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Reviewing Census Metropolitan Areas (CMA) and Census Agglomerations (CA) in Canada According to Metropolitan Functionality

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ABSTRACT

Canada currently defines metropolitan areas using a methodology that takes into account population density, population size and commuting patterns. The larger metropolitan areas known as Census Metropolitan Areas (CMAs) are delineated when densely populated urban areas attain an urban core population greater or equal to 100,000. The smaller areas, known as Census Agglomerations (CAs), are delineated when urban areas attain an urban core population greater or equal to 10,000. Adjacent municipalities are added to CMAs and CAs when they have a high degree of integration with urban cores based on commuting flows derived from census place-of-work data.

This methodology includes two types of criteria for delineating CMAs and CAs: one physical or morphological and the other functional. The morphological approach is used to establish the urban core—a densely population geographic area—around which the metropolitan area is delineated, while the functional approach is used to determine which municipalities should be included in the metropolitan area, based on commuting interchange with the urban core. This methodology, although specific to the Canadian situation, is consistent with international practice. Nevertheless, there is always a need to evaluate methodological practices to determine whether or not they are effective. In order to examine our approach, we looked for an alternative methodology and adapted a model developed by Calvin Beale called the metropolitan functionality model.

The metropolitan functionality model classifies metropolitan areas according to whether they have facilities, services and settlement patterns that one might expect to find in a metropolitan area. This paper assesses how well Canada's current method of delineating Census Metropolitan Areas and Census Agglomerations reflects the metropolitan nature of these areas according to Beale's model.

As a consequence of the research undertaken for this working paper, Statistics Canada has made a proposal to lower the urban core population threshold it uses to define CMAs: A CA will be promoted to a CMA if it has a total population of at least 100,000, of which 50,000 or more live in the urban core. User consultation on this proposal took place in the fall of 2002 as part of the 2006 Census content determination process. A decision on whether to implement the proposal will be made in the spring of 2003.

1. INTRODUCTION

The goal of this working paper is to assess how well Canada's current method of delineating Census Metropolitan Areas (CMAs) and Census Agglomerations (CAs) reflects the metropolitan nature of these geographic areas according to the facilities and services they provide. By applying a functional model to Statistics Canada's CMAs and CAs, the effectiveness of Canada's delineation methodology is evaluated.

To define a CMA or CA, Statistics Canada (STC) begins with a large urban area called an urban core and then adds adjacent municipalities that have a high degree of integration with that central core based on commuting flows derived from census place-of-work data. This approach combines criteria that are morphological (a densely populated urban core) and functional (commuting flows to and from the urban core).

There are other models, however, that use different criteria to determine whether or not an area is metropolitan. One such model is Calvin Beale's metropolitan functionality model which classifies areas by whether or not they have facilities, services and settlement patterns that one might deem to be characteristic of a metropolitan area[1]. While both approaches include a core area—an urban core in the Canadian model and a central city in Beale's model—each uses different functional criteria to establish the extent of the metropolitan area. By applying Beale's criteria to Canada's metropolitan areas, we are able to observe how well Canada's delineation of CMAs and CAs compares with an alternative approach, namely, Beale's metropolitan functionality model.

2. DEFINING METROPOLITAN AREAS

Before analyzing the functional characteristics of Canada's metropolitan areas, it is helpful to put the Canadian method for defining metropolitan areas in context by describing the three methods that can be used to define the boundaries of metropolitan areas. All methods of defining metropolitan areas must answer three questions:

1. What is the minimum population needed for an area to be defined as metropolitan?
2. When should an outlying area be included in the metropolitan area?
3. What geographic unit or building block will be used in specifying the makeup of the metropolitan area?

There are three alternate methods or approaches for defining the boundaries of metropolitan areas: administrative, physical/morphological and functional (Forstall 1993). With the administrative approach, an existing, legal political entity is used to define the metropolitan area. This may be a major city or a larger area served by a regional/metropolitan government. With the physical/morphological approach, the metropolitan area is defined as territory that is continuously built-up and densely populated, and distinct from rural territory. With the third approach, the metropolitan area is defined according to functional criteria. Using the functional approach, territory outside the central urban core is included in the metropolitan area if it meets conditions that establish social and/or economic integration with the core. Commuting flow data are commonly used to assess the level of integration, but other functional indicators, such as the existence of specialized facilities and services, may also be used. Indeed, Beale (1984) asserts that certain facilities and services are essential characteristics of metropolitan areas and their absence connotes sub-metropolitan status.

[1] In 1984, Calvin Beale published a paper entitled "Poughkeepsie's Complaint: or Defining Metropolitan Areas". The paper intended to show how functional criteria, other than population and commuter flow criteria developed by the US Office of Management and Budget, were better able to define those areas in the United States delineated after the 1970 and 1980 Censuses.

3. DEFINING METROPOLITAN AREAS IN CANADA

Canada defines its metropolitan areas using morphological and functional approaches. The morphological approach is used to establish the urban core[2]—a densely population geographic area—around which the metropolitan area is delineated, while the functional approach is used to determine which municipalities should be included in the metropolitan area, based on commuting interchange with the urban core.

In Canada the urban core of a Census Metropolitan Area (CMA) or a Census Agglomeration (CA) is defined as a large Urban Area (UA). An urban area has a minimum population concentration of 1,000 persons and a population density of at least 400 persons per square kilometre based on the current census population count. When an urban area's population becomes large enough, it can form an urban core of a CMA or a CA. Currently, the urban core must have a population (based on the previous census) of at least 100,000 persons in the case of a CMA, and at least 10,000 persons in the case of a CA.

The building block of the metropolitan area in Canada is the census subdivision or municipality. To be included in the CMA or CA, other municipalities adjacent to the urban core must have a high degree of integration with the central urban area, as measured by commuting flows derived from census place-of-work data. Municipalities are included in the CMA/CA under a forward commuting flow rule if there are a minimum of 100 commuters and at least 50% of the employed labour force living in the municipality work in the delineation urban core as determined from commuting flow data from the previous census. Municipalities can also be included in the CMA/CA under a reverse commuting flow rule if there are a minimum of 100 commuters and at least 25% of the employed labour force working in the CSD live in the delineation urban core. Where necessary to eliminate holes in the CMA/CA, municipalities that do not meet a commuting flow threshold may be included in a CMA or CA, and municipalities that do meet a commuting flow threshold may be excluded from a CMA or CA. To maintain the historical comparability of a CMA or a CA that has an urban core greater than 50,000 people, municipalities are retained even if their commuting flow percentages fall below the commuting flow thresholds. An exception to this rule is made where municipalities have undergone legislated reorganisation or changes to their boundaries; in these cases the newly created municipalities are re-evaluated. If the population of the urban core of a CA declines below 10,000, the CA is retired. For a more detailed description of this methodology see the 2001 Census Dictionary at http://www.statcan.ca/english/census2001/dict/index.htm[3].

4. WORKING PAPER METHODOLOGY

The working paper methodology is based on Calvin Beale's principle that people who live in municipalities believe that there is an importance to being termed "metropolitan". For Calvin Beale, the criteria for classifying an area as metropolitan involve more than population size and the commuting patterns that determine the inclusion or exclusion of municipalities. Municipal facilities, services and where people settle in the metropolitan area are also implied. According to Beale, while larger municipalities will always have more facilities and services than smaller

[2] Canada moved from a CMA standard based on the central city to a CMA standard based on the urban core in 1971. Central cities are based on municipal organization and municipal organization can vary considerably across the country and often bear little relationship to the spread of urbanization and the size of urban core population. The central city population as a percentage of the urban core population can vary widely between CMA/CAs.

[3] Commuting flow data is commonly used as a criterion for delineating functional or metropolitan-like areas. For example, in addition to Canada and the United States, eleven other OECD countries define functional areas using commuting flow data. They include Belgium, Czech Republic, Denmark, Finland, France, Germany, Italy, Norway, Portugal, Sweden and Turkey. Ten of these countries delineate functional areas around urban centres or “poles”. (OECD, Territorial Development Service, 2001).

municipalities, some facilities and services can be identified which are essential characteristics of metropolitan areas, and whose absence implies a sub-metropolitan status (Beale 1984).

This study uses Census Metropolitan Area (CMA) and Census Agglomeration (CA) boundaries from the 2001 Census of Population. In order to determine the functional scores of CMAs and CAs in Canada, a number of facilities, services and settlement patterns that are usually found in metropolitan areas are analysed. These include:

1 & 2. **A television station and a Sunday newspaper**. These are essential to public discourse and the life and affairs of a metropolitan area. A CMA or CA with a commercial television station is given a score as well as a CMA or CA that has a daily newspaper with a Sunday edition.

3. **Urbanization**. All metropolitan areas have some rural population, but a low proportion of urban people usually indicates sub-metropolitan conditions. Therefore, a CMA or CA with two-thirds or more of its population living within the urban area is given a score.

4. **Local transit service**. Scheduled local public transportation is an integrative facility and urban amenity. A CMA or CA with a regularly scheduled public transit system is given a score.

5. **A university**. A degree-granting institution is necessary for a claim to metropolitan adequacy in education facilities. A CMA or CA with a university campus is given a score.

6. **Scheduled airline service**. Accessibility to other parts of Canada is considered to be essential to the functioning of a Canadian metropolitan area. A CMA or CA is given a score if it has a regularly scheduled commercial airline service that offers flights to at least one other province.

7. **A museum**. This variable is used to indicate whether or not the metropolitan area plays a cultural role or not. The criteria for this variable were based on the Annual Survey of Public Museums and Art Galleries published by The Council for Business and the Arts in Canada (CBAC)[4]. A CMA/CA is given a score if it has a museum as defined by the CBAC.

8. **Specialized hospital services**. Specialized medical facilities and services are usually found in a metropolitan area. The score for specialized hospital services includes seven sub-categories: cardiac intensive care; radiation oncology therapy; special care nursery; dialysis; occupational therapy; clinical psychology and therapeutic abortion services. Appendix 1 describes how the scoring is determined for each sub-category.

All eight categories are given equal weight. For the non-hospital categories, a score of 100 is awarded if the service exists in the CMA/CA and a score of 0 if the service does not exist in the CMA/CA. For the hospital category, the scores are pro-rated according to the number of services the CMA/CA has in its hospitals. Therefore, if a CMA/CA has one out of the seven hospital services, it receives a score of 14. If the CMA/CA has all seven hospital services, it receives a

[4] The Council for Business and the Arts in Canada profiles museums and art galleries that collect, conserve, and exhibit works of art and human history. Traditionally the focus of the Council has not been on science centres, heritage facilities, zoos or botanical gardens. Both museums that exhibit works of human history and art museums are included in this category.

score of 100. The scores for the eight categories are then aggregated for each CMA or CA and a percentage score between 0 and 100 is calculated.

For the purpose of the analysis, CMAs and CAs are grouped together into functional categories according to their population size and functional score range in order to determine whether CAs become functionally closer to CMAs as their urban core and total populations become larger. All CMAs are grouped together. As well, CAs having an urban core of more than 50,000 people and a total population of more than 100,000 people are grouped together and CAs having an urban core of more than 50,000 people and a total population of less than 100,000 are grouped together[5]. CAs having an urban core with less than 50,000 people are grouped together. The functional scores are classified into three ranges: 70 to 100, considered to be a high score; 50 to 69, considered to be a medium score; and 0 to 49, considered to be a low score[6].

5. FINDINGS IN THE UNITED STATES

Calvin Beale applied his functional model to metropolitan areas that were delineated between the Census of 1950 and the Census of 1980. During this period of time, urbanized areas could be defined as metropolitan if they had central cities of 50,000 or more people, central cities with populations between 25,000 and 49,999 or central cities with populations greater than 25,000[7].

The results of Beale's functional model are shown in Table 1. When Beale applied his functional model to metropolitan areas in the United States, he found that metropolitan areas with total population over 100,000 had higher functional scores than metropolitan areas with total population less than 100,000, regardless of the size of the central city. While metropolitan areas over 100,000 population that were delineated before 1971 had average composite scores of 95, metropolitan areas with less than 100,000 population that were delineated before 1971 had average composite scores of 80. Beale discovered that composite scores increased with the total population of metropolitan areas. For example, metropolitan areas that had a total population of 1,000,000+, and were delineated before 1971, had an average composite score of 100. On the other hand, metropolitan areas that had a total population of between 100,000 and 199,999, and were delineated before 1971, had a composite score of 92.

Beale also found that functional scores were lower for metropolitan areas that had a central city with fewer than 50,000 people. Any metropolitan area in the United States with a central city of less than 50,000 population scored below 70, except where total metropolitan population exceeded 100,000. Beale concluded that areas with a threshold central city population over

[5] The Cape Breton and Chatham-Kent CAs have urban core population below 50,000 and total population above 100,000. The Cape Breton CA has a high score of 84 and the Chatham-Kent CA has a low score of 20. Averaged, they give us an average composite score of 50 for this category of CAs. They are not grouped into a separate category for the analysis. See Appendix 2 for the scores.

[6] The breakpoints for the functional score categories were validated by use of histograms and scatterplots.

[7] A central city is the largest city in a metropolitan area. It was the basis for establishing metropolitan areas in the United States up to the 2000 Census. Between the 1950 and 1970 Censuses, metropolitan areas had to have central cities with 50,000 or more people. Between the 1970 and 1980 Censuses metropolitan areas had to have central cities with at least 25,000 people and had to be located in a county with a total population over 75,000. Following the 1980 Census, metropolitan areas outside of the New England states had to have either a central city or an urbanized area with a population of 50,000 or more and a 100,000 or more total population. In the New England states the criteria was a central city or an urbanized area with a population of 50,000 or more and 75,000 or more total population. Following the 2000 Census in 2003, the United States will be delineating metropolitan areas according to Core Based Statistical Areas (CBSA). A Metropolitan Area will need to have a CBSA of 50,000 or more people. A Micropolitan Area will need to have a CBSA of between 10,000 and 49,999 people.

50,000 and total population over 100,000 were more likely to have facilities, services and settlement patterns that defined areas as metropolitan.

Table 1. Functional Scores For Metropolitan Areas in the United States Based on Beale's Study

Metropolitan Areas	Number	Percentage Score
Metropolitan Areas through 1971		
1,000,000 + Central Cities 50.000+	31	100
100,000-999,999 Central Cities 50,000+	139	96
100,000-199,000 Central Cities 25,000-49,999	14	79
Average Total Metropolitan Population 100,000+ through 1971	**184**	**95**
<100,000 Central Cities 50,000+	31	83
<100,000 Central Cities 25,000-49,999	20	75
Average Total Metropolitan Population <100,000 through 1971	**51**	**80**
New Metropolitan Areas in the 1970s		
Central Cities 50,000+	10	79
Central Cities 25,000-49,999	13	63
Average All New Metropolitan Areas in 1970s	**23**	**70**
New Metropolitan Areas in 1980		
Central Cities 50,000+	2	70
Central Cities 25,000-49,999	24	60
Central Cities <25,000	9	40
Total All New Metropolitan Areas in 1980	**35**	**50**

Source: Beale, Calvin, L. (1984) "Poughkeepsie's Complaint or Defining Metropolitan Areas" American Demographics Vol. 6: 28-48.

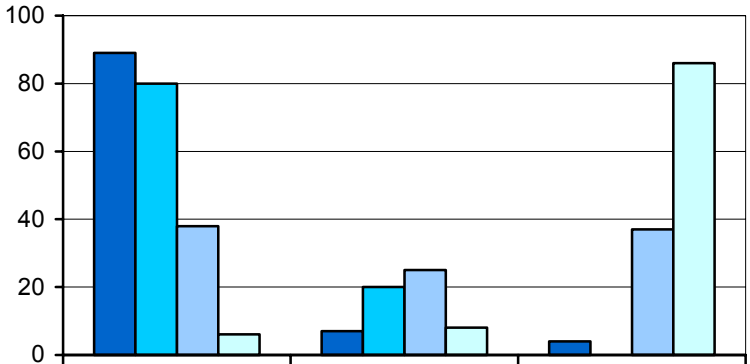
6. FINDINGS IN CANADA

In this paper we compare Canada's methodology for delineating metropolitan area with Beale's metropolitan functionality model. The results of Beale's study show that metropolitan areas in the United States receive higher functional scores when total metropolitan population is greater than 100,000—regardless of core size—and that metropolitan areas receive higher functional scores when the population of the core is greater than 50,000. In Canada, census metropolitan areas (CMA) are delineated when they achieve an urban core and total population of 100,000. Census agglomerations (CA) are considered to be large and are given census tracts when they achieve an urban core population of 50,000, while smaller CAs have an urban core population requirement of 10,000. When applying Beale's model to geographic structures in Canada, we

would expect CMAs and large CAs with total population over 100,000 to have the highest functional scores regardless of the size of their urban core population, followed by large CAs with urban core population greater than 50,000 and total population less than 100,000. These large CAs are in transition from CAs to CMAs. We would expect small CAs with urban core population less than 50,000 to have the lowest functional scores. The results of this investigation, illustrated by the functional scores in Appendix 2 of this paper, support our expectations.

Figure 1 illustrates that the total population of a metropolitan area determines whether or not an area is likely to have facilities, services and settlement patterns that define it as metropolitan. Generally, a metropolitan area's functional score increases as its total population rises.

Figure 1. Comparison of CMAs and CAs in Canada by Functional Score Ranges



	70-100 (High Score)	50-69 (Med.Score)	<50 (Low Score)
% CMA urban core and total >100,000	89	7	4
% CA urban core >50,000 total >100,000	80	20	0
% CA urban core >50,000 total <100,000	38	25	37
% CA urban core <50,000 and total <100,000	6	8	86

Our research shows that metropolitan areas in Canada have the highest functional scores when their total population is over 100,000—just as Beale concluded in his study of American metropolitan areas. Figure 1 shows that 89 percent of the CMAs in Canada have high functional scores. Large CAs also have high functional scores. Figure 1 shows that 80 percent of CAs with urban cores over 50,000 and total population over 100,000 have high functional scores. This finding indicates that the largest CAs in Canada, including Kelowna in British Columbia, Moncton in New Brunswick, and Peterborough, Guelph and Barrie, in Ontario, have facilities, services and settlement patterns that are similar to CMAs. On the other hand, only 38 percent of CAs with urban core population over 50,000 and total population less than 100,000 have high functional scores and only 6 percent of the CAs with urban core population less than 50,000 and total population less than 100,000 have high functional scores.

There are a number of CAs that have attained an urban core population of 50,000 but do not

have a total population of 100,000 or more. These CAs have more facilities and services than the CAs whose urban cores have not reached 50,000. Statistics Canada subdivides these large CAs into Census Tracts (CT) to allow for small-area socio-economic analysis within the agglomerated areas. See Appendix 2 for CAs that are subdivided into CTs.

Figure 2. Functional Scores for Census Agglomerations (CA) Having Urban Core Population Greater Than 50,000 and Total Population Greater Than 100,000

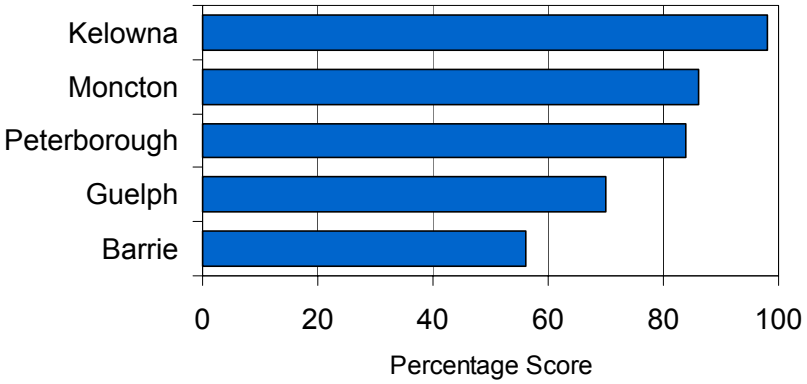
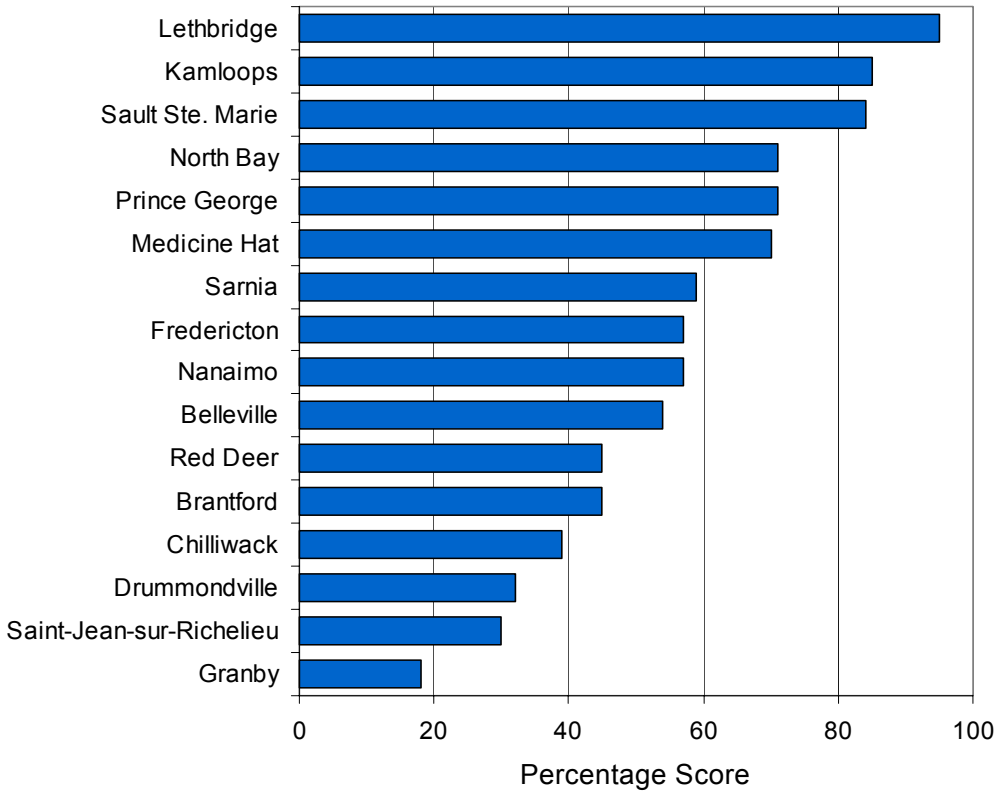


Figure 2 shows the functional scores associated with the largest CAs in Canada. In 2001, the Kelowna, Guelph and Barrie CAs had both an urban core and total population greater than 100,000 and will be delineated as CMAs for the 2006 Census based on the current CMA delineation rules. The Moncton and Peterborough CAs could be delineated as CMAs in 2006 if the delineation rules are modified to allow for a lower urban core threshold.

While CAs with urban core populations greater than 50,000 are approaching CMA status, their functional scores do not behave in the same manner across Canada. CAs often have lower functional scores if they are close to larger metropolitan area's and tend to have higher functional scores if they are regional centres that are not located near larger metropolitan areas (Ross, 1984). While the Barrie CA had an urban core population of almost 130,000 and a total population over 133,000 in 2001, Barrie has a medium score of 56. Barrie's proximity to the Toronto CMA, and not Barrie's population size, is the reason for its lower functional score. On the other hand, the Moncton CA scores high even though it had an urban core population of just over 90,000 and a total population less than 118,000 in 2001. This is because Moncton can be viewed as a regional centre within the Province of New Brunswick. Smaller CMAs that are close to larger CMAs also have lower functional scores. Examples include the Brantford CA (score of 45) that is close to the Hamilton and Toronto CMAs, and the Chilliwack CA (score of 39) that is close to the Vancouver CMA.

Six CAs that had urban core population greater than 50,000 and total population less than 100,000 in 2001 have high functional scores (see Figure 3). While not CMAs, these CAs are considered to be major regional centres. These CAs tend to follow the same pattern as the larger CAs. For example, the Granby CA had an urban core population over 53,000 and a total population over 60,000 in 2001 and has a low score due to its proximity to the Montréal CMA.

Figure 3. Functional Scores for Census Agglomerations (CA) Having Urban Core Population Greater Than 50,000 and Total Population Less Than 100,000



On the other hand, the Lethbridge CA had an urban core and total population over 67,000 in 2001, but has a much higher score because of its regional character within the Province of Alberta. As indicated in Appendix 2, Cape Breton, Nova Scotia (81) is the only CA with an urban core population below 50,000 and total population over 100,000 that has a high score. The high score of Cape Breton is most likely due to its regional function within the Province of Nova Scotia. As well, there is a small number of CAs with urban core population below 50,000 and total population below 100,000 that have high scores. These CAs include Charlottetown, Prince Edward Island (70); Brandon, Manitoba (70) and Yellowknife in the Northwest Territories (70). The high scores of these CAs likely reflect their function as regional centres.

7. CONCLUSION

The analysis indicates that when applied to Canadian CMAs and CAs, Beale's metropolitan functionality model is a good predictor of the metropolitan character of geographic areas in Canada. All Canadian CMAs have a total population over 100,000 and have obtained high metropolitan functionality scores due to the facilities, services and settlement patterns that give them their metropolitan characteristics. The findings of this working paper indicate that the total population of a CA is more predictive of its functional score than the population of its urban core and that CAs with total population over 100,000 usually have high functional scores. These CAs

are in the process of becoming CMAs. While CAs with urban core population greater than 50,000 and total population less than 100,000 have higher metropolitan functionality scores than smaller CAs with urban core population less than 50,000, their metropolitan functionality scores are significantly lower than CMAs and CAs that have total population greater than 100,000.

Not all CAs behave equally. There are large CAs that have low functional scores because they are close to the services provided in CMAs. For example, the Barrie CA has a medium functional score because it is close to the services of the Toronto CMA. On the other hand, there are large CAs that have high functional scores because they act as regional centres within a geographic area and are required to provide a full range of regional services. For example, Kelowna has a high functional score because it is a regional centre in the Okanagen Valley of British Columbia. There are smaller CAs that behave similarly to large CAs. While the Granby and Saint-Jean-sur-Richelieu CAs have low functional scores because they are close to the services of the Montréal CMA, the Lethbridge CA has a high functional score because it is a regional centre that provides a full range of regional services within the Province of Alberta. Similarly, the Yellowknife CA has a high functional score because it is a regional centre that provides regional services to the Northwest Territories.

For the 2006 Census, as part of our on-going efforts to ensure that our standard geographic areas remain up-to-date, relevant and meaningful to our users, Statistics Canada is proposing to lower the urban core population threshold it uses to define CMAs. Subject to positive stakeholder feedback, Statistics Canada proposes to promote a CA to a CMA if the CA has a total population of at least 100,000, of which 50,000 or more live in the urban core. This is a lower threshold than the current requirement for an urban core of at least 100,000 persons and responds to users' requests for a more inclusive approach to defining CMAs. The lower threshold is supported by the analysis of data measuring the functional services and facilities found in Canadian CMAs and CAs, as reported in this working paper.

ACKNOWLEDGEMENTS

This working paper uses Calvin Beale's metropolitan functionality model to develop functional scores for Canadian metropolitan areas. The initial ideas for this working paper originated with Henry Puderer, Section Chief, Geographic Areas Program, Geography Division, Statistics Canada. Both Henry Puderer and Peter Murphy, Senior Analyst, Geographic Areas Program, provided valuable feedback on the methodology, content and format of the working paper. Calvin Beale and Richard Forstall provided helpful information regarding the analysis of metropolitan areas.

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Appendix 1

How the sub-categories for specialized hospital services are scored:

Cardiac intensive care. CMA/CAs are scored positively if they have a hospital that performs invasive cardiac surgery.
Radiation oncology therapy. CMA/CAs are scored positively if they have a hospital performing radiation therapy for cancer treatment.
Dialysis. CMA/CAs are scored positively if they have a hospital that performs either peritoneal or haemodialysis.
Special care nursery. CMA/CAs are scored positively if they have a hospital with either a Level 2 or a Level 3 neonatal intensive care nursery. Level 2 nurseries look after sick babies not requiring intensive care, and Level 3 nurseries look after babies requiring intensive care.
Occupational therapy. CMA/CAs are scored positively if they have a hospital with at least one occupational therapist on staff.
Cardiac intensive care. CMA/CAs are scored positively if they have a hospital that performs invasive cardiac surgery.
Radiation oncology therapy. CMA/CAs are scored positively if they have a hospital performing radiation therapy for cancer treatment.
Dialysis. CMA/CAs are scored positively if they have a hospital that performs either peritoneal or haemodialysis.
Special care nursery. CMA/CAs are scored positively if they have a hospital with either a Level 2 or a Level 3 neonatal intensive care nursery. Level 2 nurseries look after sick babies not requiring intensive care, and Level 3 nurseries look after babies requiring intensive care.
Occupational therapy. CMA/CAs are scored positively if they have a hospital with at least one occupational therapist on staff.

Appendix 2

Functional Scores of Census Metropolitan Areas and Census Agglomerations

CMA	Total Population [1]	Urban Core Population [1]	Functional Score (percentage)
Toronto	4,682,897	4,485,055	100
Montréal	3,426,350	3,312,045	100
Vancouver	1,986,965	1,829,854	100
Ottawa-Hull	1,063,664	848,881	100
Calgary	951,395	899,659	100
Edmonton	937,845	814,031	100
Québec	682,757	635,184	100
Winnipeg	671,274	626,685	100
Hamilton	662,401	618,820	88
London	432,451	385,981	100
Kitchener	414,284	387,319	75
St. Catharines-Niagara	377,009	315,038	57
Halifax	359,183	276,221	100
Victoria	311,902	288,346	98
Windsor	307,877	274,053	86
Oshawa	296,298	234,779	46
Saskatoon	225,927	196,816	88
Regina	192,800	178,225	88
St. John's	172,918	140,613	100
Greater Sudbury	155,601	103,879	88
Chicoutimi-Jonquière	154,938	123,588	88
Sherbrooke	153,811	127,354	75
Trois-Rivières	137,507	117,758	59
Thunder Bay	121,986	103,215	98
Saint John	122,678	90,762	86
Abbotsford	147,370	129,475	70
Kingston	146,838	108,158	88
CMA Average			**88**
CA Urban Core Population >50,000 Total Population >100,000			
Barrie*	148,480	129,963	56
Kelowna*	147,739	108,330	98
Moncton*	117,727	90,359	86
Guelph*	117,344	106,920	70
Peterborough*	102,423	73,303	84
CA Average			**79**

[1] Source: Statistics Canada, Geosuite, 2001, Catalogue 92F0150XCB.

* Census Agglomerations with Census Tracts in 2001.

CA Urban Core Population <50,000 Total Population >100,000	Total Population [1]	Urban Core Population [1]	Functional Score (percentage)
Cape Breton	109,330	33,913	84
Chatham-Kent	107,709	44,156	20
CA Average			**52**
CA Urban Core Population >50,000 Total Population <100,000			
Sarnia*	88,331	78,577	59
Belleville*	87,395	61,886	55
Kamloops*	86,491	67,952	84
Brantford*	86,417	86,417	45
Nanaimo*	85,664	77,845	57
Prince George*	85,035	66,239	71
Fredericton* **	81,346	54,068	57
Saint-Jean-sur-Richelieu*	79,600	70,455	30
Sault Ste. Marie*	78,908	67,385	84
Chilliwack* **	69,776	51,713	39
Drummondville*	68,451	58,527	32
Red Deer*	67,707	67,707	45
Lethbridge*	67,374	67,374	95
North Bay*	63,681	51,895	71
Medicine Hat*	61,735	55,724	70
Granby*	60,264	53,106	18
CA Average	60,264	53,106	**57**
CA Urban Core Population <50,000 Total Population <100,000			
Kawartha Lakes	69,179	17,757	14
Norfolk	60,847	14,175	16
Charlottetown	58,358	38,114	70
Cornwall	57,581	48,287	43
Shawinigan	57,304	48,366	30
Vernon	51,530	39,995	41
Saint-Hyacinthe	49,536	45,457	32
Rimouski	47,688	35,561	59
Courtenay	47,051	32,648	27
Leamington	46,757	28,807	4
Brockville	44,741	23,014	14

[1] Source: Statistics Canada, Geosuite, 2001, Catalogue 92F0150XCB.

* Census Agglomerations with Census Tracts in 2001.
** The Chilliwack and Fredericton CAs will be a part of the Census Tract Program in 2006 based on the results of the 2001 Census.

CA Urban Core Population <50,000 Total Population <100,000 (continued)	Total Population [1]	Urban Core Population [1]	Composite Score
Truro	44,276	21,442	18
Timmins	43,686	31,148	70
Wood Buffalo	42,602	38,667	30
Penticton	41,574	34,686	70
Prince Albert	41,460	34,752	68
Victoriaville	41,233	35,855	16
Brandon	41,037	39,716	71
Sorel-Tracy	40,956	36,786	30
Orillia	40,256	29,121	30
Salaberry-de-Valleyfield	39,028	38,037	30
Duncan	38,813	22,101	27
Grande Prairie	36,983	36,735	57
New Glasgow	36,735	21,102	4
Rouyn-Noranda	36,308	23,635	45
Joliette	35,821	34,210	32
Campbell River	33,872	31,294	41
Midland	33,692	29,824	32
Moose Jaw	33,519	32,631	43
Woodstock	33,061	33,061	43
Val-d'Or	24,942	24,942	45
Owen Sound	22,161	22,161	46
Alma	28,125	28,125	29
Stratford	29,676	29,676	43
Baie-Comeau	12,609	12,609	30
Saint-Georges	20,856	20,856	29
Cold Lake	27,935	11,780	4
Sept-Îles	26,952	23,636	30
Thetford Mines	26,323	21,651	16
Corner Brook	25,747	20,009	45
Port Alberni	25,396	20,309	30
Kentville	25,172	13,121	16
Williams lake	25,122	12,997	29
Quesnel	24,426	13,727	14
Parksville	24,285	21,057	25
Cranbrook	24,275	18,528	39
Bathurst	23,935	16,427	32
Pembroke	23,608	15,019	4
Magog	22,535	17,743	16
Rivière-du-Loup	22,339	14,994	29
Edmundston	22,173	14,867	45
Amos	21,749	10,266	2
Whitehorse	21,405	16,843	55
Lloydminster	20,988	20,988	39
Portage la Prairie	20,617	13,019	18
Terrace	19,980	16,795	54

[1] Source: Statistics Canada, Geosuite, 2001, Catalogue 92F0150XCB.

CA Urban Core Population <50,000 Total Population <100,000 (continued)	Total Population [1]	Urban Core Population [1]	Composite Score
Grand Falls-Windsor	18,981	12,738	32
Powell River	18,269	13,232	39
Yorkton	17,554	15,222	45
North Battleford	17,512	17,117	29
Dawson Creek	17,444	10,754	41
Cobourg	17,172	17,172	41
Yellowknife	16,541	16,055	70
Swift Current	16,527	14,821	43
Campbellton	16,265	12,463	18
Matane	16,249	11,635	14
Summerside	16,200	14,654	27
Collingwood	16,039	15,605	29
Fort St. John	16,034	16,034	38
Kenora	15,838	11,806	54
Port Hope and Hope	15,605	11,718	13
Prince Rupert	15,302	14,643	54
Dolbeau-Mistassini	14,879	12,707	14
Camrose	14,854	14,854	29
Squamish	14,435	12,635	27
Petawawa	14,398	10,656	13
Tilsonburg	14,052	14,052	16
Thompson	13,256	13,256	29
Haileybury	12,867	10,406	16
La Tuque	12,376	10,524	16
Estevan	12,083	10,242	29
Cowansville	12,032	11,333	16
Elliot Lake	11,956	11,842	27
Hawkesbury	11,629	11,629	14
Lachute	11,628	10,300	16
Brooks	11,604	11,604	14
Gander	11,254	9,391	30
Wetaskiwin	11,154	11,154	30
Kitimat	10,285	10,233	14
Labrador City	9,638	9,638	39
CA Average			**32**

[1] Source: Statistics Canada, Geosuite, 2001, Catalogue 92F0150XCB.