

Population Distribution and the Management of Urban Growth in Six Selected Urban Regions in Canada

by Christopher R. Bryant and Daniel Lemire



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POPULATION DISTRIBUTION AND THE MANAGEMENT OF URBAN GROWTH IN SIX SELECTED URBAN REGIONS IN CANADA

A Report Submitted to ICURR

by

Christopher R. Bryant and Daniel Lemire

Université de Montréal

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FOREWORD

On behalf of the Intergovernmental Committee on Urban and Regional Research (ICURR) we are pleased to present Dr. Christopher Bryant and Daniel Lemire's report *Population Distribution and the Management of Urban Growth in Six Selected Urban Areas of Canada*. ICURR previously published a literature review focusing on the rural-urban fringe and its development costs, and this new report certainly examines Canadian urban growth issues in more depth by including a complementary analysis of the most recent Statistics Canada demographic data.

Bryant's and Lemire's efforts are also much more ambitious, in that they examine growth (or decline) in the entire regional city, including not only the fringe but also the core and the suburbs. They develop an up-to-date quantitative picture of the changing population distribution in six selected urban regions: Halifax, Montréal, Toronto, Winnipeg, Calgary and Vancouver. Through the use of questionnaires and interviews, the study identifies the most pressing issues as perceived by senior planner professionals in the six urban regions studied. It concludes by examining the strategies developed by regional and municipal governments to deal with their respective growth problems of recent years.

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ICURR Intergovernmental Committee on Urban and Regional Research
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BIOGRAPHIES

Christopher R. Bryant received his PhD from the London School of Economics and Political Science, University of London, United Kingdom, in 1970. From 1970 to 1990, he held a professorial position at the University of Waterloo, Ontario, in the Faculty of Environmental Studies, and was Director of the Economic Development Program there from 1984 to 1990. In 1990, he took up a professorial position at the Université de Montréal, Montréal, Québec, in the Département de Géographie.

His research interests are primarily focused on the changing structure of metropolitan regions, particularly on open space management and the transformation of agriculture on the urban fringe, and on local economic development. He has published two books on the urban fringe, one in 1982 entitled *The City's Countryside: Land and its Management in the Rural-Urban Fringe* (Longman, London) and co-authored with L.H. Russwurm and A.G. McLellan, and the other in 1992 entitled *Agriculture in the City's Countryside* (University of Toronto Press), co-authored with T.R. Johnston. He has published dozens of articles and chapters in books on the urban fringe and metropolitan regions, and has worked extensively as a consultant for different government agencies, including work for the National Capital Commission on the management of urban growth in relation to the Green Belt.

Daniel Lemire is a graduate student at the Université de Montréal in geography. He holds an undergraduate degree in geography from the same institution. His masters research is focused on the planning implications of the transformation of agricultural structures in the Montréal region.



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EXECUTIVE SUMMARY

1. The general objectives of the study were:
 1. to develop a quantitative picture of the changing population distribution in six selected urban regions;
 2. to identify the principal infrastructure and land-use planning issues that are associated with the changing population patterns in these urban regions based upon the perceptions and experiences of senior planning professionals;
 3. to identify the policies and strategies that have been developed by regional and municipal governments and to ascertain perceptions of their success.

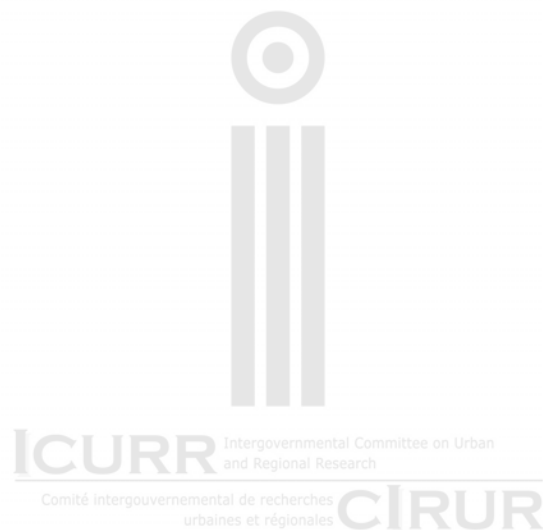
The study is based upon a statistical analysis of patterns of population change primarily from 1986 to 1991, a survey of 57 planning officials at the municipal or regional level, and on a number of face-to-face interviews in the six selected regions.

2. At the broad scale, significant differences in provincial population growth suggest that pressures on resources, land use conflicts and the challenges of infrastructure provision are likely to vary widely between provinces.
3. In all provinces, a continuing pattern of population concentration in major urban areas and regions is still occurring. Ontario has over 70 per cent of its population concentrated in Census Metropolitan Areas (CMAs) and Alberta, Québec and British Columbia have over 55 per cent of their population in CMAs.
4. Six regions were selected for analysis (Halifax, Montréal, Toronto, Winnipeg, Calgary and Vancouver) and study areas were defined using a 50 km radius around each centre. In all cases, the CMAs at the core of these regions grew faster than their respective provincial populations over the study time frame.
5. Since the mid-twentieth century, important processes have led to the redistribution of population within Canada's urban regions. There are, however, significant regional differences.
6. Within the six case study regions, processes of population redistribution are evident. Generally, central city areas exhibit relative stagnation in population, even decreasing in some instances. Much of the growth is occurring in suburban areas and beyond.

7. The distribution of regional population growth within each region is, however, markedly different between the different regions, reflecting both differences in urban structures and differences in growth pressures. The Cities of Calgary and Winnipeg, for instance, account for a very large proportion of the overall growth in their regions while in the Toronto region, the growth is much more dispersed.
8. The 57 responding organizations reflect a wide variety of conditions, ranging from urban core areas, to suburban areas, to rural-urban fringe areas. Their regions also reflect a wide range in terms of municipal and regional governing structures.
9. Overall, transportation and environmental issues were noted most frequently by the respondents, while agricultural issues were reported much less frequently. This reflects: a) the widespread transportation stresses occurring in most urban-centred regions as a result of population redistribution; b) the generally increased awareness of environmental issues; and c) the marked differences in the importance of the agricultural resource between and within the regions.
10. Municipalities have been very active in developing measures to lower costs or raise revenues to cope with the costs associated with urban expansion.
11. Cost reduction measures are primarily aimed at general cost reduction, although some involved sharing costs with other municipalities or transferring some costs to developers.
12. The revenue raising measures included taxes, levies, user fees and the pricing of services, as well as increasing residential development densities.
13. Half of the municipalities reported using reserve funds, and most were used for the development, replacement and maintenance of urban infrastructure.
14. There are important differences in issues, concerns and strategies between urban core, suburban and fringe situations.
15. *Core* areas, despite regional population deconcentration, still remain as major focal points of their regions for commuting. Transportation issues are therefore given a high profile, and these are exacerbated in some regions by constrained geographic settings, e.g., Halifax, Montréal and Vancouver. Other concerns reflect the difficulties of managing relatively densely settled urban areas, such as waste management and open space access. Other issues reflect the changing role of central urban areas consequent upon population dispersal and the high costs of urban infrastructure that serves a much broader population than the resident population.

16. *Core* area strategies involve both the use of traditional urban planning tools such as zoning and zoning regulations, as well as broader strategies aimed at promoting and encouraging development in the core area. Several core areas have gone through significant long-term strategic planning exercises, involving substantial public consultation.
17. *Suburban* issues are more directly related to "local" growth, and include the challenge of achieving a "balance" between different uses, housing types and economic activities. Major issues relate to maintaining and developing adequate service provision and coping with the financial demands that this entails. There is more concern than in the core areas with the impact of growth on resources, agriculture and the environment. There is less evidence of strategies being placed in an overall policy framework than in the core areas.
18. *Fringe* areas are experiencing growth pressures in areas with initially small populations and a correspondingly small infrastructure. Dispersed rural residential development is beginning to pose problems in some areas because of failure in septic systems; other issues include environmental concerns and land use conflicts with agriculture. Strategies mostly emphasize channelling development into existing centres and infilling.
19. Little mention was made in the survey of the *co-ordination* problems between municipalities in these urban regions, although in the face-to-face interviews, these issues were raised more explicitly. It is clear that in most regions, significant intermunicipal competition for development exists and that this has contributed to the dispersal phenomenon. However, this does not imply the need for region-wide government, but it does imply the need for better co-ordination and communication.
20. In terms of strategies for managing urban growth, it is clear that some broad regional level co-ordination is necessary. This starts with a consensus of the type of region that is desired, in short a *vision* for the region. At the sub-regional and the local levels, developing a vision in the context of a broader strategic planning framework also appears critical for successful strategy development. A broad range of input from citizens, elected officials, professionals and businesses is essential.
21. Within a broader strategic planning framework, land-use planning tools have an important role to play, and it is important to have complementary strategies in urban growth areas and in no- or low-growth areas. Strategies other than land-use planning are, however, of equal if not greater importance. These include economic development strategies, strategies relating to housing and marketing different types of living environments, public investment strategies in relation to transportation, pricing strategies for public transit, and the whole field of social, medical, educational and recreational services.

22. While the content of municipal strategies will vary depending upon the specific geographic situation, the main point is to develop a strategic planning framework that takes into account the regional context in which each municipal or sub-regional unit finds itself.
23. The strategic planning exercise provides a broad framework for the development of specific strategies and measures, and can be used as a vehicle to provide more effective communication between municipalities in a broader regional environment without having to impose a broad regional form of government structure.



INTRODUCTION

Urban growth continues to be a major trend in the Canadian economy. In many urban regions, it continues to be fuelled by migration of people from smaller centres and rural regions, as well as from immigration, especially to larger centres. At the national level, the proportion of Canada's population in the major urban regions remains high, and continues to increase slowly but surely. At the level of individual urban regions, and especially the major metropolitan regions, population growth continues to occur in many suburban areas and in the rural-urban fringe, despite the recessionary conditions of the early 1990s.

These patterns of urban growth are associated with a host of impacts on the urban region and challenges to their management. Potentially, these include impacts on land use, conflicts between land uses, environmental impacts and issues, financial challenges related to infrastructure provision (both hard and soft infrastructure), political impacts and social impacts. Such impacts are potentially all the more significant because they occur in zones that are of major significance to the quality of life for a substantial proportion of the nation's population, both in the built-up area of the concentrated urban core and in the rural-urban fringe.

Many of the changes and issues occurring in the concentrated urban core and the rural-urban fringe are clearly interrelated. This raises the general issue of how to manage these regions when the urban and rural components are essentially part of an "urban region ecosystem." The challenges are particularly difficult because most broad urban regions are not administered in a unitary fashion. Typically they involve a relatively fragmented local municipal structure as well as various broader regional structures of which there may be several in a given urban region.

However, there are important differences between different urban regions in terms of administrative structures, resource base and the extent of urban growth pressures. Impacts, issues and responses can therefore be expected to vary between regions as well. Indeed, one of the most difficult challenges facing the management of our urban regions is to develop approaches that take account of these regional and municipal particularities in terms of structures, resource bases and issues.

1.1 OBJECTIVES AND SCOPE

It is against the background of high levels of urbanization and the redistribution of population within many urban regions that this study of selected urban regions across Canada was undertaken.

The general objectives of the study were:

1. to develop a quantitative picture of the changing population distribution in six selected urban regions;
2. to identify the principal infrastructure and land-use planning issues that are associated with the changing population patterns in these urban regions based upon the perceptions and experiences of senior planning professionals;
3. to identify the policies and strategies that have been developed by regional and municipal governments and to ascertain perceptions of their success.

1.2 METHODOLOGY

The methodology involved a general analysis of population change in urban regions across Canada to serve as a backdrop against which change and stress in individual regions could be placed. Case study regions were selected to reflect a considerable range of conditions across the country. Key planning professionals in each region were targeted to generate both qualitative assessments and quantitative data on urban growth patterns and perceptions of their consequences.

Four types of information were used in the study:

1. Population data from the Census of Canada by Census Metropolitan Area and by census subdivision for the case study urban regions, for the period 1976 to 1991, with the main focus being on the 1986 to 1991 period. The data up to 1986 were made available by the Intergovernmental Committee on Urban and Regional Research (ICURR) through a contract with Compusearch, and the project team added the 1991 population data. Data for employment by place of work were not available for this study, thus precluding any investigation of the redistribution of employment in the regions selected. Data on employment by place of residence for 1981 and 1986 were provided by ICURR, however, and these are presented in the tables in Appendix B.
2. Data from a survey questionnaire sent to a sample of planning directors in the selected urban regions, as well as reports provided by the respondents;
3. Information from face-to-face interviews with a selected number of planning officials in each region, and where appropriate, provincial planning representatives; and
4. General information available in the literature on the transformation of urban regions.

The methodology involved several components:

1. The selection of case study urban regions.

Six case study urban regions were targeted for study (Halifax, Montréal, Toronto, Winnipeg, Calgary and Vancouver). These cities and their surrounding regions vary considerably in terms of growth experience, pattern of development, the nature of the environment in which change is occurring and their local and regional government structure. Furthermore, the provincial policies and programs that affect each also exhibit important differences.

2. A summary analysis of population change provincially, for Census Metropolitan Areas (CMAs) and for all urban regions was undertaken in order to highlight broad patterns of change and to provide the context for the analysis of the case study areas.
3. The delimitation of the study areas.

The delimitation of each study area was undertaken by ICURR in consultation with the research team. Each urban region was generally defined on the basis of a 50 km zone from the centre of the principal city, as well as taking into account local municipal boundaries for effective and efficient secondary data collection. The 50 km radius has been widely used in a number of earlier studies (e.g., Bryant, 1986; Bryant and Coppack, 1991) to represent the major portion of the daily urban system (commuting area) for most urban centres. The final outer boundaries of each region so defined are shown on Figures 2.2 through 2.19 and the complete list of municipalities is given in the tables in Appendix B.

4. A description of population change, 1986 to 1991, by census subdivision for each selected urban region.
5. The selection of municipalities and respondents to receive the mail-out questionnaire. The selection was made as follows:
 - a. where there was a *regional* body or bodies (or provincial agency, e.g., as in Manitoba) responsible for planning and development in the selected regions, a senior urban planner or planning director was contacted. For the Montréal region, for instance, this involved identifying a senior urban planner for each of the Municipalités Régionales de Comtés (MRC) (Regional County Municipalities) and the Communauté Urbaine de Montréal (CUM) (the Montréal Urban Community or MUC).

- b. local municipalities with a permanent urban planner on staff were contacted in order to send them a questionnaire. Where there was a large number of such municipalities, a selection was made on the basis of municipal size. In the Montréal region for instance, the largest municipality (population size) in each MRC was selected.

Two mail-out questionnaires were developed, one for local municipality planners and another for agencies with a broader regional mandate. (Copies of the two questionnaires are included as Appendix A.) The questionnaires asked for specific statistical information on aspects of urban growth in the municipality or region as well as a qualitative assessment of the factors resulting in the pattern of population change experienced. The key components of the questionnaires dealt with a selected set of potential consequences of urban growth, i.e., agriculture versus urban land use conflicts, environmental issues, transportation issues, cost issues and other issues. In these sections of the questionnaire, respondents were asked to identify whether there had been any significant issues of each type, what they might be, what strategies and policies had been implemented to deal with them, the origins (local, regional, provincial) of these strategies and policies and an assessment of their degree of success.

Altogether 89 questionnaires to local municipalities and regional agencies were mailed out from June to August, 1992; 57 were returned.

- 6. Face-to-face interviews were conducted with selected officials and representatives in each region in order to confirm the responses to the questionnaire and provide a broad overview of patterns occurring in each region.
- 7. Analysis of the data
 - a. census data on population

These data are described using both cartographic and tabular presentations.

- b. The questionnaire data

The responses to selected questions are described and interpreted using a series of tabular analyses.

Apart from statistical data for the census and those provided by the survey respondents, the data on issues and, to a lesser extent, on strategies are based on the perceptions of senior planners. This was a deliberate focus of the study since senior planners generally have a broad experience within their municipalities and regions to draw upon. A cautionary note is in order, however, since the views of planners may be different from those of other people

in the same areas, e.g., local and regional politicians, social services professionals and economic development practitioners. Further comments are made about this during the discussion of the results of the survey.

1.3 OVERVIEW

This study is concerned with three interrelated phenomena: population change and redistribution in urban regions; the perceived issues related to these changes that emerge from the case study areas; and existing strategies related to these issues.

In section 2.0, overall patterns of urban growth are first described using population data for Canadian CMAs and for urban regions generally. This provides a backdrop for the more detailed analyses of the case study areas. An interpretation of the overall patterns is given based on a conceptual model of the evolution of an urban-centred region or a "regional city" (Bryant et al., 1982). Second, a more detailed description of population distribution and change is given based on a series of maps.

In section 3.0, attention is turned to the results of the surveys in the case study areas. First, in section 3.1, a set of vignettes is presented that portray the governmental structure in each region. Second, overall patterns of change and perceptions of issues are presented in section 3.2 for all six case study areas combined.

Third, a more detailed discussion of the issues and strategies for each case study area is given in section 3.3. The discussion is structured around a core (usually urban core and suburbs combined) and rural-urban fringe differentiation.

A synthesis of issues and strategies is developed in section 4.0, in which the results are synthesized using an urban core, suburban and fringe/small town differentiation. (A selected number of strategies and policies that appeared to be particularly interesting in coping with the consequences of urban growth are appended in Appendix C.)

Finally, in section 5.0, some conclusions are presented concerning what appear to be the critical components for tackling the management of municipalities in the context of changing urban regions.



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PATTERNS OF POPULATION CHANGE AND URBAN GROWTH

In section 2.0, first the processes of inter- and intra-regional population change are considered through the introduction of a conceptual framework that describes the evolution of the settlement structure in urban-centred regions (section 2.1). Then, the broad patterns of population change in Canada are described using population data for the provinces and Canada's Census Metropolitan Areas (CMAs) and urban regions (section 2.2). This provides the broad context against which a description of population change within each of the case study areas is undertaken (section 2.3). Finally, some of the implications of the form of settlement structure currently evolving in Canada's urban regions for managing urban growth are outlined.

2.1 PROCESSES OF POPULATION CHANGE AT INTER- AND INTRA-REGIONAL LEVELS

Urban growth can be seen from a variety of perspectives. The focus in this study is on patterns at the urban region scale and the consequences of those patterns primarily at the municipal level. However, it is important to place these urban region patterns of change into a broader perspective.

At the urban region scale, urbanization is often considered synonymous with population decentralization and urban sprawl. At a broader scale, however, it is more commonly used to indicate the process and the phenomenon by which population continues to concentrate either in urban centres or urban-centred regions. This is why the overall process of urbanization has been talked of as a broad scale "implosion" of population and human activity into urban-centred regions and a regional scale "explosion" of the urban centre into the surrounding countryside, small towns and villages (Bauer and Roux, 1976; Bryant et al., 1982; Bryant, 1986). Furthermore, the broad patterns of population change and urbanization exhibit strong regional differences, with some regions experiencing substantial growth overall and others experiencing relatively slow growth and even stagnation.

These processes of change, operating at different scales, are interlinked. It is true that some relative redistribution of population has been occurring in all urban regions as the "regional city" has taken shape. However, some regions such as the Toronto region have experienced significantly greater population growth. In these regions, population redistribution is generally heightened.

It is this interrelationship between the broad patterns of inter-regional urbanization on the one hand, and the patterns of intra-regional change on the other hand that lies behind the stage model of settlement evolution in urban-centred regions. The general evolution has been described in several earlier publications (e.g., Bauer and Roux, 1976; Bryant et al., 1982; Russwurm et al., 1988; Bryant and Coppack, 1991), both generally and in relation to

the Canadian context.

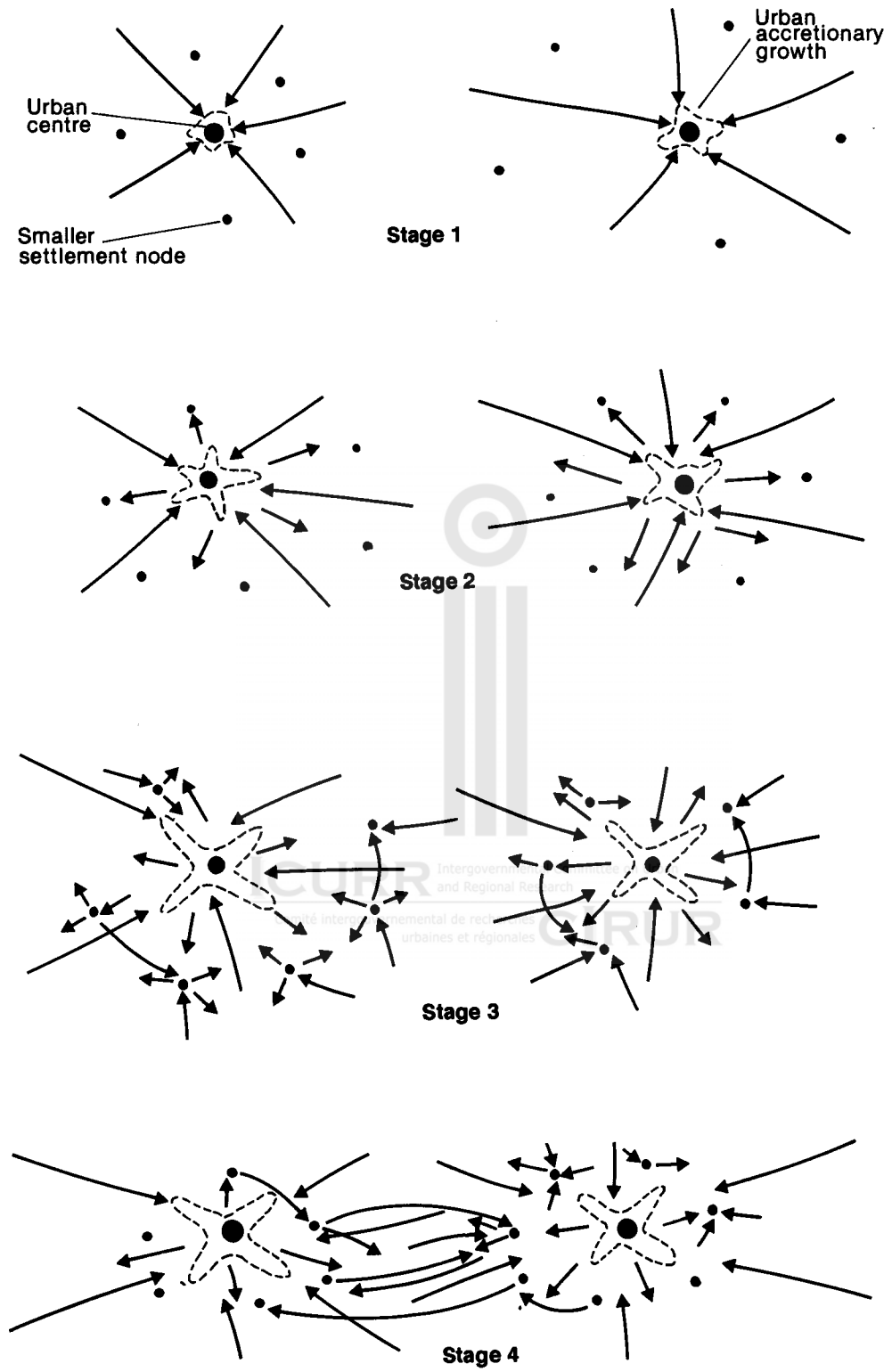
The framework can be presented as a series of stages (Figure 2.1), which describe the transformation of settlement structure as the social and economic system moved from an industrial society to a post-industrial one. Broad scale processes of concentration in Stage 1 led initially to urban expansion largely through urban growth at the edge of cities. However, the on-going process of concentration combined with changes in transportation technology and availability (particularly the diffusion of the private automobile and public investment in the highway systems around major Canadian urban centres) paved the way for significant residential dispersal in Stage 2. This represented the first real appearance of the regional city form, a regional settlement structure characterised by the dispersal of urban elements into the countryside and small settlements around a major urban core. During this stage, the urban core still maintained a dominant position as the central node in the regional structure in terms of various activities, employment and services.

Further dispersal of population was fuelled partly by the continuing attraction of population from other regions and also by the various centrifugal forces (such as housing price and tax differences and living environment differences between the central urban areas, the suburbs and the surrounding countryside and smaller settlements). In addition, a certain redistribution of economic activities also began to occur (Stage 3). This was partly related to increasing population densities reaching threshold market sizes for commercial activities, and partly related to other centrifugal forces such as accessibility, tax, land price and amenity differences. This third stage represents the development of a much more complex regional settlement structure as various activity nodes in suburban locations and beyond develop.

Finally, where there were several urban nodal regions in close proximity and where intra-regional forces continue to encourage the dispersal of population and activity, conditions were ripe for the development of a truly integrated megalopolitan structure (Stage 4). In the Canadian context, this is most developed in the complex of overlapping urban fields in the "Golden Horseshoe" area at the western end of Lake Ontario. The Montréal and Vancouver regions also represent relatively complex urban regions.

The stage reached by different urban regions across the country can be expected to vary significantly (Bryant and Coppack, 1991) depending, for instance, on the initial density of urban centres, the regional growth pressures and the significance of the differences in living and business environments between the central urban core areas, the suburbs and the areas beyond.

Figure 2.1
A stage model of the evolution of the regional city



2.2 BROAD PATTERNS OF CHANGE

In this section (2.2), a description of the broad patterns of population change (provincially, for CMAs and for urban regions generally) is given to set the context for the more detailed description of population change in each case study area.

2.2.1 Provincial and National Trends

Over the past 30 years, there have been some significant shifts in population distribution at the provincial scale (Table 2.1). Alberta, Ontario and British Columbia have seen an increase in their national population shares, while the other provinces have seen declines. In the most recent intercensal period, the shifts appear to have been even more dramatic (Table 2.1), with British Columbia, Ontario and Alberta still leading the pack in terms of provincial population growth, Quebec holding a middle of the road position and the remaining provinces experiencing very low rates of change (with Saskatchewan even experiencing a decline). These data should warn us to expect differences in urban growth pressures between urban regions located in the different provinces. Furthermore, there is evidence that any turnaround in population patterns at this broad scale, reiterating findings elsewhere (Marchand and Charland, 1991).

Over the same period, a continuing pattern of population concentration into the CMAs of each province is still evident. Patterson (1992) confirms this conclusion based on an analysis of CMA rates of growth for the 1966 to 1991 period. Ontario now has over 70 per cent of its population concentrated in CMAs (Table 2.2), and Alberta, Quebec, British Columbia and Manitoba, over 55 per cent.

This process of concentration is highlighted in Table 2.3. As a group, CMAs grew faster than the national population between 1986 and 1991, over twice as fast as Census Agglomerations and over three times as fast as the remaining statistical units across the country. Patterson (1992) attributes the faster growth of the CMAs during the 1980s to net positive migration flows from non-CMA areas as well as very high levels of net migration from abroad.

2.2.2 Settlement Structures in Canada's Urban Regions

At the level of the urban region, earlier Canadian research (e.g., Russwurm et al., 1988; Bryant and Coppack, 1991) provides a useful picture of the extent of population dispersal across Canada's urban-centred regions. Within the framework of the regional city, this research identified and classified several distinct population or settlement components:

1. the concentrated (urban) population, or the population of the built-up area (including the population of urban centres of more than 100,000 population);

**Table 2.1
Provincial population, 1961 to 1991**

Province	1961 Population	1961 Share of National Population	1991 Population	1991 Share of National Population	% Change 1986 to 1991
Alberta	1,331,944	7.3	2,545,553	9.0	7.6
Québec	5,259,211	28.8	6,895,963	25.3	5.6
Nova Scotia	737,007	4.0	899,942	3.3	3.1
Ontario	6,236,092	34.2	10,084,885	36.9	10.8
Saskatchewan	925,181	5.1	988,928	3.6	-2.0
Newfoundland	457,853	2.5	568,474	2.1	-
New Brunswick	597,936	3.3	723,900	2.7	2.0
British Columbia	1,629,082	8.9	3,282,061	12.0	13.8
Manitoba	921,686	5.1	1,091,942	4.0	2.7
Prince Edward Island	122,510	0.7	129,765	0.5	5.9
Canada	18,238,247	100.0	27,296,859	100.0	49.7

Source: Census of Canada, Statistics Canada, 1961 and 1991

Table 2.2
Share of CMA populations of their respective provincial populations, 1986 to 1991

Province	% share of provincial population accounted for by each province's CMAs	
	1986	1991
Alberta	61.10	62.62
Québec	63.41	64.33
Nova Scotia	33.89	35.61
Ontario	63.33	70.14
Saskatchewan	38.35	40.62
Newfoundland	28.49	30.23
New Brunswick	17.09	17.26
British Columbia	56.73	57.60
Manitoba	58.82	59.74

Source: calculated from Statistics Canada, Catalogue 93-303.

Table 2.3
The Census Metropolitan Area (CMAs) and Census Agglomeration (CAs)
population of Canada, 1986 to 1991

	1986		1991		% Change 1986-1991
	Number	% of National Total	Number	% of National Total	
Canada	25,309,331		27,296,859		7.85
CMA	15,148,604	59.85	16,665,360	61.05	10.01
CA	4,195,656	16.58	4,401,857	16.13	4.91
Remainder	5,965,071	23.57	6,229,642	22.82	4.43

Source: calculated from Statistics Canada, Catalogue 93-303

2. the dispersed population beyond the built-up area. This, in turn, was subdivided into:
 - 2a. the farm population
 - 2b. the dispersed or rural non-farm (N-F) scattered population
 - 2c. the dispersed non-farm (N-F) nodal settlements (settlements with populations of from 50 to 10,000 people).

Population data were collected for 52 regional cities across Canada. These were defined for all cities with a 1976 population of 40,000 or more (as well as Charlottetown, Chilliwack and Granby in order to include important areas that would otherwise have been excluded). For each urban region or regional city, all census subdivisions were included that fell mostly within a 50 km radius (a 60 km radius was used for Toronto, Montréal and Vancouver).

These 52 regional cities accounted for an increasing proportion of Canada's population, 1941 to 1981 (Table 2.4). By 1981 the proportion of the urban concentrated population had levelled out in most provinces to about 80 per cent of the total regional city population (Table 2.4), the rural non-farm scattered population increased by more than a factor of five, 1941 to 1981 (Table 2.5), the farm population had declined to 40 per cent of its 1941 value (Table 2.5), and the dispersed non-farm nodal population steadily increased its share of the regional city population (Table 2.4)

Clearly, however, there are substantial differences between the provinces (Table 2.4). In the Atlantic provinces' regional cities, the share of the regional city population in the concentrated urban population category was much less than in the other provinces. Atlantic regional cities also had a much higher proportion of their population in the dispersed non-farm nodal population category. On the other hand, the rural non-farm scattered population represented a much higher proportion of the regional city population in British Columbia, Québec and Ontario, suggesting a greater potential for conflict between rural farm and non-farm residents in those provinces.

Many of these points are reinforced by Patterson's (1992) analysis of CMA growth, 1966 to 1991, broken down into the components of the central city, the remaining urbanized core and the fringe. In the 1980s, almost 60 per cent of the net growth in Canada's CMAs and almost 50 per cent of Canada's net growth was located in the CMAs' fringes areas beyond the urbanized core, and CMA fringe areas account for an increasingly large share of CMA population (Table 2.6). Fringe growth was also largest proportionately in the three largest CMAs of Montréal, Vancouver and Toronto. The regional variation noted by Patterson is also consistent with the comments made on the broader sampling of regional cities,

**Table 2.4
Canada's regional city population by province, 1941, 1961 and 1981**

Regional city population as % of total population	Atlantic*	Quebec	Ontario	Prairies	B.C.	Canada*	
	1941	45.5	73.1	82.2	33.2	73.8	65.5
1961	50.7	78.6	85.7	48.1	75.8	73.0	
1981	44.1	79.6	88.9	58.4	75.4	75.5	
Regional city population component(%)							
1. Concentrated	1941	61.3	71.4	76.5	79.8	73.2	
	1961	66.2	81.9	77.2	87.1	79.6	
	1981	61.0	80.2	78.6	85.9	80.9	79.5
2. Dispersed							
2a. Dispersed non-farm nodal	1941	17.1	9.0	9.3	4.4	5.1	8.8
	1961	20.9	8.3	9.3	4.5	5.1	8.6
	1981	31.3	9.5	10.5	7.4	6.6	10.4
2b. Rural non-farm	1941	2.5	1.9	4.7	1.9	6.6	3.5
	1961	5.2	3.3	6.8	1.9	12.2	5.5
	1981	6.0	8.2	8.3	4.9	13.2	7.8
2c. Farm	1941	19.0	13.5	14.7	17.2	8.4	14.3
	1961	7.7	6.5	6.7	6.5	3.9	6.4
	1981	1.6	2.1	2.6	2.5	1.7	2.3

* Newfoundland population excluded in 1941. Its 1961 population was 415,074. Source: abstracted from Bryant and Coppack, 1991, p. 224.

Table 2.5
Per cent change in regional city population components, 1941 - 1981

	Atlantic	Quebec	Ontario	Prairies	B.C.	Canada*
Region						
	1941-61	57.9	64.6	31.3	99.1	54.8
	1961-81	22.4	38.3	33.1	68.4	33.7
Regional cities (Total)						
	1941-61	69.7	71.7	90.4	104.3	76.0
	1961-81	24.0	43.5	61.7	67.7	39.8
1. Concentrated						
	1941-61	84.1	85.6	116.9	107.7	90.1
	1961-81	21.6	46.1	56.5	67.4	40.4
2. Dispersed population						
	1941-61	27.6	37.0	4.2	91.0	32.8
	1961-81	51.2	34.6	77.2	69.1	42.1
2.a Dispersed N-F nodal						
	1941-61	55.7	72.0	97.1	103.2	77.4
	1961-81	41.9	62.0	165.2	117.5	63.0
2.b Rural N-F scattered						
	1941-61	189.4	151.7	81.3	205.0	163.7
	1961-81	207.4	74.8	262.0	81.1	107.1
2.c Farm (decline)						
	1941-61	40.8	21.4	28.3	5.9	45.2
	1961-81	74.4	44.3	38.4	25.0	49.6

* Newfoundland and St. John's were excluded for 1941 and 1961. Source: Russum et al., 1988, p. 111.

Table 2.6
Population components of Canada's CMAs, 1966 to 1991

CMAs	% share of population in each component			% change in population
	1966	1981	1991	1981 - 1991
Montreal, Toronto, Vancouver				
Central cities	41.9	28.0	24.6	5
Rest of urbanized core	56.3	48.7	46.0	12
Fringe	1.8	23.4	29.3	49
	100.0	100.0	100.0	19
Québec, Ottawa, Hamilton				
Urbanized core	93.7	51.6	46.4	4
Fringe	6.7	48.3	53.6	28
	100.0	100.0	100.0	16
Winnipeg, Edmonton, Calgary				
Urbanized core	97.5	88.5	88.4	15
Fringe	2.4	11.5	11.6	15
	100.0	100.0	100.0	15
The 16 smaller CMAs				
Urbanized core	91.0	68.5	66.0	8
Fringe	9.0	31.5	34.0	22
	100.0	100.0	100.0	13
Total: 25 CMAs				
Urbanized core	96.0	73.2	68.9	10
Fringe	4.0	26.8	31.1	35
	100.0	100.0	100.0	16

Source: Statistics Canada, Census of Population, 1966, 1981 and 1991, and Patterson, 1992.

(Table 2.4); he notes, for instance, that the fringe areas of the Prairies CMAs account for a smaller share of CMA population than elsewhere, consistent with the higher proportions of the urban concentrated population and lower shares of dispersed non-farm nodal population in the Prairie regional cities.

2.3 POPULATION CHANGE IN THE CASE STUDY AREAS

Here, the discussion focuses on the patterns of population change in the case study areas. First, to provide a link with the broader scale analysis, the CMAs of each case study area are compared to national and provincial patterns of population change (section 2.3.1). Then, a more detailed description of patterns of population change within each case study area is presented (section 2.3.2). Some summary comments are made in section 2.4 on the links between the redistribution of population in regional cities and the issues associated with managing urban growth.

2.3.1 The CMAs of the Selected Urban Regions in Relation to National and Provincial Patterns

The CMAs at the core of each case study area experienced higher growth rates than their respective provincial populations (Table 2.7), reflecting the broad processes of urbanization already referred to. The overall provincial variation noted earlier is reflected in the fact that only the Montréal and Winnipeg CMAs experienced lower growth rates than the national population growth rate while the Halifax, Montréal and Winnipeg CMAs had lower growth rates than for the combined populations of all CMAs.

2.3.2 Patterns of Population Change in the Six Selected Urban Regions: Highlights

In this section, patterns of population distribution and change are described using three mapped variables: 1) the 1991 population densities used to describe the overall patterns of population distribution; 2) the percentage change in population 1986 to 1991; and 3) the percentage share of total regional population growth 1986-91 accounted for by each census subdivision. (Total regional "growth" for these maps is defined as the sum of the net population growth figures for all census subdivisions experiencing an increase in population. Then, for each census subdivision experiencing an increase in population, its net increase is expressed as its percentage share of the total regional "growth". Note that on some maps, several very small census subdivisions are not included; full details of changes for these subdivisions and all others are given in the tables in Appendix B. In this Appendix, the tables also include population data for 1976 and 1981, as well as employment data by place of residence for 1981 and 1986.)

Table 2.7 The CMAs of the selected urban regions in relation to national and provincial patterns, 1986 to 1991			
CMA Province	1986 Population	1991 Population	% change 1986 - 1991
<i>Halifax</i>	295,922	320,501	8.3
Nova Scotia	873,176	899,941	3.1
<i>Montreal</i>	2,921,357	3,127,242	7.0
Québec(P)	6,532,461	6,895,963	5.6
<i>Toronto</i>	3,431,981	3,893,046	13.4
Ontario	9,101,694	10,084,885	10.8
<i>Winnipeg</i>	625,304	652,354	4.3
Manitoba	1,063,016	1,091,942	2.7
<i>Calgary</i>	671,453	754,033	12.3
Alberta	2,365,825	2,545,553	7.6
<i>Vancouver</i>	1,380,729	1,602,502	16.1
British Columbia	2,883,367	3,282,061	13.8
All CMAs	15,148,604	16,665,360	10.0
Canada	25,309,331	27,296,859	7.9

Source: Statistics Canada, Catalogues 93-303 and 93-304.

Table 2.8
Population and labour force change, the selected urban regions, 1976 to 1991

Region	Population			Labour force		Change in population (%)	
	1976	1981	1986	1981	1986	1976-81	1981-86
Halifax	298,367	309,431	331,181	144,151	162,340	3.7%	7.0%
Montréal	3,030,272	3,104,083	3,172,486	1,397,404	1,460,410	2.4%	2.2%
Toronto	3,108,024	3,342,694	3,651,132	1,752,883	1,989,480	7.6%	9.2%
Winnipeg	618,870	628,234	663,930	306,653	329,120	1.5%	5.7%
Calgary	504,536	644,863	691,736	358,427	362,485	27.8%	7.3%
Vancouver	1,163,333	1,270,453	1,382,816	636,568	671,720	9.2%	8.8%
Region	Absolute population change			Absolute labour force change			
	1976-81	1981-86	1986-91	1981-86			
Halifax	11,064	21,750	25,889	18,189			
Montréal	73,811	68,403	240,528	63,006			
Toronto	234,670	308,438	476,356	236,597			
Winnipeg	9,364	35,696	29,019	22,467			
Calgary	140,327	46,873	86,484	4,058			
Vancouver	107,120	112,363	221,248	35,152			

Source: calculated from data in Appendix B.

Overall regional population levels, 1976 to 1991, and absolute and relative changes are given in Table 2.8. The patterns revealed confirm those already noted earlier in section 2.0.

Halifax

In general, densities are relatively high in Halifax and Dartmouth, and fall rapidly in Bedford and the nearby urbanized areas of the Municipality of the County of Halifax. The outermost part of the County as well as the counties of West and East Hants remain very rural (Figure 2.2, Table B.3).

Population change shows an almost concentric pattern, with the City of Halifax experiencing declines from 1976 to 1986 and then a slight increase from 1986 to 1991 (Figure 2.3, Table B.2). Dartmouth also experienced a decrease in population from 1976 to 1981 but then experienced rates of increase of 4.6 per cent and 3.9 per cent in the next two intercensal periods. The census sub-divisions in the County of Halifax closest to the core, Bedford especially, experienced more substantial increases in population, while East and West Hants had much lower rates of increase.

In terms of shares of regional population growth, Bedford, Dartmouth and Halifax subdivisions C and D had the largest shares from 1981 through 1991 (Figure 2.4, Table B.3).

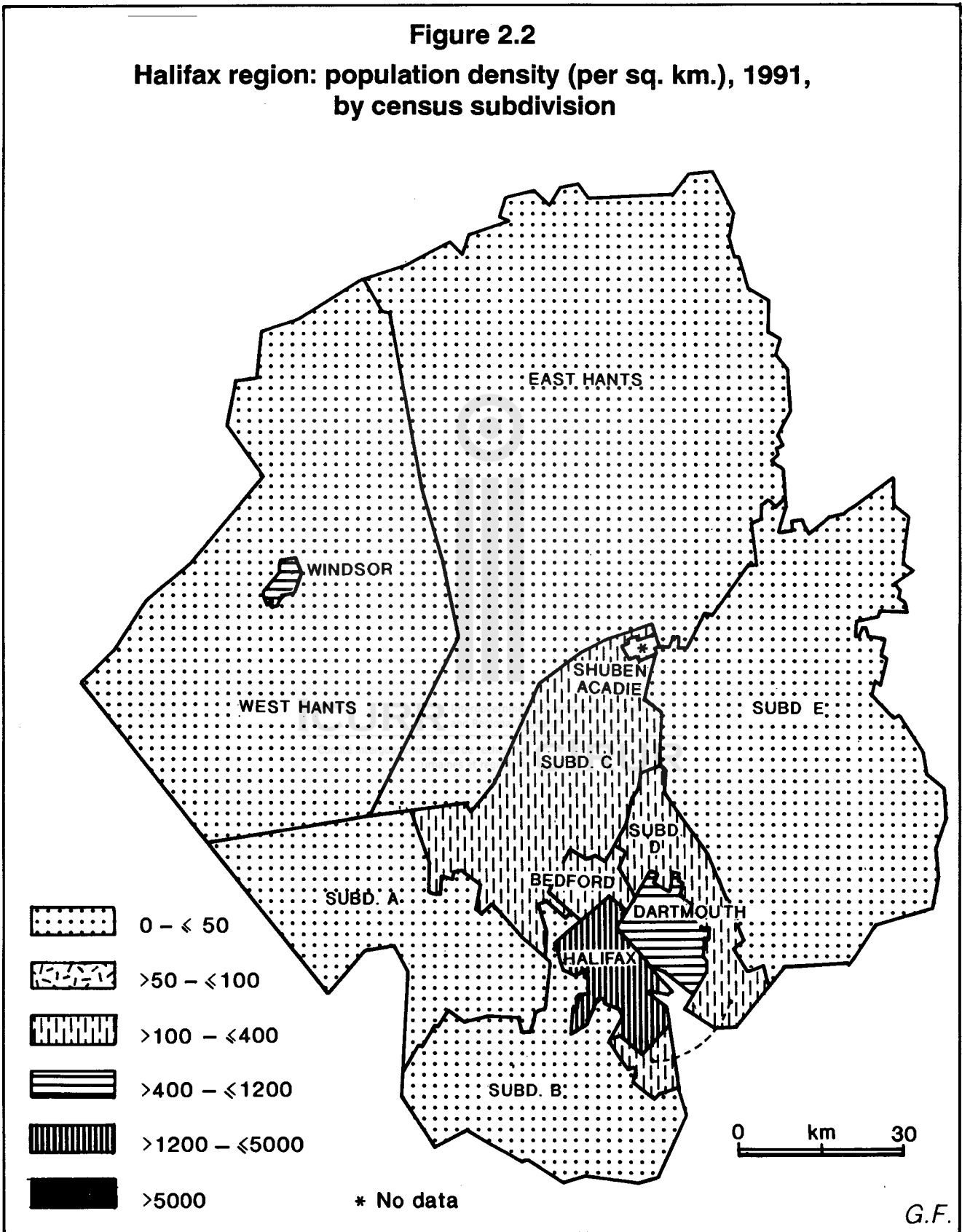
Montréal

As expected, the municipalities in the MUC exhibit the highest densities, though there is considerable variation between the central part and the western part of the island (Figure 2.5, Table B.1). Beyond this core area, densities vary enormously. This variation partly reflects the high degree of municipal fragmentation in the Montréal region, with many small towns and villages identified as separate subdivisions.

In terms of population change, most MUC municipalities experienced decreases or only slight gains during the 1976 to 1991 period (Figure 2.6, Table B.2). Beyond the island, population increase was the rule and substantial rates of growth were experienced on both the south and north banks.

In terms of share of regional growth, the City of Laval stands out as having the largest share (over 20 per cent between 1981 and 1986 and close to 15 per cent from 1986 to 1991) (Figure 2.7, Table B.3), while St-Hubert in the south and Terrebonne and Repentigny in the north-east had noticeable shares as well. In contrast, the City of Montréal experienced a decrease in population, 1981 to 1986, and accounted for only a 0.9 per cent share of total regional growth, 1986 to 1991.

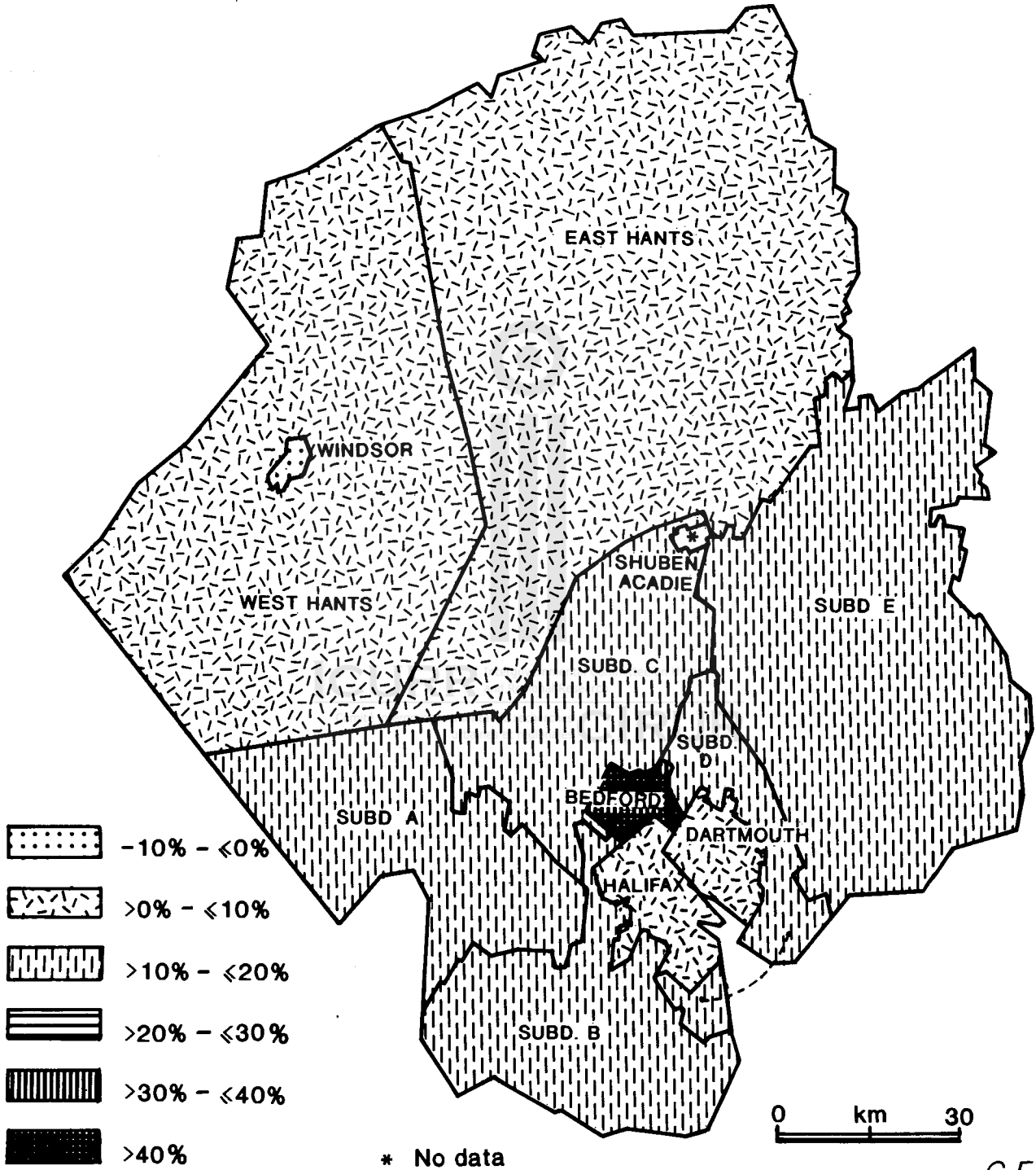
Figure 2.2
Halifax region: population density (per sq. km.), 1991,
by census subdivision



G.F.

Figure 2.3

Halifax region: percentage population change, 1986-91, by census subdivision

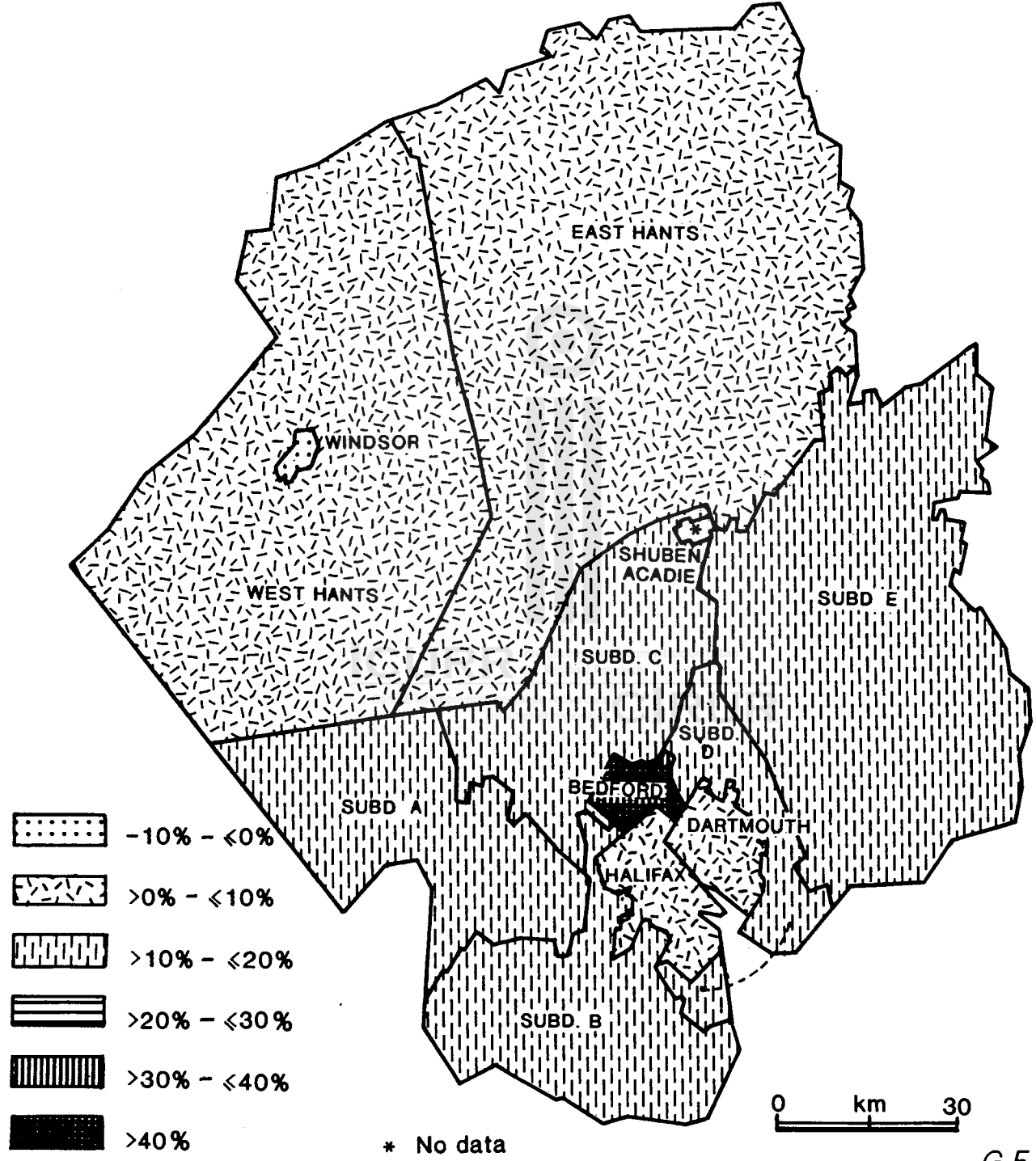


G.F.

Figure 2.3



Figure 2.3
Halifax region: percentage population change, 1986-91,
by census subdivision

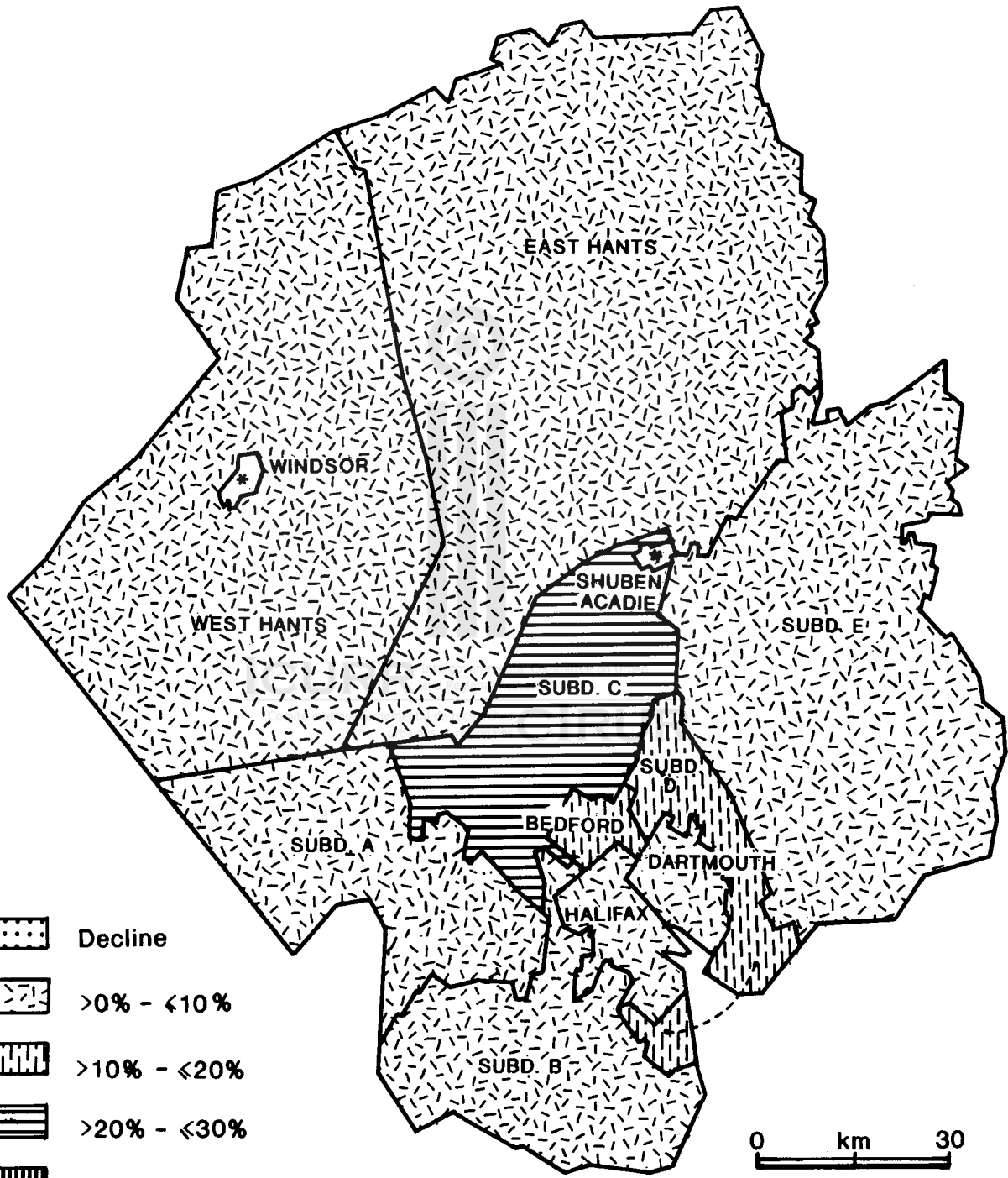


* No data

G.F.

Figure 2.4

Halifax region: share of regional (positive) population change, 1986-91, by census subdivision



* No data

G.F.

Figure 2.5
Montréal region: population density (per sq. km.), 1991,
by census subdivision

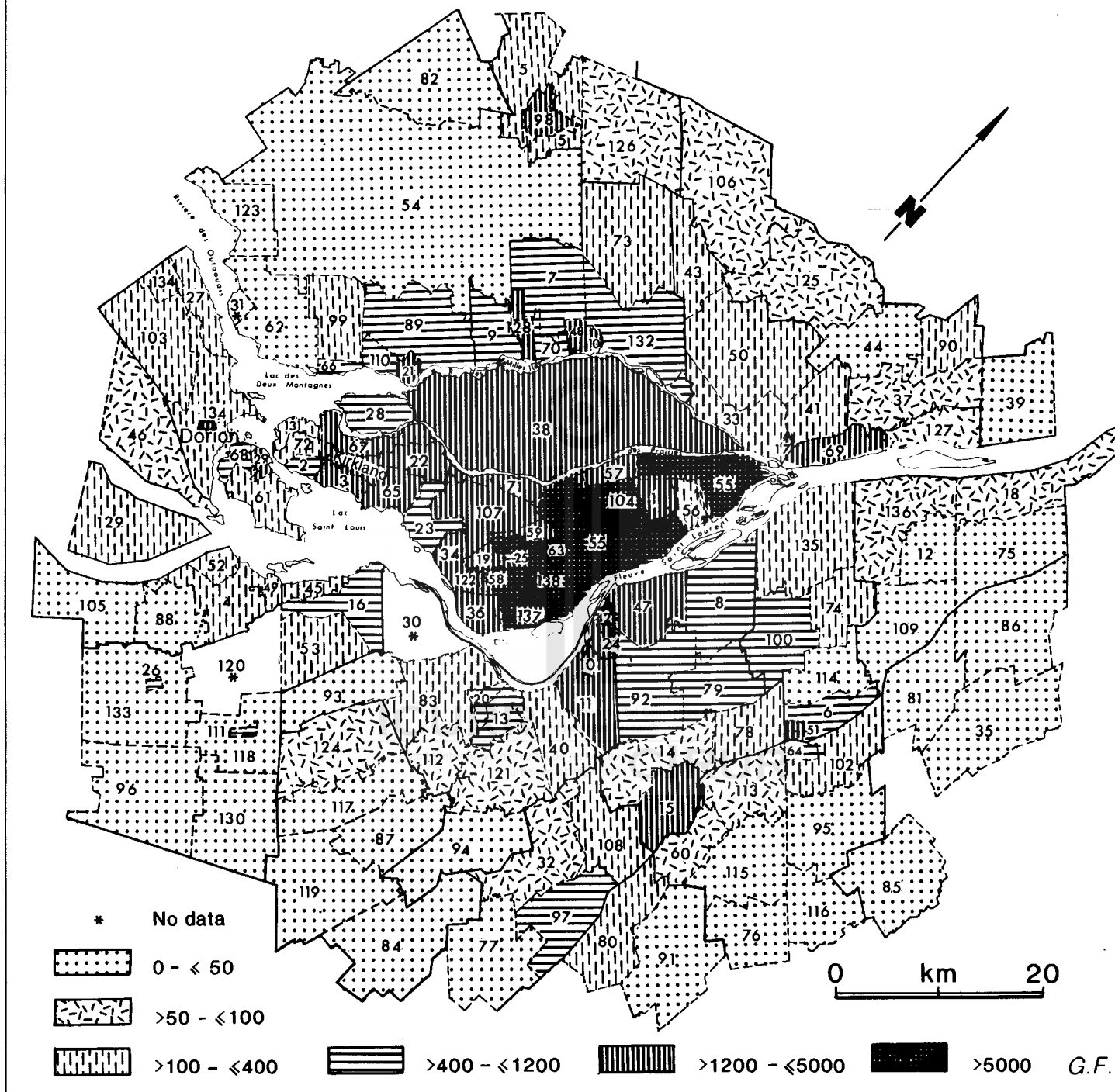


Figure 2. 5 continued.
Key to municipalities in the Montréal région

1- Anjou	47- Longueuil	93- St-Isidore
2- Baie d'Urfé	48- Lorraine	94- St-Jacques-le-Mineur
3- Beaconsfield	49- Maple Grove	95- St-Jean-Baptiste
4- Beauharnois	50- Mascouche	96- St-Jean-Chrysostome
5- Bellefeuille	51- McMasterville	97- St-Jean-sur-Richelieu
6- Beloeil	52- Melocheville	98- St-Jérôme
7- Blainville	53- Mercier	99- St-Joseph-du-Lac
8- Boucherville	54- Mirabel	100- Ste-Julie
9- Boisbriand	55- Montréal	101- St-Lambert
10- Bois-des-Filion	56- Montréal-Est	102- St-Liboire
11- Brossard	57- Montréal-Nord	103- St-Lazare
12- Calixa Lavallée	58- Montréal-Ouest	104- St-Léonard
13- Candiac	59- Mont-Royal	105- St-Louis-de-Gonzague
14- Carignan	60- N.D.-Bonsecours	106- St-Lin
15- Chambly	61- N.D.-de-L'Île Perrot	107- St-Laurent
16- Châteauguay	62- Oka	108- St-Luc
17- Charlemagne	63- Outremont	109- St-Marc-sur-Richelieu
18- Contrecoeur	64- Otterburn-Park	110- Ste-Marthe
19- Côte-St-Paul	65- Pointe-Claire	111- Ste-Martine
20- Delson	66- Pointe-Calumet	112- St-Mathieu
21- Deux-Montagnes	67- Pierrefond	113- St-Mathias
22- Dollard-des-Ormeaux	68- Pincourt	114- St-Mathieu-de-Beloeil
23- Dorval	69- Repentigny	115- Ste-Marie
24- Greenfield Park	70- Rosemère	116- St-Michel-de-Rougemont
25- Hamstead	71- Roxboro	117- St-Michel
26- Howick	72- St-Anne-de-Bellevue	118- St-Paul-de-Châteauguay
27- Hudson	73- St-Anne-des-Plaines	119- St-Patrice-de-Sherrington
28- Île Bizard	74- St-Amable	120- St-Paul
29- Île Perrot	75- St-Antoine	121- St-Philippe
30- Kahnawaké	76- St-Angèle	122- St-Pierre
31- Kanésataké	77- St-Athanase	123- St-Placide
32- L'Acadie	78- St-Basile	124- St-Rémi
33- Lachenaie	79- St-Bruno	125- St-Roch-de-L'Achigan
34- Lachine	80- St-Blaise	126- Ste-Sophie
35- La Présentation	81- St-Charles	127- St-Sulpice
36- Lasalle	82- St-Colomban	128- Ste-Thérèse
37- L'Assomption	83- St-Constant	129- St-Timothée
38- Laval	84- St-Cyprien	130- St-Urbain
39- Lavaltrie	85- St-Damase	131- Senneville
40- La Prairie	86- St-Denis	132- Terrebonne
41- Le Gardeur	87- St-Édouard	133- Très St-Sacrement
42- Lemoyne	88- St-Étienne-de-Beauharnois	134- Vaudreuil
43- La Plaine	89- St-Eustache	135- Varennes
44- L'Épiphanie	90- St-Gérard-Majella	136- Verchères
45- Léry	91- St-Grégoire-le-Grand	137- Verdun
46- Les Cèdres	92- St-Hubert	138- Westmount

Figure 2.6
Montréal region: percentage population change, 1986-91,
by census subdivision

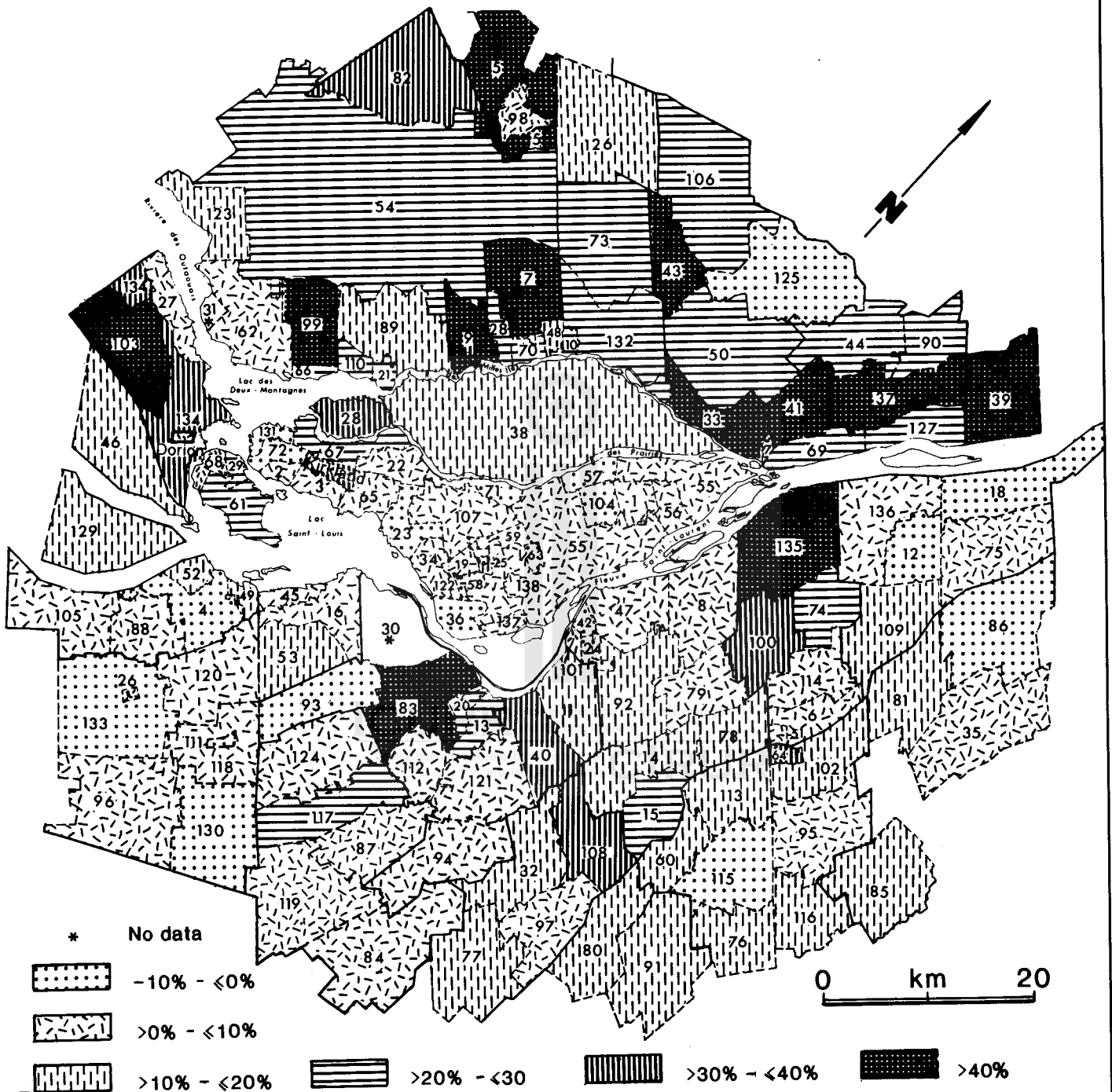
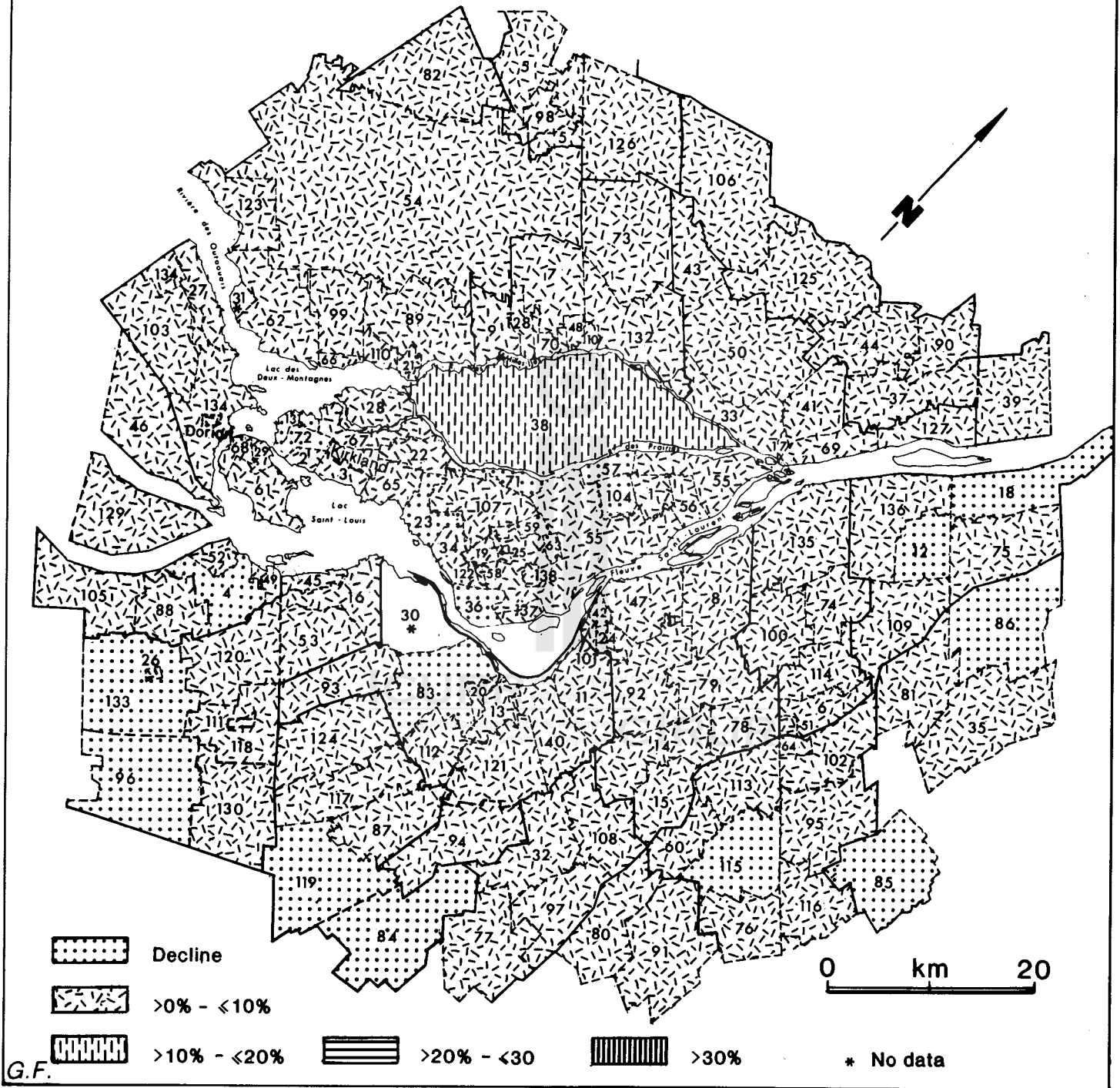


Figure 2.6



Figure 2.7
Montréal region: share of regional (positive) population change, 1986-91, by census subdivision



G.F.

Toronto

Population densities in Metropolitan Toronto are very high and quite high in Mississauga. A surrounding ring of other municipalities exhibits densities between 400 and 1,200 persons/sq km, and this is succeeded by another group of more rural municipalities (Figure 2.8, Table B.1). Even there, densities are much higher than rural fringe areas in most other regions.

In terms of population change, most Metropolitan boroughs experienced low rates of growth (Figure 2.9, Table B.2) or, in the late 1970s, even decreases. The exception is Scarborough whose growth rate in the three intercensal periods varied from eight to 15 per cent. Beyond this urban core, the other municipalities experienced very high rates of growth, with only a few exceptions such as Milton, Halton Hills and Oshawa.

Regional population growth was widely dispersed among a large number of municipalities, the largest share going to Mississauga, Vaughan, Markham and Brampton just outside Metro (Figure 2.10, Table B.3). Only Scarborough within Metro accounted for anything comparable to these municipalities in terms of share of growth.

Winnipeg

Densities in the Winnipeg region are among the lowest of the six regions (Figure 2.11, Table B.1). The City of Winnipeg had a density of 1,079 persons/sq km in 1991. Except for higher densities in small towns or village areas, such as Ste-Anne and Selkirk, densities fall rapidly, even in the suburban-like area of East St-Paul.

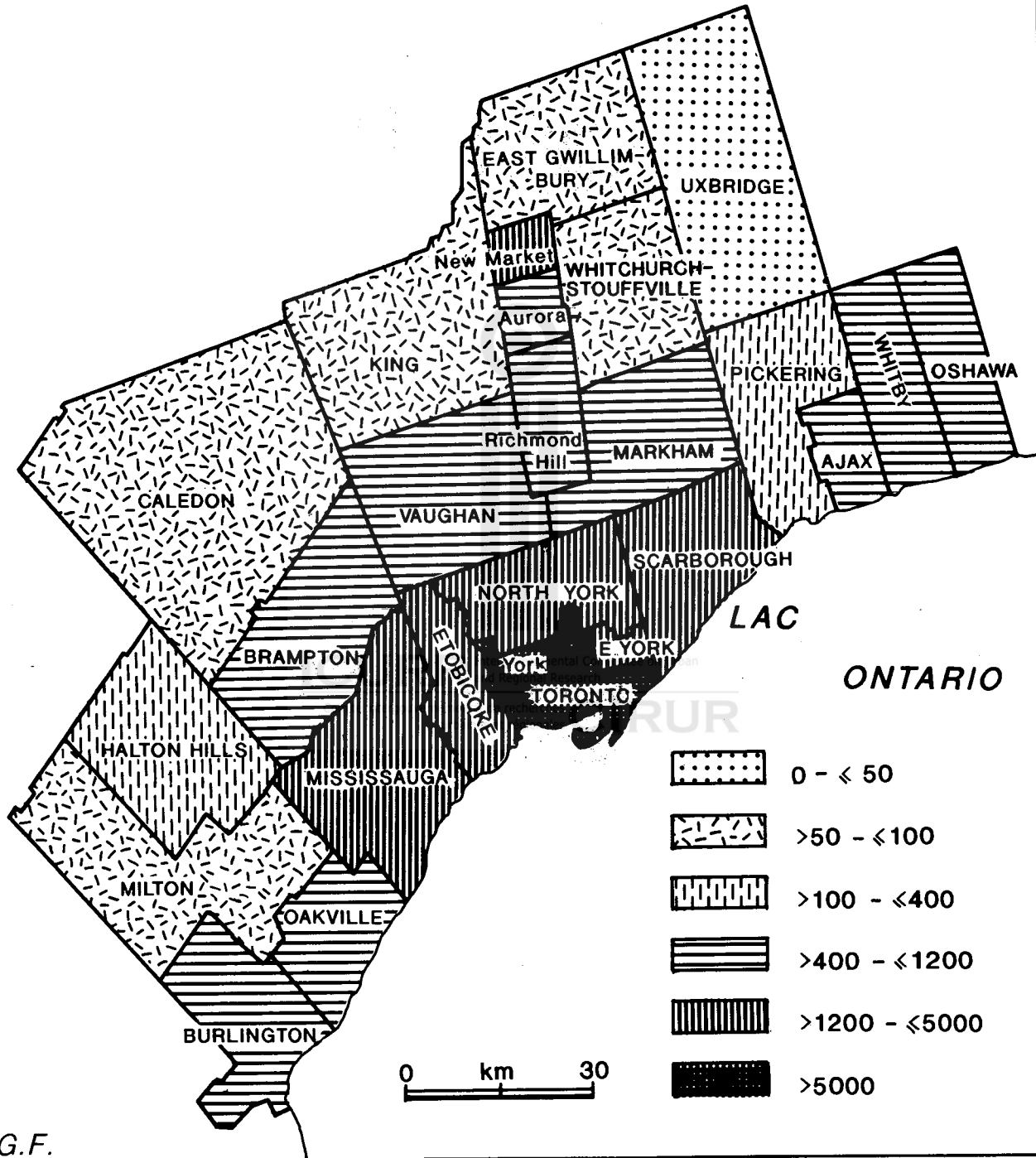
Population change shows a relatively slow growing City of Winnipeg surrounded by census subdivisions with higher growth rates, especially to the north-east, north and south (Figure 2.12, Table B.2).

In terms of share of regional population growth, in contrast to say, the Halifax region, it is the City of Winnipeg that accounted for the lion's share of growth (over 75 per cent 1981 to 1986, and 1986 to 1991) (Figure 2.13, Table B.3). This reflects the large size of Winnipeg in comparison to the very small municipalities surrounding it.

Calgary

Calgary has the lowest densities of all the core-city areas in the study (Figure 2.14, Table B.1), due to the City's policy of maintaining a significant supply of raw land for development within its boundary and the relative ease with which annexations have been

Figure 2.8
Toronto region: population density (per sq. km.), 1991,
by census subdivision



G.F.

Figure 2.9
Toronto region: percentage population change, 1986-91,
by census subdivision

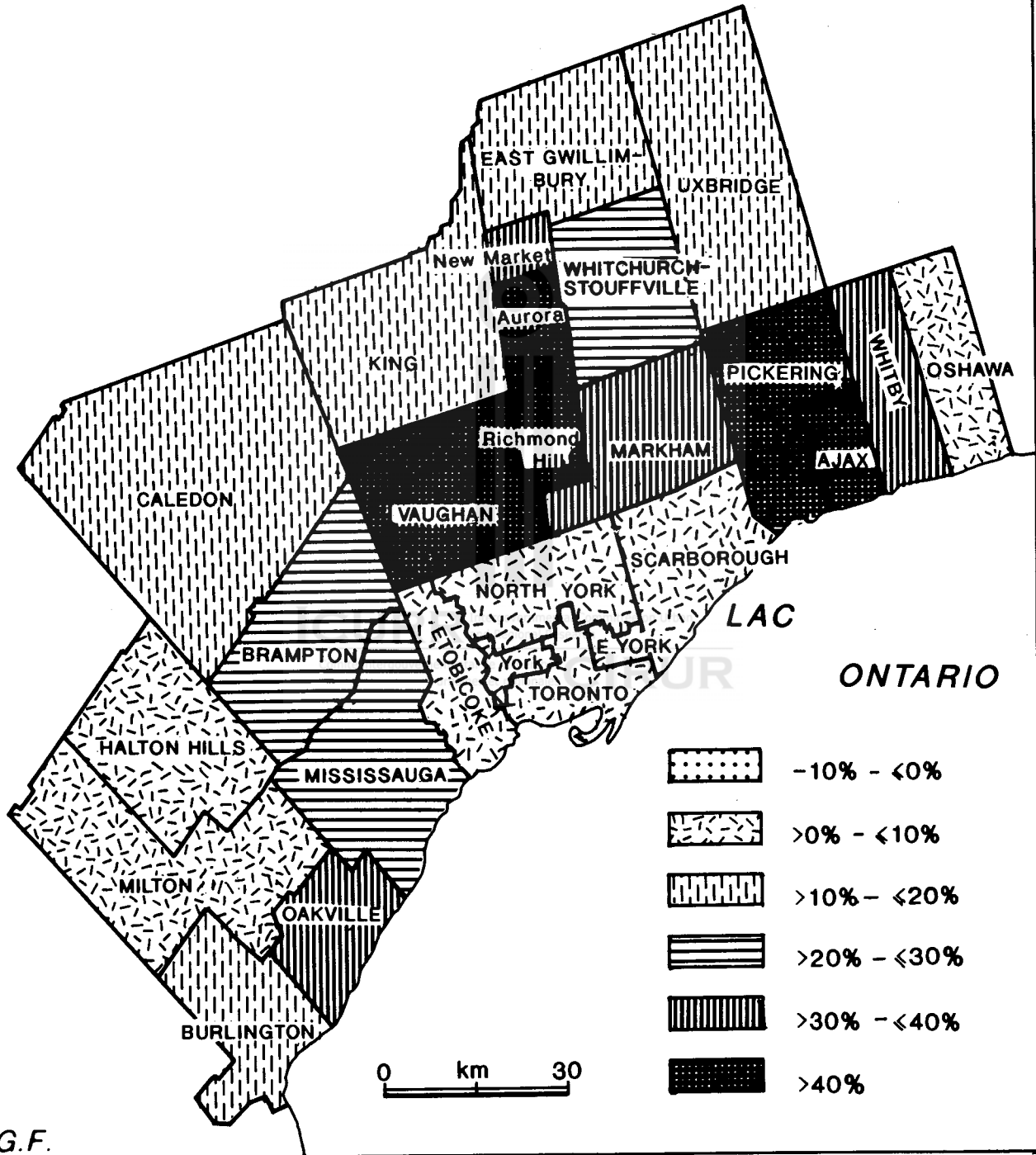


Figure 2.10

Toronto region: share of regional (positive) population change, 1986-91, by census subdivision

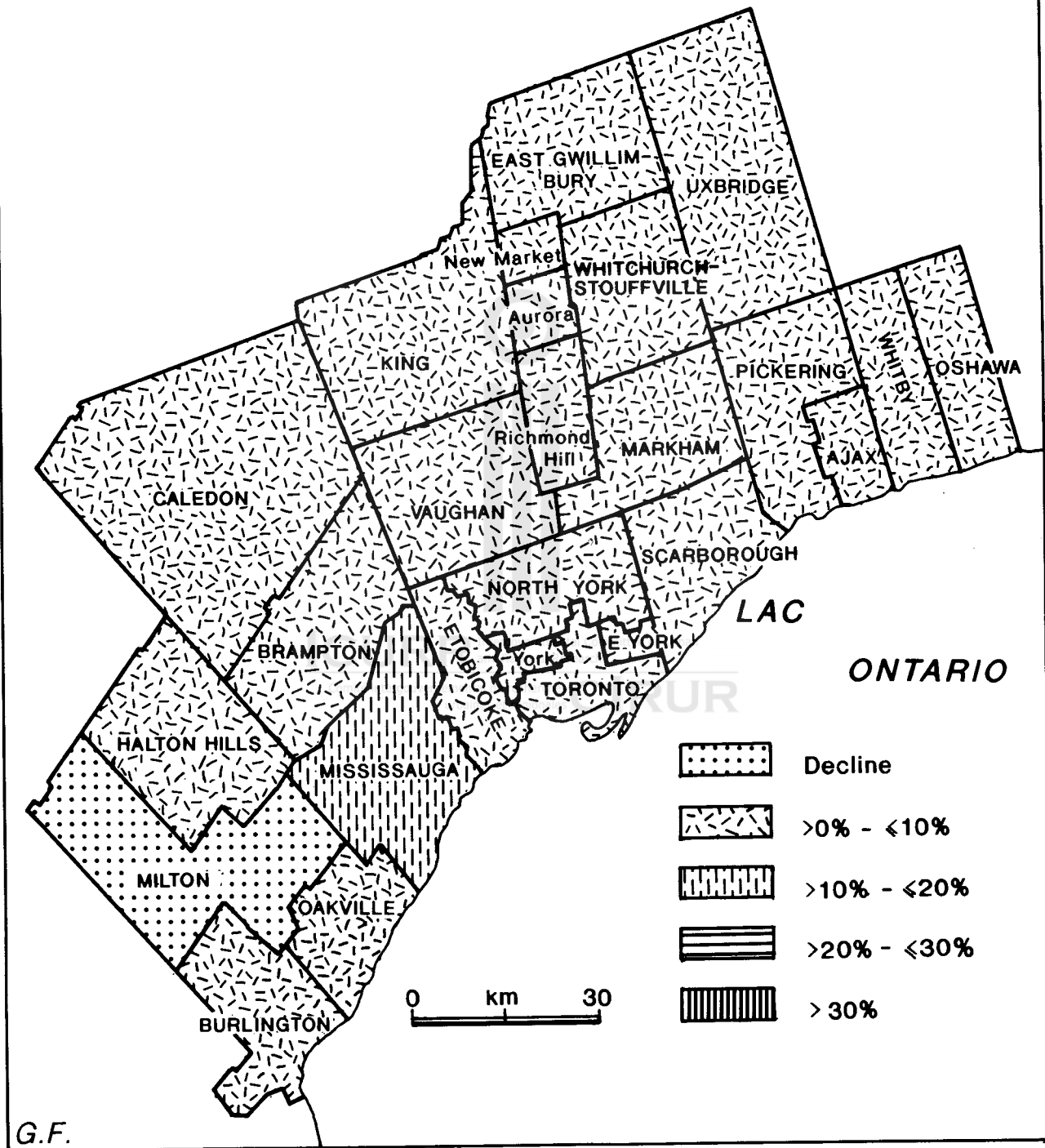
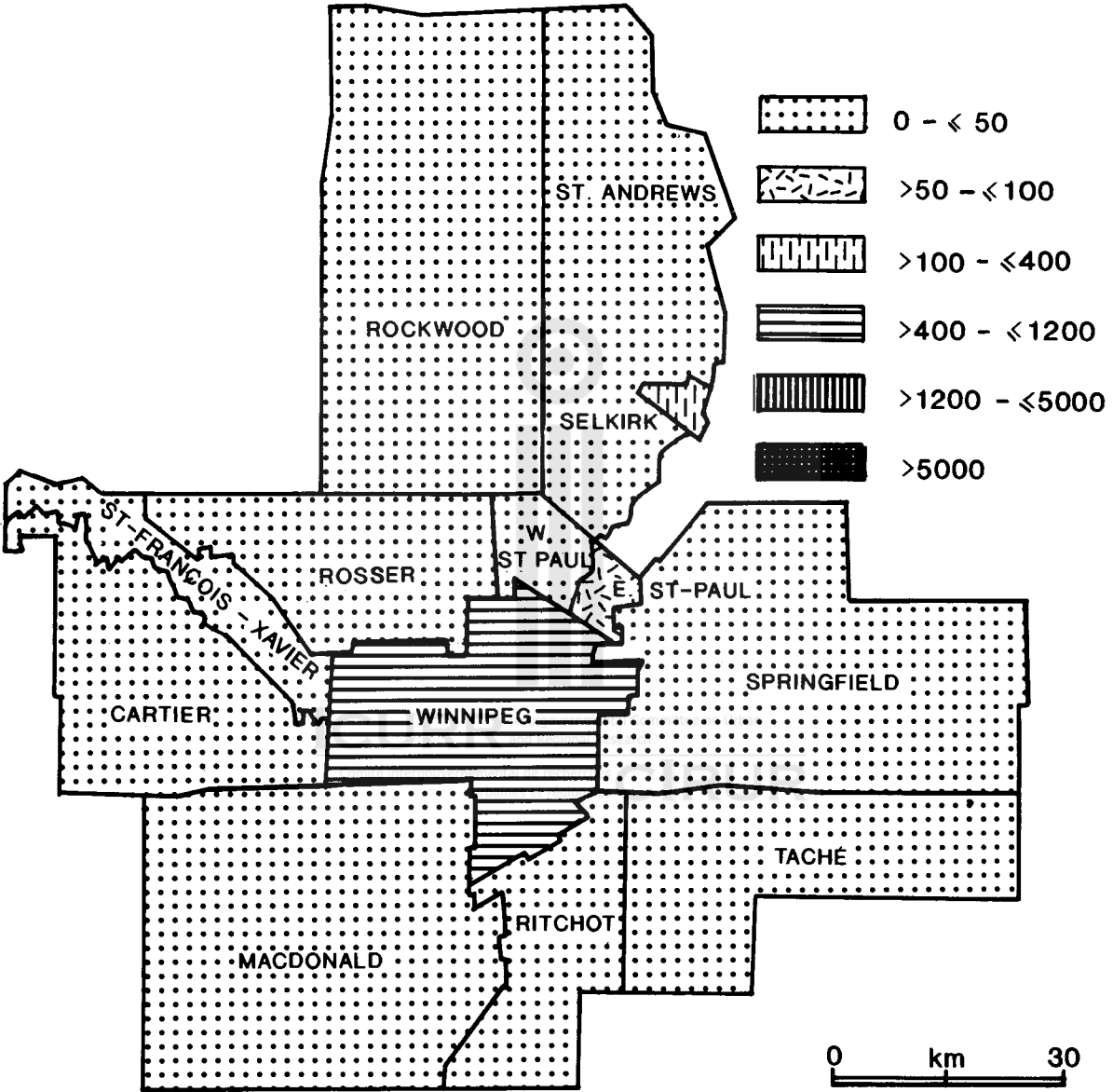
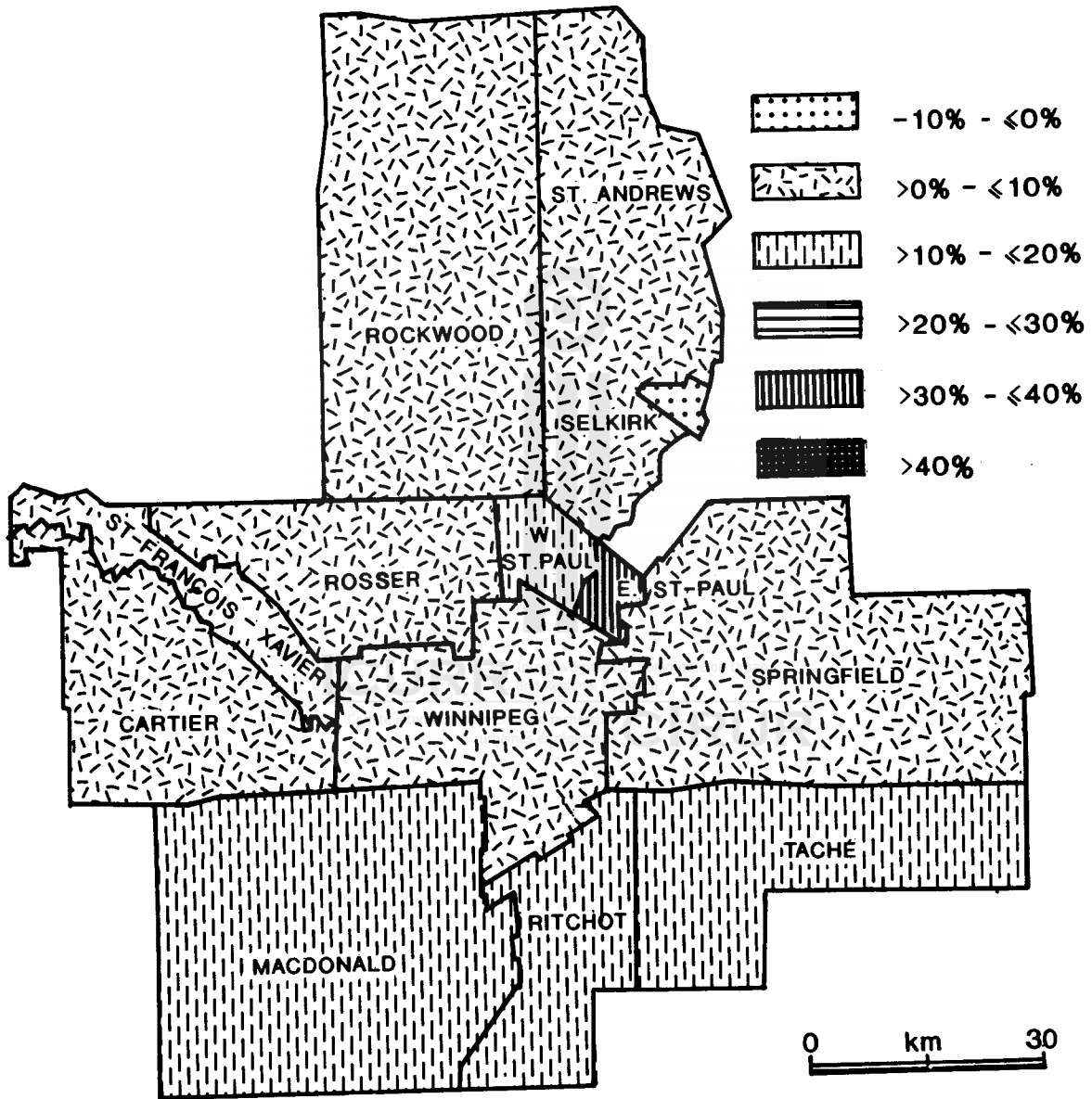


Figure 2.11
Winnipeg region: population density (per sq. km.), 1991,
by census subdivision



G.F.

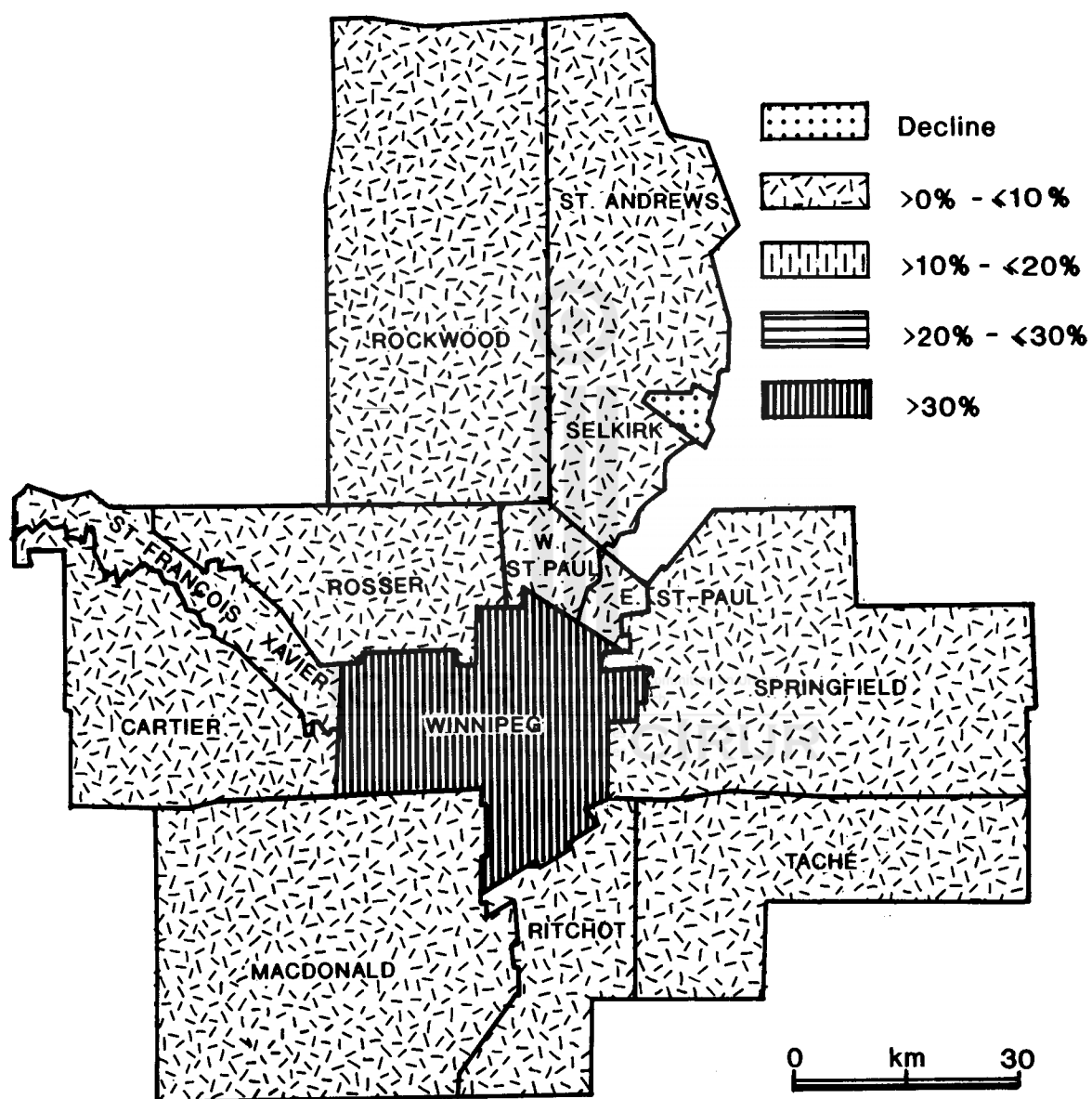
Figure 2.12
Winnipeg region: percentage population change, 1986-91,
by census subdivision



G.F.

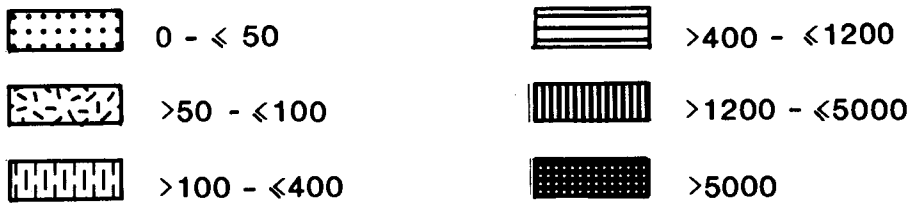
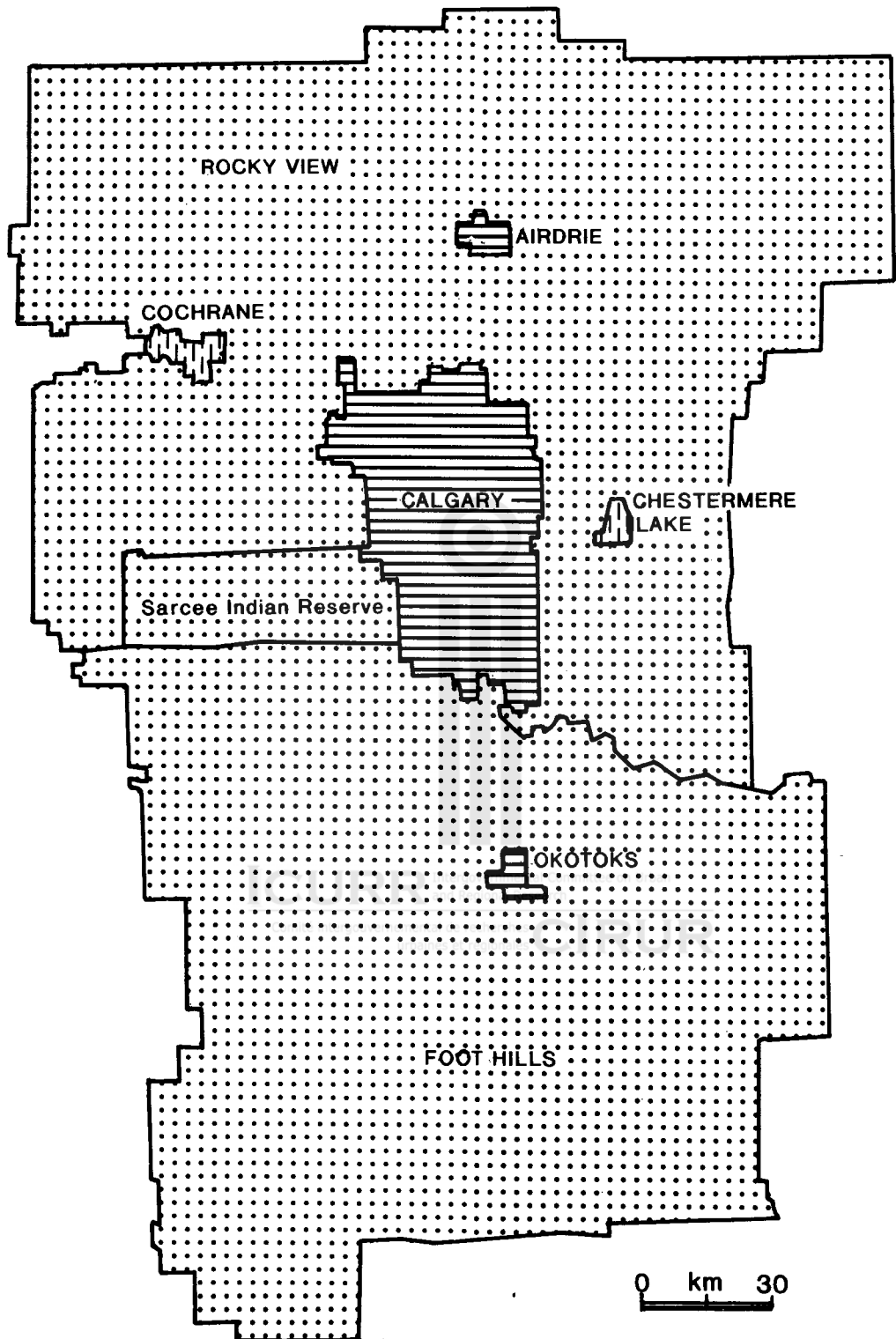
Figure 2.13

Winnipeg region: share of regional (positive) population change, 1986-91, by census subdivision



G.F.

Figure 2.14
Calgary region: population density (per sq. km.), 1991,
by census subdivision



achieved. Outside of the towns and villages, population densities are very low.

In terms of rates of population change, the City of Calgary experienced very high rates of growth, 1976 to 1981, which still remain high. The two really large rural municipalities adjacent to Calgary, Rocky View No. 44 and Foothills No. 31, experienced lower rates of growth than Calgary in the early 1980s but slightly higher rates in the late 1980s. On the other hand, some of the small towns (e.g., Okotoks and Cochrane) experienced very high rates of growth in the late 1980s, reflecting attempts to concentrate growth in existing centres (Figure 2.15, Table B.2).

The City of Calgary accounted for over 80 per cent of the regional population change throughout the 1980s (Figure 2.16, Table B.3). The level of concentration of the absolute growth in the city is therefore even higher than for the Winnipeg region.

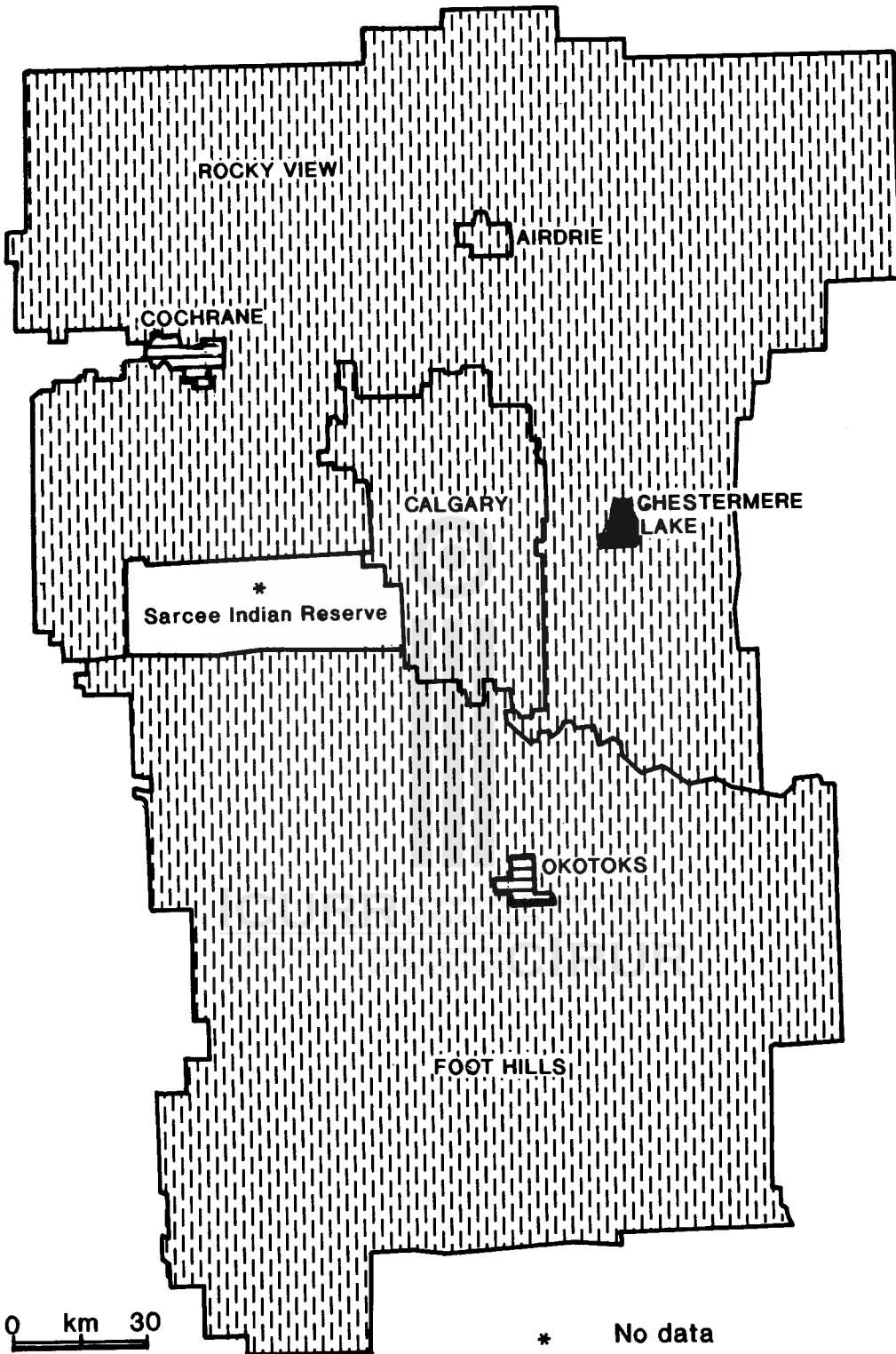
Vancouver

Population densities across the Vancouver region are high, with the highest being found in the City of Vancouver (Figure 2.17, Table B.1). Even in the outer areas of the region, densities tend to be quite high.

In terms of population change in the study area, the city experienced one of the lower growth rates and this was quite consistent throughout the 1976 to 1991 period (Figure 2.18, Table B.2). Several other adjacent municipalities experienced similar growth rates, e.g., New Westminster, Burnaby, North Vancouver and West Vancouver. Beyond these areas, most of the major municipalities exhibited consistently very high growth rates, e.g., Surrey and Maple Ridge. Once more, a general concentric pattern of change appears.

In terms of share of regional population growth during the 1980s, the City of Vancouver accounts for between 16 and 20 per cent, reflecting of course its initial large population base (even a low growth rate translates into a substantial number of people in such contexts) (Figure 2.19, Table B.3). However, Surrey accounted for around 30 per cent of the growth through the 1980s, followed at some distance by Richmond and Burnaby.

Figure 2.15
Calgary region: percentage population change, 1986-91,
by census subdivision



0 km 30



-10% - ≤0%

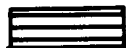


>0% - ≤10%



>10% - ≤20%

* No data



>20% - ≤30%



>30% - ≤40%



>40%

Figure 2.16

Calgary region: share of regional (positive) population change, 1986-91, by census subdivision

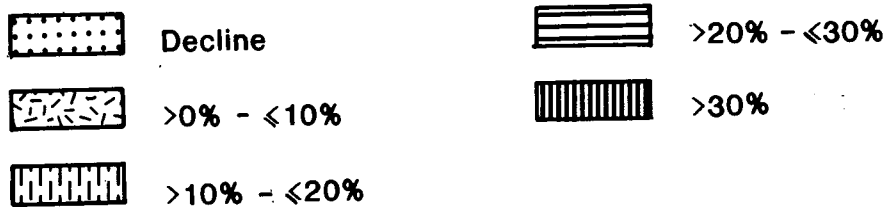
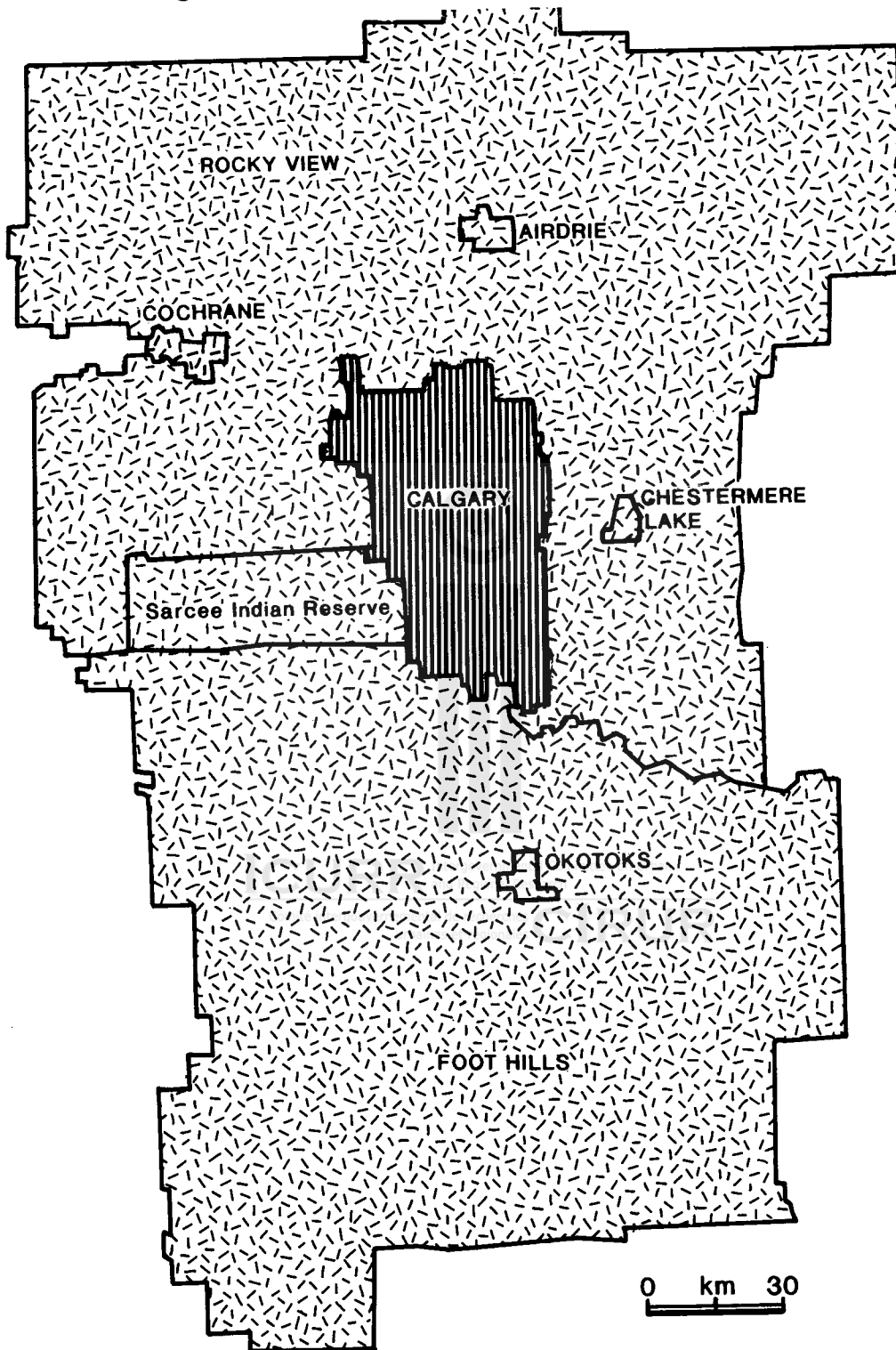


Figure 2.17
Vancouver region: population density (per sq. km.),
1991, by census subdivision

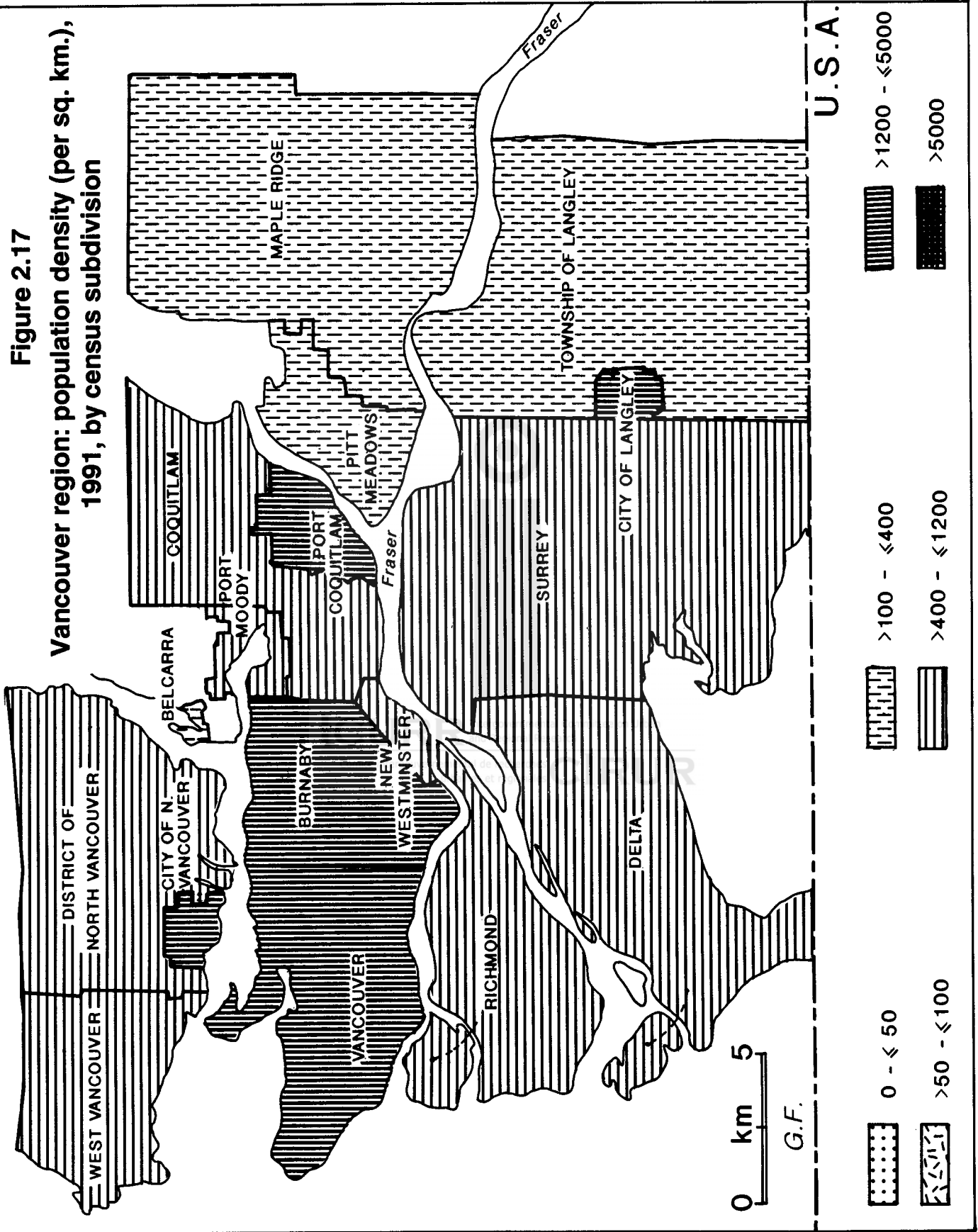


Figure 2.18
Vancouver region: percentage population change, 1986-91, by census subdivision

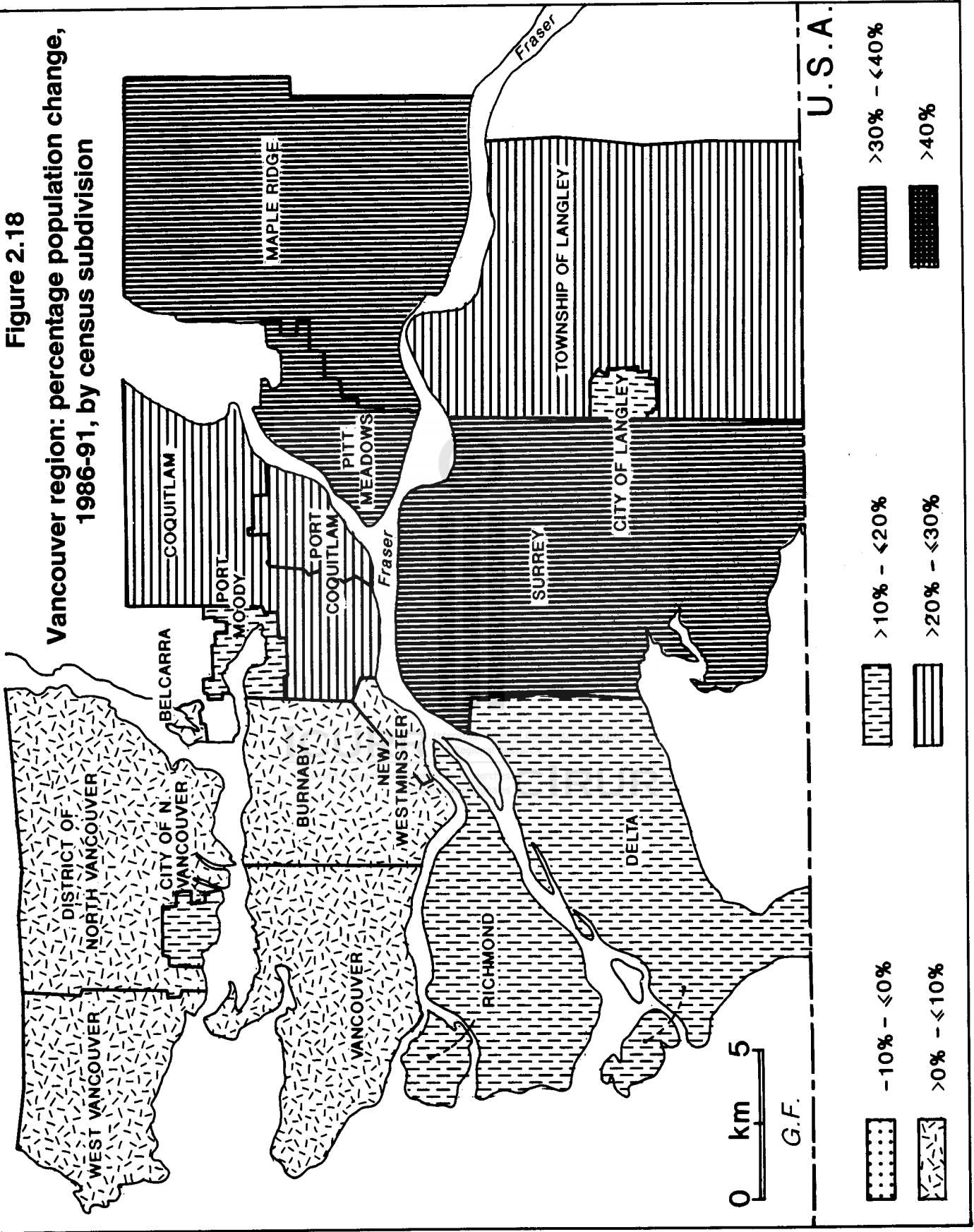
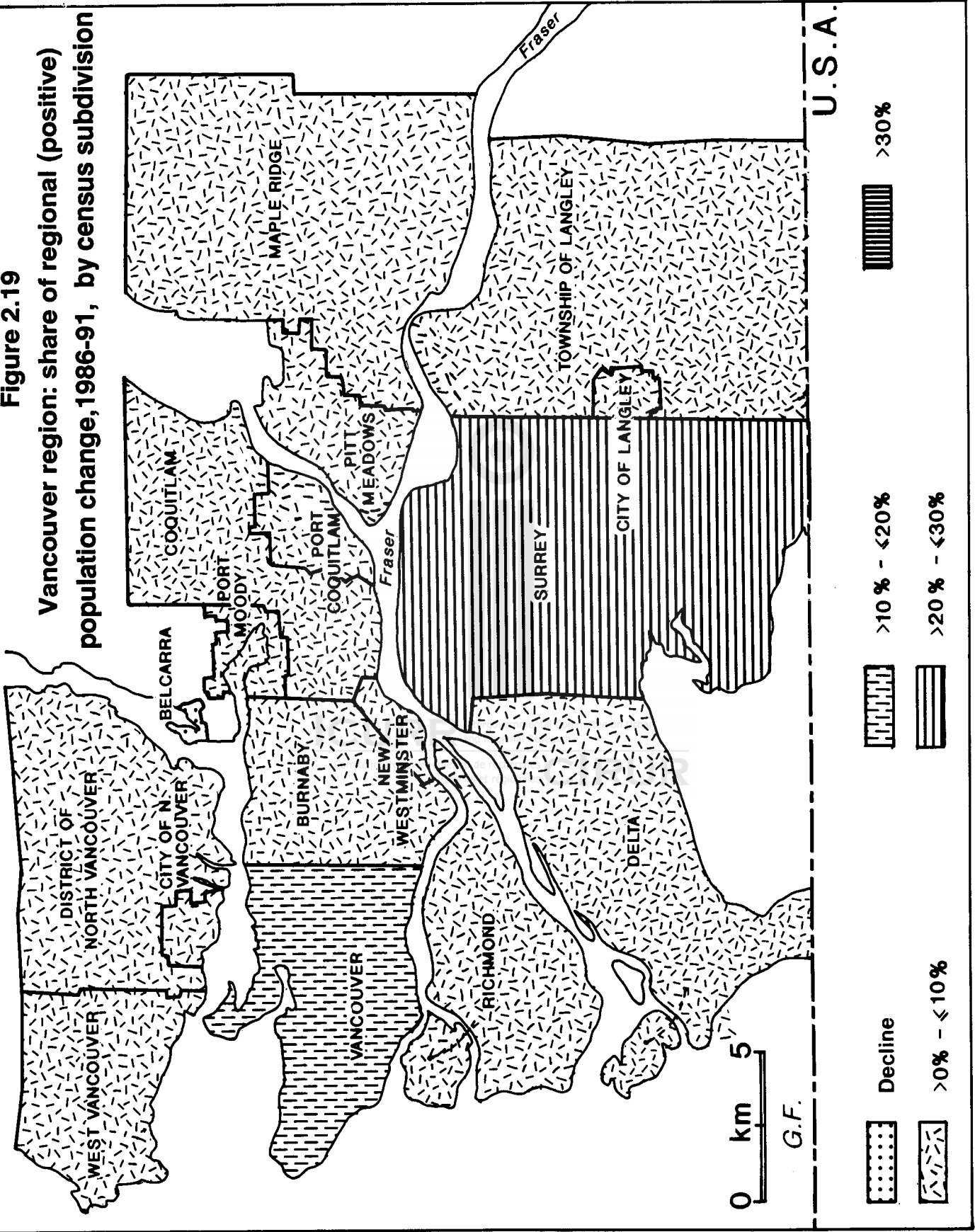


Figure 2.19

Vancouver region: share of regional (positive) population change, 1986-91, by census subdivision



2.4 THE DEVELOPMENT OF THE REGIONAL CITY AND THE ISSUES ASSOCIATED WITH MANAGING URBAN GROWTH

Two general conclusions emerge from the analysis so far. First, processes of urbanization and of the spread of urban elements into the rural and small town areas surrounding the major urban centres occur across the country and in all six case study areas. Second, there are nonetheless some important differences among urban regions or regional cities in terms of settlement structures and regional growth rates. These can be expected to lead to differences in the types of issues present and the strategies appropriate for dealing with them.

The patterns of development suggested by the stage model introduced in section 2.0 reflect the operation of "natural" forces within the market place. It has been argued, however, that some of the pressures for the dispersal of urban activities and population have arisen as a result of policies and strategies followed by individual municipalities. (Bryant, 1991). Thus, particular images regarding what a "downtown" should represent, combined with pressures from property developers, have both contributed to the difference between central urban areas on the one hand and suburban municipalities and beyond on the other.

Furthermore, given the relatively fragmented municipal structures in many major metropolitan regions, and the significance of commercial and industrial property taxes for municipal budgets, it is not surprising that municipalities both within and beyond the continuously built-up urban area compete for scarce commercial and industrial development. This competition is undoubtedly *one* of the factors that has given rise to a relatively dispersed structure of activities in many metropolitan regions. Even so, Bourne (1989) argues that dispersal of population, at least in the context of Canada's CMAs, continues to outpace that of economic activities. Clearly, any attempt to manage regional urban structures has to confront these realities.

In terms of the negative consequences associated with this settlement structure, three broad categories of impacts and consequences can be identified:

1. Costs of urban growth

Some of the costs of urban growth in the regional city form are incurred by the individual municipal units involved while other costs may be incurred at a broader scale (regional and/or provincial). For example, some costs may be borne by provincial authorities, such as the construction and upkeep of the transportation system, thereby providing a subsidy to the populations in these areas.

Cost consequences can arise in relation to the provision of soft (e.g., social services, education) and hard (e.g., sewage and water provision) infrastructures. Transportation issues can also be expected to arise in some regions, depending upon the extent of population dispersal, differences between population and employment dispersal, and

overall growth rates.

Since the processes of population redistribution operate at a broad regional level and cut across municipal boundaries, different municipalities are confronted with very different situations. For instance, some municipalities are faced with increasing costs and revenues (e.g., rapidly growing fringe areas with expanding populations and economic activity bases), while others are burdened with increasing costs but stagnating revenues (e.g., many urban core municipalities with stagnating population and employment bases).

2. Land use and quality of life impacts

Because of the differences between many central urban areas, suburbs and the areas beyond, and changing demographic and economic activity structures between them, a variety of consequences related to "accessibility" issues can be identified. These include housing issues, accessibility to recreational opportunities, parkland and open space, and access to employment.

3. Resource degradation and availability issues

Inevitably with such a changing settlement structure, a variety of land and resource use conflicts have appeared over the years. Amongst the most well-documented is the conflict between agricultural activity, agricultural land resources and urban development of various types (Bryant and Johnston, 1992). Increasingly, a host of environmental issues have been added as well, as populations and municipalities have become more conscious of the potential for development to generate negative impacts for the environment. This large range of consequences include impacts on wildlife habitat, waste management, and water quality and availability.

With this background on the patterns of population redistribution taking place in the case study areas, the strong regional differences in settlement structures, growth pressures and resource bases, attention is now turned to the patterns of change reported by the survey respondents, their perceptions of the issues faced by their municipalities and the strategies that have been utilised.



ICURR Intergovernmental Committee on Urban
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THE PATTERNS, CONSEQUENCES AND RESPONSES TO URBAN GROWTH: CASE STUDY RESULTS

Section 3.0 is based on the survey data. It provides an understanding of the existing situation in the study areas with regard to urban growth patterns by describing the issues and responses perceived and reported by the respondent municipal representatives. Municipalities in other regions that were not surveyed or those that did not respond to the survey can compare themselves with the respondent municipal profiles.

This section is divided into several sub-sections. First, vignettes are presented to describe in general terms the municipal structure of each study area. (Subsection 3.1) This is important because differences in municipal (local political) structure can affect the way an urban system develops. Then, the database is described and a general analysis of growth and development patterns is given (sub-section 3.2). This is followed by an analysis of the issues identified by the respondents, notably in terms of conflicts between urbanization and agriculture, environment and transportation. Sub-section 3.2 concludes with a discussion of the cost considerations of urban growth, focusing on aspects such as strategies to raise revenues or lower costs, the use of lot levies, reserve funds and joint agreements. The quantitative data on municipal budgets received were too variable to be of use in this analysis.

The main results from the case studies are given in sub-section 3.3. Here, the issues identified by each of the municipal respondents and the strategy or strategies developed to cope with those problems are presented and commented upon.

3.1 VIGNETTES OF THE CASE STUDY AREAS

While all regions present certain similarities in terms of growth patterns, each region has a specific political and geographical profile that has influenced growth patterns and responses to them.

The Halifax study area

The Halifax study area (Figure 2.2, Table B.1) has several distinct types of municipal units. There is little integration between the different units in terms of urban growth management. In the urban core area, the City of Halifax is the major player, with the medium-sized City of Dartmouth and the smaller but rapidly growing Town of Bedford representing significant suburban-type nodes in the broader Halifax region. While a Metropolitan Area Planning Commission exists, its responsibilities are not very clearly defined and the City of Halifax and the urbanized suburban municipalities are clearly in competition with each other on a number of fronts.

Beyond Halifax, Dartmouth and Bedford lies the Municipality of the County of Halifax. This very large area contains a wide variety of situations, ranging from relatively urbanized zones such as Sackville, to much more remote rural areas. Municipal Districts represent sub-regions of the County and they have a direct political link with the County Council; however, they are not necessarily synonymous with the "planning areas" of the County.

Beyond the Municipality of the County of Halifax are two other county units (West and East Hants), comprised mostly of rural areas. A good part of both of these units as well as the Town of Windsor falls beyond the 50 km zone around Halifax.

The planning situation in the study area is varied. For instance, the City of Halifax has an urban land-use plan whereas the County of Halifax has no county-wide development policy. Rather, in the County there is a series of planning districts that operate within a very decentralized structure.

Attempts have been made at broader regional involvement, mainly in the central part of the study area. These include the Metropolitan Authority involvement in waste management and transit operation, and an earlier provincial and federal involvement in a regional development plan which was never approved.

Planning matters are therefore quite decentralized, though provincial involvement is significant in terms of plan review and in other domains such as health, education and roads.

The Montréal study area

The municipal structure in the Montréal study area is quite complex (Figure 2.5, Table B.1). The City of Montréal and the 28 municipalities on the Island of Montréal are organized into a single management unit (the Montréal Urban Community or MUC). However, the individual municipalities remain very strong. This central area is surrounded by a series of Regional County Municipalities (Municipalités Régionales de Comté or MRCs). Each MRC is usually comprised of a variety of small and medium-sized towns, villages and rural municipalities; the exceptions are the MRC of Laval which is comprised only of the City of Laval, the second largest municipal unit in Québec, and the MRC of Mirabel.

The municipal structure in the Montréal region can be best understood by setting it in the context of changes over the last 20 years or so. Early on, the extremely fragmented municipal structure in the province made it difficult to contemplate any form of urban growth management strategy, although in the 1960s the issues were widely recognized. In 1968, the La Haye Report represented the first effort at managing urban growth by mandating each municipality to produce an Official Urban Plan. Land use zones were defined, but few efforts to develop any strategy were in evidence, even as recently as the late 1980s, except for the provincial government's attempt to promote regional land use and infrastructure planning through the setting up of the MRCs across the province.

Within the Montréal study area, in addition to the MUC there are twelve MRCs. Under provincial legislation, each MRC had to produce an official regional land use and infrastructure plan to manage development and change within its boundaries. The initial results of the MRCs' involvement in planning were disappointing, and there were many instances of a lack of real co-ordination of development policy between the municipalities within a given MRC, let alone between MRCs in a broader urban region context. Currently, the MRCs are undertaking the first mandatory revision of their regional plans, and efforts are being made to place those plans into a more strategic planning framework.

Each of the municipalities in the MUC has its own urban plan, including the City of Montréal, which developed its first official plan only in 1992. While the MUC plays an important role for municipalities through its regional planning service and its urban development plan, the individual municipalities still have considerable power. The MUC is also important in terms of protection (police services), waste management and water treatment. However, it does not exert a great deal of influence over the growth management of the island.

The Toronto study area

The Toronto study area is undoubtedly the most complex of the case study areas (Figure 2.8, Table B.1). Home of the largest CMA in the country, it has experienced significantly high rates of urban growth and urban dispersal and has undergone important municipal government changes since the 1950s.

The urban core area itself, comprised of the City of Toronto and the five boroughs, was organised into a regional administrative structure in 1953 - Metropolitan Toronto - to foster co-ordination of planning, infrastructure and service provision. However, urban growth extended far beyond the limits of Metropolitan Toronto into the surrounding county areas, giving rise to significant urban pressures in these areas. Hence, from the late 1960s to the early 1970s, a number of county areas were replaced by Regional Municipality structures. The area delimited for this study contains all or part of four such structures - the Regional Municipalities of Durham, York, Peel and Halton. These structures possess significant planning departments, discharge significant planning functions and develop and maintain a regional plan.

Despite the important progress that has been made through such structures, the broader region is still undergoing stresses and tensions due to uncoordinated growth patterns. The creation of the Office of the Greater Toronto Area was an attempt to coordinate and integrate planning policies and strategies more effectively across the whole region. The Office of the Greater Toronto Area reports to a provincial cabinet minister.

Beyond the Regional Municipalities, there is a layer of county structures (not included in this study's 50 km limit) that has also experienced pressures of various degrees relating to the overall forces of urban dispersal within the Toronto region.

The Winnipeg study area

The Winnipeg study area is dominated by the City of Winnipeg, which dwarfs the other municipalities in terms of size (Figure 2.11, Table B.1).

The Winnipeg area is often looked upon as one of the most dynamic and innovative areas concerning municipal political structures. In 1962, a Metropolitan System was developed in the urban core area, composed of the core city of Winnipeg and 13 surrounding municipalities. In the early seventies, a number of disagreements between Winnipeg and the Metropolitan Corporation resulted in an amalgamated form called Unicity. For 20 years now, this form of government has helped shape Winnipeg's landscape.

The City of Winnipeg has a fully developed professional planning department. From the provincial perspective, the City of Winnipeg comes under the jurisdiction of the Department of Urban Affairs. Beyond the City of Winnipeg, there are a series of Planning Districts, which usually cover several smaller municipalities. However, not every municipality falls into a Planning District. Within the planning field, planning services for these Planning Districts and their municipalities are provided by Field Officers from within the provincial Department of Rural Development.

Inevitably, there are differences and tensions between the City of Winnipeg and the surrounding rural municipalities, some of which are related to urban growth processes in the surrounding municipalities and associated cost differences in terms of infrastructure development. Partly due to this, the province has recently asked for a regional strategy to be developed for the Winnipeg region; this began in 1992 under the co-ordination of the Department of Urban Affairs.

The Calgary study area

The Calgary study area contains a major city that dominates the surrounding municipalities, although not quite to the same degree as the City of Winnipeg does in its study area (Figure 2.14, Table B.1). The City of Calgary is surrounded by very extensive rural municipalities, which are in turn dotted by several small towns and villages.

The City of Calgary has a fully developed professional planning department. The larger (in terms of land area) rural municipalities, as well as several of the small towns, have their own professional planner. For the remaining small municipalities, the Calgary Regional Planning Commission provides the necessary planning services.

The Calgary Regional Planning Commission provides an important regional perspective. It has the legislative responsibility for implementing the regional plan for the area within its jurisdiction, subdivision approval authority in most of the smaller centres, and a region-wide research and information function.

Since the mid-fifties, the City of Calgary has used a structure similar to Winnipeg's Unicity concept to help shape and manage its growth. Based on the fact that the migration of urbanites to suburban areas represents a tax loss for the core city, Calgary has always managed to keep 30 years' worth of land supply around its core to keep suburban development within city limits. In the past 20 years, there have been pressures to modify this unitary form of urban government into a metropolitan organization, but it has remained intact.

The Vancouver study area

The Vancouver study area is a relatively complex urban region, comprised of parts of several regional entities (Regional Districts) and several medium-sized urban centres (Figure 2.15, Table B.1). Though municipalities have substantial leeway in terms of planning decisions, the regional organizations, especially the Greater Vancouver Regional District, have played a more important role in the past than the MRCs in Québec, although not as strong a role as the Regional Municipalities in Ontario. The Greater Vancouver Regional District (GVRD) is the largest of the Regional Districts and has the mandate to oversee the planning decisions in its area of jurisdiction.

3.2 PRESENTATION OF THE PRINCIPAL SURVEY RESULTS ACROSS ALL SIX CASE STUDIES

A database for the 57 respondents across the six case study regions was developed. The major groups of variables are identified in sub-section 3.2.1. Results are then presented in terms of urban growth experience (sub-section 3.2.2), the issues and concerns identified (sub-section 3.2.3), and strategies adopted, particularly in relation to the costs of urban growth (sub-section 3.2.4).

3.2.1 Database Definition

The database is set up as follows. First, there is a set of identifiers: the name of the municipality, the region in which it is located and its geographic situation within the urban region (core, suburb, fringe - this classification was based upon an analysis of population density data for 1991). For local municipalities (rural municipalities, towns and cities), the classification used the 1991 population density as the first criterion: 1 - 400 per sq km was classified as rural, 401 - 1,200 as suburban and over 1,200 as urban. In some cases, where the actual population density was extremely close to one of the thresholds, additional local or regional information obtained during the field visits was used to allocate the unit one way or the other. For regional agencies, a greater problem was posed in using the density criterion given that in many cases they included more than one type of local municipality. The decision was made on the basis of a general appreciation of their situation; in most cases (except the MRCs in Québec), the unit was classified as "suburban" although Metro Toronto was classified as "urban".

The second major group of variables deals with the number of residential units built (between 1987-1991), commercial and industrial floorspace built (between 1987-1991), the total number of permits issued and lots created (1987-1991) and finally mean minimum lot sizes. Only those variables for which an adequate response was received are included in the discussion below.

The third group focuses on conflicts identified between urbanization and the agricultural base, environmental values and transportation needs, as well as some educational issues. Finally, the last group deals with cost considerations.

It is important to recall that this is an exploratory study. It is intended to give an overview of the different situations occurring across the country. Because of the nature of the case study selection and the sampling approach, the quantitative results of the survey must be interpreted with some caution. However, they do reflect the range of situations occurring across the country and an attempt is made to place the survey results against other evidence regarding urban growth patterns and consequences in section 4.0.

3.2.2 Frequency Analysis of Selected Variables in the Database

The Sample

Overall, 89 questionnaires were sent out and 57 were returned, a rate of return of 64 per cent. This is considered to be quite reasonable given the difficulty and time involved in completing the questionnaire. Table 3.1 shows how the 57 questionnaires were distributed over the six urban case study regions and between local municipal and "regional" respondents. (The latter included Counties, the Montréal Urban Community and the MRC, the Regional Municipalities around Toronto and Metropolitan Toronto, the various planning districts around Winnipeg, the Calgary Regional Planning Commission and the Greater Vancouver Regional District.)

Of the 57 questionnaires returned, 34 came from municipalities and 23 from representatives of regional organizations, agencies or government structures (Table 3.2). All 57 areas represented by the respondents were also classified by their primary geographic focus (for instance, a regional government or an MRC can be classified as core, suburban or fringe depending upon its locational focus within the broader region) (sub-section 3.2.1). Eight units are therefore defined as core-city, 27 as suburban and 22 as being part of the fringe (Table 3.3).

Residential Development

Several questions allow us to piece together information about residential development experience. These data are presented without standardization to show the range of municipal and regional situations represented by the respondents. The distributions of values partly reflects size differences between municipalities and partly the geographic situation of each responding unit within its respective urban region.

Only 13 respondents out of 57 reported the construction of rural residential units on their territory between 1987 and 1991, more or less equally divided between local and regional respondents. The majority (46.2 per cent or six out of 13) reported less than 200 units (Table 3.4). At the other extreme, two municipalities from the suburban area (the Regional Municipality of York) and the fringe (Caledon) of Toronto reported the most units (between 800 and 1,200).

Forty-one out of the 57 reported the construction of single residential units (single family residences and semis). The vast majority (38.3 per cent or 28 of 57) reported less than 5,000 units built. At the other extreme, seven respondents reported more than 10,000 units built in their areas, five of which are from the Toronto region. The two others are the City of Calgary at about 19,000 units and the Greater Vancouver Regional District at 45,162 units (Table 3.5). Of the municipalities that reported less than 5,000 units built, most (23 out of 28 or 82.1 per cent) reported less than 2,500 (Table 3.6).

Table 3.1 Questionnaires by urban region			
Urban Region	Number Mailed Out	Local Municipalities	Regional Units
Halifax	7	3	2
Montréal	26	10	5
Toronto	25	13	5
Winnipeg	5	1	2
Calgary	7	2	1
Vancouver	19	5	8

Table 3.2 Political level of responding organization		
Level	Frequency	Percent
Municipality	34	59.6
Regional Organization, Agency or Municipality	23	40.4

Table 3.3 Respondents by geographic situation of organization			
Situation	Frequency Total	Frequency Local	Frequency Regional
Core City	8	6	2
Suburban	27	15	12
Fringe / Small Town	22	11	9

Table 3.4
Number of rural residential units built (1987-1991)

From	To	Frequency Total	Frequency Local	Frequency Regional
0	200	6	5	1
200	400	2	2	0
400	600	3	0	3
600	800	0	0	0
800	1,000	1	1	0
1,000	1,200	1	0	1

Table 3.5
Number of single residential units built (1987-1991)

From	To	Frequency Total	Frequency Local	Frequency Regional
0	5,000	28	19	9
5,000	10,000	6	4	2
10,000	15,000	1	1	0
15,000	20,000	2	2	0
20,000	25,000	2	0	2
25,000	30,000	0	0	0
30,000	35,000	1	0	1
35,000	40,000	0	0	0
40,000	45,000	0	0	0
45,000	50,000	1	0	1

Thirty-eight out of 57 respondents reported the construction of row or town houses in their areas. Thirty-one reported less than 2,000 units built. At 15,804, the Greater Vancouver Regional District represents the extreme as well as the exception (Table 3.7), which is not surprising given that its area includes the City of Vancouver and several medium-sized urban municipalities. In the 31 with less than 2,000 units built, 22 reported less than 1,000 units constructed (Table 3.8).

Finally, in terms of apartments and/or condominiums constructed between 1987 and 1991, 32 respondents reported such development in their areas (Table 3.9). Of that number, 22 (68.8 per cent) reported less than 5,000 dwellings constructed (Table 3.9), and most reported less than 1,500 units in this category (Table 3.10). But eight out of the 32 (25.0 per cent) reported the construction of between 5,000 and 15,000 units. They are distributed as follows: for the five municipalities with between 5,000 - 10,000 units, the core city of Winnipeg, two suburban areas of Montréal (Laval and the MRC of Champlain which includes Longueuil) and two suburban areas of Toronto (the Regional Municipalities of York and Durham). The three reporting between 10,000 and 15,000 units include the core city of Vancouver, the core city of Toronto and the Regional Municipality of Peel. The two "outliers" are the Toronto Metropolitan Area at 36,040 and the Greater Vancouver Regional District at 38,040 units.

Another question involved mean minimum lot sizes. Forty-two respondents answered this question (Table 3.11). The vast majority (40 out of 42 or 95.2 per cent) have mean minimum lot sizes under 14,000 sq ft. Two responses really stand out: at 150,000 and 225,000 sq ft each, those two planning districts around Winnipeg illustrate particularly well the large lot sizes for rural residential development in this urban region. It is symptomatic of processes elsewhere where many small municipalities have set quite large minimum lot sizes, for a variety of reasons including maintaining the open space nature of the local environment and adapting to lack of collective sewage treatment infrastructure. As for the 40 others (Table 3.12), most of them (29 out of 40 or 72.5 per cent) have mean minimum lot sizes between 3,000 and 7,000 sq ft, putting them in the range of high to medium urban lot sizes.

Commercial and Industrial Development

In terms of commercial and industrial land use development, 21 respondents reported the construction of commercial floorspace within their areas. Most of them (17 out of 21 or 81 per cent) are under two million square feet (Table 3.13). In the four others, one Toronto suburban area (the City of Brampton) is close to the first 17 with 2,700,000 sq ft constructed. The three others in order of importance are: a suburb of Toronto (Brampton), the core city of Winnipeg and the Greater Vancouver Regional District. For the 17 municipalities with less than 2,000,000 sq ft (Table 3.14), most of them (11 out of 17 or 64.7 per cent) reported less than 400,000 sq ft built.

Table 3.6
Number of single residential units built (1987-1991)
for municipalities with frequencies less than 5,000 units (complement to
Table 3.5)

From	To	Frequency Total	Frequency Local	Frequency Regional
0	500	6	6	0
500	1,000	7	4	3
1,000	1,500	3	1	2
1,500	2,000	2	1	1
2,000	2,500	5	2	3
2,500	3,000	0	1	0
3,000	3,500	2	2	0
3,500	4,000	1	1	0
4,000	4,500	2	2	0
4,500	5,000	0	0	0

Table 3.7 Intergovernmental Committee on Urban and Regional Research
Number of row houses built (1987-1991)

From	To	Frequency Total	Frequency Local	Frequency Regional
0	2,000	31	21	10
2,000	4,000	5	3	2
4,000	6,000	1	0	1
6,000	8,000	0	0	0
8,000	10,000	0	0	0
10,000	12,000	0	0	0
12,000	14,000	0	0	0
14,000	16,000	1	0	1

Table 3.8
Number of row houses built (1987-1991)
for municipalities with frequencies less than 2,000 units
(complement to Table 3.7)

From	To	Frequency Total	Frequency Local	Frequency Regional
0	200	9	7	2
200	400	2	2	0
400	600	2	1	1
600	800	4	3	1
800	1,000	5	3	2
1,000	1,200	1	1	0
1,200	1,400	3	2	1
1,400	1,600	3	2	1
1,600	1,800	1	0	1
1,800	2,000	1	0	1

Table 3.9
Number of apartments and condominiums built (1987-1991)

From	To	Frequency Total	Frequency Local	Frequency Regional
0	5,000	22	19	3
5,000	10,000	5	2	3
10,000	15,000	3	2	1
15,000	20,000	0	0	0
20,000	25,000	0	0	0
25,000	30,000	0	0	0
30,000	35,000	0	0	0
35,000	40,000	2	0	2

Table 3.10
Number of apartments and condominiums built (1987-1991)
for municipalities with frequencies less than 5,000
(complement to Table 3.9)

From	To	Frequency Total	Frequency Local	Frequency Regional
0	500	9	9	0
500	1,000	5	3	2
1,000	1,500	3	2	1
1,500	2,000	1	1	0
2,000	2,500	0	0	0
2,500	3,000	3	3	0
3,000	3,500	0	0	0
3,500	4,000	1	1	0

Table 3.11
Mean minimum lot size (in square feet)

From	To	Frequency Total	Frequency Local	Frequency Regional
0	25,000	40	26	14
25,000	50,000	0	0	0
50,000	75,000	0	0	0
75,000	100,000	0	0	0
100,000	125,000	0	0	0
125,000	150,000	0	0	0
150,000	175,000	1	0	1
175,000	200,000	0	0	0
200,000	225,000	0	0	0
225,000	250,000	1	0	1

Table 3.12
Mean minimum lot size (in sq ft) for municipalities
with mean minimum lot size less than 15,000 sq ft
(complement of Table 3.11)

From	To	Frequency Total	Frequency Local	Frequency Regional
0	1,000	0	0	0
1,000	2,000	0	0	0
2,000	3,000	4	4	0
3,000	4,000	8	7	1
4,000	5,000	9	5	4
5,000	6,000	6	3	3
6,000	7,000	6	3	3
7,000	8,000	2	1	1
8,000	9,000	1	1	0
9,000	10,000	0	0	0
10,000	11,000	2	1	1
11,000	12,000	0	0	0
12,000	13,000	1	1	0
13,000	14,000	1	0	1

Table 3.13
Commercial floorspace built (in sq ft) (1987-1991)

From	To	Frequency Total	Frequency Local	Frequency Regional
0	2,000,000	17	13	4
2,000,000	4,000,000	1	1	0
4,000,000	6,000,000	0	0	0
6,000,000	8,000,000	1	0	1
8,000,000	10,000,000	1	1	0
10,000,000	12,000,000	0	0	0
12,000,000	14,000,000	0	0	0
14,000,000	16,000,000	1	0	1

Table 3.14
Commercial floorspace built (1987-1991)
for municipalities reporting less than 2,000,000 sq ft (complement to Table 3.13)

From	To	Frequency Total	Frequency Local	Frequency Regional
0	200,000	7	5	2
200,000	400,000	4	3	1
400,000	600,000	1	1	0
600,000	800,000	2	1	1
800,000	1,000,000	0	0	0
1,000,000	1,200,000	1	1	0
1,200,000	1,400,000	0	0	0
1,400,000	1,600,000	2	2	0

Twenty-two respondents reported the construction of industrial floorspace in their areas. Most of them (14 out of 22 or 63.6 per cent) reported less than 2,000,000 sq ft of new construction between 1987 and 1991 (Table 3.15). The high extremes in order of importance are: a Toronto suburban area (the Regional Municipality of Durham) at 8,353,190 sq ft, a Toronto suburban municipality (Brampton) at 17,500,000 sq ft and the Greater Vancouver Regional District at 23,740,843 sq ft. For the 14 municipalities with less than 2,000,000 sq ft reported, most of them (11 out of 14 or 78.6 per cent) reported under 600,000 sq ft of industrial floorspace constructed over this period (Table 3.16).

3.2.3 The Issues and Concerns Identified

An important set of questions was oriented towards the implications of urban growth patterns of agriculture, the environment and transportation needs. In addition, some information was solicited on educational issues. This sub-section is based for the most part upon the 55 questionnaires that contained adequate information on those questions.

Agriculture Versus Urbanization Issues

Twenty-six respondents out of 55 (47.3 per cent) reported concerns or conflicts between the urbanization process and the agricultural resource base (Figure 3.1), with regional organizations reporting proportionately most concerns. This reflects the "suburban" status of most of these units and the fact that they often contain municipalities with a significant agricultural resource base. Of these 26 municipalities, 24 (92.3 per cent) had developed one or more strategies to cope with these issues. Not all these strategies were considered successful. Indeed, four out of these 24 respondents (16.6 per cent) said that the strategy developed was not successful. Furthermore, six (25.0 per cent) gave no answer, mostly because it was too soon to tell if the strategy had had any influence. Finally, 15 out of 24 (62.5 per cent) suggested that the strategy developed to cope with agricultural land use conflicts was successful.

Overall, when each senior planner was asked if the agricultural base in each municipality posed a constraint to urban development, 14 answered "yes" and 29 "no". Responses suggesting agriculture represents a constraint to urban development were concentrated in the Toronto and Vancouver regions (Table 3.17) (although proportionately to the total number of responses received per region, the rate would be high in the Halifax region). Both the Vancouver and Toronto regions have significant agricultural resource bases and both have experienced significant growth pressures. Furthermore, in both provinces provincial strategies exist to conserve agricultural land, with British Columbia having by far the most stringent of the policies.

Table 3.15
Industrial floorspace built (in sq ft) (1987-1991)

From	To	Frequency Total	Frequency Local	Frequency Regional
0	2,000,000	14	11	3
2,000,000	4,000,000	3	3	0
4,000,000	6,000,000	2	1	1
6,000,000	8,000,000	0	0	0
8,000,000	10,000,000	1	0	1
10,000,000	12,000,000	0	0	0
12,000,000	14,000,000	0	0	0
14,000,000	16,000,000	0	0	0
16,000,000	18,000,000	1	1	0
18,000,000	20,000,000	0	0	0
20,000,000	22,000,000	0	0	0
22,000,000	24,000,000	1	0	1

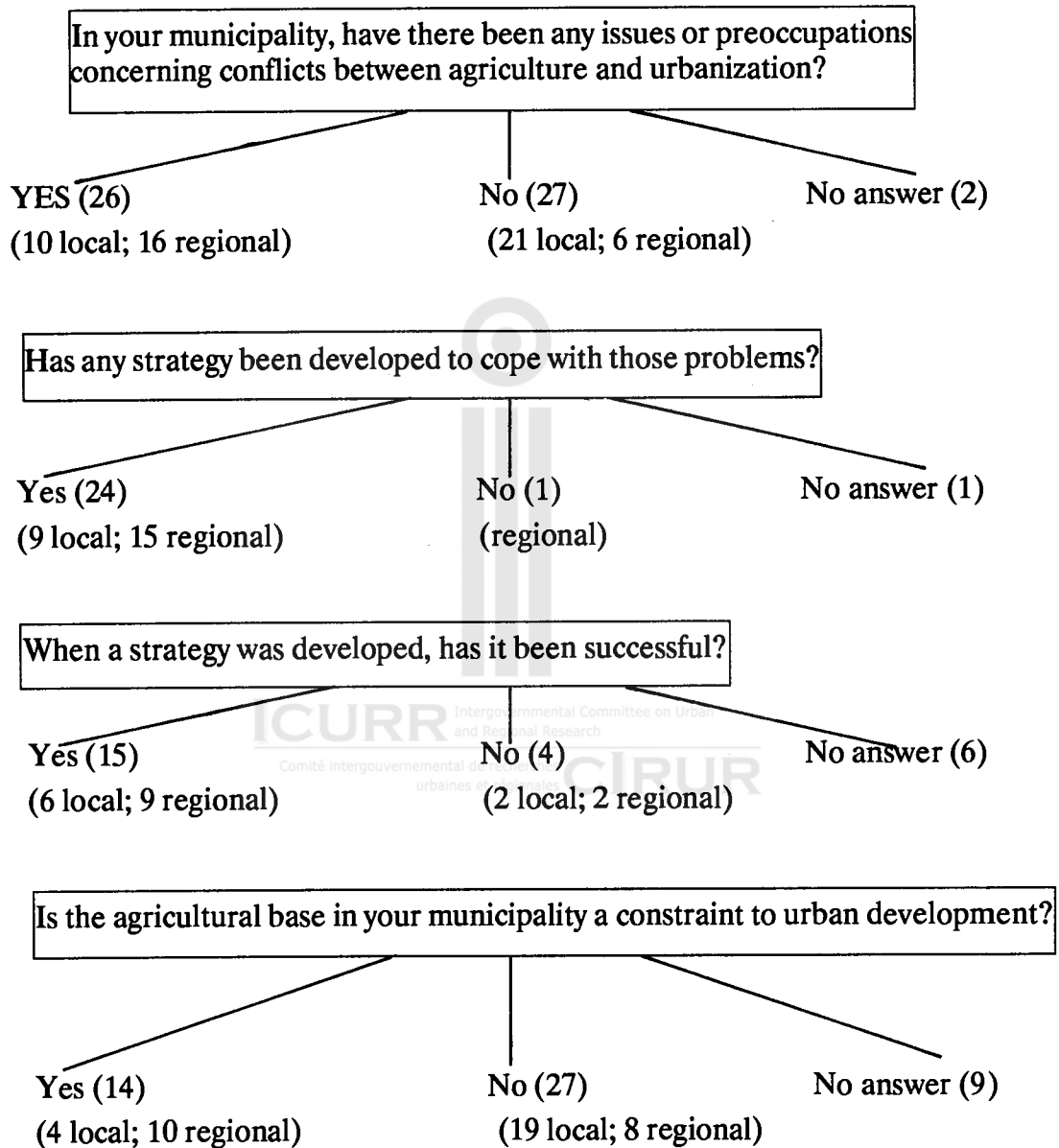
Table 3.16
Industrial floorspace built (1987-1991) for municipalities
reporting less than 2,000,000 sq ft
(complement to Table 3.15)

From	To	Frequency Total	Frequency Local	Frequency Regional
0	200,000	3	2	1
200,000	400,000	5	4	1
400,000	600,000	3	3	0
600,000	800,000	1	1	0
800,000	1,000,000	0	0	0
1,000,000	1,200,000	1	1	0
1,200,000	1,400,000	1	0	1

Table 3.17
Number of municipalities/units where agriculture or the environment are
considered a constraint to urban development

Halifax	1	2
Montréal	1	3
Toronto	7	9
Calgary		1
Vancouver	5	6
Total	14	21

Figure 3.1
Responses to the «Agriculture versus Urbanization» question



It is interesting that in the Montréal region only one response suggested agriculture was a constraint to urban development. This was particularly surprising given the relatively strong provincial legislation regarding agricultural land conservation. However, in other respects, this is perhaps less surprising given the relatively low growth pressures in this region compared to the Toronto and Vancouver regions during the 1980s. The lack of any expressed concern among the sample respondents from the Winnipeg and Calgary regions does not mean that conflicts with agriculture do not exist, only that the protection of agricultural land in these extensive agricultural regions was not perceived as a constraint to development.

Environment versus urbanization

Of the 55 respondents, 47 (85.4 per cent) said that their areas had experienced conflicts between the environment and the urbanization process (Figure 3.2). Only seven said "no" (12.7 per cent) and one gave no answer. Of the 47 that said "yes", 44 (93.6 per cent) said that their municipality had developed a strategy to cope with the problems. Twenty-nine (65.9 per cent) of these 44 reported that the strategy developed was successful. This leaves seven planners who considered their strategy unsuccessful and eight who gave no answer, mainly because it was too early to tell.

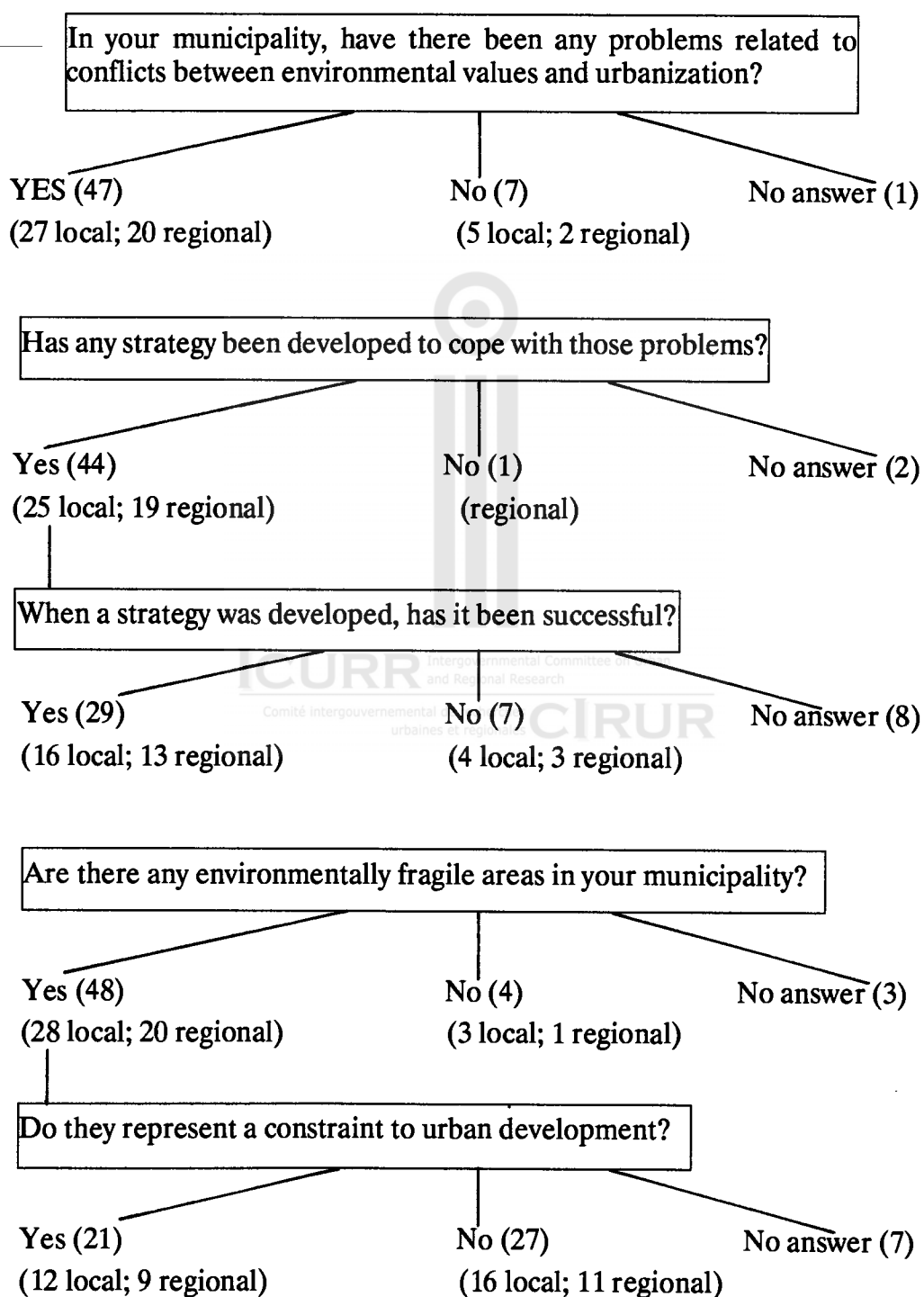
On the other hand, 48 planners out of the 55 (87.3 per cent) answered "yes" when asked if there were environmentally fragile areas in their municipality. To the question "Are those areas a constraint to urban development?", 21 answered "yes" while 27 answered "no".

As for agriculture, the municipal respondents suggesting that environmentally fragile areas represent a constraint to urban development are concentrated in the Toronto and Vancouver regions (Table 3.17), accounting together for 71.4 per cent (15 out of 21) of these responses. Again, however, interpretation of this pattern of responses must be tempered in light of the total number of questionnaires received from each region. Such issues, however, (environmental values versus urbanization) do seem to be most in evidence in the most rapidly urbanizing areas. In such growth contexts, the data suggest that municipalities take or have had to take environmental concerns seriously before taking decisions regarding the location of present and future growth.

Transportation versus urbanization

Forty seven municipalities out of the 55 (85.4 per cent) reported that their area had experienced transportation problems (Figure 3.3). Only six (10.9 per cent) said "no" and two gave no answer. Of these 47 municipalities, 37 (78.7 per cent) reported the development of a strategy or strategies to cope with these problems. But only 17 out of these 37 respondents (45.9 per cent) were of the opinion that their strategy had been successful. This response pattern is partly due to the large number of planners who gave no answer (13 out of 37), mostly because they felt it was too early to discern impacts. This large number of "no

Figure 3.2
Responses to the «Environment versus Urbanization» question



answers" does not however appear to be sufficient to explain the difference between the number of strategies developed and the number of strategies that has been successful. Seven (18.9 per cent) planners said that their strategy was not successful at all.

Overall, transportation and environmental-related issues (including waste management issues) were noted equally frequently among the respondents while agricultural issues were reported much less frequently. This partly reflects the very different agricultural resource bases in the different regions and the differing degrees of impact urban development has had on agriculture at the regional level. However, it also reflects the widespread concerns that have developed regarding the environment and the widespread problems regarding transportation in most major urban regions.

An Additional Issue: Education

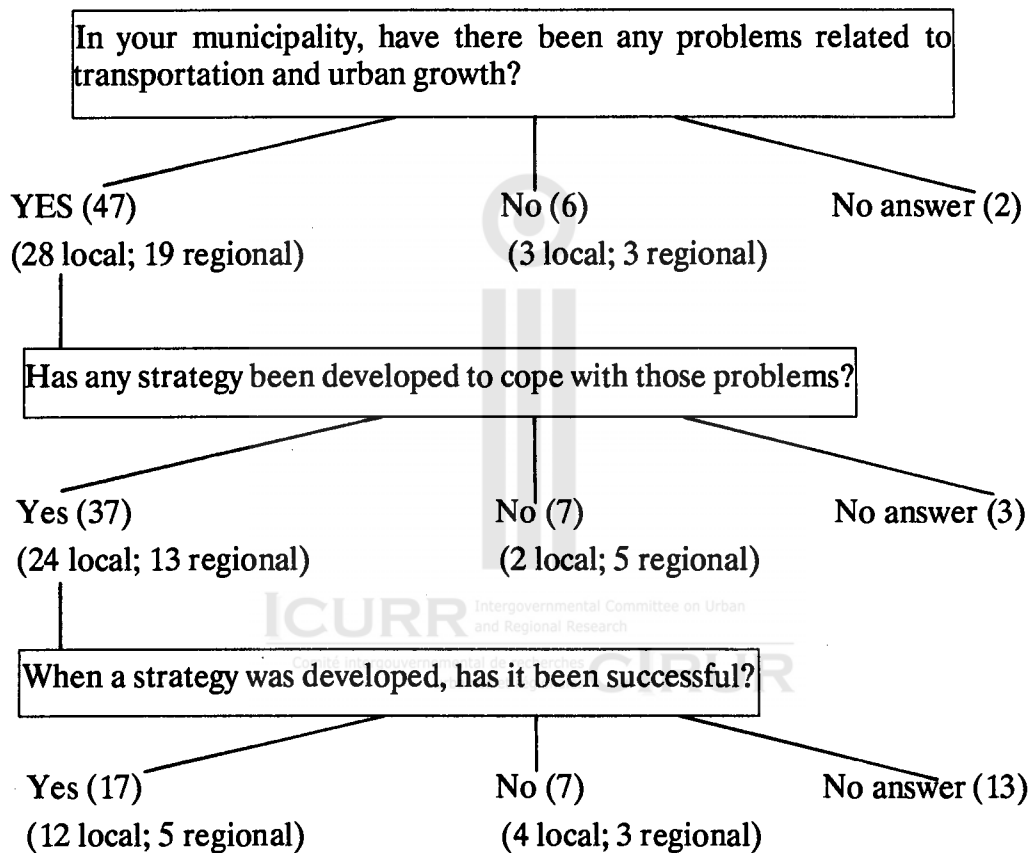
Only 20 respondents out of the 57 respondents mentioned problems concerning the educational needs of their community. However, many planners answered this question by saying that it was not in their field of competence, and often referred us to other people for more information. The comments are therefore of necessity cursory. Partly because of this and partly from general knowledge of urban growth patterns, it is likely that educational problems are much more important than shown in the survey, in which respondents mentioned educational issues or problems only 27 times. These are summarized in Table 3.18.

Eleven of the comments concerning these problems (40.7 per cent) represent situations experienced in growing communities. These municipalities express the need for new schools and comment that present schools are overcrowded and that there are too many portables. Along the same lines, six respondents mentioned the construction of new schools as a problem. In contrast, other problems mentioned by some respondents are more symptomatic of urban core areas; for instance, some respondents (three) mentioned school closure as a problem. Others (four) were concerned with increases in educational levies or taxes. Finally, three respondents questioned the ever increasing bussing distance from home to school in terms of costs, time and environmental impacts.

3.2.4 The Costs of Urban Growth

An important issue facing many municipalities is related to the costs associated with urban expansion. These costs can take various forms and several strategies have been developed to lower costs, to raise revenues, to set aside reserve funds, to use lot levies and to enter into joint agreements with other municipalities.

Figure 3.3
Responses to the «Transportation versus Urbanization» question



Measures to lower costs or raise revenues

Thirty-six respondents reported that their municipalities had developed one or more strategies to lower their costs or to raise their revenues. Overall, respondents mentioned measures to lower costs or to raise revenues 69 times. The 39 measures mentioned involving lowering costs are summarized in Table 3.19A and the 30 measures mentioned in an effort to raise revenues are given in Table 3.19B. Nineteen out of the 39 times measures to lower costs were mentioned (48.7 per cent) were oriented towards adjustments of current budgets. For example, seven comments (17.9 per cent) involved measures aimed at reducing or rationalizing administrative and blue collar staff complements.

Overall, then, cost reduction measures are primarily of the "better, more efficient management" variety, although some strategies were also aimed at the sharing of costs with other municipalities or the transfer of some costs to developers.

Thus, for instance, mention was made six times of strategies (15.4 per cent) to lower the costs of opening new land for development. Building roads, sidewalks and urban infrastructure requires long-term capital expenditure. By transferring development costs to the developer, the municipality is able to reduce some of its own expenditures.

Furthermore, measures based on the sharing of costs between municipalities in a given region were mentioned four times (10.0 per cent). In some ways, it is surprising to see such a low number of such measures when we look at Table 3.22, which summarizes joint agreements. In fact, planners mentioned many joint agreements but did not appear to perceive them as measures to lower costs, even though they clearly have implications in that direction. Finally, three measures are centred on resource management and conservation. The reporting of these measures in the survey is geographically clustered in the Prairies where water availability is often a particular problem.

In addition to measures to lower costs, 30 separate comments were made of measures to raise revenues. It is part of the conventional wisdom that a major factor leading to residential relocation within an urban region is related to differences in the cost of living and services availability between an urban core area and suburban and fringe areas. Municipalities in both urban core areas and in suburban and fringe areas are faced with revenue issues in relation to demands on services, in the former because of the high costs of infrastructure maintenance in the face of stagnating or declining populations, and in the latter because of the increasing demands for service provision as populations expand. Twenty-four out of the 30 (80.0 per cent) comments on measures for increasing revenues involve creating or increasing a wide variety of taxes, levies, user fees and the pricing of services (Table 3.19B). Two strategies mentioned were aimed at applying for provincial help, a rather passive form of revenue raising. Finally, four measures were oriented towards land strategies. These included such measures as downsizing lots, the sale of land owned by the municipality, increasing densities of residential development and the annexation of new land.

Table 3.18
Educational issues

School needed, school overcrowding, school shortage, too many portables	11
School construction	6
Increase in educational levy/tax	4
School closure	3
Concerns with increasing bussing distances	3
Total	27

Table 3.19
Number of times measures to lower costs and raise revenues were mentioned

A. Measures to lower costs	
Budget management, expenses reduction and financial strategies	19
Staff reduction or rationalization	7
Development costs at developer's expense	6
Regional sharing of costs	4
Resource management and conservation policy	3
Total	39

B. Measures to raise revenues

Establishment of user fees	17
Increase in various types of taxes and levies	6
Land strategies	4
Application for provincial help	2
Increase in price of services	1
Total	30

Water and sewer development or replacement	25
Building and infrastructure maintenance or replacement	12
Vehicle and road equipment maintenance or replacement	9
Road maintenance and development	4
Solid waste management	2
Other general uses	7
Total	59

Reserve Fund Use

In the survey, 29 respondents out of the 57 (50.9 per cent) reported that they had a reserve fund. The responses included 59 separate mentions of uses of such funds (Table 3.20). There are no surprises here. Reserve funds are used to develop, replace and maintain urban infrastructure. In fact, 84.7 per cent (50 out of 59) of the times these strategies were mentioned involved such uses. Only twice was mention made of using reserve funds to help in solid waste management; there is clearly room for development of this strategy especially given the considerable attention this issue is receiving all across the country.

Other uses of reserve funds included pollution control system development, engineering services, social assistance and capital projects financing.

The Use of Lot Levies

In the survey, 37 respondents out of the 57 (64.9 per cent) reported that their municipalities used lot levies. Several uses are possible; the respondent planners mentioned nine general uses that included 113 specific comments (Table 3.21). It is not surprising to notice that 45.1 per cent of times lot levies were mentioned was for the construction of water and sewer systems, as well as for the construction of stormwater systems. Also, it is even less surprising that another 21.2 per cent of the times lot levies were noted involved them being used for streets, sidewalks and roads construction.

Table 3.21
Lot levy uses: number of mentions

Water, sewer and stormwater pipes construction	51
Streets, sidewalks and roads construction	24
Recreation facilities, parks and open spaces	14
Municipal buildings, library, pool	6
Public protection, fire, police	4
Engineering services	3
Solid waste disposal site management	3
Administration	3
Other uses	5
Total	113

Table 3.22
Joint agreements

Water and sewer	32
Public protection, fire, police	19
Solid waste disposal and landfill sites	14
Public facilities (parks, arenas, pools, library, art centres)	10
Water treatment	7
Boundary roads maintenance	5
Landscaping, urban planning and economic development	5
Transit system	4
Total	96

On the other hand, it is somehow refreshing to notice that 20 out of the 113 specific comments (17.7 per cent) were for libraries, municipal buildings, recreation facilities, parks and open spaces. Finally, few lot levies were reported being used for solid waste management and landfill sites. Clearly, this could represent another area for the development of strategies to raise revenue.

Joint Agreements

Overall, 39 respondents out of the 57 (68.4 per cent) reported that their municipalities were involved either in joint agreements with surrounding municipalities to share costs or in regional structures in which municipalities shared certain costs. As already noted, this is somewhat of a contradiction with the data presented in Table 3.19B where a fairly low number of municipal planners reported their municipalities using cost sharing agreements to lower costs. Surprisingly, 96 different joint agreements were noted by the 39 respondents to this question (Table 3.22). Even if water and sewer systems occupies the first place, closely followed by the public protection function, it is interesting to note that 14.6 per cent (14 out of 96) of the joint agreements involved solid waste disposal and landfill sites. Also, the fact that 10.4 per cent (10 out of 96) involved public facilities is also interesting. On the other hand, only four joint agreements related to the operation of a transit system were noted. This is surprising given the large number of times concern was expressed over transportation issues in the urban development process (Figure 3.3).

3.3 THE CASE STUDY AREAS: CONCERNS, ISSUES AND STRATEGIES

In this section, first a general typology of issues and concerns as reported by the respondents is presented. Second, summary comments are made on each region in terms of these issues and concerns as well as the strategies developed to cope with those problems.

Nine broad categories of issues and strategies have been defined based upon the survey responses. The typology is used in the general discussion and synthesis presented in section 4.0. It is important to remember that these responses are based upon the perceptions of planners working within each municipality or region. There is therefore likely to be an emphasis on certain types of issues rather than others because of the professional orientation of planners. For instance, it might be expected that the respondents would not give as much emphasis to social issues compared to other professional groups. However, since the respondents were generally senior professionals in their areas, the responses can be expected to cover a reasonable selection of the actual range of issues.

1. General urban growth management problems

Issues and concerns mentioned here relate primarily to how and where to direct urban growth in order to obtain the most efficient and least energy-consuming city.

2. Cost considerations and infrastructure provision issues

Responses here were directly concerned with the costs of urban sprawl and the inefficiency of certain types of urban development. It therefore includes the costs of providing hard urban services.

3. Housing problems

Concerns about housing vary widely from municipality to municipality, ranging from infill and redevelopment of older areas to rural residential development impacts. Many respondents expressed concern for land availability for residential development as well as with the affordability of housing.

4. Economic problems

This category is about issues involving economic activities, the increase or decrease of employment and the development of industrial and commercial activities within each municipality. It includes concerns about the adequacy of municipal tax bases when economic activities stagnate or decline.

5. Transportation problems

This category involves concerns with road congestion, construction or planning, mass transit planning and associated problems, and transportation infrastructure provision and maintenance.

6. Recreation, parkland and open space issues

Recreation spaces accessible to residential areas is a quality of life issue today, and several respondents mentioned this. The problems cited can range from a shortage of green space or a lack of recreational infrastructure in urban centres to the "nuisance" posed by a golf course or camping ground for agricultural activities in fringe areas.

7. Conflicts with agriculture

Obviously, this category applies more to the suburban and fringe municipalities and includes the well-documented range of conflicts between non-farm activities and the loss of good quality agricultural land.

8. Issues concerning the management and availability of resources

The resources referred to in this category can either be physical or human. Physical resources involving municipalities include water resources and waste management facilities, while human resources can include education and social services.

9. Issues related to the environment

A wide range of environmental issues is included here, ranging from soil contamination in old industrial neighbourhoods in a core city to the contamination of aquifers by failing septic tanks in rural residential development areas. Waste management issues are also a major concern here. Problems in this category have a direct link to the quality of life.

Each of these issue categories may be addressed by strategies or policies developed specially to cope with it. However, policies and strategies are often included in a strategic plan of a more general nature and tackle several issues simultaneously. Thus, for example, a policy and strategy designed to focus economic activities in selected urban nodes also has direct consequences for transportation planning, housing and waste management.

In order to analyze the issues and strategies involved in each region, comments on issues and strategies are arranged according to the typology introduced above and by the general location of the respondent unit (core, suburbs, fringe). Due to limited numbers of responses in some regions, the responses from core and suburbs or from suburbs and fringe units, depending on the region, are combined together for discussion purposes. In addition to the survey responses, the discussion also integrates information obtained from face-to-face interviews with selected professionals in each region, as well as from documentary sources gathered either specifically for this project or from library sources. The documents are listed by region in the bibliography.

3.3.1 The Halifax Study Area

Population densities reach just over 1,400 persons/sq km in Halifax to fall slightly below 1,100 persons/sq km in Dartmouth. For purposes of this discussion, Dartmouth has been included with the City of Halifax within the core region. The remaining areas were placed in the fringe category. Beyond the rapidly growing Town of Bedford, densities fall off sharply except for some relatively urbanized areas in the Municipality of the County of Halifax and the small town of Windsor. Population change varies significantly across the region ranging from a minimal increase in the City of Halifax and a small increase in Dartmouth to substantial increases in Bedford and the subdivisions that make up the Municipality of the County of Halifax (Figures 2.2, 2.3 and 2.4).

Issues and concerns

Core region

The overall issue noted in the core area municipalities concerning urban growth management is the need for long-term policies and planning. The availability of quality affordable housing appears as a top priority. Cost considerations centre around the lack of investment by the private sector in the servicing of new land for development.

In terms of economic matters, a major concern of the City of Halifax is the need to maintain and increase employment and investment in its industrial parks. The City's industrial areas have experienced competition from industrial parks in the fringe areas where land is much cheaper. Transportation issues are also of major concern in the core area. Problems occur at bridgeheads because of the major influx of suburban commuters to the city. Other transportation problems concern congestion, traffic control and road degradation.

Finally, a number of concerns were expressed regarding the environment. Waste disposal is a prime issue, the protection of lakeshore and other panoramic views, and the preservation of public gardens were also mentioned.

Fringe

There is a tremendous variety of situations in the Halifax fringe areas. In the rural municipalities and small urban centres, the issues and concerns noted most frequently concerned transportation, agriculture, resources and the environment. The need for long-range planning for roads as well as for improvements in transit services was mentioned. Some major roads need to be enlarged and local traffic flows need to be better planned. Preservation of agricultural land appears important for some respondents who cited conflicts between agricultural land use, housing and institutional development.

Mention was also made of inadequate capacity in the school system, a characteristic symptomatic of many growing areas. By way of contrast, during the 1970s and 1980s the City of Halifax experienced some school closures, a characteristic of many inner city areas.

Finally, environmental problems were noted in relation to the degradation of environmentally fragile areas, the preservation of watercourses, watersheds and waterfronts, and in relation to groundwater pollution. The failure of septic systems in some older residential areas was particularly emphasized as a future source of groundwater pollution problems. There are also problems with the development of new landfill sites. In the Municipality of the County of Halifax, the different Districts often have their own dumps and these must soon comply with minimum provincial standards.

For the other categories of issues, relatively few concerns were expressed. Some talked about

the need to restrict commercial and industrial land uses in the fringe, particularly in the context of several municipalities all trying to develop their own industrial parks for tax base and local employment reasons; others spoke about servicing issues, such as the extension of the municipal servicing boundary. On the housing side, concerns were expressed in terms of the provision of multi-family dwellings and senior citizen housing.

Policies and strategies

Core region

A number of strategies have been developed in relation to urban growth management. Some strategies have been, and are being, developed to encourage infill as well as downtown and waterfront redevelopment. This must be seen as part of an effort to attract development and population back to the City of Halifax; in fact there was a slight increase in population between 1986 and 1991 after a decrease from 1976 to 1986. Other strategies put emphasis on downzoning some residential areas. In terms of cost consideration issues, the major strategy is that sewer installation is now at the developer's expense.

The development of business parks is on top of the economic agenda as well as the strengthening of the CBD. Transportation problems have been addressed by widening major roadways, upgrading accessibility to the bridgeheads and replanning transit routes. Over the last few years, more pro-active regional co-operation in the transit, sewage and waste disposal areas has been developing, through the Metropolitan Authority and its Transit and Solid Waste Management divisions.

Finally, environmental strategies have been developed to protect environmentally fragile areas such as lakes. Strategies have been, or are being, put in place for the incineration, reduction and recycling of solid wastes.

Fringe

A particularly interesting development has occurred concerning the agricultural base of one fringe area. The "Upper Falmouth Municipal Planning Strategy" was prompted by farmers themselves. A comprehensive strategy, it prohibits development unless an agreement between the farmers and the developers has been reached. To control urban sprawl, strategies have been prompted to control the number of lots created each year. Servicing, servicing and development boundaries were established to control the cost of residential lots and support affordable housing.

Transportation issues have been addressed, for instance, through the closing of local streets to trucks. Environment issues have been addressed through by-laws and land use designations, particularly in order to maintain the quality of drinking water.

Highlights from the Halifax region

The core area is very concerned with the economic impacts of regional growth upon its economic base, particularly in relation to competition from suburban and fringe municipalities. Job opportunities and investment are therefore prime concerns. Housing is also an important issue. In the fringe area, concerns are expressed regarding the protection of the relatively limited agricultural base, and there are significant issues related to local servicing and the environmental and servicing costs associated with the failure to develop adequate planning measures.

Regionally, while progress has been made regarding the co-ordination of certain components of infrastructure planning such as solid waste management and transit planning, co-ordination between municipalities in other areas is limited. The great variety of approaches taken by the different municipal units means that even apparently minor matters such as coordinating housing development and road networks on either side of a municipal boundary is not to be taken for granted.

3.3.2 The Montréal Study Area

The Montréal study area is a very large and sprawling urban region. It includes close to 50 per cent of the total population of the province of Québec. What makes it particularly interesting and challenging is the fact that the core area is an island, as is the City of Laval to the north. Most of the planning powers are held by the numerous municipalities forming the Montréal study area. The Census Metropolitan Area (CMA) includes the City of Montréal and the other 28 municipalities of the Montréal Urban Community (MUC), the City of Laval (which is the result of an earlier amalgamation of 14 municipalities), and a large number of other municipalities distributed along the north and south shores of the St-Lawrence River. Twelve regional administrative structures (MRCs) cover the municipalities outside the MUC, but at present the municipalities retain significant powers. Indeed, many of the MRCs did not respond to the survey because of their limited staff and because they felt that the local municipalities were in a better position to respond to the types of questions contained in the survey.

The declining population for the City shown in the statistics for 1976 to 1986 seems to have reversed itself in the 1986 to 1991 period. Suburban areas such as Boucherville and Laval have experienced significant increases, and the general pattern is one of a wave of population increase in suburban areas. These suburban areas surround an urban core area with a generally stagnating population. In turn, the suburban areas are surrounded by rural and small town areas, some increasing in population while others are stagnating. (Figures 2.5, 2.6 and 2.7).

Issues and concerns

Core region

The core region used to organize the survey data is composed of the City of Montréal and the municipalities of the MUC, even though some of those municipalities present characteristics more closely aligned with suburban municipalities. For data collection purposes, it was easier to retain the MUC as a unit. Problems reported in the core region are centred on a number of very significant issues: housing, economic development, transportation, environmental problems and growth management problems.

About 80 per cent of the City of Montréal is fully serviced and developed. Fairly large areas of former industrial land are available for redevelopment downtown. In those areas, services are already installed. The City is now faced with the problem of redeveloping land near the downtown and keeping costs low; at the same time it is unclear whether residential preferences can be changed significantly away from the more suburban type living conditions available further from the downtown, yet still relatively accessible to the downtown.

Montréal is one of the oldest urban centres in the country. One of its major concerns in the housing domain is the high percentage of apartment units in poor condition due to the aging housing stock. This presents a real challenge in terms of trying to upgrade the City's image as a place in which to live and raise a family. It is also linked to concentrations of social issues in certain areas, e.g., low income and high unemployment.

In terms of transportation, problems arise from insufficient major routes and highways passing through the MUC and from traffic congestion despite a relatively well-developed transit system. Finally, the poor state of repair of many road surfaces due to the frequent temperature changes presents a major and on-going issue in terms of upkeep.

In terms of economic development, the MUC is concerned with the volume and diversity of economic activities in its area. The MUC still contains the major portion of employment and jobs in the CMA and in the study area. The MUC is also concerned with socio-economic development and the management of green spaces. On the environment side, concerns are expressed in terms of water treatment, sewage management and recycling, management of snow removal and contaminated industrial lands. It is interesting to note that in the questionnaire survey no concerns were mentioned regarding costs and infrastructure provision issues, even though these are known to be important. However, from a broader perspective, they are secondary to the issues of population retention and economic development.

Suburbs

Suburban municipalities around Montréal cover a broad area. The issues and concerns from

respondents in this zone are therefore numerous and varied. Starting with growth management, suburban municipalities are frequently concerned with the imbalance between residential land uses on the one hand and commercial and industrial land uses on the other hand. Also, in some municipalities the dispersal of population has created pockets of vacant land considered unsuitable for residential development. Finally, some municipalities are concerned with the increase in demand for services. Related to this are cost considerations such as the increase in expenses not related to specific projects such as school taxes and transit taxes. They are also concerned with the profitability of new infrastructure. On the housing side, concerns are centred on the imbalance between single-family units and other types of development. The perceived high price of land is an important issue in terms of accessibility to housing.

More so than in the core, emphasis was given to issues involving transportation. Several municipal respondents expressed concern over the daily traffic jams on the bridges leading to the islands. They are also concerned with transit circulation inside their municipality as well as with the lack of new routes or mass transit facilities.

On the environmental side, major concerns were expressed with solid waste management and recycling as well as the preservation of woodlots, small islands, river banks and floodplains.

Finally, much concern was expressed in relation to resources. The growing proportion of elderly people in suburban municipalities has forced many municipalities and other local institutions to adjust their budgets to create the appropriate social and medical services. Schools and education are also important issues. On the economic side, no specific concerns were expressed, except those relating to maintaining a balance between residential, commercial and industrial development. Some concern was expressed over the loss of good agricultural land because of greater than expected demographic expansion; this was not however a major concern.

Fringe

In fringe areas, including some small urban centres, many concerns were expressed regarding transportation and environmental issues. However, problems mentioned in relation to transportation infrastructure tended to be site-specific rather than area-wide concerns. Problems identified included delays in paving new streets, dangerous railroad crossings at intersections with major routes and difficulties with downtown circulation. On the environmental side, many concerns were expressed regarding the preservation of floodplains, river banks, woods and waste disposal and management. A number of specific local problems were noted as well such as the construction of a telecommunication tower for the cellular telephone network and the establishment of a solid waste incinerator.

In terms of growth management, problems mentioned concerned the lack of long-term strategic planning, the problems caused by lands that are unsuitable for urban development

and already developed areas threatened by overused water and sewer facilities. Fringe municipalities are also concerned with the profitability of new development. Economically, they are concerned by old industrial lands that are not suitable for new high-tech industries. Concern over conflicts with agriculture appear to be minimal and when mentioned, were related to site-specific issues such as the creation of a specific industrial park.

Strategies and policies

Core region

A number of major strategies have been developed within the MUC area. At the municipal level, one of the most important events over the last ten years has certainly been the new urban plan for the City of Montréal. This was the result of a two year public consultation process that took place in each neighbourhood of the city. At a more regional scale, since 1986 the MUC has overseen the implementation of the Master Plan that provides municipalities with guidelines in the context of the whole island's development.

A "Housing Strategy" has been developed to address some of the housing problems in the city. Instead of focusing on building new apartments, the city plans to improve the conditions of existing units to minimum standards. There are also major efforts being undertaken in the area of social housing. On the economic side, there is an Economic Development Strategy for the City of Montréal and for the MUC, which aims to encourage economic diversity and promote the area internationally as a place in which to establish a business.

Substantial improvements have been made in the transit system by the creation of reserved lanes for buses at peak hours, although traffic issues and competition between public and private transportation remains a major issue. The city has also taken measures to repair potholes more quickly in the spring.

The MUC has created a network of Regional Parks to guarantee at least a few acres of wooded areas on the island. Finally, environmental issues have not been addressed so much through general strategies as through interventions in relation to particular issues. For instance, in the last ten years, the MUC has completed the construction of the sewer system that circles the island so that all sewers feed into the regional water treatment system. For solid waste disposal, a waste treatment and disposal centre ("Centre de tri et d'élimination des déchets") has been built, and the Green bin ("Bacs verts") strategy has been introduced for recycling.

Suburbs

A significant number of strategies have been developed by suburban municipalities. These municipalities have developed growth management strategies and pursued policies in economic development, transportation and the environment.

In terms of growth management, municipalities surveyed have prepared Development Plans that frequently include urban renovation strategies, housing development strategies to maintain their share of the market, policies to manage housing development in already growing areas and strategies to increase the density of the urban framework. Cost consideration issues have often been addressed by Project Profitability Strategies, involving getting developers to bear the cost of infrastructure.

In the commercial field, strategies have been developed to concentrate commercial development in specific existing commercial areas, to favour the development of high-tech industries, and finally, to promote in-town employment to create greater local autonomy in terms of job and labour force balance. Transportation has been characterized more by local interventions rather than by more general strategies.

From the surveys, conflicts with agriculture seem to be regarded as minimal. However, note was made of efforts to harmonize urban development with agricultural activities. Environmental interventions have included the protection of floodplains and islands and the creation of an urban forestry guide for tree preservation in urban areas.

Fringe

Fringe municipalities in the Montréal region have actively developed many strategies to cope with growth-related problems. Although nothing was mentioned regarding cost considerations, recreation and resources management, many strategies have been developed in relation to growth management, housing, economic activities, transportation and the environment. Efforts are being made in several municipalities to counter sprawl by increasing the density of already developed residential areas, as well as raising the development density of areas to be developed over the next few years. Strategies are also being pursued in some places to renovate the downtowns of many of the small urban centres and to concentrate urban development within them.

On the housing scene, many local strategies have been developed. These include the provision of all new infrastructure by the developer, subsidies for new construction, tax exemption for three years for new home owners who had not previously lived in the municipality, and developers cooperating for marketing purposes. On the economic side, efforts have been made to develop a strong commercial downtown to encourage people to spend in their own town, to direct industrial growth towards future development axes and to direct commercial development along existing commercial arteries. Concerning transportation, efforts have been more oriented towards local intervention than general strategy development. Most comments here concerned road reconstruction, road safety improvement and interchange/intersection improvement.

In terms of the agricultural base, the most important strategy involves strengthening agricultural activities by prohibiting any non-agricultural land-use on agricultural land, in line

with the provincial *Agricultural Land Protection Law*. Finally, environmental strategies include prohibition of construction on riverbanks and floodplains, integration of new construction with existing architectural form and public consultation for major new projects as well as impact studies.

Highlights from the Montréal region

The core region identified in this study is very large. Major issues relate to the competition that inner core areas have experienced due to the dispersal of population and economic activities to suburban areas and beyond. In this context, economic development strategies become very significant. A particularly interesting highlight from the Montréal core area is the public consultation process used in the development of the City's urban plan. In terms of suburban municipalities, strategy development has tended to be placed in the context of strategic planning. This is particularly the case for Laval, a city of more than 300,000 inhabitants just north of Montréal. In fringe municipalities, policy and strategy development appear to be more reactive to problems than representing a strategic planning effort aimed at the long-term reshaping of the municipalities. Overall, the analysis converges with many of the comments made by the Working Group for the Greater Montréal Region (1993).

3.3.3 The Toronto Study Area

This highly urbanized area has experienced substantial population growth over a long period of time and the distribution of this growth over a wide area (Figures 2.8, 2.9 and 2.10). The majority of the 18 questionnaires returned from this region came from municipalities classed as "suburban". Most of the concerns and problems expressed related directly to the patterns of urban growth they had been experiencing. In fact, issues and concerns mentioned by the "core" respondents and fringe municipalities were relatively limited. On the other hand, these municipal respondents did identify a significant number of strategies.

Issues and concerns

Core region

Two categories of problems were mentioned most frequently in the core region: transportation issues and environmental concerns. In terms of transportation, planners referred to the growing road congestion associated with the rapid pace of development in the region and to the ever increasing number of commuters crossing the central area each day. Specific, but major, areas of concern were also mentioned such as problems with airport-related traffic. Finally, inter-regional transit and transit system expansion were also major concerns.

Concerns were also expressed in relation to the environment. These included the protection of river valleys as well as the planning of Lake Ontario's waterfront. Also, waste disposal and management were important issues.

Core-city planners expressed concerns about several other problems. On the one hand, some issues relate to certain types of infrastructure not keeping pace with development, e.g., schools and the availability of recreation facilities. On the other hand, in relation to economic activities, planners expressed concern with the de-industrialization of the region as well as the globalization of the economy, and the consequences for such issues as the mismatch between labour supply and demand. Finally, the respondent core area planners are concerned with the extent of sprawl in the region. They are aware that the region is too spread out and that there is an urgent need to address this.

Suburbs

The greatest number of issues and concerns mentioned in the survey came from suburban municipalities. They covered the whole range of issues, except the recreation/parkland issue. In relation to urban growth management problems, planners from these areas expressed concern about the rapid rate and scale of the region's growth. They were also concerned with the changing character of their municipality (from rural to suburban to urban), the supply of land, the distribution of population densities within their areas and problems of infill and redevelopment. Finally, they expressed concern about maintaining an attractive and healthy city.

On the economic side, problems and issues related to cost considerations and infrastructure provision included soft services provision for the future, hard and soft services maintenance, and the demands on planning and development departments. Concerning economic development, most issues mentioned involved the need to support industrial and commercial growth by attracting new businesses to maintain and increase the local employment base in the municipality. Other concerns were expressed regarding commercial needs and the location of retail facilities.

Housing concerns were related to the need for affordable housing and the diversification of housing types. As for transportation, two main issues were noted most frequently: 1) the ever increasing road congestion and traffic related problems; and 2) the need for public transit in areas where it is absent or for an increase in transit use where it is already in operation.

Three other major issues mentioned concerned conflict with the agricultural base, the availability of resources and the environment. Planners from the Regional Municipalities expressed concern about the control of non-farm uses in agricultural areas. Resource issues mainly involved educational services, the lack of school capacity in relation to demand and the lack of community services. Finally, environmental issues were centred on the conservation of woodlots, creeks, moraines and generally the impact of urban development

upon the environment.

Fringe

Few concerns were expressed by fringe municipalities. Those that were noted centred on cost considerations and transportation issues.

Planners in fringe municipalities expressed concern about the lack of services as well as the timing and cost required to provide new services. They also complained about the deterioration of roadways and the difficulty of ensuring efficient inter-regional movement. Problems related to resources management focused on ground water supplies and the availability of social services. Finally, protection of environmentally sensitive areas is becoming a major issue despite the fact that these municipalities are set in a countryside location.

Strategies and policies

In response to the various problems mentioned by the Toronto study area planners surveyed, several strategies and policies have been developed.

Core region

To cope with several of the problems of urban growth, core areas have placed an emphasis on the development of mixed use nodes along the rapid transit system. They also place great hope on residential intensification along major roads, main streets and at transit nodes. These strategies are intended to increase the efficiency of the transit system and reduce urban sprawl. On the housing side, the respondent planners noted a focus on residential redevelopment in central areas in order to increase the level of activity in those areas and contribute to reducing in-commuting.

To help deal with the economic problems identified, core respondents emphasized the importance of converting industrial land to other land uses in order to allow for a broader range of economic activities. In order to reduce automobile use, an emphasis is being placed on trying to encourage greater use of the transit system instead of on the construction of new roads. Finally, environmental issues are generally addressed through official plans. For instance, in the Metro Toronto Official Plan, attention is given to waterfront planning, the preservation of sensitive areas and the definition of special policy areas.

Suburbs

Increasing the density of residential development is perhaps the most important point made about strategies in relation to urban growth problems for suburban respondents in the Toronto area. Several strategies were noted. Some municipalities have tried to insist on

contiguous development to reduce inefficient expansion patterns. Others have encouraged mixed-use development and more effective use of land along main streets in order to develop a string CBD. As for cost considerations, one municipality mentioned a staging strategy for the construction of services for new development areas.

In terms of housing, suburban municipalities now appear to place more emphasis on the integration of different housing types, in keeping with provincial concerns for more affordable housing. Also, note was made of residential development being planned through more coherent residential phasing strategies.

In relation to economic problems, some strategies were oriented towards meeting the commercial needs of the municipalities. Several strategies were at the evaluation and analysis stage: a local retail needs study, a central commercial corridor study, a local downtown partnership study and a commercial corridor strategy were among the studies noted. Some municipalities have developed strategies to relocate industrial activities currently operating in outdated premises, while others have developed industrial development strategies. Finally, one municipality has stopped charging an industrial lot levy in order to encourage more industrial development.

In relation to problems with the agricultural base, strategies have been developed mainly to cope with the rural residential phenomenon. For example, one municipality reported limiting rural residential development to infilling. Also, some municipalities have decided to focus non-farm land uses into urban centres. Finally, most official community plans contain policies or strategies to preserve agricultural land, involving addressing provincial guidelines as well as developing their own strategies. Finally, environmental problems are dealt with through numerous preservation strategies. Some municipalities have performed detailed environmental analyses of their communities while one planner mentioned that rising awareness concerning environmental problems has led the municipality to develop an ecosystem approach to community planning.

Fringe

For fringe municipalities and small towns, urban growth management problems are being addressed by two categories of strategies: 1) an increase in mixed land use zones in urban centres in order to achieve more balanced growth; and 2) the development of compact urban cells to emphasize a nodal pattern of development.

Regarding other strategies mentioned, one municipality has decided to impose a development moratorium on residential development. In the transportation area, some municipalities have placed an emphasis on public transit. In relation to the agricultural base, it seems that the balanced growth strategy mentioned earlier has stabilized the agricultural environment. Ground water studies have been conducted to quantify water resources in several municipalities. Finally, environmental awareness has produced stricter guidelines

concerning the impact of urban development on the environment, and several policies and strategies aimed at environmental problems were mentioned as being part of the official community plan of a municipality.

Highlights from the Toronto region

The core area of this major urban region has experienced the problems associated with managing a relatively dense urban environment, the competition created by the rapid expansion of peripheral suburban and fringe areas, and the decline of certain parts of the core area. On the other hand, the issues and concerns and the corresponding strategies developed in the suburban and fringe municipalities emphasize the direct local consequences of urban growth. A major challenge in this region, given the extensive nature of the linkages that extend substantially beyond the region defined for this study, is the integration and coordination of patterns of growth and infrastructure provision between the many powerful municipalities and Regional Municipalities in the region. This is a challenge that Office of the Greater Toronto Area is attempting to address.

3.3.4 The Winnipeg Study Area

Information gathered on the Winnipeg region from the surveys is not very extensive. Because of this, the questionnaire from the City of Winnipeg and from the one unit classed as suburban (Selkirk Planning District) are considered together. This decision is partly based on information received in interviews with senior planners in the Ministry of Urban Affairs. While the so-called suburban unit possesses densities that would otherwise place it in the fringe category, discussions emphasized that part of this unit was indeed considered suburban in a region where densities are relatively low (Figures 2.11, 2.12 and 2.13).

Issues and concerns

Core region-suburbs

The issues and concerns mentioned in relation to these zones are quite broad in scope. The emphasis was on major problems concerning the whole area.

In relation to urban growth management, a first set of concerns deal with the inner city - the renewal of the commercial and residential core, and the general decline and sprawl of the CBD. Commercial activities are spread out. This is the result of the amalgamation of 13 municipalities that occurred in the early 1970s. Cost considerations were mentioned in relation to the provision and renewal of existing services and the level of property taxes. The tax situation, as in other regions, is part of a vicious circle involving increasing tax rates and movement of people to suburban and fringe areas where land is cheaper and more easily available. Housing issues emphasized the aging housing stock in the inner city, another factor

in driving some people out to the suburbs and beyond.

Transportation issues were also emphasized. Part of the issue relates to capacity deficiencies in the road network of the core region and transit traffic in the older neighbourhoods is proving difficult. Also, a need was expressed to replace and improve existing transportation infrastructure. Winnipeg has a very efficient bus system and the rate of bus commuters is considered relatively high; however, the major problem comes from suburban commuters and those beyond who park their cars in shopping mall parking lots and then take the bus downtown. Those people are using the transit system without paying for it through their taxes.

Finally, environmental problems were noted, as in most core regions. Waste management and disposal are major issues, and it was noted that there is a need to get all the municipalities working together to resolve this problem. Water supply is another major issue, and aquifer reserves are regarded as being low. Moreover, the naturally salty water needs to be filtered, thus increasing the final price tag of water distribution to each house.

Fringe

Concerns noted here emphasized cost considerations, and conflicts with agriculture and the environment. Other issues mentioned included the infill potential in small urban centres and major new routes being necessary for commuters.

Cost consideration issues were associated with the increasing volume of rural residential development. These developments are based on on-site septic systems, thus making any cost effective collective infrastructure more difficult in the future. Also, the high rate of septic tank failure was considered to be a source of water quality degradation. Finally, people in some older areas are beginning to press for more urban services, but one respondent considered the cost of providing such services prohibitive.

Conflicts noted with agriculture take various forms that reflect the well-documented patterns in urbanizing regions. Some municipalities have experienced problems between livestock operations and residential development. Planners are also concerned with the consumption of prime agricultural land. Finally, the clash between agricultural communities and rural non-farm residents is becoming more and more evident. On the environmental side, the failure of septic fields has caused leakage leading to groundwater contamination.

Strategies and policies

Core region-suburbs

In the core region, the major issues have been addressed by several major strategies, each comprised of several sub-strategies. Urban growth management issues are addressed by two

major strategies in the City of Winnipeg. First, the Winnipeg Core Area Initiative was developed to help the CBD and commercial core regain its place in Winnipeg's urban system. Second, Plan Winnipeg 2000 is a general strategic plan to help guide the city towards the next millennium.

To cope with cost issues, a Reduced Capital Spending strategy has been developed. It is aimed at managing the city's budget such that money is spent where it is needed and unnecessary expenditures are reduced. On the housing side, the Neighbourhood Improvement Program represents an attempt to make the inner city more liveable through such sub-strategies as renovating major infrastructure, creating new open spaces, providing community support and welcoming newly arrived immigrants.

Fringe

In the fringe municipalities, strategies have been developed in three fields: urban growth management, agriculture and environment. For those three fields, strategies can be divided into broad scale strategies and more issue-specific interventions.

In terms of urban growth management of the small urban centres, municipalities have designated urban settlement centres and infill potential. For the more rural areas, mention was made of several criteria for development, the creation of a provincial land-use policy and the resubdivision of existing acreage.

On the agricultural side, efforts have been made to protect the agricultural base. For example, municipalities have designated specific non-farm development areas as well as developing policies for these rural residential development areas. On the environment side, some efforts have been directed towards dealing with groundwater pollution, the designation of wildlife habitat areas, and the development of a policy for preserving soils.

Highlights from the Winnipeg region

The core region has several problems related to its CBD and commercial area. The ageing housing stock and increasing tax rates are also major concerns. In the fringe areas, concerns relate to the protection of the agricultural base, the preservation of the environment and the various problems caused by rural residential development. Although the City of Winnipeg is by far the largest player in the region at the municipal level, there is a need to coordinate growth patterns in the region. At the time of the survey, the provincial Ministry of Urban Affairs was co-ordinating a study into the future development of the whole Winnipeg region, recognizing the inter-relationships among the development of the core urban area and the fringe and rural areas.

3.3.5 The Calgary Study Area

From the questionnaire developed for this study, it is difficult to differentiate the core-city from the suburbs. As noted earlier, Calgary adopted a unitary form of urban area administration, combining urban core and suburbs, in the early 1950s. Since that time, they have succeeded in keeping a 30-year land supply for urban development inside city limits so that suburban development would be undertaken in a systematic pattern around the city core. Due to the limited number of questionnaires that could be sent out in this region and that were received, this analysis combines the core city with the suburbs. Most of the information for this section comes from the Calgary Regional Planning Commission) (Figures 2.14, 2.15 and 2.26).

Issues and concerns

Core region

No major problems were noted concerning physical aspects of growth (e.g., the construction of roads, schools, commercial and industrial zones, the opening of new development in the right areas at the right time or phasing). This appears to be related to the progress in planning urban growth that the combination of urban core and suburbs in the same administrative structure has permitted.

The majority of the issues cited for Calgary relate to cost considerations. Because much of the recent development in Calgary, was directly related to the oil industry in the 1970s and 1980s, and since this development has varied over time, the municipality's tax revenues have been uneven. This phenomenon has created concern about the long-term expenditure capability of the City. Moreover, the municipality invested a substantial amount of money in preparation for the 1988 Winter Olympics.

The City is now faced with a major debt challenge because the new highways, the transit system and the city's major infrastructure were developed over the same short period of time. The City is well aware that it has to plan in a way to finance the maintenance costs as well as the replacement costs for all these infrastructure developments. Making the financing and infrastructure provision issue even more difficult is the shortfall in funds from provincial sources even though the responsibilities devolving onto the city are getting heavier (this is a general phenomenon in most regions, but it was only mentioned explicitly in the Calgary region). One result has been the "no more debt" policy of the city, aimed at getting the municipality to restrict its expenditures to what it receives in taxes.

In terms of economic considerations, the city is concerned with economic activity and employment growth lagging behind population increase. In relation to housing, the major concern is with the imbalance between single-family housing development and higher density development. From the City's perspective, the city is beginning to be too spread out which,

it was suggested, is starting to compromise the viability of future service expansion. Another issue related to financing is transportation, to which the provincial government contributes in an important way (the mass transit system). But since growth in the city is mainly suburban and thus based on an extensive use of the car, it is more and more difficult to get grants destined for mass transit when the apparent needs are for roads to accommodate the automobile.

Concerning land-use conflict, the City prefers not to have rural residential development spreading out into agricultural areas; if and when the City annexes land it would prefer to obtain the land "intact" for urban development. They are not therefore concerned with the viability of agricultural activities near the city directly. Finally, the city is concerned with several environmental problems. They are aware that steep slopes, river valleys and open spaces need to be protected. They are aware of the conflict between residential and industrial uses in the planning of urban development as well as the noise nuisance from the airport for nearby suburban development. Lastly, due to the extensive use of the automobile, air quality was noted as a concern.

Fringe

From the perspective of the Calgary Regional Planning Commission, municipalities in the fringe area are concerned about getting their share of growth. They are responding to the need of some families to raise their children in a rural environment. More recently, awareness has been raised about the fragmentation of urban growth and the need to direct residential growth in a way that will respect the environmental, agricultural, social and economic dimensions of a viable rural municipality.

The regional organization responsible for the rural planning around the city is the Calgary Regional Planning Commission. For the past several years, it has focused its energies on defining urban growth corridors and identifying and encouraging logical development cells. The Commission has also been involved in urban fringe negotiations with the City of Calgary, and has dealt with issues related to leap-frog rural residential development in the region, such as adequate water supply.

On a more detailed level, rural municipalities have expressed concern with traffic increases when new residential areas are opened up, and with the cost of the sewage treatment facilities and other infrastructure needed. Obviously, agricultural concerns will be greater in the fringe than in the core city. In the past decade, a great deal of good farmland has been taken out of production for residential uses, and there has been a growing number of "urban" land uses locating in rural areas causing nuisance problems. Rural municipalities and small towns are aware that they have to take care of the environment if they want to keep attracting new families. Efforts are being made in that direction in order to minimize the effects of urbanization on environmentally-fragile areas.

Strategies and policies

Core region

The City of Calgary is a well-planned city that has engaged in some well-developed strategies based on extensive analysis of the issues. Five major strategies have been developed, each dealing with a specific sub-set of issues relating to urban growth.

The Long-Term Growth Management strategy is driven by a vision of what Calgary should look like in the year 2020. Included are key orientations concerning housing and the local economy. The intent is that this strategy be revised every five years. Recognizing the changing environment we function in, the Short-Term Growth Management strategy is revised *every year for a period of five years*. This helps the city prepare its budget for the next year. More importantly, it provides a detailed and up-to-date analysis of suburban growth dynamics, helping to build a framework from which it is possible to evaluate the merits of individual requests for unbudgeted service extensions in suburban areas.

In terms of future land requirements, two strategies have been developed. The Annexation Strategy is a comprehensive strategy for annexation based upon maintaining a 30-year land supply. The strategy is revised each year based on a consultation process. A great deal of attention is paid to the effects of annexation upon annexed residents and businesses, on annexed agricultural land, on taxation levels, and financial impacts on the school system. There is also the Urban Fringe Negotiation strategy, which helps guide the city in its urban fringe negotiations with surrounding rural municipalities.

Finally, the ten-year Capital Spending Framework strategy covers everything in relation to financing, servicing and infrastructure provision. A series of strategies and suggestions for reducing capital spending is contained in this strategy, namely:

- Debt reduction initiatives
- Cost sharing practices for growth related expenditures
- Rationalization of the service package
- Re-assessment of "who pays for what"
- Improvement of the management for infrastructure maintenance and upgrading
- Encourage the change to Provincial Funding Programs

As a final point on financial matters, the "no more debt" policy is thought to be helping the city manage its financial resources efficiently by reducing the role of debt financing. Planners are divided on the issue. For instance, there are those who consider this kind of policy to be well suited for a city with no growth but not necessarily suited for a relatively fast-growing urban centre like Calgary.

Most of the housing issues are addressed in the Short-Term Growth Management Strategy. This indicates where to direct growth by analysing land availability in each part of the city, the forecasted population increase as well as the subsequent housing needs. The City is also working on the promotion of infill and redevelopment of older areas in order to raise their competitiveness with the suburbs as a place to live.

The City's planning department is also facing a problem concerning the provision and cost of new services. It is considered that there are three alternatives open to them: 1) direct the growth to where the services are already installed instead of opening new suburbs; 2) change how they service by lowering the quality and the quantity of infrastructure provided; and 3) shift more of the costs to the developers and thus to the home buyers. The jury is still out.

Concerning transportation issues, a new transportation plan was underway in 1992. This new plan will likely lean heavily in the direction of the mass transit system rather than encouraging new road construction. Other strategies being studied are the possibility of shifting the cost of the new transportation infrastructure to the developers or simply lowering the level of services.

Fringe

The development of urban growth strategies by the rural municipalities and small towns of the fringe can often be seen more as a reaction to problems rather than the development of longer-term planning frameworks. Some strategies, however, have been developed to direct growth in "appropriate" directions. In relation to growth rates, some municipalities have tried to decrease the rate of growth because of difficulties in financing the necessary infrastructure while others have tried to increase growth rates to pay for new infrastructure!

Rural municipalities and small towns near Calgary are starting to confront urban fringe problems. The Calgary Regional Planning Commission encourages a distinct separation between rural and urban components. Outside urban areas, where agriculture and resource extraction predominate, the underlying philosophy is that intrusion by urban forms of development should be kept to a minimum. This is consistent with the City of Calgary's concern to preserve farmland around its periphery for future urban development, rather than having scattered rural residential development in such areas.

On the economic side, one small town explicitly mentioned its strategy to reinforce its "CBD" as a commercial core. This is intended to provide the town with more jobs and to encourage people to spend more of their money in the community. All this is done in order to make the town more independent. At the same time, however, they have had to address transportation problems involving traffic congestion related to the journey-to-work to Calgary, which paradoxically requires the construction of new connecting roads.

Not surprisingly, more efforts in policy development have been made in relation to

environmental and agricultural issues in the fringe areas. In particular, attempts have been made to control the development of urban activities in rural and environmentally fragile areas.

Highlights from the Calgary region

The core city and suburbs are incorporated into the same municipal area. This is responsible for the orderly pattern of development of the city. Most of the perceived problems related to the growth of the city are financial and management-oriented. The City has responded to these with several major strategies for the short- and long-term management of urban growth.

The fringe areas represent a relatively small portion of the region's absolute growth, although several have experienced high growth rates. The rural municipalities and small towns as a group tend not to have adopted long-term planning frameworks. They are responding more to what occurs on a year-to-year basis. If there are any policies that can be labelled long-term, it is in relation to agriculture and the environment.

3.3.6 The Vancouver Study Area

In the last decade, the Vancouver study area has experienced a phenomenal rate of urban growth (Figures 2.17, 2.18 and 2.19). This has generated a large range of issues and concerns in the minds of planners in this region and many are reflected in the survey responses. In response to these issues, an array of policies and strategies have been developed.

Issues and concerns



Core region

The core region is represented by the City of Vancouver. Issues and concerns for the core are very clear. In relation to urban growth management and cost considerations, infill and redevelopment issues top the list. The main reason for increasing the density of the urban habitat is related to land shortage. There is also a concern expressed about the old industrial waterfront and its conversion to other uses. Finally, there is concern with the very high tax rate and the cost of maintenance of services. Affordable housing is a top priority among core-city issues as the cost of housing has increased dramatically over the past decade. Additional housing concerns are related to neighbourhood preservation and the adequacy of senior housing.

On the economic side, the only topic mentioned was the imbalance between job opportunities and residents in the core region. Simply put, not enough persons live in the city core compared to the number of persons working there. This phenomenon is at the root of the transportation issues, which in turn are related to extensive use of the automobile, even

though the transit system is widely used.

The most important issue concerning recreation is related to parkland provision. Land is very expensive to buy and to convert into parkland or open spaces. However, there is a growing demand for such space which, it is thought, will require attention in the future.

Finally, environmental issues are numerous. The city is worried about air quality due to the extensive use of the car and the air inversion and stagnation caused by the Rockies. Concerns were also expressed for the preservation of trees, streams and waterfront land.

Suburbs

If we look only at densities, the split between the core and the suburbs is obvious. From over 4,000 persons/sq km in the core, the densities decrease rapidly (Figure 2.17). However, the differences are less obvious when looking at the urban landscape. In keeping with the "Regional Town Centre" strategy of the last decade, the Vancouver region has developed several secondary urban centres with small skyscrapers and all the services needed for suburban living. Problems concerning the suburbs in the Vancouver region can therefore be expected to be somewhat similar to those of the core region.

Due to the shortage of land and the cost of housing in the core region, the suburbs have experienced substantial single-family housing development in the last decade. Suburban municipalities are therefore now concerned with achieving a better "balance" between residential, commercial and industrial development as well as with preservation and conservation of the environment. These municipalities are also faced with increasing pressures for upgrading and expanding soft and hard services. Concerning cost considerations, suburbs are concerned with their taxation levels, which are beginning to resemble those of the core city. Cost consideration problems mentioned are related to the provision of schools, parks, public security and recreation programs.

People living in the suburbs tend to want to preserve the neighbourhood character of their town. Thus, there is often a strong reaction against higher-density development. Also related to housing, there is concern with the pressure to open up rugged land or slopes for single-family development, with social housing and with the price of housing. On the economic side, one concern was expressed in relation to the strengthening of a regional centre's downtown as a commercial core.

Perhaps the most important issue for suburban municipalities is related to transportation. There are major congestion problems throughout the region because of commuting. Concerns were expressed about the impact of heavy traffic on the livability of suburban municipalities. An indication of this, it was suggested, is that the public in suburban neighbourhoods frequently wants traffic to be diverted around their neighbourhoods. So the planning challenge is considerable in terms of managing commuter flows. Finally, some

municipalities expressed the need for better access to the rest of the region and for an increase in parking spaces in their downtown.

Not many comments were received regarding pressures on agricultural land. There are some conflicts with non-agricultural land uses but the law for agricultural land preservation in B.C. seems to be well established. On the other hand, it seems that there is a need for heritage and open space preservation. In the area of human resources, planners are concerned with social planning, meaningful public participation, multiculturalism and the changing character of the region. Finally, environmental issues are very important. Conservation and preservation of floodplains, trees and riverfront areas are important issues. Planners also expressed concern for recycling, air quality and soil contamination from old industrial sites.

Fringe

The distinction between suburban municipalities and fringe towns is even less obvious than that between core city and suburbs. Many fringe towns have even higher growth rates than the suburban municipalities. In general, however, the density of a typical municipality in the fringe is around 200 persons/sq km. In these fringe areas, the major concern was for balanced growth, i.e. planning not only for single-family housing development. Hence, several town or rural municipality respondents expressed concern for infill and redevelopment, higher land-use densities and long-term growth management.

Due to the relatively cheap price of land, these fringe municipalities have experienced a considerable increase in their single-family home market. This increase has produced stresses on the infrastructure already in place. Concerns were also expressed about the delivery of soft services lagging behind population increase. There are also problems with the maintenance of the existing infrastructure. In relation to housing, some municipalities are concerned with the rapid rate of growth of single-family housing developments while one was concerned about the limited development potential for single-family lots in the municipality. On the economic side, the consumer spending leakage due to a lack of growth in the commercial sector is a concern for several, followed by concerns to provide more locally based employment for the resident population.

Notwithstanding these comments, the two most important issues noted are related to transportation and the environment. In the face of demands to accommodate commuters and to deal with current traffic congestion, there is an increasing need for new transportation infrastructure. Some respondents placed an emphasis on the mass transit system, which is beginning to reach several fringe municipalities. It was suggested that a great deal of effort was needed to promote greater use of the transit system.

There is a growing awareness of the need for protection of the environment. One example is the concern surrounding the spraying of fertilizers and pesticides on a golf course and the impact on surrounding residential neighbourhoods. Quality of life was identified as a major

concern as was the protection of floodplains, water courses and riverfronts.

Other issues identified were related to the increasing demand for recreational services and programs, and green space conservation. Apart from three golf course proposals, there was little mention of conflicts with agriculture. Concerning human resources, some municipalities have experienced stresses on the school system and others on social services.

Strategies and policies

Core region

In the core city of Vancouver, a major policy paper has been developed on each of a wide range of aspects of urban growth. Each paper attempts to foresee changes, define several scenarios and recommend actions to be taken. In relation to urban growth management, there is a land development program, an efficiency of servicing and development strategy, an official community plan and a central area plan for the downtown area. Within these plans, there are several strategies to cope with urban growth and the costs of services and infrastructure.

In relation to housing, there is a Housing Policy paper concerning the location and the kind of new development as well as an Affordable Housing Policy. A great deal of effort is being directed to helping businesses in the core region. On the commercial side, there is a Retail Policy. On the business side, there is an Office Policy and a Business Support Services Policy. Strategies have been developed in relation to the transportation issue, at several levels. To put emphasis on the mass transit system, a temporary moratorium has been placed on road construction in certain parts of the core area. A Transportation Network Plan has been produced.

Finally, several strategies have been developed concerning parkland and the environment. Some vacant lands were converted into parkland instead of low-density housing. There is also protection for waterfronts, streams and trees. The Livability Policy was developed to manage growth such that the exceptional sites and environmental features of Vancouver could be preserved. Finally, the paper entitled "The Clouds of Change" has helped define what are the most significant air pollution problems and has identified several recommendations regarding air quality control.

Suburbs

Strategies developed by suburban municipalities can be sorted by four major issues: urban growth management, housing, transportation and environment. In relation to urban growth management, these issues are addressed in a variety of documents and strategies, including Neighbourhood Official Community Plans, Downtown Official Community Plans and Growth Management Strategies. On the housing side, some municipalities have encouraged infill and

redevelopment of older areas with multi-family developments or the opening of land for new development.

Transportation strategies are very much preoccupied with the preservation of neighbourhood character. Examples are found in Neighbourhood Traffic Plans, in which attempts are made to protect residential development from traffic congestion or short-cutting. Finally, preservation of the environment is a top concern. Strategies have been developed for tree preservation on private property as well as for stream, wildlife and riverfront protection.

Few problems were noted concerning the agricultural base and so little mention was made in the survey regarding agricultural protection strategies. Concerning the economy, suburban municipalities are trying to promote their city as a place in which to establish a business. One special strategy mentioned was the preservation of environmentally sensitive areas in order to create a green belt. Finally, no strategies were mentioned concerning cost issues and recreation problems.

Fringe

Although fringe municipalities noted several issues, relatively little information was given regarding strategy development.

As with the other municipalities, those of the fringe area have developed Official Community plans for their urban centres and Secondary Community Plans. Rural Plans have been developed for townships. Economic development strategies and Downtown Economic Revitalization Strategies were also noted. Another strategy concerning economic matters is the redesignation of industrial land in riverfront locations.

On the housing side, efforts have been made to increase the stock of multi-family housing. Transportation has also been the object of strategy development. Transportation policies frequently encourage use of mass transit. Various strategies have been developed to protect the environment and to restrict development on certain types of land such as hazardous lands and floodplains. One interesting strategy involved a Monitoring Program for the spraying of fertilizers and pesticides on a golf course in order to protect adjacent residential neighbourhoods. A Park Acquisition Strategy was also mentioned by one respondent. Finally, it seems that fringe municipalities have already incorporated the need to protect agricultural land so no major action seems to have been taken in that respect: this has to be seen in the context of the *BC Agricultural Land Reserve Law*.

Highlights from the Vancouver region

The core region is very densely developed. The City has been active in urban growth management because it is concerned about the challenge of preserving its level of services and its share of the total population of the region. Suburban municipalities have also

developed a substantial number of strategies, but that they may be responding more to growth than planning and directing it. As for the fringe municipalities, they seem to be concerned with a range of issues, but specific policy development seems to be relatively limited. The Greater Vancouver Regional District, which covers the bulk of the area defined for this study, has played an important integrating function in the region.



SYNTHESIS OF ISSUES AND STRATEGIES

A wide range of issues were reported across the six regions by the respondents. In this section, a synthesis of the case study results is given. First, some general observations are made on the results across all six study areas. Second, issues and strategies are synthesized by differentiating between urban core, suburban and fringe municipalities. Third, these are then briefly set in the broad urban region context, before drawing conclusions in relation to urban growth management.

4.1 OVERALL PATTERNS

Overall, issues and concerns related to transportation and to the environment were noted most consistently. The preeminence of transportation issues reflects the on-going stresses associated with the dynamics of development within relatively complex regional urban systems, with the separation between place of work and place of residence and, in the most urbanized regions, with complex cross-commuting flows. The high profile of environmental issues is clearly related to the high level of environmental awareness as well as the stresses caused by a changing settlement system.

Agricultural issues were reported much less systematically, reflecting both substantial differences in the agricultural resource base between the six study areas, the fact that in each regional urban system agricultural activity is only important in part of the system (the fringe areas and, to a lesser extent, suburban areas), and because of the existence of provincial conservation programs in some provinces, notably Québec, B.C., and to a lesser extent, Ontario.

Overall, cost and service considerations also loomed large in coping with urban growth; these concerns included the costs of capital expenditure on infrastructure development, the impacts on local taxes and the provision of adequate service infrastructure.

It is clear that there is a certain amount of regional variation in planners' perceptions of the issues. Some differences reflect the various physical environments among regional urban systems; contrast for example the constrained geographic setting of the Vancouver region with Calgary and Winnipeg. Other differences also relate to the variety of political structures. The Calgary study area, for instance, with its relatively simple political structure, presents a sharp contrast to the Vancouver, Toronto and Montréal study areas, and indeed the Halifax study area.

4.2 ISSUES AND STRATEGIES FOR URBAN CORE, SUBURBAN AND FRINGE AREAS

Urban regions are relatively complex functional socio-economic systems, in which densely developed urban areas are linked together with surrounding small towns and rural areas through commuting flows, flows of information, goods and services. They therefore encompass tremendously different geographic situations in terms of living conditions, economic structure and pressures of change. Not surprisingly, differences emerged regarding issues, and policies and strategies between urban core, suburban and fringe situations. These are summarized Tables 4.1, 4.2 and 4.3 respectively. Obviously, not every issue or strategy is present in each region in each situation on the tables. However, the tables provide a useful framework for comparison between the combined experiences of the six case study areas and other regions.

Core issues (Table 4.1) reflect their position in the evolving regional systems. On the one hand, the urban core areas remain the focus of a great deal of commuting, hence the frequent mention of transportation issues. These issues are often exacerbated where there are constrained geographic settings or access points, e.g., Vancouver, Montréal and Halifax. Some of the other issues reflect either the difficulties of managing a relatively dense urban environment (e.g., environmental issues related to waste management and the protection of environmentally sensitive areas) and providing adequate resources for the population (e.g., open space access).

Paradoxically, other issues reflect: 1) the changing role of the central core areas, e.g., downtown areas, in relation to other nodes in the regional urban system, as a place both to live and work in; and 2) the fact that many core areas possess significant infrastructure that services much more than their resident population, thus creating inequities in the distribution of the tax burden in relation to benefits received. Examples include various cultural facilities such as museums and theatres and sports facilities such as Montréal's Olympic Stadium. The development of nodes of economic activity in suburban municipalities and beyond cause difficulties for some core areas, especially those of Toronto and Montréal, such as social problems related to unemployment and the mismatch between labour supply and demand (e.g., Bryant, 1986).

Strategies are closely aligned with these different issues, and exist both in relation to the use of traditional urban planning tools such as zoning *and* broader strategies aimed at the promotion of development in core areas. Overall, most of the core areas are characterized by significant general policy as well as specific strategy development in the context of long-term strategic planning. Characteristically,

Final synthesis of issues and strategies for urban core areas		
Topic	Major Issues	Major Strategies Developed
Urban growth management	Infill and redevelopment Core area decline Marketing or inner-city as a place to raise a family Inner-city renewal Redevelopment of old neighbourhoods	Core area initiative, central area plan Containment strategy Official plan Long-term management strategy
Cost considerations/ infrastructure provision	Renewal and maintenance of existing services Cost and provision of new services High tax rate	Long-term capital spending framework "No more debt" policy
Housing	Affordability of Housing Aging housing stock /insalubrity of housing	Emphasis on residential development in central area Neighbourhood improvement strategy Affordable housing policy
Economy	Need to maintain high employment and investment in centre	Business support policy Office policy Economic development strategy
Transportation	Traffic congestion Underuse of transit system Infrastructure maintenance	Transportation plan Emphasis on mass transit Local interventions to ease road circulation
Recreation and Parkland	Lack of parks and open spaces Recreational facilities provision and management	Development of parks on vacant land instead of other uses. Creation of a "regional park network" Greenbelt
Conflict with agriculture	N/A	N/A
Resources	Social planning Water quality and availability	
Environment	Waste disposal and management Waterfront planning Air quality Protection of environmentally sensitive areas	Creation of a "Waste disposal and recycling centre" Definition of preservation areas Livability policy Environmental conservation strategies Trees on urban lot preservation strategy

Table 4.2
Final synthesis of issues and strategies for suburban municipalities

Topic	Major Issues	Major Strategies Developed
Urban growth management	Balancing of land use opportunities Distribution of densities Imbalance between residential\industrial\commercial activities	Neighbourhood official community plan Density variation policy (land use designation) Encouragement of mixed-use development Insistence on contiguous development Allocation of one developer per sector to be developed
Cost considerations/ infrastructure provision	Cost and provision of services Maintenance of existing level of services Increase in costs of development Infrastructure profitability	Provision of infrastructure at developer's expense Project profitability strategy Staging of provision of services to new areas
Housing	Diversification of housing types	Housing and residential strategy Integration of different housing types
Economy	Attracting commercial and industrial employment sources	Industrial\commercial development strategy No industrial levy to encourage industrial development Focus commercial development in already existing commercial nodes Promotion of the city as a place to establish a business
Transportation	Increase in traffic and commuter flow Increase of traffic in residential neighbourhood Impact of traffic on livability Underuse of traffic system	Neighbourhood traffic plan (reduction of short-cutting) Transit studies Several local interventions (mainly road enlargement)
Recreation and Parkland	Lack of leisure and cultural infrastructure	
Conflict with agriculture	Pressure of non-farm development in agricultural areas	Protection of agricultural land in most plans Focus non-farm development in urban centres Limit rural residential development to infilling
Resources	Aging of the population Lack of community services	Preservation of environmentally sensitive areas as part of a regional resource in order to create a greenbelt
Environment	Impact of intense urban development on environment Pressure to protect environmentally sensitive areas	Healthy city project Protection of environmentally sensitive areas Heritage protection

Table 4.3

Final synthesis of issues and strategies for fringe areas and small urban centres

Topic	Major Issues	Major Strategies Developed
Urban growth management	<p>Securing logical development cells Securing urban growth corridors</p>	<p>Development of compact urban cells Increase density of old and new developments Designation of settlement centres Establishment of criteria for development Rural plan for township</p>
Cost considerations/ infrastructure provision	<p>Cost of services and infrastructure Increasing demand for services on low density development Cost and time to provide new services</p>	<p>Establishment of development charges Establishment of servicing boundaries Provision of infrastructure at developer's expense</p>
Housing	<p>Rural residential development Single development profitability</p>	<p>Grant for new developments Tax exemption for new residents Increase in multi-family stock</p>
Economy	<p>Consumer spending leakage Lack of employment</p>	<p>Economic development strategy Reorientation of industrial development according to new technologies</p>
Transportation	<p>Need for better linkage with core area Need for transit routes Many locally specific traffic "hot-spots"</p>	<p>Several local interventions to ease commuters' flow through suburbs and core city</p>
Recreation and Parkland	<p>Increasing demand for recreational services and programs</p>	<p>Park acquisition strategy</p>
Conflict with agriculture	<p>Clash between agricultural communities and rural residents Agricultural operations causing "nuisance" problems to rural residents Land use conflict with other activities Good farmland taken out of production due to urban pressure and residential development</p>	<p>Prohibition of non-farm land uses in rural areas Agricultural land preserve plan Rural residential designation and policy</p>
Resources	<p>Securing school system Need for social and human services Ground water supply</p>	<p>Ground water study Ground water hazard pollution strategy</p>
Environment	<p>Ground water degradation Waste management Septic tank failure Protection of environmentally sensitive areas</p>	<p>Impact study before project Strategy to continue development with strong emphasis on environmental impacts Protection of environmentally sensitive areas</p>

policies and strategies in the major cities in the urban cores of the study area tended to be placed much more explicitly in the context of the broader region (see, e.g., Appendix C, documents C.2 1 to 8). These core areas have had to contend explicitly with the negative impacts of competition from growing suburban and fringe areas.

Suburban issues (Table 4.2) are more directly related to growth in their own areas, such as trying to achieve "balance" between different land uses, types of housing and economic activities. In the face of expansion, major issues relate to maintaining and developing adequate services, together with the financial management problems involved. Again, because of the growth context of most of these municipalities, many more issues relate to the impact of growth on resources, agriculture and the environment.

Except for the overall framework provided by official plans of one kind or another, there is less evidence of the development of an overall policy framework in the suburban areas at the municipal level, although there are notable exceptions (see Appendix C.3, documents 2, 3 and 4 [Burnaby] and document 5 [New Westminster]). Where there is an overall regional agency or authority as in the Greater Vancouver Regional District and the Regional Municipalities around Toronto, broader frameworks with the potential for greater co-ordination exist.

Fringe issues (Table 4.3) are very much related to the fact that these are small town or rural municipalities experiencing growth pressures in the context of services built to cope with a small population base. Growth in such contexts brings with it pressure on existing services and demands to add new ones. In rural areas, rural residential development based on septic tanks has been posing a particularly difficult situation because of environmental issues if failure occurs and because of the land required for their operation. Other issues relate to the presumed social friction between newcomers and long-time residents. Environmental issues are widely referred to.

Policies and strategies, where they have been developed, emphasize focusing development into existing centres, encouraging infill, and where rural residential development is permitted, the development of criteria to ensure growth is compatible with existing uses and the environment (see Appendix C.4, documents 1 through 4). Paradoxically, several municipalities are encouraging further development, not only industrial and commercial, to expand the tax bases, but also residential!

4.3 THE URBAN REGION CONTEXT

The evolving settlement form, the regional city (see section 2.1), provides an explanation for many of the differences in levels and types of stress experienced by municipalities in these urban regions. Some types of resource base impact, e.g., on agricultural land, are more pronounced in suburban and fringe areas. Economic adjustments, and their consequences for

local populations, that result from the extension of the regional city are felt more severely in the existing intensively developed urban core municipalities, e.g., the cities of Toronto and Montréal. Stresses from having to cope with growth are more likely to be experienced in suburban areas and certain fringe areas.

From this perspective, the case study results are consistent with the patterns of change seen in most Canadian cities and their regions (Bunting and Filion, 1991), or indeed with major cities in the developed world generally. The results in terms of issues reflect the socio-economic interrelationships between the different geographic areas of the regional city - core, suburbs and fringe. However, the results in terms of strategies reflect less the symbiotic nature of urban core, suburbs and countryside that some authors suggest should be the hallmark of managing change in urban-centred regions (e.g., Delavigne, 1991). Rather, the results reflect more the fragmented municipal structure in most Canadian urban regions, even where two-tier governments are relatively well-developed, e.g., the Toronto study area. This is further developed in the concluding section.

SUMMARY AND CONCLUSIONS

5.1 SUMMARY OF FINDINGS: POPULATION PATTERNS AND ISSUES

Despite differences between the six case study regions in terms of overall growth rates and differences in terms of local government structure, certain similarities in terms of patterns of population redistribution within each region appear. Urban core areas generally exhibit lower growth rates than the remainder of each respective study area, and during certain periods, even population declines have been registered by some municipalities in some of the urban core areas. These urban core areas are generally juxtaposed with suburban areas experiencing much greater rates of growth, although the patterns are muddled in the Winnipeg and Calgary regions because of the particular geography of the cities' local government boundaries. Rural areas and the small towns within them exhibit fairly variable rates of change, but again often have experienced substantial relative rates of increase.

The distribution of the share of growth in each region varies quite dramatically from region to region, partly reflecting the boundaries of the census subdivisions (and municipal government structures). In the Winnipeg and Calgary study areas, for instance, the two cities account for the lion's share of the regional growth, even though the rural areas surrounding them often experienced high relative rates of increase. In the other study areas, substantial shares are found in some of the suburban areas, reflecting the dispersal of population. The Toronto study area exhibited substantial dispersal of growth during the late 1980s, representing a continuation of earlier patterns.

Overall, then, the evidence bears witness to the powerful centrifugal forces at work in each study area as the regional city form continues to evolve. This continues to develop despite various attempts either locally or regionally to counteract the negative effects of population redistribution.

Given these centrifugal forces, it was expected that the survey would reveal a wide range of issues and concerns from amongst the planning profession. As noted in sections 3.0 and 4.0, overall, transportation and environmental issues and concerns were mentioned most frequently. The prominence of transportation issues reflect the real stresses inherent in the evolving regional cities in each region. In some study areas, the transportation situation is exacerbated by natural impediments to accessibility, e.g., in the Montréal, Vancouver and Halifax regions. The prominence given to environmental issues partly reflects the wide range of issues that could have been included in this category. It also reflects the high level of environmental awareness amongst planners and the population generally, with the latter's concerns being centred around a whole host of issues related to quality of life.

Cost considerations also loomed large in the responses, relating to the costs of infrastructure provision and maintenance. While it was not possible to quantify the costs involved, it was clear that financial management was a major concern for many municipalities, and that their

difficulties could be heightened as a result of the particular pattern of urban growth and change they were experiencing. Interestingly enough, agricultural land use conflicts were not given such prominence and this is interpreted as being related to the more geographically specific nature of such issues, both between regions and within regions.

Within regions, the issues varied in a fairly predictable manner according to whether the municipality was in a core, suburban or fringe situation.

The survey focused on planners' perceptions. While the responses regarding issues cover the whole range of issues associated with the evolving regional city form, the focus on planners has likely tended to emphasize some issues rather than others. Thus, land use, infrastructure and environmental issues were given high prominence. However, others such as the social problems related to the restructuring of economic activities in urban core areas were not emphasized as much. Part of this is undoubtedly related to professional biases. However, part of it also relates to the fact that much of the restructuring of economic activities in urban core areas and throughout the regional city are due more to the forces of change that are operating at national and international scales rather than due to forces specific to the evolution of the regional city (see, e.g., Bryant, 1986, 1990a).

Another area receiving little attention in the surveys themselves relate to issues surrounding the lack of co-ordination between municipalities in urban growth management. This can be partly attributed to the emphasis given in the survey to local municipal respondents (see Table 3.1). Furthermore, even where "regional" administrative structures were involved (e.g., the Regional Municipalities in Ontario), the tendency was to emphasize issues specific to the respondent's own region. However, in the more personal, face-to-face interviews with various planners, these issues surfaced much more. From these sources, there was a more explicit recognition of the broad regional nature of many of the issues and that it was necessary to consider regional types of solutions. This does not mean regional government structures necessarily but it certainly means greater regional co-ordination and communication between the various municipalities. Even in regions where a stronger "regional" presence exists, it was clear that substantial competition between the various municipalities exists for economic development and population growth.

5.2 SUMMARY OF FINDINGS: STRATEGIES

In terms of strategies, differences between core, suburban and fringe municipalities have already been summarized in section 4.0. The differences reflect the different sets of issues associated with different geographic contexts in a growing urban region. They also reflect differences in the degree of sophistication in planning and strategy development that in turn is related to the substantial differences in resources among different types of municipalities.

At the municipal level, there are examples of fairly coherent strategy packages being

developed, especially in the context of the major cities and suburban municipalities. Where land use and infrastructure development are placed in the context of such a broader strategy, it is possible to speak of a real effort at long-term planning and management of a municipality's development. Particularly innovative strategy development includes an extensive public consultation and participation process. However, in many other municipalities where specific strategies were noted for specific issues, it is evident that they are not really part of an overall package and represent *ad hoc* approaches to specific issues.

While municipal policies and strategies are important, it is useful to consider the findings in the context of urban growth management generally. Urban growth management can be defined as a set of policies, strategies and techniques aimed at shaping urban *form* (layout, the arrangement of land use activities, development densities) and *structure* (the interactions between geographic zones in an area), in order to attain collective goals relating to the *quality* and *efficiency* of the urban area (Bryant, 1990b). From the perspective of this study where the focus has been on municipal structures within their broader regional city or urban region contexts, two broad features of urban growth management *at the regional level* should be noted.

First, managing urban growth involves policies and strategies developed both for the urban area *per se and* for the surrounding countryside, including the smaller urban settlements. This is an explicit recognition of the symbiotic relationship between urban areas and their surrounding countryside areas. The rural areas, for instance, provide for many functions that support the urban areas; living space for commuters, open space and recreational opportunities for the citizen, fresh agricultural produce and water supply (Bryant, 1990b; Delavigne, 1991).

Second, the planning of transportation infrastructure in relation to land-use activities assumes a major role. The importance of this was certainly recognised in relation to the *issues* identified in each study area, but transportation planning to influence urban structure at the regional level was not given a high profile. Clearly, this is a domain where a broader level of intervention and planning is necessary, i.e., through provincial governments in conjunction with local and regional governments.

In the case studies, appreciation of the need to develop, and progress towards developing, region-wide policies and strategies was particularly evident in the Vancouver area both in the City of Vancouver (e.g., Appendix C.2, document 8) and the Greater Vancouver Regional District (e.g., Appendix C.1, document 2), in the Calgary area, and in the Winnipeg area (particularly in the City of Winnipeg and the provincial Department of Urban Affairs). In the Toronto study area, the creation of the Office of the Greater Toronto Area is a direct recognition of the need for such region-wide policies and strategies. In the Montréal study area, similar concerns have been increasingly expressed and were particularly in evidence during the recent public consultations and hearings organised by the Working Group on Greater Montréal (Groupe de travail, 1993). In the Halifax area, despite the existence of a

Metropolitan Area Planning Commission, intra-regional co-ordination exists mainly the transportation and waste management areas. Overall, despite recognition of the need for more regional approaches across the different study areas, progress has often been hampered because of the difficulties of getting competing municipalities to work together.

It is also apparent that when we talk of strategies, there are important elements beyond physical land use configuration. Physical land use elements are certainly important at the broad level because they affect the choices that are offered in terms of alternative spatial urban forms, e.g., the nodal urban structure that enjoys substantial favour in many regions and municipalities. However, other broad strategy components are frequently just as significant, such as economic development strategies, image building strategies and social development strategies (the latter were not mentioned to any significant degree in the surveys or interviews).

Given that broad choices either at a regional or a municipal level are made, more specific sets or clusters of strategies can then be discussed, such as infill, redevelopment, increasing densities and the encouragement of mixed-use zones. It is at this point where logically one would begin to assess the whole range of *techniques* that could be drawn upon to support the policies and strategies, e.g., downzoning, building height restrictions, minimum lot-size restrictions, setbacks and so forth (Bryant, 1990b). Some of these techniques were explicitly recognised by the respondents as being part of their municipal strategy. The potential range of techniques is very large, particularly when experiences in other countries are drawn upon, e.g., property taxation (Roberts and Brown, 1980) and the transfer of development rights (e.g., Nelson, 1977; Rose, 1975).

5.3 CONCLUSIONS

Looking back at all the strategies and policies noted in sections 3.0 and 4.0, it is tempting to ask what is the best, the most complete strategy? There is no standard cook-book solution, because strategies must be adapted to the context of each region. What will be a successful strategy for one municipality or region will not necessarily work for another. On the other hand, the various components that can be used, modified and built upon can be suggested. The components identified below are: the vision (and therefore goals and objectives), sectoral and theme plans, and strategy development.

Clearly, many of the issues and perceptions stem from forces of change affecting the whole region. It is logical that many infrastructure issues be addressed through broader regional strategies for the provision and management of the infrastructure in question. This does not mean regional or supra-regional government but it does mean, at the very least, significant co-operation and co-ordination. This is not an easy task! In order for this to occur, agreement has to be reached regarding the overall future structure and form of the region, in short a *vision* for the region. Without this, progress will be limited to *ad hoc* arrangements

on specific issues with no guarantees of success.

Individual municipalities will not, of course, wait for such broader strategies to be developed. They will - and must - develop their own strategies. Urban growth management and all its attendant issues and concerns can be best approached through the development of a strategic management and planning process. In this process, a municipality needs to be able to address and take into account the broader regional environment in which it is located.

A critical component of this process is the development of a vision. What do we want the city to look like in 10, 15 or 20 years from now? This vision, increasingly, is defined with input from citizens, concerned groups, politicians and planners (see, e.g., *Plan Winnipeg*, Appendix C.2, document 5; and Montréal's city plan, Appendix C.2, document 1). This vision is essential in identifying goals and objectives for a municipality. It has to be realistic and achievable, which is one reason why a municipality must appreciate where it stands in the regional urban system. Depending on whether the municipality is core, suburb or fringe, the vision will be different, as will its goals and objectives (e.g., Burnaby's Official Plan, Appendix C.3, document 2). Is it a fast growing region or a stagnant one? It is easier to develop a strategy for a slow growing region than for a fast growing region because of the lack of pressures? What is the present growth pattern of the municipality? Which growth pattern would be best for the future? Has the growth rate been steady in the past decade? If not, why? Can it be influenced? It is only once the broad patterns have been determined that we can effectively begin to talk about the development of coherent packages of interventions or strategies, and then techniques, to help the municipality move towards the vision?

It is important that urban growth management be seen not just as the physical management of land use and infrastructure. Urban growth management includes this, but it is much more than this. Urban growth management requires an appreciation of the processes of change both in the urban areas and in the more "open" rural areas of a municipality and region, and the development and implementation of policies and strategies for growth and non-growth areas.

In the context of a vision for a municipality and, indeed, for a region, a number of specific sectoral or thematic domains will be suggested from an analysis of the community. For each domain, specific sets of strategies can be developed.

In a Community Plan, economic development constitutes in most cases a major set of forces of change and a key component of the vision. Economic activities have major ramifications upon land use allocation and infrastructure development. In most cases, it is appropriate for these issues to be addressed in an economic development strategy. Such strategies are based upon a sound analysis of the current state of the municipality's economy, and the identification of promising industrial and commercial sectors that will help achieve the community's vision.

Housing is of prime concern to most people and it is a critical element to the quality of life. Dealing with housing requires an understanding of housing needs, demand and supply, and how these will likely vary with the municipality's efforts to reach its vision. Many municipalities stressed a concern to diversify their housing stock, especially in suburban areas where land-consuming single-family homes dominated. So, instead of opening new land for residential development, infill and redevelopment of old industrial land and other areas were often being implemented or considered. A first step towards such a strategy would be the assessment of the redevelopable land, along with an analysis of the potential, feasibility and public acceptability of each redevelopment project. Housing strategies can also deal with neighbourhood character preservation and improvement, affordable housing, including public and cooperative forms of housing, and housing for the elderly.

Clearly, another domain related to achieving the vision for a community concerns the costs of providing the necessary infrastructure. This will be affected both by economic development processes and the changing population composition. Dealing with this domain ideally requires that the cost and revenue implications of alternative ways of achieving the community's vision be laid out so that decisions can be made in the most effective and efficient manner possible. The type of budget planning exercise that the City of Calgary is engaged in is clearly a significant tool for making choices about and implementing key strategic investments.

As part of the infrastructure domain, transportation planning and management are critical areas, both in terms of the internal functioning of a municipality in an urban region and in terms of linking it effectively and efficiently with the remainder of the region. In larger municipalities, a transportation plan is called for and the work of the City of Halifax is referred to here (see Appendix C.2, document (2)).

Other domains frequently incorporated into an overall strategy statement deal with such issues as social and medical services, educational facilities and recreation and parkland opportunities. The possible strategies in these various domains are many and, again, in most cases extend significantly beyond the physical land-use planning domain.

In planning the development of any municipality towards its vision, a variety of other stresses created as a result of the processes of change must be addressed. These range from the many conflicts possible between non-farm development and agricultural activities to the whole host of stresses related to the maintenance of a healthy environment.

Perhaps the key lesson to be learned from the results presented in this study is that the dynamic situations municipalities find themselves faced with in our urban regions do require them to plan and manage those processes of change. The most effective way of achieving this would appear to be through the implementation of an on-going strategic planning process for community development (see Beaudoin and Bryant, 1993). Because of the emphasis in such exercises on developing a vision, it provides an invaluable approach to integrating public

input into the planning process, a phenomenon that is once more growing in significance. In addition, a broad strategic framework provides a coherent frame of reference against which specific strategies can be placed and measured, including the whole range of different physical land-use and infrastructure planning interventions.

A strategic planning framework also provides a vehicle that can be used to provide more effective communication between municipalities in a broader regional environment without having to impose a regional form of government structure.



BIBLIOGRAPHY

GENERAL

- Bauer, J. and Roux, J.M. (1976) *La rurbanisation ou la ville éparpillée*. Paris: Éditions du Seuil.
- Beaudoin, M. and Bryant, C.R. (1993) *Tools for Operationalizing Strategic Management for Community Futures Committees*, Ottawa: Employment and Immigration Canada.
- Bourne, L.S. (1989) "Are new urban forms emerging? Empirical tests for Canadian urban areas," *The Canadian Geographer*, 33 (4): 312-28.
- Bryant, C.R. (1986) "L'évolution de la ville régionale en Amérique du nord: le cas de Toronto," *Annales de Géographie*, 527: 69-85.
- Bryant, C.R. (1990a) "Les grandes métropolitaines du Canada: les choix du 21e siècle," *Études Canadiennes*, 29: 7-18.
- Bryant, C.R. (1990b) *Report 1: The Functions of Greenbelts in Metropolitan Areas. Report 2: Urban Growth Management and Greenbelts. Report 3: Greenbelt Functions in the National Capital Region to 2010. Report 4: Towards an Evaluation Framework for Alternative Scenarios*. Ottawa: Reports prepared for the National Capital Commission.
- Bryant, C.R. and Coppack, P.M. (1991) "The city's countryside," pp. 209-39 in
- Bryant, C.R., Russwurm, L.H. and McLellan, A.G. (1982) *The City's Countryside: Land and its Management in the Rural-Urban Fringe*. London: Longman.
- Bryant, C.R. and Johnston, T.R.R. (1992) *Agriculture in the City's Countryside*. Toronto: University of Toronto Press.
- Bunting, T.E. and Filion, P. (eds.), *The Canadian City in Transition*. London: Oxford University Press.
- Delavigne, R. (1991) "Ville/campagne: une opposition dépassé," *Les Cahiers de l'Institut d'Aménagement et d'Urbanisme de la Région Ile-de-France*, 95: 9-14.
- Groupe de travail pour Montréal et sa région (1993) *Rapport d'étape*, Montréal: Groupe de travail pour Montréal et sa région, Government of Québec.

- Marchand, C. and Charland, J. (1991) *Le dépeuplement des communautés canadiennes, 1981 - 1986*. Toronto: Les Presses du CIRUR.
- Nelson, R.H. (1977) *Zoning and Development Rights: An Analysis of the American System of Land Use Regulation*. Cambridge, Mass.: MIT Press.
- Patterson, J. (1992) "A quarter century of Canada's metropolitan fringe development," *Sustainable Cities*, Institute for Urban Studies Newsletter Supplement, 4: 1-6.
- Roberts, N.A. and Brown, H.J. (1980) *Property Tax Preferences for Agricultural Land*. Montclair, N.J.: Allanheld, Osmun and Co., Landmark Studies, Lincoln Institute of Land Policy.
- Rose, J.G. (1975) *Transfer of Development Rights: A New Technique of Land Use Regulation*. Center for Urban Policy Research, Rutgers University and State University of New Jersey.
- Russwurm, L.H., Coppack, P.M. and Bryant, C.R. (1988) "Population in the urban field," pp. 57-79 in Coppack, P.M., Russwurm, L.H. and Bryant, C.R. (eds.), *Essays on Canadian Urban Process and Form III: The Urban Field*, Waterloo: Department of Geography Publication 30.

SELECTED CASE STUDY AREAS

(1) Halifax

City of Halifax:

Parkland Plan for Halifax: A Program for Setting Priorities for the Acquisition, Planning and Development of Parkland. Prepared by the Development and Planning Department of the City of Halifax, December 1990.

Population and Housing: An Overview of Recent Trends in Population and Housing in the City of Halifax and Their Implications. Prepared by the Development and Planning Department of the City of Halifax, June 1991.

Task Force on City Traffic Report. Prepared for the City of Halifax, 1991.

The Peninsula: Increasing Opportunities for High Density Housing. A Discussion Paper. Prepared by the Development and Planning Department of the City of Halifax, June 1992.

(2) Montréal

City of Montréal:

Orientations and Strategies of the Montréal City Plan: Draft. Prepared by the City of Montréal, 1992.

Region:

Groupe de travail sur Montréal et sa région (1993) *Rapport d'étape.* Montréal: Groupe de travail sur Montréal et sa région.

(3) Toronto

The Greater Toronto Area:

A Vision for the Countryside. Report of the Provincial-Municipal Countryside Working Group, 1992.

Greater Toronto Area Urban Structure Concepts Study: Summary Report. Prepared for The Greater Toronto Coordinating Committee by the IBI Group, June 1990.

GTA 2021 Infrastructure. Report of the Provincial-Municipal Infrastructure Working Group.

Meeting the Challenge. Report of the Provincial-Municipal Investment Planning and Financing Mechanism Working Group, 1992.

Shaping Growth in the GTA - A Commentary Report. Report prepared by Berridge Lewinberg Greenberg Ltd. for the Greater Toronto Coordinating Committee, 1992.

Sustainable Economic Growth. Report of the Provincial-Municipal Economic Vitality Working Group, 1992.

The Greater Toronto Area: An Urban Region. Canadian Urban Institute, Working Paper Series, 1991.

Urban Form: Bringing the Vision into Focus. Report of the Provincial-Municipal Urban Form Working Group, 1992.

Municipalities surrounding the City of Toronto:

Summary and Recommendations from the Town of Richmond Hill Municipal Housing Statement. Prepared by the Town of Richmond Hill Planning Department, September 1990.

(4) Winnipeg

City of Winnipeg:

Aremi, S., Brundrige, R., Lowe, S., and Ziotas, I. (1986) *C.N.R. East Yards Redevelopment '84: A Showcase of Winnipeg's Past and Future.* Winnipeg: University of Winnipeg, Institute of Urban Studies, Report #17.

Artibise, A.J. (1983) *Shaping Tomorrow: Perspectives on Urban Policy for Winnipeg in the 1980's.* Winnipeg: University of Winnipeg, Institute of Urban Studies, Address to the Annual Meeting of the Social Planning Council of Winnipeg, 1983.

Axworthy, L. (no date) *A Test for Institutional Innovation: Winnipeg's Unicity.* Winnipeg: University of Winnipeg, Institute of Urban Studies.

Kuz, T.J. (ed.) (1974) *Winnipeg 1874-1974: Progress and Prospect.* Winnipeg: University of Winnipeg, and Manitoba Department of Industry and Commerce.

Kuz, T.J. and Cariou, G. (1990) *Winnipeg Residential Tax Assessment in 1989: An Unfairly Structured City?* Winnipeg: University of Winnipeg, Institute of Urban Studies, Research and Working Paper #33.

Levin, E. A. (1984) *Beyond the Core Area Initiative Prospect for Downtown Winnipeg.* Winnipeg: University of Winnipeg, Institute of Urban Studies, Occasional Paper #4.

Levin, E. A. (1984) *City Planning as Utopian Ideology and City Government Function.* Winnipeg: University of Winnipeg, Institute of Urban Studies, Research and Working Paper #10.

Lyon, D. M. and Fenton, R. (1984) *The Development of Downtown Winnipeg: Historical Perspectives on Decline and Revitalization.* University of Winnipeg, Institute of Urban Studies, Reports #3.

Lyon, L. and Newman, L.H. (1984) *Winnipeg 2000: Exploring Strategic Development Options.* Winnipeg: University of Winnipeg, Institute of Urban Studies, Occasional Paper #7.

Plan Winnipeg: Towards 2000. Prepared by the City of Winnipeg, July 1992.

Weir, T. R. (no date) *Winnipeg: A City in The Making.* pp. 43-53.

Workshop Proceedings: Urban Limit Line. University of Winnipeg, Institute of Urban Studies, Occasional Paper #25, 1991.

Fringe and Surrounding Municipalities:

Barber, J. and Hathout, S. (no date) *Exurban housing development in the Winnipeg-Selkirk Corridor.* Winnipeg: University of Winnipeg, Institute of Urban Studies.

Land ownership in the Winnipeg Fringe Area: A Brief Submitted to the Winnipeg Land Prices Inquiry Commission By the University of Winnipeg, Institute of Urban Studies, 1977.

Lyon, D.M. (1983) *The Development of the Urban-Rural Fringe: A Literature Review.* Winnipeg: University of Winnipeg, Institute of Urban Studies, Research and Working Paper #3.

Rural Residential Development in the Winnipeg Region. Prepared by the Manitoba Department of Urban Affairs, May 1990.

(5) Calgary

City of Calgary:



Short-Term Growth Management Strategy: Information Update 1992-1996. Prepared by the Director's Growth Management Steering Committee for the City of Calgary Planning and Building Department, December 1991.

The City of Calgary Comprehensive Annexation Strategy Appendix: Supporting Information. Published by the City of Calgary Planning and Building Department, 1989.

The City of Calgary Comprehensive Annexation Strategy: Technical Report. Published by the City of Calgary Planning and Building Department, 1989.

The City of Calgary's 10 year Capital Spending Framework: 1991-2001. Published by the City of Calgary Planning and Building Department, September 1991.

Calgary Regional Planning Commission:

Census Results 1991: Selected Comparisons. Prepared by the Calgary Regional Planning Commission, 1991.

Chestermere Lake General Municipal Plan. Prepared at the Request of and in co-operation with the Summer Village of Chestermere Lake by the Urban Planning Division of the Calgary Regional Planning Commission, 1989.

Fragmentation Study Technical Appendix Volume II: Background Working Papers, Literature Review, Survey Results. Prepared by the Urban Planning Division of the Calgary Regional Planning Commission, January 1987.

Prospect. *Population Report for the Calgary Region.* Prepared by the Calgary Regional Planning Commission, vol. 1, no. 1, December 1991.

Prospect. *Urban Land and Lot Supply in the Calgary Region,* Prepared by the Calgary Regional Planning Commission, vol. 1 no. 3, December 1991.

Summer Village of Chestermere Lake: Urban Fringe Discussion. Prepared by the Calgary Regional Planning Commission, 1986.

The Calgary Regional Plan. Prepared by the Calgary Regional Planning Commission, May 1984.

The Implication for Future Urban Growth of Land Fragmentation in Urban Fringe areas: A Review of Recent Experiences. Prepared by the Urban Planning Division of the Calgary Regional Planning Commission, May 1987.

(6) Vancouver

City of Vancouver:

Central Area Plan: Goals and Land Use Policy. Adopted by Vancouver City Council on December 3, 1991, published by the City of Vancouver Planning Department.

Clouds of Change: Final Report of the City of Vancouver Task Force on Atmospheric Change. Volume I, published by the City of Vancouver, June 1990.

The Vancouver Monitoring Program: Information Update. Published by the City of Vancouver Planning Department, May 1992.

The Vancouver Plan: The City's Strategy for Managing Change. Published by the City of Vancouver Planning Department, July 1986.

Greater Vancouver Regional District:

Creating our Future: Steps to a More Livable Region. Published by the Greater Vancouver Regional District, September 1986.

Greater Vancouver Key Facts: A Statistical Profile of Greater Vancouver, Canada. Published by the Greater Vancouver Regional District, December 1991.

The Livable Region 1976/1986: Proposals to Manage the Growth of Greater Vancouver. Published by the Greater Vancouver Regional District, 1975.

Surrounding Municipalities:

A Strategy for Transportation in the Nineties: Burnaby Transportation Plan Renewal. Published by the Corporation of the District of Burnaby, February 1992.

Agricultural Zoning and Lot Size Review Summary. Published by the District of Pitt Meadows.

Community Plan for Downtown New Westminster. Published by the City of New Westminster, February 1987.

Draft Rural Plan for Langley. Published by the Corporation of the Township of Langley, Community Development Department, February 1992.

Environmental Goals and Objectives: State of the Environment Report for Burnaby. Published by the Environment and Waste Management Committee for the Corporation of the District of Burnaby, March 1992.

Golf Course Location and Site Development Guidelines. Published by the Corporation of the Township of Langley, December 1991.

Hill, J. (1992) *Conveying Our Future: Proceedings of the Policy Workshop on Regional Governance in the Pacific Fraser region.* Vancouver: Centre for Human Settlements, University of British Columbia.

Official Community Plan for Burnaby British Columbia. Published by the Burnaby Planning and Building Inspection Department, December 1987.

Official Community Plan for Maple Ridge. Published by the Corporation of the District of Maple Ridge. 1989.

Official Community Plan. Published by the Corporation of the Township of Langley, Community Development Department, October 1979.

Queensborough Community Plan. Published by the City of New Westminster Planning Department, October 1990.

Seeling, M. Y and Artibise, A.F. J. (1991) *From Desolation to Hope: The Pacific Fraser Region in 2010.* Vancouver: University of British Columbia School of Community and Regional Planning.

The Community Plan: A Portion of Glenbrooke South Neighbourhood. Published by the City of New Westminster Planning Department, 1986.

The Community Plan: A Portion of North Arm North Neighbourhood. Published by the City of New Westminster Planning Department, April 1988.

Wynn, G. and Ok, T. (1992) "Time to Grow up? From Urban Village to World City 1966-91," in *Vancouver and its Region.*

Willowbrook Community Plan. Published by the Corporation of the Township of Langley, 1991.

APPENDIX A THE QUESTIONNAIRES



ICURR Intergovernmental Committee on Urban
and Regional Research
Comité intergouvernemental de recherches
urbaines et régionales **CIRUR**

Questionnaire

The consequences and responses to growth and development patterns
in major urban regions
(ICURR STUDY CONDUCTED BY CHRIS BRYANT, 1992)

Background

Your _____ is located in the region centred on the City of _____.
According to the Census of Population, the population of _____, of the City of
_____ and of the Census Metropolitan Area of _____ has evolved as
follows:

1976

Your area _____
City of _____
CMA of _____

1986

Population

1991

1981

Your area _____
City of _____
CMA of _____

1986

Employment by place of residence

1. In your opinion, why is the population of _____ changing in this way?
(Rank the most important factors from 1=most important)

ETC.

2. In your opinion, where are most of your new residents coming from?

3. Please list the 5 most significant issues for _____ that have been associated with these changes in population and employment from the perspective of infrastructural provision and cost, and of land-use planning. (1=most important)

1. _____
2. _____
3. _____
4. _____
5. _____

4. Where possible, please provide information on the following types of development in _____:

(If you do not have this type of information easily available, please indicate where it might be available and how we could access it.)

4(a) Please provide information on the number of dwelling units or floorspace constructed in _____ from 1987 to 1991 inclusive (strike out any categories that do not apply):
of dwelling units constructed 1987-1991

- Residential units
- Rural residential _____
- Fully serviced single family dwellings and semis _____
- Medium density (townhouses, walkups, . . .) _____
- High density (hi-rise) _____

Square footage constructed 1987-1991

- Commercial floorspace _____
- Industrial floorspace _____

Please add any comments concerning the nature of this development.

4(b) How many residential lots have been created in _____ by plan of subdivision or by severance

By plan/subdivision By severance

1987 _____
1988 _____
1989 _____
1990 _____
1991 _____

4(c) How many building permits have been issued in _____ for new residential dwellings over the last 5 years.

Mun. water/sewer Mun. water Individ. wells/septic systems

1987 _____
1988 _____
1989 _____
1990 _____
1991 _____

4(d) What is the minimum residential lot size currently in operation in _____ ?

5. Please identify (no order of priority) any policies and strategies that have been adopted in _____ in an attempt to try to modify the location and rate of change of development. Please indicate what prompted each strategy or policy and also whether it was primarily a local, regional or provincial initiative.

Strategy What prompted each strategy? Local, regional or prov. initiative

1. _____
2. _____
3. _____
4. _____

(Examples of strategies used elsewhere include clustering of development, infilling, concentration in key settlements, lot levies, intensification of suburban development, redevelopment of urban core as a living environment, marketing of the inner city as

a living environment, reinforcement of the inner city as a commercial focus, as work-place through the development process, urban transportation policy, etc.)

Please indicate whether you can provide additional documentation on any of these strategies or where any such additional information can be acquired.

Consequences of patterns of development in the region

If any of the questions or sections below do not apply to _____, please cross out and write in **Not Applicable**.

Land use issues involving agriculture and urban uses

6. Have there been any significant issues involving competition between agriculture and non-farm/urban/industrial/commercial land use development in _____?

Yes _____ No _____

7. (A) If yes to 1, identify the issues.
(B) Have these issues had a significant influence in shaping the land use strategies and policies adopted in _____?
If yes:
a. What land use strategies and policies have been developed?
b. Have they been primarily locally-initiated (L) or has there been significant regional (R) and/or provincial (P) involvement?
c. Have these strategies and policies in your opinion successfully tackled the issue? (Yes or No)
d. Why do you say this?

(Please answer on page 5 in space provided)

8. In your opinion, has the presence of an agricultural base in your municipality posed a constraint on urban development there because of special protective measures that are in place? _____

Please provide any information on additional data and information that may be available on these issues.

Land use issues involving environmental values and concerns

9. In your opinion, have there been any significant issues involving development and environmental values in _____? Yes _____ No _____

10. (A) If yes to 1, identify the issues.
(B) Have these issues had a significant influence in shaping land use strategies and policies in _____? If yes:
a. What land use strategies and policies have been developed?
b. Have they been primarily locally-initiated (L) or has there been significant regional (R) and/or provincial (P) involvement?
c. Have these strategies and policies in your opinion successfully tackled the issue? (Yes or No)
d. Why do you say this?

A. The issues _____ B. Signif. influence? (Yes/No) a _____ b(L,R,P) _____ c(Y/N) _____ d _____

11. What sorts of special environmental areas have been identified in _____?

In your opinion, has the presence of these areas been a constraint on urban or non-farm development in _____ in the last 5 years? If so, please provide any details that you can.

Please provide any information on additional data and information that may be available on these issues.

Transportation issues

12. Have there been any significant transportation development issues (new needs, congestion, etc.) that have developed in the last 5 years in _____?

If so, please outline the principal indicators of these issues:

13. (A) If yes to 1, identify the issues.
(B) Have these issues had a significant influence in shaping land use strategies and policies in _____?
If yes:
a. What land use strategies and policies have been developed?
b. Have they been primarily locally-initiated (L) or has there been significant regional (R) and/or provincial (P) involvement?
c. Have these strategies and policies in your opinion successfully tackled the issue? (Yes or No)
d. Why do you say this?

(Please answer on page 7 in space provided)

A. The issues B. Signif. influence? (Yes/No) a b(L,R,P) c(Yes/No) d

Cost considerations

14. In your view, what has been the impact of development in the last five years on the demand for and provision of services (see list in question 16) in _____?

15. Has _____ been able to generate enough revenues to maintain the level of services to existing residential (), industrial () and commercial () development, and to new residential (), industrial () and commercial () development? (please check off any positive responses.)

16. For the following services where the primary responsibility for provision is with _____ (strike out any that do not apply), please provide information (or indicate where such information can be acquired) on the approximate cost breakdown for each in _____ for 1990 or 1991?

Item	Cost \$ in 1990 or 1991 (indicate which year)	% of cost carried by:	
		local	regional levels
police	_____	_____	_____ prov.
fire protection	_____	_____	_____
roads and transportation	_____	_____	_____
water/sewage	_____	_____	_____
solid waste disposal	_____	_____	_____
parks/recreation	_____	_____	_____
hydro	_____	_____	_____
planning/development	_____	_____	_____
libraries	_____	_____	_____
social services	_____	_____	_____
health services	_____	_____	_____
industrial promotion	_____	_____	_____
licensing, tax collection	_____	_____	_____
public housing	_____	_____	_____
emergency programs	_____	_____	_____
general administration	_____	_____	_____
other (identify)	_____	_____	_____

Alternatively, please provide us with the most recent statement of expenditures and

revenues for _____.

17. What measures have been taken by _____ to raise revenues or reduce costs?

<u>Measures</u>	<u>When initiated?</u>	<u>Effect on revenue or costs</u>
1. _____	_____	_____
2. _____	_____	_____

ETC.

18. Does _____ maintain reserve funds to cover the costs of replacement of existing infrastructure?
Yes _____ No _____
If yes, for what items of infrastructure? _____

19. Does _____ charge a lot levy or any other type of levy to cover the cost of services for new development?
If so, for which uses, for what services and when initiated?
Which uses What services Initiated when?

20. Does _____ have any joint agreement with neighbouring municipalities for municipal services?
If so, which ones and for what services?

21. What have been the impacts, if any, of recent population change in _____ on the costs and provision of education?

Please indicate any readily accessible information on this issue.

Other issues

22. Are there any other issues related to population change and development generally in _____ that have not been covered on this questionnaire?

If so, please list them:

1. _____
2. _____

ETC.

Can we contact you to obtain more information on these? _____



Questionnaire for regional bodies

**The consequences and responses to growth and development patterns
in major urban regions**

(ICURR STUDY CONDUCTED BY CHRIS BRYANT, 1992)

Background

Your _____ is located in the region centred on the City of _____.
According to the Census of Population, the population of _____, of the City of
and of the Census Metropolitan Area of _____, has evolved as
follows:

	<u>1976</u>	<u>1986</u>	<u>Population</u>	<u>1991</u>
Your area	_____	_____	_____	_____
City of	_____	_____	_____	_____
CMA of	_____	_____	_____	_____

	<u>1981</u>	<u>1986</u>	<u>Employment by place of residence</u>
Your area	_____	_____	_____
City of	_____	_____	_____
CMA of	_____	_____	_____

1. In your opinion, why is the population of _____ changing in this way?
(Rank the most important factors from 1=most important)

ETC.

2. In your opinion, where are most of your new residents coming from?

3. Please list the 5 most significant issues for _____ that have been associated with these changes in population and employment from the perspective of infrastructural provision and cost, and of land-use planning. (1=most important)

1. _____
2. _____
3. _____
4. _____
5. _____

4. Where possible, please provide information on the following types of development in _____ (for all of the constituent municipalities combined):
(If you do not have this type of information easily available, please indicate where it might be available and how we could access it.)

4(a) Please provide information on the number of dwelling units or floorspace constructed in _____ from 1987 to 1991 inclusive (strike out any categories that do not apply):
of dwelling units constructed 1987-1991

- Residential units
- Rural residential
- Fully serviced single family dwellings and semis
- Medium density (townhouses, walkups, . . .)
- High density (hi-rise)

Square footage constructed 1987-1991

- Commercial floorspace
- Industrial floorspace

Please add any comments concerning the nature of this development.

4(b) How many residential lots have been created in _____ by plan of subdivision

or by severance

1987	By plan/subdivision	By severance
1988	_____	_____
1989	_____	_____
1990	_____	_____
1991	_____	_____

4(c) How many building permits have been issued in _____ for new residential dwellings over the last 5 years.

	<u>Mun. water/sewer</u>	<u>Mun. water</u>	<u>Individ. wells/ septic systems</u>
1987	_____	_____	_____
1988	_____	_____	_____
1989	_____	_____	_____
1990	_____	_____	_____
1991	_____	_____	_____

4(d) What is the range of minimum residential lot size currently used by the municipalities in _____?

5. Please identify (no order of priority) any policies and strategies that have been adopted by any of the municipalities in _____ or by _____ itself in an attempt to try to modify the location and rate of change of development. Please indicate what prompted each strategy or policy and also whether it was primarily a local, regional or provincial initiative. (See next page for examples of strategies)

Strategy What prompted each strategy? Local, regional or prov. initiative

1. _____
2. _____
3. _____
4. _____

(Examples of strategies used elsewhere include clustering of development, infilling, concentration in key settlements, lot levies,

intensification of suburban development, redevelopment of urban core as a living environment, marketing of the inner city as a living environment, reinforcement of the inner city as a commercial focus, as work-place through the development process, urban transportation policy, etc.)

Please indicate whether you can provide additional documentation on any of these strategies or where any such additional information can be acquired.

Consequences of patterns of development in the region

If any of the questions or sections below do not apply to _____, please cross out and write in **Not Applicable**.

Land use issues involving agriculture and urban uses

6. Have there been any significant issues involving competition between agriculture and non-farm/urban/industrial/commercial land use development in _____ (any of your municipalities - indicate which ones)?

Yes _____ No _____

7. (A) If yes to 1, identify the issues.
(B) Have these issues had a significant influence in shaping the land use strategies and policies adopted in _____?
If yes:
a. What land use strategies and policies have been developed?
b. Have they been primarily locally-initiated (L) or has there been significant regional (R) and/or provincial (P) involvement?
c. Have these strategies and policies in your opinion successfully tackled the issue? (Yes or No)
d. Why do you say this?

A. The issues B. Signif. influence? (Y/N) a b(L,R,P) c(Y/N) d

8. In your opinion, has the presence of an agricultural base in your _____ posed a constraint on urban development there because of special protective measures that are in place? _____

Please provide any information on additional data and information that may be available on these issues.

Land use issues involving environmental values and concerns

9. In your opinion, have there been any significant issues involving development and environmental values in _____ (any of your municipalities - indicate which ones)? Yes _____ No _____
10. (A) If yes to 1, identify the issues.
(B) Have these issues had a significant influence in shaping land use strategies and policies in _____?
If yes:
a. What land use strategies and policies have been developed?
b. Have they been primarily locally-initiated (L) or has there been significant regional (R) and/or provincial (P) involvement?
c. Have these strategies and policies in your opinion successfully tackled the issue? (Yes or No)
d. Why do you say this?

A. The issues _____ B. Signif. influence? (Yes/No) _____ a _____ b(L,R,P) _____ c(Y/N) _____ d _____

11. What sorts of special environmental areas have been identified in _____ (any of your municipalities - indicate which ones)? _____

In your opinion, has the presence of these areas been a constraint on urban or non-farm development in _____ in the last 5 years? If so, please provide any details that you can.

Please provide any information on additional data and information that may be available on these issues.

Transportation issues

12. Have there been any significant transportation development issues (new needs, congestion, etc.) that have developed in the last 5 years in _____ (or any of your municipalities - indicate which ones)?

If so, please outline the principal indicators of these issues:

13. (A) If yes to 1, identify the issues.
(B) Have these issues had a significant influence in shaping land use strategies and policies in _____?
If yes:
a. What land use strategies and policies have been developed?
b. Have they been primarily locally-initiated (L) or has there been significant regional (R) and/or provincial (P) involvement?
c. Have these strategies and policies in your opinion successfully tackled the issue? (Yes or No)
d. Why do you say this?

A. The issues B. Signif. influence? (Yes/No) a b(L,R,P) c(Yes/No) d

Cost considerations

14. In your view, what has been the impact of development in the last five years on the demand for and provision of services (see list in question 16) in _____? From your region's perspective _____

From the perspective of your various municipalities

15. Has your _____ (in terms of the various municipalities and the of services to existing residential (), industrial () and commercial () development, and to new residential (), industrial () and commercial () development? (please check off any positive responses.)

16. For the following services where the primary responsibility for provision is with _____ (strike out any that do not apply), please provide information (or indicate where such information can be acquired) on the approximate cost breakdown for each in _____ for 1990 or 1991?

<u>Item</u>	<u>Cost \$ in 1990 or 1991</u> (indicate which year)		<u>% of cost carried by:</u>	
	_____	_____	local	regional levels
police	_____	_____	_____	_____ prov.
fire protection	_____	_____	_____	_____
roads and transportation	_____	_____	_____	_____
water/sewage	_____	_____	_____	_____
solid waste disposal	_____	_____	_____	_____
parks/recreation	_____	_____	_____	_____
hydro	_____	_____	_____	_____
planning/development	_____	_____	_____	_____
libraries	_____	_____	_____	_____
social services	_____	_____	_____	_____
health services	_____	_____	_____	_____
industrial promotion	_____	_____	_____	_____
licensing, tax collection	_____	_____	_____	_____
public housing	_____	_____	_____	_____

emergency programs _____
general administration _____
other (identify) _____

Alternatively, please provide us with the most recent statement of expenditures and revenues for _____.

17. What measures have been taken by _____ or by any of your constituent municipalities to raise revenues or reduce costs?
Measures _____
When initiated? _____
1. _____
2. _____

ETC.
18. Does _____ or do any of your constituent municipalities maintain reserve funds to cover the costs of replacement of existing infrastructure?
Yes _____ No _____
If yes, for what items of infrastructure? _____

19. Does _____ or do any of your constituent municipalities charge a lot levy or any other type of levy to cover the cost of services for new development?
If so, for which uses, for what services and when initiated?
Which uses _____
What services _____
Initiated when? _____

20. Are there any joint agreements between neighbouring municipalities for any municipal services?
If so, which ones and for what services? _____

21. What have been the impacts, if any, of recent population change in _____

_____ on the costs and provision of education?

Please indicate any readily accessible information on this issue.

Other issues

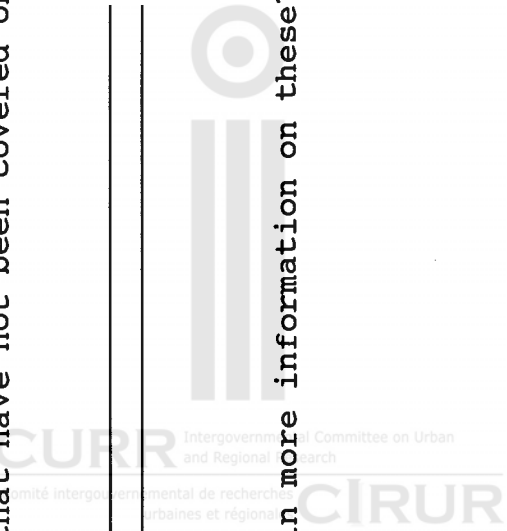
22. Are there any other issues related to population change and development generally in _____ that have not been covered on this questionnaire?

If so, please list them:

1. _____
2. _____

ETC.

Can we contact you to obtain more information on these? _____



APPENDIX B
STATISTICAL TABLES FOR THE CASE STUDY REGIONS

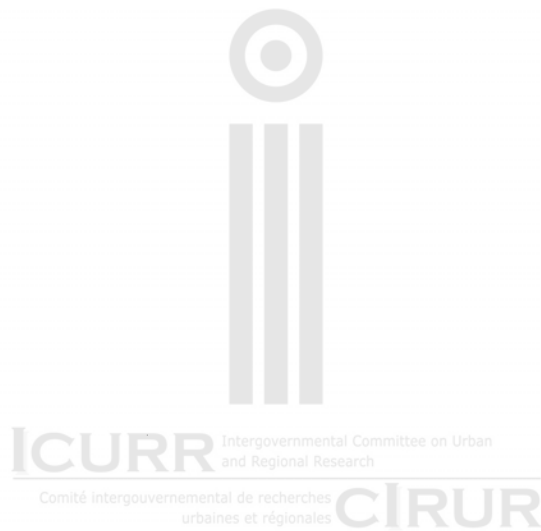


Table B.1
The case study areas: population (1976-91), employment (1981-86), density (1991) and area (sq km) by Census Subdivision

Municipality	Population			Labour force			Density	Area
	1976	1981	1986	1981	1986	1991		
Halifax study area								
W. HANTS	12,633	12,455	13,345	4,479	5,120	13,611	10.9	1246.28
E. HANTS	14,029	14,859	17,501	5,695	7,225	18,560	10.4	1785.66
INDIAN BROOK	572	626	680	185	80	773	65.2	11.85
HALIFAX, SUB.A	11,861	11,934	13,220	4,984	6,185	14,611	35.9	406.72
SUB.B	7,290	8,059	9,028	3,293	4,305	10,814	26.6	406.66
SUB.C	28,952	33,701	38,503	15,236	18,385	45,667	124.3	367.40
SUB.D	18,210	25,977	32,254	11,517	15,640	37,289	226.6	164.55
COLE HARBOUR 30	0	2	7	0	0	38	211.1	0.18
HALIFAX	117,636	114,605	113,577	58,294	59,415	114,455	1444.8	79.22
DARTMOUTH	65,228	62,397	65,243	30,106	33,555	67,798	1157.6	58.57
BEDFORD	4,961	6,776	8,010	3,271	4,160	11,618	292.0	39.57
HALIFAX SUB.E	13,293	14,394	16,148	5,481	6,575	18,211	18.7	975.92
SHUBENACADIE 13	0	0	0	0	0	0	0.0	4.09
WINDSOR	3,702	3,646	3,665	1,610	1,695	3,625	402.3	9.01
Winnipeg study area								
ST.PIERRE- JOLYS	906	919	912	400	390	907	592.8	1.53
NIVERVILLE	1,254	1,330	1,452	482	640	1,514	901.2	1.68
STE.ANNE	1,224	1,338	1,402	512	505	1,477	385.6	3.83
TACHE	4,442	5,893	6,679	2,442	3,050	7,576	13.5	599.44
RITCHOT	3,774	4,262	4,588	1,814	2,275	5,146	15.3	336.62
MACDONALD	3,247	3,403	3,583	1,538	1,900	3,999	4.2	1106.37

CARTIER	2,896	2,825	2,924	3,115	1,116	1,330	6.1	511.52
ST. FRANCOIS XAVIER	692	780	827	898	402	450	4.2	214.92
WINNIPEG	561,455	564,512	594,551	616,790	278,568	295,450	1079.1	571.60
SPRINGFIELD	6,959	8,988	9,836	11,102	4,228	5,105	10.5	1058.66
GARSON	290	318	313	320	143	105	108.8	2.94
E. ST. PAUL	3,372	3,596	4,385	5,820	1,635	2,290	132.2	44.03
W. ST. PAUL	2,577	2,746	3,138	3,658	1,339	1,490	43.4	84.20
ST. ANDREWS	6,837	7,990	8,755	9,461	3,674	4,500	13.4	705.23
SELKIRK	9,876	10,037	10,013	9,815	4,269	4,505	397.2	24.71
ROSSER	1,270	1,326	1,300	1,364	647	755	3.2	425.35
ROCKWOOD	5,969	5,754	6,923	6,990	2,089	3,370	6.1	1153.84
STONEMALL	1,830	2,217	2,349	2,997	1,355	1,010	488.1	6.14
Calgary study area								
STRATHMORE	1,562	3,014	3,544	4,185	1,591	1,645	443.3	9.44
FOOTHILLS NO.31	8,611	9,674	9,398	10,912	4,582	5,155	3.1	3554.15
TURNER VALLEY	1,133	1,311	1,271	1,352	530	540	240.1	5.63
BLACK DIAMOND	1,253	1,444	1,486	1,623	571	490	478.8	3.39
OKOTOKS	1,817	3,846	5,214	6,720	1,876	2,405	470.6	14.28
ROCKY VIEW NO.44	13,783	17,279	17,484	19,888	8,149	9,515	4.9	4078.28
CALGARY	471,640	592,898	636,104	710,677	333,725	334,525	1019.8	696.87
CHESTERMERE LAKE	210	487	584	918	320	340	291.4	3.15
COCHRANE	1,485	3,544	4,190	5,265	1,748	2,030	338.6	15.55
AIRDRIE	1,415	8,412	10,390	12,456	4,191	4,905	592.6	21.02
IRRICANA	264	558	669	812	238	270	461.4	1.76
CROSSFIELD	778	1,335	1,402	1,739	569	665	439.1	3.96
SARCEE 145	585	1,061	0	1,673	337	0	6.4	262.36
Vancouver study area								

LANGLEY	36,472	44,482	53,434	66,040	19,972	23,790	217.9	303.05
LANGLEY	10,064	15,126	16,557	19,765	6,816	6,775	1,941.6	10.18
MAPLE RIDGE	29,345	32,209	36,023	48,422	14,260	15,770	186.4	259.78
PITT MEADOWS	4,672	6,212	8,004	11,147	2,959	3,690	271.7	51.21
SURREY	115,954	147,141	181,447	245,173	67,924	78,480	812.5	301.76
WHITE ROCK	12,446	13,549	14,387	16,314	4,947	5,355	3,230.5	5.05
DELTA	64,209	74,692	79,610	88,978	34,555	38,195	528.1	168.50
RICHMOND	79,681	96,160	108,492	126,624	50,332	56,240	1,019.5	124.20
UNIV. ENDOWMENT AREA	3,501	3,999	3,606	4,534	1,560	1,425	320.9	14.13
VANCOUVER	407,969	413,987	431,147	471,844	212,447	214,095	4,172.3	113.09
BURNABY	131,121	136,508	145,161	158,858	71,501	73,320	1,796.0	88.45
NEW WESTMINSTER	38,215	38,552	39,972	43,585	18,922	18,435	465.1	161.61
COQUITLAM	55,252	61,119	69,291	84,021	31,682	35,010	681.1	123.36
BELCARRA	351	430	549	586	223	310	202.1	2.90
PORT COQUITLAM	23,837	27,537	29,115	36,773	13,430	13,710	1,366.5	26.91
PORT MOODY	11,604	14,918	15,754	17,712	7,726	7,950	762.1	23.24
NORTH VANCOUVER	63,560	64,911	68,241	75,157	35,565	36,535	465.1	161.61
NORTH VANCOUVER	31,788	33,954	35,698	38,436	19,858	19,760	3,586.8	10.77
WEST VANCOUVER	35,640	35,730	36,266	38,783	17,776	18,715	435.3	89.09
GRT VANCOUVER, SUB.A	1,643	1,962	2,499	2,459	758	1,150	2.8	872.91
LIONS BAY	780	1,078	1,152	1,328	527	590	570.0	2.33
SEMIAMMOO	164	192	236	218	72	80	196.4	1.11
TSAWASEN	50	84	173	450	87	60	232.0	1.94
MUSQUEAM 2	1,157	1,268	1,238	1,370	536	420	1,442.1	0.95
BURRARD INLET 3	129	130	97	186	25	30	178.8	1.04
MISSION 1	309	320	261	283	94	60	786.1	0.36
CAPILANO 5	1,346	1,602	1,731	1,880	651	695	1,382.4	1.36

	2,074	2,601	2,675	3,138	1,363	1,075	748.9	4.19
GIBSONS								
Toronto study area								
TORONTO	633,114	599,282	612,289	635,395	320,589	342,885	6,540.3	97.15
EAST YORK	106,912	101,983	101,085	102,696	54,127	55,010	4,830.5	21.36
YORK	141,332	134,632	135,401	140,525	69,244	70,585	6,062.3	23.18
NORTH YORK	558,265	559,554	556,297	562,564	293,244	300,245	3,180.7	176.87
ETOBICOKE	297,043	298,733	302,973	309,993	163,156	168,015	2,501.4	123.93
SCARBOROUGH	387,056	443,361	484,676	524,598	234,810	261,290	2,794.9	187.70
VAUGHAN	17,776	29,678	65,058	111,359	15,714	34,540	404.4	275.34
MARKHAM	56,187	77,037	114,597	153,811	38,868	61,800	727.1	211.53
RICHMOND HILL	34,706	37,782	46,766	80,142	20,621	26,395	806.1	99.42
MISSISSAUGA	249,960	315,075	374,005	463,388	167,647	209,780	1,692.1	273.86
BRAMPTON	103,409	149,042	188,498	234,445	78,643	103,920	884.6	265.04
PICKERING	27,877	37,755	48,959	68,631	19,589	26,840	303.0	226.52
AJAX	20,766	25,479	36,550	57,350	13,028	19,720	847.1	67.70
AURORA	14,246	16,268	20,905	29,454	8,553	11,470	599.1	49.16
OAKVILLE	68,936	75,774	87,107	114,670	38,666	47,130	829.9	138.18
WHITCHURCH-STOUFFVILLE	12,880	13,558	15,135	18,357	6,610	8,025	88.7	206.85
KING	14,026	15,196	15,951	18,121	7,635	8,720	54.7	331.54
NEWMARKET	24,787	29,751	34,923	45,474	14,389	17,600	1,266.3	35.91
WHITBY	28,169	36,694	45,819	61,281	17,983	23,540	428.6	142.99
MILTON	20,750	28,066	32,037	32,075	14,020	16,775	87.4	367.20
HALTON HILLS	34,469	35,194	35,570	36,816	17,926	19,520	133.5	275.86
CALEDON	22,429	26,640	29,666	34,965	13,305	16,355	51.0	686.16
BURLINGTON	104,307	114,861	116,675	129,575	58,486	63,425	730.4	177.40
OSHAWA	107,011	117,526	123,651	129,344	54,707	62,070	901.9	143.41
UXBRIDGE	10,976	11,209	11,895	14,092	5,343	6,295	33.9	416.24

Montréal study area										
	10,635	12,564	14,644	18,367	5,980	7,530	74.9	245.14		
EAST GWILLIMBURY										
ROXBOROUGH	7,106	6,292	6,138	5,879	3,053	2,800	2,636.3	2.23		
DOLLARD-DES-ORMEAUX	37,057	39,937	43,089	46,922	19,044	21,680	3,117.7	15.05		
KIRKLAND	7,550	10,478	13,376	17,495	4,796	6,510	1,692.0	10.34		
BEACONSFIELD	20,500	19,614	19,301	19,616	8,773	9,365	1,843.6	10.64		
BAIE-D'URFE	3,971	3,674	3,571	3,849	1,632	1,815	638.3	6.03		
SAINTE-ANNE-DE-BELLEVUE	3,738	4,088	4,140	4,030	1,579	1,755	393.9	10.23		
SENEVILLE	1,333	1,221	1,101	961	505	535	129.7	7.41		
PIERREFONDS	35,626	38,360	39,605	48,735	18,544	19,630	1,998.2	24.39		
SAINTE-RAPHAEL-DE-L'ILE-BIZARD	4,164	6,559	8,535	11,352	3,209	4,205	500.3	22.69		
SAINTE-GENEVIEVE	2,892	2,573	2,588	3,197	1,290	1,260	2,578.2	1.24		
SAINTE-JACQUES-LE-MINEUR	1,086	1,203	1,218	1,297	470	550	19.9	65.17		
SAINTE-MATHIEU	1,243	1,532	1,646	1,754	696	690	54.4	32.27		
SAINTE-PHILIPPE	2,321	3,110	3,357	3,572	1,312	1,465	58.3	61.32		
LA PRAIRIE	9,264	10,627	11,072	14,938	4,727	5,145	344.6	43.35		
BROSSARD	40,713	52,235	57,441	64,793	24,335	28,355	1,440.5	44.98		
CANDIAC	7,225	8,502	9,096	11,064	3,888	4,570	664.1	16.66		
SAINTE-CATHERINE	5,081	6,371	7,020	9,805	2,609	3,160	1,082.2	9.06		
DELSON	4,271	4,935	4,997	6,063	1,986	2,170	848.0	7.15		
SAINTE-CONSTANT	7,742	9,938	12,508	18,423	4,285	5,840	322.2	57.17		
SAINTE-ISIDORE	1,954	2,234	2,262	2,247	983	900	43.4	51.83		
KAHNAWAKE 14	4,038	5,218	0	0	0	0	0.0	50.26		
MAPIERVILLE	2,181	2,343	2,551	2,909	1,050	1,320	637.9	4.56		
SAINTE-CYPRIEN	981	1,115	1,154	1,232	468	440	12.6	97.56		
SAINTE-PATRICE-DE-SHERRINGTON	1,877	1,996	1,916	1,952	843	765	21.3	91.50		

SAINT-EDOUARD	1,124	1,230	1,188	1,251	486	565	23.5	53.20
SAINT-MICHEL	1,604	1,792	1,739	2,113	760	845	36.8	57.37
SAINT-REMI	4,889	5,146	5,288	5,768	2,366	2,430	72.4	79.67
SAINTE-CLOTHILDE-DE-CHATEAUGA	1,220	1,400	1,442	1,524	605	525	19.3	78.97
SAINT-JEAN-CHRYSTOSTOME	1,488	1,523	1,550	1,699	711	680	17.1	99.15
SAINT-URBAN-PREMIER	1,120	1,160	1,151	1,145	478	525	21.9	52.24
SAINTE-MARTINE	1,972	2,196	2,186	2,228	809	875	607.1	3.67
SAINT-PAUL-DE-CHATEAUGUAY	1,268	1,321	1,299	1,365	600	645	24.3	56.23
MERCIER	5,003	6,353	7,264	8,227	2,670	3,375	179.3	45.89
LERY	2,216	2,239	2,316	2,429	919	1,070	217.5	11.17
CHATEAUGUAY	36,582	36,933	37,865	39,833	16,253	17,395	1,125.2	35.40
HOWICK	674	703	621	636	334	205	795.0	0.80
TRES-SAINT-SACREMENT	1,394	1,354	1,362	1,294	597	610	13.3	97.40
MAPLE GROVE	1872	2,009	2,127	2,413	809	895	285.3	8.52
BEAUHARNOIS	7,725	7,026	6,519	6,449	2,889	2,740	159.5	40.44
SAINT-ETIENNE-DE-BEAUHARNOIS	811	813	771	811	363	350	19.5	41.62
SAINT-LOUIS-DE-GONZAGUE	1,317	1,378	1,387	1,413	582	680	17.9	79.15
MELOCHEVILLE	1,660	1,892	2,050	2,292	702	830	136.7	16.77
SAINT-TIMOTHEE	6,219	6,903	7,454	8,292	2,716	3,225	121.9	68.02
POINTE-DES-CASCADES	726	692	641	691	313	270	258.8	2.67
LES CEDRES	2,393	3,029	3,321	3,836	1,235	1,525	51.4	74.57
NOTRE-DAME-DE-L'ILE-PERROT	2,635	3,233	4,325	5,372	1,486	2,020	189.4	28.36
ILE-PERROT	5,325	6,069	6,586	8,064	2,737	3,095	1,655.9	4.87
PINCOURT	7,960	8,751	9,121	9,639	3,855	4,200	1,165.5	8.27
TERRASSE-VAUDREUIL	1,827	1,743	1,665	1,744	724	800	1,761.6	0.99
DORION	5,872	5,749	5,469	5,920	2,750	2,630	1,600.0	3.70

VAUDREUIL	5,669	7,607	8,253	11,187	3,324	3,850	161.0	69.49
VAUDREUIL-SUR-LE-LAC	433	583	673	876	273	360	503.4	1.74
HUDSON	4,533	4,414	4,426	4,829	1,819	1,985	223.3	21.63
SAINTE-LAZARE	3,036	4,219	5,064	9,057	1,884	2,370	134.0	67.60
SAINTE-EUSTACHE	21,444	29,767	32,226	37,278	12,639	14,410	532.3	70.03
LAVALTRIE	1,496	2,053	2,690	4,365	754	935	1,781.6	2.45
SAINTE-ANTOINE-DE-LAVALTRIE	1,590	2,422	2,630	3,061	931	1,025	46.4	66.01
SAINTE-DAMASE	1,089	1,203	1,215	1,348	575	620	361.4	3.73
SAINTE-DAMASE	1,171	1,151	1,129	1,089	385	605	14.5	74.89
SAINTE-MADELEINE	2,180	2,877	3,410	3,967	1,276	1,430	71.5	55.46
SAINTE-CHARLES-SUR-RICHELIEU	368	401	346	389	155	150	156.2	2.49
SAINTE-CHARLES	793	1,038	1,106	1,231	493	550	20.3	60.50
LA PRESENTATION	1,376	1,604	1,685	1,773	677	850	18.7	95.00
SAINTE-DENIS	888	861	949	1,153	326	370	14.2	81.40
SAINTE-DENIS	955	1,135	1,156	1,038	471	500	1,297.5	0.80
SAINTE-ANGELE-DE-MONNOIR	1,170	1,203	1,216	1,391	513	515	30.5	45.54
ROUEMONT	940	972	893	1,159	549	420	329.3	3.52
SAINTE-MICHEL-DE-ROUEMONT	960	1,127	1,188	1,354	490	620	32.5	41.62
MARIEVILLE	4,881	4,824	4,913	5,164	1,970	2,235	1,446.5	3.57
SAINTE-MARIE-DE-MONNOIR	1,645	2,192	2,235	2,204	1,193	1,025	35.9	61.38
RICHELIEU	1,762	1,832	2,020	2,843	710	965	1,022.7	2.78
NOTRE-DAME-DE-BON-SECOURS	939	1,167	1,210	1,384	713	600	50.5	27.42
SAINTE-MATHIAS	1,983	2,929	3,065	3,553	1,271	1,330	73.7	48.23
SAINTE-JEAN-BAPTISTE	2,277	2,726	2,711	2,879	1,359	1,325	43.0	66.90
OTTERBURN PARK	4,197	4,268	4,571	6,046	1,669	1,925	1,160.5	5.21
MONT-SAINT-HILAIRE	7,826	10,066	10,588	12,341	4,285	4,755	256.2	48.17
SAINTE-ANNE-DE-SABREVOIS	1,285	1,587	1,599	1,735	705	685	38.3	45.25

MONT-SAINT-GREGOIRE	650	740	830	885	350	420	444.7	1.99
SAINT-GREGOIRE-LE-GRAND	1,469	1,790	1,904	2,138	756	850	27.8	76.91
IBERVILLE	8,951	8,255	8,547	9,352	3,249	3,705	1,908.6	4.90
SAINT-ATHANASE	3,733	5,354	5,715	6,411	2,404	2,530	120.6	53.17
SAINT-BLAISE	1,446	1,918	1,671	1,893	907	735	27.7	68.43
SAINT-JEAN-SUR-RICHELIEU	34,603	35,643	34,745	37,607	16,367	16,065	793.4	47.40
L'ACADIE	2,439	3,832	4,449	5,074	1,749	2,015	73.3	68.82
SAINT-LUC	7,141	8,816	10,951	15,008	3,855	4,985	293.0	51.22
CHAMBLY	11,896	12,196	12,869	15,893	5,371	5,690	634.2	25.06
CARIGNAN	3,616	4,544	4,784	5,386	2,103	2,210	86.4	62.35
SAINT-BASILE-LE-GRAND	5,895	7,489	8,852	10,127	3,009	4,190	290.7	34.84
SAINT-BRUNO-DE-MONTARVILLE	21,444	22,972	23,103	23,849	10,670	11,260	570.7	41.79
SAINT-HUBERT	50,156	60,574	66,218	74,027	25,844	29,845	1,170.9	63.22
GREENFIELD PARK	18,552	18,526	18,290	17,652	8,141	8,330	3,854.1	4.58
LEMOYNE	7,225	6,137	5,634	5,412	2,791	2,485	5,637.5	0.96
SAINT-LAMBERT	20,472	20,558	20,030	20,976	9,895	10,005	3,267.3	6.42
LONGUEUIL	123,240	124,323	125,441	129,874	57,178	57,960	3,043.0	42.68
BOUCHERVILLE	25,721	29,702	31,116	33,796	13,991	15,960	487.5	69.33
MCMASTERVILLE	3,200	3,612	3,665	3,689	1,531	1,650	1,229.7	3.00
BELOEIL	16,027	17,541	17,958	18,516	7,610	8,225	771.2	24.01
SAINT-MATHIEU-DE-BELOEIL	807	1,535	1,783	1,947	668	885	48.6	40.03
SAINTE-JULIE	8,774	14,245	15,502	20,632	6,055	7,160	430.6	47.91
VARENNES	6,537	8,764	10,489	14,758	4,060	5,055	157.1	93.96
SAINT-AMABLE	3,158	4,268	4,531	5,804	1,493	1,600	155.7	37.28
SAINT-MARC-SUR-RICHELIEU	1,168	1,545	1,641	1,851	643	815	31.1	59.52
VERCHERES	3,617	4,473	4,530	4,781	1,854	5,045	65.7	72.78
CALIXA-LAVALLEE	397	436	458	448	145	220	14.2	31.57

SAINT-ANTONE-SUR-RICHELIEU	1,658	1,488	1,500	1,576	602	555	23.8	66.24
CONTRECOEUR	4,692	5,449	5,553	5,501	2,342	2,215	89.4	61.51
SAINT-PAUL	2,803	3,469	3,388	3,648	1,401	1,385	75.4	48.39
CRABTREE	1,950	1,950	1,979	2,157	918	930	1,225.6	1.76
SACRE-COEUR-DE-JESUS	822	1,047	1,086	1,143	443	440	49.9	22.90
SAINTE-MARIE-SALOME	978	1,013	1,074	1,116	395	465	32.4	34.45
SAINT-ESPRIT	1,741	1,809	1,774	1,845	686	800	33.9	54.36
SAINT-ALEXIS	474	482	461	477	195	170	72.3	6.60
SAINT-ALEXIS	746	733	703	738	315	275	20.2	36.60
SAINT-JACQUES	2,095	2,152	2,153	2,251	932	945	397.0	5.67
SAINT-JACQUES	1,434	1,580	1,564	1,542	695	680	26.1	59.03
SAINTE-JULIENNE	3,645	4,667	4,972	6,092	1,541	1,590	59.4	102.49
SAINT-SUPLICE	1,583	1,812	1,969	2,549	818	830	95.4	26.73
L'ASSOMPTION	4,847	4,844	5,280	5,706	2,064	2,410	2,756.5	2.07
L'ASSOMPTION	2,556	3,458	3,617	5,124	1,503	1,575	79.4	64.51
REPENTIGNY	26,915	34,421	40,778	49,630	15,697	19,885	2,032.4	24.42
LE GARDEUR	6,146	8,312	9,230	13,814	3,484	4,075	314.0	44.00
CHARLEMAGNE	4,071	4,827	5,331	5,598	2,067	2,540	3,180.7	1.76
LACHENAIE	7,184	8,631	10,177	15,074	3,592	4,695	352.3	42.79
MASCOUCHE	14,424	20,345	21,285	25,828	8,081	8,870	239.3	107.95
L'EPIPHANIE	2,919	2,971	2,846	3,469	1,111	1,070	1,410.2	2.46
L'EPIPHANIE	1,975	2,146	2,152	2,412	878	835	43.8	55.32
SAINT-GERARD-MAJELLA	1,497	2,361	2,514	3,226	931	1,165	101.1	31.91
SAINT-ROCH-DE-L'ACHIGAN	3,079	3,437	3,535	3,795	1,335	1,490	50.3	75.50
LA PLAINE	2,620	4,855	5,996	10,576	1,925	2,385	266.4	39.70
SAINT-ROCH-OUEST	381	390	383	357	154	150	14.7	24.24
LAURENTIDES	1,819	1,947	2,018	2,336	743	740	609.9	3.83

SAINT-LIN	3,652	4,954	5,398	6,734	1,761	1,910	59.4	113.31
BOISBRIAND	10,255	13,473	14,360	21,124	5,592	6,460	773.2	27.32
ROSEMERE	7,189	7,778	8,673	11,198	3,584	4,005	1,097.8	10.20
SAINTE-THERESE	17,630	18,751	19,336	24,158	8,245	8,670	2,394.3	10.09
LORRAINE	5,424	6,950	7,334	8,410	2,941	3,565	1,540.3	5.46
BLAINVILLE	12,630	14,682	16,175	22,679	5,806	7,235	410.9	52.20
BOIS-DES-FILION	4,375	4,874	4,935	6,337	1,920	2,075	1,616.6	3.92
TERREBONNE	19,902	25,940	31,310	39,678	10,738	14,205	542.3	73.17
SAINTE-ANNE-DES-PLAINES	5,345	7,652	8,931	10,787	2,685	3,320	117.0	92.23
NEW GLASGOW	144	163	151	167	69	75	256.9	0.65
SAINTE-SOPHIE	4,128	5,837	6,304	7,377	2,249	2,480	67.9	108.65
SAINTE-ANTOINE	6,923	7,013	7,691	10,232	3,158	3,630	1,039.8	9.84
SAINTE-JEROME	25,353	25,122	23,316	23,384	10,569	9,355	1,480.9	15.79
LAFONTAINE	4,458	4,799	5,344	7,365	2,057	2,440	477.9	15.41
BELLEFEUILLE	3,954	5,868	7,697	11,005	2,429	3,530	211.2	52.11
LAVAL	247,922	268,348	284,164	314,398	124,729	138,035	1,281.2	245.40
MONTREAL-EST	4,372	3,778	3,592	3,767	1,562	1,490	304.3	12.38
ANJOU	36,777	37,349	36,916	37,210	18,868	18,805	2,726.0	13.65
MONTREAL-NORD	97,712	94,914	90,303	85,516	42,143	39,085	2,753.0	11.03
SAINTE-LEONARD	78,906	79,433	75,947	73,120	40,166	37,930	5,655.1	12.93
MONTREAL	1,087,926	1,018,675	1,015,420	1,017,666	458,542	453,270	5,741.7	177.24
OUTREMONT	27,241	24,338	23,080	22,935	11,134	11,275	6,232.3	3.68
WESTMONT	22,466	20,480	20,011	20,239	9,608	10,380	5,110.9	3.96
VERDUN	68,310	61,291	60,246	61,307	25,698	25,590	7,513.1	8.16
LASALLE	77,074	76,301	75,621	73,804	37,350	36,345	4,494.8	16.42
MONTREAL-OUEST	6,019	5,515	5,382	5,180	2,548	2,540	3,177.9	1.63
HAMPSTEAD	7,615	7,598	7,451	8,645	3,429	3,750	4,884.2	1.77

SAINT-PIERRE	6,039	5,305	4,944	4,967	2,251	2,140	2,310.2	2.15
LACHINE	41,674	37,523	34,906	35,266	16,999	15,310	2,029.1	17.38
COTE-SAINT-LUC	25,993	27,533	28,582	28,700	12,521	12,810	3,980.6	7.21
MONT-ROYAL	20,551	19,247	18,350	18,212	8,616	9,275	2,451.1	7.43
SAINT-LAURENT	64,780	65,905	67,002	72,402	32,436	32,165	1,564.1	46.29
DORVAL	19,225	17,723	17,354	17,249	8,985	8,780	835.7	20.64
POINTE-CLAIRE	26,056	24,573	26,026	27,647	11,666	12,715	1,440.7	19.19
DEUX-MONTAGNES	9,031	9,887	10,531	13,035	4,256	4,385	2,154.5	6.05
SAINTE-MARTHE-SUR-LE-LAC	4,756	5,586	6,143	7,410	2,219	2,560	822.4	9.01
POINTE-CALUMET	2,520	2,935	3,450	4,482	1,015	1,240	914.7	4.90
SAINT-JOSEPH-DU-LAC	1,959	2,272	2,691	4,312	977	1,240	105.6	40.82
OKA	1,498	1,541	1,532	1,658	586	625	398.6	4.16
OKA	1,003	1,267	1,480	1,656	680	685	29.5	56.13
SAINT-PLACIDE	281	314	326	364	296	160	387.2	0.94
SAINT-PLACIDE	697	831	942	1,023	167	365	24.9	41.02
MIRABEL	13,631	14,082	13,875	17,971	5,525	6,120	36.5	492.26
SAINT-COLOMBAN	1,792	2,279	2,684	3,645	857	985	38.7	94.25

Source: Statistics Canada.

Table B.2
The case study areas: percentage population change (1976-91) and labour force change (1981-86)
by Census Subdivision

Municipality	Change in population (%)			Change in labour force (%)
	1976-81	1981-86	1986-91	1981-86
Halifax study area				
W. HANTS	-1.4	7.1	2.0	14.3
E. HANTS	5.9	17.8	6.1	26.9
INDIAN BROOK	9.4	8.6	13.7	-56.8
HALIFAX, SUB.A	0.6	10.8	10.5	24.1
SUB.B	10.5	12.0	19.8	30.7
SUB.C	16.4	14.2	18.6	20.7
SUB.D	42.7	24.2	15.6	35.8
COLE HARBOUR 30	-	250.0	442.9	-
HALIFAX	-2.6	-0.9	0.8	1.9
DARTMOUTH	-4.3	4.6	3.9	11.5
BEDFORD	36.6	18.2	45.0	27.2
HALIFAX SUB.E	8.3	12.2	12.8	20.0
SHUBENACADIE 13	-	-	-	-
WINDSOR	-1.5	0.5	-1.1	5.3
Winnipeg study area				
ST. PIERRE-JOLYS	1.4	-0.8	-0.5	-2.5
NIVERVILLE	6.1	9.2	4.3	32.8
STE. ANNE	9.3	4.8	5.3	-1.4
TACHE	32.7	13.3	13.4	24.9
RITCHOT	12.9	7.6	12.2	25.4
MACDONALD	4.8	5.3	11.6	23.5
CARTIER	-2.5	3.5	6.5	19.2
ST. FRANCOIS XAVIER	12.7	6.0	8.6	11.9
WINNIPEG	0.5	5.3	3.7	6.1
SPRINGFIELD	29.2	9.4	12.9	20.7
GARSON	9.7	-1.8	2.2	-26.6
E. ST. PAUL	6.6	21.9	32.7	40.1
W. ST. PAUL	6.6	14.3	16.6	11.3
ST. ANDREWS	16.9	9.6	8.1	22.5
SELKIRK	1.6	-0.2	-2.0	5.5
ROSSER	4.4	-2.0	4.9	16.7

ROCKWOOD	-3.8	20.3	1.0	61.3
STONEWALL	21.1	6.0	27.6	-25.5
Calgary study area				
STRATHMORE	93.0	17.6	18.1	3.4
FOOTHILLS NO.31	12.3	-2.9	16.1	12.5
TURNER VALLEY	15.7	-3.1	6.4	1.9
BLACK DIAMOND	15.2	2.9	9.2	-14.2
OKOTOKS	111.7	35.6	28.9	28.2
ROCKY VIEW NO.44	25.4	1.2	13.7	16.8
CALGARY	25.7	7.3	11.7	0.2
CHESTERMERE LAKE	131.9	19.9	57.2	6.3
COCHRANE	138.7	18.2	25.7	16.1
AIRDRIE	494.5	23.5	19.9	17.0
IRRICANA	111.4	19.9	21.4	13.4
CROSSFIELD	71.6	5.0	24.0	16.9
SARCEE 145	81.4	0.0	-	-
Vancouver study area				
LANGLEY	22.0	20.1	23.6	19.1
LANGLEY	50.3	9.5	19.4	-0.6
MAPLE RIDGE	9.8	11.8	34.4	10.6
PITT MEADOWS	33.0	28.8	39.3	24.7
SURREY	26.9	23.3	35.1	15.5
WHITE ROCK	8.9	6.2	13.4	8.2
DELTA	16.3	6.6	11.8	10.5
RICHMOND	20.7	12.8	16.7	11.7
UNIV. ENDOWMENT AREA	14.2	-9.8	25.7	-8.7
VANCOUVER	1.5	4.1	9.4	0.8
BURNABY	4.1	6.3	9.4	2.5
NEW WESTMINSTER	0.9	3.7	9.0	-2.8
COQUITLAM	10.6	13.4	21.3	10.5
BELCARRA	22.5	27.7	6.7	39.0
PROT COQUITLAM	15.5	5.7	26.3	2.1
PORT MOODY	28.6	5.6	12.4	2.9
NORTH VANCOUVER	2.1	5.1	10.1	2.7
NORTH VANCOUVER	6.8	5.1	7.7	-0.5
WEST VANCOUVER	0.3	1.5	6.9	5.3

GRT VANCOUVER, SUB.A	19.4	27.4	-1.6	51.7
LIONS BAY	38.2	6.9	15.3	12.0
SEMAHMOO	17.1	22.9	-7.8	11.1
TSAWWASEN	68.0	106.0	160.1	-31.0
MUSQUEAM 2	9.6	-2.4	10.7	-21.8
BURRARD INLET 3	0.8	-25.4	91.8	20.0
MISSION 1	3.6	-18.4	8.4	-36.2
CAPILANO 5	19.0	8.1	8.6	6.8
GIBSONS	25.4	2.8	17.3	-21.1
Toronto study area				
TORONTO	-5.3	2.2	3.8	7.0
EAST YORK	-4.8	-0.9	1.6	1.6
YORK	-4.7	0.6	3.8	1.9
NORTH YORK	0.2	-0.6	1.1	2.4
ETOBICOKE	0.6	1.4	2.3	3.0
SCARBOROUGH	14.5	9.3	8.2	11.3
VAUGHAN	67.0	119.2	71.2	119.8
MARKHAM	37.1	48.8	34.2	59.0
RICHMOND HILL	8.9	23.8	71.4	28.0
MISSISSAUGA	26.1	18.7	23.9	25.1
BRAMPTON	44.1	26.5	24.4	32.1
PICKERING	35.4	29.7	40.2	37.0
AJAX	22.7	43.5	56.9	51.4
AURORA	14.2	28.5	40.9	34.1
OAKVILLE	9.9	15.0	31.6	21.9
WHITCHURCH-STOUFFVILLE	5.3	11.6	21.3	21.4
KING	8.3	5.0	13.6	14.2
NEWMARKET	20.0	17.4	30.2	22.3
WHITBY	30.3	24.9	33.7	30.9
MILTON	35.3	14.1	0.1	19.7
HALTON HILLS	2.1	1.1	3.5	8.9
CALEDON	18.8	11.4	17.9	22.9
BURLINGTON	10.1	1.6	11.1	8.4
OSHAWA	9.8	5.2	4.6	13.5
UXBRIDGE	2.1	6.1	18.5	17.8
EAST GWILLIMBURY	18.1	16.6	25.4	25.9
Montréal study area				

ROXBOROUGH	-11.5	-2.4	-4.2	-8.3
DOLLARD-DES-ORMEAUX	7.8	7.9	8.9	13.8
KIRKLAND	38.8	27.7	30.8	35.7
BEACONSFIELD	-4.3	-1.8	1.6	6.7
BAIE-D'URFE	-7.5	-2.8	7.8	11.2
SAINTE-ANNE-DE-BELLEVUE	9.4	1.3	-2.7	11.1
SENNEVILLE	-8.4	-9.8	-12.7	5.9
PIERREFONDS	7.7	3.2	23.1	5.9
SAINTE-RAPHAEL-DE-L'ILE-BIZ.	57.5	30.1	33.0	31.0
SAINTE-GENEVIEVE	-11.0	0.6	23.5	-2.3
SAINT-JACQUES-LE-MINEUR	10.8	1.2	6.5	17.0
SAINT-MATHIEU	23.3	7.4	6.6	-0.9
SAINT-PHILIPPE	34.0	7.9	6.4	11.7
LA PRAIRIE	14.7	4.2	34.9	8.8
BROSSARD	28.3	10.0	12.8	16.5
CANDIAC	17.7	7.0	21.6	17.5
SAINT-CATHERINE	25.4	10.2	39.7	21.1
DELSON	15.5	1.3	21.3	9.3
SAINT-CONSTANT	28.4	25.9	47.3	36.3
SAINT-ISIDORE	14.3	1.3	-0.7	0.0
KAHNAWAKE 14	29.2	-100.0	-	-
NAPIERVILLE	7.4	8.9	14.0	25.7
SAINT-CYPRIEN	13.7	3.5	6.8	-8.0
SAINT-PATRICE-DE-SHERRINGTON	6.3	-4.0	1.9	-9.3
SAINT-EDOUARD	9.4	-3.4	5.3	16.3
SAINT-MICHEL	11.7	-3.0	21.5	11.2
SAINT-REMI	5.3	2.8	9.1	2.7
SAINTE-CLOTHILDE-DE-CHAT'Y	14.8	3.0	5.7	-13.2
SAINT-JEAN-CHRYSOSTOME	2.4	1.8	9.6	-4.4
SAINT-URBAN-PREMIER	3.6	-0.8	0.0	9.8
SAINTE-MARTINE	11.4	-0.5	1.9	8.2
SAINT-PAUL-DE-CHATEAUGUAY	4.2	-1.7	5.1	7.5
MERCIER	27.0	14.3	13.3	26.4
LERY	1.0	3.4	4.9	16.4
CHATEAUGUAY	1.0	2.5	5.2	7.0
HOWICK	4.3	-11.7	2.4	-38.6
TRES-SAINT-SACREMENT	-2.9	0.6	-5.0	2.2

MAPLE GROVE	7.3	5.9	13.4	10.6
BEAUHARNOIS	-9.0	-7.2	-1.1	-5.2
SAINT-ETIENNE-DE-BEAUHARNOIS	0.2	-5.2	5.2	-3.5
SAINT-LOUIS-DE-GONZAGUE	4.6	0.7	1.9	16.8
MELOCHEVILLE	14.0	8.4	11.8	18.2
SAINT-TIMOTHEE	11.0	8.0	11.2	18.7
POINTE-DES-CASCADES	-4.7	-7.4	7.8	-13.7
LES CEDRES	26.6	9.6	15.5	23.5
NOTRE-DAME-DE-L'ILE-PERROT	22.7	33.8	24.2	35.9
ILE-PERROT	14.0	8.5	22.4	13.1
PINCOURT	9.9	4.2	5.7	8.9
TERRASSE-VAUDREUIL	-4.6	-4.5	4.7	10.5
DORION	-2.1	-4.9	8.2	-4.4
VAUDREUIL	34.2	8.5	35.6	15.8
VAUDREUIL-SUR-LE-LAC	34.6	15.4	30.2	31.9
HUDSON	-2.5	0.3	9.1	9.1
SAINT-LAZARE	39.0	20.0	78.9	25.8
SAINT-EUSTACHE	38.8	8.3	15.7	14.0
LAVALTRIE	37.2	31.0	62.3	24.0
SAINT-ANTOINE-DE-LAVALTRIE	52.3	8.6	16.4	10.1
SAINT-DAMASE	10.5	1.0	10.9	7.8
SAINT-DAMASE	-1.7	-1.9	-3.5	57.1
SAINTE-MADELEINE	32.0	18.5	16.3	12.1
SAINT-CHARLES-SUR-RICHELIEU	9.0	-13.7	12.4	-3.2
SAINT-CHARLES	30.9	6.6	11.3	11.6
LA PRESENTATION	16.6	5.0	5.2	25.6
SAINT-DENIS	-3.2	10.2	21.5	13.5
SAINT-DENIS	18.8	1.9	-10.2	6.2
SAINTE-ANGELE-DE-MONNOIR	2.8	1.1	14.4	0.4
ROUGEMONT	3.4	-8.1	29.8	-23.5
SAINT-MICHEL-DE-ROUGEMONT	17.4	5.4	14.0	26.5
MARIEVILLE	-1.2	1.8	5.1	13.5
SAINTE-MARIE-DE-MONNOIR	33.3	2.0	-1.4	-14.1
RICHELIEU	4.0	10.3	40.7	35.9
NOTRE-DAME-DE-BON-SECOURS	24.3	3.7	14.4	-15.8
SAINT-MATHIAS	47.7	4.6	15.9	4.6
SAINT-JEAN-BAPTISTE	19.7	-0.8	6.2	-2.5

OTTERBURN PARK	1.7	7.1	32.3	15.3
MONT-SAINT-HILAIRE	28.6	5.2	16.6	11.0
SAINTE-ANNE-DE-SABREVOIS	23.5	0.8	8.5	-2.8
MONT-SAINT-GREGOIRE	13.8	12.2	6.6	20.0
SAINT-GREGOIRE-LE-GRAND	21.9	6.4	12.3	12.4
IBERVILLE	-7.8	3.5	9.4	14.0
SAINT-ATHANASE	43.4	6.7	12.2	5.2
SAINT-BLAISE	32.6	-12.9	13.3	-19.0
SAINT-JEAN-SUR-RICHELIEU	3.0	-2.5	8.2	-1.8
L'ACADIE	57.1	16.1	14.0	15.2
SAINT-LUC	23.5	24.2	37.0	29.3
CHAMBLY	2.5	5.5	23.5	5.9
CARIGNAN	25.7	5.3	12.6	5.1
SAINT-BASILE-LE-GRAND	27.0	18.2	14.4	39.2
SAINT-BRUNO-DE-MONTARVILLE	7.1	0.6	3.2	5.5
SAINT-HUBERT	20.8	9.3	11.8	15.5
GREENFIELD PARK	-0.1	-1.3	-3.5	2.3
LEMOYNE	-15.1	-8.2	-3.9	-11.0
SAINT-LAMBERT	0.4	-2.6	4.7	1.1
LONGUEUIL	0.9	0.9	3.5	1.4
BOUCHERVILLE	15.5	4.8	8.6	14.1
MCMASTERVILLE	12.9	1.5	0.7	7.8
BELOEIL	9.4	2.4	3.1	8.1
SAINT-MATHIEU-DE-BELOEIL	90.2	16.2	9.2	32.5
SAINTE-JULIE	62.4	8.8	33.1	18.2
VARENNES	34.1	19.7	40.7	24.5
SAINT-AMABLE	35.1	6.2	28.1	7.2
SAINT-MARC-SUR-RICHELIEU	32.3	6.2	12.8	26.7
VERCHERES	23.7	1.3	5.5	172.1
CALIXA-LAVALLEE	9.8	5.0	-2.2	51.7
SAINT-ANTONE-SUR-RICHELIEU	-10.3	0.8	5.1	-7.8
CONTRECOEUR	16.1	1.9	-0.9	-5.4
SAINT-PAUL	23.8	-2.3	7.7	-1.1
CRABTREE	0.0	1.5	9.0	1.3
SACRE-COEUR-DE-JESUS	27.4	3.7	5.2	-0.7
SAINTE-MARIE-SALOME	3.6	6.0	3.9	17.7
SAINT-ESPRIT	3.9	-1.9	4.0	16.6

SAINT-ALEXIS	1.7	-4.4	3.5	-12.8
SAINT-ALEXIS	-1.7	-4.1	5.0	-12.7
SAINT-JACQUES	2.7	0.0	4.6	1.4
SAINT-JACQUES	10.2	-1.0	-1.4	-2.2
SAINTE-JULIENNE	28.0	6.5	22.5	3.2
SAINT-SUPLICE	14.5	8.7	29.5	1.5
L'ASSOMPTION	-0.1	9.0	8.1	16.8
L'ASSOMPTION	35.3	4.6	41.7	4.8
REPENTIGNY	27.9	18.5	21.7	26.7
LE GARDEUR	35.2	11.0	49.7	17.0
CHARLEMAGNE	18.6	10.4	5.0	22.9
LACHENAIE	20.1	17.9	48.1	30.7
MASCOUCHE	41.0	4.6	21.3	9.8
L'EPIPHANIE	1.8	-4.2	21.9	-3.7
L'EPIPHANIE	8.7	0.3	12.1	-4.9
SAINT-GERARD-MAJELLA	57.7	6.5	28.3	25.1
SAINT-ROCH-DE-L'ACHIGAN	11.6	2.9	7.4	11.6
LA PLAINE	85.3	23.5	76.4	23.9
SAINT-ROCH-OUEST	2.4	-1.8	-6.8	-2.8
LAURENTIDES	7.0	3.6	15.8	-0.4
SAINT-LIN	35.7	9.0	24.7	8.5
BOISBRIAND	31.4	6.6	47.1	15.5
ROSEMERE	8.2	11.5	29.1	11.7
SAINTE-THERESE	6.4	3.1	24.9	5.2
LORRAINE	28.1	5.5	14.7	21.2
BLAINVILLE	16.2	10.2	40.2	24.6
BOIS-DES-FILION	11.4	1.3	28.4	8.1
TERREBONNE	30.3	20.7	26.7	32.3
SAINTE-ANNE-DES-PLAINES	43.2	16.7	20.8	23.6
NEW GLASGOW	13.2	-7.4	10.6	8.7
SAINTE-SOPHIE	41.4	8.0	17.0	10.3
SAINT-ANTOINE	1.3	9.7	33.0	14.9
SAINT-JEROME	-0.9	-7.2	0.3	0.0
LAFONTAINE	7.6	11.4	37.8	18.6
BELLEFEUILLE	48.4	31.2	43.0	45.3
LAVAL	8.2	5.9	10.6	10.7
MONTREAL-EST	-13.8	-4.9	4.9	-4.8

ANJOU	1.6	-1.2	0.8	-0.3
MONTREAL-NORD	-2.9	-4.9	-5.3	-7.3
SAINT-LEONARD	0.7	-4.4	-3.7	-5.8
MONTREAL	-6.4	-0.3	0.2	-1.1
OUTREMONT	-10.7	-5.2	-0.5	1.3
WESTMONT	-8.8	-2.3	1.1	8.0
VERDUN	-10.3	-7.0	1.8	-9.9
LASALLE	-1.0	-0.9	-2.4	-2.7
MONTREAL-QUEST	-8.4	-2.4	-3.8	-0.3
HAMPSTEAD	-0.2	-1.9	16.0	9.4
SAINT-PIERRE	-12.2	-6.8	0.5	-4.9
LACHINE	-10.0	-7.0	1.0	-9.9
COTE-SAINT-LUC	5.9	3.8	0.4	2.3
MONT-ROYAL	-6.3	-4.7	-0.8	7.6
SAINT-LAURENT	1.7	1.7	8.1	-0.8
DORVAL	-7.8	-2.1	-0.8	-2.3
POINTE-CLAIRE	-5.7	5.9	6.2	9.0
DEUX-MONTAGNES	9.5	6.5	23.8	3.0
SAINTE-MARTHE-SUR-LE-LAC	17.5	10.0	20.6	15.4
POINTE-CALUMENT	16.5	17.5	29.9	22.2
SAINT-JOSEPH-DU-LAC	16.0	18.4	60.2	26.9
OKA	2.9	-0.8	8.2	6.7
OKA	26.3	16.8	11.9	0.7
SAINT-PLACIDE	11.7	3.8	11.7	-45.9
SAINT-PLACIDE	19.2	13.4	8.6	118.6
MIRABEL	3.3	-1.5	29.5	10.8
SAINT-COLOMBAN	27.2	17.8	35.8	14.9

Table B.3
The case study areas: share of regional population growth*
and labour force growth* (1981-86) by Census Subdivision

Municipality	Share of population increase in region (%)		Share of labour force increase in region (%)
	1981-86	1986-91	1981-86
Halifax study area			
W. HANTS	3.9	1.0	3.5
E. HANTS	11.6	4.1	8.4
INDIAN BROOK	0.2	0.4	Decrease
HALIFAX, SUB.A	5.6	5.4	6.6
SUB.B	4.3	6.9	5.5
SUB.C	21.1	27.6	17.2
SUB.D	27.6	19.4	22.5
COLE HARBOUR 30	0.0	0.1	0.0
HALIFAX	Decrease	3.4	6.1
DARTMOUTH	12.5	9.9	18.9
BEDFORD	5.4	13.9	4.9
HALIFAX SUB.E	7.7	8.0	6.0
SHUBENACADIE 13	0.0	0.0	0.0
WINDSOR	0.1	Decrease	0.5
Winnipeg study area			
ST.PIERRE-JOLYS	Decrease	Decrease	Decrease
NIVERVILLE	0.3	0.2	0.7
STE.ANNE	0.2	0.3	Decrease
TACHE	2.2	3.1	2.7
RITCHOT	0.9	1.9	2.0
MACDONALD	0.5	1.4	1.6
CARTIER	0.3	0.7	0.9
ST.FRANCOIS XAVIER	0.1	0.2	0.2
WINNIPEG	84.0	76.1	73.8
SPRINGFIELD	2.4	4.3	3.8
GARSON	Decrease	0.0	Decrease
E. ST. PAUL	2.2	4.9	2.9
W. ST. PAUL	1.1	1.8	0.7
ST.ANDREWS	2.1	2.4	3.6
SELKIRK	Decrease	Decrease	1.0

ROSSER	Decrease	0.2	0.5
ROCKWOOD	3.3	0.2	5.6
STONEWALL	0.4	2.2	Decrease
Calgary study area			
STRATHMORE	1.1	0.7	1.2
FOOTHILLS NO.31	Decrease	1.8	12.8
TURNER VALLEY	Decrease	0.1	0.2
BLACK DIAMOND	0.1	0.2	Decrease
OKOTOKS	2.8	1.7	11.8
ROCKY VIEW NO.44	0.4	2.8	30.5
CALGARY	89.5	86.2	17.9
CHESTERMERE LAKE	0.2	0.4	0.4
COCHRANE	1.3	1.2	6.3
AIRDRIE	4.1	2.4	16.0
IRRICANA	0.2	0.2	0.7
CROSSFIELD	0.1	0.4	2.1
SARCEE 145	Decrease	1.9	Decrease
Vancouver study area			
LANGLEY	7.9	5.7	10.5
LANGLEY	1.3	1.4	Decrease
MAPLE RIDGE	3.4	5.6	4.2
PITT MEADOWS	1.6	1.4	2.0
SURREY	30.4	28.8	29.0
WHITE ROCK	0.7	0.9	1.1
DELTA	4.4	4.2	10.0
RICHMOND	10.9	8.2	16.2
UNIV. ENDOWMENT AREA	Decrease	0.4	Decrease
VANCOUVER	15.2	18.4	4.5
BURNABY	7.7	6.2	5.0
NEW WESTMINSTER	1.3	1.6	Decrease
COQUITLAM	7.2	6.7	9.1
BELCARRA	0.1	0.0	0.2
PORT COQUITLAM	1.4	3.5	0.8
PORT MOODY	0.7	0.9	0.6
NORTH VANCOUVER	3.0	3.1	2.7
NORTH VANCOUVER	1.5	1.2	Decrease

WEST VANCOUVER	0.5	1.1	2.6
GRT VANCOUVER, SUB.A	0.5	Decrease	1.1
LIONS BAY	0.1	0.1	0.2
SEMAHMOO	0.0	0.0	0.0
TSAWWASEN	0.1	0.1	Decrease
MUSQUEAM 2	Decrease	0.1	Decrease
BURRARD INLET 3	Decrease	0.0	0.0
MISSION 1	Decrease	0.0	Decrease
CAPILANO 5	0.1	0.1	0.1
GIBSONS	0.1	0.2	Decrease
Toronto study area			
TORONTO	4.2	4.9	9.4
EAST YORK	Decrease	0.3	0.4
YORK	0.2	1.1	0.6
NORTH YORK	Decrease	1.3	3.0
ETOBICOKE	1.4	1.5	2.1
SCARBOROUGH	13.2	8.4	11.2
VAUGHAN	11.3	9.7	8.0
MARKHAM	12.0	8.2	9.7
RICHMOND HILL	2.9	7.0	2.4
MISSISSAUGA	18.9	18.8	17.8
BRAMPTON	12.6	9.6	10.7
PICKERING	3.6	4.1	3.1
AJAX	3.5	4.4	2.8
AURORA	1.5	1.8	1.2
OAKVILLE	3.6	5.8	3.6
WHITCHURCH-STOUFFVILLE	0.5	0.7	0.6
KING	0.2	0.5	0.5
NEWMARKET	1.7	2.2	1.4
WHITBY	2.9	3.2	2.3
MILTON	1.3	0.0	1.2
HALTON HILLS	0.1	0.3	0.7
CALEDON	1.0	1.1	1.3
BURLINGTON	0.6	2.7	2.1
OSHAWA	2.0	1.2	3.1
UXBRIDGE	0.2	0.5	0.4
EAST GWILLIMBURY	0.7	0.8	0.7

Montréal study area			
	Decrease	Decrease	Decrease
ROXBOROUGH			
DOLLARD-DES-ORMEAUX	3.1	1.5	3.2
KIRKLAND	2.9	1.6	2.1
BEACONSFIELD	Decrease	0.1	0.7
BAIE-D'URFE	Decrease	0.1	0.2
SAINTE-ANNE-DE-BELLVUE	0.1	Decrease	0.2
SENNEVILLE	Decrease	Decrease	0.0
PIERREFONDS	1.2	3.6	1.3
SAINTE-RAPHAEL-DE-L'ILE-BIZARD	2.0	1.1	1.2
SAINTE-GENEVIEVE	0.0	0.2	Decrease
SAINTE-JACQUES-LE-MINEUR	0.0	0.0	0.1
SAINTE-MATHIEU	0.1	0.0	Decrease
SAINTE-PHILIPPE	0.2	0.1	0.2
LA PRAIRIE	0.4	1.5	0.5
BROSSARD	5.2	2.9	5.0
CANDIAC	0.6	0.8	0.8
SAINTE-CATHERINE	0.6	1.1	0.7
DELSON	0.1	0.4	0.2
SAINTE-CONSTANT	2.6	2.3	1.9
SAINTE-ISIDORE	0.0	Decrease	Decrease
KAHNAWAKE 14	Decrease	0.0	0.0
NAPIERVILLE	0.2	0.1	0.3
SAINTE-CYPRIEN	0.0	0.0	Decrease
SAINTE-PATRICE-DE-SHERRINGTON	Decrease	0.0	Decrease
SAINTE-EDOUARD	Decrease	0.0	0.1
SAINTE-MICHEL	Decrease	0.1	0.1
SAINTE-REMI	0.1	0.2	0.1
SAINTE-CLOTHILDE-DE-CHATEAUGUA	0.0	0.0	Decrease
SAINTE-JEAN-CHRYSOSTOME	0.0	0.1	Decrease
SAINTE-URBAN-PREMIER	Decrease	Decrease	0.1
SAINTE-MARTINE	Decrease	0.0	0.1
SAINTE-PAUL-DE-CHATEAUGUAY	Decrease	0.0	0.1
MERCIER	0.9	0.4	0.9
LERY	0.1	0.0	0.2
CHATEAUGUAY	0.9	0.8	1.4
HOWICK	Decrease	0.0	Decrease

TRES-SAINT-SACREMENT	0.0	Decrease	0.0
MAPLE GROVE	0.1	0.1	0.1
BEAUHARNOIS	Decrease	Decrease	Decrease
SAINT-ETIENNE-DE-BEAUHARNOIS	Decrease	0.0	Decrease
SAINT-LOUIS-DE-GONZAGUE	0.0	0.0	0.1
MELOCHEVILLE	0.2	0.1	0.2
SAINT-TIMOTHEE	0.5	0.3	0.6
POINTE-DES-CASCADES	Decrease	0.0	Decrease
LES CEDRES	0.3	0.2	0.4
NOTRE-DAME-DE-L'ILE-PERROT	1.1	0.4	0.7
ILE-PERROT	0.5	0.6	0.4
PINCOURT	0.4	0.2	0.4
TERRASSE-VAUDREUIL	Decrease	0.0	0.1
DORION	Decrease	0.2	Decrease
VAUDREUIL	0.6	1.2	0.6
VAUDREUIL-SUR-LE-LAC	0.1	0.1	0.1
HUDSON	0.0	0.2	0.2
SAINT-LAZARE	0.8	1.6	0.6
SAINT-EUSTACHE	2.4	2.0	2.2
LAVALTRIE	0.6	0.7	0.2
SAINT-ANTOINE-DE-LAVALTRIE	0.2	0.2	0.1
SAINT-DAMASE	0.0	0.1	0.1
SAINT-DAMASE	Decrease	Decrease	0.3
SAINTE-MADELEINE	0.5	0.2	0.2
SAINT-CHARLES-SUR-RICHELIEU	Decrease	0.0	Decrease
SAINT-CHARLES	0.1	0.0	0.1
LA PRESENTATION	0.1	0.0	0.2
SAINT-DENIS	0.1	0.1	0.1
SAINT-DENIS	0.0	Decrease	0.0
SAINTE-ANGELE-DE-MONNOIR	0.0	0.1	0.0
ROUGEMONT	Decrease	0.1	Decrease
SAINT-MICHEL-DE-ROUGEMONT	0.1	0.1	0.2
MARIEVILLE	0.1	0.1	0.3
SAINTE-MARIE-DE-MONNOIR	0.0	Decrease	Decrease
RICHELIEU	0.2	0.3	0.3
NOTRE-DAME-DE-BON-SECOURS	0.0	0.1	Decrease
SAINT-MATHIAS	0.1	0.2	0.1

SAINT-JEAN-BAPTISTE	Decrease	0.1	Decrease
OTTERBURN PARK	0.3	0.6	0.3
MONT-SAINT-HILAIRE	0.5	0.7	0.6
SAINTE-ANNE-DE-SABREVOIS	0.0	0.1	Decrease
MONT-SAINT-GREGOIRE	0.1	0.0	0.1
SAINT-GREGOIRE-LE-GRAND	0.1	0.1	0.1
IBERVILLE	0.3	0.3	0.6
SAINT-ATHANASE	0.4	0.3	0.2
SAINT-BLAISE	Decrease	0.1	Decrease
SAINT-JEAN-SUR-RICHELIEU	Decrease	1.1	Decrease
L'ACADIE	0.6	0.2	0.3
SAINT-LUC	2.1	1.6	1.4
CHAMBLY	0.7	1.2	0.4
CARIGNAN	0.2	0.2	0.1
SAINT-BASILE-LE-GRAND	1.4	0.5	1.5
SAINT-BRUNO-DE-MONTARVILLE	0.1	0.3	0.7
SAINT-HUBERT	5.6	3.1	4.9
GREENFIELD PARK	Decrease	Decrease	0.2
LEMOYNE	Decrease	Decrease	Decrease
SAINT-LAMBERT	Decrease	0.4	0.1
LONGUEUIL	1.1	1.8	1.0
BOUCHERVILLE	1.4	1.1	2.4
MCMASTERVILLE	0.1	0.0	0.1
BELOEIL	0.4	0.2	0.8
SAINT-MATHIEU-DE-BELOEIL	0.2	0.1	0.3
SAINTE-JULIE	1.3	2.0	1.4
VARENNES	1.7	1.7	1.2
SAINT-AMABLE	0.3	0.5	0.1
SAINT-MARC-SUR-RICHELIEU	0.1	0.1	0.2
VERCHERES	0.1	0.1	3.9
CALIXA-LAVALLEE	0.0	Decrease	0.1
SAINT-ANTONE-SUR-RICHELIEU	0.0	0.0	Decrease
CONTRECOEUR	0.1	Decrease	Decrease
SAINT-PAUL	Decrease	0.1	Decrease
CRABTREE	0.0	0.1	0.0
SACRE-COEUR-DE-JESUS	0.0	0.0	Decrease
SAINTE-MARIE-SALOME	0.1	0.0	0.1

SAINT-ESPRIT	Decrease	0.0	0.1
SAINT-ALEXIS	Decrease	0.0	Decrease
SAINT-ALEXIS	Decrease	0.0	Decrease
SAINT-JACQUES	0.0	0.0	0.0
SAINT-JACQUES	Decrease	Decrease	Decrease
SAINTE-JULIENNE	0.3	0.4	0.1
SAINT-SUPLICE	0.2	0.2	0.0
L'ASSOMPTION	0.4	0.2	0.4
L'ASSOMPTION	0.2	0.6	0.1
REPENTIGNY	6.3	3.5	5.2
LE GARDEUR	0.9	1.8	0.7
CHARLEMAGNE	0.5	0.1	0.6
LACHENAIE	1.5	1.9	1.4
MASCOUCHE	0.9	1.8	1.0
L'EPIPHANIE	Decrease	0.2	Decrease
L'EPIPHANIE	0.0	0.1	Decrease
SAINT-GERARD-MAJELLA	0.2	0.3	0.3
SAINT-ROCH-DE-L'ACHIGAN	0.1	0.1	0.2
LA PLAINE	1.1	1.8	0.6
SAINT-ROCH-OUEST	Decrease	Decrease	Decrease
LAURENTIDES	0.1	0.1	Decrease
SAINT-LIN	0.4	0.5	0.2
BOISBRIAND	0.9	2.7	1.1
ROSEMERE	0.9	1.0	0.5
SAINTE-THERESE	0.6	1.9	0.5
LORRAINE	0.4	0.4	0.8
BLAINVILLE	1.5	2.6	1.8
BOIS-DES-FILION	0.1	0.6	0.2
TERREBONNE	5.3	3.3	4.3
SAINTE-ANNE-DES-PLAINES	1.3	0.7	0.8
NEW GLASGOW	Decrease	0.0	0.0
SAINTE-SOPHIE	0.5	0.4	0.3
SAINT-ANTOINE	0.7	1.0	0.6
SAINT-JEROME	Decrease	0.0	Decrease
LAFONTAINE	0.5	0.8	0.5
BELLEFEUILLE	1.8	1.3	1.4
LAVAL	15.7	12.0	16.4

MONTREAL-EST	Decrease	0.1	Decrease
ANJOU	Decrease	0.1	Decrease
MONTREAL-NORD	Decrease	Decrease	Decrease
SAINT-LEONARD	Decrease	Decrease	Decrease
MONTREAL	Decrease	0.9	Decrease
OUTREMONT	Decrease	Decrease	0.2
WESTMONT	Decrease	0.1	1.0
VERDUN	Decrease	0.4	Decrease
LASALLE	Decrease	Decrease	Decrease
MONTREAL-OUEST	Decrease	Decrease	Decrease
HAMPSTEAD	Decrease	0.5	0.4
SAINT-PIERRE	Decrease	0.0	Decrease
LACHINE	Decrease	0.1	Decrease
COTE-SAINT-LUC	1.0	0.0	0.4
MONT-ROYAL	Decrease	Decrease	0.8
SAINT-LAURENT	1.1	2.1	Decrease
DORVAL	Decrease	Decrease	Decrease
POINTE-CLAIRE	1.4	0.6	1.3
DEUX-MONTAGNES	0.6	1.0	0.2
SAINTE-MARTHE-SUR-LE-LAC	0.6	0.5	0.4
POINTE-CALUMENT	0.5	0.4	0.3
SAINT-JOSEPH-DU-LAC	0.4	0.6	0.3
OKA	Decrease	0.0	0.0
OKA	0.2	0.1	0.0
SAINT-PLACIDE	0.0	0.0	Decrease
SAINT-PLACIDE	0.1	0.0	0.2
MIRABEL	Decrease	1.6	0.7
SAINT-COLOMBAN	0.4	0.4	0.2

* Shares are calculated as a percentage of the sum of population increases for all subdivisions with a population increase in each region.



APPENDIX C
SUMMARY OF SELECTED STRATEGIES

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urbaines et régionales **CIRUR**

SUMMARY OF SELECTED STRATEGIES

In this study, an attempt has been made to draw a portrait of the present trends occurring in urban-centred regions concerning urban growth patterns and their consequences. These consequences have been defined in terms of issues and concerns experienced by the municipalities and the strategies developed to cope with them.

During the survey, many policies and strategies were noted. Some were discussed during the face-to-face interviews with senior planners. In many cases, however, these strategies were presented in documents that senior planners returned with their questionnaire. In this Appendix, a sample of particularly interesting strategies is presented in order to show what has been accomplished in several municipalities and what could be done in others. Two broad categories of strategy documents have been included: first, general strategy documents with implications for urban growth management either for the broader region (C.1), urban core cities (C.2) and suburban areas (C.3) These reports were selected because even though they relate mostly to an individual municipality, they represent strategies that require an appreciation of the overall urban region context, Second, are a few strategies mainly contained in Official Community Plans for small towns and fringe regions (C.4). In some cases, the document reported on is not a strategy *per se*, but rather a study or analysis with a set of recommendations. However, in these cases, it was felt that the directions indicated by the recommendations were important enough to include in this sampling.

The description of each strategy is organized in a standard format:

- 1) Full title of the strategy, as well as the city for which it has been developed.
- 2) The strategy development context, i.e. what problems prompted the development of such a strategy.
- 3) An analysis of the strategy's content, i.e. what are the key elements that have been included.
- 4) A brief commentary on the strategy, mainly in terms of how the strategy might be applied elsewhere.
- 5) A contact person and/or organization if further information is needed.

C.1 STRATEGIES FOR URBAN GROWTH MANAGEMENT: URBAN REGION LEVEL

- (1) *Greater Toronto Area Urban Concepts Study: Summary Report*. Prepared for the Greater Toronto Coordinating Committee by the IBI Group, June 1990, 45 pp.

Context: First of all, this report is not a strategy *per se*. It is more a document that summarizes the findings of the Greater Toronto Area Urban Structure Study; available in eight background reports:

- Description of Urban Structure Concepts
- Minimal Growth Option
- Transportation System
- Water, Sewer and Solid Wastes
- Greening/Environment
- Human Services
- Comparison of Urban Structure Concepts
- Public Attitude Survey

"The report describes the development of three generic urban structure concepts for the Greater Toronto Area, illustrating different ways the area might develop over the next 30 years, and compares the concepts in terms of infrastructure requirements and costs, and a number of other important criteria relating to urban function and the quality of life anticipated under various concepts" (p. 1). Though this report is not a strategy, it provides planners with a comprehensive review of approaches to help shape a region that has experienced phenomenal growth over the past two decades and where insufficient co-ordination of planning and development regionally has created many problems.

Content: This report is interesting for its description of the three concepts and their comparison. The three concepts are: (1) spread. In this scenario, the actual distribution of population and employment continues to spread and consumes an ever increasing amount of greenfield land. By the year 2021, the density would be lower than current densities. (2) central. Under this scenario, by the year 2021, less greenland would be consumed mainly because of the redevelopment of 4500 ha of land within Metro Toronto, currently zoned as industrial, institutional and other low-density uses. Furthermore, these redevelopments would occur in selected urban development centres and inside defined urban perimeters. (3) nodal. Under this concept, a little less land is saved or redeveloped than with the central concept. But the growth is distributed amongst many urban nodes, mainly located near existing communities and existing or expanded transportation networks, particularly commuter rail and rapid transit nodes.

Commentary: While significant progress has yet to be made in the region in terms of coordinating patterns of growth, the discussion in this report provides useful input for any

municipality considering alternative growth patterns. Of particular interest are comparisons made in terms of urban structure, economic impetus, transportation, hard services, greening/environment, human services, external impacts and overall infrastructure costs.

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- (2) *Creating Our Future: Steps to a More Livable Region.* Prepared By the Greater Vancouver Regional District, September 1990, 34 pp.

Context: Vancouverites have come to enjoy and be proud of the beautiful and natural setting of their city. Also, they have recognized the importance of preserving a healthy environment for their fast growing city. In the last decade, the word "livability" has been on the lips of many residents there. This strategy is intended to present guidelines for the planning of the region as a whole.

Content: This report is the result of a major public consultation process. The priorities in the report are those of the population of the region. In general, the emphases are on how to maintain a healthy environment, conserve the land resource and manage urban growth. The basic concept behind urban growth management is the "Regional Town Centre," where growth is directed towards several already-existing urban centres instead of being concentrated in one core area.

Commentary: The Regional Town Centres strategy is an important concept that needs evaluating by any municipality interested in managing suburban growth efficiently, although it may not be appropriate for a slow growing region. Also, this strategy is a good example of a regional organization working with all municipalities in a metropolitan region.

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C.2 STRATEGIES FOR URBAN GROWTH MANAGEMENT: CORE CITIES

- (1) *The Peninsula: Increasing Opportunities for High Density Housing*. A Discussion paper presented by the Development and Planning Department of the City of Halifax, June 1992, 25 pp.

Context: Several major urban centres are intent on increasing residential densities in the core. This is the case in Halifax, where the City has identified the Peninsula District as a prime candidate for high-density development because of the availability of redevelopable land there.

Content: The report contains four proposed methods of intensification:

- 1) Redevelopment of existing residential areas to a higher density.
- 2) Redevelopment of non-residential land such as underutilized and surplus industrial land, surplus institutional land, and vacant land to residential uses.
- 3) Adding residential to existing commercial areas to produce mixed use development areas, especially on major commercial streets of the City and in the CBD.
- 4) Review of the Multi-Family Dwelling zone controls to determine if there are other methods available to encourage acceptable high-density residential development.

Commentary: What makes this document particularly interesting is the way in which each method proposed is judged to be feasible. On a graph, the X axis represents the level of public investment (i.e. the costs), and the Y axis, the level of community acceptability. Then, each method is evaluated accordingly. Other urban centres could usefully review such a procedure when faced with similar issues.

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- (2) *City of Halifax Task Force on City Traffic Report*. May 16 1991, 20 pp. plus appendices.

Context: Transportation problems are a major issue in Halifax because of the particular topography of the region and because of the large number of commuters coming in and out of the relatively confined peninsula area each day.

Content: This report outlines directions towards solutions. A major contribution of the report

is that it identifies every "hot spot" concerning road transportation. This allowed the task force to pinpoint issues that will eventually require policy and strategy development. These key issues relate to traffic passing through residential neighbourhoods, on-street parking, transit priorities and the need for a comprehensive transportation plan.

Commentary: This report is a "must see" for any municipality that is in the process of identifying road and transportation problems. The first appendix to the report is filled with information on a very large range of possible eventualities.

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- (3) *Parkland Plan for Halifax: a program for setting priorities for the acquisition, planning and development of parkland.* City of Halifax, Development and Planning Department, December 1990.

Context: Since 1975, the City of Halifax has increased its acreage of parkland by 65 per cent. There has never been a comprehensive plan for the acquisition and development of parkland and yet, access to open space and parkland is considered to be one of the important aspects of quality of life in an urban centre.

Content: For short-term needs, the plan proposes the assessment of the present supply of parkland as well as the identification of immediate opportunities and priorities. For the long run, identification of opportunities must be followed by public consultation on long-term needs. In the long term, attention is given to regional parks as well as community parks.

Commentary: This is an interesting report from an analytic perspective; however, relatively little attention in the report is given to budget management concerning the provision of and maintenance of parkland.

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- (4) *Orientations and Strategies of the Montréal City Plan: Draft.* Prepared by the City of Montréal, summer 1992, 113 pp.

Context: In 1992, the City of Montréal approved its first City Plan. The document in hand at the time of the writing of this report is the draft of the plan. In late 1992, the final plan was accepted. This document is accompanied by nine Master Plans, explaining in detail what will be done in each of the city's planning districts. The City of Montréal is counting on its City Plan to respond to three main challenges: to ensure viable urban development, to assume Montréal's role as the economic and cultural metropolis of Québec and to grow in a way that will allow the city to retain its cultural identity and heritage.

Content: In this plan, the emphasis is placed on four major orientations: maintaining and enhancing Montréal's role as a Metropolis; assuring the diversity of economic activities; increasing the quality of life in residential neighbourhoods, and finally, increasing the quality of the urban environment for Montréalers in general. Also, 41 different objectives are expressed concerning life in Montréal's neighbourhoods and office, commercial, industrial, institutional, cultural and tourist activities. Finally, attention is given to heritage planning, parklands and the management of environmental and urban nuisances.

Commentary: The Montréal City Plan is the result of a major public consultation effort, which is of particular interest in itself given the size of Montréal. The experience here could be invaluable for any municipality embarking on such a consultation process. Also, specific guidelines are developed for each district. Each District Master Plan is available for consultation and reflects what the citizens wanted for their neighbourhood. In the draft plan, follow-up meetings in each District were suggested in order to monitor progress in urban development. This is a significant part of the strategy to retain central city population, i.e. giving the population a greater degree of control in what happens in their own environment.

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- (5) *Plan Winnipeg... Towards 2000*. Report prepared by the Planning Department of the City of Winnipeg, July 29 1992, 137 pp.

Context: In 1986, the City of Winnipeg adopted Plan Winnipeg, its long-range development plan. Plan Winnipeg... Towards 2000 is the revised 1992 version. This revised edition is the "reflection of new priorities expressed by a large number of individuals and groups representing community interests" (p.1). The City of Winnipeg now assumes that it must look beyond its traditional role of providing basic services and must address the concerns of citizens regarding several aspects of the quality of life. Plan Winnipeg... Towards 2000 is the foundation for such action.

Content: First of all, the report outlines several goals and objectives concerning themes such as economic development, environmental stewardship, social equity and urban development management. In the latter, guidelines are provided concerning neighbourhood management, criteria for new residential, commercial and industrial development and rural areas. Also, a great deal of attention is given to the downtown area. Finally, details are given concerning regional services, including transportation, water, sewage treatment, waste management, open spaces and social services. The document also discusses an apparent image problem for some of Winnipeg's citizens regarding living in the city. Urban image strategies are intended to improve the way the city looks and the way people perceive it. Strategies here are centred on character enhancement, urban beautification and heritage assets. Finally, the plan provides concrete actions in order to achieve each goal, as well as providing indicators of change that will be used to gauge progress.

Commentary: Linking specific actions and indicators of change provide a practical basis for monitoring this urban growth management plan.

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- (6) *Short-Term Growth Management Strategy. Information Update 1992-1996.* Report prepared by the Growth Management Technical Committee of the City of Calgary Planning & Building Department, for the Directors' Growth Management Steering Committee, December 1991, 92 pp.

Context: The City of Calgary is a relative newcomer as a major urban centre. In the past four decades, its growth has been of the "bust and boom" variety, being most recently associated with the fortunes of the oil industry. This has compounded the uncertainty generally associated with the land development and housing industries, which are related to such factors as changing consumer preferences, interest rates, house prices and expectations for the future. Thus, the amount of development in any given year is not certain, nor is its distribution among competing builders, developers and communities. On the other hand, when a new area is developed, the city has to provide services such as water and sewer infrastructure and roads. "The challenge facing the city then, is to be prudent in avoiding the premature extension of costly utilities and services while making every effort to support a competitive, efficient land development process" (p. 2). This report is intended to provide a comprehensive tool to cope with future development occurring inside city limits.

Content: The report contains several forecasts for the 1992-1996 period. These forecasts deal with economic outlook, population growth, housing needs by type, land requirements and availability as well as probable supply/demand conditions, by geographic sector of the city. For each sector, appropriate land for development is identified along with its servicing implications.

Commentary: With this type of analysis laying out the short-to-medium term development patterns, it is easier for the City of Calgary to manage its growth efficiently. Moreover, it enables the city to manage its development budget according to demand, thus helping avoid overspending. In the report, it is stated that it does not contain policy recommendations, nor is it a policy in itself. However, it is clear that the analysis of the problem of managing urban development constitutes an essential component of the city's growth management strategy.

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- (7) *The City of Calgary's 10-Year Capital Spending Framework: 1991-2001: Addressing the widening gap between needs and resources.* September 18, 1991.

Context: The main reasons for the need for a long-term capital spending framework for Calgary is related to the relatively young age of the City. Much of its infrastructure has been constructed in a relatively short period of time. Also, the 1988 Winter Olympics required major infrastructure development that must be paid for. For the next ten years, it is estimated that 50 per cent of the City of Calgary's capital budget will be required for infrastructure upgrading and maintenance. The other 50 per cent will be needed for servicing new growth areas.

Content: The report contains several strategies and responses to manage capital spending more efficiently in the short term and to reduce the expenses of the City in the long run. All these strategies are developed according to the vision of "more and better." This vision looks towards more and better services for the citizens for an increased quality of life without increasing the tax rates. In simple terms, this means more economic growth, more population growth, more jobs, more services and more single-family housing...and better services, transit, environment, quality of life and livable neighbourhoods. In other words, the strategic planning process in Calgary has tried to define what the city will look like in the future. There is even a report named "Calgary...into the 21st Century."

Commentary: A strong point about this report is that it gives real solutions to the problem of overexpenditure. It also provides a relatively new approach to budget planning by proposing a myriad of strategies to reduce capital spending. Moreover, this is developed in the context of residents not having to experience any major increase in their taxes. This strategy is used by several municipalities except that in Calgary a coherent package of actions is proposed to achieve low tax increases.

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- (8) *Central Area Plan: Goals and land use policy.* Adopted by Vancouver City Council, December 3, 1991, 40 pp.

Context: The City of Vancouver is a fast growing city. In the mid-seventies, a number of land

use policies were developed for the downtown area. With the phenomenal growth rate that this area subsequently experienced, the need for intensive planning increased every year. The present Central Area is a complex structure including office, commercial and residential activities. The Plan outlines guidelines for the future development of the Central Area.

Content: The plan sets some broad goals for the Central Area:

- An alive downtown that is an economic generator.
- An accessible central area for all people.
- A walkable central area in connection with the magnificent natural setting.

To achieve these goals, the city has changed its land use policies for the area: reducing office land uses outside the CBD, reducing industrial land uses, increasing residential land uses and creating a neighbourhood character in the Central Area. Five sets of policies have been developed: an office policy, a support services policy, a housing policy, a livability policy and a retail policy.

Commentary: A significant feature of Vancouver's Central Area Plan is that it is the result of a public consultation process, as is Montréal's. The emphasis is placed on residential redevelopment, in keeping with the goal of creating a "livable and walkable" central area.

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- (9) *Clouds of Change: Final report of the city of Vancouver task force on atmospheric change.* City of Vancouver, June 1990, 83 pp.

Context: This report paved the way for a number of environmental policies dealing with air pollution.

Content: The report contains many recommendations for preserving the environment, ranging from the reduction of atmospheric pollutants released in the air each year, to trying to reduce the dependency of the population upon the use of the automobile. Several targets are set, accompanied by suggested concrete actions to meet these targets. This framework for action includes suggestions for specific land-use policies in an attempt to break the automobile addiction.

Commentary: Though somewhat complex, this report addresses an important set of questions

and policies for maintaining a healthy environment. It presents more of a preventive approach than a reactive one.

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C.3 STRATEGIES FOR URBAN GROWTH MANAGEMENT: SUBURBAN AREAS

- (1) *Summary and Recommendations From the Town of Richmond Hill Municipal Housing Statement.* Proposed by the Town of Richmond Hill (TORONTO) Planning Department, September 1990, 54 pp.

Context: Richmond Hill is a fast-growing suburban municipality centred on the Toronto metropolitan area. The municipality is concerned with the process of diversifying housing types in accordance with provincial policy in order to meet the 25 per cent affordable housing requirement.

Content: The most useful part in this report is the work program. This program contains the Official Plan and zoning bylaw review, housing intensification monitoring and streamlining, organization of public meetings and budget management.

Commentary: This report is a well articulated strategic document aimed at coping with major housing needs modifications.

Contact:

Planning Department
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 Ontario

- (2) *Official Community Plan for Burnaby, British Columbia.* Prepared by the Burnaby Planning and Building Inspection Department, December 1987, 111 pp.

Context: Burnaby is a suburb of the City of Vancouver. It's Official Community Plan focuses on where the municipality will be in 15 years, and what will be its place in the urban system of the region. The main difference compared with the core area is density: the habitat in Burnaby is mainly single-family dwellings. But globally, many of the approaches adopted in

the OCP are similar to those for a core region.

Content: A great deal of emphasis is put on the regional context of the municipality. Attention is given to the growth and development patterns favoured by the municipality, as well as land-use allocation, community facilities, and service provision and management.

Commentary: In a core municipality, a document tends to be produced for almost any growth-related problem. Because of the less complicated structure of a suburban municipality, many of the issues are addressed directly or indirectly in the OCP. The residential framework in this OCP is of interest for any suburban municipality concerned with diversifying its housing stock.

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(3) *A Strategy for Transportation in the Nineties: Burnaby Transportation Renewal Plan.*
Municipality of Burnaby, February 1992

Context: It was felt that the City of Burnaby needed to improve its transportation plan, initially developed in the late seventies, mainly because automobile ownership has increased faster than population growth. This phenomenon brought with it an ever-increasing number of daily commuters to the city. To cope with this, Burnaby needed to develop strict guidelines concerning transit, cycling and the protection of residential neighbourhoods in order to be consistent with the "Livable Region" strategy of the Greater Vancouver Regional District.

Content: The first step was to identify, using public consultation, the major issues and concerns: traffic congestion, an emphasis on transit, traffic in residential neighbourhoods, air quality and alternative modes of transportation. Then, seven transportation goals were set. These goals are linked to seven policy directions:

- Move people efficiently by road.
- Move goods efficiently.
- Reduce the need for travel.
- Promote alternative modes of travel.
- Protect the livability and environment of the community.

- Manage the transportation system.
- Inform and educate the public.

Several policies were then developed and proposed.

Commentary: On the basis of these principles, this strategy appears to be well structured and effective. However, no work schedule accompanies the document. On the other hand, this plan is a good example of a municipality integrating itself within a broader regional approach to urban growth management.

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- (4) *Environmental Goals and Objectives: State of the Environment Report.* Prepared by the Environment and Waste Management Committee of the Corporation of the District of Burnaby, March 1992.

Context: Environmental awareness is relatively new for many municipalities. Before setting specific environmental policies, one approach is to prepare a report on the state of the environment. Then, recommendations can be targeted more effectively for policy making.

Content: The report contains environmental issues that were identified through several community workshops. Also, objectives and environmental goals are expressed. These objectives and goals concern growth-related problems such as growth management, greenspace protection, transportation, air quality, water quality, waste management and risk management.

Commentary: This report is a "must" for any municipality seeking to develop an environmental report card for itself. The report's procedures, in three phases, explain particularly well how to move from public consultation to policy making in the environmental field. On the other hand, no monitoring is mentioned in this report to see whether the policies are achieving their goals.

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- (5) *Community Plan for Downtown New Westminster.* Prepared by the City of New Westminster (Vancouver), February 1987, 21 pp.

Context: In several instances noted in our report, preferences for future urban growth patterns appear to centre on a "nodal" form of development: around the core, several urban nodes will be defined and urban growth will be confined inside them, mainly in the form of infill and redevelopment. For several suburban municipalities, this nodal form of growth means becoming regional city centres.

Content: The primary objective of the New Westminster Official Community Plan is to establish broad social, economic and environmental goals as a basis for the development and redevelopment of the city's downtown area. To do so, the plan identifies key considerations for the future: the need to attract major institutions, hotels, commercial development, better planning for transit and parking and establishing pedestrian routes and public open spaces. Finally, the Plan provides guidelines in order to set standards concerning urban infrastructure development.

Commentary: The addition of design guidelines in this plan is a useful element. It will help ensure that infrastructure design will remain coherent throughout the downtown area. The downtown area will eventually be defined by its design characteristics and it will be easier for people to identify with it.

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C.4 STRATEGIES AND PLANS FOR MANAGING CHANGE: FRINGE AND RURAL AREAS

- (1) *Chestermere Lake General Municipal Plan*. Prepared at the request of and in co-operation with the Summer Village of Chestermere Lake by the Urban Planning Division of the Calgary Regional Planning Commission, September 1989, 28 pp.

Context: Due to the form of urban development favoured by the City of Calgary, urban growth has been mainly concentrated inside city limits. But recently, people seeking a more rural way of life have begun transforming their cottages around Chestermere Lake into year-round residences. More and more families have wanted to settle in the area. The Summer Village of Chestermere Lake is now considered one of the most desirable places in which to buy a house in the Calgary region. The Village therefore needs a municipal plan in order to retain its rural character.

Content: First, goals for the future of Chestermere Lake are laid out: establish a fully-serviced community, maintain a low-density residential community, enhance the municipality's role as a regional recreation resource. Land uses are identified, followed by strict guidelines concerning commercial and industrial development.

Commentary: This community plan is a fine example of a small growing fringe municipality that has taken action before it is too late. It is not a complex document, but it addresses the issues fairly and squarely.

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- (2) *Official Community Plan*, Corporation of the District of Maple Ridge (Vancouver), 46 pp.

Context: The District of Maple Ridge is a fairly large rural district located along the Fraser River, at the periphery of the City of Vancouver. Its territory contains several different evolving land use activities and it had become clear that it was important to establish policies in order to manage urban development efficiently in this fast growing region.

Content: This report deals specifically with the identification of different land use zones and the corresponding land use policies, including agriculture, housing, commercial development, industries and transportation. Various tools are explained, including Bylaws, Financial Programs and a Moratorium on service development.

Commentary: This report represents the first step of a fringe municipality towards better urban growth management: land use determination and policy development. Also, it touches on a wide range of issues concerning growth management and identifies various tools.

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- (3) *Draft Rural Plan.* Prepared by the Community Development Department of the Corporation of the Township of Langley (Vancouver), February 1992, 32 pp.

Context: Traditionally a rural agricultural township, Langley is now becoming more urban, as it shares in the rapid growth of the Vancouver region. Still, approximately 75 per cent of the municipality is designated rural/agricultural. A community plan was needed to manage the urban growth in the remaining 25 per cent of the area.

Content: Relatively straight forward, this plan contains a virtual compendium on what a rural township should take into account when taking charge of its growth management: analysis of the present situation, development of goals and objectives, proposals for land use policies, economic development and protection of the environment. In addition, several other avenues are discussed: notably recreational opportunities, heritage and landscape protection. Finally, an analysis of transportation and servicing completes the picture of what the Township would like to become in a few years.

Commentary: This draft rural plan is more like a preview of the future policies that will be adopted by the Township than a final plan. It is filled with recommendations that when approved will subsequently become policies. But it is a very good reference point for any fringe/rural municipality that wants to take charge of its urban development. A great deal of attention is given to the protection of the environment and agriculture.

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- (4) *Township of Langley: Golf Course Location and Site Development Guidelines.*
December 1991, 6 pp.

Context: For several decades now, the rural/urban fringe has been the playground of the urban population. Golf courses have flourished significantly as the sport's popularity has grown each year. But this type of recreational development has been known to consume green space as well as influence future forms of development negatively. The Township of Langley thus decided to develop guidelines for developers considering establishing a golf course in Langley.

Content: Apart from explaining many urban development guidelines, the plan has a general policy, that "Golf courses locating within the Agricultural Land Reserve must satisfy any terms and conditions of the Agricultural Land Commission, municipal requirements and any other government requirements identified during the application process" (p. 1). This policy is intended to ensure that good agricultural land will not be lost to recreational activities.

Commentary: This type of plan could be important for all types of recreational activities, not only golf courses. The establishment of any recreational infrastructure must be seriously studied.

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The Intergovernmental Committee on Urban and Regional Research (ICURR) was set up in 1967 following a Federal-Provincial Conference on Housing and Urban Development. The Committee comprises senior officials from the Federal, provincial and territorial governments of Canada who meet regularly to oversee ICURR's activities - the operation of an information exchange service and research program. ICURR's major objective is to foster communication between policy-makers across Canada working in the fields of urban, rural and regional planning, economic development, public administration and finance, housing, recreation and tourism, transportation and the environment. It also seeks to increase the level of understanding of urban and regional issues through research and consultation.

ICURR's core funding is provided by the Canada Mortgage and Housing Corporation and by the ministries of municipal affairs of the provinces and territories. Canada's municipal governments also participate in ICURR through annual membership as do consultants and universities.

Créé en 1967 à la suite d'une conférence fédérale-provinciale sur l'habitation et l'aménagement urbain, le Comité intergouvernemental de recherches urbaines et régionales (CIRUR) regroupe des représentants des administrations fédérale, provinciales et territoriales du Canada qui se réunissent régulièrement pour orienter le champ d'activités du CIRUR : la gestion d'un service d'échange de renseignements et d'un programme de recherche. Le CIRUR a pour objectif principal de favoriser les communications entre les décideurs d'un bout à l'autre du Canada travaillant dans les domaines de l'urbanisme, de l'aménagement rural et régional, du développement économique, des finances et de l'administration publiques, du logement, des loisirs et du tourisme, des transports et de l'environnement. Il a également pour but d'élargir le champ de connaissance des questions urbaines et régionales par le biais d'activités de recherche et de consultation.

Le financement de base du CIRUR provient de la Société canadienne d'hypothèques et de logement ainsi que des ministères des affaires municipales des dix provinces et des deux territoires. Les municipalités canadiennes, de même que les experts-conseils et les universités, peuvent participer aux activités du CIRUR moyennant une cotisation annuelle.

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