Executive Summary

Looking for the Suburbs: A Pilot Study of the Ottawa-Gatineau Census Metropolitan Area

The purpose of this pilot project was to use information gathered through the identification and testing of practical suburban definitions to determine the proportion of the population that live in suburban developments within the Ottawa-Gatineau Census Metropolitan Area. Historical trends associated with the prevalence of suburban development were also examined, in order to determine if and when the Ottawa-Gatineau CMA became primarily suburban.

Method

In order to effectively identify the proportion of people living in suburban development, as well as the historical point at which the shift to a suburban dominant metropolitan was made, it was necessary to use GIS mapping techniques applied to Canadian census data, and local air photos or satellite imagery. The method used for this study required an iterative process that examines several sets of neighbourhood classification results, which were analyzed for effectiveness in identifying suburban development.

Analysis

In order to facilitate comparison of the various classification schemes, a fundamental understanding of suburban development within the CMA was established using an air photo interpretation of typical suburban characteristics. The results of these comparisons reveals that the Revised classification scheme provides a more accurate and intuitive representation of typical post-war suburban development.

Findings

The research presented here suggested that the most effective way of classifying suburban census tracts is done by using the Revised classification scheme. This classification scheme identifies suburban census tracts using the criteria found in Table i.

Table i- Revised classification criteria

Characteristic	Criteria	Inclusion / Exclusion
Inner City	CT pre-1946 housing stock greater than CMA average	Exclusion
Rural	Less than or equal to 105 people per sq km	Exclusion
Unit Mix Ratio (Incl. Attached)	66-100% of a CT's dwellings is singles, semis, and attached.	Inclusion
Post-WWII (1946) Ratio	25% or greater of a CT's dwellings are built post-1946	Inclusion
Ownership Ratio	55% or greater of a CT's dwellings are owned	Inclusion

This classification scheme does a good job in identifying modern suburbs, but could be improved to pick up more mature suburban neighbourhoods, adjacent to the inner city. Mature CTs are typically found closer to the inner city of the CMA, and in most cases are located within the suburban selection zone[1]. This observation suggests that suburban CTs can be further classified into two styles of suburban development: a modern suburb, and an inner suburb. The inner suburb seems to classify neighbourhoods that were earlier considered to be a suburb, but over time have been blended into the fringe of the inner city. Suggesting that CTs classified as suburban at any time, will always maintain suburban development characteristics even as the rural fringe moves away from the city centre (Figure i).

As shown in Table ii- the results of the Revised classification scheme, as well as the concept of the inner suburb, it was determined that approximately 71% of the CMA's population in 2001 lived in suburban type census tracts. Due to the lack of town and row home census reporting prior to the 1991 census, it is not possible to determine the exact time period in which the CMA crossed the 50% threshold for suburban population using the Revised classification method. It can, however, be hypothesized that it must have occurred prior to the 1991 census, as 66% of the CMA's population was classified suburban at this point in time. Since the Turcotte method saw 51% suburban development by 1981 and only included single detached and semi-detached homes, it seems reasonable to suggest that the Ottawa-Gatineau CMA became primarily suburban in the late 1970's.

Table ii- Modern and Inner Suburbs 1991-2001

Year	Criteria	Unit Mix Ratio	Ownership Ratio	Post-1946 Ratio	CMA Area (sq Km)	% of CMA Area	Total Population	% of CMA Population
1991	Revised/ Modern Suburbs	73%	79%	97%	257	6%	362,154	39%
	Inner Suburbs	33%	39%	94%	99	2%	244,765	27%
2001	Revised/ Modern Suburbs	69%	83%	98%	387	8%	498,556	47%
	Inner Suburbs	31%	40%	94%	105	2%	260,495	24%

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[1] The suburban selection zone is delimited by the area of the CMA that is not excluded using either the rural definition of 105 people per sq. km or inner city designation as defined by Ley.

Suburban Census Tract Classification Results- Revised Critieria & Inner Suburbs (2001)

Legend:
- Inner City
- Inner Suburbs
- Modern Suburbs
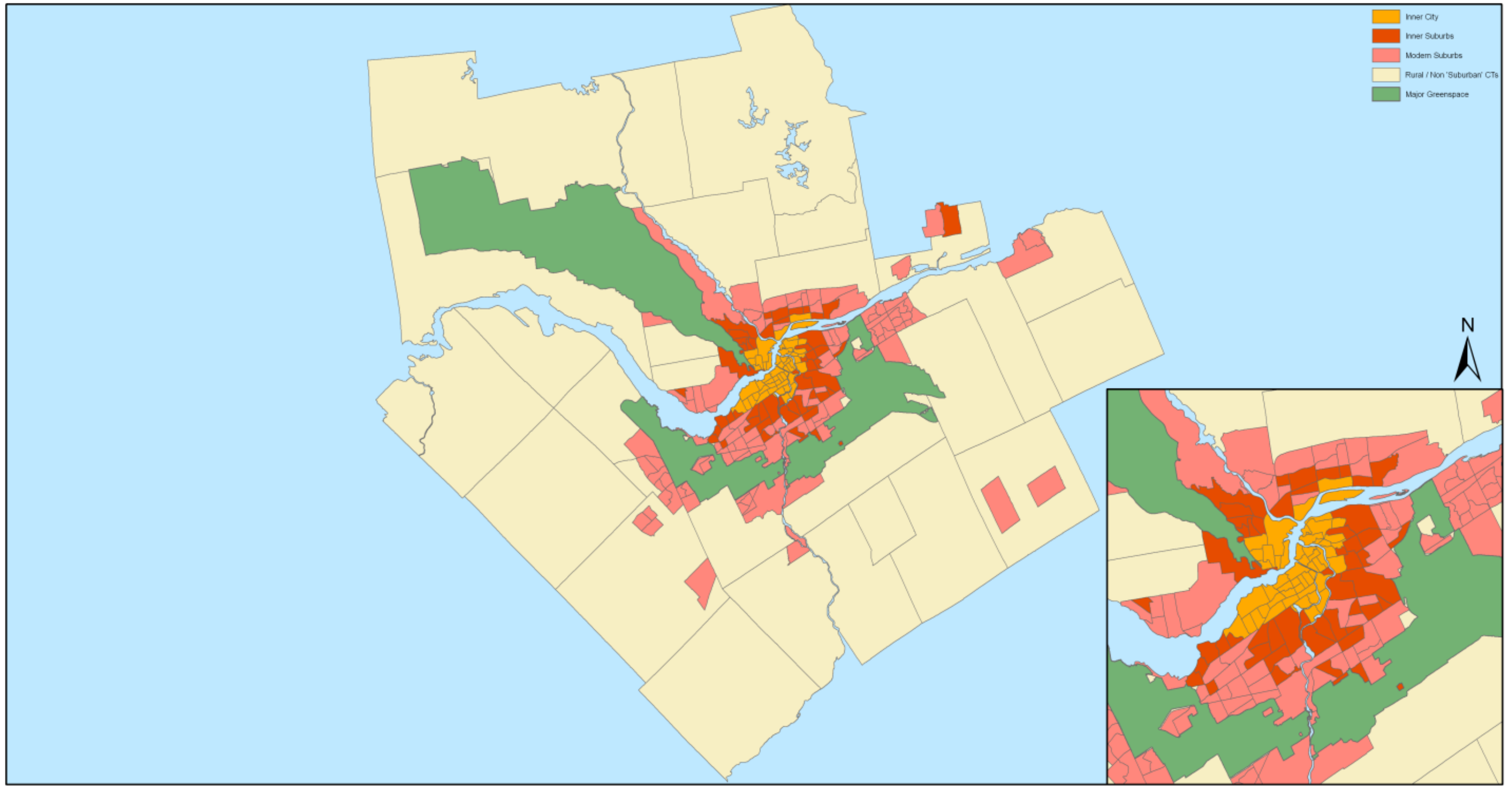- Rural / Non 'Suburban' CTs
- Major Greenspace

Figure i- Revised Criteria and Inner Suburbs

Limitations & Future Considerations

The results of this pilot project show some promise for application on a larger scale, and to be used to enhance the definition of inner city and rural zones, however, the some aspects of the classification criteria may only be relevant to the nature of post-war suburban housing in the Ottawa-Gatineau CMA.

The use of town home and row home data was essential to the Revised classification, however, due to the lack of historical data for that particular characteristic, it was difficult to address any of the historical research questions cited at the beginning of the study.

The revised classification scheme made good use of Prof. David Ley's definition of "inner city". This exclusion criterion proved to be an essential component of suburban classification, and should be considered as a foundation for any further related research.

The exclusion of rural like census tracts was an essential component of the Revised classification scheme, as it identified that many of the larger census tracts located on the periphery of the CMA exhibited similar characteristics to the rural areas.

The rural and inner city exclusion criteria left a ring of undesignated census tracts located between the edge of the inner city and the boundary of the rural areas. The census tracts contained within this region generally exemplified characteristics of either a modern suburban development or of an inner suburb. The identification of the undesignated region between the inner city and rural areas as a 'suburban selection zone' could valuable when examining other Canadian CMAs.

The use of digital air photo interpretation as a form of site verification of anomalies should be included in further research. Google Earth proved to be a useful tool for this task in the Ottawa-Gatineau CMA.

The study was unable to avoid the anomalies of some artificially lower density census tracts into the final Revised classification results. Theses anomalies were generally created by census tracts with new residential development on the rural fringe, or contained large uninhabited areas (i.e. parks).

The historical analysis originally intended for this study, restricted the inclusion of transportation data into the classification scheme, as the data was not available until later census years.

Study Implications

Given that suburban development constitutes approximately 71% of the total population in the Ottawa-Gatineau CMA, it is reasonable to suggest that given the extent and rapid growth of the suburbs in the region, managing suburban growth should be a principal task of urban planning in the CMA.

The results of this study also have significant implications for transportation policy and planning. The suburban community relies heavily on the automobile making the implications on various transit related activities rather abundant.