Pembina

Ontario Community Sustainability Report — 2007










the PEMBINA institute
Sustainable Energy Solutions

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Table of Contents

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About the Pembina Institute

The Pembina Institute creates sustainable energy solutions through research, education, consulting and advocacy. It promotes environmental, social and economic sustainability in the public interest by developing practical solutions for communities, individuals, governments and businesses. The Pembina Institute provides policy research leadership and education on climate change, energy issues, green economics, energy efficiency and conservation, renewable energy and environmental governance. More information about the Pembina Institute is available at http://www.pembina.org or by contacting info@pembina.org.

About the Pembina Foundation for Environmental Research and Education

The Pembina Foundation for Environmental Research and Education is a federally registered charitable organization. The foundation supports innovative environmental research and education initiatives to increase understanding within society of the way we produce and consume energy, the impact on the environment and the consequences for communities, as well as options for the more sustainable use of energy natural resources. The Pembina Foundation contracts the Pembina Institute to deliver on this work.

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Foreword

Over the past several years the Pembina Institute has taken a strong interest in issues related to the environmental, economic and social sustainability of urban communities in Ontario. From 2003 to 2006 it published a series of studies on provincial legislation and policy affecting urban development in southern Ontario, using a sustainability framework:

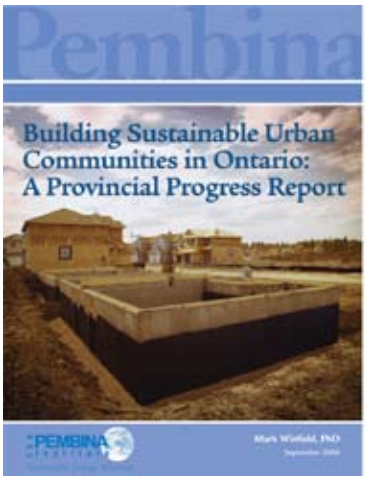
- *Smart Growth in Ontario: The Promise vs. Provincial Performance* (March 2003) examines the relationships between air quality, climate change and urban development issues in Ontario. The paper highlights the potential for smart growth policies to generate mutually reinforcing benefits with respect to greenhouse gas emissions, air quality, the protection of ecologically significant areas and prime agricultural lands, reduced infrastructure costs, and increased transportation efficiencies. The study concludes that there is a major gap between the government's smart growth vision and the policies that it is implementing.

- *Smart Growth in Ontario: A Provincial Progress Report on Smart Growth and Urban Sprawl* (August 2003) reviews actions taken by the Ontario government against its smart growth agenda noting that little progress has occurred in implementing smart growth policies; to the contrary, provincial policies continue to encourage and subsidize urban sprawl.

- *Building Sustainable Urban Communities in Ontario: Overcoming the Barriers* (November 2003) describes the environmental and economic costs of urban sprawl in southern Ontario, and assesses existing provincial policies against Ontario's provincial policy framework that reflects smart growth principles. The report identifies existing barriers and highlights six key areas for provincial action.

- *Building Sustainable Urban Communities in Ontario — Towards Implementation?* (July 2004) assesses the government's performance on urban sustainability issues against widely accepted smart growth principles, and its own October 2003 election platform commitments. While highlighting key achievements during the first months in office, the report notes that key implementation plans have not been finalized. The report concludes that the government needs to move forward on all fronts if it is to fulfil its election platform promise to the province's urban communities.

- *Building Sustainable Urban Communities in Ontario: A Provincial Progress Report* (June 2005) highlighted the adoption of major revisions to the Planning Act, a revised Provincial Policy Statement, the adoption of the Greenbelt Plan and dedication of a portion of provincial gasoline tax revenues to public transit. It also noted that the Greater Golden Horseshoe (GGH) growth plan and source water protection initiatives remained works in progress, and there was a need for further OMB reform, stronger smart growth policy direction for infrastructure programs, further progress on fiscal and taxation issues, and provincial support and guidance to municipalities on planning reform implementation.



- *Building Sustainable Communities in Ontario: A Provincial Progress Report* (October 2006) focuses on provincial government initiatives between June 2005 and June 2006. The report assesses the government's overall progress on urban sustainability and smart growth issues, and highlights priority areas for action over the coming year.

While much of the Pembina Institute's work on urban sustainability in Ontario has focused on pro-

vincial level policies related to planning and development, the organization also has an active interest in local implementation and outcomes. The Pembina Institute's report entitled *Local Implementation of Smart Growth Policies in Ontario: Three Case Studies* (2005) provided a detailed review of the implementation of smart growth planning policies in three Ontario municipalities: the City of Ottawa, Waterloo Region and York Region. The case studies assessed each jurisdiction's formal policies and, to the extent possible, recent planning and infrastructure investment decisions against 11 criteria reflecting smart growth principles. The present report furthers the Pembina Institute's contribution to the research on implementation and the evaluation of whether policies and plans that use the language of sustainability are being translated into tangible progress on the ground.

Executive Summary

This study provides a snapshot of the sustainability of selected communities across Ontario in recent years. The study employs 33 indicators in three broad categories (smart growth, livability and economic vitality) to develop an overall community sustainability index for 27 Ontario municipalities. The municipalities include major cities, regional municipalities and medium- and smaller-sized cities from across the province. The sample of municipalities includes communities experiencing high, medium and low levels of population and population growth. The indicators were developed on the basis of the most recent publicly available data from Statistics Canada, Environment Canada, the Canadian Institute for Health Information and provincial government sources, including 2006 census data.

In addition to the statistical indices, the study includes seven detailed case studies of individual communities (City of Peterborough, York Region, Niagara Region, City of Stratford, City of Ottawa, Waterloo Region, City of Toronto). The case studies are intended to bring to life some of the specific features of these communities, to address some of the methodological limitations involved in indicator reports, and to add some richness and lived reality to the portraits drawn.

The study seeks to inform the debate on community sustainability and smart growth in Ontario as the provincial government continues its major reform of the planning system with ambitious goals to stem sprawl and promote community sustainability in the Greater Golden Horseshoe and throughout the province. Having an indicator framework (such as the one used in this study) to monitor and evaluate these changes can only help advance our understanding of the changes wrought *by* the new system and where changes *to* the system might be needed.

The study was limited by the availability of data sources, or lack thereof. In some cases, data for what might be considered important indicators of community sustainability, such as energy use, ecologically significant land losses to development, waste produced or total consumption levels, were simply not available, or not available on a consistent basis from a single source and aggregated to the municipal level. An indicator report is always an exercise in compromise between the ideal set of indicators and the set for which suitable data can be found.

High Population
Toronto
Peel Regional Municipality
Ottawa
York Regional Municipality
Durham Regional Municipality
Hamilton
Waterloo Regional Municipality
Niagara Regional Municipality
Halton Regional Municipality
Medium Population
London
Windsor
Greater Sudbury
Kingston
Thunder Bay
Guelph
Barrie
Brantford
Sault Ste. Marie
Low Population
Peterborough
Sarnia
North Bay
Belleville
Cornwall
St. Thomas
Woodstock
Stratford
Orillia

A number of important themes emerged from the indicators. Large, well-established cities like Toronto and Ottawa generally do well in the overall community sustainability ranking. At the same time, there is evidence of some serious underlying challenges in terms of housing affordability, community amenities and commuting patterns for Toronto, and commuting distances, a poor land use mix and low business diversity for Ottawa.

Recent population trends present additional challenges for Toronto. The city's population growth now seems to be stagnant. This presents a potentially serious problem for the province: its most sustainable community, which is expected in the province's GGH growth management plan to absorb a significant portion of the region's projected population growth, is experiencing virtually no population growth at all.

Community Sustainability Index Rank	Municipality
1	Toronto
2	Ottawa
3	Halton Regional Municipality
4	Stratford
5	Guelph
6	Peel Regional Municipality
7	York Regional Municipality
8	Waterloo Regional Municipality
9	London
10	Barrie
11	Durham Regional Municipality
12	Kingston
13	Cornwall
14	Sarnia
15	Peterborough
16	Hamilton
17	Windsor
18	Niagara Regional Municipality
19	Woodstock
20	Orillia
21	North Bay
22	St. Thomas
23	Belleville
24	Brantford
25	Thunder Bay
26	Sault Ste. Marie
27	Greater Sudbury

Rather, population growth is concentrated in surrounding regions that show a striking combination of high economic vitality, poor urban form and high income inequality. The situation places communities like Niagara, Durham, Halton and York regions at risk of further embedding highly inefficient sprawling urban forms. Such paths may threaten the community's long-term economic vitality due to high levels of automobile use resulting in increasingly serious traffic congestion, reinforced by the lack of housing for low-income workers, and high infrastructure maintenance costs.

The second major theme that emerges from the indicators is the disjuncture between the Greater Golden Horseshoe region and the rest of the province. Eight (Regions of Halton, Peel, York, Waterloo and Durham, and the Cities of Toronto, Guelph and Barrie) of the top 11 ranked communities in the overall community sustainability index are located in the Greater Golden Horseshoe.[i] All are characterized by high economic vitality rankings and generally moderate to high livability indexes. At the same time, the smart growth rankings of these communities are dramatically mixed, with cities generally ranking very high and regional municipalities ranking very low.

In contrast, the lower range of the overall community sustainability index is dominated by northern communities (Sudbury, Sault St. Marie, Thunder Bay, North Bay) and southern communities outside of the Greater Golden Horseshoe region (Woodstock, St.Thomas, Belleville). All do poorly in the economic vitality rankings and some face significant challenges in the areas of livability and smart growth as well, although the latter rankings may reflect the more rural character of these communities.

The picture that emerges from the indicators reflects the extent of the concentration of economic activity and population growth in the Greater Golden Horseshoe and Ottawa, and the difficulties faced by communities that have traditionally depended on resource extraction and processing, agriculture and manufacturing outside of these regions.

The study does not claim to have produced the definitive picture of community sustainability in Ontario. On the contrary, it must be emphasized that the findings in this report provide only a preliminary and limited portrait. The reality is undoubtedly more complicated and subtle than can be captured in statistics and brief case studies, even under ideal study conditions.

[i] Ottawa, London and Stratford are the exceptions.

1. Introduction

Canadian cities are regularly identified as among the healthiest, most prosperous and most desirable places in the world. Nonetheless, it is increasingly apparent that our urban system is under considerable strain: Canadian cities are growing largely at the expense of the natural environment, are unable to meet their infrastructure needs without pushing municipal governments beyond their fiscal capacities, and continue to be marked by social inequities, such as the lack of affordable housing for specific population groups and an increasing geographic segregation of urban populations by social class, health prospects and life opportunities. At the same time, a consensus seems to be emerging that the social cohesion and environmental health of our urban regions have both important implications for the economic competitiveness of the country and a significant impact on our general standard of living.

This nexus of issues is drawing greater attention to the concept of urban sustainability, which focuses on the linkages among environmental, social and economic issues. Although various definitions of urban sustainability have been put forward, they all pivot on the idea of achieving growth and development in a way that balances environmental, social and economic concerns. Development is sustainable when it conserves resources, avoids damaging ecological processes, and contributes to social equity, quality of life and a vital, diverse economy.

One reflection of the rising interest in community sustainability is the multiplication of efforts to measure and report on the sustainability of urban areas. A community sustainability report is an information resource — usually a printed or online document — that provides a snapshot of current community conditions and trends based on selected quantitative data gathered from a variety of sources. The monitoring and analysis of trends can help show strengths and weaknesses of community life. Trend analysis is a tool to be used in building community and strengthening collaboration and can be used to complement other approaches to community sustainability assessment.[1]

Community sustainability reports typically make use of quantitative indicators, which are defined as key measures that reflect more general conditions in an area of concern to the community. Indicators are useful because they capture key aspects of local conditions and trends without having to present overwhelming amounts of detail. Indicators can range from the concentration of key air pollutants in ambient air or the amount of crime reported in a community over the last year, to the amount of education the average adult in the community has attained or the average cost of housing. The indicators that are chosen for a community reporting exercise reflect what is important to the community or agency choosing them.

The use of indicators has proven to be a useful tool for a number of purposes. Indicator initiatives allow communities to organize discussions around factors of key importance to citizens, to measure the current status of those factors, and to progress towards whatever higher level of community sustainability the community has set as a goal for itself. Thus, indicator reports can be useful vehicles for civic engagement and community education by informing citizens of community conditions, raising public awareness of the interdependence of issues, identifying community priorities and providing a basis for setting goals and targets for action. They can also influence policy and program development by providing feedback on outcomes to aid decision making and inform planning. In this way, community reporting can help improve resource and asset utilization.

In Canada, dozens of communities across the country have undertaken community sustainability reports. These reports typically use indicators that touch on the three main dimensions of community sustainability: social, environmental and economic. Key social themes have included education and housing, environmental themes have included air and water quality, and economic themes have included income and employment levels.

[1] Other approaches might include, for example, Ecological Footprint Analysis, Rapid Rural Appraisal, community mapping, the Business Vitality Index or community visioning.

While these reports have undoubtedly assisted communities in defining and tracking trends of significance to residents, they are often conducted in isolation from other communities and with a unique set of indicators that are locally defined. For example, most community reports include indicators for energy consumption, but one community might measure in barrels of oil per capita per year, while another might use residential electricity use.

In cases where municipalities use the same indicator, definitions may differ. For example, two reports may measure "open space," but this term may signify a playing field in one city and green space in another. Researchers who have reviewed the panoply of community sustainability reports in Canada have concluded that only a handful of indicators that draw from national or provincial sources (such as the local unemployment rate and educational attainment) are widely and consistently used across reports.[2]

The strength of local reporting initiatives is that they reflect local conditions and assess what the community feels is worth measuring and reporting. There is little doubt that such initiatives will continue to serve as important tools as communities strive to build local capacity and move towards higher levels of well-being. However, the specificity of these locally produced reports makes them of limited value if the goal is to compare performance across communities or to track more general trends over time in communities throughout a country or province.

To address this need, a number of agencies working at a regional, provincial, national or even international level have developed frameworks for reporting on community sustainability. Such initiatives collect data using a consistent set of indicators and measurement techniques across a large number of communities. These initiatives can provide an opportunity to participating communities to benchmark local conditions and trends against those found in other communities and help determine whether observed trends are local events or reflective of larger changes.

The usefulness of national frameworks for community sustainability reporting has been widely recognized in the literature on sustainable cities.[3] Some countries have adopted such frameworks and several multi-national bodies have offered frameworks that could be used to measure and report on sustainability at the local level. Worldwide, thousands of communities are participating in such community sustainability reporting initiatives, including the following:

- 237 communities have participated in the United Nations Commission on Human Settlements' Urban Indicator Program since 1993;
- 400 local authorities are members of the International Council on Local Environmental Initiatives and 30 were involved in its City 21 indicators project;
- 25 cities produced reports using the Cities Environment Reporting on the Internet framework between 1995 and 1997;
- over 3,000 municipalities are part of the WHO Healthy Cities Project, launched in 1986;
- 148 municipalities (representing over 15 million people) have joined the European Common Indicators program (which focuses on monitoring environmental sustainability at the local level) since its inception in 1999.

In Canada, the Federation of Canadian Municipalities (FCM) has developed a Quality of Life Reporting System on the well-being of participating communities using a consistent set of indicators and measures. The initiative has generated two full reports (1999 and 2001) and a series of theme reports (including a 2005 report on ecological footprints). At present, 20 municipalities have voluntarily joined the reporting system (including 12 in Ontario), representing 40% of the country's population.

[2] For example, Virginia Maclaren, *Developing Indicators of Urban Sustainability: A Focus on the Canadian Experience* (Toronto: ICURR, 1996); Environment Canada, *Background Paper to a National Environmental Indicators and State of the Environment Reporting Strategy: Proposed Options* (Ottawa: National Indicators and Reporting Office, 2003).

[3] For example, a report by Environment Canada concluded that "comparisons [among municipalities] are extremely useful in providing context for many issues. Citizens and even local decision-makers are able to relate the local situation to what they have learned, through the media and other means, about environmental issues at the global or national level. Also the situation in other communities provides a reference point that is applicable among homologues and the tracking of results from different response options is possible. These kinds of comparisons, however, can only be done without serious difficulties if the indicators are compatible and the underlying data are consistent in terms of collection methods." Environment Canada, Background Paper to a National Environmental Indicators and State of the Environment Reporting Strategy: Proposed Options (Ottawa: National Indicators and Reporting Office, 2003), 29.

The FCM Quality of Life project was established to provide municipal governments in Canada with a useful tool to monitor the success of federal programs and services designed to sustain and improve quality of life on the local level, and to help local governments plan and set priorities for addressing local needs. The reports are meant to be released regularly in order to show trends with respect to key issues and whether the situation is worsening or improving.

Use of the FCM reporting system represents the first time that municipal governments have worked together to develop a national framework for monitoring and reporting on sustainability issues. It also marks the fist time that nationally consistent local data has been collected in Canada across a large number of municipalities.

However, the system is not without its limitations. First of all, the current system is only open to Canadian cities with a population greater than 100,000. This means that smaller centres, which have unique sustainability issues to contend with (such as population stagnation or decline), are excluded from the analysis. Another weakness of the FCM system springs from the fact that some of the indicators used in the model are based on local sources. While drawing from local sources can expand the range of possible indicators, it relies on the cooperation of local authorities (which can be uneven or unpredictable) and can introduce problems of comparability.

Furthermore, and most importantly from our point of view, is the fact that the FCM system is heavily weighted to social and health issues, perhaps in keeping with its focus on quality of life. Thus, there are few economic or environmental indicators; from a sustainability perspective, these types of indicators should be considered equal in importance to the others.[4] In particular, the system ignores the crucial issues related to urban form, i.e., the physical design of the city.

In North America, the urban form that has emerged since WWII is characterized by large-scale areas of homogenous land uses, such as residential zones, large shopping malls, industrial parks and recreational areas. Under these conditions, transit service is usually not very convenient and walking or biking is often out of the question because of the distances involved. Thus, people living in these communities have to rely on their cars and governments have to provide a vast network of roads, bridges, overpasses and expressways to make it all work. Paying for the automobile infrastructure uses up a large portion of the public money available for investment in the transportation system, further undermining the possibility of an efficient and reliable transit system. Congestion also undermines the economic health of the city as commuters and cargo spend time in traffic jams and business investors begin to look elsewhere. Declining tax revenues further undermine investment in transit development and social services in the city, and drive more people to the car-dependent suburbs. These dynamics make urban sprawl a self-reinforcing, vicious circle.

A sustainable urban design makes for a self-reinforcing, more virtuous circle: compact urban form with a fine grain mix of land uses makes for a more efficient and economical transit system. Good transit

[4] In her exhaustive review of sustainable development indicators reporting, Virginia Maclaren (2001. Blighted or Booming? An Evaluation of Community Indicators and their Creation. Canadian journal of Urban Research. 10 (2). Pages 275-291) has observed that there are some variations or differences between two distinct "camps" of community well-being reporting. Those operating with quality of life or healthy community models tend to place more emphasis on social and health indicators at the expense of others, while "state of the environment" models favour indicators of the biophysical environment. What she calls "state of the community" or "sustainability" reporting, in her opinion, tends to be more balanced and more likely to have influence on directing local policy changes. This is the approach taken in the present report, i.e., community sustainability is used as an all-encompassing term to convey the notion of a positive state of affairs at the community level, including social, environmental and economic conditions.

services encourage people to live near or establish work places on transit routes, which intensify into higher density corridors and urban nodes. Higher density development provides a range of housing opportunities that can in turn attract a wide range of employers and employees. Employment opportunities, less traffic congestion, more space dedicated to ecological and recreational uses, good transit and affordable housing are all factors that improve quality of life and attract new residents that — if properly settled — contribute to a healthier economy.

Given the relationship of urban form to so many important environmental, social and economic issues, it clearly should serve as a major axis in any report on community sustainability. This is the strategy adopted in the present report, which attempts to balance the urban form issues related to the physical environment with those related to social and economic environments.

This report is intended to provide a snapshot of the sustainability of selected communities across Ontario. By ranking a sample of diverse communities on a set of specific measures, it can serve as a baseline of current conditions and a marker for referencing future results. It is intended less to identify problem areas within particular communities than to act as a vehicle for stimulating discussion on the meaning of community sustainability, trends, common challenges and potential solutions. The report is also intended to help advance the debate on community sustainability and smart growth in Ontario, addressing issues ranging from policy to implementation and performance on the ground.

The report is addressed to community organizations and local governments as well as public officials, developers, architects, consultants and others. It is not intended as a comprehensive scientific analysis of community sustainability in Ontario. Rather, it is hoped that it can provide a snapshot of the current situation with some useful and instructive vignettes of the possible futures from which we can choose.

This report is organized into nine main sections, including this introduction. In the next section (Section 2), we explore some issues related to the design of the reporting framework, including the conceptual framework and the criteria for indicator selection. In Section 3, we present the report methodology, including the thinking that went into the choice of municipalities and the steps followed in gathering the quantitative and qualitative data. Each of the next three sections (Sections 4–6) focuses on one dimension of community sustainability — the physical environment, the social environment and the economic environment, respectively. Each section includes a discussion of the main issues associated with that dimension, some background on the indicators that were selected to reflect performance on that dimension, and the rankings on the aggregate index for that dimension. Section 7 brings together the three sub-indices into an overall Community Sustainability Index. Section 8 presents the seven case studies that have been prepared to provide more context on the ground. Finally, Section 9 presents our overall conclusions.

2. Framework for Analysis

In this section we explore some important issues related to the design of the reporting framework, the choice of indicators and the use of indices to present the key results.

2.1 Conceptual Framework

Community sustainability reports are often organized according to an explicit or implicit conceptual framework. The framework chosen defines the context within which the information is viewed, and influences which indicators are used and how they are organized in the report itself. The five general organizational frameworks identified by Maclaren are as follows:[5]

- **Domain-based** frameworks are organized according to the key dimensions of sustainability (i.e., economy, society, environment). Using this framework ensures that all aspects of community well-being are considered in a relatively balanced way.

- **Sectoral-based** frameworks reflect the departmental organization and responsibilities of local governments (e.g., transportation, land use, housing, recreation, economic development, environment, public health). This framework is most appropriately used when the target audience is made up of municipal politicians or staff.

- **Goal-based** frameworks focus on community goals (e.g., basic human needs, social well-being, citizen participation, environmental protection). This approach allows for the expression of an explicit vision of community well-being and can help inspire local action to achieve that vision.

- **Issue-based** frameworks are centred on issues of public concern (e.g., economic change, solid waste management, crime and public safety, job creation, pollution). This is a relatively unstructured approach that allows the initiative to focus on issues of greatest significance to the communities involved. This framework is best used in the context of isolated initiatives where comparison with other communities is not a priority.

- **Combination** frameworks bring together two or more of the above frameworks. They can consolidate the advantages of several individual frameworks.

This report uses a combination framework that combines domain-based and goal-based frameworks. This will ensure an appropriate balance among the indicators used while allowing for the expression of a definite vision of sustainability. The domains identified are the physical environment, the social environment and the economic environment, attached to which are normative expressions that suggest the direction in which communities should be moving: smart growth, livability/equity, and economic vitality. For each of the three dimensions of community sustainability, 11 indicators were chosen based on their relevance to the domain and the availability of data aggregated to the municipal level from a single source using a consistent definition and consistent data gathering techniques.

2.2 Indicators

Indicators can be classified in several different ways. One important distinction is that between input and outcome indicators. Input indicators reflect public or collective resources being put into advancing community well-being or addressing community well-being challenges, e.g., dollars invested in public transportation as opposed to being spent on road construction. Outcome indicators measure conditions or trends in the community or environment, e.g., number of poor air quality days. Both types of indicators are important: input indicators signal municipal policy priorities while outcome indicators can track the effectiveness of public or collective action in changing economic, social or environmental conditions.

In the context of community sustainability reporting, input measures would be more appropriate for reports intending to assess the performance of municipal governments while outcome measures

[5] Virginia Maclaren, *Developing Indicators of Urban Sustainability: A Focus on the Canadian Experience* (Toronto: ICURR, 1996)

would be more appropriate if the main purpose of the report is to track community conditions/trends or to educate the general public on or engage them in important local issues.

In the past, assessment of local government performance focused on input indicators (such as workload and costs rather than achievement of goals and standards), impact on community conditions and other outcome measures.[6] Input indicators tend to draw attention to the efforts of politicians and policy makers to change conditions rather than their effectiveness in actually bringing about change. However, the emphasis on local government accountability, which is one of the key factors driving community indicator studies, is engendering a shift toward the measurement of outcomes.

Moreover, data for outcome indicators are usually easier to find than are those for input indicators. Data for outcome indicators are usually collected by provincial and federal agencies, ready made for local reporting exercises. In contrast, data for input indicators are more likely to be obtained from a local source because they represent local actions. Not surprisingly then, most community sustainability reports preponderantly use outcome indicators. This is the strategy that will be followed in the present report.

Another way of classifying indicators is to consider the level of government authority that has control (or the most control) over the underlying issue. For example, although air pollutants often originate outside the community, air quality can be affected by local government decisions, such as banning the use of woodstoves, passing anti-idling regulations, establishing pedestrian zones, promoting higher-density development, and investing in transit and bike paths. This is the type of indicator favoured in the present report.

Other parameters that might seem related to community sustainability reporting are less amenable to local control. For example, annual mean temperatures may reflect important changes in the global climate and impose adaptation stresses on local communities, but it is not a parameter over which local communities have significant control or for which one would expect to see significant variation among communities in a relatively narrow geographical area. Such parameters are not included in the present report.

Other important considerations that affected the choice of indicators in this report were

- **scientific validity and reliability**: Indicators chosen were considered to be accurate and reliable measures of the issues or concerns at hand.
- **secondary data**: Indicators supported by existing secondary data were chosen over indicators for which primary data would have to be gathered by the report authors.
- **aggregated at the relevant geographic level**: To be useful for community reporting, the data had to be aggregated at the municipal level. This is often a stumbling block in choosing indicators as much data collected by federal and provincial agencies are aggregated at higher geographic levels (such as the Census Metropolitan Area or provincial level). To take one example, although information is available at the provincial level to convert agricultural land to urban uses, this information is not available for specific cities or towns.
- **currency and consistency of data over time**: Indicator data should be as up to date as possible and data from the same or proximate years should be available across all indicators in the report.[7] In

[6] Meg Holden, "Uses and Abuses of Urban Sustainability Indicator Studies," *Canadian Journal of Urban Research* 10, no. 2 (2001): 217–236.

[7] At the time this report was prepared, the most recent census data available was for 2001.

consideration of the possibility that this initial report may be periodically updated, consideration was also given to the likelihood that data for the indicators chosen would be available on a consistent basis in the future.

- **relevance**: Indicators were chosen that were thought to be of relatively equal importance to cities across Ontario.
- **accessibility and affordability**: Indicators for which data was easily available (e.g., on the Internet) and free of charge were favoured in the selection process.

2.3 Indices

Another important issue in the design of a community reporting system is the use of indices. An index is a single measure that represents a host of indicators combined in such as way as to give a snapshot of overall conditions. The GDP is currently the most well-known economic index, conventionally applied to demonstrate economic progress. A common environmental index is the Air Quality Index, which measures a spectrum of pollutants and categorizes air quality as good, acceptable or poor.

Whether to aggregate individual indicators into an index is a question that frequently arises in the literature on community well-being indicators. Indices are thought to be effective communication tools, as they are less overwhelming and easier to grasp than a battery of individual indicators. However, there are concerns that aggregation into an index not only simplifies the data, but also hides important variations. For example, a decline in average education levels in a community may make a community sustainability index go down; if this is offset by gains in economic diversity, the index may not register any overall change.

Furthermore there are technical problems associated with weighing and combining indicators to create an index. These problems stem from the fact that indicators use different measures and units that cannot be simply added together or averaged to make up a single index.

For these reasons, many sustainability indicator efforts have opted not to use indices and have relied instead on presenting an array of indicators. But such arrays often fail to convey a sense of the "big picture" — the overall trend — in ways the public can appreciate. Thus, each author must decide if the communication advantages are outweighed by the loss of subtlety and accuracy inherent in the use of indices.

In this report, we have elected to calculate a Sustainable Community Index, but in order to capture some of the lost subtlety that such a strategy implies, we also calculate three sub-indices, i.e., one for each dimension of community sustainability. Moreover, the seven case studies presented in later sections of the report are used to explore the significance of the indicators within individual municipalities, which we hope will serve as a counterweight to the abstract nature of the indices.

3. Methodology

This study proceeded in five key steps: study municipality selection, indicator selection, quantitative data gathering, data analysis, and case study preparation.

Study municipality selection: A total of 27 municipalities throughout Ontario were selected for inclusion in the study. All municipalities with a 2006 population of more than 30,000 where included. Where regional governments were in place, these upper-tier municipalities were selected instead of the component lower-tier municipalities. The selected municipalities were categorized into one of three

Table 1: Study municipalities by population groups

Municipality	2001 Population	2006 Population	Change #	Change %
High Population				
Toronto	2,481,494	2,503,281	21,787	0.88
Peel Regional Municipality	988,948	1,159,405	170,457	17.24
Ottawa	774,072	812,129	38,057	4.92
York Regional Municipality	729,254	892,712	163,458	22.41
Durham Regional Municipality	506,901	561,258	54,357	10.72
Hamilton	490,268	504,559	14,291	2.91
Waterloo Regional Municipality	438,515	478,121	39,606	9.03
Niagara Regional Municipality	410,574	427,421	16,847	4.10
Halton Regional Municipality	375,229	439,256	64,027	17.06
Medium Population				
London	336,539	352,395	15,856	4.71
Windsor	208,402	216,473	8,071	3.87
Greater Sudbury	155,268	157,857	2,589	1.67
Kingston	114,195	117,207	3,012	2.64
Thunder Bay	109,016	109,140	124	0.11
Guelph	106,170	114,943	8,773	8.26
Barrie	103,710	128,430	24,720	23.84
Brantford	86,417	90,192	3,775	4.37
Sault Ste. Marie	74,566	74,948	382	0.51
Low Population				
Peterborough	71,446	74,898	3,452	4.83
Sarnia	70,876	71,419	543	0.77
North Bay	52,771	53,966	1,195	2.26
Belleville	45,986	48,821	2,835	6.16
Cornwall	45,640	45,965	325	0.71
St. Thomas	33,236	36,110	2,874	8.65
Woodstock	33,061	35,480	2,419	7.32
Stratford	29,676	30,461	785	2.65
Orillia	29,121	30,259	1,138	3.91

groups based on population size: high population, such as Toronto (2,503,281), medium population, such as London (352,395), and low population, such as Peterborough (74,898). Each population group comprised nine municipalities, as shown in Table 1.

The study municipalities can also be categorized by their growth rates from 2001 to 2006. High-growth cities saw their populations increase by more than 7% over that five-year period (such as Barrie, which grew by 24%). Medium-growth cities experienced growth of less than 7% but more than 2.75% (such as Belleville, which grew by just over 6%), and low-growth cities had population increases less than 2.75% (like Stratford, which grew by 2.65%). There were nine municipalities in each growth category, as shown in Table 2.

A map showing the location of the study municipalities appears in Figure 1.

Table 2: Study municipalities by growth rate groups

Municipality	2001 Population	2006 Population	Change #	Change %
High growth				
Barrie	103,710	128,430	24,720	23.84
York Regional Municipality	729,254	892,712	163,458	22.41
Peel Regional Municipality	988,948	1,159,405	170,457	17.24
Halton Regional Municipality	375,229	439,256	64,027	17.06
Durham Regional Municipality	506,901	561,258	54,357	10.72
Waterloo Regional Municipality	438,515	478,121	39,606	9.03
St. Thomas	33,236	36,110	2,874	8.65
Guelph	106,170	114,943	8,773	8.26
Woodstock	33,061	35,480	2,419	7.32
Medium growth				
Belleville	45,986	48,821	2,835	6.16
Ottawa	774,072	812,129	38,057	4.92
Peterborough	71,446	74,898	3,452	4.83
London	336,539	352,395	15,856	4.71
Brantford	86,417	90,192	3,775	4.37
Niagara Regional Municipality	410,574	427,421	16,847	4.10
Orillia	29,121	30,259	1,138	3.91
Windsor	208,402	216,473	8,071	3.87
Hamilton	490,268	504,559	14,291	2.91
Low growth				
Stratford	29,676	30,461	785	2.65
Kingston	114,195	117,207	3,012	2.64
North Bay	52,771	53,966	1,195	2.26
Greater Sudbury	155,268	157,857	2,589	1.67
Toronto	2,481,494	2,503,281	21,787	0.88
Sarnia	70,876	71,419	543	0.77
Cornwall	45,640	45,965	325	0.71
Sault Ste. Marie	74,566	74,948	382	0.51
Thunder Bay	109,016	109,140	124	0.11

Figure 1: The location of study municipalities

Indicator selection: A total of 33 indicators was selected to characterize conditions relating to community sustainability in the study municipalities. Only quantitative indicators were used in this study. Eleven indicators were included in each of the three domains of urban sustainability: the physical environment, the social environment and the economic environment. The list of indicators used is shown in Table 3. The selection of indicators was guided by the general considerations outlined in the previous section of this report. More detailed justification for the inclusion of specific indicators is provided in later sections of this report.

Quantitative data gathering: Data to populate most of the 33 indicators were gathered from federal sources, including Statistics Canada, Environment Canada, the Canadian Institute for Health Information, and the Canadian Centre for Justice Statistics. Other data were drawn from provincial government sources, including the Ministry of Municipal Affairs, Ministry of Economic Development and Trade, and the Ministry of Transportation. Many of the physical environment/smart growth indicators — including population density, land use mix, urban intensification, length of roads per 1,000 people, and street connectivity — were derived from primary sources, namely analysis of GIS maps. Sources for all 33 indicators are shown in Table 4.

Data analysis: The data for each indicator were "normalized" by converting them to a grade between 0 and 100 basis points. For all indicators, a higher score was considered positive from a sustainability point of view. This required inverting scores for some indicators. For example, a low crime rate is better from a sustainability point of view than a high crime rate. A score of 100 was assigned to the community with the best score for any indicator and the scores of other municipalities were pro-rated against it. Thus, all scores fall between 0 (worst performance)

Table 3: Study indicators

	Physical Environment Smart Growth	Social Environment Livability/Equity	Economic Environment Economic Vitality
1	Population density	Income inequality	Business density
2	Land use mix	Dwelling diversity	Business Diversity Index
3	Urban intensification	Affordable housing 1: owners	Unemployment rate
4	Length of roads per 1,000 people	Affordable housing 2: tenants	Youth unemployment rate
5	Street connectivity	Heritage homes	Family income
6	Commuting distance	Community centres	Dependency on safety net
7	Commuting mode	Parks and recreational areas	Dwelling values
8	Place of work	Physical activity	Municipal government operating and capital expenditures
9	Transportation gap	People obese and overweight	Tech Index
10	Tertiary water treatment	Crime rate	Creative Class Index
11	Air quality	Vehicle crashes	Educational attainment

Table 4: Indicator data sources

Indicator	Source Institution	Source Website or Document	Data Year
Physical Environment — Smart Growth Index			
Population density	Primary source	DMTI Spatial	2001
Land use mix	Primary source	DMTI Spatial	2001
Urban intensification	Primary source	DMTI Spatial	2001
Length of roads per 1,000 people	Primary source	DMTI Spatial	2001
Street connectivity	Primary source	DMTI Spatial	2001
Commuting distance	Statistics Canada	Census www.statscan.ca	2001
Commuting mode	Statistics Canada	Census www.statscan.ca	2001
Place of work	Statistics Canada	Census www.statscan.ca	2001
Transportation gap	Ontario Ministry of Municipal Affairs	Financial Information Returns http://csconramp.mah.gov.on.ca/fir/ViewFIR2004.htm	2004/2006*
Tertiary water treatment	Environment Canada	Municipal Water Use Data www.ec.gc.ca/Water/en/manage/data/Use_DB_83-99_DB.xls	1999
Air quality	Ontario Ministry of the Environment	Ontario Air Quality Report www.ene.gov.on.ca/envision/techdocs/index.htm#airquality	2002
Social Environment — Livability/Equity Index			
Income inequality	Statistics Canada	Census www.statscan.ca	2001
Dwelling diversity	Statistics Canada	Census www.statscan.ca	2001
Affordable housing 1: owners	Statistics Canada	Censuswww.statscan.ca	2001
Affordable housing 2: tenants	Statistics Canada	Census www.statscan.ca	2001
Heritage homes	Statistics Canada	Census http://ezproxy.mala.bc.ca:2132/cgi-win/CNSMCGI.EXE	2001
Community centres	Ontario Ministry of Economic Development and Trade	Community Profiles www.2ontario.com/communities	2005/2006*
Parks and recreational areas	Primary source	DMTI Spatial	2001
Physical activity	Statistics Canada	Health Behaviours www.statcan.ca/english/freepub/82-221-XIE/00604/nonmed/behaviours3.htm	2003
People obese and over-weight	Canadian Institute for Health Information	Health Indicators www.statcan.ca:80/english/freepub/82-221-XIE/2005001/tables/pdf/1228_03.pdf	2003
Crime rate	Canadian Centre for Justice Statistics, Statistics Canada	Police Resources http://dsp-psd.pwgsc.gc.ca/Collection-R/Statcan/85-225-XIE/0000385-225-XIE.pdf	2003
Vehicle crashes	Ontario Ministry of Transportation	Ontario Road Safety Annual Report http://www.mto.gov.on.ca/english/safety/orsar/orsar03/chp4_03.htm#table_4.1	2003

* 2006 population figures used for these indicators.

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Indicator	Source Institution	Source Website or Document	Data Year
Economic Environment — Economic Vitality Index			
Business density	Statistics Canada	Canadian Business Patterns, CD-ROM	2004/2006*
Business Diversity Index	Statistics Canada	Canadian Business Patterns, CD-ROM	2004
Unemployment rate	Statistics Canada	Ontario Community Profiles www.2ontario.com/communities/	2001
Youth unemployment rate	Statistics Canada	Census www.statscan.ca	2001
Family income	Statistics Canada	Census www.statscan.ca	2001
Dependency on safety net	Statistics Canada	Census, Economic Dependency Profiles (13C0017)	2001
Dwelling values	Statistics Canada	Census www.statscan.ca	2001
Municipal government operating and capital expenditures	Ontario Ministry of Municipal Affairs	Financial Information Returns http://csconramp.mah.gov.on.ca/fir/ViewFIR2004.htm	2004/2006*
Tech Index	Statistics Canada	Canadian Business Patterns, CD ROM	2004
Creative Class Index	Statistics Canada	National Occupational Classification for Statistics, CD ROM	2001
Educational attainment	Statistics Canada	Census www.statscan.ca	2001

and 100 (top performance). These normalized scores were then used to generate an aggregate index for each domain of urban sustainability (smart growth, livability/equity, and economic vitality). For each of the three indices the 11 indicators were equally weighted to create an average composite index score. The best possible average index score is 100 (i.e., a community that was the best performer in all eleven indicator categories). Finally, all three sub-indices were amalgamated creating a composite Community Sustainability Index — a single index of sustainability for each community. The indices are presented in Section 7 of this report.

Case study preparation: Seven of the 27 study municipalities were selected for in-depth case study in order to provide greater context for the quantitative findings and explore urban sustainability issues affecting Ontario municipalities on the ground. Peterborough, York Region, Niagara Region, Stratford, Ottawa Waterloo Region and Toronto were chosen for this purpose. The case studies appear in Section 8 of this report.

4. Environmental Sustainability — The Smart Growth Index

In our choice of indicators for the physical environment, we have chosen to focus on urban form, i.e., the physical design of the city. Urban form includes features such as the density of settlement, the mix of land uses, and characteristics of the transportation system. These are the issues that determine in large part the environmental sustainability of urban areas.

The term "smart growth" refers to an urban form that minimizes the environmental impacts of growth and development. Smart growth cities are compact, have a mix of different land uses, and tend to grow through high-density development and infill rather than horizontal spread. Street systems are designed to allow easier access to transit vehicles and more direct pedestrian and bicycle routes by, for instance, avoiding the dead-ends and crescent-shaped streets typical of conventional suburbs. Smart growth cities put priority on walking, biking and transit in the design of their transportation systems. Thus, we would expect residents of smart growth cities to have shorter commutes, to be more likely to work closer to their homes, and to get around more by transit, bike and foot than by car.

Urban form also relates to the amount of undeveloped (e.g., agricultural or forested) land that is used in accommodating new growth. When a city grows through intensification of the already existing urban fabric, it minimizes the destruction of farmland or natural areas. When it spreads out into "greenfield" areas, it permanently converts land that is performing important ecological functions to urban use. Smart growth cities grow by converting the least amount of undeveloped land to urban uses.

Urban form also relates to other important environmental factors, namely the resources that are consumed and the pollution and wastes that are produced in the course of city functioning. In terms of inputs, the most important are raw materials, water supply and energy. In terms of outputs, the key factors are solid wastes, waste heat, and air and water pollutants. Compared to sprawled cities, smart growth cities are more efficient and tend to minimize these resource inputs and waste outputs. Smart growth cities ensure that the physical growth of the city is in step with the provision of suitable infrastructure — such as advanced sewage treatment — to handle the wastes produced.

4.1 The Indicators

Unfortunately, indicators of the urban physical environment are relatively scarce. For example, there are no central sources of data aggregated to the municipal level on waste production, total energy use, greenhouse gas production or water quality. Urban form related indicators are similarly rare. No province-wide sources on municipal land use characteristics such as density, intensification, agricultural or ecological land consumption or street patterns are currently available.[8]

We dealt with this penury of useful data by choosing the few secondary sources for environmental indicators that were available (e.g., air pollution, percentage of population with tertiary water treatment, commuting patterns) and by producing new indicators of urban development and urban form from primary sources. In particular, a database of the street network and digital land use maps for each study municipality were obtained from DMTI Spatial Inc. The database files provided a digital representation of the actual street network. Using the street network files in a geographic information system (GIS) software program, we developed indicators such as street connectivity index and average length of the block face. The digital land use maps were used to analyze the spatial distribution of various types of land uses to generate indicators such as land use mix. The GIS information was combined with census data on population to create density and urban intensification indicators.

[8] Ontario municipalities are required to submit information to the provincial government relating to the Ontario Municipal Performance Measurement Program. The program focuses on indicators relating to the efficiency of government services, but some indicators (e.g., related to land use) might have been useful in the context of the present study. Unfortunately, the Ontario Ministry of Municipal Affairs and Housing does not make the data available in disaggregated form by municipal jurisdiction; it reports only general trends among municipalities of different sizes.

Table 5: Smart Growth Index indicators

Indicator	Description	Rationale	Limitations
Population density	Total population divided by the municipality's urbanized land base, which excludes open areas, water bodies and parks.	Reflects the efficiency with which land is used across communities.	Areas designated as residential land use in the digital maps may contain non-residential uses as well (because digital land use maps would classify primarily residential areas as residential only).
Land use mix	An index reflecting the degree to which residential, industrial, commercial, government/ institutional and green (including parks) spaces are present.	Mixed land uses help reduce motorized transport and encourage walking and biking.	The index for land use mix is generated for the entire municipality. This may not accurately reflect the land use mix within neighbourhoods.
Urban intensification	Amount of population growth between 1996 and 2001 that took place in already urbanized areas, defined as enumeration areas with open area less than 40%.	Reflects the degree to which new growth is being accommodated in the already urbanized area versus greenfield areas.	Definition of already urbanized area is somewhat arbitrary.
Length of roads per 1,000 people	Total road length in a municipality's road network divided by the total population, and then multiplied by 1,000.	Provides a measure of the efficiency of the road network. Sprawled communities tend to require more road surface per capita.	In some cases, roads are also used extensively to service the agricultural community.
Street connectivity	The average number of streets at intersections in the jurisdiction.	Street connectivity allows easier navigation and access to pedestrians, cyclists and transit vehicles. Lower connectivity means more dead-ends and T-intersections.	
Commuting distance	The median length of commute (in kilometres) to work.	A measure of the distances between housing and jobs.	Commute distance is a self-reported measure in the Census. The actual distance may vary substantially from reported distances.
Commuting mode	Per cent of labour force that commutes as a car/truck/van driver.	One measure of the degree of dependence on the automobile, with many commuters travelling in single occupancy vehicles (SOVs).	This indicator is reported for commute to work. The mode split may vary for other trip purposes, such as shopping.
Place of work	Per cent of employed labour force working within own census subdivision (municipality) or census division (regional municipality).	A rough proxy for the job/housing balance in a community — i.e., the ability of a community to provide a sufficient employment base and thereby reduce commuting.	May underestimate the number of home-based workers and businesses.
Transportation gap	The ratio of transit maintenance and capital expenditures per capita to road infrastructure maintenance and capital costs per capita.	Spending on roads instead of transit increases car dependency.	This indicator relies on the initial state of the infrastructure. For instance, capital investments in roads to improve traffic safety in urban areas with deteriorated roads, but with well-developed transit infrastructure, may show that the transportation gap is increasing.

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Indicator	Description	Rationale	Limitations
Tertiary water treatment	Per cent of population served with tertiary water treatment.	Reflects stress being placed on local water bodies from sewage loadings.	Most recent figures were from 1999.
Air quality	Number of days where the Air uality Index exceeds 49 (i.e., poor or very poor) for at least one hour.	Air quality is a key measure of the healthfulness of the physical environment and reflects to some extent the efficiency of the local transportation system.	Data were not available for all municipalities; in these cases they were taken from the closest station. Air quality is affected by factors external to the municipality.

4.2 The Rankings

Table 6 shows how the 27 sample municipalities ranked on the Smart Growth Index based on an average of normalized scores for the 11 smart growth indicators described above. Detailed data for each of the indicators comprising the Smart Growth Index are presented in the Appendix of this report.

The concentration of high-growth Greater Golden Horseshoe municipalities with the lowest rankings on this index is striking. Niagara, Halton, York and Durham regions represent four of the six lowest ranked municipalities. In general these rankings reflect poor land use mixes, low levels of intensification, and long commuting distances.

The large cities generally score well on this index. Toronto emerges as the leader, scoring well on all fronts except commuting distances and portion of the population whose place of work is in the city. The latter reflects the extent of commuting from outer suburbs into the city for work. Toronto also scores poorly on air quality, although this is largely an externally generated problem. The City of Ottawa, for its part, does well on all fronts except land use mix and, reflecting the extent of commuting from beyond the Greenbelt, commuting distance.

A number of smaller communities with lower population growth also do well on this index. Stratford, whose only weaknesses are low population density and poor transit services, emerges in some ways as a model 'complete' community. Despite the level of economic distress suggested by its economic vitality rankings, Cornwall does well on urban form, with a high intensification rate, good street connectivity, short commuting distances and good air quality.

Table 6: Smart Growth Index rankings

Smart Growth Index Score	Smart Growth Index Rank	Municipality	Population Class	Growth Class
84.03	1	Toronto	High	Low
63.81	2	Stratford	Low	Low
61.63	3	Cornwall	Low	Low
59.95	4	London	Medium	Medium
59.29	5	Ottawa	High	Medium
58.70	6	Barrie	Medium	High
58.52	7	Guelph	Medium	High
54.51	8	St. Thomas	Low	High
54.32	9	Peterborough	Low	Medium
53.66	10	Woodstock	Low	High
52.32	11	Windsor	Medium	Medium
52.07	12	Orillia	Low	Medium
51.76	13	Belleville	Low	Medium
50.71	14	North Bay	Low	Low
50.61	15	Peel Regional Municipality	High	High
47.61	16	Kingston	Medium	Low
47.51	17	Hamilton	High	Medium
47.47	18	Sault Ste. Marie	Medium	Low
47.37	19	Waterloo Regional Municipality	High	High
44.88	20	Brantford	Medium	Medium
43.85	21	Thunder Bay	Medium	Low
42.72	22	York Regional Municipality	High	High
42.28	23	Sarnia	Low	Low
41.73	24	Halton Regional Municipality	High	High
39.50	25	Greater Sudbury	Medium	Low
37.48	26	Durham Regional Municipality	High	High
36.55	27	Niagara Regional Municipality	High	Medium

Smart Growth Indicators Rankings

Municipality	Population Class	Smart Growth Index Rank	Population Density, persons per sq. km.	Land Use Mix	Urban Intensification	Length of roads	Street Connectivity	Commuting Distance	Car/ Truck/ Van as driver	Place of Work	Transportation Gap	Teriatry Water Treatment	Air Quality
Toronto	High	1	1	1	1	1	3	21	1	12	1	5	21
Stratford	Low	2	17	2	18	9	2	1	4	10	20	1	11
Cornwall	Low	3	16	11	2	14	6	3	12	9	12	17	1
London	Medium	4	7	12	7	8	21	16	7	7	3	10	17
Ottawa	High	5	5	22	16	18	10	21	2	4	2	11	3
Barrie	Medium	6	13	9	12	4	13	17	19	20	9	1	6
Guelph	Medium	7	12	4	19	3	20	13	8	15	4	8	16
St. Thomas	Low	8	21	6	23	7	18	3	23	21	25	1	17
Peterborough	Low	9	18	3	6	10	9	8	6	13	5	17	24
Woodstock	Low	10	19	7	25	11	5	3	15	18	21	1	17
Windsor	Medium	11	9	5	11	5	1	15	16	8	14	17	27
Orillia	Low	12	23	10	3	15	3	2	5	19	25	17	6
Belleville	Low	13	20	24	13	25	12	6	18	11	23	13	8
North Bay	Low	14	14	26	5	24	26	6	10	5	7	17	4
Peel Regional Municipality	High	15	2	14	14	2	23	24	11	26	6	9	8
Kingston	Medium	16	11	23	8	22	22	10	3	6	18	17	8
Hamilton	High	17	3	19	4	12	14	23	9	16	11	15	13
Sault Ste. Marie	Medium	18	25	15	10	19	11	9	24	2	24	17	17
Waterloo Regional Municipality	High	19	8	21	15	17	14	18	22	23	19	6	11
Brantford	Medium	20	15	8	25	6	7	12	20	17	16	17	13
York Regional Municipality	High	21	6	18	20	13	25	25	17	25	13	12	24
Thunder Bay	Medium	22	26	16	24	20	8	13	26	3	8	17	5
Sarnia	Low	23	24	13	21	21	17	11	27	14	10	17	26
Halton Regional Municipality	High	24	10	17	22	16	19	26	13	27	22	7	15
Greater Sudbury	Medium	25	22	27	25	27	27	20	21	1	17	17	2
Durham Regional Municipality	High	26	4	25	17	23	23	27	14	24	15	14	22
Niagara Regional Municipality	High	27	27	20	9	26	14	19	25	22	27	16	22

5. Social Sustainability — The Livability/Equity Index

The second dimension of community sustainability is composed of social aspects, such as livability and equity. Livability refers to the features of a community that attract residents to it and that make it a pleasant, safe and healthy place to be. Livability is also increasingly linked to the economic health of the community in that corporate leaders want to locate in urban areas with a high quality of life, both for themselves and to attract the right kinds of employees.

Livability is enhanced by a strong sense of place, a dynamic community, and an attractive environment that lends itself to active recreation and socializing. A livable community is one in which opportunities for healthy social and personal activities are maximized and stresses, such as crime and disease, are minimized.

Equity refers to the fairness with which social resources such as housing and income are distributed in a community. An equitable community is one in which all types of people — all ages, income levels and ethnic groups — feel comfortable, enjoy the necessities of life and have the resources and freedom to participate fully in community life. A socially equitable community is one that is more likely to enjoy social peace and a stronger sense of community, and to suffer less alienation among specific age (e.g., youth), income or ethnic groups.

The availability of suitable and affordable housing for all age and income groups is not only an important component of both livability and social equity, it also links to wider issues of urban sustainability. For instance, the availability of a range of housing choices is important to ensure that those who work in a community can also afford to live there, thereby reducing the need for inter-community commuting and the associated environmental, social and economic costs. The availability of affordable and attractive housing for their employees is also a key factor in the location decisions of firms considering an investment in the local economy.

5.1 The Indicators

Indicators that reflect livability include positive measures — such as the availability of parkland, community centres and heritage buildings and the level of physical activity of the community — as well as negative measures such as vehicle accident rates, crime and obesity. Indicators of social equity include the availability of a diverse range of housing types, housing affordability, and the distribution of income within the community.

Indicators that would have been desirable, but for which data was not available, include volunteer and voter participation rates, survey data from residents and business owners on levels of satisfaction associated with living and doing business in a particular locale, and consistent data on amenities such as specialty stores and arts and culture facilities.

5.2 The Rankings

The Livability/Equity Index rankings shown in Table 8 are based on an average of normalized scores for the 11 livability/equity indicators described above. Detailed data for each of the indicators that comprise the Livability/Equity Index are presented in the Appendix section of this report.

Some small- and medium-sized communities do very well in the Livability Index. Sarnia emerges in first place on the basis of the availability of affordable housing, community centres and parks and recreational areas, and relatively low crime and vehicle accidents rates. Stratford again scores well, with its only real weaknesses being relatively high levels of income inequality and low levels of physical activity among the population.

Halton and Waterloo emerge as leaders among larger and higher growth municipalities on the basis of the affordability of housing, low crime rates, and good population health, although both suffer from relatively high levels of income inequality, and low portions of heritage homes as well.

Table 7: Livability/Equity Index indicators

Indicator	Description	Rationale	Limitations
Income inequality	Ratio of families with incomes greater than $80,000 per year to families with income less than $20,000 per year.	An indicator of the degree of income inequality in a community.	Assumes that a more equitable community will be more cooperative and less dysfunctional.
Dwelling diversity	Calculated by assuming that an equal distribution of housing types would be an optimum distribution (e.g., 33% of housing is single detached; 33% is ground oriented and 33% is apartments). The closer to 100, the closer the housing is to the ideal ratio (33:33:33) of total housing.	A measure of the balance among different housing types and the range of housing options that will be available for a variety of individuals and families. A diversity of dwelling types within a community may reduce the need for long-distance commuting.	Assumes that an ideal mix is obtained by having the three housing types equally represented in the community. This may not be appropriate under some circumstances.
Affordable housing 1: owners	Per cent of owners spending more than 30% of income on housing.	A measure of housing affordability among home owners. Reflects social inclusiveness.	Some communities spending a smaller proportion of their income on housing may also be more affluent.
Affordable housing 2: tenants	Per cent of renters spending more than 30% of income on housing.	A measure of housing affordability among tenants. Reflects social inclusiveness.	Some communities spending a smaller proportion of their income on housing may also be more affluent.
Heritage homes	Per cent of private dwelling units built before 1946.	A proxy for the number of potential heritage houses and sense of place that a community possesses. Heritage buildings provide a sense of place and community identity as well as contribute to a pleasant pedestrian environment.	Doesn't describe the condition or actual value of the homes.
Community centres	Number of community centres in 2005 per 10,000 people.	Community centres provide recreational facilities, social gathering places, and opportunities to participate in community affairs.	
Parks and recreational areas	Park and recreational area (sq km) per 10,000 people.	Green space within a community provides ready access to recreational opportunities and a pleasant, low-stress environment.	Does not give an indication of proximity to other recreational lands outside the municipal boundary.

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Indicator	Description	Rationale	Limitations
Physical activity	Per cent of population 12 years of age and over that reports being physically inactive.	Reflects the availability of opportunities for physical activities (walkable streets, recreational areas, green spaces).	Doesn't measure the amount of physical activity. Activity levels also depend on macro-level social trends that are not locally determined.
People obese and overweight	Per cent of population (18 years of age and over, excluding pregnant women) that is obese or overweight.	Reflects opportunities for physical exercise and general health of the population.	Physical design of the community has a detectable effect on body weight, but other factors are more important.
Crime rate	All crime codes per 100,000 people.	Measure of social stress. Could also influence sense of social cohesion, and perceived safety of streets.	
Vehicle crashes	Auto deaths and injuries per 1,000 people.	Measure of social stress and car dependency.	

The lower livability rankings include a number of small- and medium-sized communities, subject to divergent growth pressures. For example, Barrie's low density, lack of affordable housing, parks, and heritage homes, and position in the upper third of the rankings for crime and income inequality place it at the bottom of the list.

continued on next page

Table 8: Livability/Equity Index rankings

Liveabilty/ Equity Index Score	Liveabilty/ Equity Index Rank	Municipality	Population Class	Growth Class
69.67	1	Sarnia	Low	Low
65.28	2	Stratford	Low	Low
63.16	3	Halton Regional Municipality	High	High
61.64	4	Cornwall	Low	Low
60.58	5	Ottawa	High	Medium
59.50	6	Niagara Regional Municipality	High	Medium
58.75	7	Waterloo Regional Municipality	High	High
58.12	8	Kingston	Medium	Low
57.40	9	Peterborough	Low	Medium
57.17	10	St. Thomas	Low	High
57.02	11	Guelph	Medium	High
56.49	12	Durham Regional Municipality	High	High
56.32	13	Peel Regional Municipality	High	High
56.13	14	Thunder Bay	Medium	Low
55.46	15	Brantford	Medium	Medium
55.45	16	Hamilton	High	Medium
55.00	17	North Bay	Low	Low
54.38	18	Sault Ste. Marie	Medium	Low
54.34	19	Woodstock	Low	High
54.15	20	York Regional Municipality	High	High
54.06	21	Orillia	Low	Medium
53.53	22	London	Medium	Medium
52.97	23	Windsor	Medium	Medium
52.49	24	Toronto	High	Low
51.43	25	Belleville	Low	Medium
51.22	26	Greater Sudbury	Medium	Low
48.62	27	Barrie	Medium	High

Liveability Indicators Ranking

Municipality	Population Class	Livability Index Rank	Income Inequality	Dwelling Diversity	Affordable housing 1: owners	Affordable housing 2: tenants	Heritage Homes	Community Centres per 10000 people	Parks and Recreational Area	Percentage of population who are physically inactive	People obese and overweight	Crime rate	Vehicle crashes
Sarnia	Low	1	18	22	2	19	14	1	5	17	11	8	2
Stratford	Low	2	20	8	6	6	1	4	4	25	10	11	17
Halton Regional Munic.	High	3	27	19	12	5	25	12	3	2	4	2	5
Cornwall	Low	4	1	6	20	24	13	2	2	19	27	23	15
Ottawa	High	5	24	1	1	2	22	17	20	6	8	9	9
Niagara Regional Municipality	High	6	16	26	19	17	12	18	1	0	6	14	16
Waterloo Regional Municipality	High	7	21	9	7	1	20	9	12	15	9	5	22
Kingston	Medium	8	12	2	9	22	16	14	10	16	14	16	4
Peterborough	Low	9	4	16	18	27	5	3	7	4	7	17	27
Guelph	Medium	10	23	10	11	3	17	13	14	7	12	6	20
St. Thomas	Low	11	7	15	16	9	2	25	21	22	24	13	10
Durham Regional Munic.	High	12	25	25	23	8	23	7	9	7	13	4	13
Peel Regional Munic.	High	13	22	3	25	4	27	21	25	24	2	1	3
Thunder Bay	Medium	14	15	23	5	20	8	5	15	1	17	20	25
Brantford	Medium	15	9	18	13	21	3	15	13	0	22	24	12
Hamilton	High	16	14	13	21	15	9	16	11	0	15	15	21
North Bay	Low	17	5	7	17	23	19	19	22	21	25	12	1
Sault Ste. Marie	Medium	18	2	24	3	26	15	27	6	9	26	19	14
York Regional Munic.	High	19	26	27	27	7	26	22	8	18	3	3	8
Orillia	Low	20	3	14	22	18	6	10	16	13	18	25	11
London	Medium	21	13	5	14	16	18	23	17	3	5	18	24
Windsor	Medium	22	11	17	10	11	4	11	26	20	16	22	18
Toronto	High	23	8	4	26	10	11	26	23	26	1	7	26
Belleville	Low	24	6	12	15	25	10	6	24	23	23	26	19
Woodstock	Low	25	17	11	4	12	7	24	18	27	21		7
Greater Sudbury	Medium	26	10	21	8	13	21	20	19	12	20	10	23
Barrie	Medium	27	19	20	24	14	24	8	27	13	18	21	6

6. Economic Sustainability — The Economic Vitality Index

Economic vitality is the third dimension of urban sustainability. A healthy local economy provides meaningful jobs for all social and age groups and thus contributes to social inclusion and integration. The local economy also needs to be resilient enough to withstand the stresses and changes associated with a competitive marketplace; communities with a dependence on few industrial sectors are more brittle than those with a wide array of employment opportunities.

Whether a local economy is likely to grow, create good jobs and become more resilient is partially dependent on the "social capital" present in the community, i.e., the stock of knowledge and skills found among residents. According to many experts, social capital is becoming more important that the traditional attractors such as access to natural resources, low taxes, cheap labour and good infrastructure in luring new firms to the community. This is especially true of those footloose corporations and institutions — such as high-tech operations, advanced educational institutions and cultural centres — that specialize in the production or use of culture or knowledge. These entities depend far more on the availability of talented employees than on physical resource inputs.

6.1 The Indicators

Indicators for this sub-index have been chosen to reflect the two dimensions of economic vitality described above, i.e., the health and resilience of the local economy as a job and wealth creator and the amount of social capital available to fuel future growth. Indicators for health of the local economy include business density, which is the number of businesses per unit of population, business diversity, family income, dependence on the social safety net, and unemployment rates. Social capital indicators include the Tech Index, which measures the size of the local economy that is in the high-tech sector, and the Creative Class Index, which reflects the diversity of occupations in the arts, culture, recreation and sports sector of the economy. Other indicators that would have been useful in the Economic Vitality Index, but for which we could not obtain consistent data, include a Quality of Employment Index and a Local Cost of Living Index.

6.2 The Rankings

Table 10 provides the rankings on the Economic Vitality Index. The rankings are based on an average of normalized scores for the 11 economic vitality indicators described above. Detailed data for each of the indicators that comprise the Economic Vitality Index are presented in the Appendix section of this report.

The Economic Vitality Index tells a story of two economies: economic growth is concentrated in the Greater Golden Horseshoe (GGH) and economic distress defines the picture outside of the region, the latter reflecting the declining fortunes of the traditional resource and manufacturing sectors.

The concentration of high economic vitality rankings in the GGH is striking. Nine (Halton, York, Durham, Peel, Waterloo and Niagara Regions and Cities of Toronto, Guelph and Barrie) of the top ten ranked communities are in the region, with Ottawa being the one non-GGH leader in the field. At the same time, the low rankings of many of these communities with respect to urban form (Niagara, Durham, Halton and York regions) and livability (Cities of Barrie and Toronto) suggest underlying problems that may threaten their long-term economic vitality.

At the other end of the scale, non-GGH communities that have relied on traditional natural resource extraction and processing and manufacturing activities, such as St. Thomas, Sault Ste. Marie, Cornwall, Thunder Bay, Belleville and North Bay, find themselves at the bottom of the Economic Vitality Index.

Table 9: Economic Vitality Index indicators

Economic Vitality	Description	Rationale	Limitations
Business density	Number of businesses per 1,000 people.	A proxy for the health of the local business climate.	Measures only the number of businesses by business classification but not the number of employed people by business classification.
Business Diversity Index	The diversity and distribution of businesses across all business sectors in the municipality compared to the province as a whole, measured as an index.	A proxy for the resilience of a business community in terms of the diversity and distribution of businesses across all business sectors.	Since the province of Ontario is used as the benchmark for indexing, it assumes the Ontario economy is the most diverse in terms of businesses.
Unemployment rate	Per cent of the labour force 15 years of age and over that are actively seeking work but are unable to find it.	Reflects the ability of the local economy to meet the economic needs of residents.	Subject to major influences from macro-level trends.
Youth unemployment rate	Per cent of youth (15–24 years old) in the labour force that are actively seeking work but are unable to find it.	Measure of the inclusiveness of a community.	
Family income	Median family income.	Indicator of economic well-being and ability to afford an acceptable standard of living.	Does not consider income in relation to cost of living.
Dependency on safety net	Government transfer payments (such as Canada Pension Plan, child tax benefits, employment insurance) as a percentage of total income.	A measure of the robustness of the local economy and the economic independence of residents.	May show a bias against communities with older populations dependent on pension incomes.
Dwelling Values	Per cent change in average dwelling values from 1996–2001.	Changes in housing value reflect the desirability of living in a given community.	Rapid increases in dwelling values could undermine housing affordability.
Municipal government operating and capital expenditures per capita and per hectare	Municipal government operating and capital maintenance costs per capita and per hectare of municipal land area.	Reflects the efficiency of local government.	Does not necessarily reflect the true value of services for municipal expenditures.
Tech Index	High-tech businesses (including computing, architecture, medical, pharmaceutical and communications) as a percentage of total businesses.	High-tech represents a skilled sector of the economy with the potential to spur further investment and growth. High-tech companies are attracted to urban areas with a high quality of life.	Does not consider employment levels but only number of businesses.
Creative Class Index	Occupations in art, culture, recreation and sport as a percentage of the total labour force.	Measures the density of creative people, an indicator of the local quality of life and who serve to attract investment in the new economy.	Does not measure number of businesses in the creative class but only number of workers.
Educational attainment	Per cent of population with a university degree.	A measure of local human capital, i.e., workers with advanced knowledge and skills.	Measures educational attainment in terms of the quantity of schooling, and does not necessarily reflect the quality of education or learning achievement.

Table 10: Economic Vitality Index rankings

Economic Vitality Index Score	Economic Vitality Rank	Municipality	Population Class	Growth Class
85.26	1	Ottawa	High	Medium
85.10	2	Halton Regional Municipality	High	High
80.52	3	York Regional Municipality	High	High
75.31	4	Peel Regional Municipality	High	High
72.47	5	Toronto	High	Low
71.61	6	Durham Regional Municipality	High	High
68.08	7	Waterloo Regional Municipality	High	High
68.07	8	Guelph	Medium	High
59.70	9	Barrie	Medium	High
58.97	10	Niagara Regional Municipality	High	Medium
57.38	11	Hamilton	High	Medium
56.47	12	Stratford	Low	Low
56.04	13	Kingston	Medium	Low
53.54	14	London	Medium	Medium
53.01	15	Windsor	Medium	Medium
49.33	16	Peterborough	Low	Medium
49.25	17	Sarnia	Low	Low
48.54	18	Orillia	Low	Medium
47.07	19	Greater Sudbury	Medium	Low
46.98	20	Woodstock	Low	High
45.55	21	Brantford	Medium	Medium
45.04	22	North Bay	Low	Low
43.87	23	Belleville	Low	Medium
41.50	24	Thunder Bay	Medium	Low
38.49	25	Cornwall	Low	Low
38.15	26	Sault Ste. Marie	Medium	Low
38.04	27	St. Thomas	Low	High

Economic Vitality Indicators Rankings

Municipality	Population Class	Economic Index Normalized Rank	Business Density	Business Diversity Index	Unemployment Rate	Youth unemployment rate, 2001	Family income	Dependency on Safety Net	Dwelling Values	Municipal Government Expenditures	Tech Index	Creative Class Class	Educational Attainment
Ottawa	High	1	5	19	9	10	3	4	4	2	1	1	1
Halton Regional Municipality	High	2	3	6	1	1	1	1	1	9	2	5	5
York Regional Municipality	High	3	1	7	2	3	2	1	14	4	4	6	3
Peel Regional Municipality	High	4	6	14	4	4	5	3	2	6	5	16	7
Toronto	High	5	2	16	14	11	20	9	3	10	3	2	2
Durham Regional Municipality	High	6	25	1	7	14	4	5	6	1	7	14	14
Waterloo Regional Municipality	High	7	8	2	5	5	7	6	8	7	9	10	9
Guelph	Medium	8	13	5	5	8	6	7	7	19	6	4	4
Barrie	Medium	9	18	9	8	9	8	8	5	18	13	12	22
Niagara Regional Municipality	High	10	16	8	9	6	17	17	11	5	15	15	19
Hamilton	High	11	20	3	12	12	13	13	15	8	12	11	12
Stratford	Low	12	4	27	3	6	9	11	12	27	22	3	15
Kingston	Medium	13	17	10	17	17	14	14	18	11	8	7	6
London	Medium	14	12	4	14	15	10	10	22	12	10	9	8
Windsor	Medium	15	19	13	17	12	16	12	9	20	18	25	10
Peterborough	Low	16	10	15	23	25	26	25	13	24	14	8	11
Sarnia	Low	17	21	11	19	24	15	15	16	14	11	19	18
Orillia	Low	18	7	24	11	2	24	23	19	26	24	18	23
Greater Sudbury	Medium	19	23	17	26	23	18	20	27	3	17	21	21
Woodstock	Low	20	9	25	16	22	12	16	10	21	25	20	25
Brantford	Medium	21	22	12	13	16	21	18	17	22	27	22	24
North Bay	Low	22	11	20	24	26	22	22	20	15	16	17	16
Belleville	Low	23	15	18	19	20	25	24	23	13	21	24	20
Thunder Bay	Medium	24	14	26	25	21	11	21	26	16	19	13	12
Cornwall	Low	25	24	21	21	18	27	27	21	23	23	26	27
Sault Ste. Marie	Medium	26	26	22	27	27	23	26	25	17	20	23	17
St. Thomas	Low	27	27	23	22	19	19	18	24	25	26	27	26

7. The Community Sustainability Index

The Community Sustainability Index is an amalgam of the three sub-indices addressed in the previous sections, namely the Smart Growth Index, the Livability/Equity Index and the Economic Vitality Index. As such, it provides an overview of a community's relative performance across all three domains of community sustainability. The most sustainable communities are those that score well on all three indices.

7.1 The Indicators

The Community Sustainability Index reflects a community's standing with respect to all 33 indicators used in this study.

7.2 The Rankings

The Sustainability Index is calculated for each community by averaging the three sub-indices, thereby giving them equal weight. As Table 11 shows, Toronto, Ottawa and Halton Region have the highest sustainability rankings, while Sault Ste. Marie, Sudbury and Thunder Bay have the lowest. The high rankings of the largest cities flow from high smart growth rankings and strong economic vitality rankings. Ottawa also benefits from a high livability ranking, while Toronto faces major challenges in this area, reflecting weaknesses in housing affordability, community centres and parks, and a relatively inactive population.

In general, large cities scored well, with six high-population jurisdictions in the top eight rankings. In contrast, smaller cities tended to be found in the middle rankings, from 13th to 22nd place (with the exception of Stratford, which is the only small city in the top ten rankings). Medium-sized cities tended to score in the middle or lower rankings, except for Guelph, which was in fifth position.

In terms of growth rates, high-growth cities were clustered in the top half of the rankings, except St. Thomas and Woodstock. Low-growth communities were in the middle and lower reaches, except Toronto and Stratford. Medium-growth cities were scattered throughout the rankings. Four of the top ten ranked cities were in both high-growth and high-population classes.

Other than Stratford, there were no cities ranked both low-growth and low-population class in the top ten rankings. Four of the six regional municipalities in the sample placed in the top ten rankings. The bottom end of the index is dominated by small- and medium-sized communities outside of the GGH. Except for St. Thomas and Woodstock, these communities are experiencing low to medium population growth, and their traditional manufacturing and resource extraction economic bases are in decline.

Table 12 provides the breakdown of the Community Sustainability Index into its component indices for each of the 27 sample jurisdictions. The table shows that while some municipalities had components that were in a fairly narrow range (e.g., Ottawa, Guelph, Sudbury, Hamilton and Brantford had scores across the three sub-indices that were within six points of one another), others showed a much wider range. Toronto, for example, was first on the environmental dimension but 23rd on the livability/equity dimension. Halton was second on the Economic Vitality Index and 24th on the Smart Growth Index. The gap was almost as big for York and Durham Regions, reflecting a combination of high economic growth, but poor urban form.

Table 11: Community Sustainability Index rankings

Community Sustainability Index Score	Community Sustainability Index Rank	Municipality	Population Class	Growth Class
69.66	1	Toronto	High	Low
68.38	2	Ottawa	High	Medium
63.33	3	Halton Regional Municipality	High	High
61.85	4	Stratford	Low	Low
61.20	5	Guelph	Medium	High
60.75	6	Peel Regional Municipality	High	High
59.13	7	York Regional Municipality	High	High
58.07	8	Waterloo Regional Municipality	High	High
55.67	9	London	Medium	Medium
55.67	10	Barrie	Medium	High
55.20	11	Durham Regional Municipality	High	High
53.92	12	Kingston	Medium	Low
53.92	13	Cornwall	Low	Low
53.73	14	Sarnia	Low	Low
53.68	15	Peterborough	Low	Medium
53.45	16	Hamilton	High	Medium
52.77	17	Windsor	Medium	Medium
51.67	18	Niagara Regional Municipality	High	Medium
51.66	19	Woodstock	Low	High
51.56	20	Orillia	Low	Medium
50.25	21	North Bay	Low	Low
49.91	22	St. Thomas	Low	High
49.02	23	Belleville	Low	Medium
48.63	24	Brantford	Medium	Medium
47.16	25	Thunder Bay	Medium	Low
46.67	26	Sault Ste. Marie	Medium	Low
45.93	27	Greater Sudbury	Medium	Low

Table 12: The Community Sustainability Index and composite indices

Smart Growth Index Rank	Livabilty/ Equity Index Rank	Economic Vitality Rank	Community Sustainability Index Rank	Municipality
1	24	5	1	Toronto
5	5	1	2	Ottawa
24	3	2	3	Halton Regional Municipality
2	2	12	4	Stratford
7	11	8	5	Guelph
15	13	4	6	Peel Regional Municipality
22	20	3	7	York Regional Municipality
19	7	7	8	Waterloo Regional Municipality
4	22	14	9	London
6	27	9	10	Barrie
26	12	6	11	Durham Regional Municipality
16	8	13	12	Kingston
3	4	25	13	Cornwall
23	1	17	14	Sarnia
9	9	16	15	Peterborough
17	16	11	16	Hamilton
11	23	15	17	Windsor
27	6	10	18	Niagara Regional Municipality
10	19	20	19	Woodstock
12	21	18	20	Orillia
14	17	22	21	North Bay
8	10	27	22	St. Thomas
13	24	23	23	Belleville
20	15	21	24	Brantford
21	14	24	25	Thunder Bay
18	18	26	26	Sault Ste. Marie
25	26	19	27	Greater Sudbury

8. Case Studies

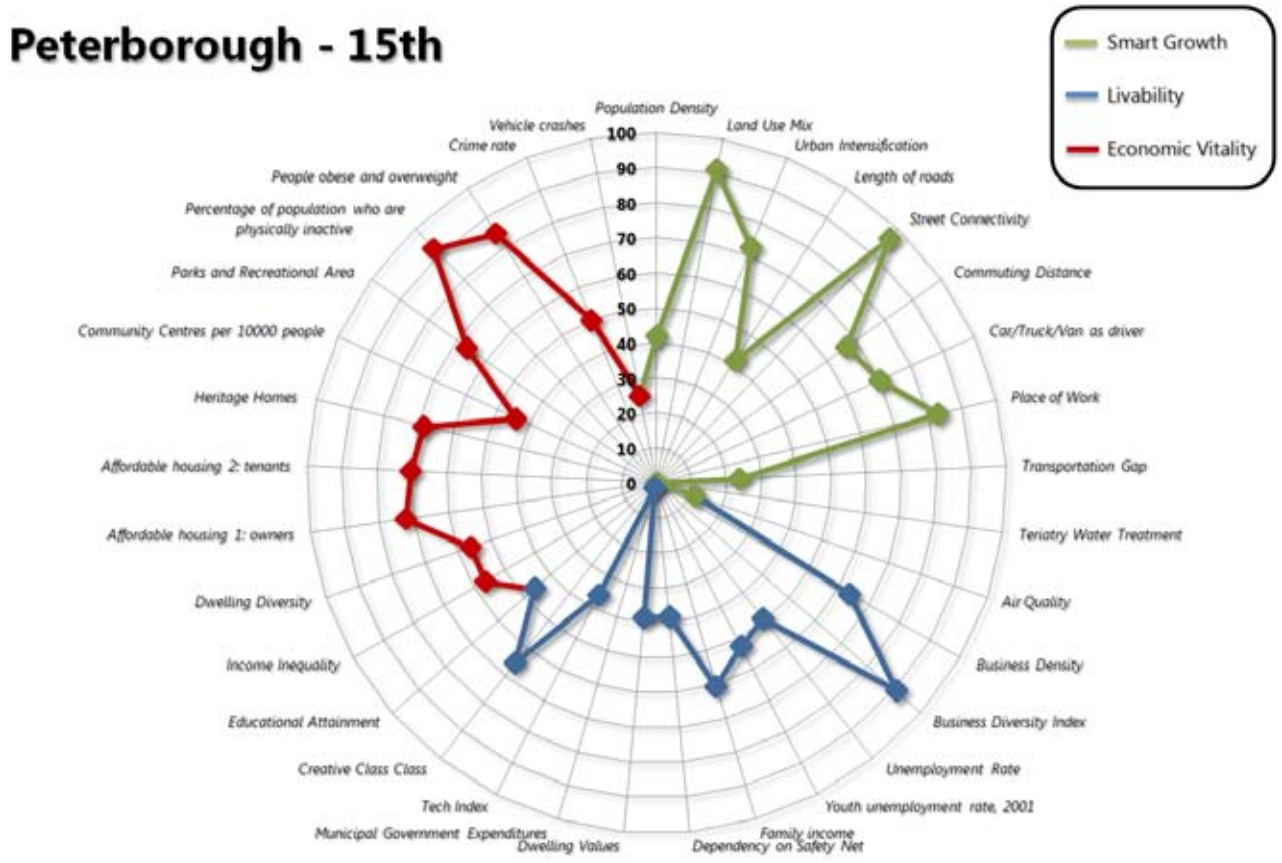
The quantitative data in the previous sections provide a way of comparing communities and ranking them on selected characteristics related to urban sustainability. Interesting as these results are, we have to recognize that indicators alone cannot capture the complexity and interrelationship among the various dimensions of sustainability as they relate to a particular community. To see the measures in their local context, we have explored sustainability "on the ground" in seven of the 27 study municipalities: Toronto, Peterborough, York Region, Niagara Region, Stratford, Ottawa and Waterloo Region.

These seven communities reflect the diversity of the larger sample, with some larger and some smaller jurisdictions represented, and with the full range of population growth rates, as shown in Table 13.

Table 13: Case study municipalities by growth rate and population size

Municipality	Growth Rate	Population Size
Peterborough	Medium	Low
York Region	High	High
Niagara Region	Medium	High
Stratford	Low	Low
Ottawa	Medium	High
Waterloo Region	High	High
Toronto	Low	High

In addition to the indicators collected for this survey, the community case studies made use of information from local planners and stakeholders, as well as newspaper reports and an array of federal, provincial and local government and non-government bodies. For the physical environment, sources included local conservation authorities, the Ontario Ministry of Public Infrastructure Renewal, the Ontario Ministry of Environment, and local environmental groups. For livability and equity, sources included local social planning councils, Canada Mortgage and Housing Corporation, park authorities, and regional health boards. For economic prosperity, sources included local and regional chambers of commerce, economic development corporations, industrial promotion groups, and the Canada Mortgage and Housing Corporation. The indicator rankings presented in the case studies are drawn from the data used to calculate the various indices presented earlier in this report. The ranking of the municipalities goes from first (optimal) to 27th (least optimal), unless otherwise stated.



8.1 City of Peterborough

Located in the drumlin hills of Eastern Ontario, 100 kilometres from Toronto and 145 from Kingston, the City of Peterborough is home to almost 75,000 people in 58 square kilometres. Administratively separate from the surrounding Peterborough County, the city is the largest urban centre between Ottawa and the shore of Lake Ontario, and as such is a centre for administration and services to the surrounding agricultural and forestry areas. Thus, it is home to 700 employees from Ontario's Ministry of Natural Resources, as well as two main higher educational institutions: Trent University (7,500 students and nearly 500 staff) and Sir Sandford Fleming College (over 6,000 full-time students and 600 full-time staff). General Electric and Quaker Oats are the largest private employers, leading an industrial community centred on general manufacturing and food processing. Population growth has been slow, increasing by less than 5% between 2001 and 2006. The city's population is still largely Irish, a legacy of grateful Irish settlers who made a gruelling trek from Île d'Orléans after being invited to settle the lands around the Otonabee River.

Peterborough scores 53.68 on the composite Sustainability Index, 15th out of the 27 municipalities in the sample.

- On the Physical Environment Index, Peterborough scores 54.32 (**ninth** in the sample)
- On the Livability/Equity Index, Peterborough scores 57.40 (**ninth** in the sample)
- On the Economic Index, Peterborough scores 49.33 (16th in the sample)

SMART GROWTH

Index score of 54.32 (ninth in the sample)

Key statistics

Some key statistics on Peterborough's physical environment:

- Peterborough's population density stood at 2,261 residents per square kilometre in 2001 (18th in the sample).
- Of the dwelling units built between 1996 and 2001, 58% were in urban areas (sixth in the sample).
- Peterborough's land uses were the third-most mixed in the sample.
- The average commute in the city was 3.3 kilometres (eighth in the sample).
- Of Peterborough's labour force, 80.03% worked in their community of residence (13th in the sample).
- Of Peterborough commuters, 74.75% drove a vehicle to work (sixth lowest in the sample).
- The city maintained 5.82 kilometres of road per 1,000 residents (tenth in the sample).
- Peterborough's streets were the ninth-most connected in the sample.
- For every dollar spent on roads per capita, the city spent 89 cents on transit in 2004 (fifth highest in the sample).
- Peterborough experienced poor or very poor air quality during 26 days in 2002 (23rd in the sample).
- None of Peterborough's water was subjected to tertiary treatment (tied for 17th with ten other cities in the sample).

Making progress

Residential waste: Peterborough was an early leader in residential waste diversion, with voluntary efforts dating back to the 1970s and one of the first Ontario municipal blue box programs in the 1980s. The city pursued composting and other waste diversion initiatives in the 1990s, particularly in the area of yard wastes, even after provincial funding for composting and diversion was zeroed out. Sustained work has led to impressive results, with 92% of households participating in recycling programs and an 84% diversion rate for a long list of residential recyclables (Sutton, McGregor, and Friberg no date). Beyond conventional recycling efforts for conventional wastes, the city has also pursued some more creative events: organizing a citywide garage sale, setting specific "reusables exchange days" when people are encouraged to put unwanted but reusable items on the curb for others to take, and an organics collection pilot program (City of Peterborough 2002b). Even after the city's sale of subsidized household composters came to an end in 2002, a city–community partnership called Peterborough GreenUp continued to sell composters and offer help with household composting, as well as set up a printed guide and website to help bring together generators and potential users of scrap materials.

Staying compact: Peterborough's indicators for its roadway network demonstrate several favourable aspects that are particularly noteworthy for a smaller and more isolated city. The average commute increased by only 3% between 1996 and 2001, rising from 3.2 to 3.3 kilometres. The city finishes a respectable ninth in the connectivity of its streets and tenth in the length of its roads per capita; per capita spending on roadway construction and maintenance decreased by roughly 7% between 1996 and 2001. Peterborough's land uses are more thoroughly mixed than other cities its size (Sarnia, Brantford), compact small towns (Orillia, Woodstock) or even big cities (Ottawa, Windsor). A slight majority of recent dwelling units were built in already-urbanized areas, and the downtown has been subject to renewed interest by arts groups and real estate investors. To encourage (or at least permit) the large-scale redevelopment of central areas, high residential densities — up to 100 units per acre — are permitted in the downtown.

Needs improvement

Car dependency: As noted above, several indicators show that Peterborough's overall road network is not aggressively transit- or pedestrian-hostile. Still, the city's potential to divert trips away from the car seems to have gone to waste. At 86%, the share for vehicle trips (either as passengers or drivers) is well above the Ontario average of 80% for the same year. Transit shows an anaemic mode share of 5%, though walking and cycling make up a respectable 7% of all trips. The city's Transportation Plan aims for a modest cut in car mode share, which is to decrease to 82% by 2021, with transit trips rising only to 6% and transit headways remaining at their current 30 to 60 minutes. The plan's proposed actions are not sufficient to stave off the need to invest in additional road infrastructure, as the number of car trips is expected to rise — even if transit- and pedestrian-friendly land use policies and road designs are implemented (Stantec/Earth Tech/PTSL 2002). The impacts of car dependency are keenly felt and significantly degrade the city's environmental performance relative to the other municipalities in the sample, with 26 poor or very poor air quality days in 2002, and the highest rate of deaths and injuries from car crashes of all locations in the study. In addition to weak transit service, the city's low density is a likely culprit in the high proportion of car trips; land use mix, development in built-up areas and an integrated road network are not enough on their own to support more sustainable transportation choices.

Smart growth: A round of annexations, planned in 1998 and to take effect in 2008, gave the city enough land to accommodate 25 years of urban growth. Though not intended to create suburban sub-centres, the annexation lands are immediately adjacent to low-density conventional residential development at the existing urban fringe. Planning for the Chemong annexation area, on the city's northwest side, anticipated that 77.5% of the 81.5-hectare site would be given over to low-density (eight units per acre) residential development. To serve the new development, the City's consultants anticipate widening arterial roads around it, particularly if a controversial major roadway within the city itself is not built. In essence, the site is being planned with the assumption that it will generate significant volumes of automobile traffic, and the existing planning study makes no mention of potential measures to mitigate the traffic impacts of conventional development patterns (Meridian 2006). The City currently anticipates that the new annexation lands will be built out with a greater degree of housing type mix and somewhat higher densities than historical single-family residential patterns, though it is unclear just how high the densities will be. Extending transit into these new areas seems to be a post-hoc exercise, in which the City's transportation department moves to establish bus service when demand reaches a certain threshold rather than taking a more integrated approach to managing land use and transportation demand.

LIVABILITY/EQUITY

Index score of 57.40 (9th in the sample)

Key statistics

Some key statistics on Peterborough's livability and equity:

- Of Peterborough's population, 41.1% reported getting little or no physical activity (fourth lowest in the sample).
- Of the population, 48.3% was obese or overweight (seventh lowest in the sample).
- There were 0.55 square kilometres of parks for every 10,000 Peterborough residents (seventh in the sample).
- The city maintained 1.60 community centres for every 10,000 residents (third in the sample).
- Peterborough's crime rate stood at 7,642 offences per 100,000 residents (13th in the sample).
- Death or injury from car accidents struck 13.94 people out of every 1,000 residents (highest in the sample).
- Peterborough's dwellings were the 16th most diverse in the sample.
- Of the city's dwelling units, 22.4% were built before 1946 (fifth in the sample).
- Of Peterborough's tenant households, 51.65% spent more than 30% of their income on housing (highest in the sample), while 16.47% of homeowning households did so (18th in the sample).
- For every family with an income under $20,000 per year, there were 1.98 families making over $80,000 in 2001 (fourth lowest gap in the sample).

Making progress

Health and activity: Positioned at the southern end of the Kawartha Lakes region, Peterborough is a popular starting point for outdoor activities in the rugged Eastern Ontario landscape. It will come as little surprise to note that local residents value their ready access to active outdoor recreation, and that this proclivity is visible in the indicators. The percentages of residents getting little physical activity (41.1%) or that are overweight or obese (48.3%) are among the lowest in the sample. Some of the highest proportions of parks (seventh) and community centres (third) in the sample help produce these impressive numbers, with a large city pool and gym complex (the Wellness Centre) having opened its doors in 2005. Strategies to promote active travel among schoolchildren led local health groups to take part in the Safe Routes to School program, in which local university students collected data and successfully influenced local transportation planning to promote better pedestrian conditions around schools (Wurtele & Richie 2005).

Trails have elicited a great deal of attention from local government and community groups in recent years, with the local Rotary Club spearheading the development of a 20-kilometre trail in a disused railway corridor. A corridor reserved in the 1940s for the development of a never-built roadway has become a valued trail corridor through the heart of the city, and has been the subject of local debate and referenda about its preservation as a trail or development as a roadway. The Trans-Canada and Central Ontario Loop trails connect the city to wilderness (and other) areas far beyond its borders. Trent University even hosts a Trail Studies Unit that conducts research on the development and impact of trails.

Needs improvement

Affordability: Peterborough is a working-class town, with the second lowest median family income, and the fourth lowest ratio of higher-income to lower-income households in the sample. With flat population growth, a rapidly aging population and a declining number of families, market conditions have dissuaded developers from building even market-rate rental housing in the city in the past 15 years. The upper floors of downtown commercial buildings have become vacant as property owners lose interest in maintaining rental units. The percentages of tenant and homeowning households paying more than 30% of their income on housing have declined slightly from 1995 to 2000: 55% to 51.7% in the case of tenants, and 17% to 16.4% for owners. However, the percentage of tenants in severely unaffordable housing, who pay more than 50% of their income on rent, went from 22% to 25.1% in the same period. Vacancy rates have declined as rent has increased, from a high of 5.8% in 1997 to a severe low of 1.4% in 2003 (ONPHA 2004). The result of these trends — declining supply, increasing prices and modest increases in average income — is the least affordable rental housing in the sample.

In 2002, the city government implemented measures to deal with affordable housing. These focused on waiving or offsetting various development charges rather than directly funding the creation of affordable units, though loan funds were created for affordable projects in existing buildings as well as for land acquisition (CHRA 2002). The Peterborough Affordable Housing Foundation, a city–community partnership established as part of the City's affordable housing package, is to act as the lead agency in supporting organizations and firms that develop affordable projects. However, beyond a 50-unit federally and provincially funded project announced in 2004, it is unclear what successes it has achieved so far (CoP 2002a).

Economic vitality

Index score of 49.33 (16th in the sample)

Key statistics

Some key statistics on Peterborough's economic vitality:

- Peterborough's 2001 median family income was $50,039 (second lowest in the sample).
- The average Peterborough dwelling increased in value by 6.81% between 1996 and 2001 (13th in the sample).
- The adult unemployment rate was at 8.10% in 2001 (fifth highest in the sample), while the youth unemployment rate was 18.8% that same year (fourth highest in the sample).
- Of total household income in the city, 15.4% came from government transfer payments (third highest in the sample).
- Of Peterborough residents over 20 years of age, 14.7% had a university degree (11th in the sample).

- Of the workforce, 2.47%was employed in arts, culture, recreation or sport (eighth in the sample).
- Of all Peterborough businesses, 5.9% were technology businesses (14th in the sample).
- Peterborough's businesses were the 15th-most diverse in the sample.
- For every 1,000 residents, 62.15 firms operated (tenth in the sample).

Making progress

High-tech opportunities: Trent University has been a primarily undergraduate institution, with a limited number of spin-off enterprises to buoy the local economy; a modest 5.9% of local businesses were technology firms. Local, provincial and federal research bodies are looking to increase the number of businesses being spun-off from the university. through the development of a centre for DNA research at Trent. As yet, this consists of a single building at Trent, the first element in a projected complex at the northwest edge of the campus, housing the Ontario Ministry of Natural Resources DNA lab and Trent's wildlife biology DNA facilities. Plans are afoot to include additional disciplines and new laboratory facilities, bringing in participation from criminology, forensics and genomics departments and organizations (Trent 2004, GPAEDC 2002). Though still in its infancy, this project holds the potential to attract a better-paid and better-educated workforce to a city that is struggling to find an economic niche to call its own.

Needs improvement

Unemployment: Peterborough's unemployment rate has been consistently higher than the Ontario average in recent years. This can be attributed to the decline of traditional manufacturing jobs — a trend seen in other Ontario cities both large and small — and in particular to the sharp decline in Eastern Ontario's forestry sector. When coupled with the strains that globalized food production and processing has put on the domestic farm industry, these recent trends have struck at Peterborough's role as a services centre for a large resource-based hinterland. The adult unemployment rate of 8.1% is the fifth highest in the sample, though down from the 11.8% rate seen in 1996 when many Ontario cities were struggling with recession and double-digit unemployment. Youth unemployment, while also declining from 23.1% to 18.8%, has been more higher than adult unemployment and is among the highest in the sample, exacerbating the flow of young people away from the city. The percentage of income from government transfers stood at 15.4% in 2000, a declination of only 14.4% from its 1996 level; this is another sign that unemployment and poverty in Peterborough may be more than a cyclical problem.

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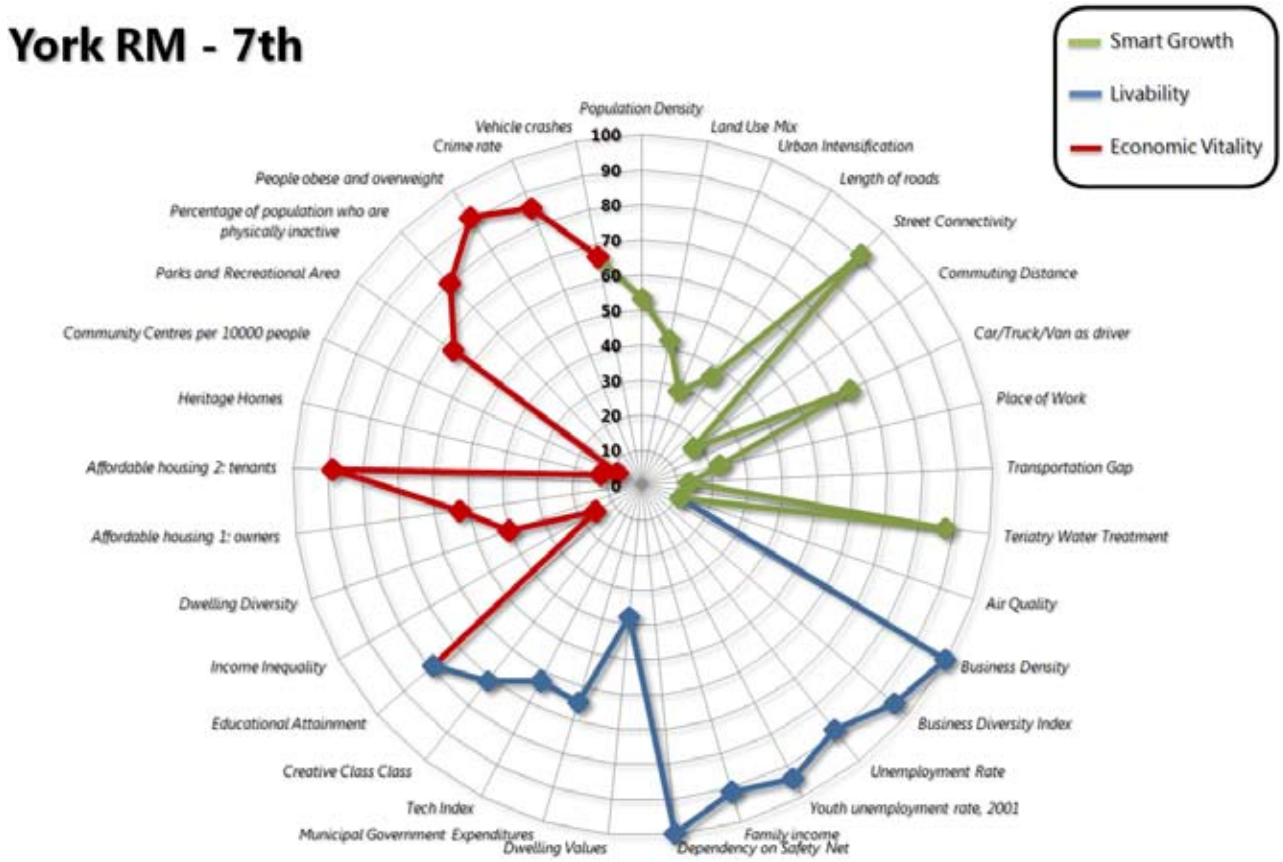

York Region scores 59.13 on the composite Sustainability Index, seventh out of the 27 municipalities in the sample.

- On the Physical Environment Index, York Region scores 42.72 (22nd in the sample)
- On the Livability/Equity Index, York Region scores 54.15 (20th in the sample)
- On the Economic Index, York Region scores 80.52 (third in the sample)

8.2 York Region

York Region, stretching from Toronto's northern boundary of Steeles Avenue all the way to the southern shore of Lake Simcoe, provides upper-tier municipal services to 893,000 people (2006) over 1,762 square kilometres. The older suburbs of Richmond Hill (163,000), Aurora (48,000) and Newmarket (74,000) are ranged along the north-south axis of Yonge Street, flanked by the newer suburban centres of Vaughan (239,000) and Markham (262,000). These suburban cities are the fastest-growing in Canada, expanding the region's population by 22.41% between 2001 and 2006. The roaring pace of development has driven regional and municipal authorities to rapidly expand services and introduce more urban facilities to what was until recently a series of sedate bedroom communities. As a relatively central area with a substantial local labour force and good highway connections to the rest of the metropolis, York Region's manufacturing sector is growing along with its ambitious plans for additional retail and office development. The Oak Ridges Moraine, a protected greenspace that cuts across York Region from east to west, forms part of the Toronto Greenbelt.

SMART GROWTH

Index score of 42.72 (22nd in the sample)

Key statistics

Some key statistics on York Region's physical environment:

- The wastewater of 87.5% of the region's residents was subjected to tertiary treatment (12th in the sample).
- In 2001, the region experienced 26 days of poor or very poor air quality (23rd in the sample).
- The regional population density stood at 2,872 residents per square kilometre (sixth in the sample) and its land use mix ranked 18th.
- Of the housing units built between 1996 and 2001, 23% were constructed in urban areas (20th in the sample).
- The regional median commuting distance was 12.3 kilometres (25th in the sample).
- Of the region's workers, 22% had their place of employment in their municipality of residence (25th in the sample).
- York Region's governments maintained 6.58 kilometres of road per 1,000 residents (13th lowest in the sample).
- Of the region's workers, 80.4% commuted in a car, truck or van (17th in the sample).
- For every dollar spent on roads per capita, $0.52 was spent on transit in 2004 (13th highest in the sample).

Making progress

Transit: York Region's six municipal transit operating agencies were folded into a single regionally run agency, York Region Transit (YRT), in 2001. Investment in transit has accelerated as a result, with annual transit expenditure rising from $62 million in 2002 to $93 million in 2004. This expenditure on reorganized routes and increased service has delivered ridership increases in excess of 10% each year since the consolidated system was created, even topping 21% in 2003 (OCMBP 2005).

As urban and suburban growth have accelerated in the region, bringing new employment centres to the region's existing concentration of residences, a higher percentage of trips are being made within the region's borders: 56% of morning peak trips are intra-regional, with trips to North York (11%), Toronto's central business district (10%), central Toronto (7%) and Scarborough making up most of the remainder (ENTRA Consultants 2006). A 2002 Transportation Master Plan called for the creation of a bus rapid transit (BRT) network centred on an east–west corridor, running between Vaughan and Markham along Highway 7, and a north–south corridor along Yonge Street connecting the northern subway terminus at Finch with Richmond Hill, Aurora and Newmarket (Cansult Ltd./MMM 2002). The routes were designed to complement major planned transit-oriented developments in southern Vaughan and Markham, which are projected to receive most of the region's employment growth over the next thirty years (Cansult Ltd./MMM 2002.).

This BRT network has been implemented by YRT under the name VIVA, and debuted in September 2005 with features such as improved bus shelters and a new proof-of-payment ticketing system integrated with the rest of the YRT network. In addition to the two corridors mentioned above, VIVA operates routes from Vaughan to the Downsview subway terminal in northwestern Toronto, and from Markham to the Don Mills subway terminal in northeastern Toronto. Particular emphasis has been placed on rapid deployment of the system, accomplished through heavy private sector involvement, with a consortium of local and international engineering firms ("York Consortium 2002") providing construction and planning services. Phase 2 of the system's development, which is currently being implemented, includes reserved lanes, increased frequency of service, and additional vehicles and support systems.

In addition to YRT services, GO Transit provides commuter train service to Toronto from 14 stations on three lines, as well as buses to various parts of

the Greater Toronto Area (GTA). The Toronto Transit Commission (TTC) operates some service from Toronto to major destinations in the region, and the province has earmarked funding for an extension of the Spadina subway north to York University and into Vaughan.

Planning for intensification: York Region is slated to grow by 740,000 people and 390,000 jobs in the next 25 years under the Province's Places to Grow plan for the GGH — nearly doubling the region's 2001 population and employment base (MPIR 2006). This was over 350,000 more people and 160,000 more jobs than projected in York Region's own 2006–2026 forecasts. According to both plans, over half of the new residents and new jobs will be concentrated in the three southernmost municipalities in the region, already the most populous and developed: Vaughan, Richmond Hill and Markham. The title of *Centres and Corridors*, a 2004 supplement to the 2002 transportation plan, summarizes the region's approach to accommodating growth. The *Centres and Corridors* strategy would increase the percentage of new development to be located in the existing built-up area from 20 to 30%.

Vaughan's planned downtown area, the Vaughan Corporate Centre, will be located on Highway 7 east of Highway 400 on a 600-acre site currently occupied by the popular Vaughan Mills outlet mall, light industrial facilities and several big box stores. An eventual six million square feet of office and residential space are planned to house 30,000 jobs and 5,000 residents in a 30-year timeframe. The project includes the development of a new subway and bus terminal at the site, coupled with the reconfiguration of Highway 7 into a more pedestrian-oriented "Avenue 7," accompanied by a network of surrounding streets.

At the intersection of Highway 7 and Yonge Street in Richmond Hill, the YRT/VIVA terminal at Richmond Hill Centre is to become a significant development node as well.

Markham, already having implemented some of North America's most extensive New Urbanist planning initiatives, is gearing up to build its own downtown — Markham Centre — along Highway 7. The current newly built complexes for IBM and Motorola are being integrated into a larger master plan, replacing their parking lots with public spaces and redeveloping existing big box stores. The plan itself is centred around a monitoring program to evaluate a project's impacts in terms of indicators representing built form, open space, transportation, green infrastructure and ecologically sensitive lands (ToM 2004).

In addition to the nodes, additional plans are underway to address corridors. Vaughan is reviewing land use policy around its entire length of Highway 7, and in particular the area immediately to the east of the Corporate Centre. Several other major arterials in Vaughan, including ones that form boundaries with adjacent regions and municipalities, are subject to special intensification plans in order to form linear urban village nodes along certain corridors.

Richmond Hill has undertaken a revision of its official plan and density framework to accommodate the kind of mid-rise structures with ground-floor commercial space that are needed for human-scaled corridor development: denser than low-rise detached housing but less dense than the existing ten-story towers (ToRH 2004). Markham has its own Highway 7 streetscape and urban design plan underway, along with other efforts to anchor new corridors, such as Bur Oak Avenue in the Cornell development or Warden Avenue, with commercial development, apartments and connections to the VIVA system. Newmarket, for its part, has planned to accommodate an urban centre on Yonge Street with denser corridors stretching south on Yonge and east on Davis Drive to a new regional hospital centre (ToN 2006).

The Greenbelt and the Oak Ridges Moraine: Provincial initiatives to designate and protect the Niagara Escarpment and the Oak Ridges Moraine, two ecologically and hydrologically important landforms, had already created a belt of protected land around the core of metropolitan Toronto before Places to Grow added additional lands and created a single greenbelt system. The Greenbelt and Moraine areas bisect York Region, creating a rural tier along its northern edge, a system of natural, agricultural and developed lands in the centre, and a more urbanized southern core.

The Greenbelt Plan does not forbid development, but is best understood as an overlaying set of land use regulations that apply to most of Toronto's fringe — fully 69% of York Region falls within the Greenbelt. The Greenbelt Plan sets out a ladder of permitted uses, starting from systems of protected natural areas and hydrologically sensitive lands and going up through rural development, parks and recreation, small rural hamlets and urban intensification areas (MMAH 2005). This shuts off most of the Greenbelt from untrammelled conventional sub-

urban development, but does make accommodation for a significant amount of greenfield development within its boundaries. In York Region, the Greenbelt affects future development in the northern area near Lake Simcoe, preserving a dense network of stream corridors, forests and agricultural lands from suburban development while providing existing towns with substantial areas in which to expand.

The earlier Oak Ridges Moraine Act was passed in 2001, regulating development in an area where soils and streams play an important role in maintaining the health of local water resources. The act also limits land subdivision and large-scale new development, and establishes a hierarchy of core natural areas, corridors connecting those areas, agricultural zones and designated development areas. Covering 31% of York Region, the resulting Conservation Plan (later incorporated into the region's Official Plan) set tight constraints on facilities and land uses that could threaten the ecological integrity of water sources, particularly around wellheads and sensitive natural features (MMAH 2002).

Needs improvement

Car dependency and urban form: Though York has the sixth-highest population density in the survey, cars claim 80% of work-related trips, land uses are poorly mixed, and commuting distances, though falling slightly, are the fourth-highest in the sample. Despite efforts to improve corridor streetscapes and develop transit to service planned office development, York Region's significant existing industrial development is centred along the major provincial highway corridors, limiting transit access to current job centres. The region's low scores in the connectivity of its road network indicates confusing hierarchical road networks associated with a sprawling conventional form, and the presence of isolated rural hamlets and villages. Between the remains of the older rural nuclei (pre-1946 dwellings make up a scant 4% of all units), and the large-scale urban development foreseen for the future, the explosive growth in single-family suburban houses in the 1970s and 1980s still makes up most of the housing stock.

The regional Transportation Master Plan sets out the ambitious goal of doubling transit's modal share to 17% of all trips; the later Regional Official Plan increased that to 33% of peak-period trips. This goal may be undermined by other policies in the Transportation Master Plan, namely the emphasis it places on creating new arterial streets and highways and connecting and expanding the capacity of existing ones, frequently through rural areas (Cansult Ltd./MMM 2002). Highway 404 parallels the Yonge Street corridor north through the central part of the region, connecting Richmond Hill to Aurora and Newmarket above, creating a strip of urbanization that cuts almost entirely across the Oak Ridges Moraine area. Highway 404 will eventually continue north, with branches to the west and east. Along the proposed corridor, and well north of the Moraine and Greenbelt lands intended to place a brake on low-density development, Georgina and East Gwillimbury are each slated to receive roughly 40,000 new residents and 15,000 new jobs by 2026. This planned growth is well beyond the reach of higher-order transit services such as VIVA or the GO commuter rail. The region's development policies and support for the highway extensions create a clear contrast: higher-density transit-centred development integrating jobs and housing in the southern tier of York Region, with low-density conventional commuter suburbs within and beyond the Greenbelt.

LIVABILITY/EQUITY

Index score of 54.15 (20th in the sample)

Key statistics

Some key statistics on York Region's livability and equity:

- Ranked 27th (last in the sample) in the diversity of its housing stock.
- Regional governments maintained 0.28 community centres per 10,000 residents (24th in the sample).
- Of the population of the region, 43% were overweight or obese (third in the sample).
- Of tenant households, 41% spent more than 30% of their income on housing costs (seventh lowest in the sample), while 22% of homeowning households did the same (highest in the sample).
- Of York Region's adolescents and adults, 47% reported engaging in little or no physical activity (eighteenth in sample).
- Over seven times as many households made over $80,000 than made less than $20,000 (26th in the sample).
- The region provided 0.53 square kilometres of parks per 10,000 citizens (eighth in the sample).

Making progress

Accessing wilderness: The Toronto and Region Conservation Authority is an inter-municipal agency that acquires, monitors and maintains natural areas in nine watersheds covering the GTA south of the Oak Ridges Moraine. It owns extensive tracts of land along tributaries of the Humber and Rouge rivers in York Region, operates three conservation areas in the region and provides facilities for outdoor recreation. Within its largest conservation area, the Boyd conservation area in Vaughan, the Kortright Centre has offered conservation exhibits and activities to the public since 1977. As part of the Oak Ridges Moraine framework, a recreational trail has been secured across 250 kilometres, with extensions planned to reach from one end of the moraine to the other. The trail crosses public and private lands, requiring ongoing negotiation and communication with various agencies (particularly the Toronto and Region Conservation Authority and the Lake Simcoe Region Conservation Authority) and landholders to balance public access with conservation and landowner concerns.

Over 2,000 acres of regionally owned forest lands, most in a single contiguous tract, came under regional management in 1998, and acquisitions have continued since in keeping with the objectives laid out in the Oak Ridges Moraine, Greenbelt and regional greenlands plans. The York Regional Forest manages these lands and implements a Tree Strategy region-wide, with special concern for urban forest issues. In addition, the regional forest agency provides informational programs and tours for adults and youth, and accommodates various winter and summer recreational activities at the forest's main site near Stouffville. The lower-tier municipalities also operate their own trail systems, many in linear parks along stream banks.

Needs improvement

Dwelling diversity: York Region has long had the highest proportion of single-family detached housing in the GTA, making up 75% of all units in 2001 while rental apartments accounted for only 7%. The Region and its municipalities have recognized that this imbalance contributes to transportation problems and places severe limits on housing choice. For each of the 14 major development areas in 1995, Markham mandated a roughly 40–60% share of medium- and high-density development (ToM 1995). Despite Markham's efforts and the limits on the land supply, region-wide dwelling variety is still changing slowly. Between 1996 and 2001, the proportion of single-family detached houses declined only slightly, in favour of row houses. Rental apartments and condominiums still make up a very small share of new housing.

Affordability: Of York Region tenants, 41% pay more than 30% of their income on rent, the seventh highest figure in the survey, but the region also had the highest proportion (23%) of homeowners who did the same. This is a two-pronged affordability problem, in different portions of the market, which has persisted throughout the recent housing boom. Though the overall proportion of households in unaffordable housing declined slightly between 1996 and 2001, housing costs for both owners and renters increased on the order of 7–8% over the same period while housing value only rose by 6.7%.

Other figures highlight the challenges that this imbalance poses to the regional economy. Those who both live and work in the region, where 86% of all units are owned, pay a significantly higher share of their income on housing than those who commute into the region from elsewhere; effectively, local employers rely on a labour force that lives beyond the region and who put up with longer commutes in order to live in more affordable rental housing elsewhere (YR 2004b).

With 10% of York Region residents spending over 50% of their income on housing, the regional government has taken little or no action on affordability. Recent efforts by faith-based groups have focused on preparing renters to become homeowners in non-profit projects, choosing to emphasize the "dignity of homeownership" (CAHYR 2004). Only 7,197 units of social housing, mostly regionally owned or operated, exist in the region, and over 4,000 families remain on the waiting list. Most contributions to affordable projects from lower-tier municipalities have taken the form of development fee waivers or grants (YR 2002).

Economic prosperity

Index score of 80.52 (third in the sample)

Key statistics

Some key statistics on York Region's economic vitality:

- Regional and local governments spent $.0146 per capita per hectare (fourth lowest in the sample).

- Of the region's adult residents, 25.2% held a university degree (third in the sample).
- Arts, culture, recreation and sport provided employment to 2.69% of the region's workforce (sixth in the sample).
- The region's adult unemployment rate stood at 6.5% in 2001 (second in the sample).
- Government transfers accounted for 5.9% of residents' income (lowest in the sample).
- York Region had 97.8 businesses for every 1,000 citizens (highest in the sample).
- The region had the seventh most diverse mix of firms in the sample.
- Of the region's businesses, 10.5% operated in high-tech fields (fourth in the sample).
- Average dwelling value increased by 6.7% between 1996 and 2001 (14th in the sample)
- York Region's median household income stood at $75,678 in 2001 (second highest in the sample).

Making progress

Educated workforce: Economic growth in the GTA as a whole and the new jobs arriving in York Region itself have attracted a better-educated workforce. Of adult residents, 25% have a university degree, a figure that rises to 33% among those aged 25 to 64 and is well above the metropolitan, provincial and national average. Unemployment among York Region residents is typically a percentage point lower than the GTA average, and two points lower than the Toronto figure. There are significantly more regional residents working in management, the finance, insurance and real estate (FIRE) sector, and government occupations than there are local jobs in those fields. York Region is a commuting destination for construction sector, trades and manufacturing employees who live outside of the region. Effectively, the region exports the higher skills of its residents while importing the lower-skill components of the regional workforce from elsewhere in the GTA.

Of regional workers 2.69% work in arts, culture, recreation and sport; this is a modest number in absolute terms but the seventh highest proportion in the survey. These workers are held to be key to establishing an environment in which culture and creativity are present, and York Region's share is competitive with that seen in the province's cultural centres (Toronto, Ottawa) and university towns (London, Guelph).

Employment growth: The workforce factors noted above have resulted in an entrepreneurial climate, where the region is home to 97 businesses for every 1,000 residents — the highest figure in the sample of 27 municipalities. High-tech firms account for 10.5% of all enterprise in 2004, and increased in number by nearly 50% over 2001 figures. Business diversity is also strong, showing the seventh-most diverse mix of firms in the survey. The resulting business climate is favourable to small firms, which make up 83% of all businesses. The region's share of GTA employment grew from 8% in 1986 to 14% in 2001, and regional employment is projected to continue to grow for the foreseeable future, though growth rates will gradually slow.

Sectors delivering an increase in employment of over 30% between 1998 and 2004 include public administration, health care, education, business services, FIRE and retail, with overall service-industry employment growing by 30.9%. Still, manufacturing employs the highest percentage (25%) of York Region workers, followed by business and personal services (13–15% each), wholesale and retail (10% each) and construction (~8%) (YR 2004a).

Needs improvement

Income inequality: Impressive figures on income in the region may conceal embedded problems with low income and poverty and suggest low-income residents may not be able to reap the social and economic mobility that the region offers. York Region had the second-highest median income in the sample, and showed strong (19%) growth in median income between 1996 and 2001. Government transfer payments made up only 5.9% of total household income, the lowest in the sample. The way that income is distributed among households, however, is a different story. In 2001, there were over seven times as many households with incomes over $100,000 as under $20,000; since 1996, the number of these high-earning households has nearly doubled while less prosperous family incomes saw only a modest rise.

Low Incomes can exacerbate other problems, such as a lack of affordable housing. In York Region, of the 22,000 households that paid more than 50% of their income to rent or mortgages in 2001, 57% were lone-parent or couple-parent households with children. Of those families, 63% were making less than $30,000 per year. Even for those with the financial capacity to own their own home, affordability

is a problem: 23% of all owner households devoted more than 30% of their income to mortgage payments, and 8.5% of owner households spent more than 50% of their income (YR 2004a). Of the "working poor," 60% had some post-secondary education. Of the region's children, 10% lived in low-income households, which are concentrated in the southern portions of Richmond Hill and Markham — likely reflecting the presence of the region's precious few rental apartments and better access to public transit (YR 2004a).

Support services: The problems facing low-income households noted above are clearly visible, but services to address them are harder to find. Per capita spending on acute health care, children's services and child care, public health and general Ministry of Health activities is currently well below the provincial average.

Social service funding has been an ongoing problem for a growing region that has focused on and succeeded in attracting higher-income families. Per capita spending on services for both adults and children has fluctuated dramatically, and important provincial initiatives in these areas tend to be narrowly focused on achieving certain outcomes in a discrete timeframe, not providing ongoing and predictable resources to service providers (YR 2003). Estimated total "human services" spending for the region is projected to total $77.6 billion for the 2001–2026 period; increased to bring spending to the provincial per capita average and keep pace with inflation, an aging population and capital needs this would total $120.9 billion (YR 2001). The gaps in services that exist now will, if left unaddressed, widen in the future.

Attracting employees: The lack of affordable housing in the region has been identified as a factor in compelling some employees to commute into, rather than reside within, the region. This lack is having a negative impact on the ability of employers in the region to attract employees, particularly those in the construction sector, trades and manufacturing, An employer survey in 2004 suggested that the regional government needs to improve rental housing supply, transit facilities and community services in order to ensure the availability of a workforce appropriate to the growing economy (YR 2004b).

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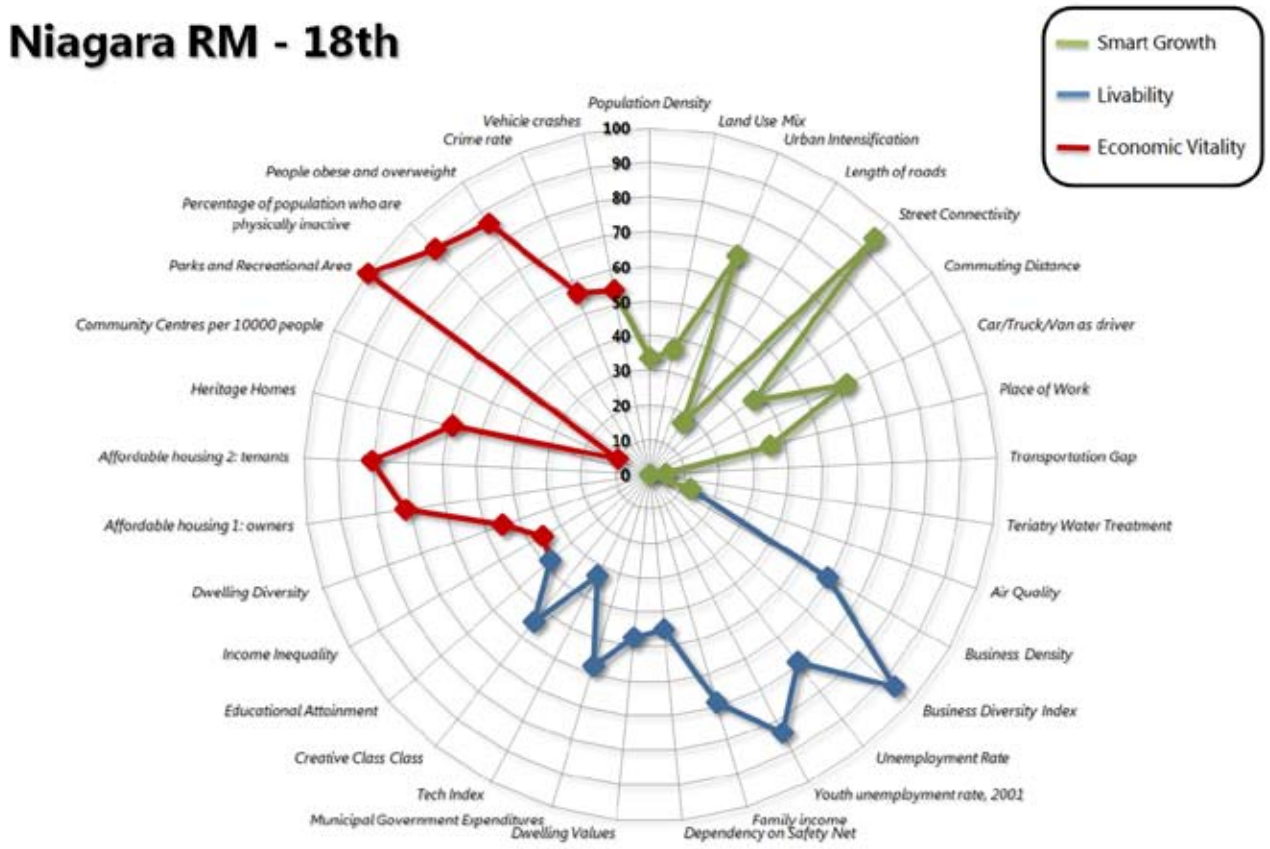

8.3 Niagara Region

Covering the eastern end of the peninsula between Lakes Erie and Ontario, the 1,854 square kilometres of Niagara Region are home to 427,000 residents. Made up of 12 municipalities, the region encompasses the larger cities of Niagara Falls (82,000), St. Catharines (132,000) and Welland (50,000) along with smaller cities and rural townships. The Niagara River, with its famous Niagara Falls, forms the eastern boundary of the region, and gives Niagara important transportation and hydro links to markets in adjacent New York State and beyond. Though known as a scenic agricultural centre, the region's location at the crossroads of water and overland transportation corridors gave rise to significant heavy industry, particularly along the Welland Canal, a key link in the Saint Lawrence Seaway running parallel to the Niagara River. Although the older industrial base has declined, population growth has been moderate, with a 4.1% increase between 2001 and 2006. Niagara Region's position between two Great Lakes, and the heights of the Niagara Escarpment running down its spine, give the northern end of the region a relatively mild microclimate in which orchards and vineyards thrive.

Niagara Region scores 51.67 on the composite Sustainability Index, 18th out of the 27 municipalities in the sample.

- On the Physical Environment Index, Niagara Region scores **36.55** (**27th** in the sample)
- On the Livability/Equity Index, Niagara Region scores **59.50** (**sixth** in the sample)
- On the Economic Index, Niagara Region scores **58.97** (**tenth** in the sample)

SMART GROWTH

Index score of 36.55 (27th in the sample)

Key statistics

Some key statistics on Niagara Region's physical environment:

- The region had 13.61 kilometres of road per 1,000 citizens (26th in the sample).
- Of Niagara's commuters, 83.97% drove a car, truck or van to work (25th in the sample).
- Niagara Region's streets were the 14th most connected in the sample.
- The average commute in Niagara Region was 6 kilometres (19th in the sample).
- Of the workforce, 34.64% had a job in the community where they live (22nd in the sample).
- For every dollar spent on roads in the region, $0.18 was spent on transit (the lowest in the sample).
- The land uses of the region were the 20th most mixed in the sample.
- The population density of Niagara Region stood at 1,815.43 residents per square kilometre (27th in the sample).
- Of the dwelling units built in the region between 1996 and 2001, 54%were built in urban areas (ninth in the sample).
- Niagara Region's air quality is poor or very poor on 26 days in 2002 (24th in the sample).

Making progress

Intensification: Niagara Region has managed to concentrate over half of its recent new development in built-up areas: this figure, which is in the top half of the sample, becomes even more significant given the region's attractive rural landscape and the number of jobs in its agricultural sector. This accomplishment has taken place in the face of severe industrial decline in the core areas of the region's larger cities. Regional authorities developed an interest in smart growth principles in the late 1990s, and started to reconfigure regional regulations to encourage denser growth and infill in 2000 (NR 2000). In 2002, Niagara Region took steps to lower taxes on multiple-unit properties. Buildings with seven or more rental units are taxed on their rental income, and not on their assessed real estate value as condominiums. (NR 2002a). The 2003 regional plan gave priority to urban intensification over greenfield sites for new development (NR 2003a). Further planning for intensification has so far focused on creating design guidelines and codes, heavily influenced by New Urbanist planning and design principles, to direct neighbourhood form and appearance, rather than setting out a prescriptive plan to determine the region's structure and major land uses as most other Ontario plans do (NR 2005). Implementing these principles, and selecting the urban areas to be intensified, is the work of the region's lower-tier municipalities.

In St. Catharines, urban revitalization efforts have focused on the Queenston and Hartzel Road communities, which formerly housed a considerable amount of heavy industry and still retain a large working-class population (CoSC 2003). With population growth slowing in the city, development of downtown St. Catharines is being pursued by the city by reinforcing its cental commercial and institutional functions.

Downtown Niagara Falls, seven kilometres from the main tourist area, is criss-crossed with heavy railway and road infrastructure that links the city with the U.S. side of the Falls, and its traditional retail functions have declined sharply. Its numerous historic civic buildings, the presence of the city's main rail and bus stations, and 20 years of streetscape improvements provide an opportune context for additional development, and have already attracted a privately developed office building (CoNF 2004).

Welland has staked the redevelopment of its downtown, hit hard by the relocation of the Welland Canal to the outskirts of the city in 1973, on a new civic square project incorporating a library, city hall and park improvements connecting the main street with the now-recreational waterway (Carruthers Shaw 2003).

Needs improvement

Water quality and safety: After the Walkerton incident, many growing rural regions of Ontario were forced to take a hard look at the health risks posed by residential use of groundwater in agricultural areas. With the Niagara Region's high water table, contaminants from surface water can easily reach underground aquifers. Little of the region's area (even in the larger cities, no more than 50%) is covered by stormwater drainage networks, and combined sewer overflow outlets negatively impact the same bodies of water that provide potable water for the regional population (NR 2003b). The geography of the peninsula further reinforces these trends, as the short local rivers that come off of the escarpment or cut across its slope drain to the nearby lakes; pollution carried downstream is not borne far away but stays in the region's water bodies. The efficacy and integrity of many local waterways has been compromised by continued development along streambanks, and particularly encroachment in steep ravines and valleys (NR 2003c).

The township of Wainfleet lacks sewer services, and obtains its drinking water from private wells. Failing septic systems along Lake Ontario have led to the contamination of groundwater and the lake with nitrates, phosphates and pathogens (MacViro 2002). A boil-water advisory is, , in effect for parts of the township since April 2006..

The percentage of regional beaches on Lake Erie or Lake Ontario that were closed for at least one day increased each year from 1994 to 2001; the portion of beaches closed for more than seven days went as high as 32% during the same period (NR 2003d).

Car dependency: Just under 84% of all work-related trips in Niagara Region were taken in single-occupancy vehicles, the third-highest percentage in the sample. Only 34.64% of the labour force works in their community of residence, the sixth-lowest figure in the study. Despite this, the average commute (six kilometres) and the 1996–2001 rate of increase for that commute (5%) were towards the middle of the sample. However, shorter-distance car trips, likely taken at slower speeds, can reduce fuel efficiency and increase emissions; while the commute may be modest, the sheer numbers of cars involved and the pattern of their use results in a disproportionate impact on air quality. Ozone, which is closely linked to car travel, was identified as the primary culprit in Niagara Region's bad air quality days; despite low levels of nitrogen oxides and other smog components, the region's annual smog advisory days jumped to 21 in 2001 and 2002 (NR 2003d). Public transport in the region is modest, remaining the responsibility of lower-tier municipalities. St. Catharines, Niagara Falls and Welland each operate their own small transit agencies. All three agencies and intercity bus services meet at Brock University, where there is a bus interchange called "the Hub." Though this makes transfers relatively simple, it forces a transfer between different "spokes" rather than permitting direct access between the core urban areas. Coordination and integration between different lower-tier municipalities and municipal agencies, financial and administrative capacity of the regional government, and support from the provincial and federal governments have been identified as the necessary — and, at present, lacking — conditions for an expanded regional role in providing better transit service and pursuing other sustainability initiatives (NR 2004a).

LIVABILITY/EQUITY

Index score of 59.50 (sixth in the sample)

Key statistics

Some key statistics on Niagara Region's livability and equity:

- Of Niagara's tenants, 45.16% spent more than 30% of their income on housing (17th in the sample); 16.7% of homeowning households spent an equal amount on their mortgage payments (19th in the sample).
- There were 3.13 times as many households making more than $80,000 per year than making less than $20,000 per year (16th in the sample).
- The region's mix of different types of dwellings ranked 26th in the sample.
- Of Niagara Region's dwellings, 19.22% were built before 1946 (12th in the sample).
- A total of 6,876 crimes were committed for every 100,000 residents of the region (14th in the sample).
- Of Niagara's citizens 47.6% were obese or overweight (sixth in the sample).
- Niagara Region provided 0.37 community centres per 10,000 residents (19th in the sample).
- For every 10,000 residents, the region offered 0.80 square kilometres of parks (first in the sample).

- Per 1,000 Niagara Region residents, 6.52 deaths and injuries from car crashes occurred (16th in the sample).

Making progress

Parks and trails: Niagara Region's wealth of parks stands out; with 0.8 square kilometres of parkland per 10,000 people it is not ranked just first in the sample but is very much an outlier. This wealth has its roots in 19th century efforts to protect and beautify Niagara Falls as a symbol of the British Empire's reach into the heart of the New World. The Niagara Parks Commission's (NPC) 1,720-hectare park system extends along the Canadian side of the Niagara River. While the NPC manages much of its parkland as a recreational and tourist resource, such as golf courses and visitor facilities for Niagara Falls itself, it has recently paid increased attention to the conservation aspects of its mandate including the protection and reintroduction of native plant and animal species. Lower-tier municipalities have paid special attention to parks development, and boast parks resources that are the envy of far larger cities. St. Catharines maintains a horticultural park, bird sanctuary, ecological restoration area and arboretum in addition to its neighbourhood park system, for a total of over 400 hectares of park lands (CoSC 2005).

In the early 1990s, Brock University's Niagara Greenways Project inventoried Niagara's considerable trail networks and pushed for their integration and expansion (NGP 2006). Partly as a result of these efforts, various entities have been working to develop and extend long-distance trails in and around Niagara Region. The Waterfront Trail reaches around the Canadian shore of Lake Ontario from Niagara-on-the-Lake all the way to the Thousand Islands; while many segments have yet to receive comprehensive signage and some right-of-way has yet to be acquired, Niagara municipalities and the regional government have been enthusiastic about the project and underwent park and roadway improvements to accommodate users (WRT 2006). The NPC operates a 56-kilometre trail along the entire length of the Niagara River, from Lake Erie to Lake Ontario. To connect this river trail, the Waterfront Trail and the Friendship Trail with the centre of the region, the Region is developing a link along the Welland Canal to form the 157-kilometre Greater Niagara Circle Route. Unfortunately, this parkway between the lakes will eventually include a continuous two-lane roadway in addition to the existing multi-use recreational trail (NR 2006). The movement to build the Bruce Trail, which now runs the entire length of the Niagara Escarpment, was spearheaded by outdoor enthusiasts in Niagara Region, and the section of trail along the peninsula was developed well before the rest of the current 800-kilometre trail to Owen Sound. The Talbot Trail, formerly a wooden road built to facilitate colonial settlement in the early 19th century, runs from Fort Erie, Port Colborne and Wainfleet along the shore of Lake Erie, reaching all the way to Windsor.

Lower-tier municipalities have also been keen on trails. St. Catharines operates over 80 kilometres of trails through its parklands and proposes extending the network in order to address gaps in access to its existing parks (CoSC 2005).

Needs improvement

Dwelling mix and affordability: Niagara Region's housing mix is second to last in the sample, and current trends are reinforcing a disproportionately high (almost 71%) production of single-family housing. Ground-oriented units made up only 13% of the housing stock, and the share of apartments declined slightly to just over 16% between 1996 and 2001. Income figures over the same period show that the number of very high-income (over $100,000 per year) households increased by nearly 8,000, and the number of households making between $10,000 and $20,000 went up by 4,000. So while the indicator used in this study (the ratio of $80,000+ households to those making less than $20,000) ranks 17th, suggesting only modest income inequality, more detailed analysis indicates increased stratification between particular income groups. Of renting households 45.16% are spending beyond their means on housing, and 16.7% of homeowners are paying too much; both figures are toward the middle of the sample, but the housing market shows only slight recent shifts and suggests that specific groups will continue to struggle with their housing needs.

The region's mix of household types and sizes is quite similar to that seen in Ontario overall, and an aging population and trends toward smaller family sizes are projected to result in a greater number of one- and two-person households. Yet the projected 2004–2014 housing growth does not reflect the projected need, or reinforce other components of urban form that contribute to livability: 64% will be low-density, with medium- and high-density areas accounting for only 18% of the new units each.

While average income and income growth have lagged behind the Ontario average (median family income is only 17th in the sample), 74% of all dwellings are owned, and the region appears to be staking its housing future on homeownership even as new home prices rise at a much higher rate than regional income growth (SHS 2005). While more prosperous and rapidly growing cities in the sample might be able to resolve this by requiring that developers meet some affordability or dwelling type targets, the slower growth projected for Niagara Region will require a different approach.

Economic prosperity

Index score of 58.97 (tenth in the sample)

Key statistics

Some key statistics on Niagara Region's economic vitality:

- Niagara Region's municipal governments spent $0.016 per hectare per capita (fifth in the sample).
- Government transfers made up 13.2% of all household income in the region (17th in the sample).
- Of the Niagara Region labour force, 2.4% was employed in sports, recreation, arts and culture (15th in the sample).
- Of the adult population, 12.1% held a university degree (19th in the sample).
- The median household income in the region was $56,787 (17th in the sample).
- The region's unemployment rate stood at 5.8% in 2001 (ninth in the sample).
- Youth unemployment in Niagara Region was 11.8% in 2001 (sixth in the sample).
- The region ranked eighth in sample in the diversity of its businesses.
- For every 1,000 Niagara residents, there were 58.17 businesses (16th in the sample).
- Of the region's firms 5.43% were technology businesses (15th in the sample).

Making progress

Agriculture: The peculiar microclimate of the Niagara Peninsula has given rise to a considerable fruit and wine industry. Like other North American wine-growing regions in upstate New York, the Okanagan and Washington state, it lies at the same latitude as parts of France and Italy, though it is considerably rainier than the leeside vineyards of British Columbia and the western Cascade Range. Most of these wine- and fruit-growing areas lie in a band along Lake Ontario reaching five to ten kilometres inland in Niagara-on-the-Lake, Lincoln and Grimsby. To be sure, agricultural employment is highly seasonal and only accounted for 6,400 jobs in the 2005 summer season, a modest figure when compared to manufacturing (25,000), trade (24,000) and tourism (20,000) (Service Canada 2005). While direct employment in agriculture is only a small part of the region's economy, the sight of orchards and vineyards adds considerably to its residential and tourist appeal. Increasing interest in agri-tourism led the Region to study the economic development success reaped by California's Napa and Sonoma counties, which have faced similar challenges in increasing tourist stay times and encouraging an estate winery "scene" while protecting irreplaceable agricultural land from development (NR 2000). The total farmed area, after dropping between 1972 and 1996, actually increased between 1996 and 2001, reflecting an increased interest in viticulture even as the number of individual farm operations decreased by nearly half. Defying the popular idea of agriculture as a low-tech extractive industry, the considerable inputs of materials and technical expertise in fact give Niagara Region's agricultural commodity sectors (particularly grapes, fruit and greenhouse crops) multiplier effects that frequently exceed those of more conventional value-added economic sectors such as manufacturing and logistics (NR 2003e).

The most recent update to the Regional Official Policies Plan sets strict criteria limiting the growth of non-agricultural uses in existing agricultural areas termed "good" or "unique," with the latter receiving particularly strict protection from land subdivision. (Ontario briefly operated a program to acquire conservation easements from fruit growers, but more recent growth management plans have placed less emphasis on compensating landowners (NR 2004b)). The Greenbelt Plan extends to cover Niagara Region and the escarpment, and includes specific protections for tender fruit and grape-growing areas: municipalities cannot rezone agricultural land in, or permit the expansion of rural villages into, the designated Niagara Peninsula Tender Fruit and Grape Area (MMAH 2005).

In addition to the land protection regulations and tourist development goals of the province and the region, other institutions help foster local agricultural development. Agriculture Canada's Southern Food Crop Protection and Food Research Centre has a

research lab and experimental farm in (appropriately enough) Vineland, at the heart of the wine-growing region, and conducts plant pest and disease research relevant to the viticultural and fruit sectors. Brock University's Cool Climate Oenology and Viticulture Institute was established with support from wine and grape industry councils, and conducts research on the cultivation of grapes and the chemistry and marketing of wine.

Needs improvement

Growth through road building: Niagara Region's rivers gave rise to water-powered mills in the early 19th century. Later on its position on railways and waterways, coupled with its abundant hydroelectricity, spurred the development of metal casting and forging for the railway, maritime and automotive industries. Despite these assets, the region has witnessed a gradual decline in its industrial employment base as the metal products economy grew and modernized elsewhere in Ontario. Niagara Region's history of producing industrial components hinged on the ability to move its products to where they were needed, and the decline of those industries has been perceived as partly the result of overcrowded highway connections to the U.S. border. Combined with the rise of tourism as a key part of the regional economy — and the overwhelming percentage of tourists that arrive by car — the region has staked its future on the expansion of existing road networks and the addition of new highways and river crossings.

The 2002 Niagara Region Transportation Strategy called for increased bridge capacity over the Niagara River, widening of the Queen Elizabeth Way (connecting Hamilton to the U.S. border along Lake Ontario) to six lanes, extending a connecting highway near the Welland Canal south to Port Colborne, and widening arterial roads as the basic matrix for the region's economic future. Passenger transportation, including rail and transit measures, are also mentioned, but in far sketchier terms (NR 2002b). The resulting research and consultation identified corridors and service areas where the Region could play a role in integrating transit services, but there has been no action on these priorities other than the bus hub at Brock (NR 2002c). Other initiatives were limited to shuttle services to major employers, which, while they certainly meet a specific need, do little to create and reinforce an effective transit network adequate to affect land use patterns (Tamarack Institute 2006).

Of the regional and provincial transportation plans, the most dramatic is for a new Niagara Peninsula corridor. This would run down the middle of the region, south of the Niagara Escarpment and the specialized farmland, from southern Niagara Falls to an interchange with existing highways somewhere between Hamilton and Brantford or Halton. Though some version of this highway has appeared in various long-range plans for many years, and the previous Progressive Conservative government committed to the project, the current provincial government has sent it back to the drawing board after sustained pressure from environmental and transportation advocacy groups. Both Places to Grow and the Greenbelt Plan permit this kind of facility — a major new 400-series highway through farmland — to support existing economic activity or to accommodate growth; Places to Grow maps clearly show the highway cutting through land far beyond the designated growth centres (MTO 2005). Similarly, municipal plans seem to anticipate little or no effect from the highway; though it is still in the environmental assessment stages and is planned for a 30-year horizon, there is as yet little acknowledgement of the land use and environmental impacts of such a massive facility.

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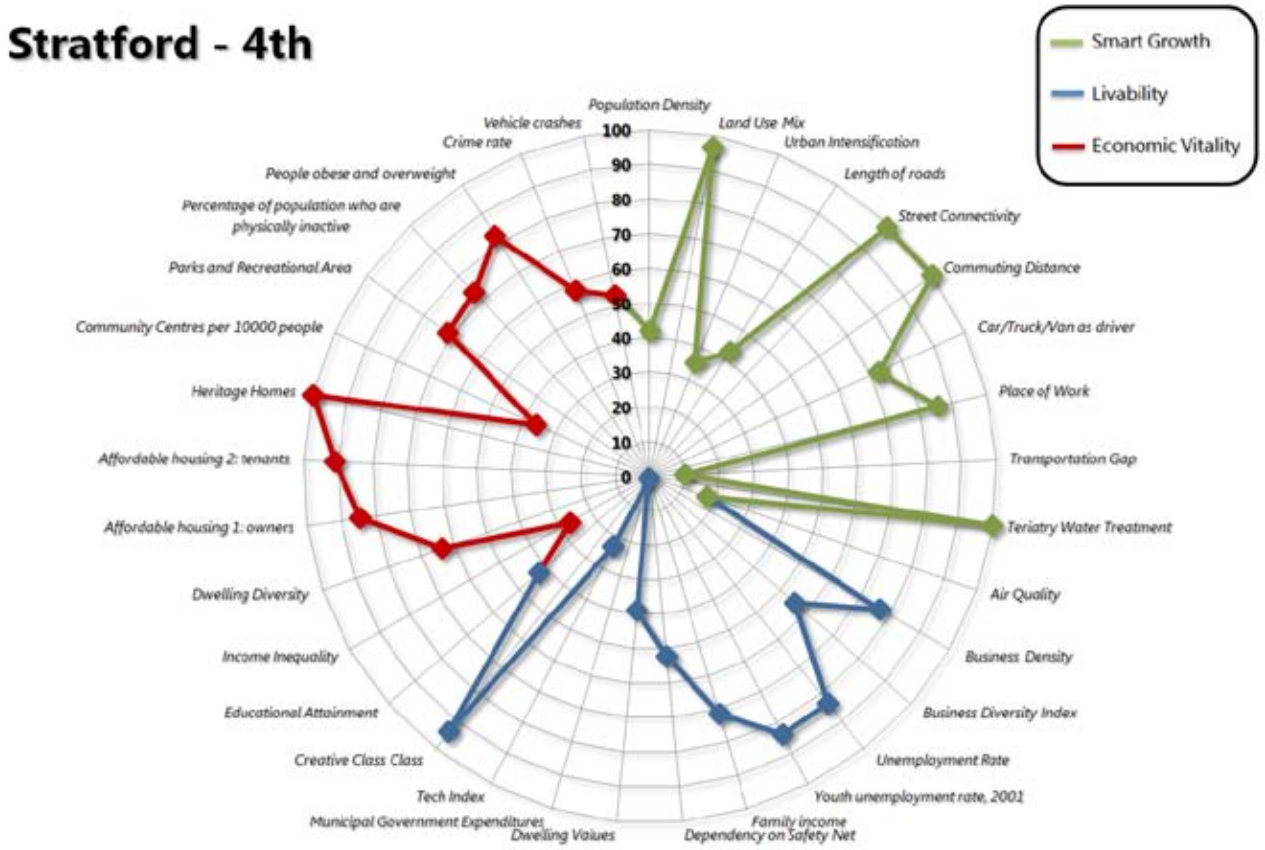

8.4 City of Stratford

Stratford scores 61.85 on the composite Sustainability Index, fourth out of the 27 municipalities in the sample.

- On the Physical Environment Index, Stratford scores **63.81** (**second** in the sample)
- On the Livability/Equity Index, Stratford scores **65.28** (**second** in the sample)
- On the Economic Index, Stratford scores **56.47** (**12th** in the sample)

The City of Stratford is home to 30,000 people in 25 square kilometres. As the seat of rural Perth County, it is the largest city by far in a county of only 74,000 citizens where 90% of the land is agricultural. The city is located 40 kilometres west of Waterloo and 40 kilometres northeast of London. Stratford was traditionally a furniture manufacturing and railway equipment centre, and remains home to the Ontario Pork Congress, an annual hog-breeding exhibition. Major industries now include tourism and retail as well as automotive and aerospace manufacturing, though Stratford is far from major highways and rail corridors. The city's population increased by only 2.65% between 2001 and 2006. The Stratford Shakespearean Festival, founded in 1953, has become an internationally known event that spans seven months of the year and operates in three theatres in the centre of the city. The city's name and frequent allusions to Shakespeare have their roots in the Shakespeare Hotel, an early-19th-century tavern that struck the fancy of a land surveyor sent to stake out farm parcels in what was then a thick forest.

SMART GROWTH

Index score of 63.81 (second in the sample)

Key statistics

Some key statistics on Stratford's physical environment:

- The city's average population density was 2,266 people per square kilometre (17th in the sample).
- Of the new housing units built in Stratford between 1996 and 2001, 28.2% went up in urban areas (18th in the sample).
- Stratford ranked second in the sample in the mix of its land uses.
- The city maintained 5.64 kilometres of road per 1,000 residents (ninth in the sample).
- Stratford's streets were the second-most connected in the sample.
- For every dollar spent on roads per capita, $0.40 was spent on transit in 2004 (20th in the sample). Of Stratford commuters 72.09% drove a car, truck or van to their job (fourth lowest in the sample).
- Of the workforce, 82.85% held a job in the community in which they reside (tenth in the sample).
- Stratford's average commute was 2.2 kilometres (shortest in the study).
- Air quality was poor or very poor on 17 days in 2001 (tenth in the sample).
- Of the population, 100% has tertiary water treatment (tied for first with three other municipalities).

Making progress

Keeping a small town compact: Deliberately sited at the border of two different grids of rural land subdivision, Stratford's location has resulted in a unique distortion of the traditional small-town Ontario grid. Local planners believe that the angled streets have helped encourage more coherent extensions of the street network, minimizing commute distances (which are even lower than in other, smaller communities in the sample) and helping maintain road connectivity by discouraging a broader, more monotonous grid of wider arterials. The community has so far managed to fight off proposed big-box development, including a controversial Wal-Mart, and maintain the traditional downtown as well as keep industrial areas, which provide most of the city's jobs, sited contiguously with existing development. Though population density figures put it in the middle of the sample overall, even a ranking of 17th is impressive for a small town surrounded by farmland.

Despite slow growth, an irregular area at the city's northeastern edge has recently been annexed by the municipality to provide room for future residential development. The planning process for this plot, situated along two waterways — the Avon River and the unceremoniously named Court Drain — compared the land efficiency and impacts of several potential development patterns. A scheme employing the "fused grid," a mixture of cul-de-sacs, park corridors and grid street patterns, was adopted for the newly annexed territory (CMHC 2004). The resulting secondary plan will accommodate 1,900 households with an overall density of 25 units per hectare, including 300 dwellings in multiple-unit buildings, pedestrian connectivity with parkland and provision for the placement of future community facilities (CoS 2004a). Current annexation plans for lands at the city's western edge are accompanied by a similar design and secondary planning process (GSP 2006).

Taking action on drinking and waste water: Though Stratford is tied with three other cities in subjecting all its wastewater to tertiary treatment, it is the smallest that can claim this accomplishment. After a series of combined sewer overflows in 1996 (Stoneman 2000), the City undertook extensions of its holding tanks and other facilities to forestall discharges into the Avon River during periods of high rainfall. In an area with few remaining woodlots or other natural landscapes to provide natural filtering of runoff (see below), enhancing and restoring riverine

landscapes will have to be a high priority. The recent Environmental Roundtable plan (CoS 2004b) calls for the protection of stream banks and floodplains in areas to be developed; secondary planning processes for annexed lands have preserved stream corridors and shown sensitivity to the needs of the hydrological system.

Recent federal and provincial investments have strengthened the drinking water treatment regime, a matter of particular significance given the density of potentially highly polluting hog-raising centres in this part of Ontario (IC 2002). Determination not to repeat the errors that led to the Walkerton tragedy helped spur a successful response to a recent mishap that threatened to contaminate the city's water supply; the City's prompt and effective action attracted attention and no small amount of praise from other municipalities and water quality advocates (Smith 2006).

Needs improvement

Woodlots and natural landscapes: Intense agricultural exploitation in this fertile part of the province, coupled with spreading urbanization, have effaced most of the natural elements of Stratford's landscape. The City's recent urban forestry plan lays out high standards for the management of trees in built-up residential neighbourhoods, but says little about ecological restoration or the broader function of tree stands (CoS 2001). Serious effort will be required to meet the City's stated goal of increasing natural woodland cover from a low 2.6% of total land area, including the proposed "naturalization" of some of the city's existing landscaped parkland (CoS 2004b). Though current plans preserve the narrow wooded fringe around the upper reaches of Court Drain, the stream's confluence with the Avon River is trapped within a golf course. The Avon itself, surrounded by lush green banks and parklands in the downtown area, has been dammed with weirs to create its wide, shallow downtown segment; while a potent image of the city's beauty and laid-back lifestyle, it bears little resemblance to the narrow, wooded creek that originally existed there. Even the T.J. Dolan Natural Area, a small piece of second-growth woodland near the city centre, is in fact the overgrown site of the city's original riverside dump.

LIVABILITY/EQUITY

Index score of 65.28 (second in the sample)

Key statistics

Some key statistics on Stratford's livability and equity:

- 32.8% of Stratford's dwellings were built before 1946 (first in the sample).
- The city ranked eighth in the diversity of its dwellings.
- Stratford operated 1.31 community centres per 10,000 residents (fourth in the sample).
- The city had 0.57 square kilometres of parks per 10,000 citizens (fourth in the sample).
- Stratford recorded 6,605 crimes per 100,000 residents (an extrapolated number) in 2003 (11th lowest in the sample).
- There were 4.2 times as many families whose income exceeded $80,000 per year as there were families whose income was less than $20,000 per year in 2001 (20th in the sample).
- Of all tenant households, 39.9% spent more than 30% of their income on rent, while 14.07% of homeowning households did so (both sixth in the sample).
- Of Stratford's population, 49.5% were overweight or obese (tenth in the sample).
- Of the population, 51.6% reports getting little or no exercise (25th in the sample).
- Deaths and injuries from car accidents affected 6.6 people for every 1,000 Stratford residents (17th in the sample).

Making progress

Heritage preservation: In at least one respect, Stratford's image reflects its reality: leafy tree-lined streets of tidy old houses do indeed make up much of the town's housing stock, giving it the highest proportion of pre-1946 dwellings in the study sample. Slow post-war growth in Stratford spared its red-brick Victorian downtown from the insertion of "modern" facilities, leaving a fabric of attractive three-storey mixed-use buildings with commercial space on the bottom floor largely intact. The area is now protected as a Heritage Conservation District, which sets high standards for proposed modifications to existing structures and the insertion of new ones. Though many praise the city for the boutiques-and-restau-

rants ambience that the traditional built form helps to support, many of the city's more prosaic businesses also find their niche downtown — a heritage landscape that accommodates the everyday functions of what is still a blue-collar town. Parking has been accommodated at the rear of lots, away from the commercial streetscape. Campaigns in the 1960s to save the ornate sandstone City Hall and the nearby Perth Courthouse preserved an iconic civic presence at the heart of the city and built a strong local constituency around heritage preservation.

Places to move, things to do: Stratford scores well on two important measures of how a city manages to provide public services for all, including its lower-income residents. The city ranks relatively highly in terms of its housing affordability, coming in sixth place for its owned and rental housing stock. This comes despite its compact form and older housing stock — a refutation of the argument that suburban sprawl helps keep housing prices down and quality high. In fact, the sheer age of the local housing stock contributes to a variety of dwelling types and sizes, giving Stratford the eighth most diverse dwelling stock in the sample. In addition to this evidence of a comfortable amount of headroom in the housing market, the City has invested in public recreation and sports facilities. While some higher-growth municipalities have assumed that residents' oversized backyards will provide enough space to play, Stratford maintains the fourth most parkland and community centres per capita in the study and is pursuing the development of a new twin-pad arena for amateur hockey. A commitment to quality public facilities helps improve quality of life in an equitable manner, and is no small feat in a small town with limited resources; Stratford's provision of parkland and community facilities ranks higher than the similar-sized nearby cities of Woodstock and St. Thomas.

Needs improvement

Income inequality: The high quality of life that Stratford is known for, its aesthetic qualities and famous festival often serve to mask real economic inequity in the city, which was long a centre of activity for the Canadian labour movement. For a city of small size, Stratford shows wide divergence in household incomes, with over four times as many higher-income families as low-income households, the 20th largest gap in the sample, This is potentially a sign of poverty problems that are more persistent than those usually faced by smaller rural municipalities. The Perth County Social Planning Council has been working to increase the profile of this issue by researching and promoting a report on poverty in and around Stratford that includes harrowing and very real case studies of local families struggling to make ends meet. Despite a network of community organizations working to support them, the problems of working poor families are especially acute, with one in four of Perth County's working people in a low- or minimum-wage job with no benefits (PCSPC 2006).

Economic vitality

Index score of 56.47 (12th in the sample)

Key statistics

Some key statistics on Stratford's economic vitality:

- Stratford's adult unemployment rate stood at 4.8% in 2001 (third lowest in the sample), and its youth unemployment rate was 11.8% that same year (sixth lowest in the sample).
- Of total household income in Stratford, 11.3% came from government transfers (11th in the sample).
- The median family income in Stratford was $59,033 (ninth in the sample).
- Dwelling values increased an average of 6.85% between 1996 and 2001 (12th in the sample).
- Of the population aged 20 years or older, 13.5% had a university degree (15th in the sample).
- Of Stratford's workforce, 3.54% was employed in arts, culture, sports or recreation (third highest in the sample).
- Technology businesses made up 3.76% of all firms (22nd in the sample).
- Per 1,000 residents, 75.05 businesses existed (fourth in the sample).
- Stratford's businesses were the least diverse in the sample.
- The municipal administration spent $1.45 per capita per hectare in 2004, the highest figure in the sample.

Making progress

Creativity: As befits the home of a famous theatre festival, Stratford supports a concentration of cultural workers and enterprises. The Shakespearean Festival itself is the largest of these, directly employing over 1,700 people and creating $125 million worth of economic impact, according to the organization's own calculations (SSFC 2005). Started by an ambitious local journalist who anticipated the closure of Canadian National's steam locomotive shops, then the foundation of Stratford's economy, the festival has provided a model for using arts-based development to sustain a small industrial city. Craft stores and artist-run centres such as Gallery Stratford, which take advantage of the tourist traffic brought in by the Festival to expose local artists to an international audience, enable the city to sustain a community of working visual artists as well. Though these artistic communities are small in absolute terms, the fact that a city of 30,000 has the third-highest proportion of cultural workers in the sample is a significant achievement.

Industry: While its businesses are mostly small-scale plants, Stratford's strength in manufacturing is recognized by the city as the backbone of its economy. Industrial areas are centred around the railway corridors at the city's western and southern fringe. By assembling land for an industrial park and extending services, the City has managed to add over half a million square feet of new industrial space in the last five years and reap a 15% increase in its commercial and industrial tax revenues (CoS 2006a). As in many Ontario cities, the auto parts industry is a prominent employer, with such firms as Dyna-Mig, Clemmer Steelcraft and Cooper-Standard employing hundreds to make car components. With a mammoth Toyota plant under construction in nearby Woodstock, other automotive manufacturing firms are looking to locate in Stratford. The local workforce's metalworking expertise has also attracted airplane manufacturers, such as FAG Aerospace and Schaeffler Canada (CoS 2006a). Overall, manufacturing is the second-largest sector in the city with over 3,000 employees in 2005, led by sales and service with roughly 4,100 workers (CoS 2006b).

A vibrant small-town downtown: Anchored by the City Hall and courthouse mentioned above, Stratford's downtown is remarkably intact and remains a walkable alternative to the big-box commercial area on the city's east side. The angled streets of downtown, a deliberate choice of Stratford's founders, lend it a visual interest that is often lacking in more typical grid patterns and have helped to concentrate commercial activity in the centre; local planners believe that this has kept downtown from dissipating along a single corridor, as is often seen in Ontario towns. A design process is underway to develop the Market Square, now an unassuming parking lot on an irregular site behind City Hall, into a more welcoming plaza, marketplace and transit terminal (CoS 2005).

Needs improvement

Arts/industrial divide and diversity: Though the Festival has kept Stratford on the map, and its organizers are quick to trumpet its success at drawing tourists, it has put the city in the curious position of being a working-class town with a high-culture image. As a result, there is a popular feeling that the arts community touted by the city's leadership does little to address the city's blue-collar reality, and many feel that a degree of cultural tension exists within the community. The manufacturing sector remains the classic "branch-plant" economy, dominated by small facilities run by the Canadian branches of German, Japanese and American manufacturing firms, with little interest in developing research activities in Stratford or investing in the skills of local workers. As the least-diverse economy in the sample, the region remains dangerously tied to the fortunes of the North American automotive industry (surely not the basis for an ecologically sustainable economy) and a single, if successful, arts festival. With over 75 firms per 1,000 residents, the number of businesses per capita is the fourth highest in the sample. However, many of jobs generated by these firms are retail positions geared to the tourist trade, low-paid, insecure and seasonal. The spin-off benefits of a "cultural class" — the idea that the presence of an artistic community will provide a welcome ground for other industries that require creative thinking — do not appear to be arising in Stratford yet, as indicated by the low proportion of technology businesses (only 3.76% of firms, 22nd in the sample).

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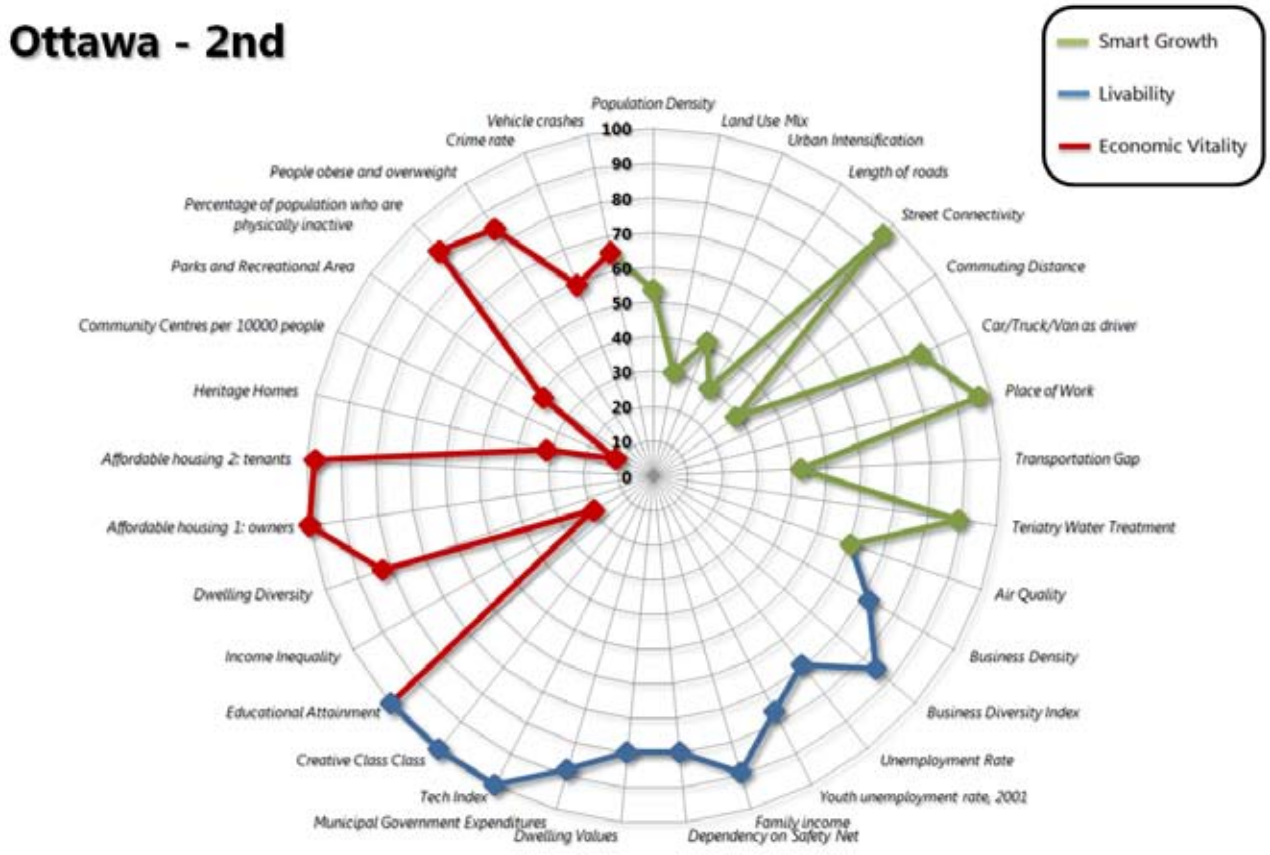

8.5 City of Ottawa

Canada's capital, the City of Ottawa is home to 812,129 residents (2006) on a land area of over 2,778 square kilometres along the Ottawa River. The recently amalgamated city is at the core of a metropolitan region of 1.13 million, including the city of Gatineau across the river in Quebec. Although there is no metropolitan government, the National Capital Commission plans and provides some services for the area on both sides of the river. Traditionally economically dependent on the federal institutions that are the city's raison d'être, Ottawa's growth increased dramatically after the Second World War and continued through the Trudeau era of expanding central government. The presence of government research facilities and two universities supports a highly educated workforce of 494,000 people and planted the seeds for a thriving technology cluster, one that is helping the city diversify its economy and extend its global reach. This prosperity was accompanied by a moderate 4.92% increase in population between 2001 and 2006. The acute need for skilled labour and a civil service that hires from coast to coast brings a constant flow of new residents to Ottawa from every corner of the country, and sustains a high degree of bilingualism.

Ottawa scores 68.38 on the composite Sustainability Index, second out of the 27 municipalities in the sample.

- On the Physical Environment Index, Ottawa scores **59.29** (**fifth** in the sample)
- On the Livability/Equity Index, Ottawa scores **60.58** (**fifth** in the sample)
- On the Economic Index, Ottawa scores **85.26** (**first** in the sample)

SMART GROWTH

Index score of 59.29 (fifth in the sample)

Key statistics

Some key statistics on Ottawa's physical environment:

- Ottawa's air quality was poor or very poor on only 5 days in 2002 (third in the sample).
- The wastewater of 89% of the population was subjected to tertiary treatment (11th in the sample).
- Ottawa maintained 8.09 kilometres of road per 1,000 residents (18th in the sample).
- The city's streets were the tenth-most connected in the sample.
- Of all work trips, 61.96% were taken in single-occupancy vehicles (second in the sample).
- For every dollar spent on roads per capita, $1.61 was spent on transit in 2004 (second in the sample).Ottawa residents commute 7.6 kilometres on average (21st in the sample, tied with the City of Toronto).
- Ottawa ranked 22nd in terms of mixed land uses in the sample.
- Of all housing units built between 1996 and 2001, 33.4%were in urban areas of Ottawa.

Making progress

Transportation options: Despite a slight (1.24%) increase between 1996 and 2001 in the percentage of those driving to work, Ottawa still maintains a balance of trips that is relatively favourable to transit, walking and cycling — the percentage of drivers is still lower than that in Canada's five other largest cities. The image of people happily skating to work on a frozen Rideau Canal may seem too charming to be true, but 7.5% of Ottawans do walk (and even skate) to work, a figure that increases to 15% at the periphery of the downtown and can even exceed 25% in the city's core neighbourhoods. Transit ridership is particularly high in specific well-served outlying neighbourhoods, as well as those located on busy corridors around the centre, giving transit a 20% rideshare overall (only about two percentage points lower than that seen in Toronto or Montreal, with their extensive heavy-rail systems) (CoO 2004a).

To build on this, the transportation component of Ottawa's recent master plan proposes general transit-, cyclist- and pedestrian-friendly measures. The plan, approved in 2003, mandates the creation of specific network plans for each transportation area, with five- and ten-year implementation schedules, indicators and targets, and an annual works program (CoO 2003a). So far, a Cycling Plan has been drafted, aiming to triple the number of bike trips and mandating the extension of the existing network of bike lanes and other cycling accommodations to almost 2,500 kilometres (CoO 2005a). The transit component of the plan proposes 42 kilometres of extensions to the current 28-kilometre busway, and a conversion of the existing diesel light rail O-Train to a 100-kilometre system with two lines (CoO 2003a).

Downtown intensification: In 1994, the City of Ottawa began to take steps to reverse the exodus of residents from downtown neighbourhoods, who were being priced out of the area by increasing land values and commercial conversions. The Re-Do-It program waived development charges and other fees for smaller projects in the heart of downtown, and was later expanded to include larger projects over a larger area. Eventually the City overhauled its property tax system to favour (or at least stop penalizing) multiple-unit development (Tomalty 2003). More recently, the municipal government and the National Capital Commission (NCC) commissioned a downtown urban design plan. The design strategy takes its cues from the existing green space networks, the built fabric of particular neighbourhoods, the architectural identity of institutional complexes, and other design elements to ensure the continuity of new projects with the traditional built fabric (CoO/NCC 2004). In addition to the redevelopment of the LeBreton Flats (see below), brownfields, parking lots and

other underutilized sites in the core neighbourhoods in and around the downtown are slated to host an unspecified, but likely significant, portion of the 213,000 new housing units that could be developed within the urbanization boundary. Though downtown-specific incentives and guidelines are in place, there is as yet no clear spatial framework setting out exactly what new development will go where (Brunt and Winfield 2005).

Environmental quality: With only five incidents of bad air quality recorded in 2002, Ottawa ranks higher (third) than most of the small, rural municipalities reviewed in the study. The city's relative isolation from large urban upwind areas spares it the "long-distance" air pollution that affects many other Ontario cities. The relatively small role played by manufacturing in the local economy lessens the impact of industrial sources, leaving transportation as the major contributor of greenhouse gases and other air contaminants. Still, the steady increase in vehicle traffic has spurred a steady increase in ozone emissions, leading to a growing number of smog days (CoO 2005d).

The region's limited industrial base also contributes to the good quality of surface waters. Public and political pressure, particularly on the part of the NCC, contributed to Domtar's decision to shut its paper plant on Chaudière Island, part of an important archipelago immediately upstream of the city centre (Adam 2006). The Rideau and Ottawa rivers meet in downtown Ottawa, with the Rideau's watershed extending south and west across the city to the Rideau Lakes beyond; the city also encompasses portions of the Mississippi and South Nation watersheds. Though urban activity has a measurable impact on each of these watersheds, watershed issues and advocacy have attracted considerable attention given the significant tourism impacts of the region's numerous conservation areas and the groundwater sources that provide drinking water for the 10% of the city's population living in rural areas. The city's 89% rate of tertiary wastewater treatment places Ottawa towards the middle of the sample, but is quite good considering the sheer size of its rural areas, which rely on septic tank systems.

Needs improvement

The Greenbelt and commuting distances: Ottawa's Greenbelt was proposed in 1950 and assembled by the federal government starting in the late 1950s. Consisting of 20,000 hectares of conservation lands, agricultural properties and extensive government installations, it curves around the city's core neighbourhoods in an arc south of the Ottawa River. Though it provides recreational opportunities and preserves ecologically significant areas — notably three large wetlands — it has had limited success in containing development. The remainder of the area inside the Greenbelt is nearly entirely built out, containing only roughly 100 of the city's 2,400+ hectares of vacant residential land (CoO 2004b). As a result, the rapidly growing neighbourhoods of Kanata, Barrhaven, Riverside South and Orléans lie just outside the Greenbelt with few checks on their expansion.

The redevelopment of sites outside the downtown area (several the result of earlier federal policies to distribute government office complexes and agencies around the region) has proved difficult. While action on potential redevelopment sites such as LeBreton Flats (see below) and the Rockcliffe military base has moved slowly, sites that have moved ahead more rapidly have frequently failed to implement designs that would take full advantage of their urban location. The rail yards adjacent to the city's main train station are being developed, but as a fairly typical big-box retail and low-rise office complex with a large amount of surface parking and a peripheral, though sheltered, connection to the VIA station. The federal office buildings in the Tunney's Pasture and Confederation Heights areas, while relatively central and close to good transit connections, are uninspiring brick and concrete blocks, laid out in a 1950s towers-in-a-park plan amidst parking lots and untrimmed lawns.

Both the current and the previous regional plans designate areas outside the Greenbelt and adjacent to the existing development centres noted above as growth areas, which will house most of the 400,000 new residents that are projected to arrive in the next 20 years (CoO 2003b). Two-thirds of the new housing units built between 1996 and 2001 lay outside the Greenbelt, effectively distancing new housing from employment areas in the central parts of the city. Though overall density is relatively high (2,890 persons/hectare, fifth highest in the study), the effect of growth beyond the Greenbelt puts upward pres-

sure on average commutes (which increased from 7.5 kilometres in 1996 to 7.6 in 2001), which are already high compared to others in the sample (though competitive with Canada's other large conurbations). Highly segregated land uses further contribute to these effects, increasing the number of trips as well as their length. Such widely spread destinations appear to counteract aggressive investments in high-capacity bus transit and higher-density development.

Managing lands: The NCC, created by the federal government in 1958, carries out some planning and management functions over federal property in the urban and outlying rural areas around Ottawa and Gatineau as the "National Capital Region." The NCC maintains 50,000 hectares of various types of park and conservation lands, including Gatineau Park on the Quebec side of the river, the Greenbelt lands, river and stream banks, and some urban parks in Ottawa. The Crown corporation plans (though only partially maintains) roadways and bridges, including major parkways (planned as scenic routes but now heavily used by commuters) and prominent downtown streetscapes, and does general tourism and event promotion. In addition, the NCC is charged with overall planning for federal lands and properties in the capital, though the City of Ottawa also exercises planning and development control over many of the same sites, while the Department of Public Works and Government Services is the government's facilities development and management arm.

This considerable overlap in functions between different entities and levels of government, and the NCC's broad and vague mandate, have frequently led to institutional paralysis over contentious sites and prevented the development of key lands. The LeBreton Flats, immediately west of Parliament Hill and bounded by major roadways, were expropriated and demolished in the early 1960s and remained vacant for nearly 40 years afterward, with only the grid of the former city streets remaining. After numerous delays, redevelopment has proceeded, and the first phase of residential development is currently being marketed to prospective buyers. The Ottawa River Parkway was moved away from the waterside, in favour of a new LeBreton boulevard and extensive landscaping around the new Canadian War Museum (NCC 2003). Despite their ecological and recreational value, the Chaudière and Victoria islands in the Ottawa River still retain a significant concentration of industry, and NCC-controlled properties on them have been allowed to fall into disuse.

LIVABILITY/EQUITY

Index score of 60.58 (fifth in the sample)

Key statistics

Some key statistics on Ottawa's livability and equity:

- The city maintained 0.31 hectares of parkland for every 10,000 residents (22nd in the sample).
- Of Ottawans, 48.4% were obese or overweight (eighth in the sample).
- Among adolescent and adult residents, 42.4% reported engaging in little or no physical activity (sixth in the sample).
- Ottawa had the highest degree of dwelling diversity in the sample.
- Of the city's dwellings were, 10.35% built before 1946 (22nd in the sample).
- For every 10,000 Ottawa residents there were 0.43 community centres (17th in the sample).
- For every 10,000 people, 5.39 deaths and injuries related to car accidents occurred (ninth in the sample).
- Per 100,000 residents 6,450 crimes were reported (ninth in the sample).
- Of Ottawa's tenant households, 37.19% spent over 30% of their income on housing (second in the sample); among the city's homeowners, 11.9% spent over 30% on housing (lowest in the sample).
- For every household making less than $20,000 per year, there were 5.64 households making more than $80,000 (24th in the sample).

Making progress

Housing affordability and diversity: As home to Canada's senior civil servants, along with the media and lobbyists that pursue them, it is not surprising that Ottawa has a high proportion of higher-income families. In the decades since the Second World War, the city has grown along with the Canadian federal government, with only slightly more than 10% of its dwellings built before 1946. Still, post-war development has created the most diverse dwelling stock in the sample, though more recent trends favour single-family housing and row house units over apartments. The diversity of dwelling types reflects the diversity of Ottawa's households, with a low proportion of "traditional families" and higher numbers of young people, single people, childless couples, common-law relationships, non-family households

and single-sex couples (CoO 2003c). Constant in-migration from other parts of the country, as well as considerable international immigration arriving to benefit from the city's economic growth and high public profile, continually reinforces this mix of diverse lifestyles and households from across the country and the world.

Despite a 14% increase in average dwelling value between 1996 and 2001, housing in Ottawa actually became more affordable over the same period. The proportion of tenant households in unaffordable housing declined by almost four percentage points to 37.19%, and the proportion of homeowners spending excessive amounts on their major payments went down by almost three per cent to 11.9% — the second-best and best results in the study, respectively. Smaller housing units, such as ground-oriented townhouses, offer opportunities for homeownership in denser neighbourhoods and keep maintenance costs to a minimum. With fully 18% of its owned housing in townhouses, Ottawa residents have embraced this type in greater numbers than any other Canadian city.

Heritage and culture: Ottawa's position as the country's capital brings with it arts and cultural resources far in excess of what might be offered in a less symbolically important city of similar size. The National Arts Centre houses four performance spaces for theatre in English and French, dance and the NAC Symphony. Through Heritage Canada, the federal government operates nine prominent museums in Ottawa proper, including the National Gallery, the Museum of Civilization in nearby Hull, and specialized museums dealing with war, photography, aviation, agriculture and more. The NCC plays a significant heritage role, maintaining public art, prominent monuments and historic sites along with official residences such as Rideau Hall and 24 Sussex Drive. The complex of buildings on and around Parliament Hill are, of course, working heritage sites, and the challenge of planning and maintaining these structures requires close cooperation between the NCC, Public Works and Government Services and the officers of Parliament itself.

The City of Ottawa operates on its own, or funds non-profit groups that run, a number of arts facilities that help get the community engaged and participating in arts and culture, sometimes in (appropriately) creative ways: these include a contemporary art museum, five theatres, two outdoor concert venues, two arts councils, a network of pottery studios in community centres, and an art school that offers community as well as professional courses. The City operates four museums and funds six others run by non-profit groups; it plans to open three more, one notably in a restored working-class dwelling in the older Bytown area (CoO 2005a).

An array of built and community heritage groups, particularly Heritage Ottawa, advocates quite vocally for preservation and heritage planning, and the City has funded a Council of Heritage Organizations to foster connections between the various groups and provide advice to the city on heritage issues. Planning for arts and heritage, for both facilities and ongoing programming, has been integrated into the City's master plan (CoO 2003d, 2003e). The City's heritage preservation track record has been mixed so far, with the fortuitous preservation of the city's former Beaux-Arts rail terminal and the Bytown neighbourhood balancing the losses of the LeBreton Flats neighbourhood and the early Chicago-style Daly Building. The City of Ottawa maintains an active heritage designation and preservation program for individual structures as well as ensembles and neighbourhoods. It bears pointing out that although the percentage of heritage homes declined between 1996 and 2001, the number of older dwellings remained stable; the decline is not due to demolition so much as the rapid growth in new housing that accompanied Ottawa's high-tech boom of the late 1990s.

Needs improvement

Parks and community centres: Though the NCC's Greenbelt preserves a swath of lands as "green," only a fraction is open to active recreation; the rest are taken up by federal institutions, the airport and agricultural lands. The NCC runs nine urban parks totalling 145 hectares, and its parkway system encompasses 890 hectares. As with many NCC initiatives, planning and building new facilities has often proven controversial, and coordination of greenspace policies with the City of Ottawa and the province has been problematic. Similarly, Ottawa's municipal government has a somewhat better record in preserving ecologically sensitive landscapes than it does in opening other lands to recreation. The City's own parks system totals 2,383 hectares, which amounts to less than one hectare of parkland per square kilometre of the municipality, or 0.31 square kilometres per 10,000 residents — the eighth lowest per capita figure in the sample. The draft Greenspace Master Plan, which includes targets for parklands

acquisition and enhancement, will have to be followed closely to improve this figure (CoO 2005c). Only 0.43 community centres exist for every 10,000 Ottawa residents, a figure which puts the city toward the lower middle of the sample.

Economic prosperity

Index score of 85.26 (first in the sample)

Key statistics

Some key statistics on Ottawa's economic vitality:

- Of Ottawa's working-age population, 5.8% were unemployed in 2001 (ninth in the sample).
- Among youth, 13% were unemployed (tenth in the sample).
- Median family income stood at $73,507 (third in the sample).
- Government transfer payments made up 7.4% of total household income (fourth in the sample).
- Of Ottawa's workforce, 3.78% was employed in "creative" sectors (first in the sample).
- Of working adults, 31.9% had a university degree (highest in the sample).
- Technology firms made up 16.56% of all enterprises (highest in the sample).
- For every 1,000 Ottawa residents there were 70 businesses (fifth in the sample).
- Ottawa ranked 19th in the sample in the diversity of its businesses.
- The municipal government spent .0107 dollars per capita per hectare in 2004 (second in the sample).

Making progress

High tech: The government sector is not known for spawning innovation, but Ottawa has managed to attract and sustain several important technology clusters for different industries. The local economy is, to be sure, dependent on government (22% of all jobs are in public administration), and the percentage of firms in different sectors is heavily skewed away from the Ontario average — ranking 19th in the sample. Among the other industries, tourism and arts had 8.3% of local employment, health and education 16.5%, trade 13%, professional and technical services 8%, other services 8.3% and manufacturing only 6.2%. Of all local firms 16.6% were technology firms in 2004, up from 14.4% in 2002.

The technology investments made in Ottawa tended to be large, with several major firms dominating the scene. In 2001, Compaq, Cognos, Mittel and Cailan Technology had over 1,000 employees, JDS Uniphase, Bell and Alcatel over 2,000 and Nortel over 10,000 (CoO 2001). A total of almost 80,000 people were working in the high-tech sector in 2001. The subsequent crash in the sector that same year shed about 30,000 of those jobs by 2004. Since then, many small- and medium-sized firms have been launched (often employing those released from the large firms during the bust) and employment levels in this sector have almost returned to 2001 levels. The total number of Ottawa tech companies has grown from 1,000 at the beginning of the decade to more than 1,700 today (Maclean's 2006).

The growing strength in technology is in large part due to the presence of two federal institutions, the National Research Council (NRC) and the Communications Research Centre (CRC), which both have large laboratory complexes in Ottawa dedicated to high-technology research and actively seek commercialization opportunities. Their facilities are sought-after by businesses and research organizations, and both operate business incubators and collaborative research centres: the NRC's Ottawa institutes focus on telecommunications, photonics/semiconductors and nanomaterials, while the CRC's incubator supplies expertise and services to telecommunications startups. The result is several thriving clusters in telecommunications equipment, software and communications, photonics and microelectronics, in addition to significant tourism and professional services clusters that depend on Ottawa's role as the capital. The high and growing number of firms per capita indicates that the industrial ecology of the city is becoming more favourable to a wider range of firms, both large and small (OCRI 2005).

Well-educated and creative workforce: Coupled with the high-tech businesses outlined above, Ottawa's extensive government, health and education sectors attract and sustain a highly educated labour supply. Creative occupations are also prominent in the area, a result of the high number of arts facilities and organizations clustered in the capital. Of all workers, 3.78% were employed in arts, culture, recreation and sport, the highest percentage in the sample. The city's 31.9% share of adults with university degrees is the highest in the sample and indeed the highest in Canada, beating out its closest rival, Toronto, by almost five

points. A further 18% have college degrees. Carleton University and the University of Ottawa, totalling 56,000 students, are two of the city's largest employers; University of Ottawa includes a medical school affiliated with the city's main research and teaching hospital, itself the fifth-largest provider of jobs. A high level of education and skills that are frequently applicable across different sectors have a measurable impact on the ability of workers to adapt to a changing labour market, finding new jobs when patterns of employment shift (Talentworks 2002). During the technology downturn of the early 2000s, many technology workers used to the high-flying sector were forced to adjust to unemployment and underemployment, spurring an array of peer and community groups to address the issue (OTI 2004). The same decline helped push skilled employees into smaller firms that rode out the troubles afflicting larger technology firms and led the federal government to successfully seek out new employees for its own considerable technology projects; this led to a marked rise in the number of self-employed people (United Way Ottawa 2002). The new economy may herald a troubling rise in insecurity, but this kind of trained and adaptable workforce appears better-equipped to respond to these challenges.

Needs improvement

Siting growth: The land outside of the Greenbelt, a rich rural network of farmlands and villages laid out on Ontario's square grid of townships and concession lines, effectively offers the sole remaining large building sites in the city. As mentioned above, three lobes of urbanization have thrust out from the Greenbelt, to the west, south and east, and these are where the technology boom took root and developed into the technology centres that are driving Ottawa's employment growth. Kanata, a former independent municipality of over 50,000 people west of the Greenbelt, is the best example, with a technology-oriented labour force heavily skewed towards professional services, software and high-tech manufacturing. Nortel, Alcatel and HP have sited their main Ottawa facilities in Kanata, and most employees live there as well. Significant suburban retail, sited in power centres and more traditional shopping malls, has grown in tandem with the rise in disposable incomes, and Scotiabank Place, Ottawa's NHL arena, was built there (as the Corel Centre) in 1996. Similar patterns, though more modest, can be seen in Barrhaven/Riverside South, to the south, and Orléans to the east. The development of economically important employment clusters and regionally significant facilities in lower-density areas on the city's fringe will serve to put development pressure on the Greenbelt, exacerbate commute distances, and erode the exchange of ideas and workers between firms that is crucially important to emerging industries. The city's economic future is being forged in these areas, but integrating them into the metropolis and putting them on track to more sustainable growth will incur significant costs for the public and private sectors. Today's success may be creating tomorrow's brakes on growth.

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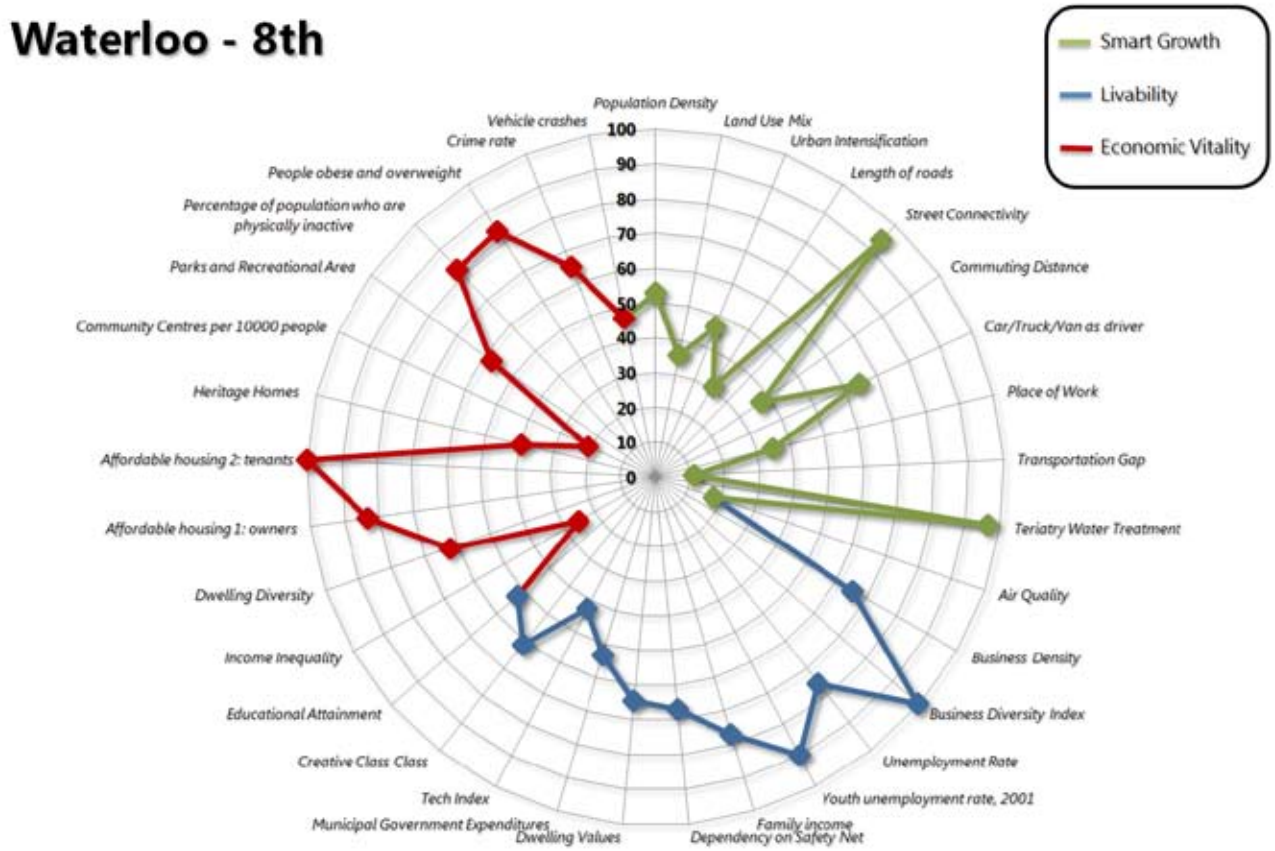

8.6 Waterloo Region

Waterloo Region scores 58.07 on the composite Sustainability Index, eighth out of the 27 municipalities in the sample.

- On the Physical Environment Index, Waterloo Region scores 47.37 (19th in the sample)
- On the Livability/Equity Index, Waterloo Region scores 58.75 (**seventh** in the sample)
- On the Economic Index, Waterloo Region scores 68.08 (**seventh** in the sample)

Located at the northwestern corner of the Greater Toronto Area, Waterloo Region is a regional municipality serving 478,000 people (2006) over 1,368 square kilometres. The regional government provides services such as transit, water treatment, solid waste management and social housing, among others. The geographical and demographic core of the region is composed of the cities of Cambridge (120,000), Kitchener (205,000) and Waterloo (97,000), with four rural townships making up the rest. The region's economy, which provides 195,000 jobs, is highly diversified, and the region's two universities — the University of Waterloo, with 25,000 students, and Wilfrid Laurier University, with 13,000 — have garnered international attention for their many spinoff businesses. Robust population growth has accompanied this economic expansion, with an increase of 9.03% between 2001 and 2006. Originally settled by Mennonites, who came to farm the fields of the Grand River Valley, the region has a high percentage of residents of German descent, though its booming economy and pleasant mix of urban and rural are attracting increasing numbers of migrants from within Canada as well as internationally.

SMART GROWTH

Index score of 47.37 (19th in the sample)

Key statistics

Some key statistics on Waterloo Region's physical environment:

- Seventeen poor air quality days were recorded in 2002 (ninth in the sample).
- Population density was 2,852 people per square kilometre (eighth in the sample).
- The region was ranked 21st in the extent of its mixed uses.
- Of all housing units built in the region between 1996 and 2001, 37% were in urban areas (15th in the sample).
- There were 7.82 kilometres of road per 1,000 residents (17th in the sample).
- A vast majority of the population, 96%, has tertiary water treatment (sixth in the sample).
- For every dollar spent on roads per capita, $0.42 was spent on transit in 2004 (19th highest transit spending in the sample). Of all employees 81% drove a private vehicle to work (22nd in the sample).

Making progress

Transit: The main efforts of the recent Regional Growth Management Strategy include increasing the density of the downtown areas of the region's cities, especially around a Central Transit Corridor (RoW 2003a). In 2003, a project to implement express bus service linking Waterloo, Kitchener and Cambridge was funded by the federal government as an Urban Transportation Showcase Project. The iXpress system, which started operation in September 2005, is the result, providing half-hourly service with dedicated vehicles in a corridor linking major trip generators and downtown areas (RoW 2003b).

Grand River Transit (GRT), an agency of the regional government, was created in 2000 to integrate separate transit agencies based in Kitchener and Cambridge. Dramatic service increases, particularly in Cambridge, have been achieved as per capita transit capital and maintenance spending rose from $88 to $140 between 2001 and 2004. Building on the success of the iXpress system, the agency is currently proposing a light rail system for the northern half of the corridor through Waterloo and Kitchener to conform with the provincial Places to Grow plan, the Regional Growth Management Strategy and the municipal plans of Kitchener, Waterloo and Cambridge (RoW 2005a).

Water quality: The Grand River Conservation Authority (GRCA) is responsible for managing and monitoring the entire Grand River watershed, with Waterloo Region's three main cities and neighbouring Guelph at the centre of the river system. The levels of some contaminants such as heavy metals are slowly declining and approaching provincial water quality standards. Phosphorous emissions from the 13 wastewater treatment plants in the region continue to have a negative impact (GRCA 2006). A wastewater treatment master plan is about to be released, which will evaluate a range of strategies to develop wastewater infrastructure in order to cope with urban growth (EarthTech/Lura Consulting 2004).

Waterloo Region is the largest urban area in North America to rely almost entirely on groundwater to supply drinking water for its 375,000 residents. The region has had a Water Resources Protection Strategy in place since 1994, and efforts have centred on identifying point sources and protecting wellhead areas. Tighter management of road salting has helped limit some impacts of growth (Hodgins 2006). The voluntary nature of many programs, such as the Business Water Quality Program (OCETA 2006), has limited their effectiveness.

Infill: Downtown redevelopment plans are underway or in place in Kitchener, Cambridge and Waterloo (where the downtown is in fact called uptown). Places to Grow designates these three downtowns as urban growth centres, slated to accommodate a "significant portion" of the predicted influx of 273,000 new residents and 130,000 new jobs in the region between 2001 and 2031 (MPIR 2006), with a minimum gross density target of 200 residents and

jobs combined per hectare. Waterloo's 2003 Regional Growth Management Strategy opened relatively few greenfield areas to development, focusing instead on intensifying the King Street corridor linking the three main downtowns (RoW 2003a). A Reurbanization Working Group coordinates targeted infill efforts from the three cities, the region, and the regional home builders' association, aiming to house the estimated 90,000 young singles, young couples without children, empty-nesters and retirees that will arrive in the region by 2016 (RoW 2002a).

In addition, sites and structures for concentrations of institutional and governmental functions have been identified and designated in each of the downtowns. The University of Waterloo is building a School of Pharmacy in downtown Kitchener to anchor a Centre for Family Medicine, and McMaster University has proposed opening a branch of its medical school in the same complex. In fall 2006, Wilfrid Laurier University's School of Social Work relocated to a downtown heritage school building, adjacent to the recently-built city hall, as well as a future headquarters building for the school board and a proposed central library. In Waterloo, recently completed projects include the Perimeter Institute and a new city hall, both in uptown. A pedestrian-oriented redevelopment and reconfiguration of an unloved existing downtown mall will include a new public square. In the central Galt area, the largest of Cambridge's three former village downtowns, a new municipal services building has been added to the city hall complex, and a former factory has been renovated by the University of Waterloo to house its School of Architecture. The City of Cambridge has targeted development subsidies in its former industrial centres, offering various development and permit fee waiver programs, writeoffs of old unpaid tax bills, and grants to contribute to the remediation of contaminated sites and the redevelopment of decontaminated areas (CMHC 2004).

Needs improvement

Urban form and auto dependency: Current efforts to manage growth are focusing on intensification of downtown areas, but prior development in the region created a conventional pattern of sprawl around the region's multiple urban nuclei. Despite a long history, only 15% of Waterloo Region dwellings were built before 1946, and almost 1,000 pre-1946 dwellings were lost in the five years before the 2001 census. With the addition of new, lower-density developments, the region has the eighth highest ratio of roads to residents and the eighth longest commute in the sample. The resulting urban form encourages a separation of home, work and shopping, with several results: Waterloo has the fifth lowest mix of uses in the sample; median commute distance actually increased from 5.5 miles to 5.9 miles between 1996 and 2001; and the region has the fourth lowest percentage of employees who work in their community of residence in the sample. Looking within the region, urban form has a marked impact on travel behaviour, with the residents of central areas reporting relatively higher percentages of pedestrian, bicycle and transit trips (30%) than their suburban counterparts (15%) (Fisher 2005).

Revisions to the urban growth boundary, undertaken before the current Regional Growth Plan was approved in 2003, brought more greenfield areas into play for development of various kinds, an important priority for local business groups that tie continued industrial growth to the availability of huge greenfield sites. Extensions of the growth boundary and weakened protections for agricultural land have encompassed significant undeveloped swathes of territory in north Cambridge and east Kitchener, south-western Kitchener, and north-eastern Waterloo — 27,900 acres in total, and more than half of the current 50,200 acres of urbanized land in the region (Brunt and Winfield 2005). The pursuit of such a strategy has placed development, including new and potentially very large industrial employers, away from areas designated for intensification and increased transit service. As a result of these conventional suburban development policies, Waterloo Region posted the sixth highest 1996–2001 increase in the proportion of car trips in the survey.

This pattern of growth and land use has grave consequences for health as well. A 5.6% increase in the rate of deaths and injuries due to car accidents was recorded between 1996 and 2001, and the percentage of adults reporting little or no physical activity, despite being relatively low compared to other even more car-dependent Ontario municipalities, is still too high at 46%.

Air quality: The region's number of low and poor air quality days (17) is slightly below the sample average of 18, but most of the cities in the sample with worse air quality are markedly larger (Toronto, Hamilton) or heavily industrial (Windsor, Sarnia). Waterloo Region is strongly affected by pollutants related to car use, which account for its very high surface-level ozone and particulate counts (Kitchener

Environmental Committee 2006). In Kitchener as in other Ontario urban areas, ground-level ozone and fine particulates exceeded the benchmark Canada-Wide Standard in 2003-2005 (OME 2006).

The regional response, a Clean Air Plan, calls for only certain actions to be taken "where feasible." These include municipal fleet management practices, public awareness campaigns and pesticide restrictions; more significant impacts are expected as consequences of compact urban development (RoW 1999, 2002b).

LIVABILITY/EQUITY

Index score of 58.75 (seventh in the sample)

Key statistics

Some key statistics on Waterloo Region's livability and equity:

- The region had the ninth most diverse housing stock, measured for its mix of single-family houses, apartments and ground-level units.
- For every 10,000 residents, the region had 0.78 community centres (ninth in the sample).
- Car-related deaths and injuries struck 7.6 out of 1,000 residents (22nd lowest in the sample).
- Of the region's dwellings, 13% were built before 1946 (20th in the sample).
- The regional crime rate showed 5,861 criminal code offences per 100,000 residents (fifth in the sample).
- Of the region's inhabitants, 48.8% were obese or overweight (ninth in the sample).
- For every 10,000 residents, there were 0.46 square kilometres of parks and public green space (12th in the sample).
- Only 36% of tenant households spent more than 30% of their monthly income on rent (first in the sample), while 14% of homeowners did the same (seventh in the sample).
- Of the population over age 12, 46% engaged in little or no physical activity (15th in the sample).
- For every household earning less than $20,000 per year, there were 4.4 households earning more than $80,000 (fourth in the sample).

Making progress

Community centres: Kitchener has been collaborating with community groups to increase the number of community centres in its municipal territory, in an effort to provide both youth and the elderly with safe and interesting places to interact with others. Three new centres recently opened, one of which offers services to downtown residents as part of a complex that includes the headquarters of the regional Catholic school board. Eleven centres in the city serve its 205,000 residents — a rate of 0.54 community centres per 10,000 citizens. Wealthier Waterloo has only three centres to service its 97,000 permanent residents — equalling 0.31 centres per 10,000. A noteworthy exception is the Erbsville Centre on the city's west side, which includes substantial green space and is earmarked for increased resources to meet the needs of a growing neighbourhood population.

The region's library systems have been expanded in recent years, and additional facilities are planned. Cambridge has opened two new libraries in the past ten years, for a total of four, and a dramatic glass box enclosing the historic Hespeler Library is being built to double the size of the city's busiest library. Waterloo operates two libraries and plans to build two more. One will be the first LEED-certified public library in Ontario and only the third nationwide. Kitchener operates five libraries, two of which have opened in the past six years. A new $58-million central library will more than double the size of the existing main library, and is a key component of efforts to revitalize downtown Kitchener (see "Infill" above). The Region of Waterloo runs a system of ten smaller branch libraries in the region's more rural townships, and has opened two new facilities in recent years.

Healthy communities: In a context of tight healthcare budgets there is increased awareness of how a variety of lifestyle and environmental factors impact, and are impacted by, health. The Healthy Communities framework integrates these concerns with areas of regional and municipal policy. Waterloo Region's Healthy Communities Coalition has sponsored ongoing conferences, workshops and discussion groups to develop awareness of community health concerns, identified by frontline social service providers, in the region's policy community (DeGroot 2004). An influential position paper was submitted as part of a process that developed the Regional Growth Management strategy, emphasizing the impact of urban form on community health (WRHCC 2004).

Neighbourhood groups have been recognized for their intermediary role between municipal services and local life: filling gaps in health services, identifying local needs and determining the relationships

between various elements of health and well-being. The region conducted extensive consultation with these groups, and recognized their need for better training and reliable access to a resource stream commensurate with their needs (RoW 2002c); the region's two Social Planning Councils have taken steps on their own, both through the Healthy Communities Coalition they spearheaded and through more intensive networking with neighbourhood groups, to reinforce the hard work of volunteers with professional expertise. On the government side, the region has developed a Human Services Plan; in so doing the regional planning and public health departments have grown to collaborate so closely as to make long-term exchanges of key staff members.

Parks: The City of Waterloo has a 792-hectare park system. A 200-hectare addition to the system, Research in Motion Park, opened in 2001 at the north-eastern edge of the city. Facilities such as an 18-hole golf course, an arena complex, a heritage farm and a sports medicine centre were established with substantial funding from prominent local firms. The high cost of the park and the strong emphasis on private involvement and financing led to an elaborate secret loan deal whose disastrous terms sparked resignations and a judicial inquiry; the affair remains a sore point in local politics (PMG Consulting & WTM Inc. 2004).

Kitchener has 1,149 hectares of parks, and is focusing on recreational facilities development for hockey, soccer and the like (FJ Galloway & Associates 2005). Cambridge maintains 265 acres of parkland, one-third of which is in the centrally located Riverside Park.

While cities maintain individual parks, the Region manages some natural properties as part of a Greenlands Network, aimed at preserving their environmental integrity while encouraging recreational uses where practical (RoW 2004). Planning and operational responsibility for 16 forest and woodland tracts encompassing 435 hectares was handed over to the region by the provincial Ministry of Natural Resources in 2001 (RoW 2006a). The Grand River Conservation Authority maintains a network of 12 conservation areas open to recreational use throughout the watershed; three of these areas, totalling over 50 hectares in size, are located in Waterloo Region. The Dumfries Conservation Area, a 75-hectare site near the centre of Cambridge, is subject to a new master plan that proposes opening the tract to recreational uses.

Needs improvement

Youth: The rapid urbanization already seen in the region, and the additional growth to come, has led municipalities to focus on attracting new residents that have elevated spending power but require few services. Many feel that the needs of families in general and youth in particular have been overlooked, and that current processes of suburbanization have frequently left young people physically isolated and perceived as a problem (SPCKW 2006). Concern with the effect of youth crime on property values has led at least one Waterloo community group to approach the police, asking them *not* to share local data on youth crime during a police–community workshop.

One often-overlooked theme is the role of transportation, which youth services organizations and youth themselves repeatedly identified as a barrier to accessing services and jobs. Youth services that do exist are located in the more central areas, and finding the money and time to access them via an often-confusing transit network with limited service is a significant challenge (SPCCND 2004). The region has a population of roughly 90 homeless youth, many with ongoing involvement with the justice and shelter systems; this is an indication of the more acute social needs that have arisen in tandem with rapid population growth (RoW 2002d).

Affordable housing: At first glance, the region has improved its affordable housing situation. The percentage of tenant households spending more than 30% of their income on rent fell from 41.2% in 1996 to 36.3% in 2001, and the equivalent figure for homeowning households went from 15.7% to 14.3%. This success is relative, however, given the housing crunch seen across the province, and 36% is still far too high — likely the outcome of rental vacancy rates that dipped below 1% in 2001. In 2001, a variety of programs (rent supplements, grants to offset the impact of development charges, new construction) with a variety of public and community partners were brought together in an Affordable Housing Strategy to fulfill a goal of creating 1,000 new affordable units by 2005. Particular emphasis was placed on directing provincial transfers to the growing regional Social Housing Reserve Fund, earmarked for renovation, new construction and land acquisition (RoW 2001). Steps to meet this were taken in 2002, by lowering the tax rate for new multi-family residential buildings to that of single-family properties, and recognizing that the average market rent (used as

an affordability benchmark for some provincial programs) may still be too high for low-income families (RoW 2002e).

By fall 2006, 891 units were complete or nearing completion, and the extension of the Affordable Housing Strategy to add another 500 units has resulted in an additional 309 units under construction (RoW 2006b). The region began to act at a time when the rental housing market was rebounding, building 2,000 units of rental housing in just a few years, whereas the 1990s saw only 1,000 rental units built during the entire decade. The increased supply, from both market and government sources, moderated rent increases and provided some headroom for the vacancy level. Apart from the increased supply and positive economic impact of regional construction efforts, the actual impact on affordability was limited, and 4,000 families remained on the regional affordable housing waiting list (Focus Consulting 2004). In 2005, the region released a new plan for housing overall, with a specific focus on identifying populations (particularly single-parent families) whose needs were not being met by the housing market or by previous government efforts. While average rents went up 20–40% between 1994 and 2004, depending on the size of unit, those at the lower end of the income scale did not see commensurate increases in wages, and rent increases have outstripped inflation. The region's new plan does not include firm commitments to specific numbers of units, but, taking lessons from previous affordability efforts, targets specific regulatory and financial barriers to the housing market. Regional resources are to be applied directly to projects for lower-income households, while changes to density and zoning regulations and taxes are aimed at encouraging further increases in the supply of private-sector rental projects (RoW 2005b).

Economic vitality

Index score of 68.08 (seventh in the sample)

Key statistics

Some key statistics on Waterloo Region's economic vitality:

- For every 1,000 people who live in the region there were 70 businesses (fifth in the sample).
- The region had the second most diverse economy in the sample.
- In 2001, unemployment stood at 5.3% (fifth lowest in the sample).
- Government payments made up 8.8% of total household income (sixth lowest in the sample).
- Municipal governments spent $0.018 per capita per hectare of land (seventh lowest in the sample).
- Slightly over 7% of businesses in the region were tech businesses (ninth in the sample).
- Of the region's workforce, 2.32% was employed in arts, culture, recreation and sport (tenth in the sample).
- Of the region's adult population, 16.7% have a university degree (ninth in the sample).
- Youth unemployment stands at 11% (fifth lowest in the sample).

Making progress

Economic diversity: Waterloo Region's economy is characterized by its mix of firms and industries. In the Kitchener Census Metropolitan Area (CMA), automotive-related manufacturing and metalworking count for 4.99% and 4.2% of the workforce, respectively; important clusters with over 3% of local employment include education, business and financial services, among others (ICAP 2004). A few clusters of larger firms and institutions dramatically affect these figures, but over 90% of all firms have fewer than 50 employees (CIT 2005). A highly efficient Toyota factory is the region's largest private employer, with 4,300 employees; Manulife, Sun Life/Clarica and Research in Motion all have over 3,000 employees each, as do the regional school board and the University of Waterloo (CIT 2005).

The percentage of Waterloo Region's workforce in the construction and manufacturing sectors (31%) is substantially higher than the Ontario average (22%); conversely, its proportion of workers in health, education and business services is slightly lower than the provincial average (StatsCan 2001). Still, the region's mix of employment in different sectors closely resembles that of Ontario overall.

High-tech firms and university connections: Since its founding, the University of Waterloo has placed a heavy emphasis on mathematics, computer science and engineering programs, and on cooperative education that mixes class work with employment in private firms. The economic impact of University of Waterloo research is considerable, even before spinoff firms are considered; the university attracted

$109 million in research grants in 2004–05 (UoW 2005). As a result of the research at the university alone, 59 firms have been established since 1973, with many of them generating their own start-up firms only a few years later (Bramwell, Nelles and Wolfe 2004). The university is building a 120-acre Research + Technology Park at the northern end of its campus, funded by the municipal, provincial and federal governments, with room for a planned 1.2 million square feet of office space. A business incubator, called the Accelerator Centre, is located in the park, and provides various services to emerging technology firms (UoW 2006).

After experiencing the turbulent sudden growth and decline of software companies in the late 1990s, local actors became interested in trying to provide a more stable platform for growth. Groups such as WatStart and Communitech serve as forums for the concerns of technology businesses, providing networking opportunities, legal advice and business mentoring for smaller startups.

Business development: The region's business organizations have aggressively marketed the Waterloo area, building an image of an economy driven by university research. The regional Chamber of Commerce, along with city and regional economic development offices, have formed a promotional group to extol "Canada's Technology Triangle" in print media advertisements. Regional planners have developed a database of available industrial, commercial and "business" land, which is online and publicly accessible. The region continues to attract high-growth firms; 32% of all jobs created in the region's core CMA between 1995 and 2000 were at firms that doubled their employment over the same period (CTT 2005).

Needs improvement

Poverty and the digital divide: Though research, university spinoffs and high-value-added services characterize the public face of the region, the benefits of these specialties have not extended to the bottom of the labour market. The nature of poverty in Waterloo Region's successful cities, which have managed to avoid large concentrations of poor residents, obscures a sharp rise in poverty rates since the mid-1990s. In a booming area, where average incomes are 10% higher than the national average, the average income of poor families is almost 17% lower than the national mean (MacKeigan 2004). Though immigrants across the country often have difficulty finding work in their field, these obstacles are particularly galling when a growing region like Waterloo, with an acute need for professionals and a population that is 22% foreign-born, sees a high rate of unemployment among its recent immigrants (CREHS 2004).

Some noteworthy efforts have been undertaken to help close the gap. Industry Canada's Community Access Program (CAP) funds free public Internet access at libraries, food banks and drop-in centres in the region. This general program spawned a more targeted initiative for Kitchener and Waterloo, ConnectKW, which has the explicit goal of extending Internet access and training to vulnerable populations. ConnectKW currently operates at 34 sites, including ten of Kitchener's 11 community centres. Along with a similar CAP program in Cambridge and new sites in Waterloo and Kitchener, the region will have over 40 CAP sites by the end of 2007.

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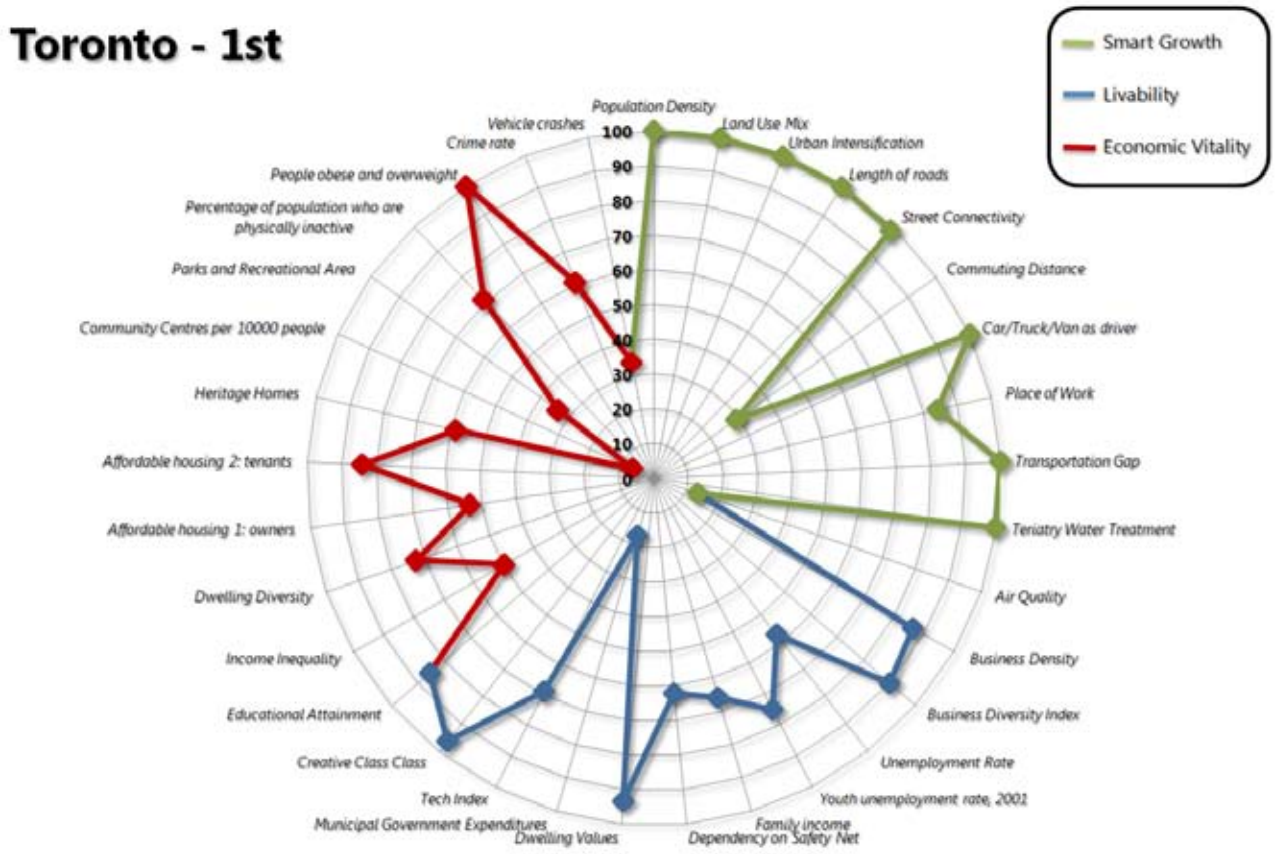

8.7 City of Toronto

The City of Toronto scores 69.66 on the composite Sustainability Index, first among the 27 municipalities in the sample.

- On the Physical Environment Index, the City of Toronto scores **84.03** (**first** in the sample)
- On the Livability/Equity Index, the City of Toronto scores **52.49** (**24th** in the sample)
- On the Economic Index, the City of Toronto scores **72.47** (**fifth** in the sample)

The capital of Ontario and the heart of Canada's largest metropolis, the City of Toronto is home to 2.5 million residents (2006). Located along the shores of Lake Ontario, it covers an area of over 630 square kilometres. From its modest origins as the City of York, a stronghold of Scottish and English Protestants, Toronto has come to house the country's largest stock exchange and the headquarters of Canada's most important financial, telecommunications and industrial enterprises. After the Second World War, the city deployed its political clout to ensure the construction of the St. Lawrence Seaway and achieve a central position in the booming Great Lakes economy, surpassing Montreal as Canada's largest city and corporate capital in the 1970s. Toronto's innovative former metropolitan government, streetcar network, subway system and strong local political institutions made it a widely recognized leader in responding to the challenges of urban post-war North America. With very little undeveloped land remaining within its borders, the city has had to innovate further to accommodate new residents, witnessing a 4.9% increase in its population between 1996 and 2001.

Most of this growth was due to Toronto's status as one of the world's great immigrant cities, with fully 44% of the population born outside of Canada. At the same time, 2006 census figures suggest an increasing outflow of residents over the past five years, resulting in a 2006 city population only 21,787 higher than the 2001 total.

Physical environment

Index score of 84.03 (first in the sample)

Key statistics

Some key statistics on Toronto's physical environment:

- Only 52.36% of all Toronto work trips were in single-occupancy vehicles (third lowest proportion in the sample).
- For every dollar spent on roads in Toronto, the City spent $3.79 on transit (first in the sample).
- The city maintained 2.41 kilometres of road per 1,000 residents (lowest in the sample).
- Torontonians commuted an average of 7.6 kilometres per day (sixth lowest in the sample).
- Toronto had the highest population density in the sample of 5,392 residents per square kilometre.
- The city ranked first in the sample on urban intensification, with fully 80.2% of the housing units built between 1996 and 2001 located in already-urbanized areas.
- Toronto had the highest mix of land uses in the sample.

Making progress

Transit-centred development: Toronto is frequently cited for its high-quality transit system and transit-friendly urban form. The indicators used for this study bear this out: Toronto has the sixth shortest average commute, the lowest road length per capita, the third highest street connectivity, the highest degree of urban intensification, the highest density and the greatest degree of land use mix in the sample. However, other statistics indicate on-going problems common to most North American cities, particularly for commuter trips: during the 1980s and 1990s, auto trip share increased, high-occupancy vehicle (HOV) use decreased, and auto occupancy declined (CoT 2005a). Transit ridership and financial contributions from the provincial and federal governments plummeted as sprawl accelerated during the 1990s. The impacts this had on the Toronto Transit Commission's (TTC) bottom line made the relationship between better land use patterns, sustainable funding sources and transit ridership a clearly visible area of concern (TTC 2003).

With funding for system expansion largely stalled during the past two decades, and the region's economic and demographic growth continuing apace, the policy response has been to drive density to existing transit centres. The result has been the growth of high-density nodes in some unlikely places, such as Scarborough Centre or along the short, relatively suburban Sheppard subway line (Boyle 2007). The best example may be North York Centre, where the (formerly independent) city's ambitious mayor spearheaded the development of institutional, cultural and office space along the busy subway and bus corridor of Yonge Street. In all of these cases, more supportive streetscape designs and better integration of pedestrian and transit networks are needed to reap the full benefits of promising densities.

Closer to downtown, two particular areas — one around the intersection of King and Spadina streets, the other on the east side around King and Parliament streets — have shown remarkable new life, partly as a consequence of innovative policy decisions. The City lifted restrictions on permitted activities, parking levels and densities, focusing instead on the appearance and massing of new structures and letting the market decide how various uses could be combined within and between buildings (CMHC 2005b). The result has been over 5,000 new jobs, many in restaurants, advertising and computer services, and over 7,000 new dwelling units, mostly one- and two-person households (CoT 2002). Both are located along the

busy King Street streetcar corridor, and the King/Spadina area has benefited from the new Spadina streetcar running in a reserved right-of-way.

The City's 2003 Official Plan provides for a hierarchical system of land use intensities. Downtown will remain the core administrative centre, with four satellite nodes of office, residential and higher-order services connected to it and to one another via the subway. The plan calls for transit-friendly densities at these nodes and along the connecting avenues, and lays out a network of hierarchical transit-priority corridors to speed journey times (CoT 2003a). A more recent "Transit City" proposal identifies several specific corridors and proposes high-capacity light rail lines, fully separated from vehicle traffic, to serve them (TTC 2007). While the creation of subsidiary development nodes and transit connections has succeeded within the City of Toronto itself, tying these strategies together at the regional scale remains a significant challenge (see "Job dispersal/Commute times" under *Economic prosperity*, below).

Solid waste disposal: Toronto's city-owned Keele Valley landfill, located northwest of the city in York Region, operated between 1983 and 2002. Though it was an advanced facility that controlled and monitored emissions and generated electricity through gas recovery, its considerable impacts drew protests from area residents, leading to its closure in 2002 (CoT 2001a). The only other option was to transport waste to a Michigan landfill, which raised disposal costs from $12 to $52 per ton and will no longer be an option in 2010 at any price (Bowman et al. 2006). In response to the situation, Toronto set ambitious targets to increase its residential waste diversion rate from 25% in 2001 to 30% in 2003, 60% in 2006 and 100% in 2010 (CoT 2001b). This was to be achieved by segregating household waste into several streams at the source; households took on responsibility for separating their organic and compostable waste, while a more aggressive "blue box" strategy increased the collection of conventional recyclables and higher fees for disposal gave families an incentive to reduce the volume of waste that went to the landfill. The city managed to achieve 32% diversion of residential waste in 2003 (CoT 2004a) and 42% diversion in 2006 (CoT 2007a), and the mayor made an even more aggressive waste reduction strategy part of his re-election platform.

The success of these efforts is tempered by the challenges that have stalled other facets of the waste reduction strategy. The diversion rate from multiple-unit residential buildings remains stubbornly low — 13% in 2006 — and is hampered by the lack of user-friendly recycling facilities in the buildings themselves (CoT 2007a, Zaletnik et al. 2004). Items such as solvents, oils, batteries, small electrical and electronic components and composite materials are still landfilled. While these components of household waste are highly toxic, they have proven difficult to reduce as they are introduced to the waste stream only occasionally and in small volumes. A draft hazardous and special waste plan proposes to dramatically increase the proportion of these and other toxic household materials recovered through a five-year effort (SO 2007). The provincial government has lagged in enforcing waste standards on large commercial and industrial emitters, and has failed to create the networks of producers and consumers needed to create a regional market for reusable components of the waste stream (ECO 2006).

Needs improvement

Air quality and fine particulates: Toronto's air quality can be affected by emissions from hundreds or even thousands of kilometres away, and varies with the caprices of the weather. However, much of the worst of it is generated locally, and aggressive local action will be needed just to hold even deadlier impacts at bay. The result of these local and more distant contributions is the seventh lowest air quality in the sample.

In 2001, Toronto's air quality monitoring stations recorded an average of 22.75 days in which the air quality was poor or very poor; the most recent annual figures, for 2005, show bad air quality at a similar average of 21.75 days per year (OMoE 2006). The provincial air quality network started recording fine particulates (as $PM_{2.5}$) in 2002, and 2005 fine particulate levels exceeded the Canada-Wide Standard in Toronto and most other large Ontario cities (OMoE 2006, 2003). Before these emissions were taken into account, Toronto public health officials saw sharp spikes in respiratory illness during episodes of fine particulate pollution, even when the AQI was good or very good, as high particulate levels acted to compound the effects of other air pollutants (CoT 2001c). Furthermore, Toronto's fine particulate pollution can be traced to local sources, with Ontario emitters responsible for over half the particulates measured on smog days (OMoE 2005). The city has just released its long-delayed clean air strategy to address fine particulates and other air pollutants, but

may be legally unable to enforce reporting or compliance with its standards (TEA 2006).

In the midst of this grim picture the province announced plans for a natural-gas burning power station on Toronto's waterfront. Though the project will come in just under provincial and federal standards for point sources of fine particulates, the proposed Portlands Energy Centre will be a major emitter of greenhouse gases, particulates and components of smog, such as nitrogen oxides, sulphur dioxide and carbon dioxide, located on the doorstep of downtown Toronto (PEC 2003). Public outcry and uncertainty surrounding Ontario's energy markets stalled the project at various points in the approval process, but Ontario Power Generation removed the final hurdle from the $730-million project in September 2006 by agreeing to buy power from the plant (OPG 2006).

A more aggressive conservation agenda, such as the one currently proposed by the City, would lessen the need for new electricity generation capacity while reducing smog and greenhouse gas emissions (CoT 2007b). Some elements of a low-impact approach to reducing power needs are already in place in Toronto, such as a district cooling system that uses cold water from the depths of Lake Ontario to cool downtown buildings while using 90% less electricity than conventional air conditioners (Erling 2005). The beneficial effects of conservation and green energy are not limited to the cost savings and greenhouse gas reductions, as an increased number of summer heat and smog episodes are already putting pressure on the health system. In 2005, air pollution cost over $118 million in health care services and over $80 million in lost productivity in Toronto alone; if the status quo continues the city will see thousands more emergency room visits, hospital admissions and premature deaths due to poor air quality by 2026 (OMA 2006).

Livability/Equity

Index score of 52.49 (24th in the sample)

Key statistics

Some key statistics on Toronto's livability and equity:

- Toronto had only 0.27 square kilometres of parkland for every 10,000 residents (fourth lowest in the sample).
- For every 10,000 Torontonians, the city maintained 0.25 community centres (lowest in the sample).
- Of Toronto's citizens, 40.95 were obese and overweight (highest percentage in the sample).
- Of the population, 53% was physically inactive (second highest percentage in the sample).
- Among Toronto homeowners, 22.23% spent more than 30% of their household income on housing (second highest proportion in the sample), while 43.17% of tenant households did so (tenth lowest percentage in the sample).
- The city had the fourth most diverse housing stock in the sample.
- Of Toronto's dwellings, 19.27% were built before 1946 (11th highest proportion in the sample).
- For every Toronto household making more than $80,000 per year, there were 2.24 households making less than $20,000 per year (eighth smallest gap in the sample).

Making progress

Welcoming the world: Toronto welcomed 99,142 new permanent residents in 2006, which accounts for roughly 40% of the national total and roughly 80% of the Ontario total. The second-most popular Ontario destination for new immigrants, Ottawa, took in only 6,271 (CIC/CIO/CoT 2006). This trend is expected to continue, with the share of immigrants in Toronto's population projected to rise from 44% in 2001 to 49% in 2017, and the share of visible minorities projected to rise from 36% to 50.1% during the same period (Heisz 2006). Immigrants made up fully 48.2% of the Toronto area labour force in 2001; 17.1% of the labour force arrived during the 1990s (Preston 2003). The regular influx of immigrants is responsible for maintaining Toronto's demographic weight. Increasing numbers of immigrants arrive every year, but recently released figures suggest a significant annual outflow of residents, resulting in a 2006 city population only 21,787 higher than the 2001 total (CoT 2007c). While immigration is a federal responsibility, the services that immigrants use are frequently provincial areas of competence, and the benefits and impacts of immigration come at the local level. To that end, a recent memorandum of understanding between the governments of Canada, Ontario and Toronto outlines an agenda to increase cooperation and coordination in four action areas: employment, education, services and civic engagement (CIC/CIO/CoT 2006).

Needs improvement

Child poverty: Between 1996 and 2001, the proportion of Toronto children under 14 years of age living in households with incomes below the low-income cut-off (LICO) dropped from 37% to 30% (CoT 2003b). More recent figures are not yet available for the city, but earlier data show a consistent nine-point spread between provincial and city child poverty rates (Campaign 2000 2003); the 2006 Ontario rate of 17.4% (Campaign 2000 2006) would place Toronto's child poverty rate around 26.4%. This gradual decrease is a good sign for Toronto families and an encouraging development for the city's economic future.

However, programs to address child poverty in Toronto more directly and aggressively have faced funding hurdles and a vacillating level of political commitment that have prevented action. Shared provincial and municipal spending on day care through the City of Toronto Child Care Services Department went from $283 million in 2005 (CoT 2005b), to $363 million in 2007 (CoT 2007a), though the number of spaces increased by only 2,000. The provincial Best Starts early childhood plan paid for this modest increase, which comes on the heels of the elimination of 1,800 subsidy spaces between 2001 and 2005 (CoT 2005b). The initial Best Starts framework assumed the continuation of the previous federal government's child care funding program, but cuts to that budget have forced it to redefine its mission and retreat from an ambitious plan to develop hundreds of multifunctional family service centres (TBSN 2006). To provide universal service would require increasing subsidized spaces from 21,000 to 50,000, and licensed spaces from 50,000 to 135,000 (CoT 2005b).

Parks and green space: As the chief metropolis of the region and the province, one expects Toronto to be highly built-up and densely populated, which it certainly is. The provision of parkland within this urban landscape has, however, lagged behind in Toronto, giving the city the fourth lowest green space per capita in the sample. The severe budget cuts of the 1990s, and then the administrative upheaval of the municipal merger, hit the city's parks particularly hard. An estimated $200-million backlog of deferred maintenance means that fountains, drainage networks and plantings are in poor repair across the city, and an additional $200 million is needed to fix the recreational facilities inside the parks themselves (CoT 2004b). Resources to maintain what green space exists are spread more and more thinly across the city. To take one example: from 1990 to 2004, urban forestry funding fell from $12.87 to $6.20 per capita per year, while the area covered by each urban forester went from an average of 0.8 square kilometres to 3.52 square kilometres (CoT 2004b).

The negative impacts and missed opportunities of a neglected park system, particularly in a city whose success is bringing thousands of children and youth into the mix, will extend beyond the city's physical framework. Planning efforts aimed at improving park services have identified strong public support for an equitable and non-commercialized park system, with stronger protection for environmentally sensitive park areas and more robust facilities to accommodate a greater number of park users (Urban Strategies 2006a). The competition for space in a growing city is certainly fierce, and better maintenance in existing parks is a high priority, but increasing the absolute amount of green space seems to be off the table at the moment (Urban Strategies 2006b).

Income inequality and social vulnerability: Toronto has an enviable level of prosperity, but the fruits of that prosperity are distributed unevenly among the different income groups in the city, benefiting some while leading to increased insecurity for others. Toronto's 2001 median income was $33,900; lower than the Canadian median of $36,300 and markedly lower than the Ontario median of $41,100 (FCM 2003). The city has the eighth lowest income inequality in the sample, but that is, of course, only a relative measure. The ratio of households making more than $80,000 per year to those making less than $20,000 per year shot up from 1.09 in 1996 to 2.24 in 2001. During the 1990s, all family types — couples, lone-parent, and single-person households — saw sharp declines in median real income, declines that were three to five times more acute in Toronto than in Canada as a whole (UWGT/CCSD 2003). When considering self-reported health (an individual's own estimation of his or her physical well-being), a correlation can be observed between low incomes and low self-perceived health: low-income residents are more likely to be worried about their health problems (Hou and Chen 2003). It should be noted that some health indicators look good for Toronto; for instance, it has the lowest proportion of obese and overweight individuals in the survey. When considering physical and psychological well-being as determinants of overall quality of life, however, the impacts of income inequality and social vulnerability are clearly negative.

Persistent socioeconomic gaps between Toronto's immigrants and the Canadian-born can be observed when looking at 1971–2001 data. Perhaps most troublingly, poverty was seen to hit immigrants of colour more severely than it did other newcomers, with all of the 20 poorest ethnic groups in Toronto being of non-European origin (Ornstein 2005). During the sharp recession of 1995, the differences were especially pronounced, indicating a marked degree of social and economic vulnerability among "non-white" immigrants (Ornstein 2005). Between 1981 and 2001, immigrants became increasingly likely to be employed in lower-skill occupations, make less income and have higher levels of unemployment; even the trend of rising overall income conceals persistent gaps between high income growth in higher-income neighbourhoods, and anemic income growth in lower-income neighbourhoods in the Toronto CMA (Heisz 2006). The persistence of poverty gives Toronto the seventh lowest median income in this survey, while suburban regions such as York, Durham and Halton cluster near the top of the sample.

Examining neighbourhoods at a finer scale reveals deepening spatial segregation within the City of Toronto itself as well as between the regional municipalities. The bottom 25% of neighbourhoods, with the lowest income, showed a slight decline in average real income between 1981 and 2001, while the top 10% of neighbourhoods chalked up a whopping 59% increase in average real income (UWGT/CCSD 2004). The distribution of these impoverished neighbourhoods shows worrisome changes over that same 20-year period, with poverty moving from the areas around downtown Toronto to more remote parts of the city, particularly in northern Etobicoke and northern Scarborough (UWGT/CCSD 2004).

Affordable housing: Toronto's combination of a strong economy and sharply increased income inequality has resulted in a housing squeeze that is rearranging the demographic map of the city. Low- and middle-income households, whose earnings are flat or declining, compete for accommodation with higher-income households. At the same time, the developments that serve smaller- and higher-income households, such as affluent, younger single people and "empty-nester" couples, compete for scarce space with families looking for larger dwellings at lower prices. So far, it looks as if more affluent households are coming out on top. While the city as a whole recorded anemic population growth of only 0.9% between 1996 and 2001, a few condominium-heavy areas near the waterfront, downtown and Highway 401 saw population increases of over 10% (Wattie 2007). Among homeowners and renters alike, increased housing costs are pushing some households into severely unaffordable housing situations. In 2001, 7.7% of Toronto CMA households (12.6% of renters and 5.1% of homeowners) spent over 50% of their income on shelter costs, and average household shelter costs were 23.5% of average household income; only British Columbia's superheated housing market had a higher average income/shelter cost ratio (CMHC 2005a). The Toronto CMA had the highest average shelter costs in the country in 2004, and the highest average household expenditure on utilities (Luffman 2006).

Toronto's residential vacancy rate (for private rental buildings with more than three units) has only recently crept above 3%, currently standing at 3.2% (CMHC 2006); from 1971 to 2003 it never rose above 2.5% (ACTO 2004). This kind of housing only makes up 55% of the rental market, however. Twenty per cent comes in the form of assisted units, mostly social housing. Given that the waiting list for Housing Connections, Toronto's central clearinghouse for social housing applicants, stood at 65,164 in May 2007 (Housing Connections 2007), the assisted-unit vacancy rate is effectively negative as demand far outstrips supply. Of the rental market, 5% is made up of a small number of rental condominiums, which had a 0.4% vacancy rate in 2006 (CMHC 2006). The remaining 20% is in heterogeneous and often informal premises: rental buildings with fewer than three units, accessory suites in single-family houses, converted houses and the like. The number of units in this category declined by 2,163 between 2000 and 2005, while the number of private rental units declined by 2,175 (CoT 2006a). Taken together, this suggests a static rental housing supply in which the pace of demolition and conversion slightly outstrips the rate at which new units are being built.

Between 1996 — a time of deep recession in Ontario — and 2001, the proportion of City of Toronto renters in unaffordable housing stayed relatively flat, declining slightly from 44.82% to 43.17%. This came after a period in which the number of such households nearly doubled, going from roughly 107,000 in 1981 to 190,000 in 1996 (CoT 2006b). While affordability held steady, median income went up by 22%, although, as discussed in the previous section, income gains were unevenly distributed and median income is still lower than the national

average. Increased housing costs clawed back much of these gains, and increased more for renters than for owners: there was a 16.5% increase in average dwelling value over the period (third highest in the sample), yet while shelter costs for renters went up by 16.23%, those for owners increased by only 11.89%. Living the dream of homeownership, however, comes at a hefty price in Toronto. From 1996 to 2001 there was a slight decrease in the proportion of homeowners in unaffordable housing, from 23.45% to 22.23%, but this is still the second highest incidence in the sample.

Economic prosperity

Index score of 72.47 (fifth in the sample)

Key statistics

Some key statistics on Toronto's economic vitality:

- Toronto families had a median income of $54,399 (20th in the sample).
- Of the city's youth, 13.2% were unemployed (11th in the sample).
- Among adults, the unemployment rate was 7% (tied for 14th in the sample).
- Government transfer payments made up 9.5% of total household income (ninth in the sample).
- Toronto's municipal government spent $.0552 per capita per hectare (tenth in the sample).
- For every 1,000 Torontonians there were 84.24 businesses (second in the sample).
- Toronto had the 16th-most diverse set of businesses in the sample.
- Of all Toronto businesses, 11.44% were technology firms (third in the sample).
- Of Toronto workers 3.63% were employed in "creative" industries (second in the sample).
- Of the adult population 27.2% had a university degree (second in the sample).

Making progress

FIRE and business services: Toronto's position as the country's business capital makes it *the* essential location for finance, insurance, real estate and business services firms. The city's largest private employers, which employ over 10,000 workers apiece, are four of the country's largest banks: Toronto-Dominion Bank, Royal Bank, the Bank of Nova Scotia and the Canadian Imperial Bank of Commerce (CoT 2005c). Overall, the FIRE sector accounted for 12.11% of the city's workforce in 2005, fuelling a business services sector that accounted for 13.66% of Toronto jobs (CoT 2005d). Toronto's rapid economic and population growth has increased competition for highly qualified workers between firms within the financial sector as well as between finance and other sectors, driving up salaries and increasing the attractiveness of the city for highly skilled and well-educated immigrants (TFSA/Deloitte 2007). Additionally, there has been a shift in the type of jobs within the FIRE sector, with jobs disappearing in bank branches and growing employment numbers in financial head offices (CoT 2001c). The city's leading position in FIRE and business services reinforces its centrality to the national economy, bolstering employment and attracting investment in media, legal, educational, health care and other knowledge-intensive industries that need to stay close to the high-income customers who value their services (CoT 2000).

Building on creativity and design: Toronto has a full range of high-profile "high culture" institutions and organizations such as the Art Gallery of Ontario, the National Ballet and the Canadian Opera Company. More recent efforts, undertaken as part of the city's ten-year cultural plan, are aiming to increase support for and direct attention towards the city's broader arts scene. The Toronto Arts Council (TAC) and its associated funds and foundations form an innovative government–community partnership to fund the arts and highlight their contribution to the life of the city; recipient organizations have managed to leverage every dollar of TAC funding into $17 of overall revenue (TAC 2006). Though quantifying the economic impacts of "culture" is as difficult as defining the word itself, 2001 estimates put the contribution of the overall cultural sector to the Toronto economy in the $8–9 billion range, an impressive 2% of Ontario's GDP (Deloitte 2005).

The idea of creative workers and a creative economy encompasses activity outside of Toronto's many arts and cultures. Between 1996 and 2001, Toronto's creative class went from 3.5% of the workforce to 3.63%, and its share of adult university graduates from 24.6% to 27.2%; within the sample, only Ottawa's figures were higher. Over that same time period, Toronto's technology sector, which is increasingly interdependent with creative industries, saw a 17.8% increase in the number of firms, giving it the third highest share of technology enterprises in the sample. Looking beyond the sample, Toronto also comes out well against other Canadian metropolitan

areas when considering indicators of receptivity to creative professions: the third highest proportion of adults with undergraduate degrees, the second highest proportion of "bohemians", the second largest concentration of technology-intensive workers and (as noted earlier) the highest proportion of immigrants (Gertler et al. 2002).

The prominent role played by advanced manufacturing and business services in the city, and in southern Ontario overall, spurs and relies on a robust design community. There are 173,000 designers working in the Toronto CMA, second only to the New York and Boston regions in absolute numbers, and ranking fourth among North American urban regions in the location quotient of design professionals; taken together, these numbers indicate that Toronto punches above its weight in design (CoT 2006c). Recognizing the value that design adds across industries, the city located the Design Exchange in the historic former Toronto Stock Exchange building to exhibit and interpret design to the broader public from the heart of the financial district, along with the Design Industries Advisory Committee to coordinate and promote the role of design among the city's economic stakeholders (DIAC 2004).

Needs improvement

Job dispersal/commute times: The high-rise cluster of Toronto's downtown makes it the most visible employment node in the region, and the densities of the other major employment nodes — Yonge/Eglinton, North York Centre, Scarborough Centre and Etobicoke Centre — are similarly visible parts of the urban landscape. This appearance is deceiving, however, as the city loses more and more jobs to other, lower-density employment centres around the region — over 37,000 jobs between 2000 and 2004 alone (Monsebraaten 2004). Measured between 2001 and 2005, Downtown Toronto and the satellite nodes show different rates of decline, and the various industrial and heavy commercial employment districts vary among themselves as well, but the broad pattern is clear: jobs are leaving Toronto for the suburban regions (CoT 2006b). This shift can be attributed to the same dynamics that have driven growth in the FIRE sector and led more traditional manufacturing firms to become more knowledge intensive. As manufacturing firms adopt just-in-time inventory systems, which are land- and transportation-intensive, they move to the fringes of the metropolitan region where land is cheap and highway connections are good. Meanwhile, knowledge-based firms rely more and more on physical proximity to exchange information, as seemingly casual interactions between the employees of different firms become important occasions to build social capital and a common culture (Gertler 2003).

Despite the fact that higher-growth sectors providing higher-income jobs are concentrating in Toronto itself, the regional economy and job market are still based on the activities that are heading out of the city. So far, this has had only modest impacts on median commute distances, which increased from 7.5 to 7.6 kilometres between 1996 and 2001. The greater effect has come in the amount of time workers spend getting to and from their jobs. In 1992, 51% of Toronto workers spent an hour or more commuting each day, whereas 66% did so in 2005; over the same period the average commute time went from 68 minutes to 79 minutes (Turcotte 2005). This will likely get worse, even under the new smart growth intensification regime brought in by Places to Grow; among the units of housing added in urban intensification areas between 1991 and 2001, half of them were at the edges of the built-up area (Neptis 2006). To the quality of life and air quality impacts of a long commute, we can add the costs brought back onto industrial competitiveness as trucks are caught in the highway congestion generated by increased commuter traffic.

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9. Conclusions

Report goals and rationale

This study provides a snapshot of the sustainability of selected communities across Ontario in recent years. The municipal rankings are intended to serve as benchmarks against which individual communities can compare and assess the nature of their comparative advantages — strengths in urban form, livability, and economic vitality — with respect to other communities, while also addressing their weaknesses. The indicator framework and rankings can also serve as a baseline of current conditions and a marker for referencing future results, in the event similar studies are undertaken in the years to come. This should offer some indication of the direction in which Ontario municipalities are moving over time. The case studies draw out some of the challenges and successes that municipalities in Ontario are experiencing and point to some potential solutions.

The study seeks to inform the debate on community sustainability and smart growth in Ontario as the provincial government continues its major reform of the planning system with ambitious goals to stem sprawl and promote community sustainability in the GGH and throughout the province. The Achilles' heel of major planning efforts has always been the obstacle encountered when transforming planning policies into new development and community building practices on the ground. Having an indicator framework (such as the one used in this study) to monitor and evaluate these changes can only help advance our understanding of the changes wrought *by* the new system and where changes *to* the system might be needed.

The study does not claim to present the definitive picture of community sustainability in Ontario. The findings in this report provide only a preliminary and limited portrait. The reality is more complicated and subtle than can be captured in statistics and brief case studies, even under ideal study conditions.

In addition, the study was limited by the availability of data sources, or lack thereof. In some cases, data for what might be considered important indicators of community sustainability, such as energy use, ecologically significant land losses to development, waste produced or total consumption levels, were simply not available, or not available on a consistent basis from a single source and aggregated to the municipal level. Useable data could not be identified on volunteer and voter participation rates, or on amenities such as specialty stores and arts and culture facilities. Similarly data on a Quality Of Employment or a Local Cost Of Living Index were not available. An indicator report is always an exercise in compromise between the ideal set of indicators and the set for which suitable data can be found. The most recent publicly available data, including 2006 census figures, were used as the basis of the indicators.

With respect to the indicators for which data could be found we have commented on the limitations of the indicators as presented in the report. Few of the indicators were perfectly suited for the purposes made of them. For example, several indicators, such as crime rates, level of physical activity and employment rates, are subject to powerful influences from outside the municipal boundaries. Including them in a study like this should not be taken to mean that municipal governments are solely or even mostly responsible for changes in the conditions they measure.

The case studies, by bringing to life some of the specific features of seven of the 27 municipalities covered in this study (i.e., City of Peterborough, York Region, Niagara Region, Waterloo Region, City of Stratford, City of Ottawa, City of Toronto) are intended to address some of the methodological limitations involved in indicator reports and to add some richness and lived reality to the portraits drawn.

For all their limitations, quantitative indicators remain one of the few ways of tracking the progress of communities, and trying to understand the sources of success and failure. As governments begin collecting information that is more pertinent to sustainability and smart growth objectives it will be possible to provide a more complete pictures of how trends. — It is assumed the Ontario government will want to do as its new approach to planning is rolled out in cities across the province.. Nonetheless, despite the limits of the data sources, the indicators used here provide a good basis to enable communities to chart their progress towards a more sustainable future.

Again, limitations aside, a number of important themes emerge from the indicators. Large, well-established cities like Toronto and Ottawa generally do well in the overall community sustainability ranking. At the same time, there is evidence of some serious underlying challenges in terms of housing affordability, community amenities and commuting patterns for Toronto, and commuting distances, a poor land use mix and low business diversity in Ottawa.

Recent population trends present additional challenges for Toronto. The city's population growth now seems to be stagnant. This presents a potentially serious problem for the province, as its most sustainable community, which is expected in the province's GGH growth management plan to absorb a significant portion of the region's projected population growth, is experiencing virtually no population growth at all.

Rather, population growth is concentrated in surrounding regions that show a striking combination of high economic vitality, poor urban form and high income inequality. Niagara, Durham, Halton and York regions, in particular, are at risk of further embedding highly inefficient sprawling urban forms. Such paths may threaten the long-term economic vitality of these regions due to high levels of automobile use resulting in increasingly serious traffic congestion, reinforced by the lack of housing for low-income workers and high infrastructure maintenance costs.

The second major theme that emerges from the indicators is the disjuncture between the GGH region and the rest of the province. Nine of the top eleven ranked communities (i.e., Regions of Halton, Peel, York, Waterloo and Durham, and Cities of Toronto, Guelph and Barrie) in the overall Community Sustainability Index are located in the GGH.[9] All are characterized by high economic vitality rankings and generally moderate to high livability indices. At the some time, the smart growth rankings of these communities are dramatically mixed, with cities generally doing very well and regional municipalities ranking very low.

In contrast, the lower range of the overall Community Sustainability Index is dominated by northern communities (Sudbury, Sault St. Marie, Thunder Bay, North Bay) and southern communities outside of the GGH (Woodstock, St.Thomas, Belleville). All do poorly in the economic vitality rankings and some face significant challenges in the areas of livability and smart growth as well, although the latter rankings may reflect the more rural character of these communities.

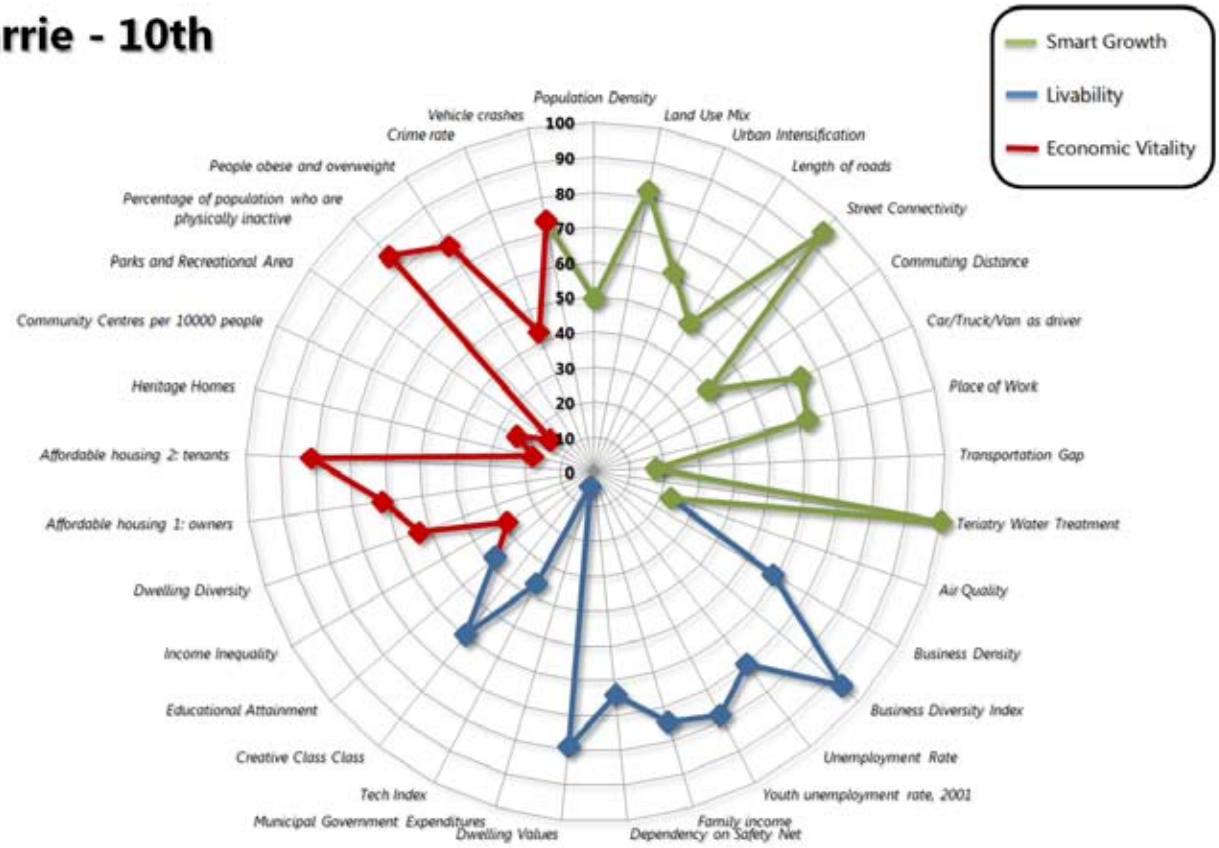
The picture reflects the extent of the concentration of economic activity and population growth in the GGH and Ottawa, and the difficulties faced by communities that have traditionally depended on resource extraction and processing, agriculture and manufacturing outside of these regions.

[9] Ottawa and Stratford are the exceptions.

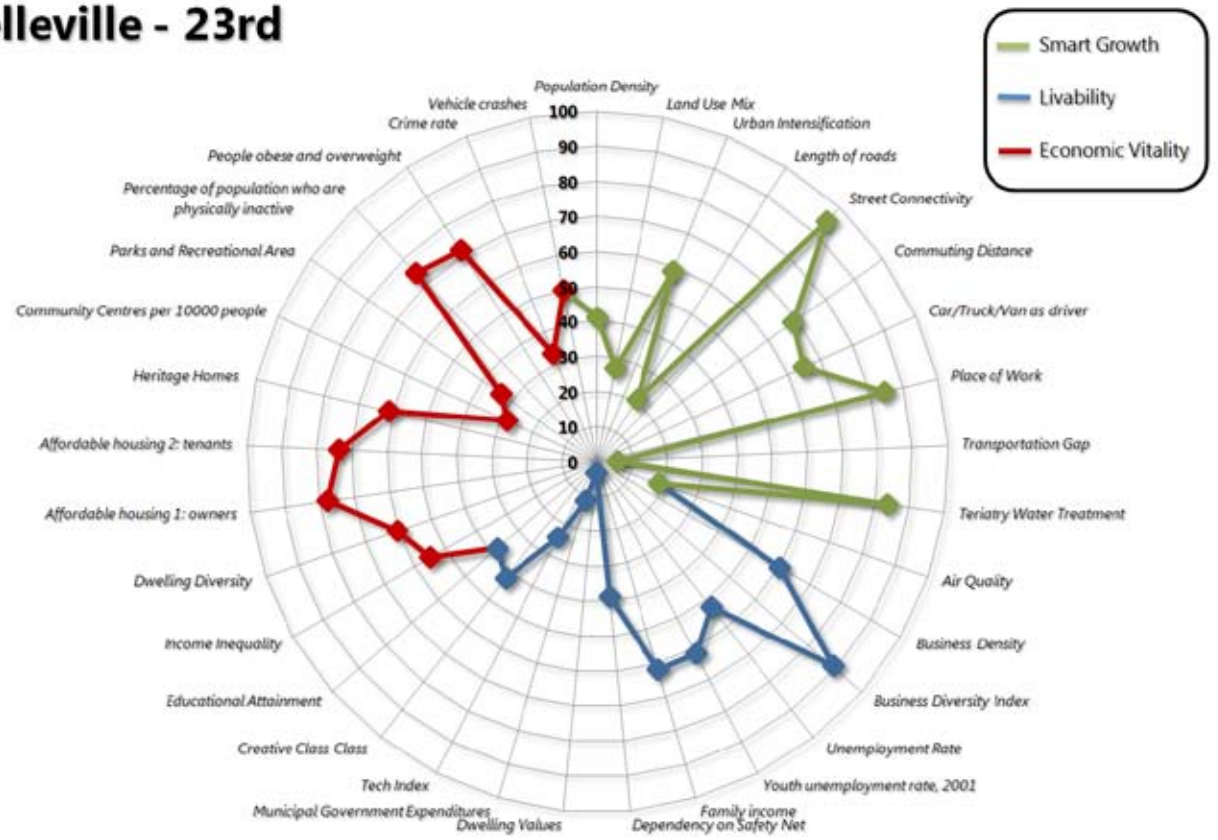
10. Appendix: Provincial Results

Provincial Results (For full statistical data, see www.pembina.org)

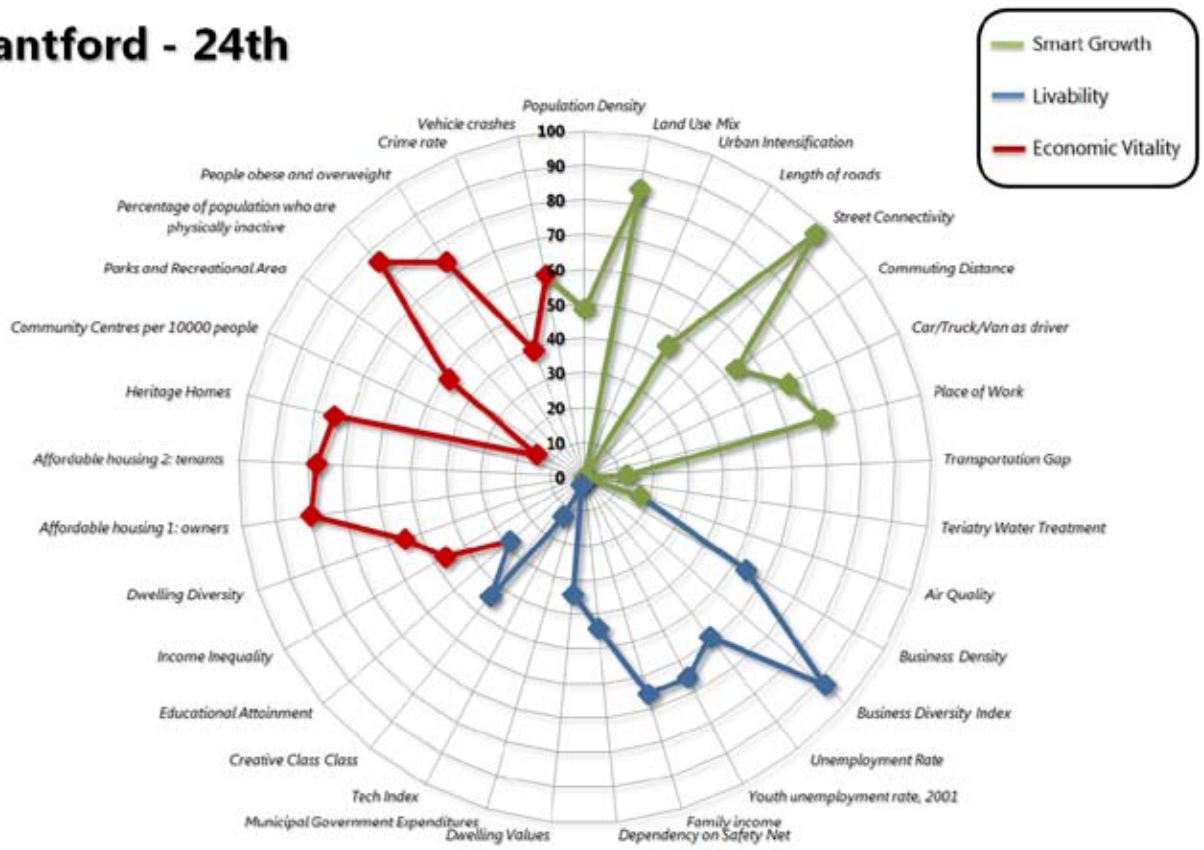
Barrie - 10th



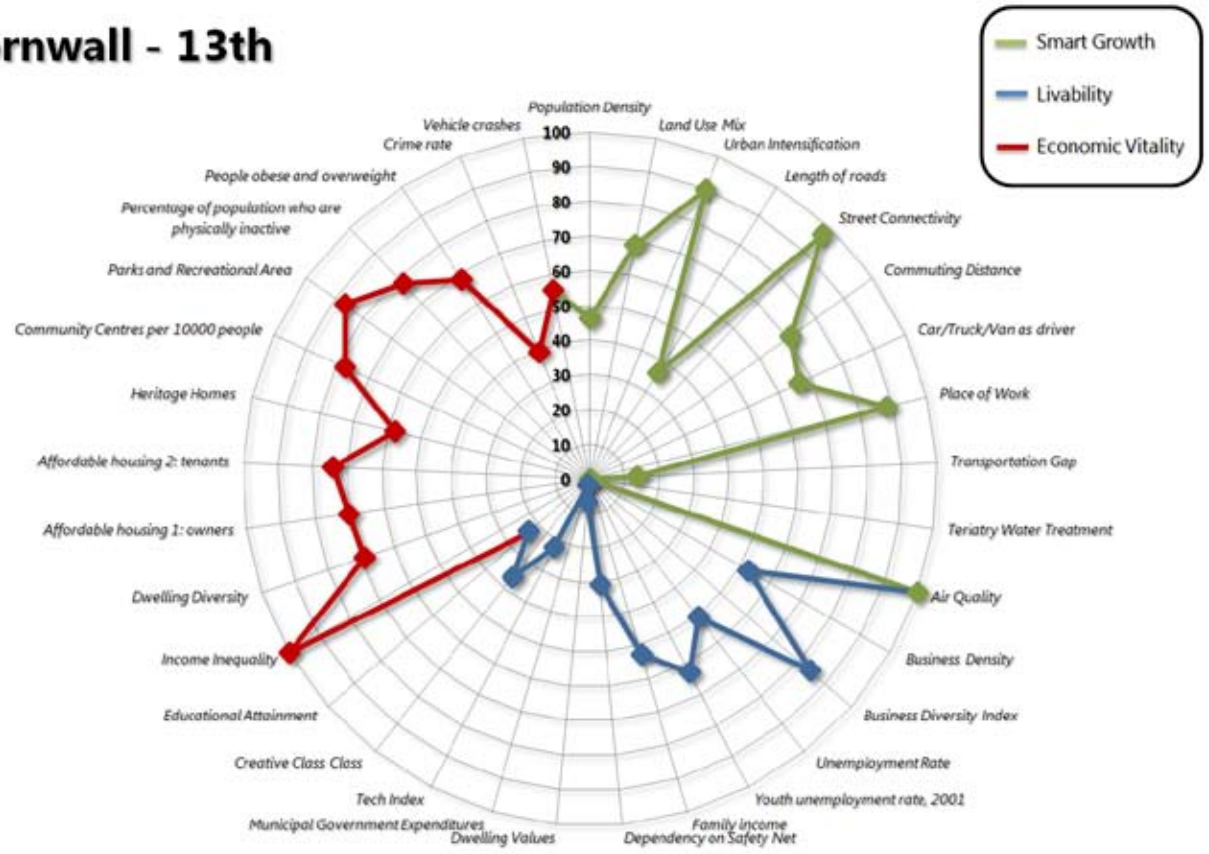
Belleville - 23rd



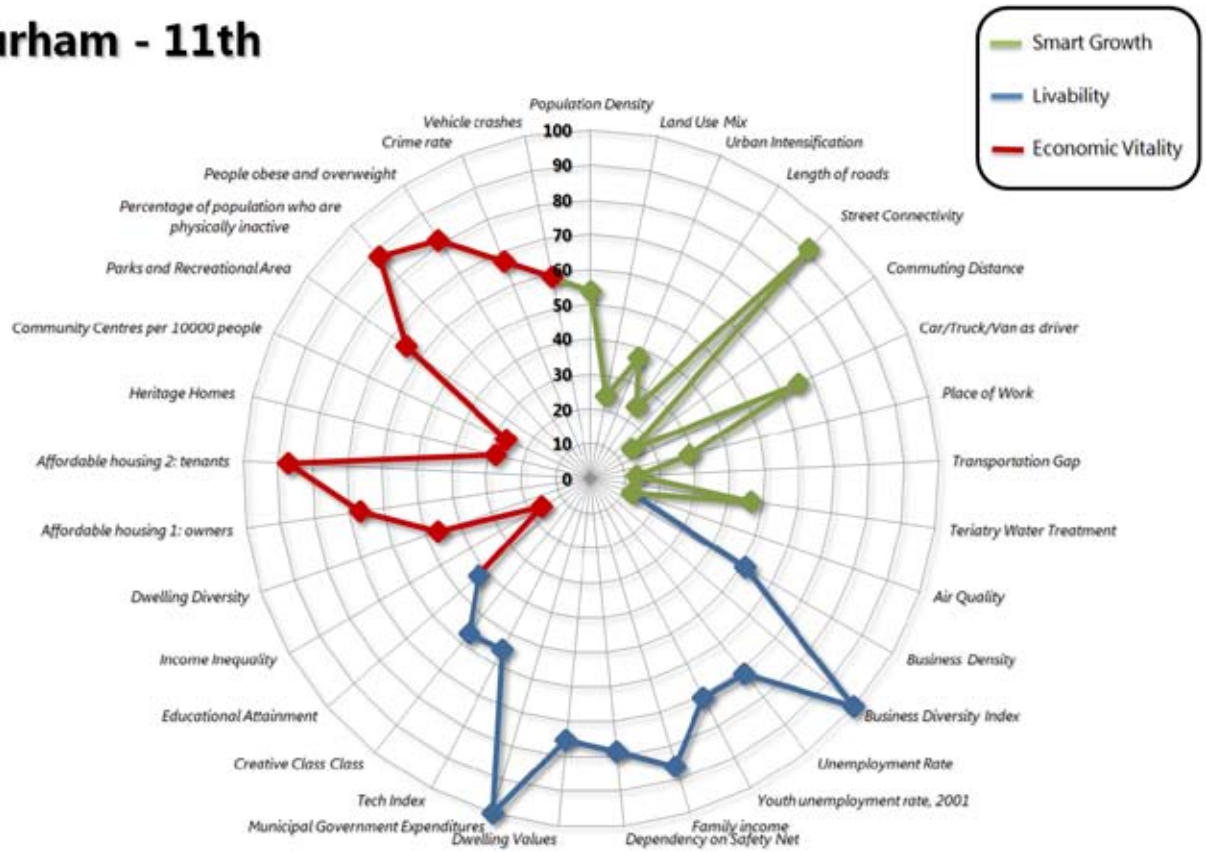
Brantford - 24th



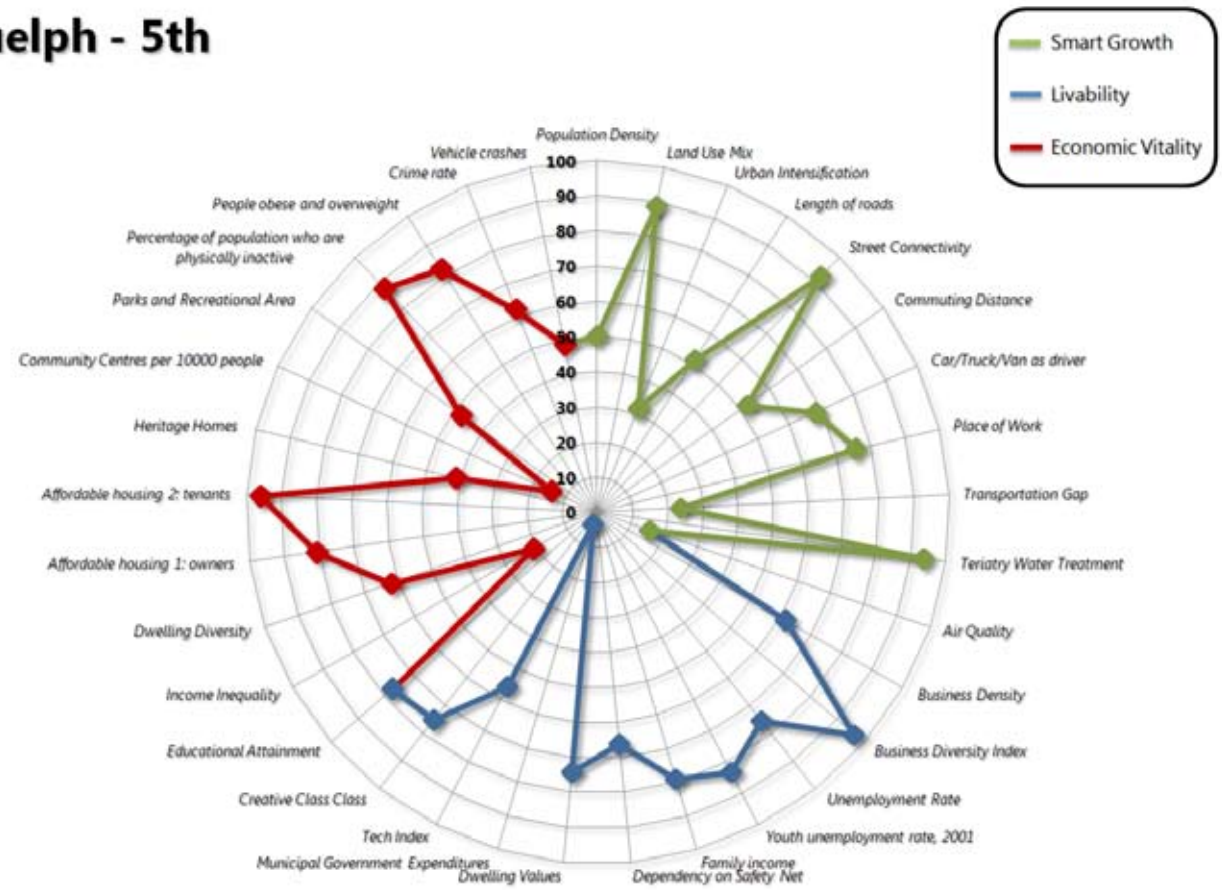
Cornwall - 13th



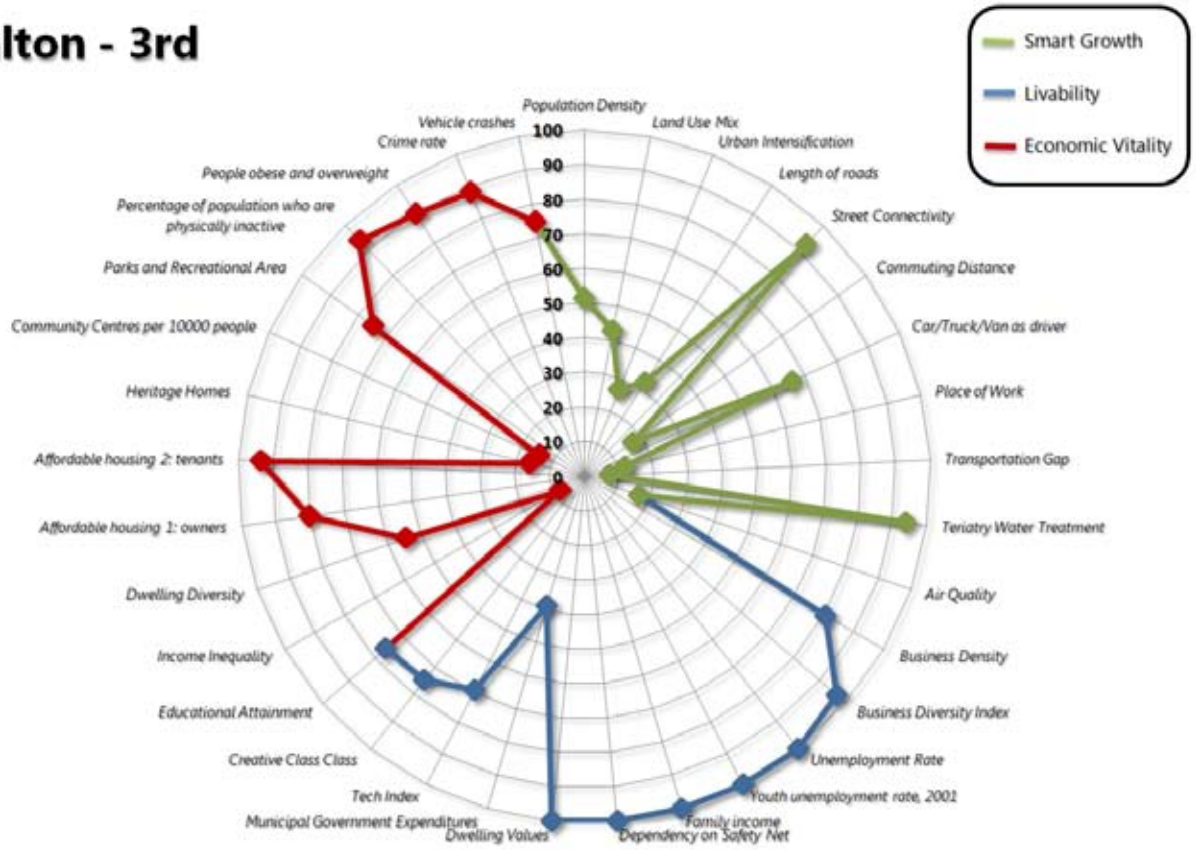
Durham - 11th



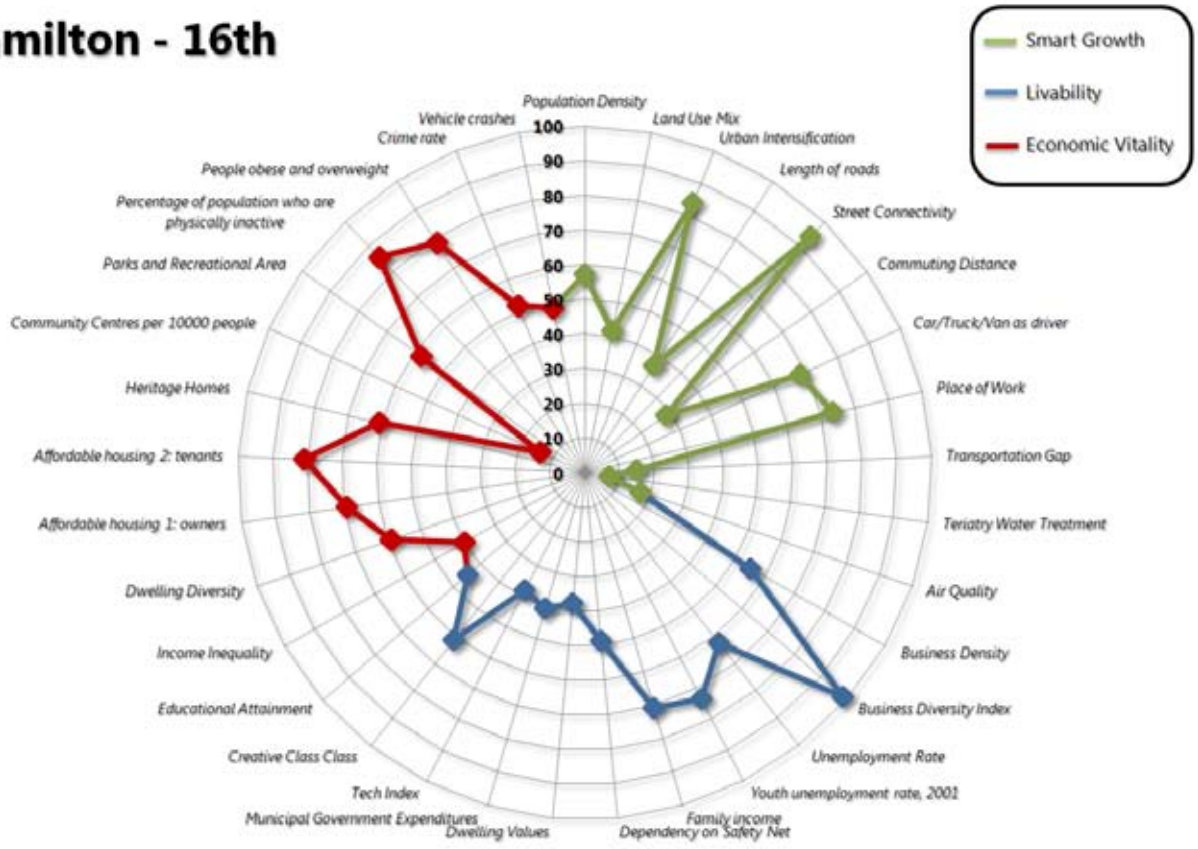
Guelph - 5th



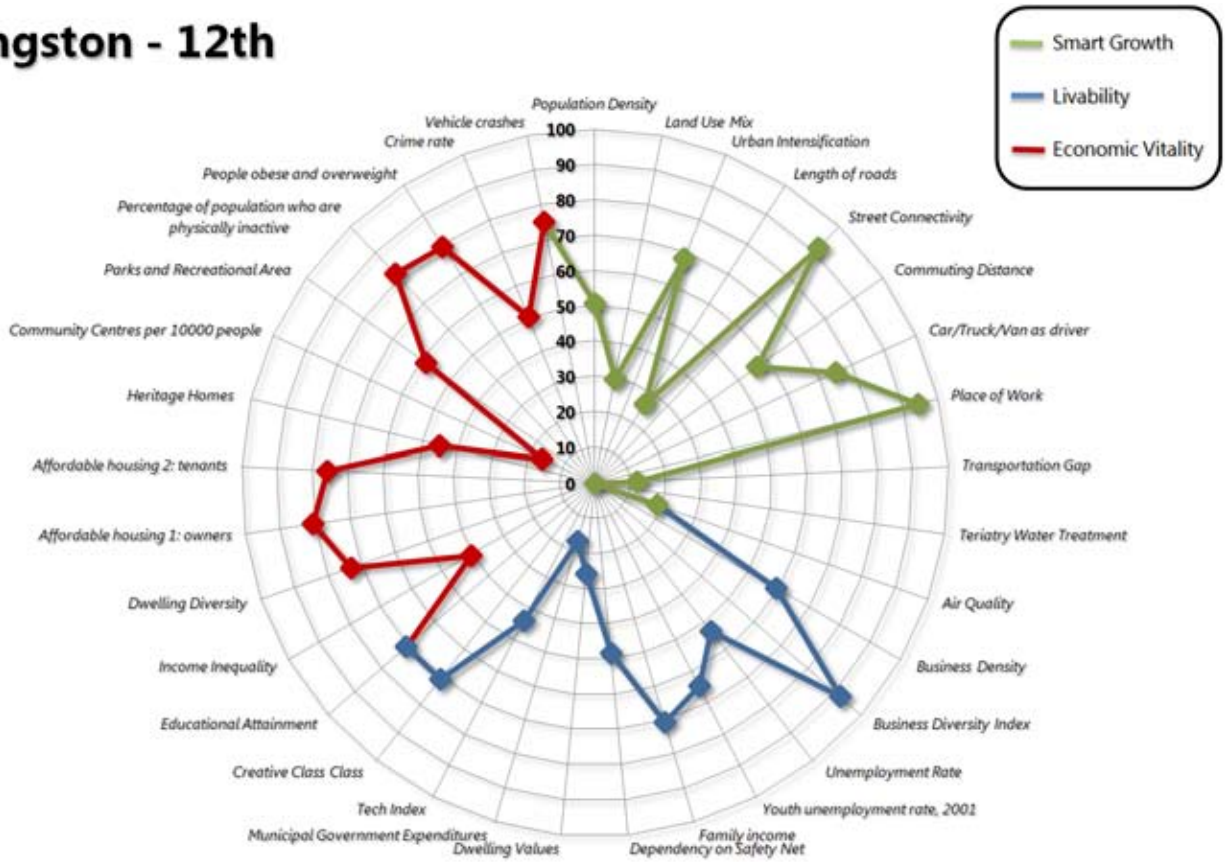
Halton - 3rd



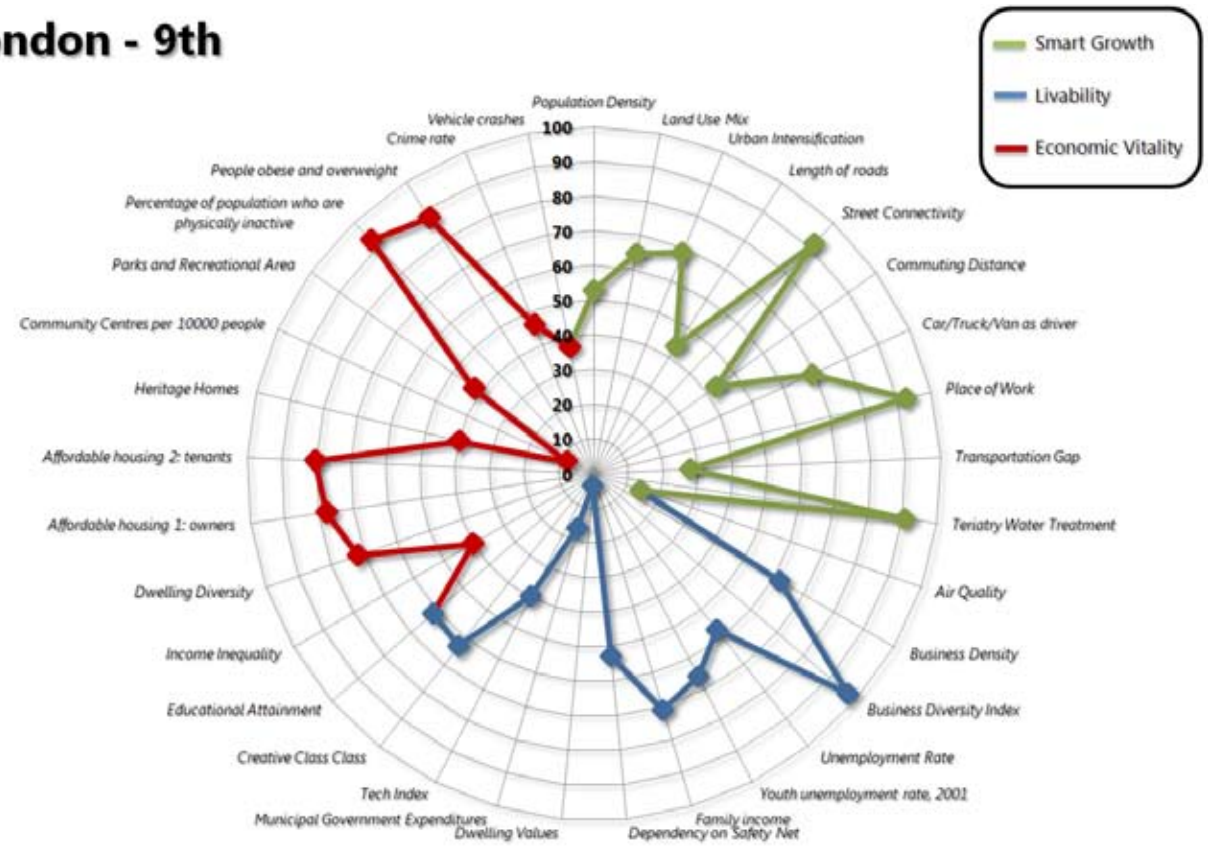
Hamilton - 16th



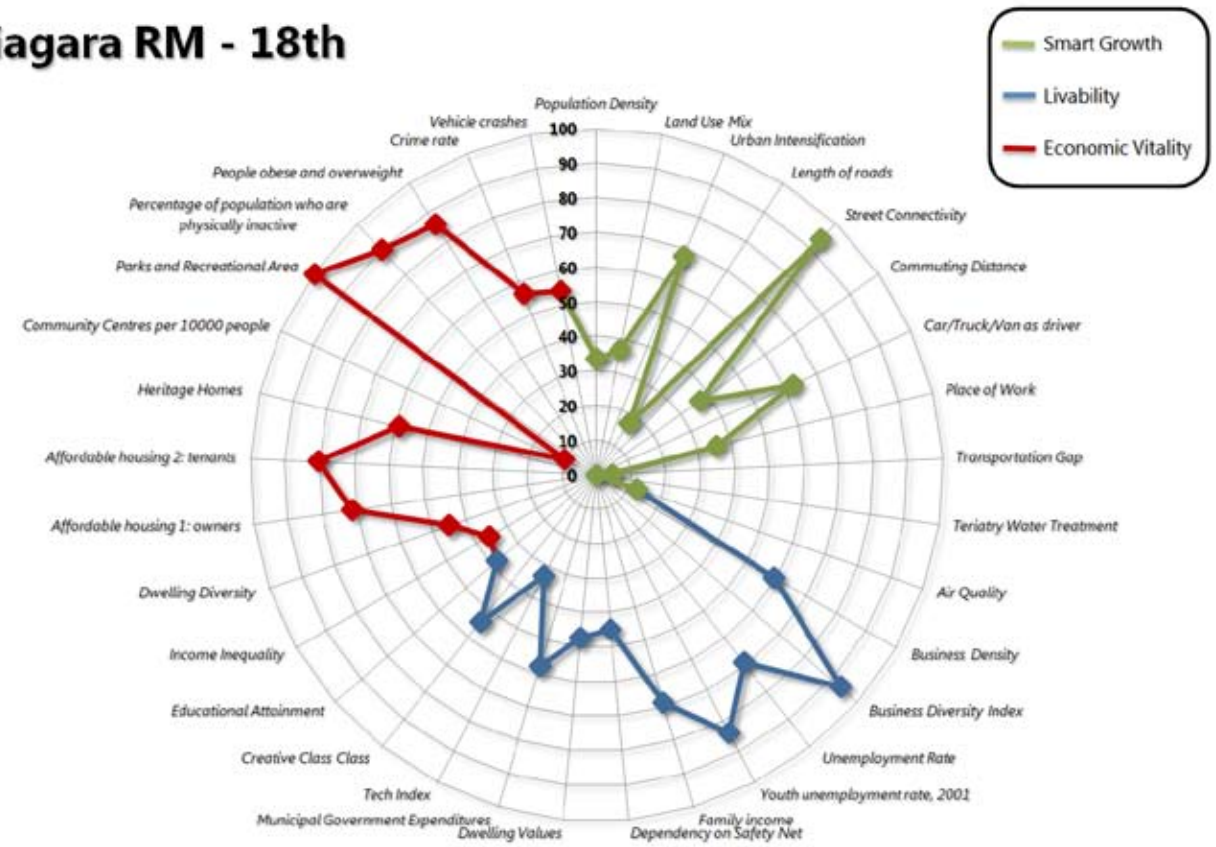
Kingston - 12th



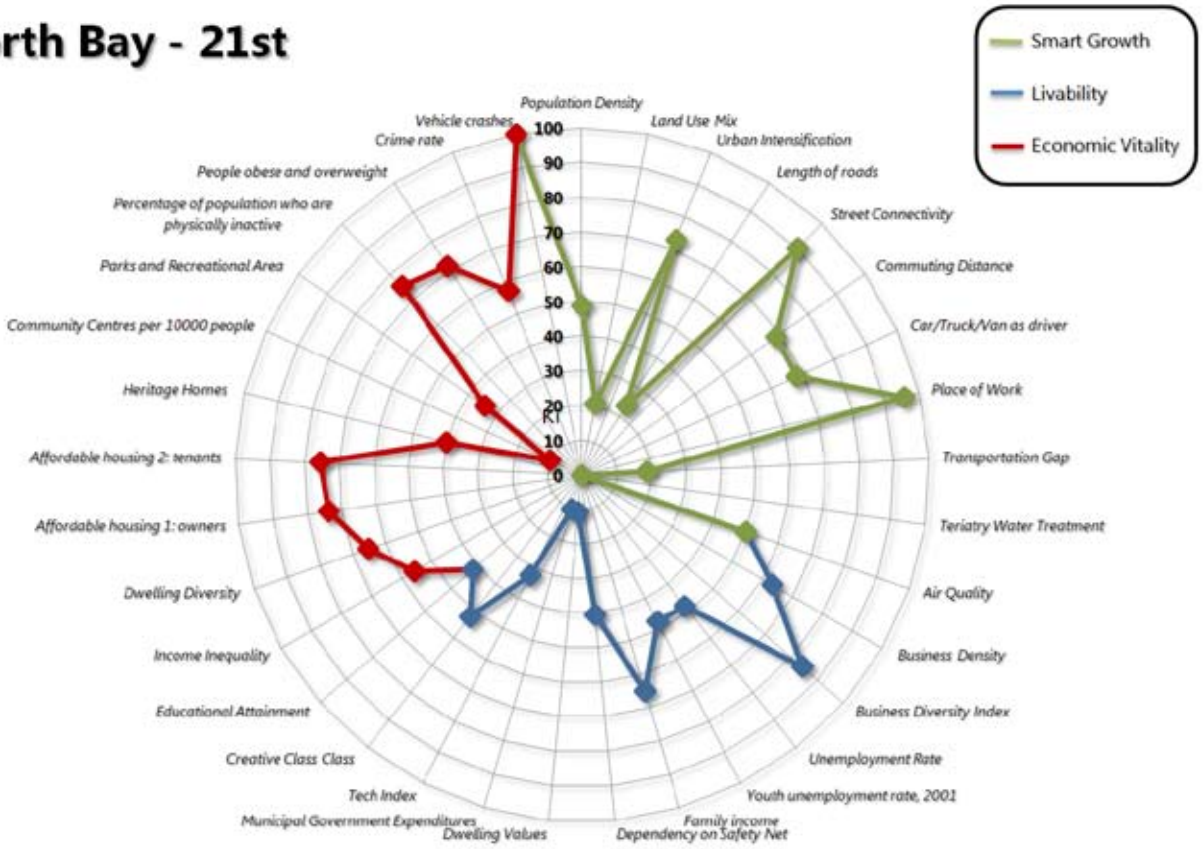
London - 9th



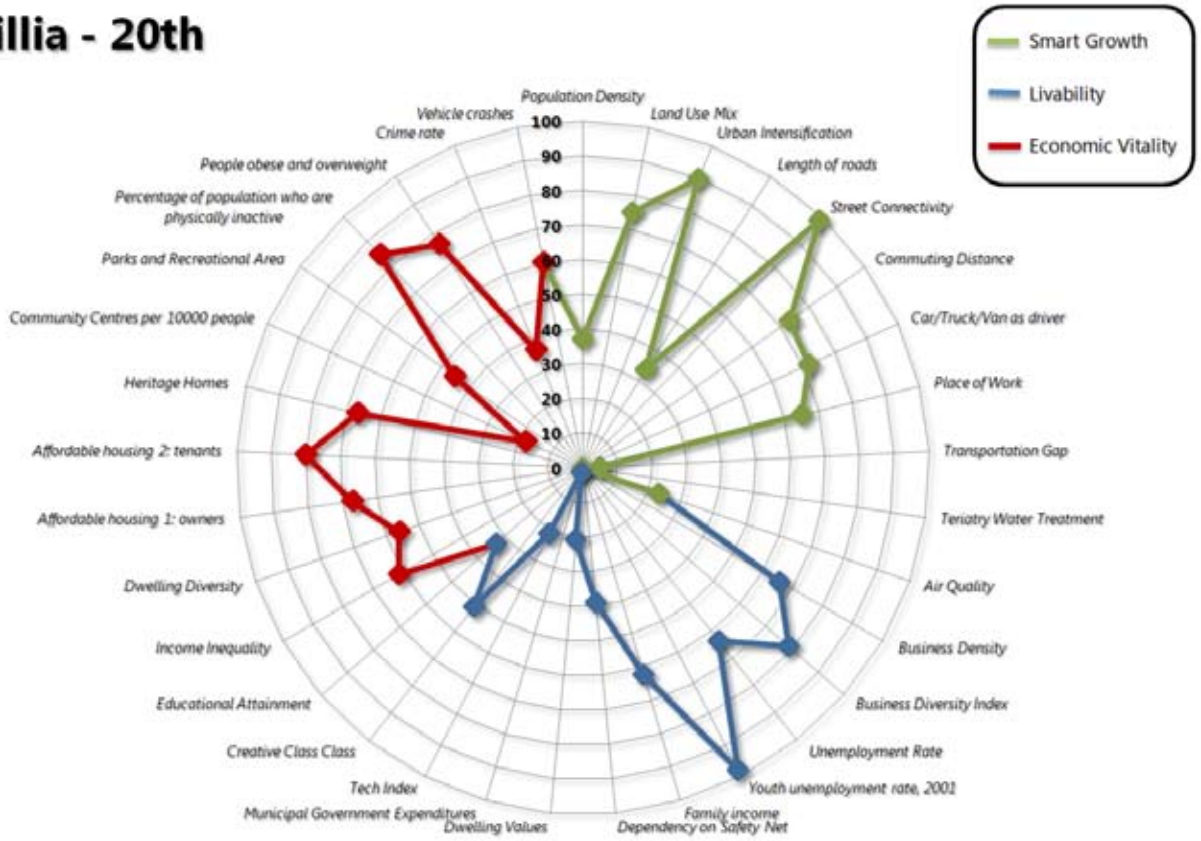
Niagara RM - 18th



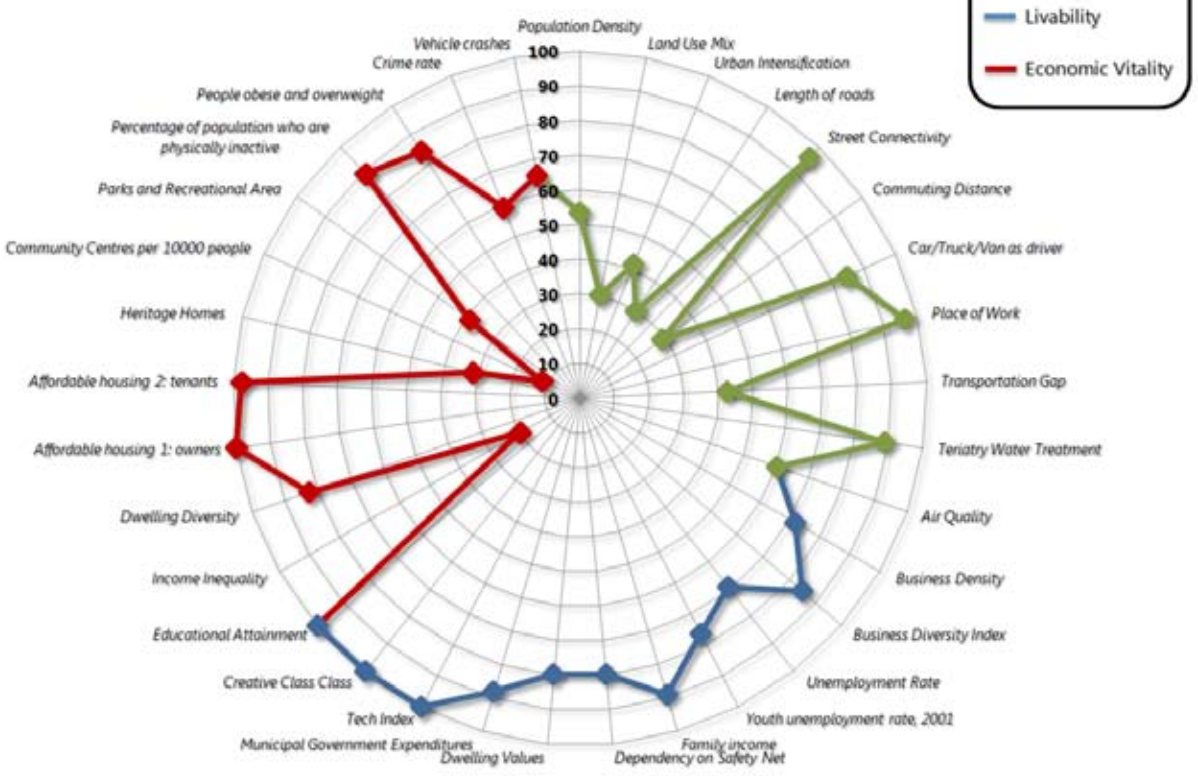
North Bay - 21st



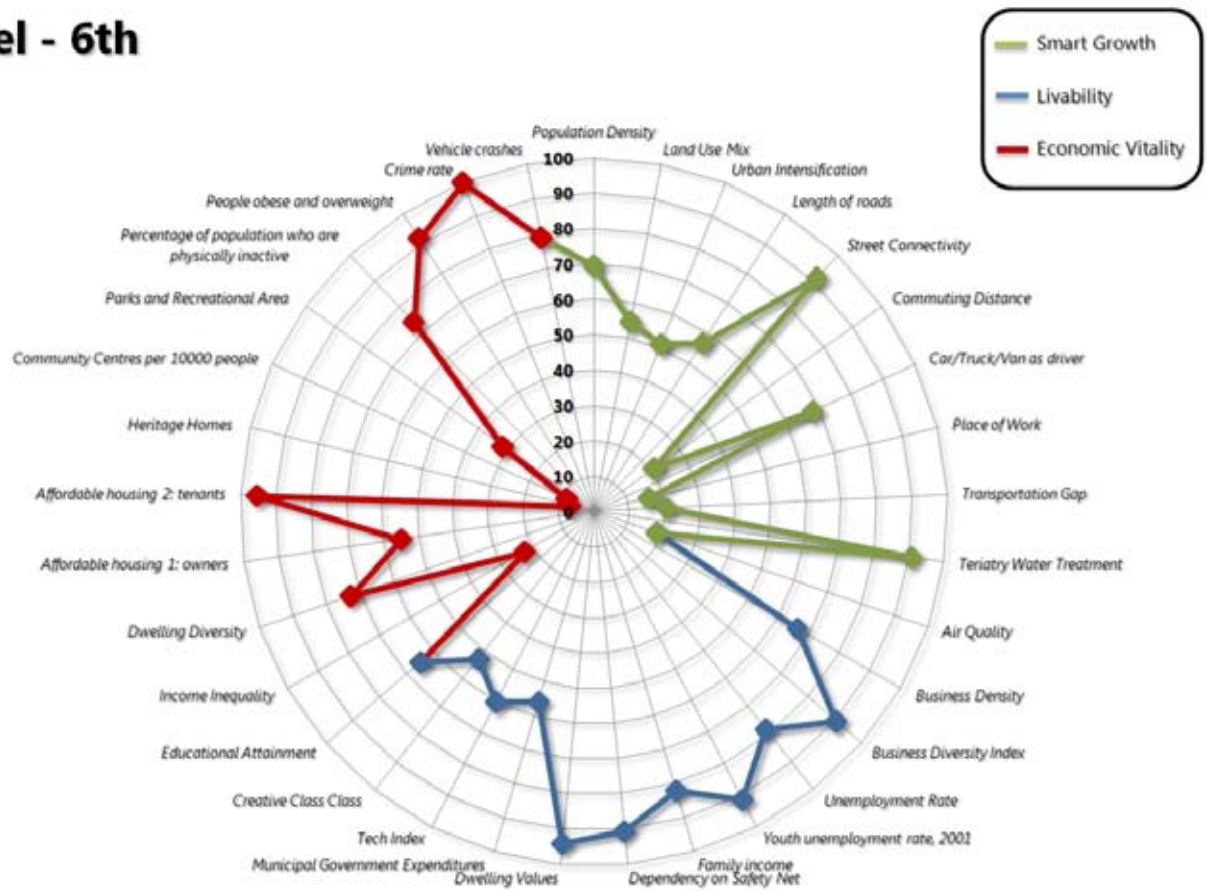
Orillia - 20th



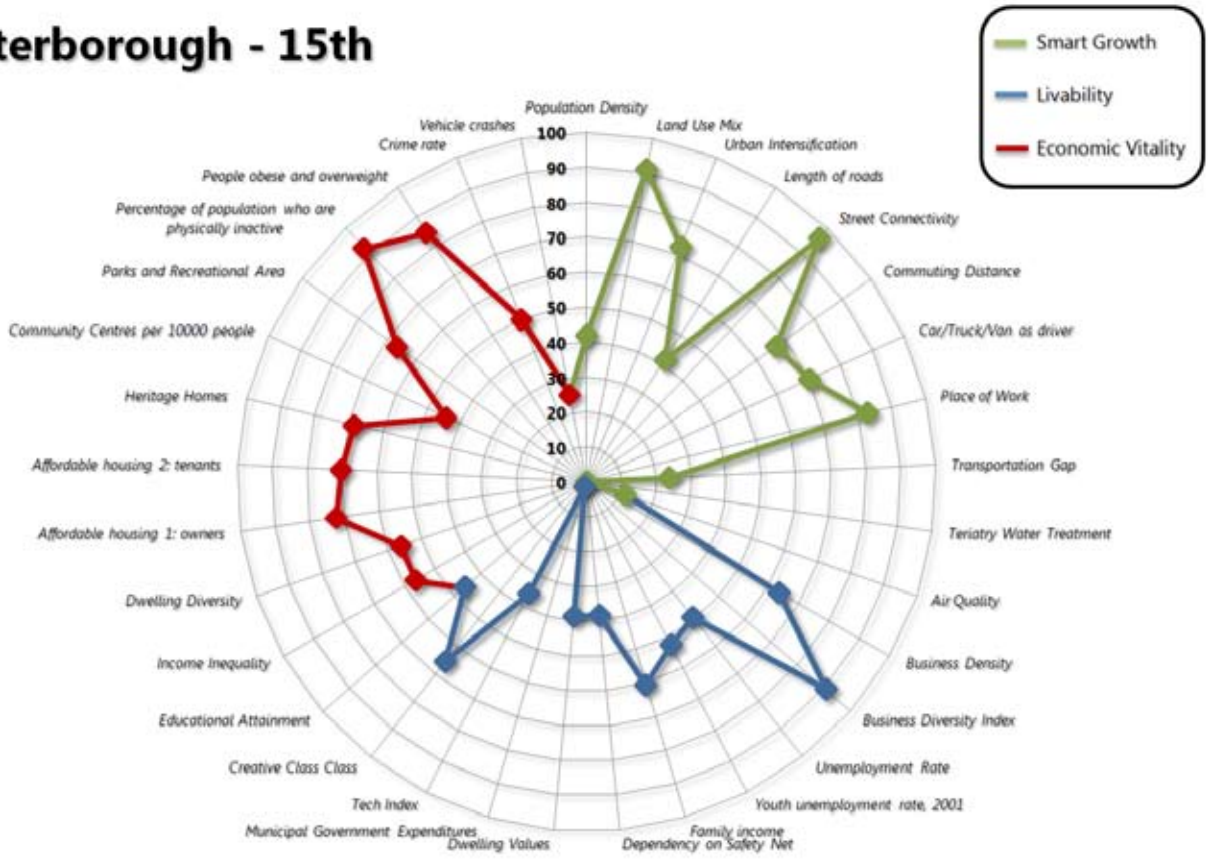
Ottawa - 2nd



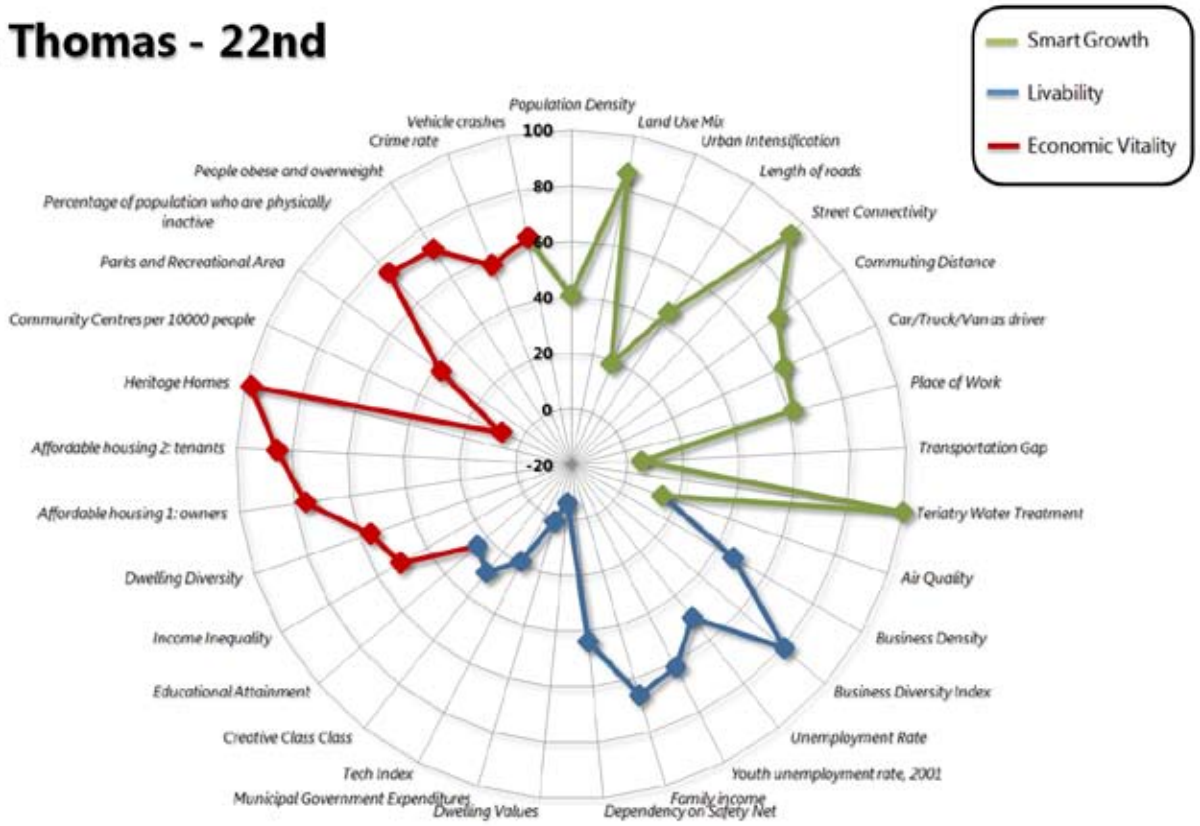
Peel - 6th



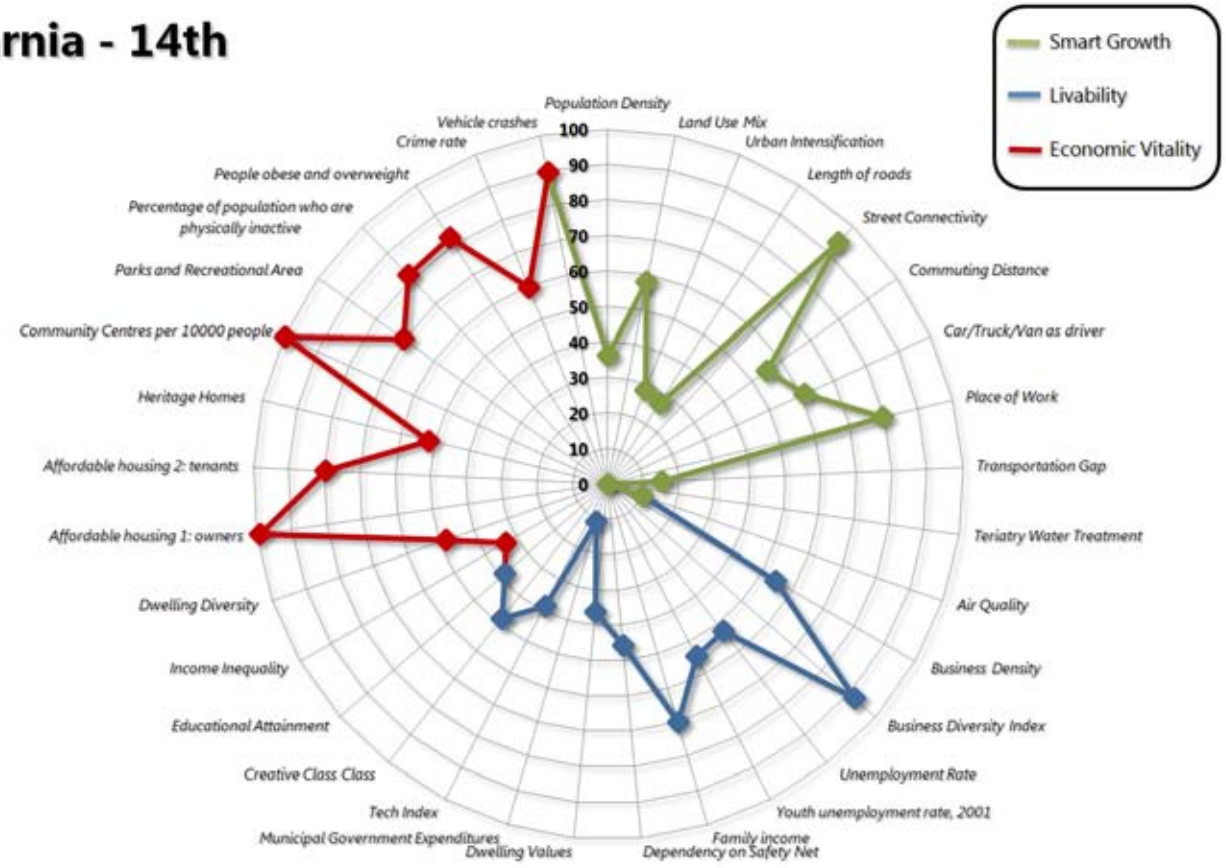
Peterborough - 15th



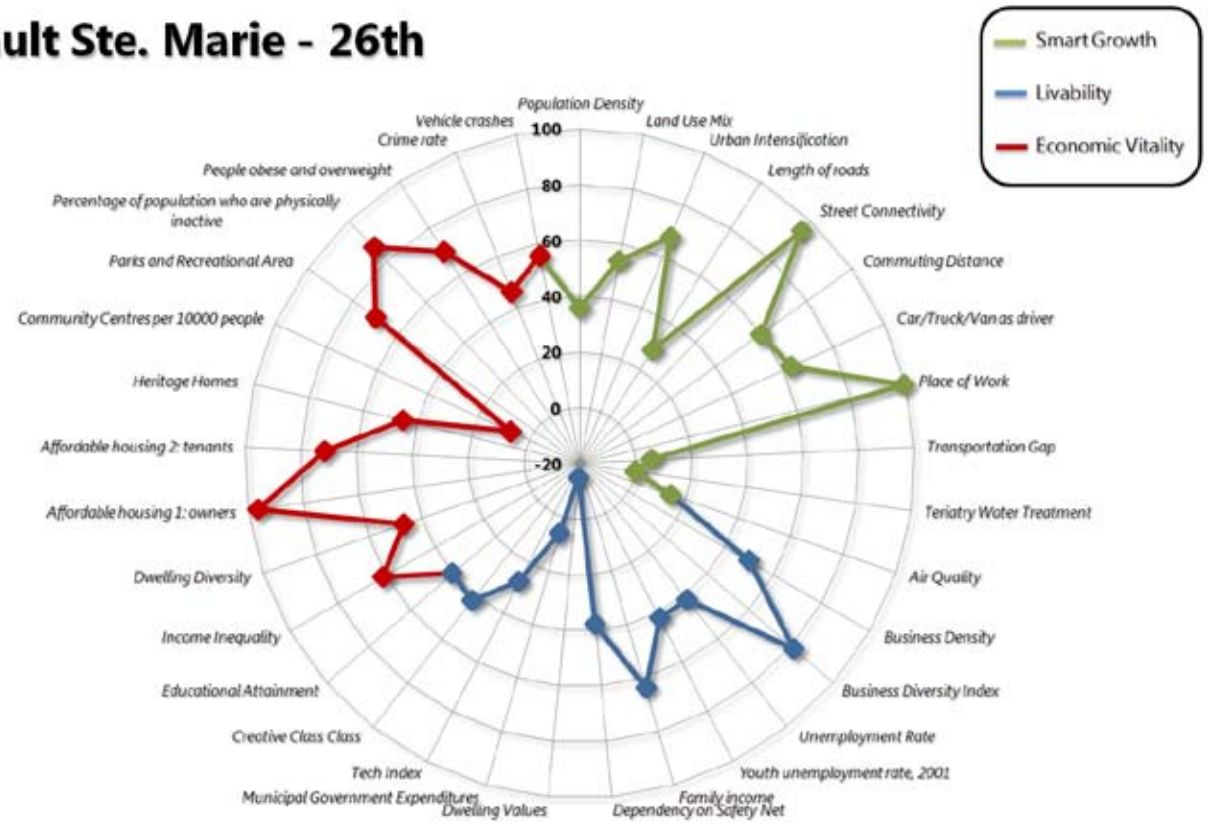
St. Thomas - 22nd



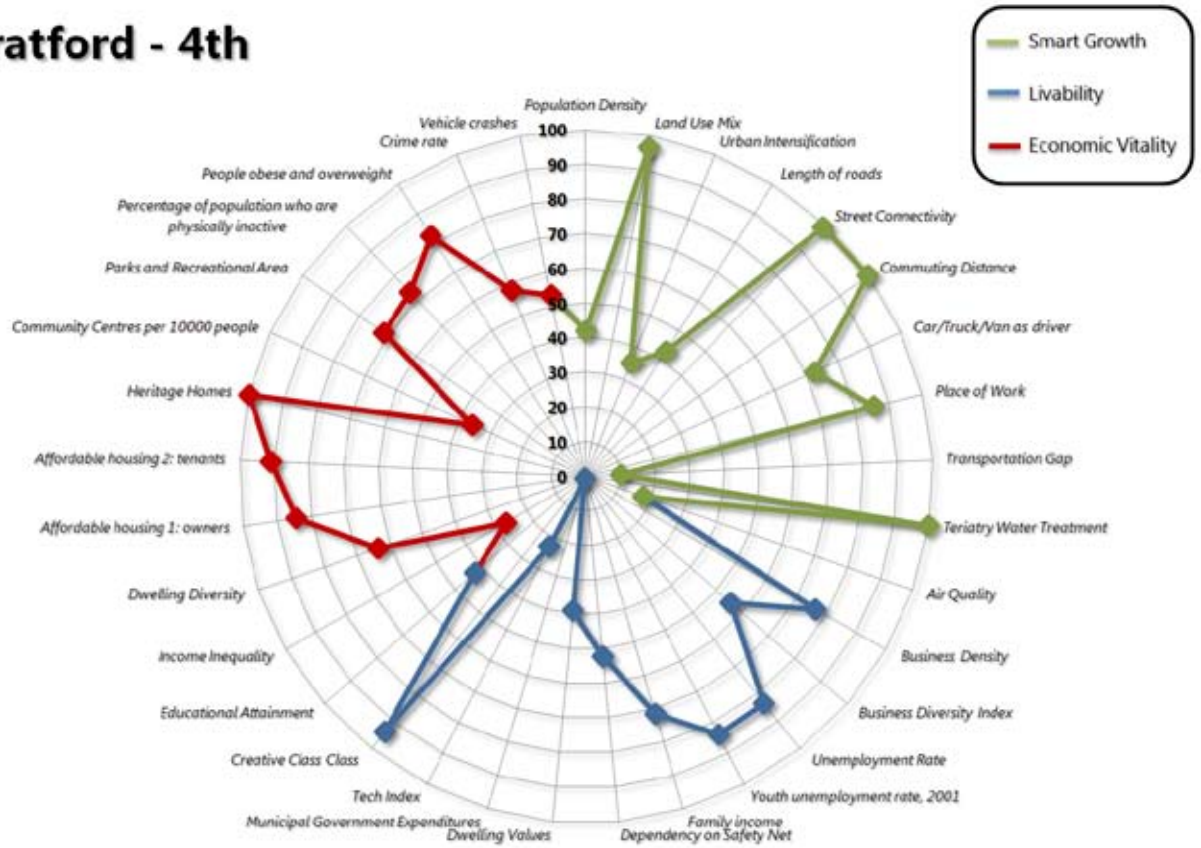
Sarnia - 14th



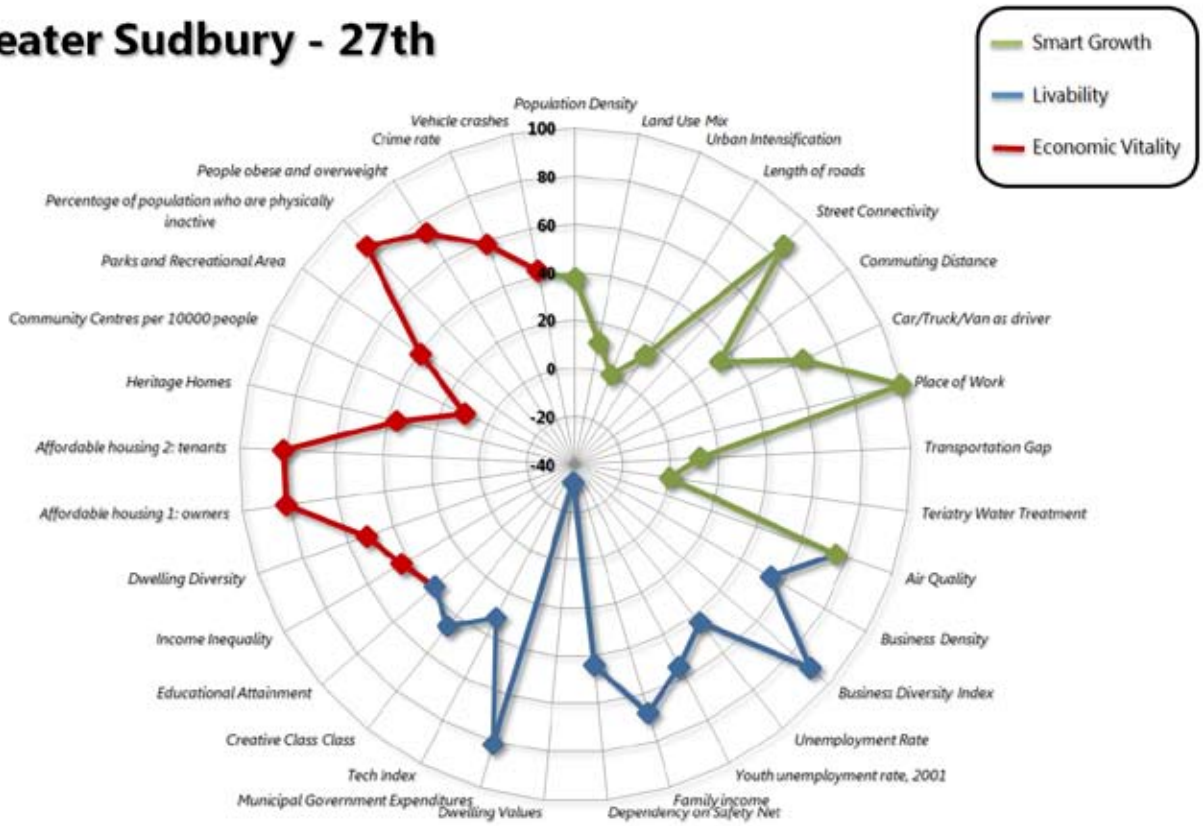
Sault Ste. Marie - 26th



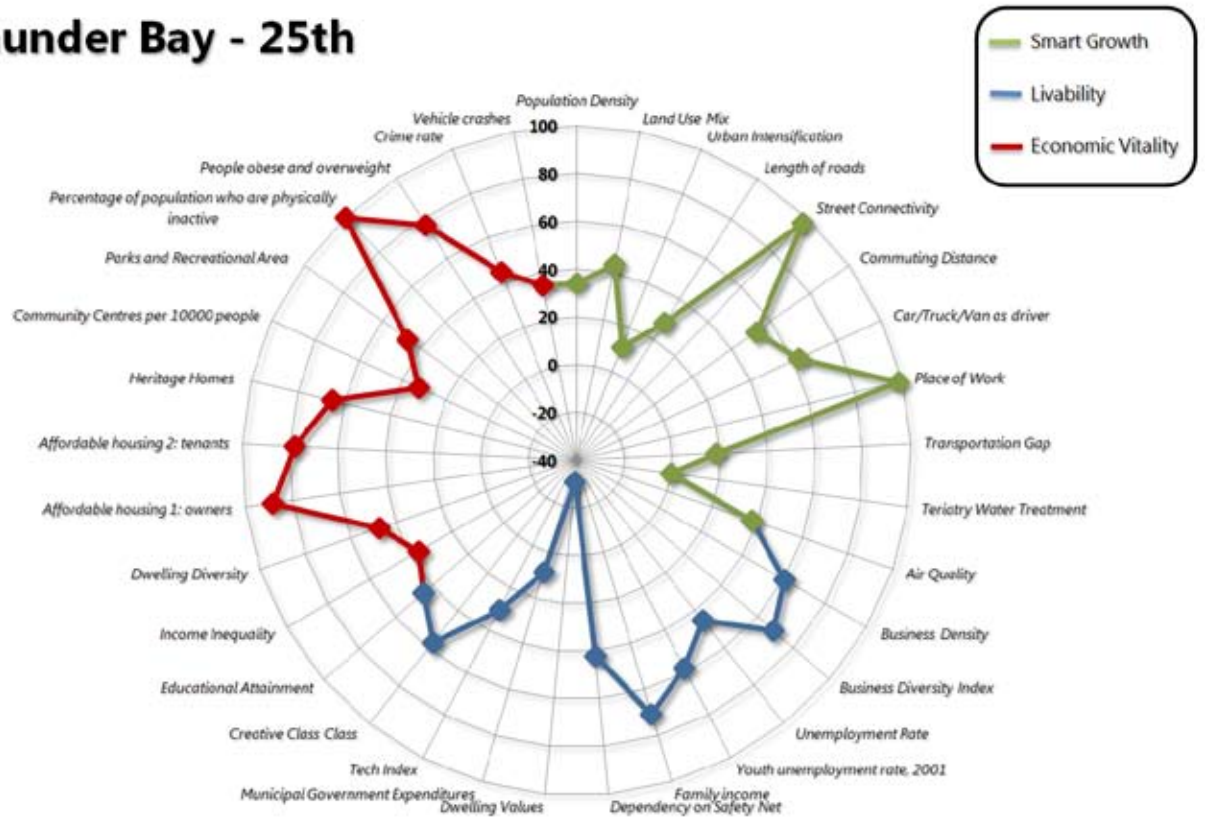
Stratford - 4th



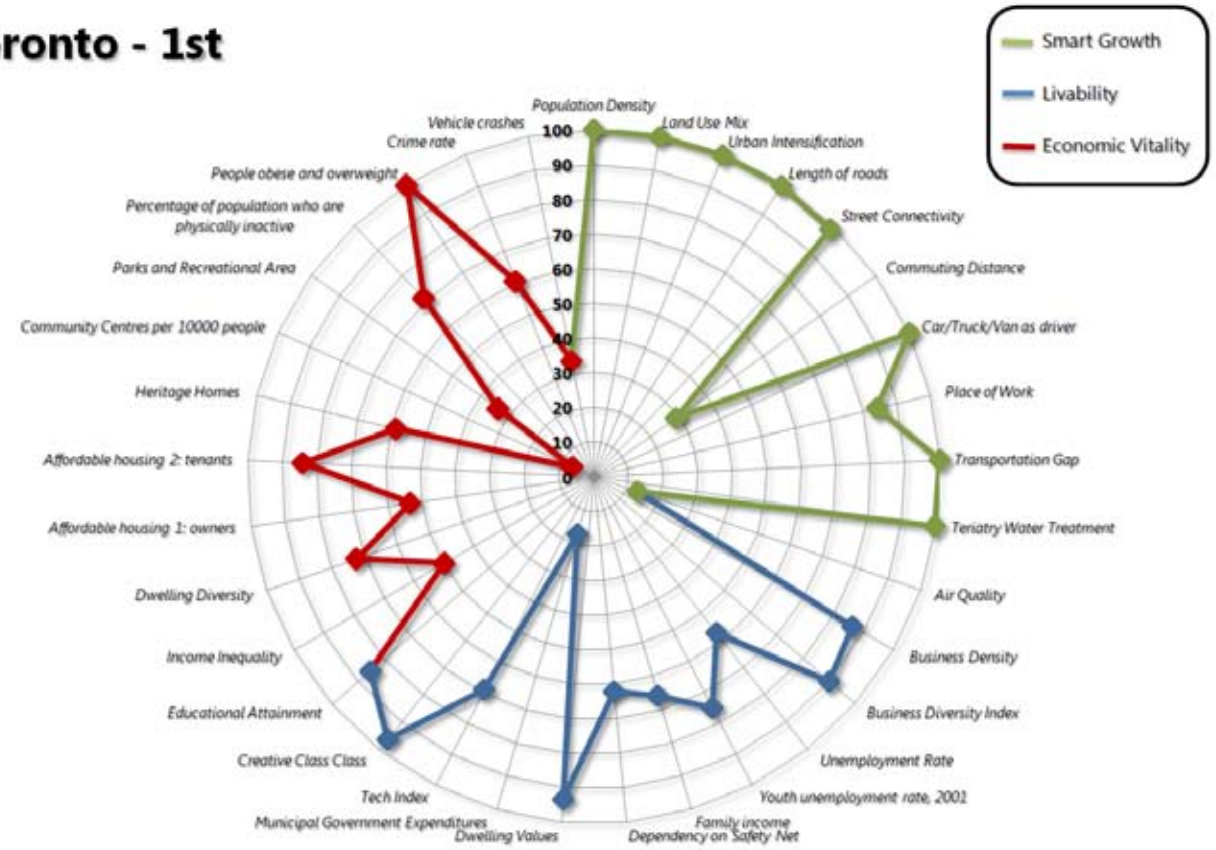
Greater Sudbury - 27th



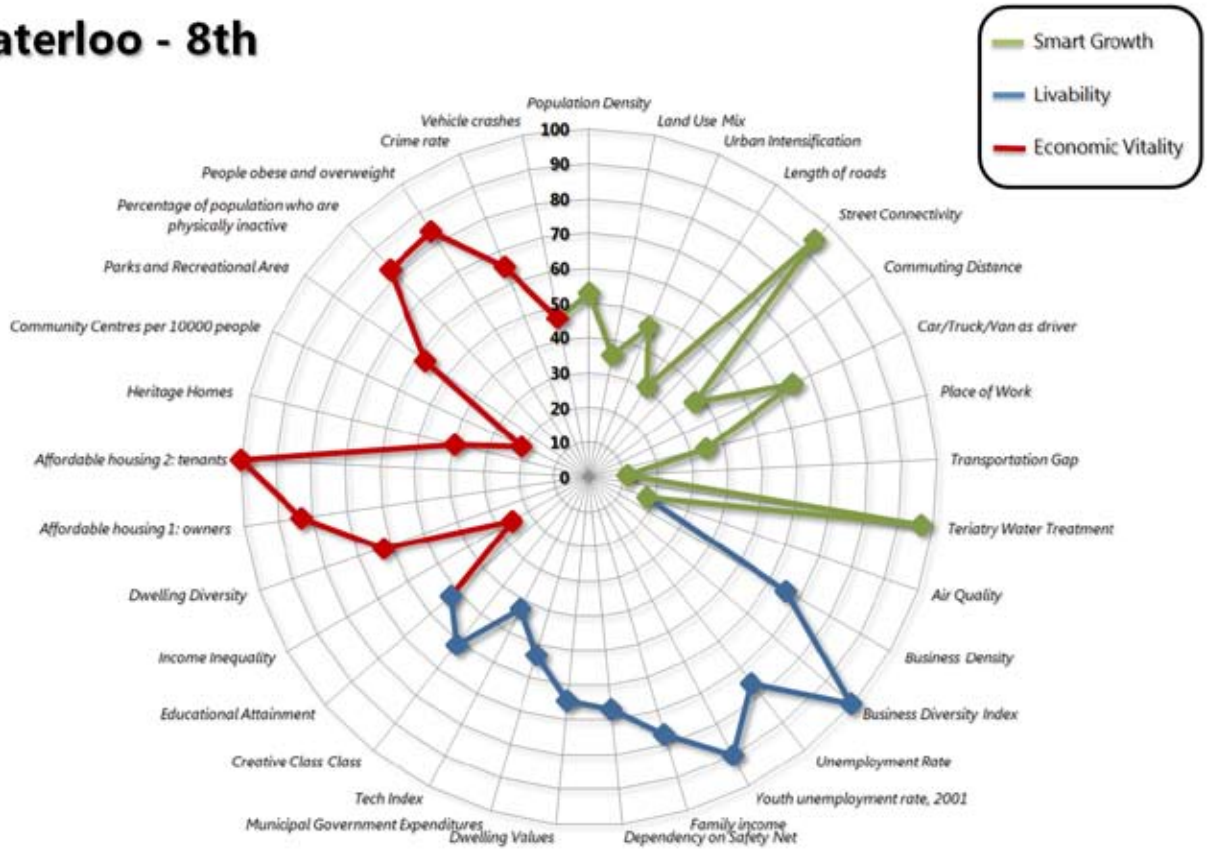
Thunder Bay - 25th



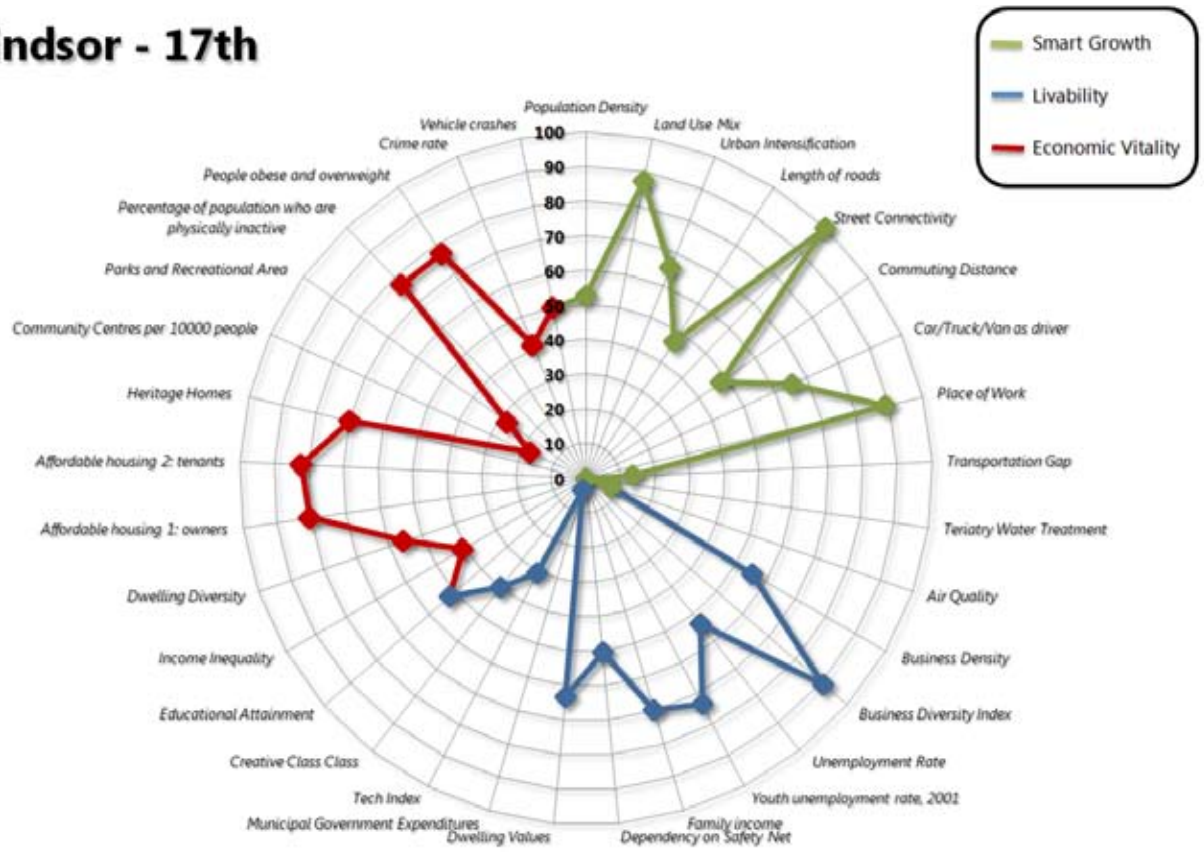
Toronto - 1st



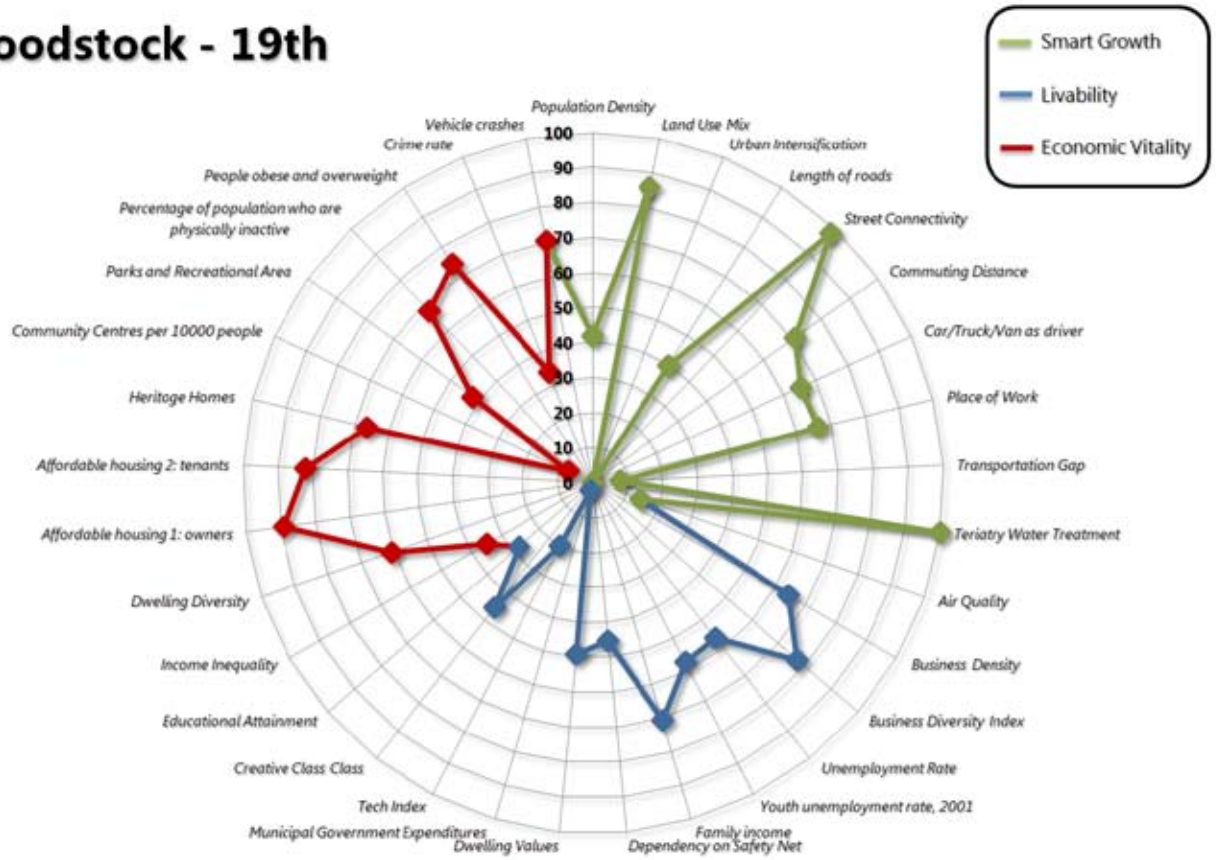
Waterloo - 8th



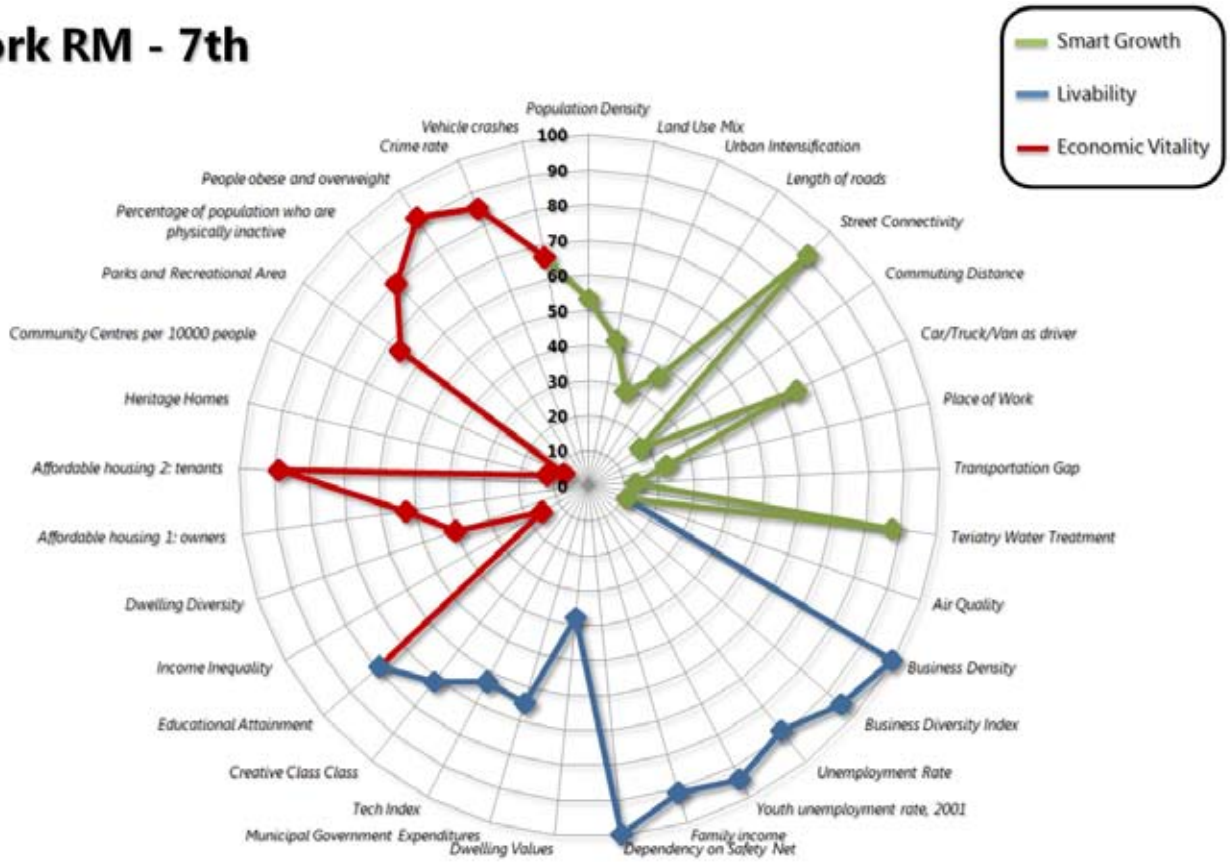
Windsor - 17th



Woodstock - 19th



York RM - 7th


Smart Growth
Livability
Economic Vitality
Population Density
Land Use Mix
Urban Intensification
Length of roads
Street Connectivity
Commuting Distance
Car/Truck/Van as driver
Place of Work
Transportation Gap
Teriatry Water Treatment
Air Quality
Business Density
Business Diversity Index
Unemployment Rate
Youth unemployment rate, 2001
Family income
Dependency on Safety Net
Dwelling Values
Municipal Government Expenditures
Tech Index
Creative Class Class
Educational Attainment
Income Inequality
Dwelling Diversity
Affordable housing 1: owners
Affordable housing 2: tenants
Heritage Homes
Community Centres per 10000 people
Parks and Recreational Area
Percentage of population who are physically inactive
People obese and overweight
Crime rate
Vehicle crashes
100
90
80
70
60
50
40
30
20
10
0

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