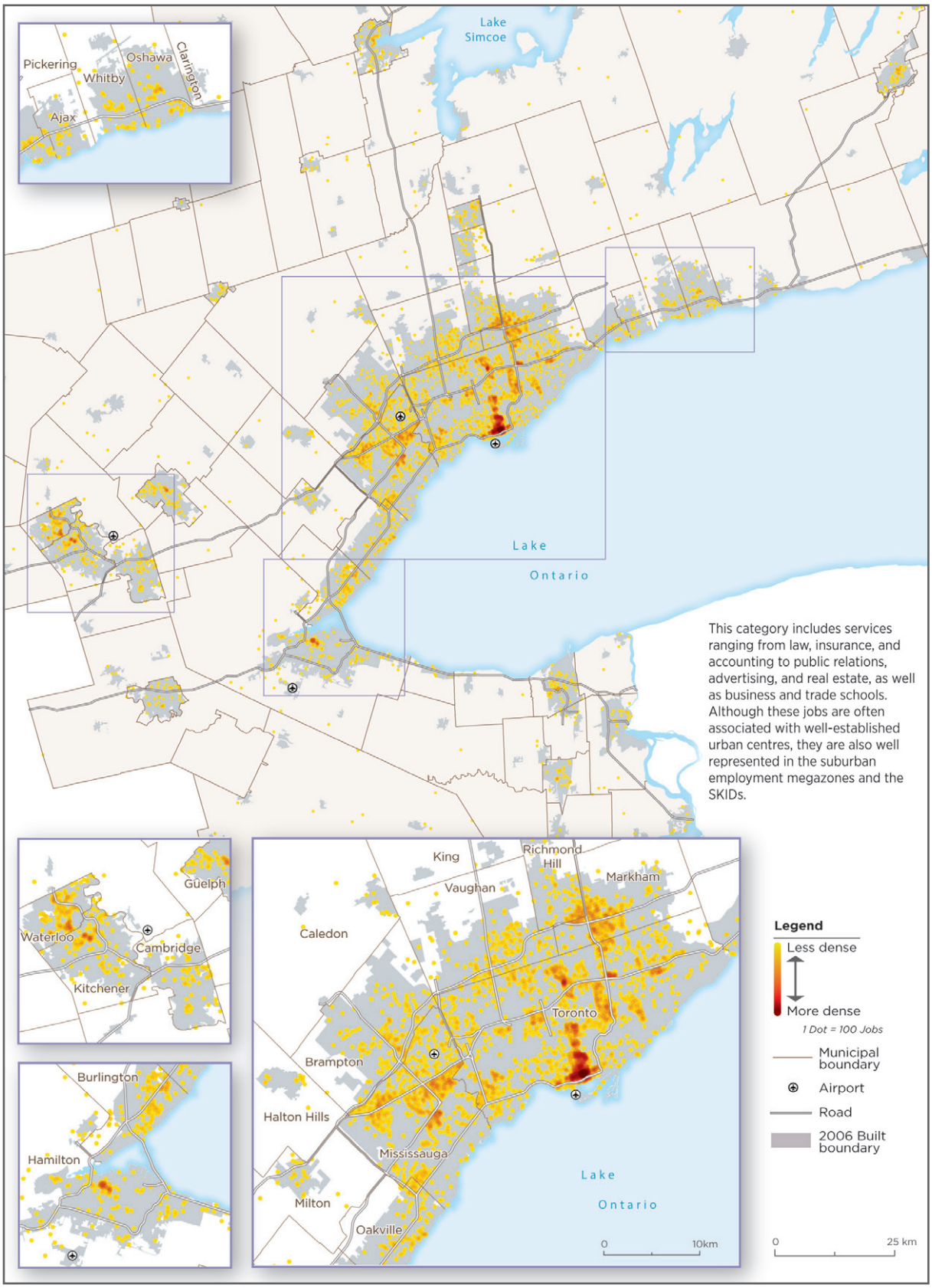
MAP NO. A1 EMPLOYMENT IN AUTO MANUFACTURING, 2011



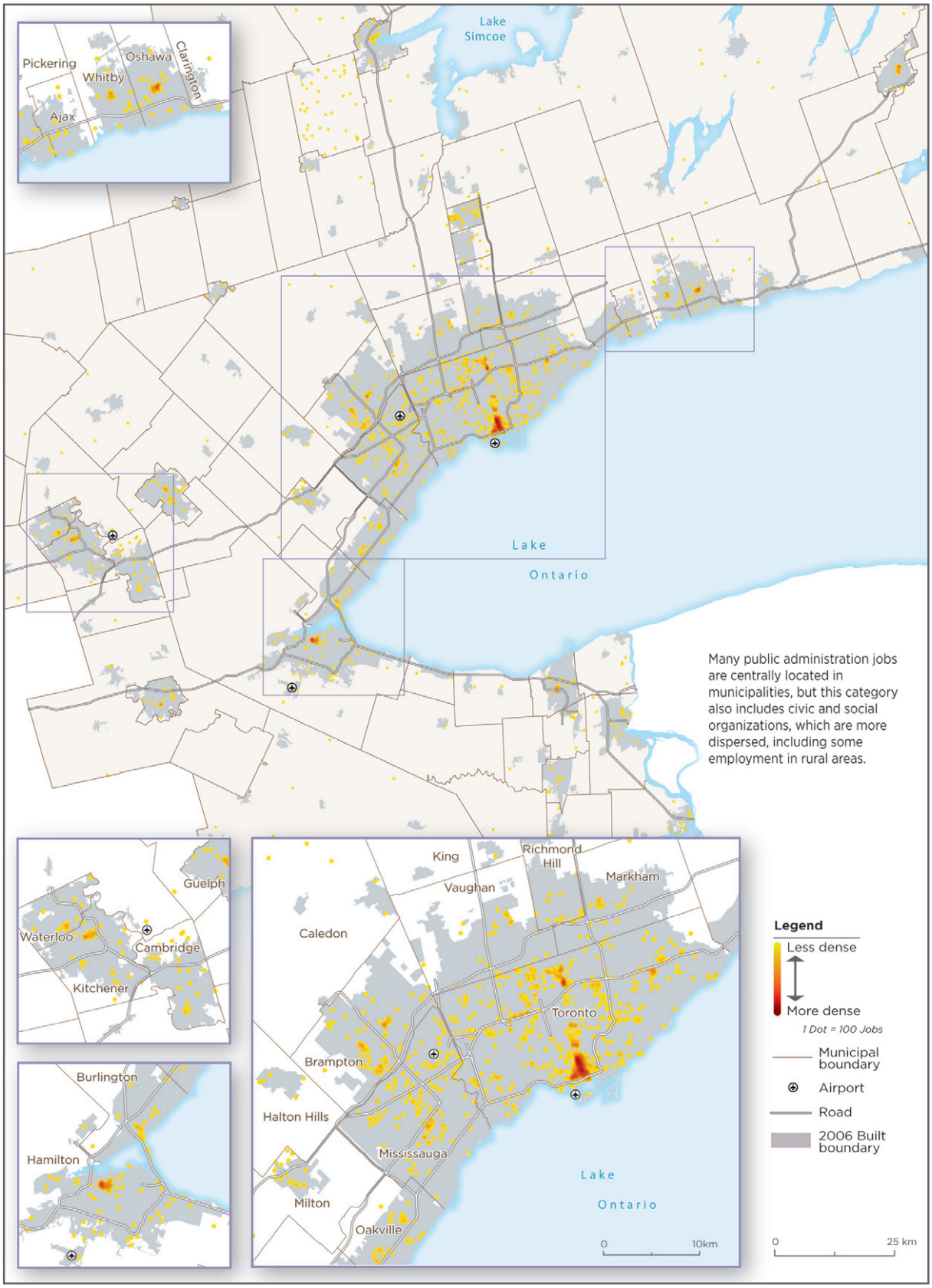
MAP NO. A2 EMPLOYMENT IN ICT MANUFACTURING, 2011



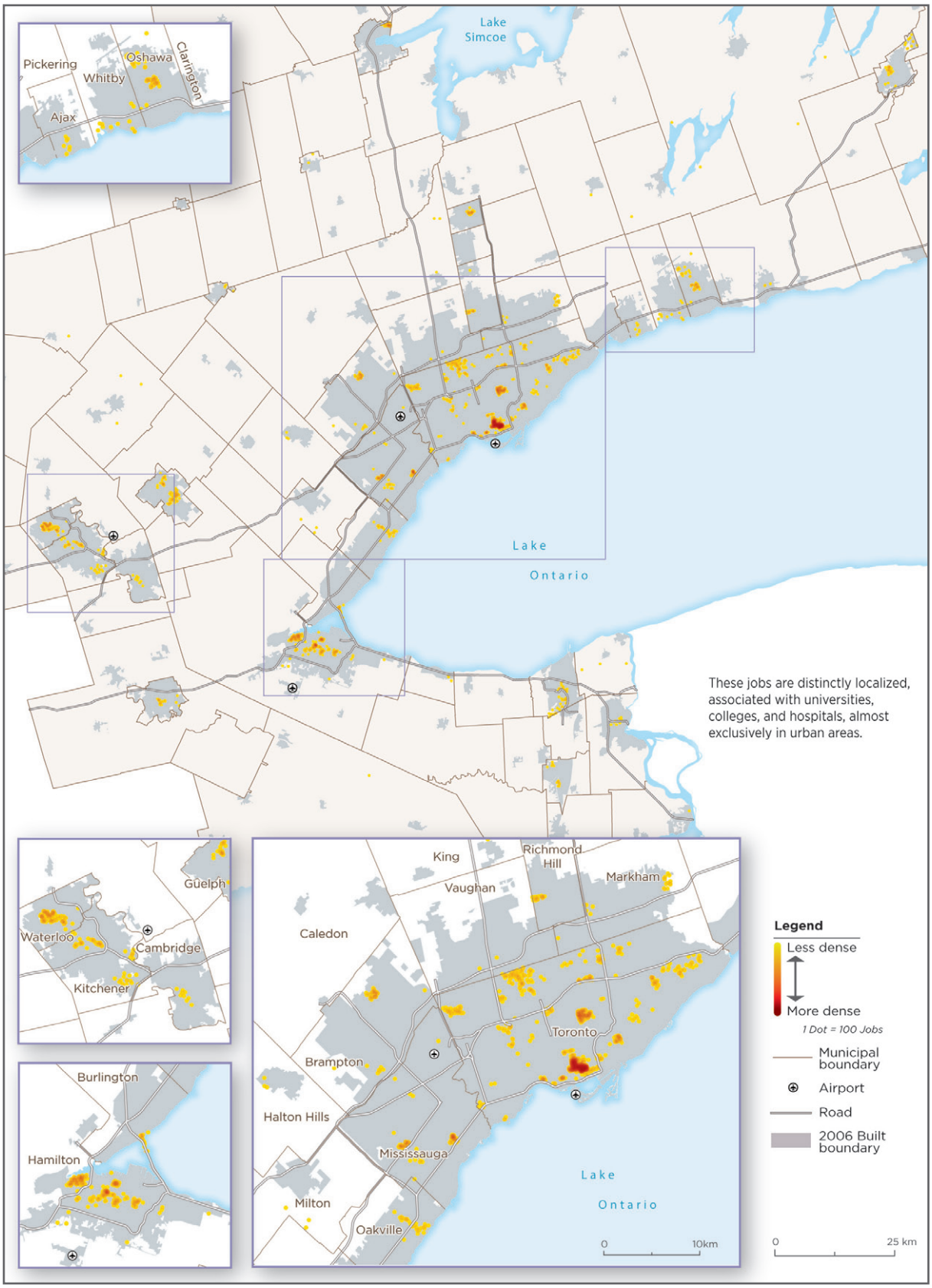
MAP NO. A3 EMPLOYMENT IN ICT SERVICES, 2011



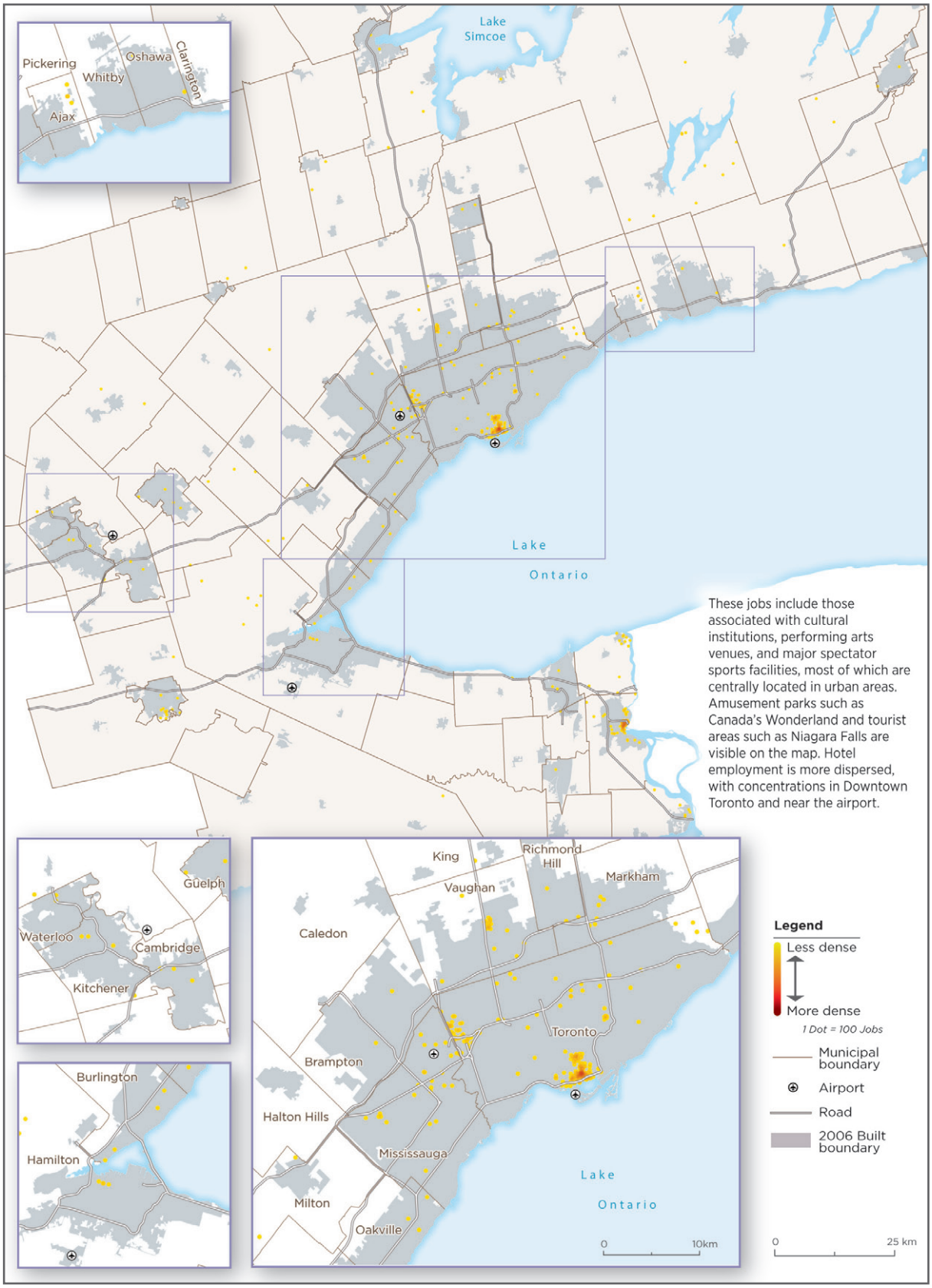
MAP NO. A4 FINANCE AND BUSINESS SERVICES, 2011



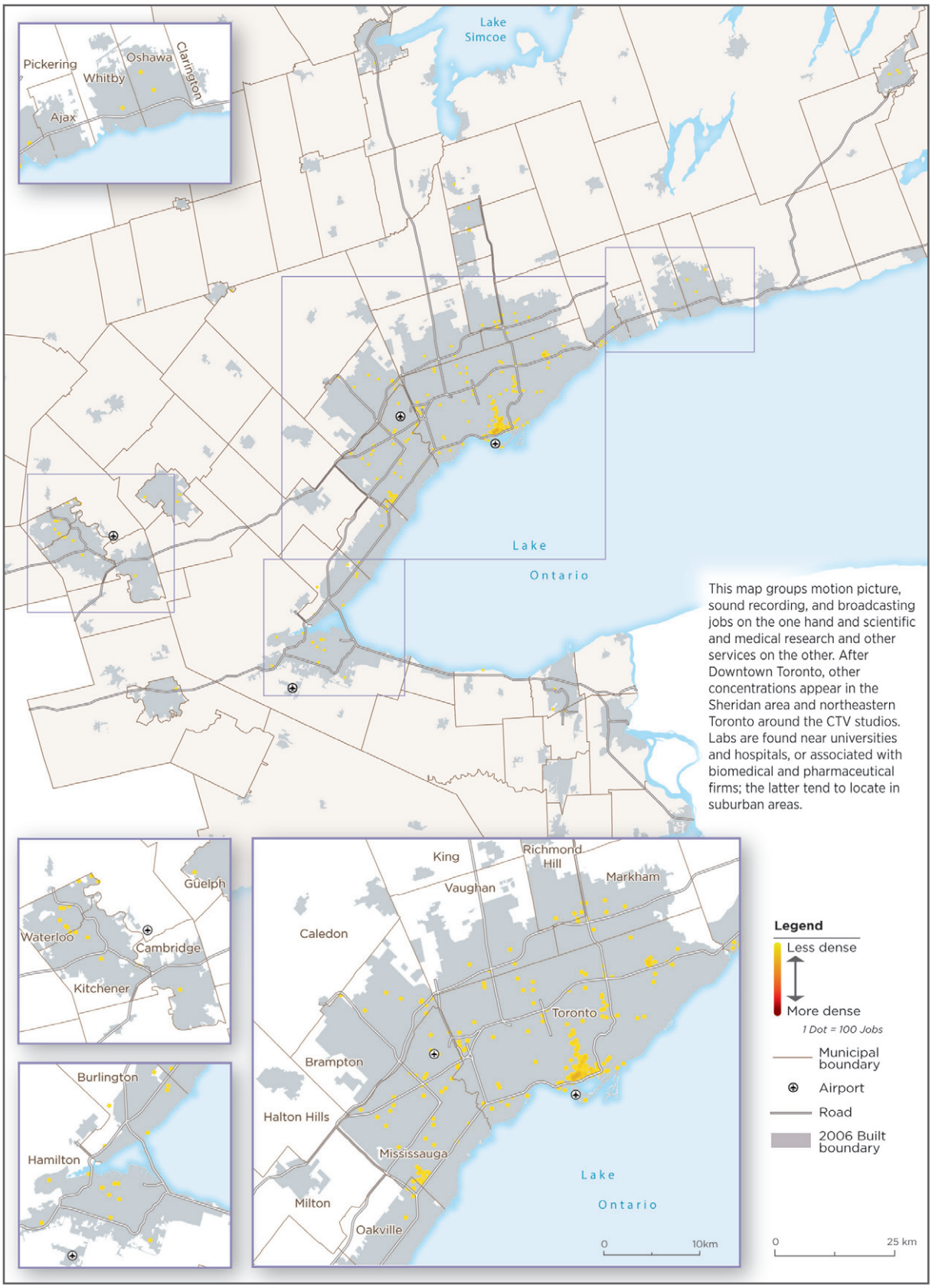
MAP NO. A5 GOVERNMENT AND VOLUNTARY SECTOR, 2011



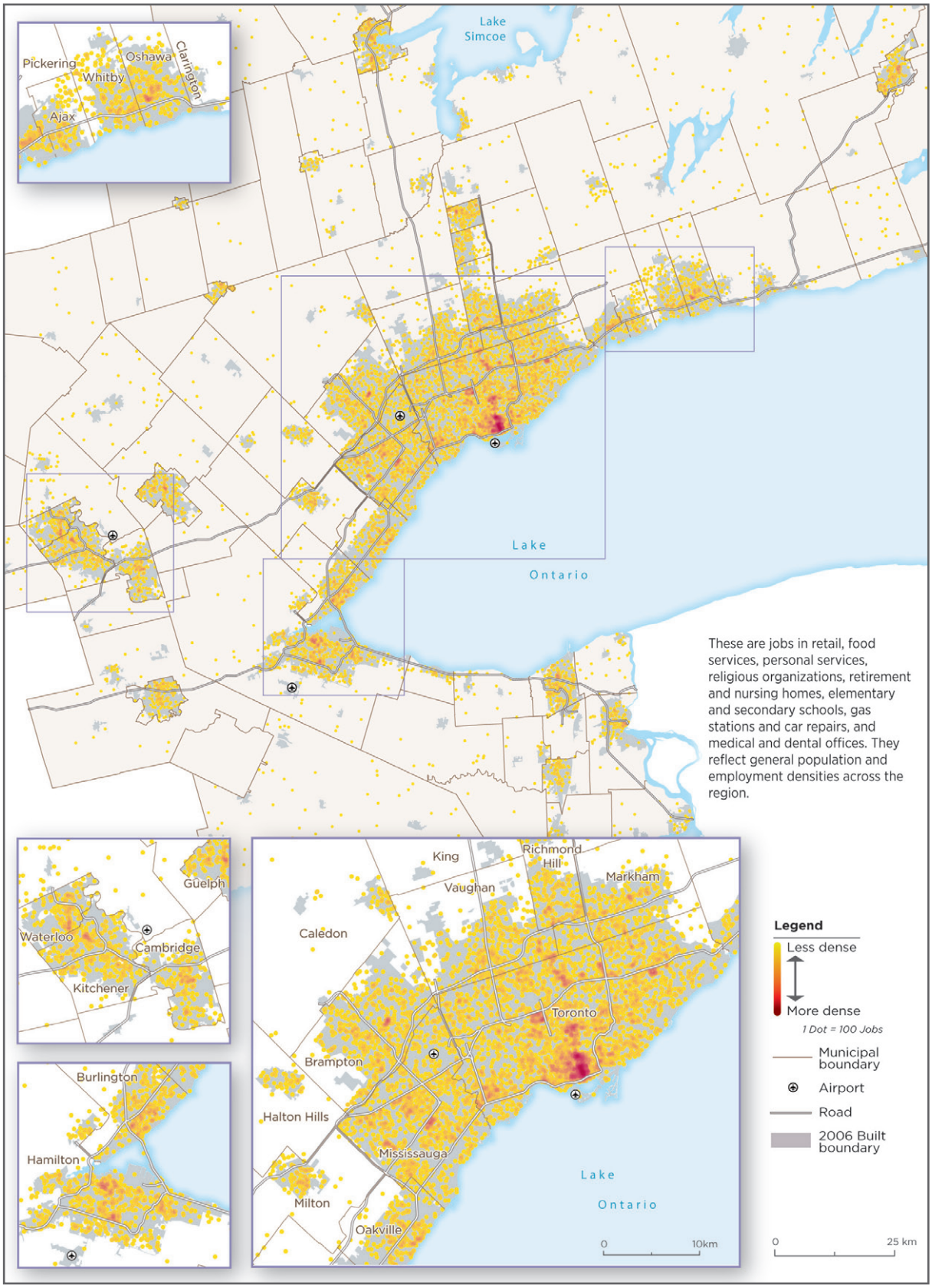
MAP NO. A6 HIGHER EDUCATION AND HOSPITALS, 2011



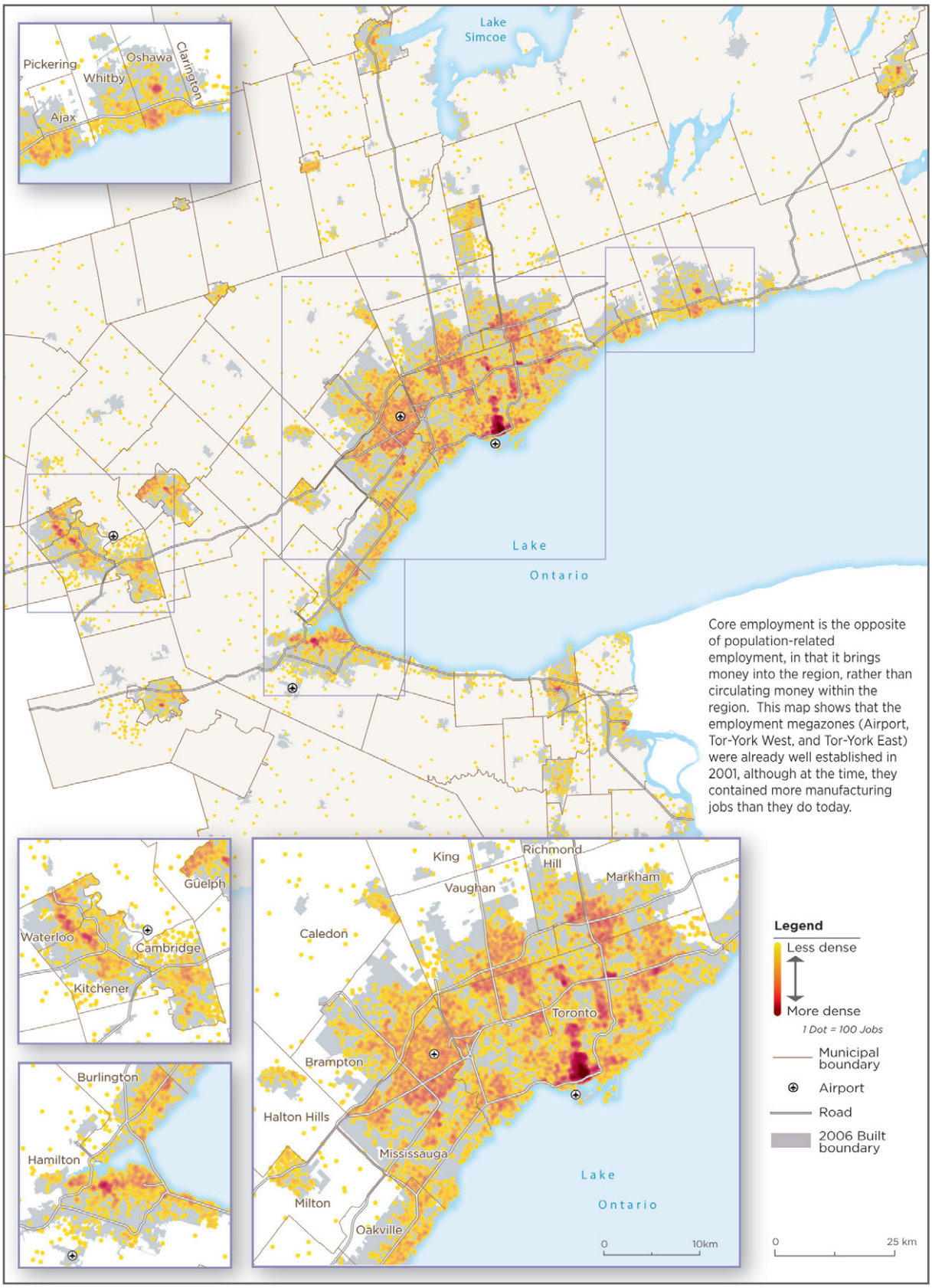
MAP NO. A7 CULTURE AND TOURISM, 2011



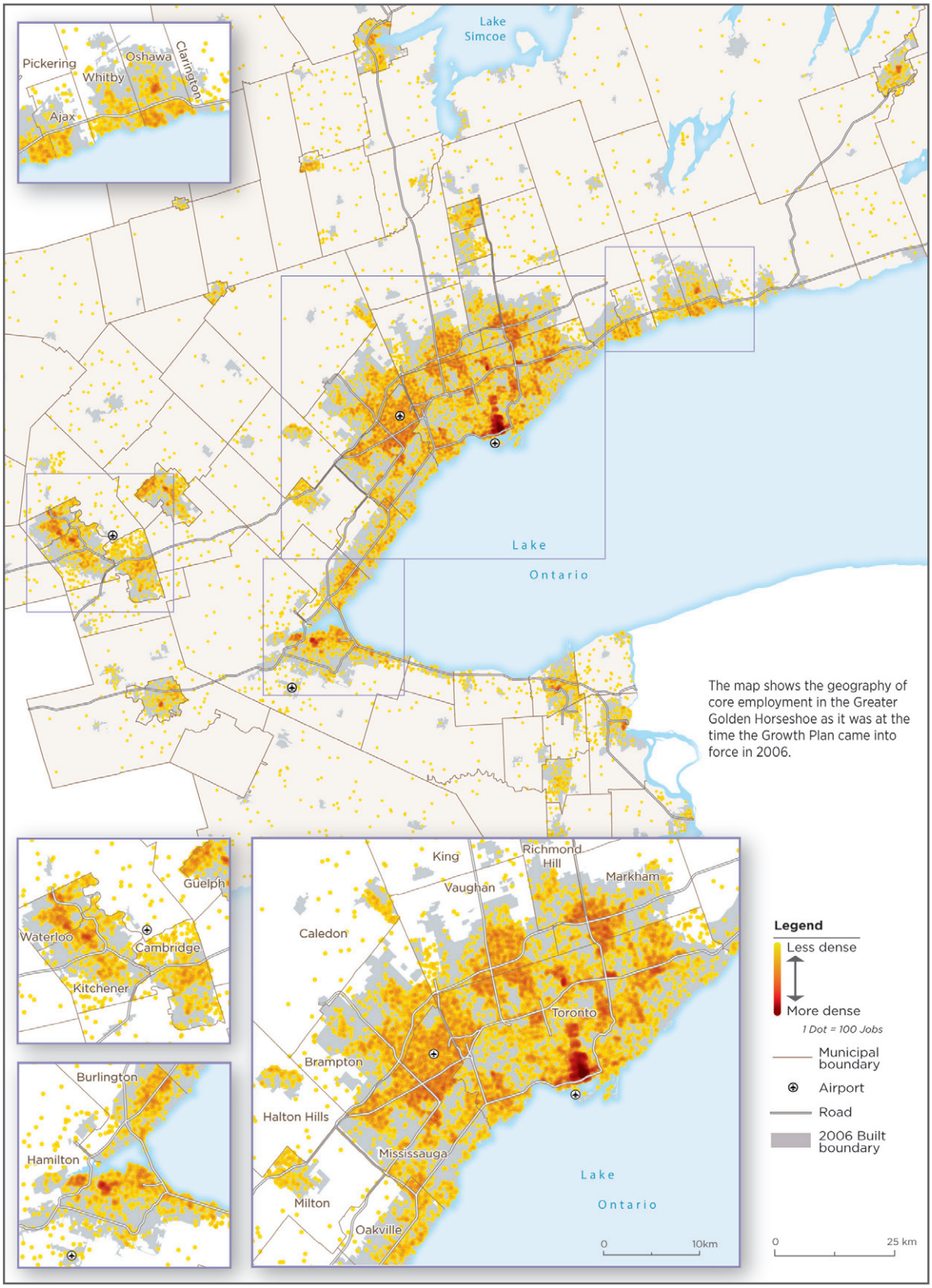
MAP NO. A8 SPECIALIZED EMPLOYMENT (STUDIOS AND LABS), 2011



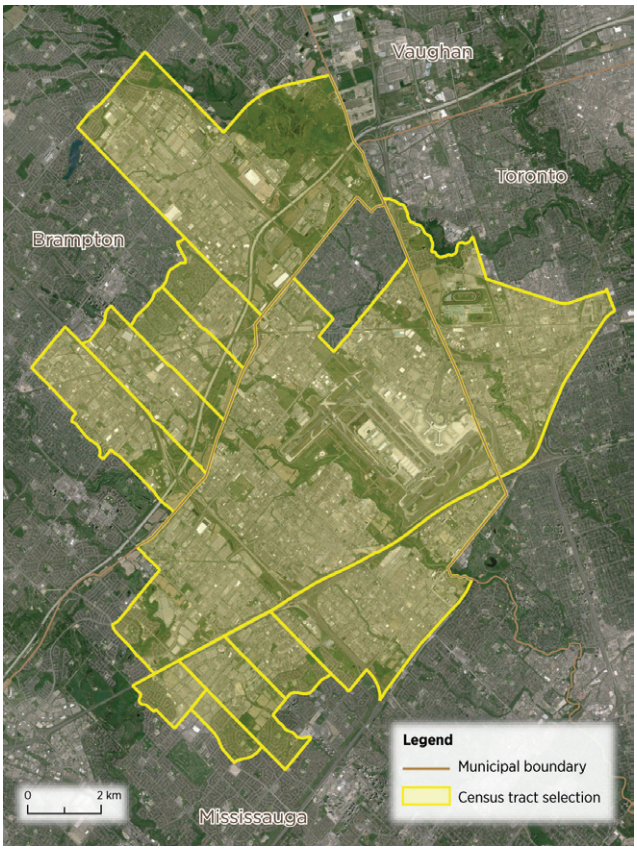
MAP NO. A9 POPULATION-RELATED EMPLOYMENT, 2011



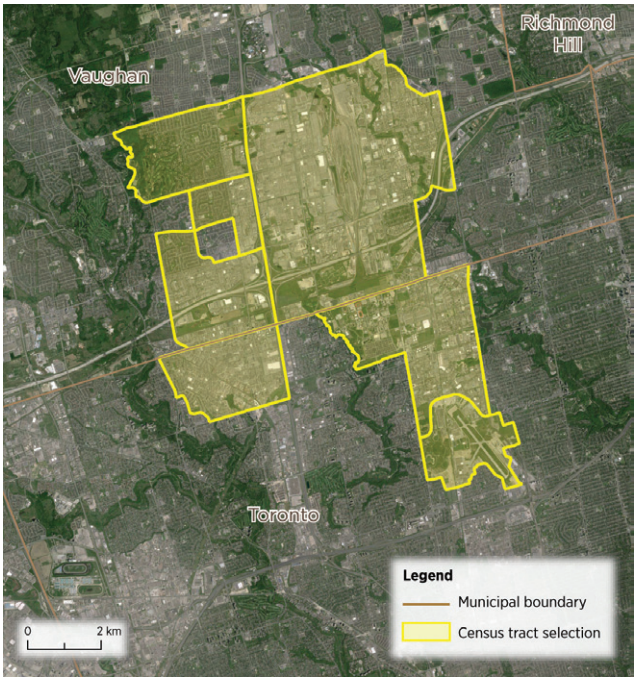
MAP NO. A10 CORE EMPLOYMENT, 2001



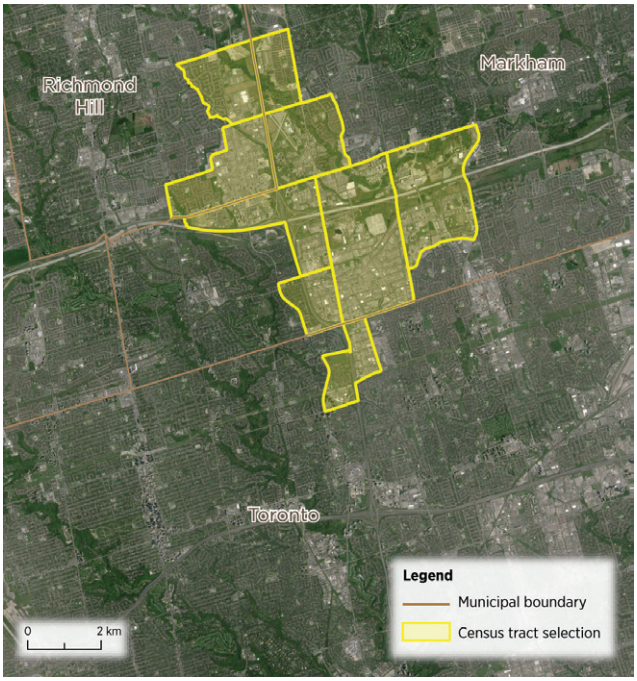
MAP NO. A11 CORE EMPLOYMENT, 2006



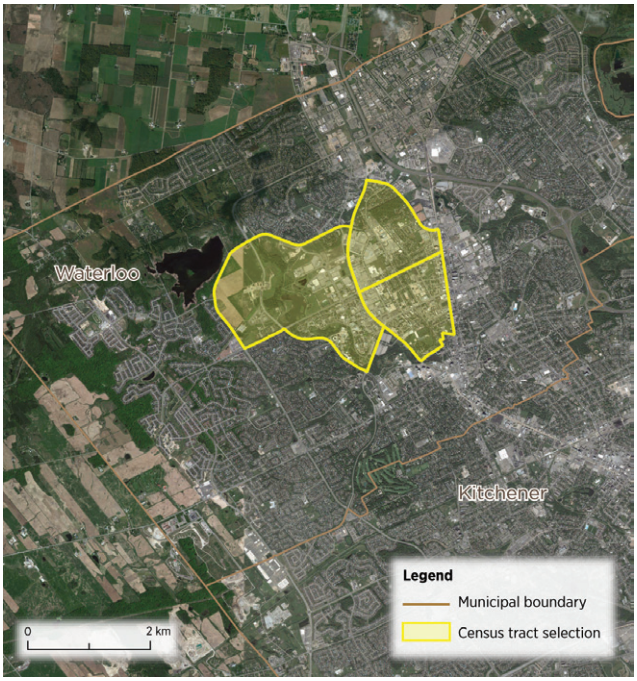
MAP NO. A12 AIRPORT MEGAZONE, CENSUS TRACT SELECTION



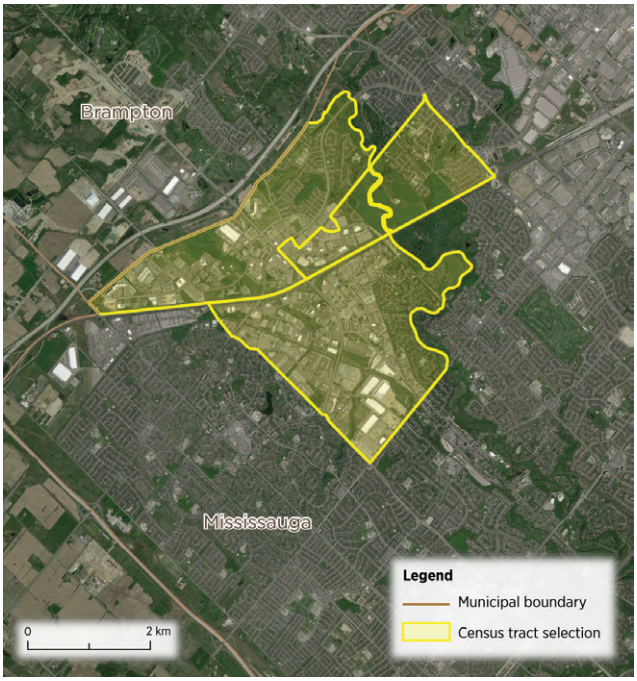
MAP NO. A13 TOR-YORK WEST MEGAZONE, CENSUS TRACT SELECTION



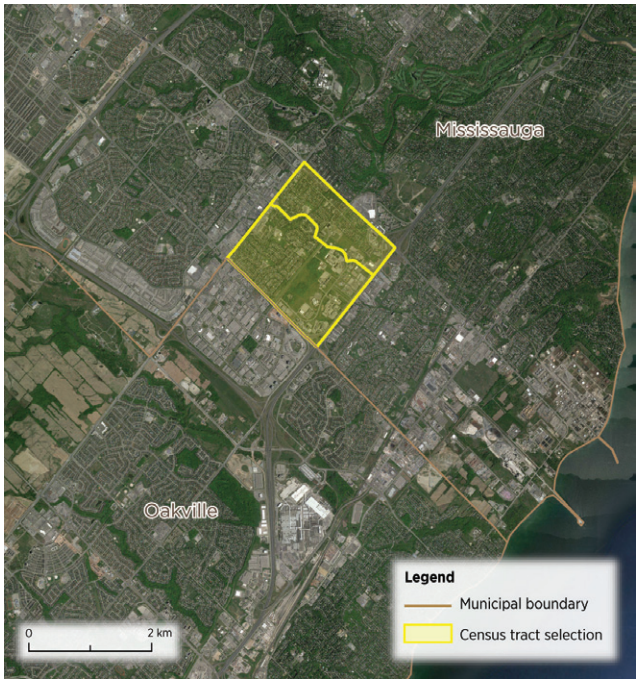
MAP NO. A14 TOR-YORK EAST MEGAZONE, CENSUS TRACT SELECTION



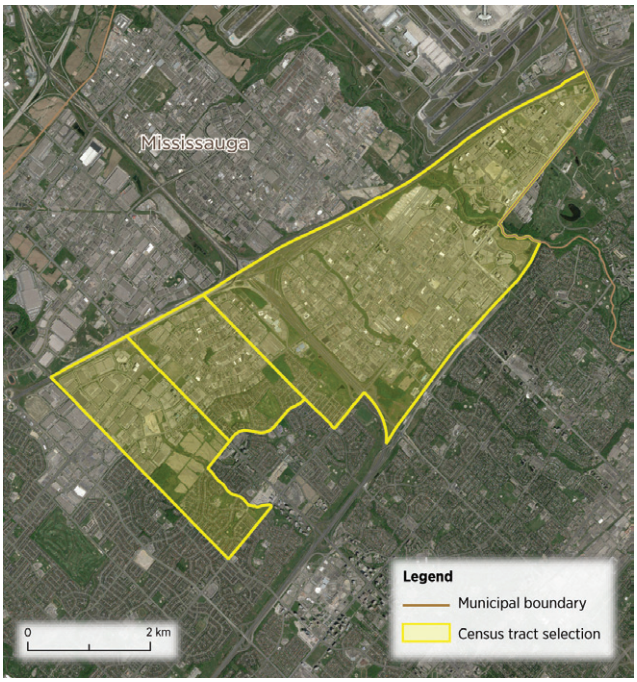
MAP NO. A15 WATERLOO SKID, CENSUS TRACT SELECTION



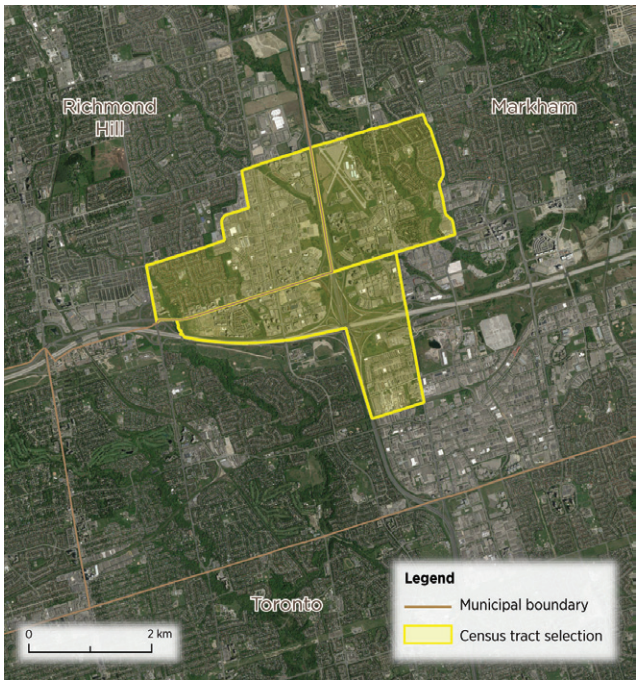
MAP NO. A16 MEADOWVALE SKID, CENSUS TRACT SELECTION



MAP NO. A17 SHERIDAN SKID, CENSUS TRACT SELECTION



MAP NO. A18 AIRPORT SOUTH SKID, CENSUS TRACT SELECTION



MAP NO. A19 MARKHAM SKID, CENSUS TRACT SELECTION

APPENDIX C: DATA DOCUMENTATION: SOURCES FOR MAPS, TABLES, AND FIGURES

Planning for Prosperity: Globalization, Competitiveness and the Growth Plan for the Greater Golden Horseshoe relies on data from Statistics Canada to analyze the dynamics of economic change in the Greater Golden Horseshoe.

Employment statistics for Ontario and Canada were retrieved from the CanSIM database.[45] A custom table derived from the Labour Force Survey[46] representing the nine Census Metropolitan Areas (CMAs) found in the Greater Golden Horseshoe (GGH) is used to report on region-wide statistics.

All mapping and employment numbers for specific geographies in the GGH were based on customized data tables created from the 2001 and 2006 long-form Census and 2011 National Household Survey (NHS) using data on the **Employed Labour Force 15 years and older Having a Usual Place of Work**, or **Place of Work (POW)** for short. These data exclude people who work from home, those who work outside Canada, and those who have no fixed workplace address (such as certain tradespeople or freelancers who work from their clients' locations). The breakdown for 2011 is shown below:

PLACE OF WORK STATUS	TOTAL GGH
TOTAL JOBS	4,304,590
WORKED AT HOME	287,400
WORKED OUTSIDE CANADA	19,150
NO FIXED WORKPLACE ADDRESS	465,665
USUAL PLACE OF WORK	3,532,370

The NHS has been criticized for its inadequate coverage of certain groups and certain less-populated areas in Canada. The Chief Statistician for Statistics Canada[47] recently weighed in on warranted and unwarranted criticism of the NHS. Nevertheless, in the absence of alternative sources of employment data with the necessary regional coverage, we have used the NHS to map employment patterns for 2011, compared the mapped variables with those in the 2001 and 2006 censuses, and compared data totals based on different geographic census units and different aggregations of detailed industry and occupation codes to best understand how the NHS-based POW data compares to the previous censuses (see the section **Comparing Three Censuses** for discussion on how census totals compare).

Data on Place of Work were used to map jobs (workplaces of workers) by industry and occupation based on the North American Industry Classification System (NAICS) and the National Occupation Classification (NOC). NAICS uses a five-level hierarchy of 2- to 6-digit codes that break down industrial sectors, while the NOC system is made up of a hierarchy of 2- to 4-digit codes that break down occupations into detailed categorizations. Ultimately, 2-, 3-, and 4-digit NAIC codes were combined to create 10 "planning categories." This was done to create meaningful industry categories that relate economic structure and change to land use (See Table A1).

45 http://www5.statcan.gc.ca/CanSIM/a01?lang=eng
46 http://www.statcan.gc.ca/eng/survey/household/3701
47 Wayne R. Smith, Statistics Canada blog, http://www.statcan.gc.ca/eng/blog-blogue/cs-sc/2011NHSstory

TABLE NO. A1

	ECONOMIC SECTOR GROUPINGS	PLANNING CATEGORIES
CORE	INDUSTRIAL	MANUFACTURING CONSTRUCTION & UTILITIES
		WAREHOUSING & TRANSPORTATION
	OFFICES	FINANCE & BUSINESS SERVICES
		VOLUNTARY & GOVERNMENT SECTOR
	MAJOR INSTITUTIONAL	HIGHER EDUCATION & HOSPITALS
	SERVICES	CULTURE, TOURISM & HOTELS
	SPECIALIZED	SPECIALIZED (LABS & STUDIOS)
POPULATION-RELATED	OFFICES	POPULATION-RELATED SERVICES
	RETAIL	RETAIL
	INSTITUTIONAL	INSTITUTIONAL

The NOC codes were combined to map occupations in the STEM grouping. The NAICS and NOC systems have changed between 2001 and 2011, so we had to adjust our categorization to account for these changes. The changes are noted in the sources for each map.

This appendix contains a list of the NAICS or NOC codes that were used for each map.

We have also drawn on commuting data from the Transportation Tomorrow Survey (2011). The TTS does not cover the entire Greater Golden Horseshoe (it omits Haldimand and Wellington counties and the northern part of Peterborough County).

COMPARING THREE CENSUSES: 2001, 2006, AND 2011

Since census geographies (i.e., Dissemination Areas (DAs), Census Tracts (CTs), Census Subdivisions (CSDs), etc.) change over time, a common geography was needed to compare the three years. For this study, the standard 2011 CTs and CSDs were used. In order to join the 2001 and 2006 census data with the 2011 geography, the 2001 and 2006 geography IDs needed to be customized by Statistics Canada. Essentially, this allowed the custom 2001 and 2006 geography IDs to correspond with the 2011 geography. It should be noted that the process of obtaining custom geographies increases the suppression threshold for all years.

SUPPRESSION AND LOSS OF DATA

Suppression rules are applied to census products to ensure the confidentiality of respondents' information. Typically, suppression is applied to areas in which the population is less than 40 or 100, depending on the year of the census. More specifically, in using a standard geography (2011) the suppression threshold is 40. However, since the 2001 and 2006 geographies are customized, the suppression threshold is increased to 100.

Suppression also occurs when the data is explored in finer detail. For example, in examining NAICS data, higher levels such as the total and 2-digit codes have less suppression, but in the more detailed 3-and 4-digit codes suppression is more evident. This issue was more predominant in the 2011 data – possibly owing to changes in how the NHS survey was conducted. Table A2 compares employment data totals (total number of jobs based on POW data) for all three years based on aggregations of different levels of geography (CSD, CT, DA) and different categorizations of the NAICS codes, for example NAICS 2-digit codes versus planning categorization codes which is based on 2-, 3- and 4-digit NAICS codes. Although for all three years, 2001, 2006, and 2011, there is an absolute and percentage difference in totals based on aggregations at different levels of geography and different levels of detailed categorization, the difference is greatest in the 2011 NHS.

TABLE NO. A2

PLACE OF WORK DATA SUPPRESSION ESTIMATES

	NAICS (TOTAL)	2-DIGIT (TOTAL)	DIFFERENCE (ABSOLUTE)	DIFFERENCE (%)	PLANNING CATEGORIES (TOTAL)*	DIFFERENCE (ABSOLUTE)	DIFFERENCE (%)
2001							
CSD	3,233,615	3,233,610	5	0	3,233,735	-120	0
CT	3,090,000	3,090,850	-850	0	3,090,505	-505	0
DA	3,080,065	3,080,080	-15	0	3,081,940	-1,875	0
2006							
CSD	3,447,205	3,447,045	160	0	3,446,910	295	0
CT	3,286,410	3,286,815	-405	0	3,286,710	-300	0
DA	3,290,995	3,291,305	-310	0	3,290,695	300	0
2011							
CSD	3,539,195	3,537,125	2,070	0	3,524,545	14,650	0
CT	3,381,855	3,313,190	68,665	2	3,155,640	226,215	7
DA	3,496,315	3,271,510	224,805	6	3,083,995	412,320	12

* Planning Categories consist of numerous NAICS codes ranging from two to four digits. This results in data loss and suppression being compounded.

RANDOM ROUNDING

In addition to suppression as a means of ensuring confidentiality of respondents' information, random rounding is also used. All census data are subject to a random rounding algorithm, which rounds raw counts to end in either 0 or 5. This process is carried out based on a predetermined frequency. However, raw counts that already end in 0 or 5 are excluded and therefore remain the same.

MAPS

BASE MAP SOURCES

2006 Built Boundary
Source: Ontario Ministry of Municipal Affairs and Housing

Roads
Source: Government of Ontario, Ministry of Natural Resources

Airports
Source: Growth Plan for the Greater Golden Horseshoe

Map 1: STEM Employment, 2011
Source: NOC, 2001 Census and 2011 National Household Survey. Codes used:

NOC-S 2001	NOC 2011	
A12	021	Managers in engineering, architecture, science and information systems
C0	21	Professional occupations in natural and applied sciences
E021	4151	Psychologists
E031	4161	Natural and applied science policy researchers, consultants and program officers
E032	4162	Economists and economic policy researchers and analysts
E034	4164	Social policy researchers, consultants and program officers
E038	4169	Other professional occupations in social science, n.e.c.
C11	221	Technical occupations in physical sciences
C12	222	Technical occupations in life sciences
C13	223	Technical occupations in civil, mechanical and industrial engineering
C14	224	Technical occupations in electronics and electrical engineering
C15	225	Technical occupations in architecture, drafting, surveying, geomatics and meteorology
C18	228	Technical occupations in computer and information systems

Map 2: STEM Employment Change, 2001–2011
Source: NOC, 2011 National Household Survey (same codes used as in Map 1)

Map 3: Employment change in finance, 2001–2011
Source: NAICS, 2001 Census and 2011 National Household Survey. Code used: 52 (Finance and insurance)

Map 4: Employment in finance
Source: NAICS, 2011 National Household Survey. Code used: 52 (Finance and insurance)

Map 5: Employment in manufacturing, 2011
Source: NAICS, 2011 National Household Survey. Codes used: 31–33 (Manufacturing)

Map 6: Employment change in manufacturing, 2001–2011
Source: NAICS, 2001 Census and 2011 National Household Survey. Codes used: 31–33 (Manufacturing)

Map 7: Change in core employment, 2001–2011
Source: NAICS, 2001 Census and 2011 National Household Survey. Note: The 2001 data use the 1997 version of NAICS and the 2011 data use the 2007 version of NAICS. Codes are the same for both periods unless otherwise marked.

11	Agriculture, forestry, fishing and hunting
21	Mining, quarrying, and oil and gas extraction
22	Utilities
23	Construction
31–33	Manufacturing
41	Wholesale trade
454	Non-store retailers
48–49	Transportation and warehousing
511	Publishing
512	Motion pictures and sound recording
515	Broadcasting (except Internet) (5131 and 5132 for 2001 data)
517	Telecommunications (5133 for 2001 data)
518	Data processing, hosting and related services (514 for 2001 data)
519	Other information services (514 for 2001 data)
5324	Commercial and industrial machinery and equipment rental and leasing
52	Finance and insurance
531	Real estate
533	Lessors of non-financial intangible assets [except copyrighted works]
5411	Legal services
5412	Accounting, tax preparation, bookkeeping and payroll services
5413	Architectural, engineering and related services
5414	Specialized design services
5415	Computer systems design and related services
5416	Management, scientific and technical consulting services
5417	Scientific research and development services
5418	Advertising, public relations, and related services
5419	Other professional, scientific and technical services
55	Management of companies and enterprises
561	Administrative and support services
562	Waste management and remediation services
6112	Community colleges and C.E.G.E.P.s
6113	Universities
6114	Business schools and computer and management training
6115	Technical and trade schools
6116	Other schools and instruction
6117	Educational support services
6215	Medical and diagnostic laboratories
622	Hospitals
7111	Performing arts companies
7112	Spectator sports
7113	Promoters [presenters] of performing arts, sports and similar events
7114	Agents and managers for artists, athletes, entertainers and other public figures

7115	Independent artists, writers and performers
712	Heritage institutions
7131	Amusement parks and arcades
7132	Gambling industries
721	Accommodation services
8112	Electronic and precision equipment repair and maintenance
8113	Commercial and industrial machinery and equipment [except automotive and electronic] repair and maintenance
8132	Grant-making and giving services
8133	Social advocacy organizations
8134	Civic and social organizations
8139	Business, professional, labour and other membership organizations
91	Public administration

Map 8: Core employment, 2011
Source: NAICS, 2011 National Household Survey. See Map 7 for NAICS codes used.

Map 9: Economic structure of the Greater Golden Horseshoe
Source: Same as Map 8, with the following layers added:

Megazones
Source: Graphical representation derived from NAICS and NOC, 2011 National Household Survey

SKIDs
Source: Graphical representation derived from NAICS and NOC, 2011 National Household Survey

Downtown Toronto
Source: Graphical representation derived from NAICS and NOC, 2011 National Household Survey

Map 10: Industrial employment, 2011
Source: NAICS, Manufacturing, Construction & Utilities, 2011. Codes used:

11	Agriculture, forestry, fishing and hunting
21	Mining, quarrying, and oil and gas extraction
22	Utilities
23	Construction
31–33	Manufacturing
5324	Commercial and industrial machinery and equipment rental and leasing
562	Waste management and remediation services
8112	Electronic and precision equipment repair and maintenance
8113	Commercial and industrial machinery and equipment [except automotive and electronic] repair and maintenance

Map 11: Warehousing and Transportation employment, 2011
Source: NAICS, 2011. Codes used:

41	Wholesale trade
48–49	Transportation and Warehousing

Intermodal Terminals
Source: Growth Plan for the Greater Golden Horseshoe

Map 12: GGH Structure and The Big Move
Source: Same as Map 9, with the following layers added:

GO Transit
Source: Metrolinx, *The Big Move*

TTC Rail
Source: Metrolinx, *The Big Move*

The Big Move
Source: Metrolinx

Map 13: Core employment and the UGCs, 2011
Source: Same as Map 8, with UGCs from the Growth Plan.

Map 14: Employment Change (2006-2011) and the UGCs
Source: Same as Map 7, with UGCs from the Growth Plan.

Map 15: Core employment change (2006–2011) and employment lands
Source: Same as Map 7, with data on employment lands (Ontario Ministry of Municipal Affairs and Housing) and designated greenfield area (The Neptis Foundation)

MAPS IN APPENDIX

MAPS FOR KEY ECONOMIC SECTORS

Map A1: Employment in Auto Manufacturing, 2011
Source: NAICS, 2011 National Household Survey. Codes used:

3361	Motor vehicle manufacturing
3362	Motor vehicle body and trailer manufacturing
3363	Motor vehicle parts manufacturing

Map A2: Employment in ICT Manufacturing, 2011
Source: NAICS, 2011 National Household Survey. Codes used:

3341	Computer and peripheral equipment manufacturing
3342	Communications equipment manufacturing
3343	Audio and video equipment manufacturing
3344	Semiconductor and other electronic component manufacturing
3346	Manufacturing and reproducing magnetic and optical media

Map A3: Employment in ICT Services, 2011
Source: NAICS, 2011 National Household Survey. Codes used:

4173	Computer and communications equipment and supplies merchant wholesalers
5112	Software publishers
517	Telecommunications
518	Data processing, hosting, and related services
5415	Computer systems design and related services
8112	Electronic and precision equipment repair and maintenance

MAPS BASED ON PLANNING CATEGORIES

Map A4: Finance and Business Services, 2011
Source: NAICS, 2011 National Household Survey. Codes used:

454	Non-store retailers
511	Publishing industries (except internet)
517	Telecommunications
518s	Data processing, hosting, and related services
519	Other information services
52	Finance and insurance
531	Real estate
533	Lessors of non-financial intangible assets (except copyrighted works)
5411	Legal services
5412	Accounting, tax preparation, bookkeeping and payroll services
5413	Architectural, engineering and related services
5414	Specialized design services
5415	Computer systems design and related services
5416	Management, scientific and technical consulting services
5418	Advertising, public relations and related services
5419	Other professional, scientific and technical services

55 Management of companies and enterprises
561 Administrative and support services
6114 Business schools and computer and management training
6115 Technical and trade schools
6116 Other schools and instruction
6117 Educational support services
7113 Promoters (presenters) of performing arts, sports and similar events
7114 Agents and managers for artists, athletes, entertainers and other public figures
7115 Independent artists, writers and performers

Map A5: Government and Voluntary Sector, 2011
Source: NAICS, 2011 National Household Survey. Codes used:

8132 Grant-making and giving services
8133 Social advocacy organizations
8134 Civic and social organizations
8139 Business, professional, labour and other membership organizations
91 Public administration

Map A6: Higher Education and Hospitals, 2011
Source: NAICS, 2011 National Household Survey. Codes used:

6112 Community colleges and C.E.G.E.P.s
6113 Universities
622 Hospitals

Map A7: Culture and Tourism, 2011
Source: NAICS, 2011 National Household Survey. Codes used:

7111 Performing arts companies
7112 Spectator sports
712 Heritage institutions
7131 Amusement parks and arcades
7132 Gambling industries
721 Accommodation services

Map A8: Specialized Employment (Studios and Labs), 2011
Source: NAICS, 2011 National Household Survey. Codes used:

512 Motion picture and sound recording industries
515 Broadcasting (except Internet)
5417 Scientific research and development services
6215 Medical and diagnostic laboratories

Map A9: Population–related Employment, 2011
Source: NAICS, 2011 National Household Survey. Codes used:

441 Motor vehicle and parts dealers
442 Furniture and home furnishings stores
443 Electronics and appliance stores
444 Building material and garden equipment and supplies dealers
445 Food and beverage stores
446 Health and personal care stores
447 Gasoline stations
448 Clothing and clothing accessories stores
451 Sporting goods, hobby, book and music stores
452 General merchandise stores
453 Miscellaneous store retailers
5321 Automotive equipment rental and leasing
5322 Consumer goods rental
5323 General rental centres
6111 Elementary and secondary schools
6211 Offices of physicians
6212 Offices of dentists
6213 Offices of other health practitioners
6214 Out-patient care centres
6216 Home health care services
6219 Other ambulatory health care services

623	Nursing and residential care facilities
624	Social assistance
7139	Other amusement and recreation industries
722	Food services and drinking places
8111	Automotive repair and maintenance
8114	Personal and household goods repair and maintenance
812	Personal and laundry services
8131	Religious organizations
814	Private households

Map A10: Core Employment, 2001
Source: Same as Map 7

Map A11: Core Employment, 2006
Source: Same as Map 7

Map A12: Airport Megazone, census tract selection
Source: Statistics Canada, 2011 census boundary files

Map A13: Tor-York West, census tract selection
Source: Same as Map A12

Map A14: Tor-York East, census tract selection
Source: Same as Map A12

Map A15: Waterloo SKID, census tract selection
Source: Same as Map A12

Map A16: Meadowvale SKID, census tract selection
Source: Same as Map A12

Map A17: Sheridan SKID, census tract selection
Source: Same as Map A12

Map A18: Airport South SKID, census tract selection
Source: Same as Map A12

Map A19: Markham SKID, census tract selection
Source: Same as Map A12

TABLES

Table 1: Greater Golden Horseshoe, 2011 employment and 2001–2011 employment change
Source: Source: Statistics Canada, 2001 Census and 2011 NHS. These figures include only jobs with a usual place of work; jobs with no usual place of work within the GGH and jobs carried out from home are excluded.

Table 2: Major GGH Employment Zones, Key Statistics
Source: Statistics Canada, NHS. These figures include only jobs with a usual place of work; jobs with no usual place of work within the GGH and jobs carried out from home are excluded.

Table 3: Core Employment, Selected Suburban Employment Areas, 2011
Source: Statistics Canada, NHS.

Table 4: Employment and core employment, Downtown Toronto, Megazones and SKIDs, 2001–2011
Source: Statistics Canada, NHS. These figures include only jobs with a usual place of work; jobs with no usual place of work within the GGH and jobs carried out from home are excluded.

Table 5: Employment in the Urban Growth Centres
Source: Technical Report on Preliminary Performance Indicators for the *Growth Plan for the Greater Golden Horseshoe*, 2006, Ontario Growth Secretariat, 2014.

Table 6: Employment Change in UGCs and SKIDs, 2006–2011
Source: Statistics Canada, 2001 Census and 2011 NHS, and Technical Report on Preliminary Performance Indicators for the *Growth Plan for the Greater Golden Horseshoe*, 2006, Ontario Growth Secretariat, 2014.

FIGURES

Figure 1: Manufacturing Employment as a Share of Total Employment, Ontario, 1976–2014
Source: Statistics Canada, CanSIM Table 282-0008 Labour Force Survey estimates by NAICS, sex and age group, annual (persons x 1,000)

Figure 2: Change in Employment by Skill Level, GGH 2001–2014 (%)
Source: Statistics Canada, Labour Force Survey, 2001, 2014

Figure 3: Change in Employment by Skill Level, GGH 2001–2014 (000s of jobs)
Source: Statistics Canada, Labour Force Survey, 2001, 2014

Figure 4: Change in GGH Employment 2001–2014, Total Employment and STEM (%)
Source: Statistics Canada, Labour Force Survey, 2001, 2014

Figure 5: Change in GGH Employment, 2001–2014, Total Employment and Finance (%)
Source: Statistics Canada, Labour Force Survey, 2001, 2014

Figure 6: Change in GGH Employment 2001–2014, Total Employment and Manufacturing (%)
Source: Statistics Canada, Labour Force Survey, 2001, 2014

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