

**LOT CREATION IN ONTARIO'S AGRICULTURAL LANDSCAPES:
TRENDS, IMPACTS AND POLICY IMPLICATIONS**

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ARTHUR CHURCHYARD

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ABSTRACT

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Arthur Churchyard
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Advisor:
Professor W.J. Caldwell

Thousands of residential lots have fragmented agricultural landscapes and limited farm development in the province of Ontario, Canada. In 1996 and 2005, Ontario's Provincial Policy Statement (PPS) increased restrictions on lot creation in prime agricultural areas. To determine effectiveness of the 1996 and 2005 policy changes, this research analyzes the number and type of lots created per year from 1990-2009 in the agricultural designations of 102 Ontario municipalities. Results indicate that residential lot creation rates have indeed decreased in agricultural designations at almost twice the rate of decreases in other designations. Both the 1996 and 2005 policy statements were followed by 48% and 59% decreases in residential lot creation, respectively (based on average number of lots created per year in each policy period). These findings suggest that provincial-scale planning policies can effectively reduce lot creation rates. Despite decreased rates, cumulative impacts of residential lot creation continue to threaten agricultural viability.

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List of Acronyms

AAFC: Agriculture and Agri-Food Canada
BCMAL: British Columbia Ministry of Agriculture and Lands
CFFO: Christian Farmers Federation of Ontario
CLI: Canada Land Inventory
CPPS: Comprehensive Provincial Policy Statement
EU: European Union
FCC: Farm Credit Canada
GGH: Greater Golden Horseshoe
GIS: Geographic Information Systems
GTA: Greater Toronto Area
LEAR: Land Evaluation and Area Review
MIZ: Metropolitan Influence Zone
MMAH: Ministry of Municipal Affairs and Housing
MPAC: Municipal Property Assessment Corporation
MPM: Municipal Performance Measures
MRI: Ministry of Research and Innovation
NEC: Niagara Escarpment commission
NEP: Niagara Escarpment Plan
OECD: Organization for Economic Cooperation and Development
OFA: Ontario Federation of Agriculture
OMAFRA: Ontario Ministry of Agriculture, Food and Rural Affairs
ORM: Oak Ridges Moraine
PPS: Provincial Policy Statement
SOLRIS: Southern Ontario Land Resource Information System
SPSS: Statistical Package for the Social Sciences
UDIRA: Urban Development in Rural Areas study
UNCTAD: United Nations Conference on Trade and Development

Chapter One: Introduction and Research Purposes

Ontario's agricultural industry has become the most intensive and diversified in Canada. At the same time, thousands of new lots for farm and residential purposes are fragmenting the landscape and introducing limits on agricultural development. The net benefits of creating new lots are debated but, to nearby farmers, each new lot means loss of farm options and new pressures from non-farm residents. In Ontario, lot creation is part of the land use planning and development policy process, which must be consistent with the Provincial Policy Statement (PPS). The PPS lot creation policies have changed twice since 1990: once in 1996 and again in 2005. Both times, the PPS further modified the types of new lots permitted in prime agricultural areas.

Before 1990, municipalities were required to circulate farm-related severance applications to the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). This data was useful in informing land use policy and implementation. After the introduction of the 1990 *Planning Act*, OMAFRA was no longer circulated on severance applications. To fill this information gap, this research builds on severance information collected from 1990-2000 and gathers and analyzes new data from 2000-2009. This helps to determine the effectiveness of the 1996 and 2005 Provincial Policy Statements (PPS), both of which increased restrictions on residential lot creation in prime agricultural areas. In fact, the 2005 PPS prohibited the creation of all new residential lots in prime agricultural areas, with the exception of dwellings made surplus as a result of farm consolidation. The effectiveness of these policies is evaluated in this study. The results are directly relevant to ongoing provincial policy review, such as the 2011 Provincial Policy Statement review, the 2015 Greenbelt Plan review and the ongoing creation of regional Ontario growth plans.

This study examined 102 municipalities across Ontario, covering virtually all prime agricultural areas in the province. As part of this study, each municipality received a summary of the number and type of new lots created in farm areas and was surveyed to better understand local factors in lot creation trends. The demand for new lots is affected by a variety of political, economic geographic factors that vary at local and provincial levels. The study conducted detailed analysis at the provincial, regional, and upper and single tier levels across the province.

Findings suggest that the provincially-led planning policy approach has been effective in reducing the rate of scattered residential lot creation in most agricultural designations across the province. This does not mean that all agricultural land has been protected permanently, or that stakeholders willingly participate in farmland protection. Municipalities and landowners continue to pursue further residential development, adding to the cumulative impacts of residential development.

Ontario's planning policies for lot creation in prime agricultural areas are a modern expression of the age-old battle to balance competing land uses. As a public good, agricultural development has value to local and global human communities for a wide variety of purposes – to grow food, produce fur and fibre, harness energy, filter drinking water, enhance biodiversity and provide recreational and tourism opportunities. Residential development is also a public good because it houses residents who pay taxes, work, learn, shop, play, volunteer and so on. While both types of development are valuable, commercial agriculture and non-farm residential development are not compatible uses. For example, many farmers would disagree that private farmlands are a place for recreational trails. Although there are many forms of agriculture that do complement residential uses, Ontario's current urban and agricultural landscapes are dominated by development forms that do not mesh. Residents in agricultural areas are often concerned about large-scale livestock facilities, loud machinery, chemical inputs, manure

odours, water pollution, flies and dust. In turn, farmers are concerned with urban residential complaints about farm practices, high taxes and land values, trespassing, vandalism, traffic and a general lack of understanding about how agriculture works. There is a need for better planning to find ways to separate non-compatible farm and non-farm uses. There is also a need to encourage forms of residential and agricultural development that are compatible with transition zones between city and countryside.

Ontario agricultural landscapes have become a focal point for legislation in conservation, energy, water and nutrient management objectives (the *Land Conservation Act*, the *Green Energy Act*, the *Clean Water Act* and the *Nutrient Management Act*). This occurs at a time when Ontario's role as an agricultural exporter becomes even more important, given rising global food and fuel prices, food safety and security, water scarcity and climate change. Demand for Ontario's agricultural lands continues to intensify and diversify. Yet these lands continue to be converted to non-agricultural uses that are incompatible with agriculture and irreversible. The need to protect and promote viable agricultural landscapes through planning policies continues to grow in unprecedented ways. The success or failure of these policies will play a crucial role in the viability and resilience of Ontario's environment and economy. Towards this goal, four objectives were set out in the original research proposal. The objectives were to:

1. Document the numbers and purpose of lots created within rural and agricultural Ontario.
2. Identify the local land use policy that was in effect when these lots were created.
3. Determine the relationship between current provincial policy and the creation of rural non-farm lots. Identify the impact these lots are having on the agricultural industry and review the impact on the viability and sustainability of agriculture in rural communities.

4. Provide quality information to assist with upcoming reviews of the *Greenbelt Act* and the Provincial Policy Statement. Maintain the data gathered on a publicly accessible web site.

This research will be of particular interest to provincial planning staff, most specifically the Ontario Ministry of Agriculture, Food and Rural Affairs and the Ministry of Municipal Affairs and Housing. Upper, lower and single tier municipal councillors and staff will also draw upon this resource to understand complex trends in their municipalities.

Chapter Two: Literature Review

2.1 Overview

This literature review is focused on the general problem of how lot creation trends in Ontario's agricultural designations can be understood, and why this topic is important in broader contexts. Literature on this specific topic is limited. A preceding literature review by Caldwell and Dodds-Weir (2003) contains a discussion of the specific topic. Several follow-up studies could be referenced as well (Caldwell et al., 2004; Dykstra et al., 2004; Gillespie, 2006). However, in order to obtain the diversity of sources required, this literature review draws from multiple disciplines to address broader questions of rural residential development in agricultural landscapes. Where necessary, the broader literature is then discussed in relation to what it might mean for the specific problem of lot creation in Ontario's agricultural designations. Information for non-referenced statements is drawn from the researcher's personal experience, conversations with professional planners and observations based on internal government reports.

Literature for this review is spread across multiple disciplines, comprising economics, ecology, geography, sociology and political science. This review does not attempt to contribute to the development of those specific disciplines; rather, it synthesizes multidisciplinary perspectives to further develop planning practice and theory in a specific place, Ontario.

2.1.1 Landscape Frameworks

Knowledge is interpreted within a framework (ontology). A **framework** is analogous to a lens that can be used to observe reality at different, nested levels of detail. A **theory** is a set of

assumed relationships, processes and predictions that explain what is known at a particular level (Ostrom, 2005).

This research uses a landscape framework to examine different landscape scales to organize ecological and cultural variables in space and time. Landscape scales are both a physical reality and a social construction, allowing for the examination of the intersections of environmental and social processes (Selman, 2006). Landscape frameworks are increasingly recognized in conservation and land management around the world in policies and planning narratives; the European Landscape Convention (EU, 2000) is an example of policy written within a landscape framework.

Sager (1999) suggests that the range of planning theories may be organized according to how they approach the question of rationality, and what forms of rationality are possible or beneficial. This review describes the dominant land use planning theory in Ontario, land use planning, as it relates to spatial planning theory, which uses a different approach to rationality (or non-rationality).

2.1.2 Spatial planning theories

A landscape framework lends itself to theories focused on ecological scales and geographic space. Hillier (2007) seems to use a landscape framework in her exploration of a spatial planning theory. Hillier describes planners as actors enmeshed in a series of dynamic, relational networks. Spatial planning occurs in circumstances where outcomes are uncertain and problems are constantly recast. In this context, spatial planning maps out possible landscape transformations and mediates space through collaborative discussion and community adaptation. Spatial plans in this theoretical perspective could be defined as temporary sketches of place-based imagination, experimentation and action (Hillier, 2007). Spatial planning is part of

a group of communicative and poststructuralist theories that reject instrumental and substantive rationality as the only basis for planning (Sager, 1999). Spatial planning emphasizes communicative action and ecological rationality through a focus on iterative (not static) design processes, deconstruction of institutions and opposing paradigms through dialogue, and the pursuit of multiple spatial plans rather than one 'Official Plan'.

2.1.3 Land use planning theories

Leung (2003) defines Canadian land use planning as, "the process of protecting and improving the living, production and recreation environments in a region through proper land use and development". The aspiration of law in a land use planning theory is to structure and regulate trade in property rights in ways that are efficient, equitable and effective (Needham, 2006).

Economically, land use planning is concerned with the *efficiency* of markets in property rights. Legally, land use planning is concerned with designing and enforcing an *equitable* structure of property rights and public participation. *Effectiveness* is an important third consideration because land use planners must determine if certain policies are achieving the goals of the public representatives they serve, which may be more or less rational than planners would like. These varying elements of land use planning point to instrumental rationality as the basis for planning.

Land use planning in Canada is increasingly restrictive and directive in regulating markets, in the tradition of what legal scholars would call 'command and control' (Muldoon et al., 2009). Ever more restrictive provincial policies, Official Plans, zoning by-laws, and expensive land protection policies are indicators of flaws in property market structures in a land use planning perspective. As discussed by Ball (2002) the strength of individual property owners'

rights can present difficulties for higher level land use coordination if markets in property rights do not reflect land use planning goals. A clear case of this trend is the shift towards restrictive land division and development policies in agricultural areas of Ontario. Though highly controversial at local planning levels, the restrictions have been deemed necessary at the provincial level in balancing demand for residential vs. agricultural development.

2.1.4 Choosing a theoretical language

To summarize, a landscape framework recognizes ecological and social variables interacting at a landscape scale. It requires that reality be understood as a dynamic relationship between social actors within geological/ecological systems. Spatial planning theory seeks to explain the role that human imagination and intervention play in the mediation of spatial relationships. Spatial planning theories overlap with land use planning theories in many ways, but are crucially different in the sense that land use planning theories are instrumentally rational, while spatial planning theories challenge instrumental rationality by situating planners as one set of actors in a landscape system that is complex and ever-changing. Compared to land use planning, spatial planning is defined more by dynamism and diversity than cost/benefit, means/ends thinking.

Ontario's provincial planning policies have historically used language and approaches more aligned with land use planning theories. In order to communicate with Ontario's practicing planners, the language of land use planning theories has been used throughout this report. However, spatial planning theories offer interesting alternatives to the boundaries encountered within instrumental, positivist rationality. As posited by Sager (1999), land-use planning practice may be better understood using multiple rationalities that encompass the spatial interactions of economic, political and ecological actors.

2.2 Ontario's agricultural context

2.2.1 Significance and development of Ontario agriculture

Ward (2007) reviews recent national agricultural trends in a comparison of the 2001 and 2006 Canadian Census of Agriculture. According to this review, more farmers are working full time hours off the farm. At the same time, the growth in large farms with receipts of \$1 million or more grew from 4,453 to 5,902. These farms account for 2.6% of all farms and 39.7% of total receipts. More than 15% of the 229,373 farms counted by the census had their headquarters in a metropolitan area. Greenhouses, nurseries, and floriculture are expanding near urban markets. In 2005, they accounted for 24.4% of all gross farm receipts among farms in CMAs, compared with only 7.5% on a national level. A higher proportion of organic farms also tended to locate near urban markets. This demonstrates that the types, sizes and profitability of farms depend partly on where they are located.

Agriculture and Agri-Food Canada (AAFC) reports that, since 1991, the overall agriculture and agri-food system in Canada has been growing at an average annual rate of 2.4% (2008). According to yearly reviews prepared by OMAFRA (OMAFRA, 2009a), Ontario's agri-food industry is also growing, totaling \$9.7 billion in farm cash receipts in 2009. It represents the second largest industry in Ontario, with \$32.7 billion in food processing alone and representing 700,000 jobs in 2008 (OMAFRA, 2009b).

Within Statistics Canada's Agricultural Ecumene, there are no clear groups of census districts that are more or less agriculturally productive. This is likely because census district boundaries do not align directly with areas of higher capacity for production (e.g. soils, climate, market clusters). In a graph of farm cash receipts and acreages in the 2006 Census, the census districts seem to vary continuously on a spectrum (see graphs below, drawn from the

Agricultural Census, 2006). Generally, the highest total receipts can be found in Southern and Western Ontario, while there are a mix of reported farm acres across the province. Central Ontario has generally fewer farmed lands.

Figure 1: Total gross farm receipts by county/region for 2006 census and 2001 census

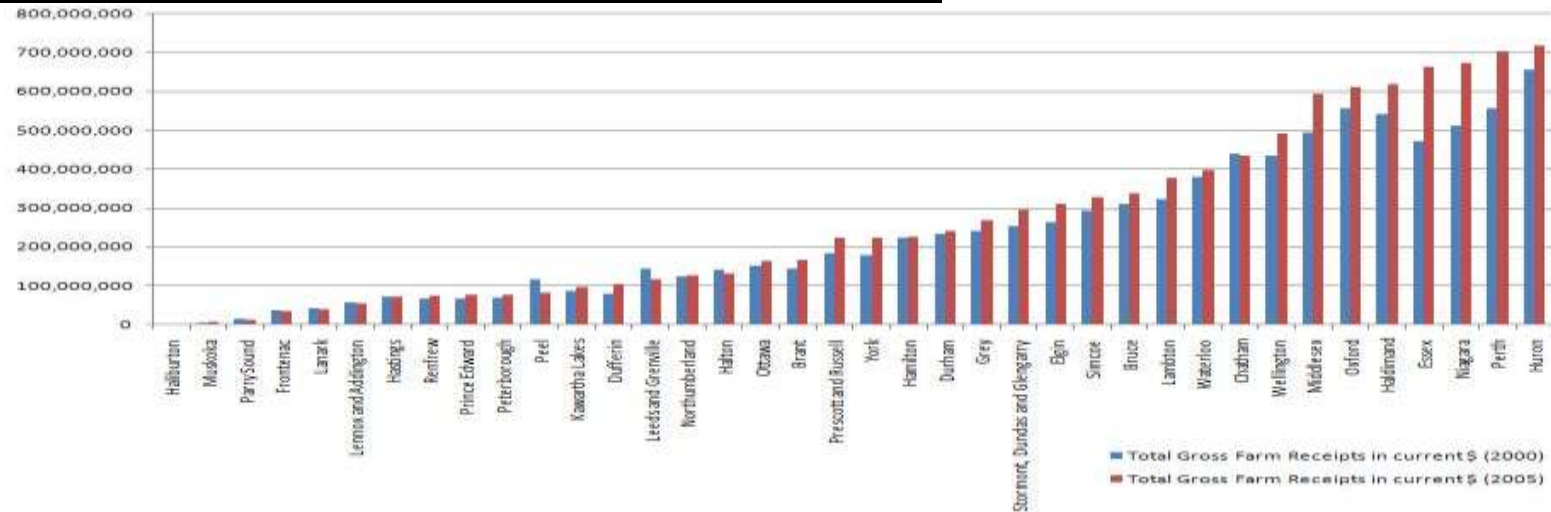


Figure 2: Total farm area by county/region for 2006 census and 2001 census

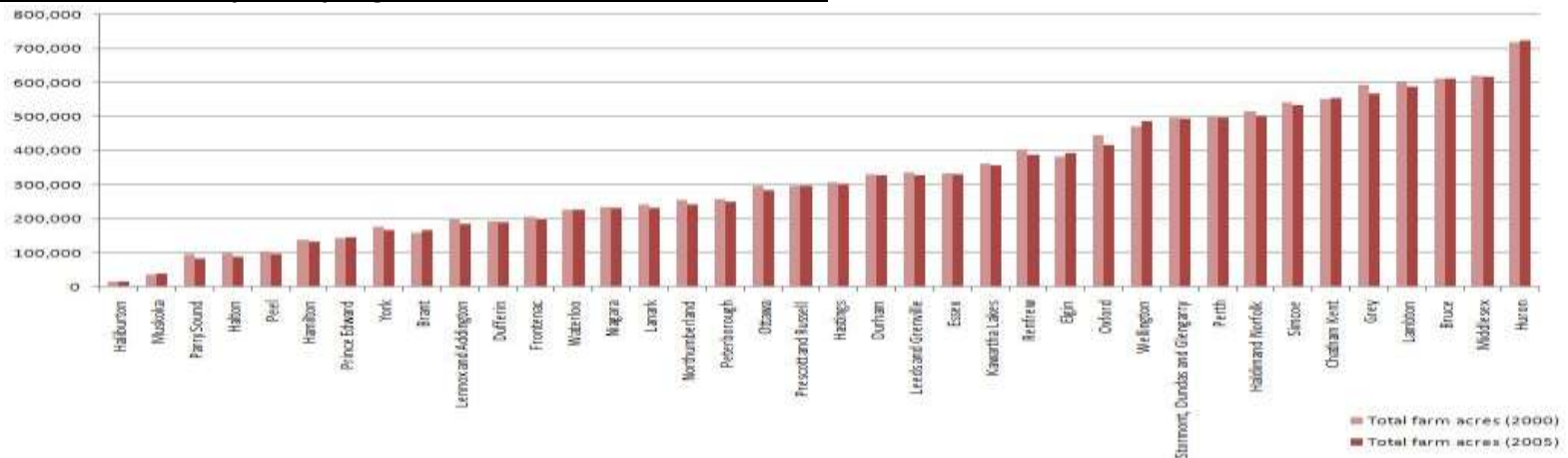
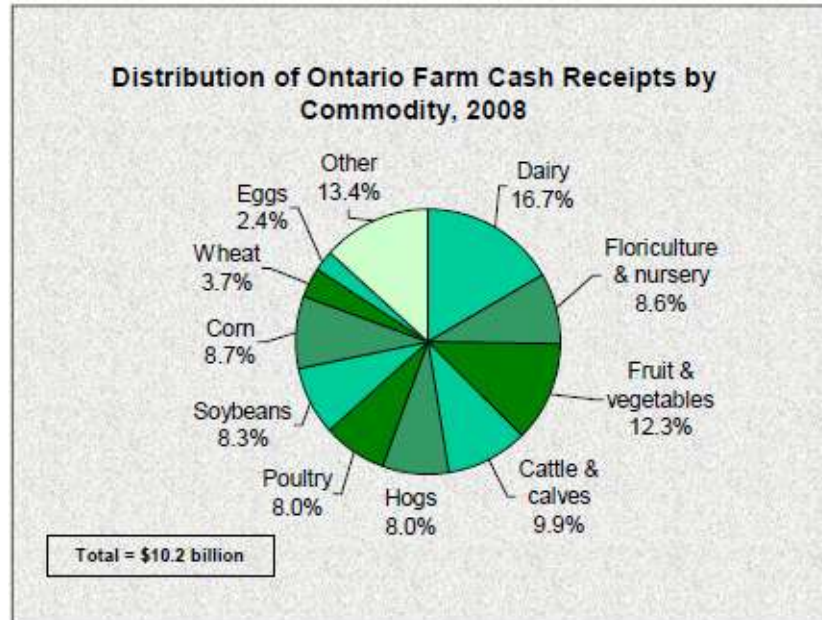


Figure 3: Distribution of farm cash receipts by commodity (OMAFRA, 2008a)



Ontario agriculture has experienced ongoing expansion of farm capital and size, while the number of farms decrease, indicating an ongoing economic rationale for farm consolidations. Small farms that have not expanded typically depend on off-farm income. Mid-sized farms have reduced in size or been added to larger farms, resulting in the divergence of large and small farms and related divergence in policy interests (CFFO, 2007).

These changes have been brought on by international trade liberalization, consumer demands, a rationalization of suppliers and processors, and the use of new technologies (Agricultural Odyssey Group, 2002). Declining labour requirements and increasing labour costs have driven farms to consolidate into fewer, larger units that are more capital than labour intensive (Troughton, 1981). Decreasing net returns per unit of production are also driving the formation of larger, more specialized and more efficient operations (Caldwell, 2001). Vertically integrated farm supply chains also focus more on farm manager models and often less on commitment to community well-being, since farm managers do not necessarily need to live on the farms they manage or interact with neighbours. The trend towards short term leasing of

agricultural lands, particularly on lands in the urban shadow, leads to soil degradation and lack of infrastructure investment (Temple and Caldwell, 2009). All of these factors lead to increasing alienation between some types of farmers and the communities in which farming has traditionally occurred.

Increasingly globalized food markets have also alienated agricultural producers in Ontario from local processors, retailers and eaters. In spite of its agricultural productivity and diversity, Ontario currently imports three dollars of food products for every two dollars exported (OMAFRA, 2009a). From 1999 to 2006, Ontario's food imports grew 32%, compared to exports at 28%. Farms in the GGH have access to one of the most densely populated urban centres in North America, the Greater Toronto Area (GTA), providing a distinct advantage in direct marketing that has not yet been fully realized (OMAFRA, 2009).

2.2.2 Farmland loss patterns

Access to productive land has been an important geographical driver in the formation of the earliest to the great modern cities of the world. Cities are shaped by agriculture, both spatially and socially (Daniels, 2009). The first Mesopotamian cities seem to have been located strategically for the storage, defense, and distribution of food (Ehrlich, 1973). It is unsurprising that 5,000 years later the same locational trend holds true for all of Canada's, and most of the world's, large cities. The urban enterprise continues in Earth's most fertile places: deltas, prehistoric lakebeds, and flood plains. The growth of these cities represents an ancient tension between urban and agricultural development that has never been fully resolved.

The Great Lakes basin is one of the few places in the world where large quantities of arable soils have developed in proximity to large supplies of fresh water, over a period of millennia. Prime agricultural lands in Ontario have the capacity to produce a wide diversity of

agricultural products. Unfortunately, once agricultural lands are urbanized they are lost to future production. Almost half of Ontario's urban land is built on former prime agricultural lands (Statistics Canada, 2005).

In the modern North American context, farmland preservation is motivated by:

- Fostering stewardship of the land
- Maintaining an agricultural land base for future generations
- Mediating market externalities to ensure fair tax distribution and affordable near-urban land for new farmers
- Providing accessible food for all levels of income and ability
- Enhancing community health through compact, multifunctional design
- Providing environmental services (clean air, water and soil)
- Conserving and enhancing biodiversity (Brethour et al., 2006)

As described by Labbé et al. (2007), trends in farmland loss depend on which time period and relative land areas are chosen for reference by the researcher. From 1921-2001, Ontario farm area declined 40% (reliable records are not available before this period). From 1981 to 2001, the decline in farm area was 9.5%, and from 1991 to 2001, farm area increased by 0.27%. About 2 million hectares of farmland have shifted out of agricultural cultivation in Ontario over the last 30 years (Labbé et al., 2007).

According to Statistics Canada (2005), since 1951, the Canadian demand for cultivated land has increased 20% due to urban expansion and other economic factors. This increased demand for land forces agriculture onto marginal, erodible and sensitive land or forested slopes that yield less and cost more to farm. In fact, as of 2005, Canadian demand for cultivated land outstripped supply of Class 1 to 3 lands (Statistics Canada, 2005). By 2031, Ontario will have passed the point where it would be able to feed its own population, should that ever be required (McCallum, 2011). The same is likely true of other fertile areas around the world.

Demand for agricultural land is also increasing for non-residential purposes, including roads, landfills and aggregate operations (OMAFRA, 1992). Loss of farmland is of particular concern given that only 0.5% of Canada's land is Class 1 agricultural land. More than half of that land is in Ontario (Canada Land Inventory, 1969). Ontario also has 95% of Canada's best climatic zones for diverse production, comprising index 2.4 to 3.0 (Agroclimatic Resource Index, 1975). These geographic zones are indexed by Agriculture and Agri-Food Canada (AAFC) based upon the length of the growing season, temperature, and moisture as measured in hayfields across the country.

As an alternative source of information to Census data, analysis of satellite imagery demonstrates land use conversions in the GGH greenbelt area from 1993 to 2007 for the Ontario Greenbelt Foundation (Cheng and Lee, 2008). This analysis illustrates that even in some of the best protected lands in the province, settlement areas continue to expand within designated boundaries. Although there is little evidence for leapfrog development, pressure is rising and primarily affects outer-ring municipalities such as Brant and Simcoe County (Tomalty and Komoroski, 2011).

On a global scale, large funds have been invested in farmland to hedge against food and fuel volatility. For example, AgCapita has purchased thousands of acres in Saskatchewan, which has experienced a 15% rise in farmland values since May 2009 (FCC, 2009). Land investments and acquisitions are also occurring overseas, such as the purchase of Sudanese and Pakistani lands by United Arab Emirates investors (UNCTAD, 2009; Reguly, 2009). In the coming decades, Ontario's agri-food industry will see new opportunities as some international competitors fall victim to increasing energy prices and environmental shifts. For example, Ontario may be in a position to counteract fruit production declines as California experiences water shortages, where half of North America's fruit production currently occurs (Pacific Institute, 2009).

All of the preceding literature highlights the problem of farmland loss as an ancient and increasingly urgent trend, internationally and locally. Yet, in the United States, Edgens and Staley (1999) claim that the urgency of farmland loss is exaggerated because rates of farmland loss are leveling off. This argument ignores the cumulative impacts of land lost in each decade (Caldwell and Dodds-Weir, 2003). It also does not acknowledge the fact that demands for agricultural land outstrip supply (Statistics Canada, 2005; McCallum, 2011).

Another criticism by Labbé et al. (2007) is that, since measures of farmland loss are sensitive to time period and area, measures of farmland loss have few, if any, policy implications. This argument is only true if measures are not qualified by meaningful time periods and areas. Realistically, the selection of meaningful time periods and desirable areas is an ongoing, highly contentious political, economic and scientific process in Ontario. The impacts are described in the following section. The policy implications of these decisions continue to unfold in Places to Grow, Greenbelt, and Provincial Policy Statement reviews.

2.3 Impacts of lot creation in agricultural designations

Perspectives on the impacts of lot creation vary amongst stakeholders. Key stakeholders include municipal and provincial politicians and planners, economic development officers, farmers, conservation authorities, federal land managers, commodity groups, and rural residents.

A number of studies in Ontario have used regional comparisons of non-farm lot creation to better understand the scale and impact of non-farm development as understood by farmers, farm leaders, planners, and municipal politicians in agricultural areas (Caldwell and Weir, 2002; Dykstra et al., 2004; Gillespie, 2006). Caldwell and Weir (2002) observe that non-farm development poses serious threats to the spatial and social sustainability of rural Ontario

municipalities. There is a gap in the literature examining whether this holds true following revised policies in 2005, which the research profiled in this report may help to address.

Authors have disagreed in their assessments of the impacts of residential development in agricultural areas. Bryant and Russwurm (1979) conclude that non-farm rural development does not have significant impacts, while Rodd (1976) concludes that non-farm development impacts agricultural viability significantly. The difference between these points of view is often whether or not cumulative impacts are being assessed. Caldwell (1995) and Davidson (2007) have made the argument that isolated impacts of residential development may seem insignificant until cumulative impacts are assessed. Modern debates along similar lines continue, as exemplified in Puzanov (2010), who described damages from cumulative impacts of surplus dwelling severances. A responding letter rebuffed arguments against surplus dwellings by focusing on the example of a single surplus dwelling severance, a pre-existing house that did not directly remove any land from agriculture on its own. This emphasized the different conclusions reached when individual cases are considered instead of cumulative impacts.

Gillespie (2006) interviewed 16 farmers in Oxford County regarding attitudes towards new lot creation; almost all farmers opposed creation of new lots based primarily on potential conflicts between new non-farm residents and ongoing farm activities. Trespassing was a frequently repeated concern. Despite this, all but one of the farmers had received purchase offers for proposed building lots, and half of them had considered adding additional lots.

Depending on farm size and economic factors, farmers have several motives to sever land. One trend has been for a farmer to sever a retirement lot when economic times are tough and sell the rest of the farm (Dykstra et al., 2004). Land sales are perceived as helpful to farmers in times of commodity price volatility (Hiley, 2009). Half of retirement lots change ownership within the first five years (Dykstra et al., 2004), introducing non-farm residents to the

countryside, along with potential conflicts. Many of the same impacts could be expected from severance of surplus dwellings. According to Bonnett (2002), rural municipal councils are increasingly dominated by non-farm voices. Policy decisions made in favour of new non-farm residents may work against long-term agricultural residents (Caldwell, 1998). Broader social impacts of lot creation in recent years provide an area for further research.

From the municipal perspective, authority to grant consents can be both a blessing and a burden. In a survey of 390 municipal councillors, 62% believed farm severances added to municipal tax base (Caldwell et al., 2004). Yet 55% of councillors stated that the province should take on a greater role in protecting agricultural lands.

Commodity groups may also have markedly different opinions on the impacts of non-farm lot creation. As discussed by Caldwell and Weir (2002), industries that depend on livestock tend to be more opposed to the creation of new residential lots (Egg Producers, Dairy Farmers, Cattlemen, Pork). Discussion with Niagara grape growers and the wine industry revealed a complex debate between interests in protecting scarce lands available to produce fruit, and the financial viability of growers as they purchase new farms and sever surplus houses or retirement lots. Soybean and Tender Fruit grower association representatives stated that non-farm lot creation could have both positive and negative impacts on their industries (Caldwell and Weir, 2002).

In some areas, the strength of the agricultural industry correlated with total numbers of severances (Caldwell and Weir, 2002). Without a strong agricultural sector in a certain area, farm-related severances did not remain connected to agriculture, and thus had a potentially higher impact (Caldwell and Dodds-Weir, 2003).

From an agricultural standpoint, as each new residence replaces a farm, the number of customers for farm service centres also declines (Davidson, 1982). Beyond a certain threshold,

those agricultural services leave as well, creating a downward spiral in the agricultural assessment base without any corresponding increase in residential assessment. Speculative values on land for residential purposes begin to interfere with the land values for farmland, often leaving farmers with a choice between cashing out on valuable (and highly taxed) lands or continuing to farm or lease with low returns in an increasingly urbanized context (Zollinger and Krannich, 2002).

Another high impact area is servicing costs. Although many municipal councillors perceive residential development as a positive contribution to tax base, this is often an unfounded assumption. The American Farmland Trust has completed Cost of Community Services studies for over 100 communities in the United States. Across the United States, residential development was found to be a net cost to municipalities from a purely fiscal perspective (American Farmland Trust, 2002). Similar studies in Brighton, Ontario and Red Deer, Alberta have reaffirmed these results in the Canadian context (Red Deer, 2006; MMAH, 1988). In Red Deer, the costs of services to residential development outweighed tax gains by 1.81 times.

The study in Brighton, Ontario, identified a number of ways in which residential development may actually draw negatively from municipal tax base. New lot creation may not serve to offset declining residential property assessment in some rural areas. At the same time, costs of community services may reach new thresholds with greater numbers of residents to serve, without a corresponding increase in assessment. User fees and development charges may not fully cover the costs of providing planning services to new residents. In fact, conflicts between farm neighbours may precipitate costly OMB hearings or Official Plan amendments. The study identified Brighton as a specific example of how scattered residential development does not attract the desired new commercial and industrial investment to improve tax base (MMAH, 1988). As a further negative impact, scattered residential development actually leaves

small hamlets and settlement areas without the continual reinvestment required to maintain viable rural communities.

In his review of the evolution of agricultural land preservation in Ontario and specifically in Huron County, Caldwell (1995) identified that the long-term welfare of many rural communities is dependent on the preservation of the agricultural land resource. Another impact of lot creation is that prime agricultural land is physically removed from production, either as part of the residential building envelope or in extensive unfarmed acreage within the residential lot (Baden, 1984). Minimum distance separation regulations also require buffer distances between new houses and barns. Caldwell and Weir (2002) estimate that new residential lots created between 1990 and 2000 in Ontario sterilized or removed over 12,000 acres of productive agricultural land directly, and a corresponding 2,658,260 acres indirectly through minimum distance separation for any livestock operation greater than 500 livestock units. Even without separation restrictions, it becomes increasingly complicated for farmers to work contiguous farm holdings due to physical incursions of residential lots (Caldwell, 1995). The issues are not limited to livestock, however. Non-farm rural residents and farmers from different commodity groups tend to have different concepts of enjoyment of the rural environment; many disagree over the appropriate timing and amounts of farm activities that create dust, odour, and chemical sprays (Misek-Evans, 1992).

Amongst the impacts of lot creation, perhaps the greatest and least understood is the cost of lost opportunities for municipalities and the province. Literature on ecological goods and services provided by agriculture is only in the very beginning of understanding this economic rationale. Agricultural lands have the potential to become much more valuable in future scenarios that include bioeconomic development and shifts in energy, water and food supply (MRI, 2008), requiring significant adaptation of rural land use policies. Yet many regional

planning departments struggle to uphold current severance policies and do not have the capacity or political support to revise agriculturally-related planning policies.

2.4 Provincial policy approaches to lot creation in agricultural designations

The patterns of vegetation, soil, water, roads, and buildings in Ontario's landscapes are impacted by numerous factors. Agricultural activities are profoundly impacted by economics, ecology and land use planning policies. This section focuses primarily on the role of land use planning policies in shaping Ontario's landscapes within agricultural designations. These policies have particular origins, modern contexts, and written manifestations of interest to this research.

2.4.1 Colonialism and Ontario's agricultural land use policies

Land use planning has not always been the dominant force in shaping human activities on the Ontario landscape. For thousands of years humans impacted the landscape through fire, hunting, war, settlements and agriculture. These impacts were mediated via cultural arrangements that were diverse and difficult to typify. One may consider the Gayanashagowa, or the Great Law of Peace, which was a symbolic (non-written) tradition of the Haudenosaunee that contained provisions for peace, equity, and order (Harring, 1998). Diverse legal traditions were practiced in numerous forms, such as the Potlatch on the West Coast, the Sundance on the Prairies, the Midewiwin and False Face societies of the Great Lakes, the stories told in the Big Houses of the Salish and the teepees of the Assinaboine, the Longhouses of the Haudenosaunee and the Lodges of the Mi'kmaq (Borrows, 2002). The Supreme Court of Canada confirmed the pre-existing and contemporary status of Indigenous law in *Mitchell v. M.N.R.*, and the unique nature of Aboriginal title was also recognized by the Supreme Court in *R. v. Delgamuukw*, in

which it was made clear that characteristics of Aboriginal title can only be understood with reference to both Canadian common law rules of real property and to rules of property found in Aboriginal legal systems.

The colonization of aboriginal lands and cultures has led to a planning dialogue now dominated by discussion of public and private property rights in terms of treaties, land deeds, and natural resource extraction and management rights. Today, most forests and grasslands have been removed in the southern regions of Ontario, replaced by patterns of roads, fields, and urban development. This transformation has been driven by export-oriented markets for minerals, timber, and industrial and agricultural commodities as originally established by the colonial governments of England, France and, eventually, the United States (Harring, 1998). These markets continue to operate via the empowerment of the Ontario government and its agencies to control and regulate the use of property rights over land and natural resources.

Land use planning is one of the key approaches used by the Ontario government to structure and regulate property rights, using a matrix of private and public land ownership boundaries called the 'parcel fabric'. Historically, the parcel fabric was delineated by a long succession of wealthy landlords under British colonial rule in the early- and mid-nineteenth century by way of non-elected Courts of Quarter Sessions (Gibson, 1997). It was at this time that rectangular concession lots were drawn out and allocated to friends of the Family Compact – a clear example of European colonialism. Parcels were granted in the liberal tradition in which land belonged to those who worked it (typically clearing, farming and forming permanent settlements). Many traditional First Nations activities were excluded from this definition of property rights because the activities were transient and cyclical, or simply not recognized as farming by Europeans (Gibson, 1997).

The arrangement of colonial elites controlling property rights was not an equitable solution, and eventually led to the Upper Canada revolts and the *Municipal Act* of 1849, which established a system of elected county councils that could authorize new lot creation, at the pleasure of the Province. New lots would typically be freehold and inhabited by a long-standing tenant or family member. Owning one's own property meant the ability to profit from land and labour, rather than depending on wages (Gibson, 1997). Land ownership also meant gaining a bundle of rights to the flow of natural resources systems passing through lot lines, including rights to clear woodlands, hunt, fish, raise livestock, and grow crops. Typical activities included building a home and buildings for the operation of businesses. Although the Crown retained land division rights, expropriation rights, forestry and mining rights, there were few limits placed on land activities in freehold landownership.

Neither the *Constitution Act* (1867) nor the Canadian Charter of Rights and Freedoms provided explicit protection for private property rights or private land ownership, as was common in the United States (Peterson, 2009). The Charter states in Section 26 that Canadians may enjoy property rights to the extent that those rights are recognized elsewhere in Canadian law. The Canadian Bill of Rights allows for 'the right of the individual to life, liberty, security of person and enjoyment of property, and the right not to be deprived thereof except by due process of law'. This provision applies only to matters within federal legislative authority; provincial and municipal jurisdictions are not constitutionally subject to protection of private property rights in the case of land ownership, although some responsibility exists in other legal documents.

2.4.2 *Modern agricultural planning policy context in Ontario*

Canada and the United States have used a variety of agricultural planning approaches, including the use of legislation; the purchase of development rights; tax incentives; comprehensive planning; and ordinances and zoning (Daniels and Bowers, 1997; Pfeffer and Lapping, 1995; Peters, 1990; Furuseth and Pierce, 1982). The dominant approach in Ontario is to create provincial and municipal planning policies that protect agricultural lands.

Provincial governments have shown a renewed interest in planning policy, beginning with policy reforms initiated by the Ontario government in the early 1990s. Many smaller municipalities were amalgamated around the year 2000, decreasing the number of Ontario municipalities by half (this was primarily a fiscal reform). Following this, the Ontario government introduced a revised and strengthened *Provincial Policy Statement* (2005) and several strategic growth policies including the *Greenbelt Act* (2005) and *Places to Grow Act* (2005), including some protection of agricultural lands through density targets in built-up areas. Planning for agricultural lands has also been affected by the *Green Energy and Economy Act* (2009) and ongoing changes to the *Endangered Species Act* (2007) and other conservation measures at the provincial level.

Current farmland protection in the Greater Golden Horseshoe (GGH) is partially achieved through Ontario's Greenbelt Plan, which protects natural heritage lands and agricultural lands, including the Niagara tender fruit lands and the Holland Marsh; over 50% of the Greenbelt is owned by farmers (Greenbelt Foundation, 2009). However, the plan does not protect large 'whitebelts' of prime agricultural lands between the GTA and the Greenbelt. Many Greenbelt landowners are concerned about the effect of protection on land values (Cummings and Juhasz, 2008).

Additional plans, such as the Growth Plan for the GGH, also protect prime agricultural land by directing 40% of new urban growth to existing built up areas. But Davidson (2007) suggests that growth plans to date have lacked detailed planning policies that would encourage vibrant rural economies, beyond the mere protection of an agricultural land base.

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) is currently developing a renewed Land Evaluation and Area Review (LEAR) tool, which has been used by municipalities to identify and protect prime agricultural lands in Official Plans. OMAFRA is also preparing criteria for identifying and protecting Specialty Crop areas. OMAFRA has produced a set of online Land Use planning guidelines, including guidelines for Agricultural Land Use, Lot Creation in Prime Agricultural Areas and Soil Survey methods (OMAFRA, 2008b), which have been used as evidence for what constitutes 'good planning' in Ontario Municipal Board cases. Land use policies such as Minimum Distance Separation and minimum farm size are further examples of the province's involvement in planning agricultural land uses (Caldwell, 2005).

Municipalities also play an important role. Municipalities can effectively use Official Plans and Zoning By-Laws to protect agricultural lands. Zoning is of particular importance in defining permitted uses that encourage ongoing agriculture (e.g. the viability of on-farm processing and marketing at a local scale). Through the identification of permitted uses, zoning can influence the viability of value-added enterprises, farm stands, and farm tourism (Caldwell, 2006). At the same time, zoning must distinguish between types of agriculture that are more invasive and ensure those types are maintained at an appropriate distance.

Farm size is frequently a zoning consideration, but can also be addressed in Official Plans. The continued trend is to set minimum farm sizes or guidelines in line with the trend towards fewer, larger farms (the typical minimum farm size for farm splits is 100 acres). This approach does have detractors, which is why many municipalities and the PPS also identify the

viability of proposed uses as a factor for determining appropriate lot size. As explained by the Christian Farmers Federation of Ontario (2007), most conflicts over farm size are a response to agricultural practices rather than physical size.

Municipalities have typically responded to new provincial land division policies by tightening consent controls in the Official Plan and finding other ways to interpret provincial priorities while still pursuing local priorities. Based on Performance Measures reported to the Ministry of Municipal Affairs and Housing (MMAH) in 2007, municipalities influence the degree of new building permits outside the urban boundary through the following activities (MPM, 2007):

- Changing the Official Plan or adopting a new Official Plan
- Designating agricultural land classes in the Official Plan (no class, separate class or multiple classes)
- Measuring and promoting agricultural land use, economics and capacity
- Annexing or amalgamating municipalities
- Facilitating demand for new development and employment opportunities
- Building or widening roads

2.4.3 Policy milestones for agricultural planning in Ontario

Throughout the 1950s and 1960s the dominant public perception was that North America had a limitless supply of farmland and unbounded technological capabilities (Bunce 1998). This is not to say that voices for farmland conservation through planning were absent. Such arguments have continued in the Ontario context since at least the publication of Thomas Adam's "Rural Planning and Development", written for the Commission of Conservation in 1917. However, a number of significant milestones since then have led to a series of developments towards planning policies in agricultural land protection:

1946: Ontario adopts the *Planning and Development Act*, providing the first opportunity for the formal adoption of official plans and land use regulations

1959: Krueger publishes on the loss of tender fruit lands in the Niagara Peninsula

1961: Resources for Tomorrow Conference held in Montreal in 1961, a precursor to the CLI and regional planning; Agricultural Rehabilitation and Development Act passed (federal-provincial)

1966: Municipal Affairs minister states that growth should be directed to settlement areas (known as the 'Urban Development in Rural Areas' policy)

1969: Canada Land Inventory (CLI) completed, providing geographic basis for farmland protection policies

1972: Centre for Resources Development, University of Guelph, publishes "Planning for agriculture in Southern Ontario"

1975: Ontario Institute of Agrologists states in a report, "it is imperative ... that ... Governments take steps immediately to designate and preserve for food production all those limited areas of land which are most suitable for effective production of food" (1975, p.3)

1976: Countryside Planning report is published in collaboration with Huron County and the Ministry of Municipal Affairs (MacLaren, 1976)

1978-1994: Provincial Foodland Guidelines are introduced. The Foodland Guidelines deemed CLI Classes 1-4 (and specialty crop areas) as prime agricultural lands to be protected from non-farming uses. Types of lots permitted were:

- Farm splits into viable parcels
- Legal or technical reasons, where no new lot is created
- Surplus farm dwellings as a result of consolidation
- Retirement lot for a bona fide farmer
- Full time farm help

1983: *Planning Act* provides for Provincial Policy Statements under Section 3

1990: *Planning Act* further allows delegation of consent granting authority

1992-1994: Growth and Settlement Policy Guidelines encourage residential growth to locate in settlement areas; no new agricultural land policies introduced

1994-1996: All municipal plans must **be consistent with** the new 1994 Comprehensive Provincial Policy Statement, which identifies agricultural land protection as a provincial interest. The

Comprehensive PPS removed farm help as a permitted severance, but allowed residential infilling and further clarified other types of permitted lots:

- Farm split into two viable operations
- Legal or technical reasons
- Surplus dwellings as a result of farm consolidation
- Residential infilling (a newly defined lot type)
- Existing agricultural related uses (businesses)
- One retirement lot for a farmer who is retiring and has owned and operated the farm for a substantial number of years
- Infrastructure

1996-2005: All municipal plans must **have regard to** the revised 1996 Provincial Policy

Statement, which maintains agricultural land protection as a provincial interest, although it provided means by which agricultural lands could be redesignated for residential. Types of lots permitted were:

- Farm split into two viable operations
- Legal or technical reasons
- Surplus dwellings as a result of farm consolidation
- Residential infilling
- Existing agricultural related uses (businesses)
- One retirement lot for a farmer who is retiring and has owned and operated the farm for a substantial number of years
- Infrastructure

2005-Present: All municipal plans must **be consistent with** the revised 2005 PPS, which maintains agricultural land protection as a provincial interest. The 2005 PPS defines prime agricultural areas as those in which soil classes 1, 2 and 3 predominate. Sections 2.3.4 (a) and (c) of the PPS identify the only new types of lots permitted in prime agricultural areas:

2.3.4.1 Lot creation in prime agricultural areas is discouraged and may only be permitted for:

- a. agricultural uses, provided that the lots are of a size appropriate for the type of agricultural use(s) common in the area and are sufficiently large to maintain flexibility for future changes in the type or size of agricultural operations;*
- c. a residence surplus to a farming operation as a result of farm consolidation, provided that the planning authority ensures that new residential dwellings are*

prohibited on any vacant remnant parcel of farmland created by the severance. The approach used to ensure that no new residential dwellings are permitted on the remnant parcel may be recommended by the Province, or based on municipal approaches which achieve the same objective

2.4.4 Current severance approval structure and process

The structure of consent granting rights and responsibilities is an important issue within land division policy. Unlike Ontario, some jurisdictions do not provide consent granting authority to municipalities. For example, in Ohio (until recently), any farmer could create new lots without planning permission, as long as these lots were greater than 5 acres (Caldwell, 2006).

Conversely, lot fragmentation is at such high levels in some areas of Europe that no severances are permitted at all through local planning authorities. In British Columbia, new lots in the Agricultural Land Reserve are considered by an unelected board, the Agricultural Land Commission. Even in Ontario, consent policies and lot sizes are strictly defined in the Greenbelt Plan area, and authority for severances on the Niagara Escarpment is in the authority of the Niagara Escarpment Commission.

Since 1978, the increasingly restrictive land division and consolidation process in rural areas has been directly influenced by the successive policies of the Foodland Guidelines, Growth and Settlement Policy Guidelines, Comprehensive Provincial Policy Statement (PPS), three subsequent versions of the PPS, the *Places to Grow Act* and Plans, the *Greenbelt Act* and Plan, and corroborating versions of the *Planning Act* (Sinker, 2009). Currently, Section VI of the *Planning Act* (1990) permits municipalities to divide land in the form of consents for subdivision (many lots) or severance (typically no more than three lots, though this number is not prescribed in the *Planning Act*).

Upper and single tier municipalities in Ontario currently have consent granting authority, unless the authority has been delegated to a lower tier. In order to protect a critical

mass of high priority agricultural land, Ontario introduced new lot creation restrictions in Section 2.3.4 of the 2005 PPS. These restrictions set a minimum; municipalities are free to do more, but not less, than outlined in the PPS (Section 4.6). For example, the County of Huron restricts severances to uses directly related to the farm on prime agricultural land. In the County of Perth, residential lot creation in agricultural areas was restricted long before the introduction of the 2005 PPS.

Municipalities usually administer their authority to grant consents through a by-law that creates a committee structure. These committee structures take various forms across Ontario:

- Committee of the Whole (all councillors make a decision)
- Land Division Committee (can combine volunteer community members, councillors, or staff)
- Committee of Adjustment (authority for both consent granting and zoning variances)
- Streamlined process whereby straightforward applications are delegated to planning staff

Severances are typically granted with a number of conditions, including rezoning and minor variances such as:

- General conditions (survey, taxes paid, park fee, access)
- Zoning By-law Amendment for prohibiting new dwellings on remnant parcel and preventing farm uses on severed parcel
- Septic test and upgrades to Ontario Building Code
- Agreement on title to pay applicable water rates and drainage charges
- Notice on title of potential for controversial changes (eg. energy projects) in area
- Appropriate lot size of retained and severed
- MDS requirements met

Consent applications are first circulated to neighbours, related ministries, and community agencies. The application and public comments are then considered by the designated consent granting authority (committee or otherwise). The right to appeal to the OMB is granted to any who have participated in the process. A diagram of the approval process is available from MAH online at www.mah.gov.on.ca/Page1756.aspx.

2.5 Summary

This literature review has identified a number of areas in which the research question can be informed, and in which more information is required. It established land use planning theories as the language of the research, within a landscape framework, provided that impacts and policy implications are also considered within spatial planning theories to avoid bounded rationality issues. Ontario's agricultural context was explored and a number of trends identified, including many of the factors that drive lot creation in agricultural designations. Alienation from within farm communities and between agricultural producers and consumers was one of the most significant trends.

Measures of farmland loss indicated an urgent need to better protect agricultural landscapes and the need for more information to improve these measures. Literature on the impacts of lot creation in agricultural areas was discussed, revealing a number of common threads amongst authors in Ontario and elsewhere, while recognizing the diverse perspectives of stakeholders. The importance of cumulative impacts was identified, providing justification for further research on total numbers of severances across Ontario. It was also clear that impacts could vary depending on provincial region, presence of specific commodity types, and metropolitan influence zones. The review briefly explored the relationship of agricultural landscapes to the history and origins of planning in Ontario, followed by a review of modern planning policies, connecting the long-standing issues of colonialism and the current challenges faced by governments today in protecting agricultural land. Policy milestones delineated a clear path of progression towards more restrictive lot creation policies. Finally, an overview of consent granting authority and processes identified municipalities as appropriate research targets for better understanding lot creation trends.

It appears that debates about the significance of lot creation and subsequent impacts revolve around cost/benefit and demand/supply narratives, while there is little public policy debate questioning rights to land or reforming communicative processes. If the debate is to be as rational as it aspires to be, more recent information is required to understand pattern and impact of non-farm lot creation in agricultural designations.

Chapter Three: Methodology

3.1 Overview

This research integrates quantitative and qualitative research methods. Quantitative data was obtained through municipal document review (digital and paper) and self-reported by municipalities from their own databases. Descriptive statistics and time series were analyzed to better understand severance activity in each municipality, and comparative measures were developed to compare results across municipalities. Data was integrated with GIS shape files to analyze spatial distribution of severance activity.

This research builds upon and adapts methods used by Caldwell and Weir (2002) for assessing the scale and impacts of lot creation in Ontario's agricultural designations. All of the severance data collected in the previous study period (1990-2000) was entered into a new digital database and combined with new data collected in the current study period (2000-2009). Data categories were kept as consistent as possible between the two periods. Credit for the collection of data prior to 2001 belongs to Wayne Caldwell and Claire Dodds-Weir, who pioneered the study methods and analysis.

Key informant interviews based on quantitative research results were carried out in each municipality as part of the verification process (approximately 40 interviews). These interviews provided a rich source of qualitative knowledge that revealed contextual layers that could not be captured in quantitative severance trends. A set of semi-structured interview questions were used to filter for the most relevant information to improve research efficiency, based on guidelines in Creswell (2009). Key informants included planning directors, regional land use planners, farm leaders, and other provincial stakeholders. Interview results were used to inform interpretation of the data in specific municipalities and provide insight on policy review.

3.2 Study area and criteria for inclusion

3.2.1 Study area

The purpose of this research is to measure lot creation trends and impacts on agriculture. Due to the size and diversity of agriculture across Ontario, it was necessary to define exactly which areas in the province would be eligible to participate in the study. The broadest boundary used to define the study area is the 2006 Agricultural Ecumene, prepared by Statistics Canada (2008). The Agricultural Ecumene is the area populated by a certain intensity of agricultural activity, as measured by three indicators. These indicators are: the amount of agricultural land in a census dissemination area; the proportion of farmed land within each dissemination area's total land area; and the value of farm receipts per acre farmed (Statistics Canada, 2008). Within Ontario, the Agricultural Ecumene does not encompass Muskoka, Parry Sound, or Haliburton. These municipalities were not included in the study. Municipalities further north of these three municipalities were also not included. Some municipalities were not completely encompassed by the Agricultural Ecumene, but still included large portions of the Agricultural Ecumene and were thus eligible for the study. These were the counties of Renfrew, Frontenac, Lennox Addington, Hastings and Peterborough. The study also prioritized municipalities with the greatest amount of prime agricultural land (Classes 1, 2, and 3). Due to time constraints, no data was collected from Frontenac, which has the lowest amount of prime agricultural lands (see Figure 19).

Furthermore, the study is intended to focus on the impacts of severance policies for prime agricultural areas as defined by Ontario's Provincial Policy Statement (PPS)¹. Many

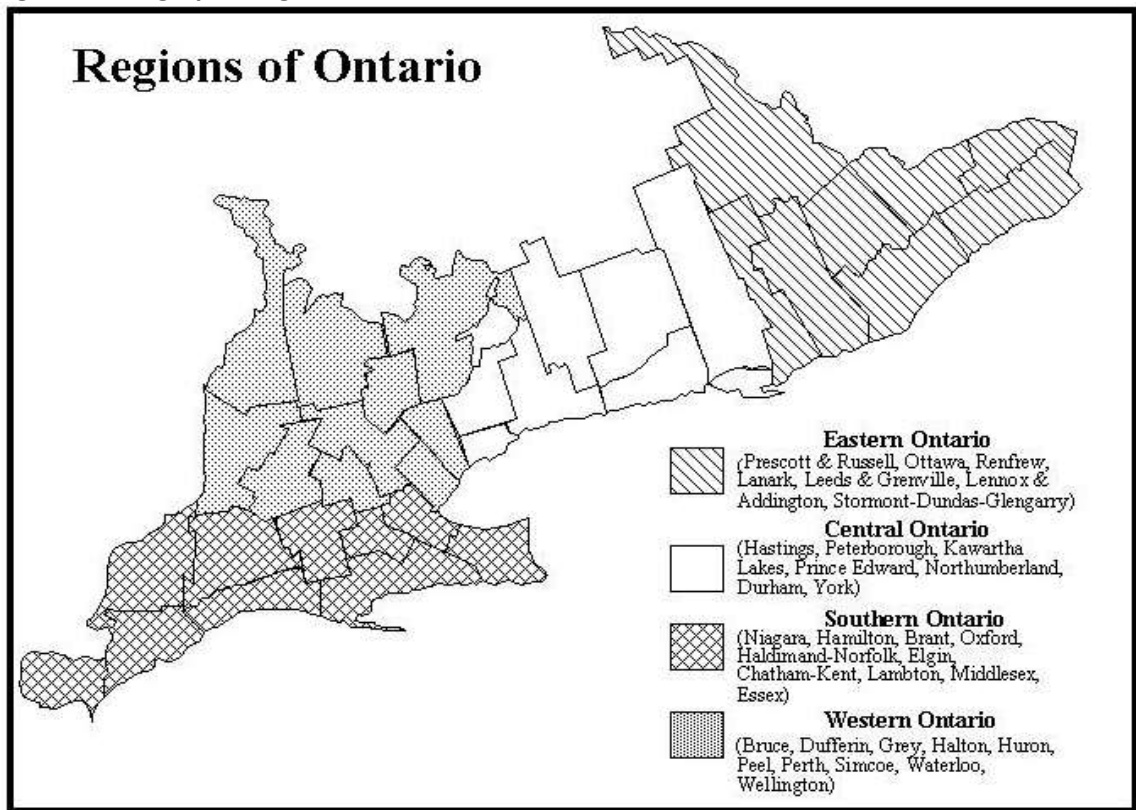
¹Boundaries for prime agricultural lands can be mapped using Canada Land Inventory data. However, the distinction between prime agricultural lands and prime agricultural areas is important. Prime agricultural lands are currently defined as being Classes 1, 2 and 3 soils under the Canada Land

municipalities define prime agricultural areas through Agricultural designations in Official Plans. Agricultural designations were used as the most accurate boundary available for the study. However, caution is required in using Official Plan designations and zones as boundaries for prime agricultural areas because the protection of prime agricultural areas is by no means consistent or comprehensive across the province. Some municipalities protect all prime agricultural areas and more; others protect only portions of prime agricultural areas within their boundaries. A number of counties distinguish between Rural and Agricultural designations in their Official Plans. Agriculture is a crucial component of land uses in many Rural designations. However, Official Plans are not required by the PPS to provide the same level of protection for agricultural land uses in the Rural designation as in the Agricultural designation. In municipalities with both Rural and Agricultural designations, the research focused on the Agricultural designation rather than the Rural, because the Agricultural Designation is the area in which PPS policies for severances are typically applied to the protection of prime agricultural areas.

As a result of the above criteria, the following upper tier municipalities were included (organized by provincial region):

Inventory. Prime agricultural areas are broader areas in which Class 1, 2, and 3 soils predominate, including associated lower capacity soils with a concentration of agricultural activities.

Figure 4: Geographic regions of Ontario



Western	Southern	Central	Eastern
Bruce	Brant	Durham	Lanark
Dufferin	Chatham-Kent	Hastings	Leeds and Grenville
Grey	Elgin	Kawartha Lakes	Lennox and
Halton	Essex	Northumberland	Addington
Huron	Haldimand	Peterborough	Ottawa
Peel	Hamilton	Prince Edward	Prescott and Russell
Perth	Lambton	York	Renfrew
Simcoe	Middlesex		Stormont, Dundas
Waterloo	Niagara		and Glengarry
Wellington	Norfolk		
	Oxford		

3.2.2 Criteria for inclusion of individual severance files

Within each municipality, a set of five criteria were used to determine which severances should be counted, as follows:

1) To be counted, a severance application must have been in a primary agricultural area where the region's Class 1, 2, and 3 soils predominate, including associated lower capacity soils with a concentration of agricultural activities. This agricultural area was typically designated Agricultural in the Official Plan of the consent granting authority (upper- or lower-tier municipality). If there **was** an agricultural designation, only severances in that designation were counted – the rural designation or lower priority agricultural designation was not included. If there **was not** an agricultural designation, the designation(s) that contained primary agricultural areas were counted (e.g. some rural lands, Greenbelt Protected Countryside and some lands in the Oak Ridges Moraine). Severances in urban areas, expansion areas or settlement areas were not counted.

2) To be counted, a severance must have created a new lot. The severance application was not counted if it was a lot addition, easement, right of way, or technical adjustment.

3) To be counted, a severance application must have occurred between the years 2000-2009 and it must have been complete. The severance application was not counted if it has been denied, withdrawn, or if it had lapsed. If the application was still pending approval, it was not counted.

4) Farm splits were counted because they create a new lot. Where feasible, lot size was recorded for these applications.

5) New lots for commercial, extractive and industrial operations in agricultural designations were counted. Where feasible, lot size and a brief note about expected use (e.g. aggregate pit, farm supply outlet) were recorded for these severance applications. Private information was not recorded.

Two other questions frequently occurred in deciding which severances to count in the study:

What if the original (parent) parcel contains multiple designations with different severance policies?

Researchers recorded both the original designation of parcels subject to a severance application, as well as the designation of the severed parcel. This allowed the study to record areas that are redesignated or rezoned from agriculture. All severances that removed land from an agricultural designation were counted because they may still impact agricultural adaptability. If a severance was strictly made on the boundary of an agricultural designation with another designation, it was not counted because it did not remove land from an agricultural designation (the number of such applications was relatively small).

What if a municipality's Official Plan designations changed in the past 10 years?

A follow-up interview was conducted with each municipality that had experienced significant severance policy changes. If the geographic area of designations moved, but the new designation continued to have very similar policies as the original agricultural designation, the area of the original designation was counted the same as the analogous new designation. If the policies were significantly different on the same geographic area, then that area was not counted for the years following the re-designation.

3.2.3 Other provincial plan overlays

The agricultural designations of a number of municipalities in the GGH overlap with provincial plans such as the Greenbelt Plan, Oak Ridges Moraine Area, and the Niagara Escarpment Plan (NEP). As of 2005, these areas are encompassed by the Greenbelt Area (as defined by Ontario Regulation 59/05) and are governed by the Greenbelt Plan. The Greenbelt

Plan section 4.6 outlines severance policies in prime agricultural areas that are very similar to the PPS. Surplus dwellings and farm splits are permitted, to the exclusion of all other lots. Even more restrictive than the PPS, the Greenbelt Plan outlines minimum lot sizes for new farm lots².

Affected municipalities are at various stages of bringing their Official Plans into conformity with the Greenbelt Plan. For the purposes of this study, severances were counted where the Greenbelt Protected Countryside overlapped with pre-existing Agricultural designations. This includes lands in the Oak Ridges Moraine. This does **not** include lands in the Niagara Escarpment, because consents in the Niagara Escarpment Plan area are approved by the Niagara Escarpment Commission and thus could not be counted at municipal offices.

The *Places to Grow Act* and associated plans did not directly affect which lands were eligible for this study.

3.3 Typical data collection process

Data was collected between June 2010 and June 2011. For each consent granting authority (upper tier or lower tier), a letter was sent to the Planning Director requesting that a key contact person be identified to help with the study. This contact was typically a planner or secretary-treasurer of a consent granting committee. The majority of municipalities did not have sufficient information available in digital format. These municipalities required a researcher to physically visit the municipal office and review hardcopy files. Timing required for research visits varied depending on the level of file organization, staff assistance and the number of eligible files. As often as possible, data was summarized and discussed with planning staff while the researcher was physically present. In each municipality, Official Plan policies, maps and Zoning

² Interestingly, Section 32 of the Oak Ridges Moraine plan includes permission to sever a retirement lot or surplus dwelling.

By-laws were reviewed before collecting data. Municipal Metadata was tracked in each location to note any interesting or missing files and staff comments. Data collection was prioritized for 2002, 2004, 2005, 2006, 2007 and 2009. Data for remaining years was usually collected. However, for some municipalities with a large number of hardcopy files to be collected in a short amount of time, data was collected for alternating years and estimated for in-between years (see Considerations, Section 3.7.2).

For a small number of municipalities, a sufficient level of detail for each severance application was available in digital format (e.g. Excel sheet, database). In these municipalities, data was requested via email. Municipalities were fully informed of the study criteria before submitting refined data, often through a written letter and follow-up phone conversations. These criteria were provided to ensure that self-reported data was as consistent as possible. A wide variety of digital formats were received, including PDFs, meeting minutes, planning reports on CD and entire database files.

The following data was collected in each municipality:

- County/Region name
- File number
- Township name
- Land use of retained and severed parcels
- Size of retained and severed parcels (where available).
- Total numbers of severances in all designations
- Official Plan or other documents not available online

3.4 Initial Contact Survey

3.4.1 Consent granting authority

Over the year-long period from June 2010 to June 2011, 116 municipalities completed an initial contact survey. This survey collected details about each municipality's severance

application process, approval structure and methods of storing and reporting severance information. Out of the initial 116 municipalities, 102 contained an agricultural designation under either an upper tier or lower tier official plan.

3.4.2 Responsibility for granting severances as of 2010

Table 1: Number of consent granting authorities with agricultural designations

Consent granting authority held at:	Number of consent granting authorities
Upper tier	14 (12 counties and 2 regions)
Single tier	8 (regions)
Lower tier	80 (57 from 8 counties, and 23 from 5 regions)
Total consent granting authorities in agricultural designations	102 (or 35 upper and single tiers)

Several municipalities have delegated granting of straightforward consents to staff, typically the Planning Director or a committee of planners and other municipal staff. Other municipalities have shared arrangements with lower tiers, usually to delegate some or all consent granting authority to urban lower tiers, due to higher numbers of applications in urban areas.

As of 2010, 12 out of 20 counties have retained consent granting authority. Regions are more likely to delegate; only 2 out of 7 regions have retained consent granting authority. A total of 80 lower tier municipalities now hold consent granting authority (57 lower tiers from 8 counties, and 23 lower tiers from 5 regions). The majority of delegations from upper tiers to lower tiers occurred between 1997 and 2001. This makes for an interesting comparison between the two decades of 1990-1999 and 2000-2009, in that delegation occurred roughly around the year 2000 and could influence the number and type of consents observed in the decade 2000-2009. Thus a comparison of severance activity between the two decades should

take into account the different approaches upper tier and lower tier municipalities may take to granting consents.

3.4.3 Severance application storage and reporting methods

Many municipalities have upgraded their severance application storage and reporting methods over the past ten years. The results reported here apply to the most current arrangements as of 2009. Several interesting changes have occurred in comparison with the previous study period (1990-2000).

A major difference between this study and the last is that much of the data is no longer stored at the upper tiers (counties and regions). The previous Initial Contact Survey in 2001 demonstrated that most information was stored at the county or regional level, even though many had recently delegated. As of 2009, almost all regions and counties that delegated consent granting authority early in the decade no longer stored the type of information required for this study³. Some basic information may be tracked at each county, but usually not the details required for this study, such as the designation in which a severance occurred, or the policy under which it was permitted. This change added a new level of complexity to the study. In addition to 22 upper or single tiers, 80 lower tier municipalities would need to be contacted, surveyed, visited, analyzed, and verified. This more than doubled the administrative effort required for data collection. In addition, many lower tiers had one staff member or none at all. For these small departments, the work required to participate in the study seemed proportionally large. As a result, many municipalities were unable to participate in a timely fashion. At the conclusion of data collection, it was possible to obtain data from 57 of the lower

³ A small number of counties that have delegated consent granting authority still do store information at the detailed level required for this study. Examples are Grey County, which collects decision information at the county level, Middlesex, and Lambton, which assists three of its rural lower tiers by coordinating a consent granting committee.

tiers. The remaining 23 lower tiers were estimated based on neighbouring municipalities. Site visits were required for 40 municipalities. Staff were able to submit most of the required information in 29 municipalities. Several other municipalities involved a shared effort between researchers and staff.

Consent granting authorities stored the details required for this study in an array of different formats. As a reminder, these details were the designation (agricultural or otherwise), and the intended use (e.g. surplus dwelling). Hardcopy files remain by far the most common format in which this information can be found (58%). This is higher than the previous study because of the higher number of lower tiers that participated; many lower tiers stored the necessary information in hardcopy files. Approximately the same percentage of municipalities use a computerized database as in the previous study (24%). The percentage using summary sheets has decreased from 21% to 11%. Several municipalities have recently started compiling databases, which may partially explain this change. At least three municipalities were able to identify relevant severance applications through the use of GIS databases linked to updated parcel fabric information.

Table 2: Methods of storing severance application information

	2001 #	2001 %	2009 #	2009
Hardcopy files	15	43%	42	58%
Digital Database	8	23%	17	24%
Summary sheets	10	29%	8	11%
Other	2	5%	5	7%

The lack of consistent approaches to storing and reporting on severance activity should be an area for further collaboration and consolidation amongst municipalities. Councillors may be able to make more informed decisions if counts of the number and type of severances were available on a periodic basis. Although this research now provides a good deal of that information for the past 20 years, a number of staff contacts noted that it would be more efficient to track this information continuously at the time each application occurred, rather than collecting all the information once every ten years.

3.5 Researchers and overall data collection timeline

Dr. Wayne Caldwell served as the research advisor for this thesis and its encompassing research contract with the Ontario Ministry of Agriculture, Food and Rural Affairs. Data was collected by a number of researchers. In the previous study (1990-2000), Claire Dodds-Weir and Dr. Caldwell were the leading researchers, collecting and analyzing virtually all study deliverables in the studies published in 2002. Arthur Churchyard was the leading graduate researcher for the current study period, collecting and analyzing study deliverables in the current report. Dr. Caldwell continues to be integral in managing the project, adapting methods and producing written reports. For some Western Ontario municipalities, Charlie Toman booked research visits and collected information. Anneleis Eckert booked several research visits, collected information, synthesized county profiles and helped to conduct the verification survey.

Kate Procter conducted interviews with farm organization leaders and provincial planners to assess qualitative understandings of severance trends and impacts. The following timeline relates to the overall funded research, which encompasses and goes beyond this thesis.

Table 3: Overall OMAFRA research contract timeline

Milestones for reporting period	Target Completion Date	Actual Completion Date
Establish Research Advisory Committee	May, 2010	May, 2010
Initial survey – responsibility for consent granting	June, 2010	March, 2011*
Document the numbers and purpose of lots created within agricultural designations of Ontario (Obj. 1)	July, 2011	July, 2011
Analysis of data in thesis format (data summaries and trends)	July, 2011	August, 2011
Analysis of data, including impact interviews and case studies examining local policies (Obj. 1, 2)	Dec., 2011	On schedule
Develop recommended policy options reflecting the data. The recommendations will be made in light of the Provincial Policy Statement, the <i>Greenbelt Act</i> and Places to Grow (Obj. 3, 4)	April, 2012	On schedule
Identification and KTT of best practices for municipalities in agricultural consents (Obj. 4)	Ongoing	Ongoing

* The initial contact survey was conducted on a continuous basis throughout study period.

3.6 Comparing municipalities by accounting for land area

The previous study used an approach to compare lot creation trends in municipalities with different land areas. The approach was to create a ratio by dividing the numerator ‘number of severances’ by the denominator ‘number of acres of land farmed’. At the time of the previous study, the most relevant data set available for the denominator was the Census of Agriculture. However, since that time, Municipal Performance Measurements (MPM) have been collected. After comparing MPM results with Canada Land Inventory and Census datasets, we have determined that MPM are now the most desirable for this particular study. As part of MPM, we are now able to use a more accurate denominator: the number of hectares of land designated for agricultural purposes in each Official Plan. MPM data sets for this denominator are available

from 2000-2008. We have obtained the appropriate data sets from the Ministry of Municipal Affairs and Housing. We verified the MPM denominator with each municipality to ensure accuracy.

Data was sorted and summarized based on consistent templates. A verification survey was given to each municipality to identify any inconsistencies, confirm local trends, and collect ideas for research dissemination. Where verification was not received, this was noted in the data summary to maintain appropriate levels of confidence in the data.

3.6.1 Developing a performance indicator for lot creation

It is challenging to compare municipalities across a vast area with diverse economic, political and environmental contexts. Although there is likely no all-encompassing indicator, a fair comparison would begin by accounting for the types of lots being created and the amount of land available to create lots. This could take the form of a ratio as follows: # lots created / land available. To make the ratio easier to visualize, the ratio can be expressed as the number of lots created per concession block (a concession block is typically 1,000 acres). The revised ratio would be: # lots created / 1,000 acres land available.

This study measures the type of lot being created with a high degree of detail. As described earlier, these types could be new farm lots, new residential development (farm help, surplus, retirement, infill, other) and non-residential lots (commercial, institutional, other). There are at least three available measures of 'land available'. These measures are: the area farmed from the 2006 Census; the area of prime agricultural lands from the Canada Land Inventory; or the area protected for agricultural uses as reported in the Municipal Performance Measures (MPM) collected by MMAH. Table 4 can be used to compare the values of these measures, and discuss the merits of each. Ultimately, the most recent available Municipal

Performance Measures were chosen as the measure of 'land available' in the ratio of lots created per 1000 acres available land. See Table 4 for a summary of the different measures available for agricultural lands.

The previous study used Census data from 1996. This provides a measure of the total number of acres farmed in a census division as reported by farmers. However, this measure of land may not always align with the amount of land in which PPS policies for a 'prime agricultural area' may apply. When a ratio uses census data as the ratio denominator, it may unfortunately be including large areas of poor agricultural productivity. This would lead to an overestimate of lands in the denominator (and a subsequent underestimate of severances per 1000 acres). This is especially important in a number of municipalities in Central and Eastern Ontario where the amount of land farmed can exceed the amount of land designated for agriculture by two to five times. In Southern Ontario, the predominance of prime agricultural lands often leads to the reverse situation, in which many municipalities have less land being farmed than is actually designated agricultural.

Table 4: Acres of agricultural land: comparing measures

Municipality	Census (2006)	Canada Land Inventory	Municipal Performance Measure (2005-2008)
Brant	167356	157579	186369
Bruce	613156	435558	537580
Chatham_Kent	553769	530750	584295
Dufferin	190607	191845	221532
Durham	326702	279363	275028
Elgin	393595	326785	406679
Essex	329776	646665	334481
Grey	567212	388198	286148
Haldimand	502698	467531	407724
Halton Region	88899	90287	43179
Hamilton	133205	111855	136620
Hastings	301187	163754	60341
Huron	723533	589981	647997
Kawartha_Lakes	356946	176238	328294
Lambton	589407	547877	472567
Lanark	232575	89667	97582
Leeds_Grenville	328040	172223	NA
Lennox_Addington	185835	104607	104056
Middlesex	617258	564327	648657
Niagara	231728	253649	320963
Northumberland	241159	149630	121022
Ottawa	283366	251556	231800
Oxford	415974	380051	430351
Peel (Town of Caledon)	95289	104059	55319
Perth	498161	435385	484401
Peterborough	249429	122344	137848
Prescott_Russell	296476	243300	287346
Prince_Edward	145610	129434	89007
Renfrew	387731	173515	92286
Simcoe	533753	428263	540269
Stormont_Dundas_Glengarry	494589	444063	535594
Waterloo	226384	186607	225674
Wellington	485862	416027	NA
York	167076	168832	124222
*Note that some MPM numbers for upper tiers are the sum of lower tier MPM numbers			

After the previous study, the MMAH started to require Municipal Performance Measures reporting. This included a question to each municipality requesting the number of hectares of land designated for agriculture. This is an excellent measure for this study because, in theory, it provides a consistent number across the province that accounts for the amount of land actually affected by PPS policies for prime agricultural areas. It allows the ratios to compare ‘apples to apples’. MPM data is further desirable because it adapts to changing geographic boundaries of municipal policies on a yearly basis, providing more current information.

However, one ongoing issue is that the MPM data could be inaccurate or inconsistently measured across municipalities. To address this issue, the researchers took every possible opportunity to verify with municipalities how MPM data had been calculated. An internal analysis was also conducted in which the numbers were compared for each municipality in the reporting years 2005, 2006, 2007, 2008 (these are the tabulated numbers currently available from the MAH reporting website). Of the 34 upper tier municipalities only 22 reported data for more than one year of these years. Five of those 22 municipalities had changes in their reported MPM numbers. These changes ranged from decreases of 11 to 2,900 hectares, or increases of 6,658 to 41,996 hectares. The largest increase is likely attributable to the splitting of a former municipality into two separate municipalities (Haldimand and Norfolk).

MPM data is only as accurate as the means by which it is collected at the municipal level. In some instances the number of hectares of agricultural land is based on previous measurements from which land taken from the agricultural designation is deducted. This data is only as accurate as the original estimates of agricultural land. In discussion with one municipality regarding significant changes in their reported numbers, it was discovered that the way the municipality arrived at the total hectares of land in the agricultural designation had changed from an old system of estimation to utilizing GIS data.

Each municipality also reports the number of hectares in the agricultural designation for the year 2000. Five of the 22 municipalities examined reported changes in the 2000 baseline data. These five municipalities were the same that had reported changes over the four years. For each reporting year, a baseline of the number of hectares of agricultural land as of January 1, 2000 was recorded. Changes to this baseline ranged from decreases of 27 hectares to 33,785 to a single increase of 41,996.

After examining the hectares reported for each year for the different municipalities it is believed that MPM data has internal consistency, recognizing that these numbers are only as valuable as the original data and that the accuracy of the original data varies between municipalities and their reporting methods.

For several municipalities, MPM data was deemed to be too inaccurate or was simply not available. In these cases, CLI data was used. The CLI data has been updated by OMAFRA staff to exclude settlement areas and a number of non-agricultural uses⁴. It may therefore be an underestimate of lands actually designated agricultural. Conversely, in some areas of the province with rapid urbanization, the CLI is an overestimate of lands designated agricultural. CLI data for prime lands and MPM data do vary considerably from each other; in fact, only six municipalities report MPM data that is within 10% of their CLI prime lands area. However, the variation is not as wide as the difference between MPM data and Census data. If an assumption can be made that as much of the prime agricultural land as possible has been included in agricultural designations across the province, the CLI data can serve as the best approximation of lands actually designated for agriculture in cases where MPM numbers are not available. CLI data was used for the counties of Wellington and Leeds and Grenville.

3.7 Statistical Analysis

The proportion of farm severances is at the interval level of measurement. As such, de Vaus (2004) recommends the following descriptive statistics for exploration and accurate interpretation of results: minimum, maximum, mean, variation, n=, and standard deviation.

⁴ CLI data updated by OMAFRA in December 2010; non-agricultural land uses were removed by subtracting the following datasets from the CLI polygons: Wooded areas; Water polygons; Wetlands; - Built up areas (based on SOLRIS); Northern Ontario Land Settlements/infrastructure; Active aggregate sites; Golf courses; Ontario road network with a buffer depending on road classification

3.7.1 Time series

Beyond the use of simple descriptive statistics, it is also possible to use time series as one to better understand the data. Time series analysis includes both descriptive and inferential techniques. Traditional methods begin with looking for trends in the time series, determining whether seasonal variation plays a role, and understanding irregular fluctuations (Chatfield, 1989). Time series analysis can be used to ask questions about explanation, prediction, and control (Chatfield, 1989). Explanation is the most relevant for the purposes of the current study. It is possible to use the variation in one time series to explain the variation in another series. This would be useful in answering whether real estate and commodity markets affect fluctuation over time in future studies. Time series for regions with different demographic trends could also be considered.

It is possible to analyze time series in SPSS using the Forecasting tool (SPSS, 2009). However, the tool would require a much greater sample size for appropriate averaging at each time series point. Time series are not well suited to questioning whether a variable is statistically different before and after an event, such as the changes in the 2005 PPS. Fortunately, this type of test is not required in this research because the data is comprehensive for the population of municipalities in Ontario. Tests of significance are not required because the data descriptors are for an entire population, not samples.

The approach in time series would be to look for turning points, where an upward trend turns into a downward trend, and then to develop a different model for different parts of the series. Statistical analysis in this report uses only basic time series techniques in the form of charts and descriptions of trends over time.

3.7.2 Considerations for interpretation of data

The following considerations affecting the data will continue to be considered for improvement of the analysis and modeling:

- 1) The impacts of policy changes on economic and land use variables may not be fully realized over a period of 20 years; severance activity today may be a result of economic and land use decisions made 40 years ago. The study will need to be continued for several more decades.
- 2) The geographic spread of prime agricultural areas may have shifted within the sample period due to rezoning carried out by local municipalities. This could potentially be addressed with GIS analysis of CLI classes overlaid by zoning classes, or by analyzing performance measures submitted by municipalities to the Ministry of Municipal Affairs and Housing.
- 3) Time series analysis may provide a more appropriate technique for describing and predicting severance activity models in future studies.
- 4) The specific counties have unique political structures for approval of severances. The effect of whether the process is more politically or technically determined will likely also have an impact.
- 5) Data collection methods may differ from those used in 2000, despite efforts to maintain consistent methods across the two study periods
- 6) Some data does include estimates of in-between years, in cases where large numbers of hardcopy applications needed to be reviewed in a short amount of time. In between years were estimated by averaging the preceding and following year as a percentage of

total severance applications, then multiplying that average by the total application number in the estimated year.

3.8 Definitions

The following terms are used throughout this report. Different municipalities may have definitions which may be more or less restrictive than the definitions used here.

Agricultural designation: Many municipalities have identified an Agricultural designation in their Official Plans. This designation is typically the area within a municipality where Class 1, 2, and 3 soils predominate, and/or a concentration of viable agricultural uses occur. In municipalities where there **was** an Agricultural designation identified in the Official Plan, only severances in that designation were counted. If there **was not** an agricultural designation, the designation(s) that contained prime agricultural areas were counted (e.g. some rural lands, Greenbelt Protected Countryside and some lands in the Oak Ridges Moraine). For the purposes of this study, agricultural designations do not include urban areas, expansion areas or settlement areas.

Agricultural related uses: means those farm-related commercial and farm-related industrial uses that are small scale and directly related to the farm operation and are required in close proximity to the farm operation (PPS 2005, unchanged from 1996).

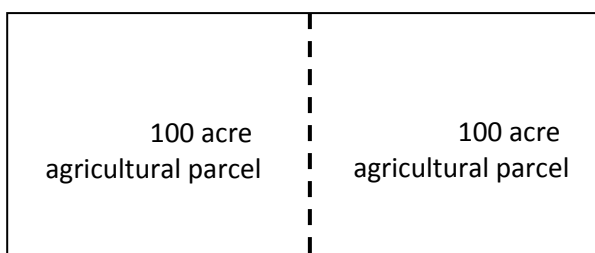
Agricultural uses: means the growing of crops, including nursery and horticultural crops; raising of livestock; raising of other animals for food, fur or fibre, including poultry and fish; aquaculture; apiaries; agro-forestry; maple syrup production; and associated on-farm buildings and structures, including accommodation for full-time farm labour when the size and nature of the operation requires additional employment (PPS 2005; the last sentence was added to the PPS 1996 definition).

Consent: Under Section 53 in Part VI (Subdivision of Land) of the 1990 *Planning Act*, an owner of land or the owner’s agent may apply for a consent to create a deed or any other agreement that has the effect of granting the use of or right in land directly or by entitlement to a renewal for a period of twenty-one years or more. Municipal council or the Minister may give consent if satisfied that a plan of subdivision of the land is not necessary for the proper and orderly development of the municipality. The *Planning Act* outlines the right of council to request application information, dispute procedures, responsibility for providing notice of application, public meetings and decisions, the ability to set conditions of consent, and delegation of approval authority.

Farm Help Lot: means a lot severed from an existing and active farming operation for the purpose of providing a building lot for hired farm help. This type of severance was not allowed under the 1996 or 2005 Provincial Policy Statements.

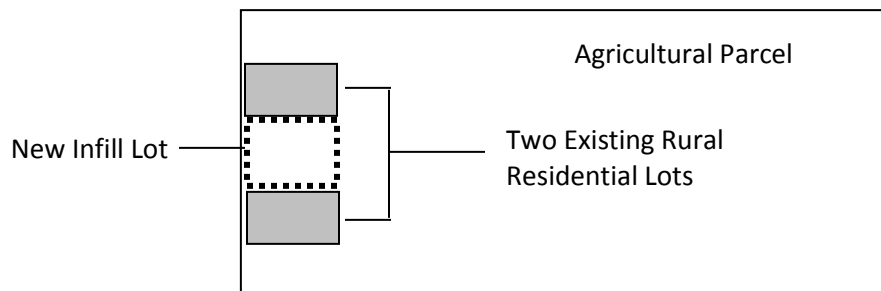
Farm Split: means a large farm divided into two farm lots. Farm splitting is a particular form of agricultural related use that is not further defined in the 2005 or 1996 PPS. The diagram below illustrates a farm split. While the diagram illustrates the creation of 100 acre parcels, there is no provincial standard for the minimum size for a new agricultural parcel, except in the Greenbelt, which limits new farm sizes to 100 acres or greater. Some municipalities have set a 100 or 50 acre minimum for new farm parcels, or use these measures as a guideline. Other municipalities base the acceptable size on an assessment of viable agricultural parcels in the area, or even on a case by case basis.

Figure 5: A 200 acre farm split creating two 100 acre parcels



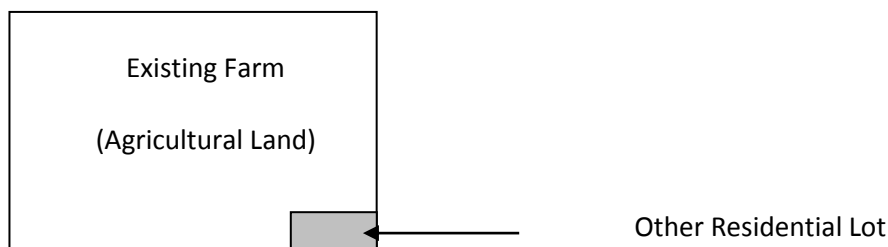
Infill lot: means the creation of a residential lot between two existing non-farm residences which are on separate lots of a similar size, are situated on the same side of the road and are not more than 100 metres apart (PPS 1996). The 2005 PPS no longer permits or defines residential infilling.

Figure 6: Residential infilling between two existing lots



Other Residential Lot: means a lot created for a residential purpose, unrelated to agriculture, that does not meet the definition for other types of residential uses defined here (i.e. Other residential means the lot is not farm help, surplus, retirement, or infill).

Figure 7: Other residential lot



Prime agricultural area: means areas where prime agricultural lands predominate. This includes areas of prime agricultural lands and associated Canada Land Inventory Class 4-7 soils and additional areas where there is a local concentration of farms which exhibit characteristics of ongoing agriculture. Prime agricultural areas may be identified by the Ontario Ministry of Agriculture, Food and Rural Affairs using evaluation procedures established by the Province as amended from time to time, or may also be identified through an alternative agricultural land evaluation system approved by the Province (PPS 2005). This definition adds to the 1996

definition by including local, viable farm concentrations, and identifying OMAFRA as the ministry responsible for identifying prime agricultural areas.

Prime agricultural land: means land that includes *specialty crop lands* and/or Canada Land Inventory Classes 1, 2, and 3 soils, in this order of priority for protection (PPS 2005; unchanged from 1996).

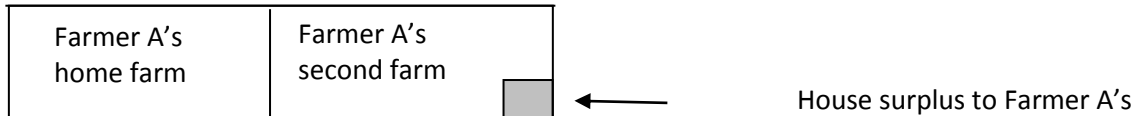
Retirement Lot: means a lot separated from a farm operation for a full-time farmer of retirement age who is retiring from active working life, was farming on January 1, 1994 or an earlier date set out in an existing Official Plan, and has owned and operated the farm operation for a substantial number of years (PPS 1996). The 2005 PPS no longer permits or defines retirement lots.

Severance: A severance is the authorized separation of a piece of land to form two new adjoining properties. The term is used in the 2005 and 1996 PPS, but not in the Planning Act. The terms consent and severance are very similar. A severance is required to sell, mortgage, charge or enter into any agreement for a portion of land. Severances do not always create new lots; severances include easements, corrections of deeds and minor boundary adjustments. In other regions of Canada and the United States, this terminology varies. A severance may be known elsewhere as a split, new lot, division or subdivision.

Surplus dwelling: means an existing farm residence that is rendered surplus as a result of farm consolidation (the acquisition of additional farm parcels to be operated as one farm operation) (PPS 2005). Section 2.3.4.1.c permits the creation of new lots for a residence surplus to a farming operation as a result of farm consolidation, provided that the planning authority ensures that new residential dwellings are prohibited on any vacant remnant parcel of farmland created by the severance. The approach used to ensure that no new residential dwellings are permitted on the remnant parcel may be recommended by the Province, or based on municipal

approaches which achieve the same objective (2005). The 1996 PPS included the condition that the existing farm residence be built prior to 1978, but this condition was removed in the 2005 PPS. Some debate exists over whether a farm consolidation should require that consolidating farms be abutting.

Figure 8: Creation of a new lot for a surplus dwelling



Chapter 4: Results

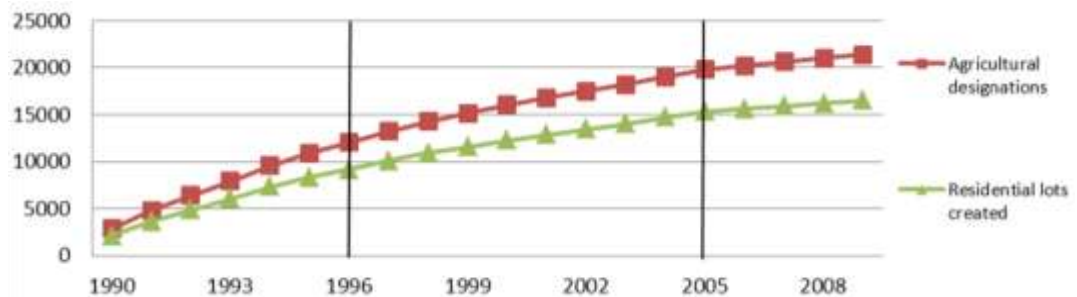
Aggregate parameters at the provincial level can be calculated as follows. Ontario municipalities with agricultural designations received 113,695 severance applications outside of major or separated urban centres from 1990-2009. Of these, 70,936 applications occurred from 1990-1999 and 42,759 occurred from 2000-2009. Compared between policy periods, there were 7,515 applications per year from 1990-1996, 4,923 applications per year from 1997-2005, and 3,662 applications per year from 2006-2009. This represents a 35% decrease in overall severance applications per year in Ontario following the 1996 PPS, and another 26% decrease following the 2005 PPS.

Out of the total applications, 16,475 created new residential lots in agricultural designations. Of these, 11,552 occurred from 1990-1999 and 4,923 occurred from 2000-2009. Compared between policy periods, there were 1,309 residential lots created per year from 1990-1996, 687 lots per year from 1997-2005, and 284 lots per year from 2006-2009⁵. This represents a 48% decrease in new residential lots created in Ontario following the 1996 PPS, and another 59% decrease following the 2005 PPS. The decrease in residential lots in agricultural designations was roughly double the decrease in overall severance applications, with 1.4 times the decrease after the 1996 PPS, and 2.3 times the decrease after the 2005 PPS. This suggests that PPS policies had a proportionally greater impact on severances in agricultural designations than in other designations.

⁵ Note that aggregate statistics at the provincial level contain estimates for years in which insufficient data was available for specific counties. All data for the years 1990-1995 were estimated for Middlesex, Grey, Brant, Haldimand, and Norfolk. These estimates were based on multiplying the total severance application numbers retrieved for each county from OMAFRA (1995) by the average percentages of each lot creation type in each county. Additionally, data for some in-between years was estimated in Hastings, Peterborough, and SDG (for several years from 2000-2009), and Kawartha Lakes, Prince Edward, Lennox Addington, and Hamilton (for several years from 1990-1999). In-between years were estimated by multiplying the total application numbers obtained from the county by the average percentage of each lot creation type in the years directly before/after the estimated year. Simcoe was not included in aggregate statistics at the provincial level due to lack of data.

One of the most significant changes in 2005 was to no longer permit retirement lots or infill lots. The current study for 2000-2009 shows a steep decrease in the number of retirement lots and infill lots created after 2005. From 2001-2005, 1045 retirement and infill lots were created; from 2006-2009, only 45 such lots were created. The results also show a decrease in farm help lots after 1996. Surplus dwellings continue at a relatively similar rate to before 2005.

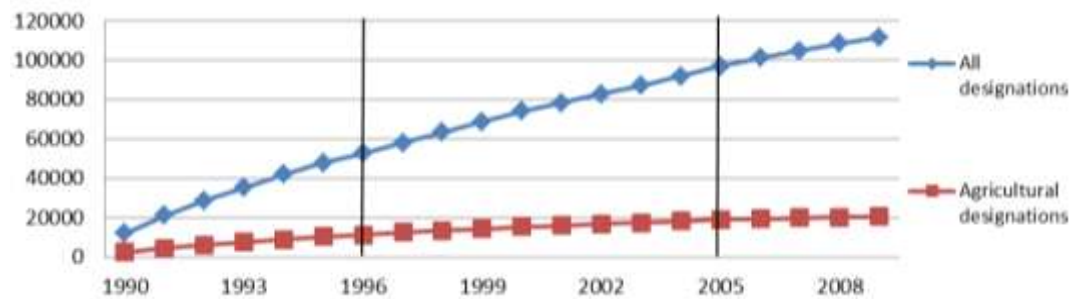
Figure 9: Cumulative new lots in the agricultural designation 1990-2009 (Ontario)



Although the cumulative number of new lots in the agricultural designation continues to climb, the number of lots created per year is slowing. Figure 8 illustrates this trend from 1990-2009. The number of new lots created before 1990 is unknown, although numbers circulated to OMAFRA in the years from 1979 to 1995 indicate much higher numbers of consent applications (OMAFRA, 1995). Although the true quantity of lots in Ontario's agricultural designations is much higher than illustrated here, due to lots created before the study began in 1990, the overall trend is clear: severances in the agricultural designation are decreasing, while the cumulative number of severances continues to grow.

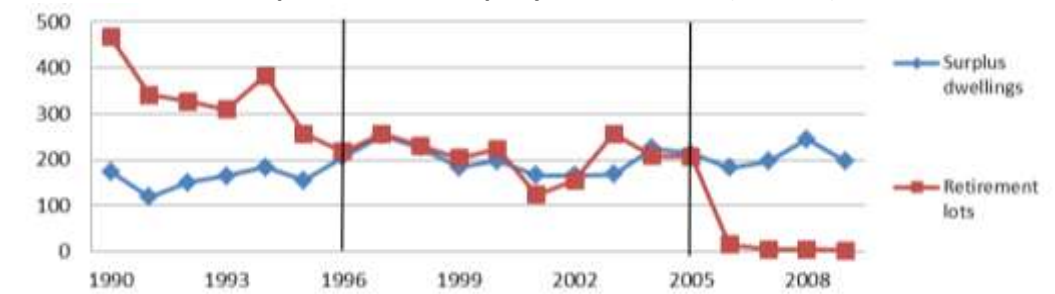
The number of lots created in agricultural designations is increasing at a much slower rate than the overall number of new lots in all designations (see the growing gap in Figure 9). This indicates that less change is occurring in agricultural designations when compared to non-farm rural and urban designations. This could be due to the sequence of provincial policies which increasingly redirected new residential and non-farm development to non-agricultural designations and settlement areas.

Figure 10: Cumulative total new lots in all designations 1990-2009 (Ontario)



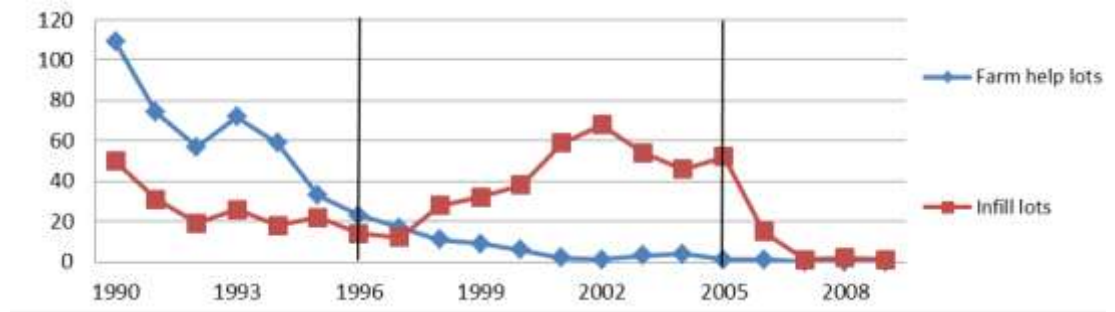
The 2005 PPS specifically permitted farm splits and dwellings rendered surplus as a result of farm consolidation (PPS 2.3.4.1). This no longer listed infill and retirement lots as types of lots municipalities were permitted to create. The effects of these policy changes are clearly visible in the following graphs. Figure 9 describes the decrease in the number of retirement lots created per year after the 2005 PPS changes. In the same graph, surplus dwellings continue without significant change after 2005.

Figure 11: Retirement and surplus lots created per year 1990-2009 (Ontario)



In Figure 11, the decline of farm help and infill lots is also evident. The trend in farm help lots seems to have spiked in response to the Growth and Settlement Policy Guidelines introduced in 1992 and then declined quickly after the Comprehensive Provincial Policy Statement (CPPS) introduced in 1994. By comparison, infill lots were still permitted in the 1996 PPS (after being introduced in the 1994 CPPS) and continued with an upward trend in infill lots per year until the 2005 PPS, after which infill lots also quickly trended towards zero per year.

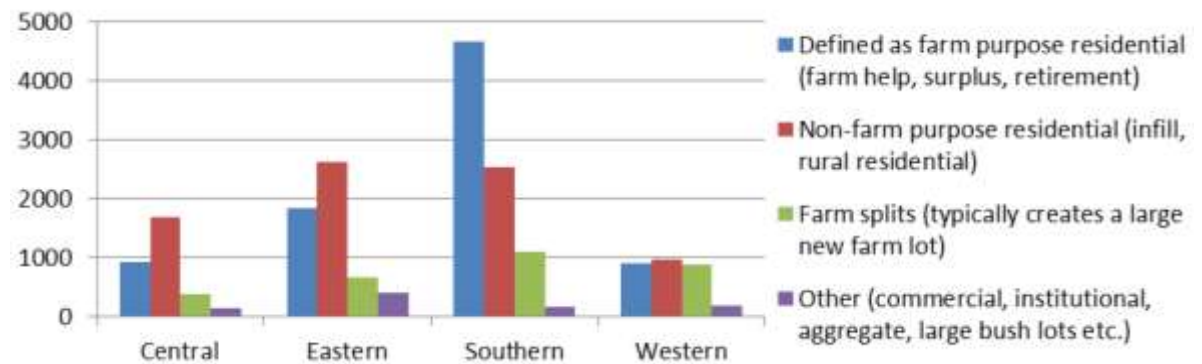
Figure 12: Farm help and infill lots created per year 1990-2009 (Ontario)



The results illustrated in the preceding graphs suggest that provincial policies do play a key determining role in provincial severance trends.

4.1 Lot creation trends in relation to provincial geography

Figure 13: Total lot creation by type across Ontario 1990-2009



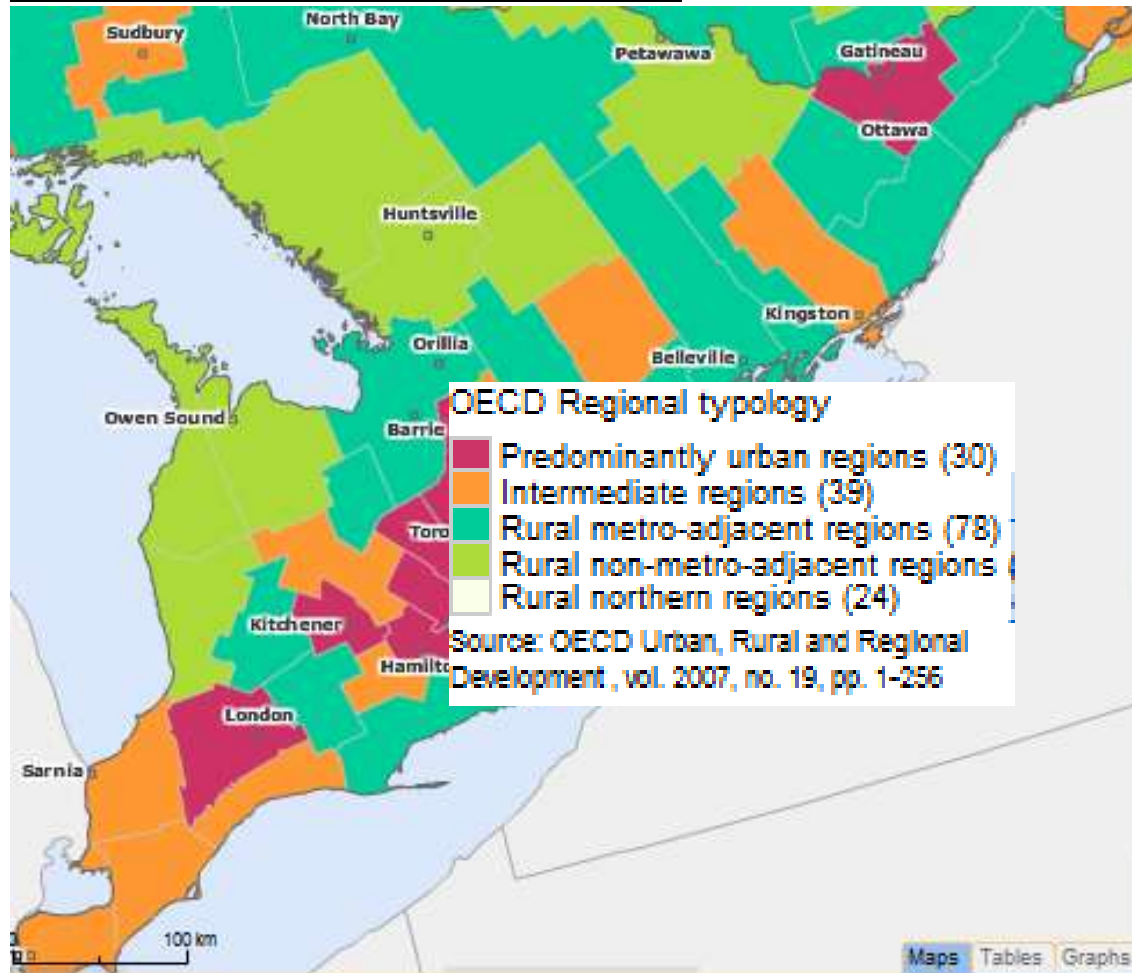
Of the total new lots of all types, 16% were created in Central Ontario, 27% in Eastern Ontario, 42% in Southern Ontario and 15% in Western Ontario (see Figure 4 for regions).

Most notably, Southern Ontario has a very high proportion of residential development with initial farm purposes. The highest quantities of non-farm residential lots occurred in Southern and Eastern Ontario. Eastern and Central Ontario had a higher proportion of non-farm residential development, often in the form of recreational and seasonal lots. Western Ontario has roughly equivalent levels of defined farm and non-farm residential lot creation, both of which are lower than other regions of Ontario.

4.2 Lot creation trends in relation to population density and urban proximity

The impacts of changes to the 2005 PPS are distributed differently throughout the province, based on a number of factors. One of the most important explanatory factors is population density and the presence or absence of large urban centres, which can be represented using the OECD regional typology of census districts. The OECD regional typology contains four regional types: predominantly urban, intermediate, rural metro adjacent, and rural non-metro adjacent. These types are based on population density, the proportion of population living in an urban centre, and the presence or absence of urban centres greater than 200,000 (OECD, 2009).

Figure 14: OECD typologies for Ontario census divisions



The 9 intermediate municipalities (rural population 15-50%, large urban centres) had the highest decrease in the number of new lots created per year. On average, intermediate municipalities decreased new lot creation in the agricultural designation by 22 lots per year after 2005. Impacts for intermediate municipalities varied widely, however. Essex decreased by 91 lots per year (-73%), the highest quantitative decrease in Ontario. Niagara decreased by 39 lots per year (-83%), the second highest quantitative decrease. In contrast, Lambton and Peterborough decreased by 5 lots per year (-36% and -45% respectively), the lowest decrease within the intermediate municipalities.

The 14 rural metro adjacent municipalities were the most impacted in terms of the percentage decrease in new lots per year after 2005. Rural metro adjacent municipalities created on average 71% fewer new lots per year after 2005 (compared to the previous policy period 1997-2005). Impacts for rural metro adjacent municipalities varied widely, however. Both Dufferin and Prince Edward decreased by 17 lots per year after 2005 (-89% and -63% respectively). In contrast, Perth had virtually no severances and therefore no change for the two periods. Over the 20 year study period, Perth created the lowest number of severances per year in the province.

The 7 predominantly urban municipalities also decreased significantly – 61% on average. After 2005, all of the municipalities in the predominantly urban category permitted fewer than 4 severances per year (with the exception of Ottawa, which permitted 12 lots per year after 2005). Three of the four GGH regions are in the predominantly urban category, with rapid population growth rates (York, Peel and Halton). These municipalities have some of the lowest post-2005 rates of lot creation in the province.

The four rural non-metro adjacent municipalities were the least impacted. Bruce, Huron and Grey remained virtually unchanged. Renfrew decreased from 7 to 3 new lots per year in the agricultural designation after 2005.

4.3 Comparing residential lots created per typical concession block of 1,000 acres

When comparing lot creation trends between municipalities it is important to account for differences in land area. As established in the methodology, each municipality has reported the number of acres designated for agriculture within its boundaries. This number is called a ‘municipal performance measure’ (MPM). The most recent MPM number for each municipality

is used to represent the prime agricultural area available for lot creation. Typically the most recent MPM number is from 2008.

It is also important to account for the types of lots being created. The literature review emphasized that one of the most fragmenting and highly impacting forms of development is residential lot creation (as opposed to new farm lots or non-residential development). Thus, the following analysis focuses on residential lot creation, and does not include farm splits or non-residential types of development such as commercial lots or aggregate operations.

The following formula is used to calculate ratios to comparing residential lot creation trends in municipalities across the province:

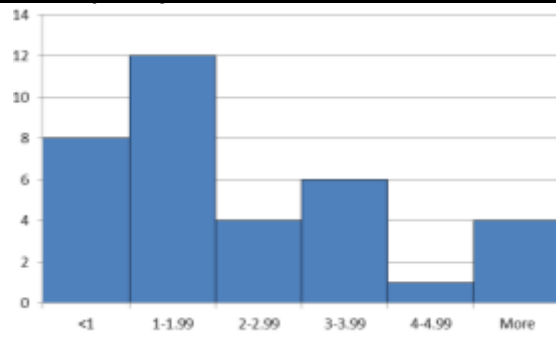
Lot creation ratio =	$\frac{\text{Total \# of residential lots created per period (including estimates)}}{(\text{Total acres land designated agricultural in 2008 MPM}) / (1000 \text{ acres})}$
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The ratio describes the number of residential lots created in a typical concession block of 1,000 acres in a defined period of years. This number helps to illustrate the impact of residential development between municipalities with different land areas. The higher the number, the more restricted agriculture will be (this is most true for livestock production). For reference, all ratios across the province are provided in Tables 5 and 6 on the following pages.

On average, there were 1.66 residential lots created per thousand acres from 1990-1999 in the province. From 2000-2009, there was an average of 0.65 lots created per thousand acres of agriculturally designated land (this number can be referred to as the 'ratio'). The shift from 1.66 to 0.65 in one decade represents an overall 61% decrease, or an average 53% decrease across all municipalities. This average should be interpreted with caution due to the wide variation across the province. The highest ratio was Prince Edward (7.55) while the lowest ratio was Perth (0.08). In a histogram of the data (see Figure 14), 8 municipalities created less than one lot per thousand acres; 12 created between 1 and 2 lots per thousand acres; 4 created

between 2 and 3 lots per thousand acres; and 6 created between 3 and 4 lots per thousand acres. This accounts for 30 out of 35 municipalities. The remaining five municipalities created more than four lots per thousand acres from 1990-2009. Please see Figure 15-18 for an illustration of the geographic distribution of these lots.

Figure 15: Frequency of severance ratio values amongst municipalities



Changes to the PPS made in 1996 and 2005 create essentially three provincial policy periods: 1990-1996, 1997-2005, and 2006-2009⁶. Average lot creation per year (per thousand acres) in each policy period is a ratio that helps to explain some of the variation in lot creation over the 20 year study period. The formula for this would be:

Lot creation ratio per policy period =	$\frac{\text{Average \# residential lots created per year in period (including estimates)}}{(\text{Total acres land designated agricultural in 2008 MPM}) / (1000 \text{ acres})}$
---	--

As outlined in Table 6 and the discussion in Chapter 5, the policy periods also had significant impacts on lot creation trends across the province. On average, municipalities decreased residential lot creation/yr/1000 acres by 41% after the 1996 PPS statement, and decreased again by 55% after the 2005 PPS.

⁶ There are other significant policy changes that could foreseeably influence severance trends. These are: the introduction of Growth and Settlement Policy Guidelines of 1992; the Comprehensive Provincial Policy Statement of 1994; the amalgamation or redefined boundaries of a number of municipalities from 1997-2002; the delegation of consent granting authority around the same time period from several of the upper tiers to lower tiers; and the introduction of a number of new Official Plans, often changing significantly within several years of the most recent PPS.

Table 5: Residential lots created per 1,000 acres compared between 1990-1999 and 2000-2009

Census Division	1990-1999	2000-2009	% Change	1990-2009
Perth	0.08	0.01	-89%	0.08
Waterloo	0.19	0.07	-65%	0.25
Middlesex	0.20	0.10	-49%	0.31
Oxford	0.22	0.10	-56%	0.31
Huron	0.21	0.21	0%	0.42
Bruce	0.34	0.24	-31%	0.58
Durham	0.42	0.37	-12%	0.79
Lambton	0.65	0.30	-54%	0.95
York	0.80	0.20	-74%	1.00
Elgin	0.48	0.58	21%	1.06
Wellington	0.94	0.20	-78%	1.14
Haldimand	0.81	0.37	-54%	1.18
Grey	1.26	0.05	-96%	1.31
Brant	0.68	0.65	-4%	1.34
Halton	1.15	0.30	-74%	1.45
Simcoe	1.40	0.19	-86%	1.59
Kawartha_Lakes	1.38	0.24	-83%	1.61
Dufferin	1.37	0.53	-61%	1.90
Peterborough	1.14	0.77	-32%	1.91
Chatham_Kent	0.96	1.00	4%	1.96
Renfrew	1.56	0.46	-71%	2.01
Storm., Dund., Gleng.	1.55	0.58	-62%	2.13
Prescott_Russell	1.97	0.51	-74%	2.48
Northumberland	2.11	0.45	-79%	2.56
Norfolk	1.96	1.08	-45%	3.04
Peel (Town of Caledon)	2.93	0.43	-85%	3.36
Ottawa	2.24	1.30	-42%	3.55
Niagara	2.47	1.13	-54%	3.60
Hastings	2.74	0.87	-68%	3.61
Lennox Addington	1.95	1.85	-5%	3.81
Hamilton	2.67	1.38	-49%	4.05
Leeds Grenville	4.53	0.65	-86%	5.18
Lanark	5.66	0.40	-93%	6.06
Essex	3.61	3.17	-12%	6.78
Prince Edward	5.40	2.15	-60%	7.55
Average across Ontario	1.66	0.65	-53%	2.31

Table 6: Impact of policy periods on ratio and in absolute terms (using average lots per year)

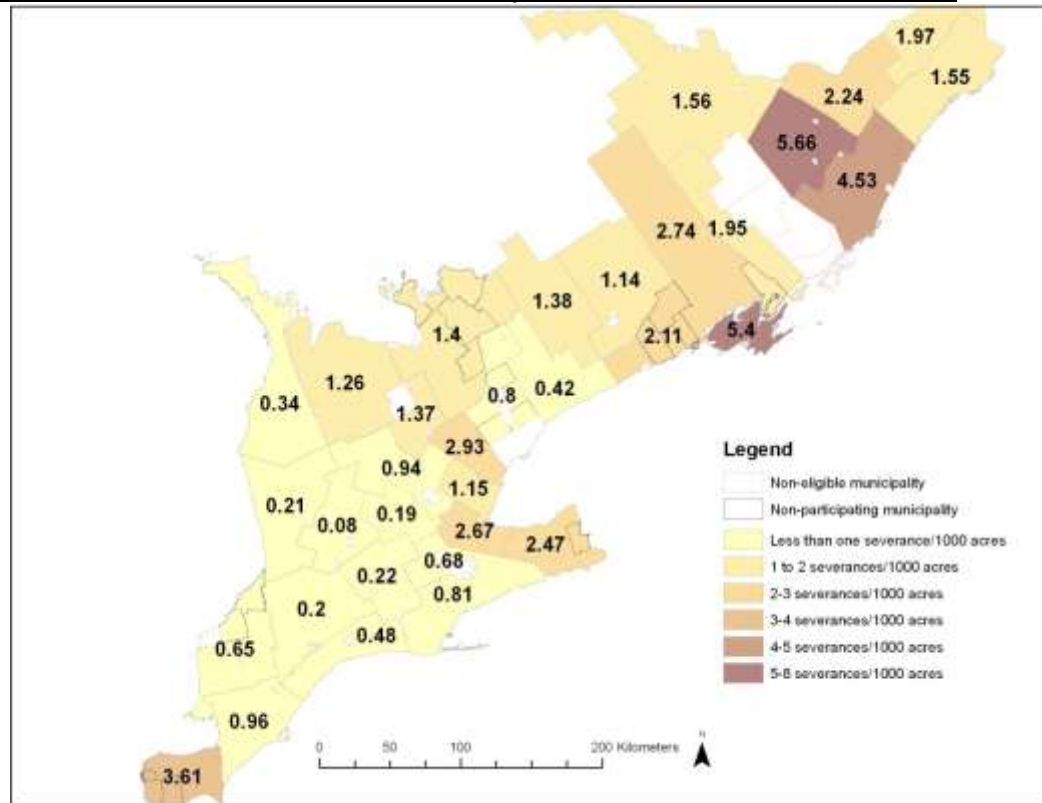
	1990-1996	1997-2005	2006-2009	% change post-2005	Change in actual # lots/yr post-2005 *
Essex	0.36	0.37	0.1	-0.73	-91
Niagara	0.25	0.15	0.02	-0.83	-39
Ottawa	0.26	0.18	0.05	-0.71	-29
Hamilton	0.3	0.21	0.02	-0.91	-27
Dufferin	0.16	0.09	0.01	-0.89	-17
Prince_Edward	0.63	0.3	0.11	-0.63	-17
Leeds_Grenville	0.57	0.12	0.03	-0.71	-15
Chatham_Kent	0.09	0.11	0.08	-0.23	-15
Norfolk	0.43	0.25	0.14	-0.44	-14
Lanark	0.7	0.13	0.01	-0.92	-12
Durham	0.04	0.05	0.01	-0.8	-12
Brant	NA	0.09	0.03	-0.71	-12
Lennox_Addington	0.22	0.11	0	-1	-11
Kawartha_Lakes	0.17	0.05	0.01	-0.73	-11
Northumberland	0.41	0.09	0.01	-0.91	-10
Wellington	0.11	0.04	0.01	-0.67	-10
Stormont_Dundas_Glengarry	0.18	0.07	0.06	-0.25	-10
Oxford	0.02	0.02	0	-1	-9
Elgin	0.05	0.06	0.04	-0.38	-9
Middlesex	NA	0.02	0.01	-0.67	-8
Hastings	0.34	0.08	0.03	-0.64	-7
Haldimand	0.09	0.05	0.03	-0.46	-6
Prescott_Russell	0.24	0.07	0.05	-0.32	-6
Peterborough	0.15	0.08	0.04	-0.45	-5
Lambton	0.08	0.03	0.02	-0.36	-5
Renfrew	0.17	0.08	0.03	-0.57	-4
Waterloo	0.01	0.02	0	-0.75	-3
York	0.06	0.03	0.01	-0.75	-3
Peel (Town of Caledon)	0.43	0.07	0.04	-0.5	-2
Halton Region	0.16	0.02	0.02	0	0
Perth	0.01	0	0	-1	1
Grey	NA	0	0.01	1	1
Bruce	0.04	0.02	0.03	0.08	1
Huron	0.02	0.02	0.02	0.23	3
Simcoe	NA	NA	NA	NA	NA
Average across Ontario	0.22	0.09	0.03	-55%	-12
*Final column is the average number of lots created per year from 2006-2009, subtracted from the average number of lots created per year from 1996-2005; a large negative number signifies that a county created far fewer lots per year from 2006-2009 than it had from 1996-2005					

4.4 Spatial distribution of lot creation across Ontario

Having calculated a ratio for comparison of lot creation trends across Ontario, it is now possible to examine spatial distribution of severances across the province, at the upper and single tier scale. The following four maps explore spatial distribution of lot creation. The first two maps (Figures 15 and 16) present data for the decades 1990-1999 and 2000-2009.

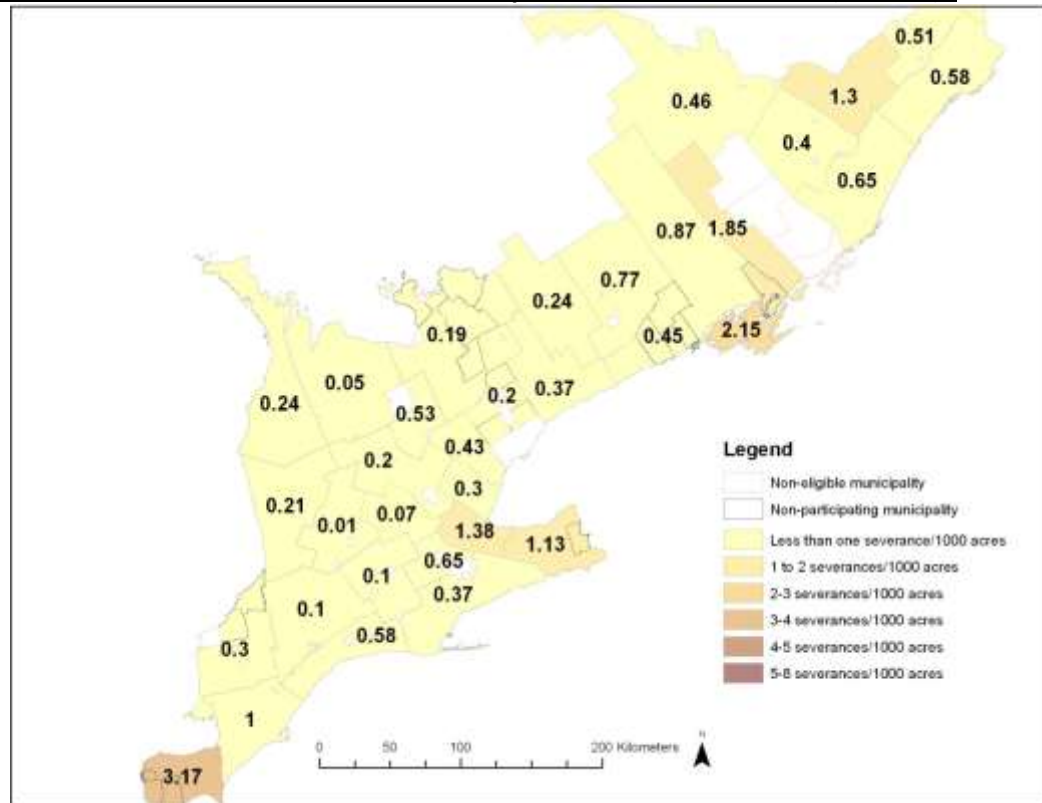
Cumulative data is also provided in a third map (Figure 17), followed by a map of the percentage change between the two decades (Figure 18). Decades were chosen as a reference period for several reasons. First, they align with the approximate dates in which many municipalities were adopting new Official Plans and delegating consent authority to lower tiers. Second, they allow for comparisons over the same period of time (10 years each). Third, the periods align with data collection phases, in which some collection methods may have changed, despite efforts to follow previous study methods as closely as possible. This allows for better interpretation by clarifying which municipalities were participating in each decade period.

Figure 16: Distribution of residential lots created per 1000 acres 1990-1999 (Ontario)*



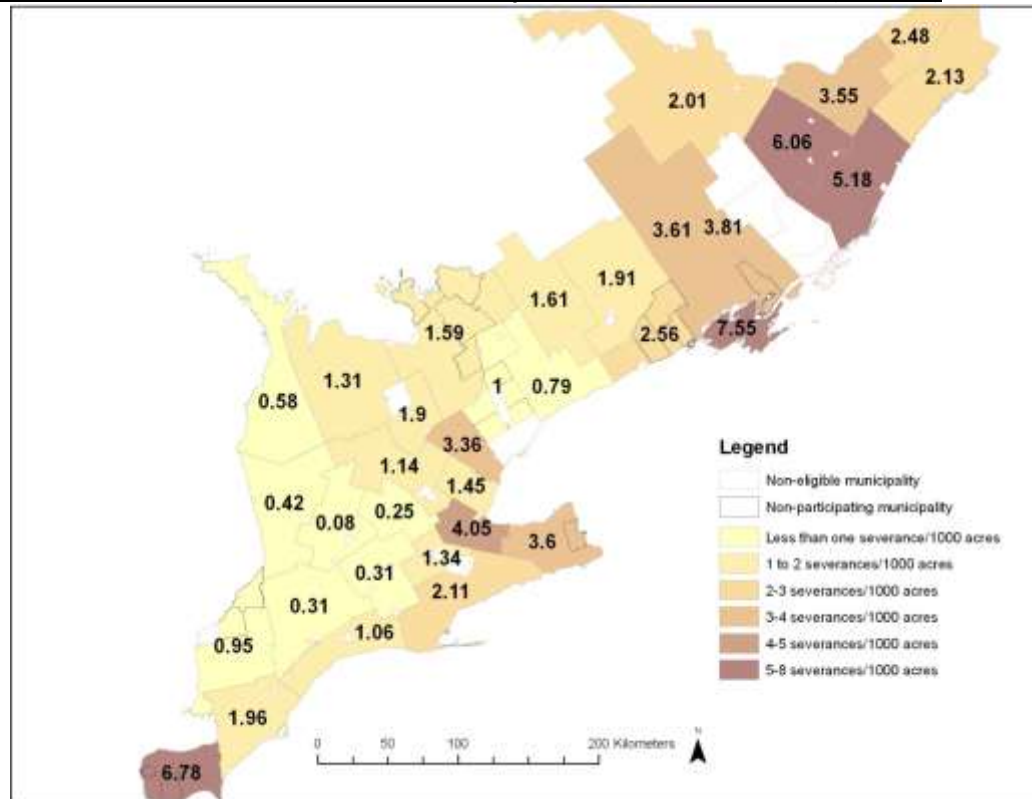
*Note that the legend categories are actually 0-0.99, 1-1.99, 2-2.99, etc.

Figure 17: Distribution of residential lots created per 1000 acres 2000-2009 (Ontario)*



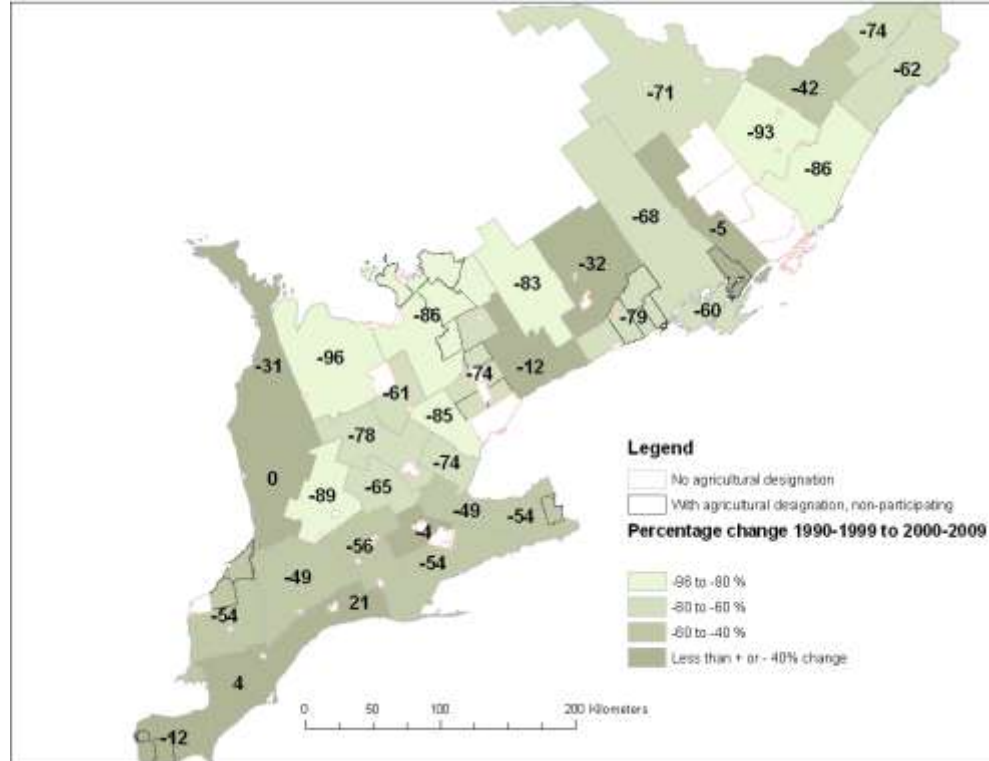
*Note that the legend categories are actually 0-0.99, 1-1.99, 2-2.99, etc.

Figure 18: Distribution of residential lots created per 1000 acres 1990-2009 (Ontario)



*Note that the legend categories are actually 0-0.99, 1-1.99, 2-2.99, etc.

Figure 19: Percentage change from 1990-1999 to 2000-2009 in lots created per 1000 acres (Ontario)



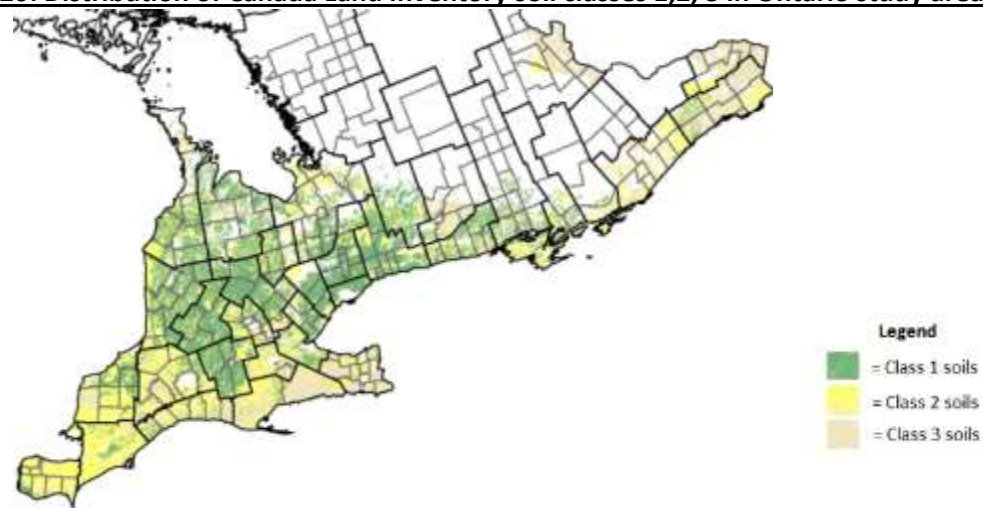
From the previous pages, the clearest trend is that the two decades differ markedly in the ratio of lots created/1000 acres. All municipalities decreased, often dramatically, with the exception of Huron, which remained unchanged, and Chatham-Kent, and Elgin, both of which increased. In both decades, lot creation ratios were highest in a cluster of municipalities around Ottawa in Eastern Ontario, around Prince Edward County, in the GGH, including Hamilton and Niagara, and in the extreme south, Essex and Chatham-Kent.

Figure 18 clearly illustrates that the highest impacted municipalities were rural metro-adjacent and intermediate municipalities. These areas are loosely arranged in horseshoes around Ottawa, Hamilton and Toronto. Caution should be taken in analyzing this map, however. Large percentages resulted in some places that already have very low numbers of severances. For example, although Perth is marked as changing 89%, the situation is in reality that very few severances were permitted before 2000, and virtually none were permitted after, which is a

large percentage but a small change in absolute terms. The change in absolute terms can be seen in the preceding Table 6.

In spite of differing impacts of policy changes in each decade, there are likely many other explanatory factors. Presumably, land protection would be better in areas where higher concentrations of prime agricultural lands exist. To test this assumption, a map was created to illustrate soil classes 1, 2, and 3 in the Ontario study area. The map illustrates that some of the most fragmented areas are predominated by prime soils; Niagara, Essex, Chatham-Kent and Prince Edward appear on the map to be predominated with Class 2 soils. There is therefore a weak relationship between presence of prime lands and increased restrictions on severances at a provincial level. At the municipal level, presumably agricultural designations provide greater protection than rural designations.

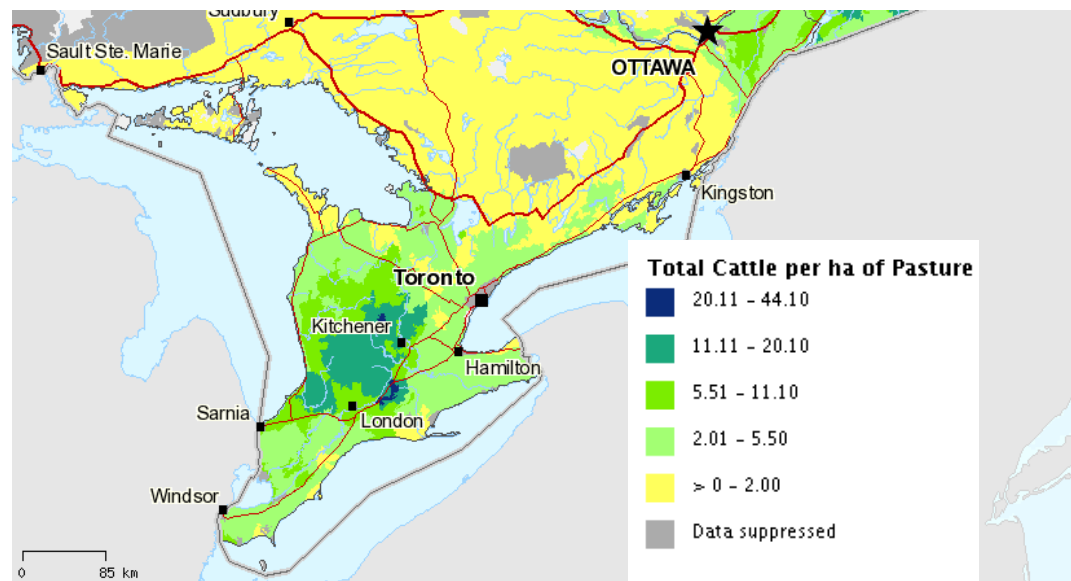
Figure 20: Distribution of Canada Land Inventory soil classes 1,2, 3 in Ontario study area*



*Note that CLI data for Ottawa, Lanark, and Manitoulin was not available in GIS format

Another logical assumption would be that areas of livestock concentration would co-occur spatially with areas of greater restrictions on residential lot creation. This assumption is indeed borne out in comparison of maps of livestock concentration (Figure 20) with cumulative severances from 1990-2009. A wide region of intensive livestock production overlaps strongly with the region in Western Ontario where a cluster of municipalities has the most restrictive lot creation policies in the province. This area consists of the five municipalities that have the lowest rates of lot creation in Ontario (Perth, Waterloo, Middlesex, Oxford, and Huron). Similar trends exist for poultry and hog production in spatial distribution. This suggests that the presence of high livestock intensity is one of the key driving factors in a municipality's decision to restrict lot creation beyond minimum levels set out in the PPS, as has been done in these five municipalities.

Figure 21: Livestock concentrations in Ontario 2006 Census of Agriculture



Source: Census Canada 2006

For future studies, it will also be interesting to observe how municipalities in the GGH Greenbelt compare to municipalities directly inside the whitebelt. The whitebelt is the area

between the GGH Greenbelt and the designated urban boundaries of GTA municipalities. Trends to date indicate that most municipalities in the whitebelt intend to urbanize to the maximum extent possible (Tomalty and Komoroski, 2011). To prevent restrictions in subdivision planning, it is unlikely that further severances will be permitted in these areas. In the interim, it appears that livestock production is already in steep decline in Greenbelt and whitebelt areas alike (Cummings and Juhasz, 2008).

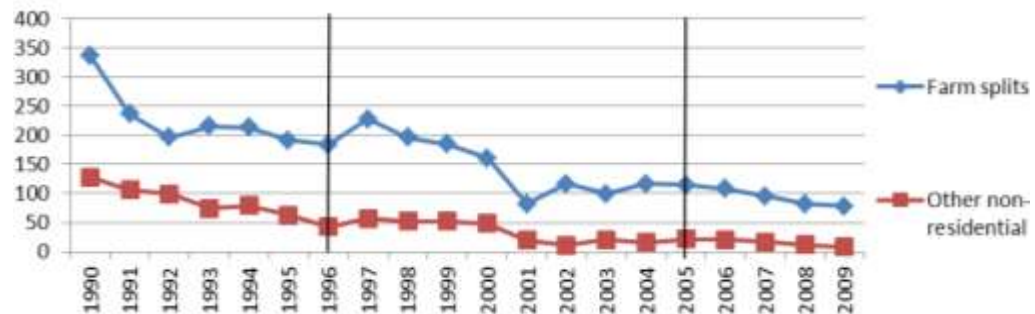
4.5 Other non-residential development

Non-residential lots comprise a small but equally important portion of lots created in Ontario's agricultural designation. The number of farm splits can be interpreted in a number of ways. Farm splits can mean a healthy agricultural industry with demands for new farm lots, particularly when lot sizes are maintained at an appropriate size for successful farm operations in the area. In other areas of the province, where demand for land is high or where agriculture is not a high-valued activity, farm splits may present a risk that lots will be purchased for non-agricultural interests. This risk increases if the severed farm parcel is smaller than would be desired by commercial farm operations in the area. Although farm splits are still permitted under both the 1996 and 2005 PPS, the number of farm splits has declined. This may be because in all areas, farm sizes are increasing through acquisition of other farm parcels, which does not typically require a severance. In many areas, farm splits are only permitted along original lot lines and with minimum farm sizes of 100 acres or more. The creation of smaller lots in non-specialty crop areas remains a controversial issue. The provincial trend indicates fewer farm splits.

Aside from farm splits, the number of non-residential lots created per year has decreased over the same period. This may be a response to 2005 PPS changes that encourage

non-farm related commercial, industrial, institutional and recreational uses to locate within settlement areas. This is to preserve large contiguous areas of workable land in agricultural designations. The decrease may also be attributable to changing farm economics, but this correlation is difficult to justify given that many farm economic choices do not require a severance for expanding or diversifying operations (new buildings and uses).

Figure 22: New non-residential lots created per year in the agricultural designation 1990-2009 (Ontario)



4.6 Saturation point

Finally, for all types of severances, the severance ‘saturation point’ should also be considered. This builds on the idea that within any given area, only a certain number of severances are possible. Once the maximum number of severances has been reached for residential, aggregate, farm splits, or any other type of lot, the area has reached its severance saturation point. This recognizes that saturation point is contingent upon constant policy – if the policy becomes more permissive, there may be additional approvals. Beyond the saturation point, changes in land use and parcel fabric will only register as lot additions, easements, or physical infrastructure requiring permits. The number of new lots created in such a situation will be close to zero. In the absence of policies to protect farmland, imperfect market forces would drive many municipalities to saturation point. It is possible for the province and municipalities to

use planning policies to restrict the saturation threshold until markets are aligned with farmland protection. Twelve municipalities in this study have reached a saturation point at a restricted threshold with the use of provincial and local policies. These twelve municipalities have an average of two or fewer lots created per year after 2005. The remaining 23 municipalities are at varying degrees of saturation. At least three counties have created 30 or more new residential lots per year since 2005, indicating that a threshold is far from reached. It is important to note again that some municipalities' saturation points are contingent on retaining equally or more restrictive policies.

Full results are available in the regional profiles and a separate document containing all upper tier and single tier profiles. These documents will be available at www.waynecaldwell.ca.

Chapter 5: Discussion

This chapter reviews the impacts of trends identified in the research results on a number of current areas of agricultural and rural interest that were identified as discussions of academic interest in the literature review. The chapter is organized into a discussion of the impacts that draw directly from the research results, followed by a discussion of potential policy implications, both directly related to severances and indirectly related to rural development.

5.1 Discussion of impacts

5.1.1 Increased restrictions on livestock expansion

As identified in the literature review, residential lot creation in agricultural designations produces numerous impacts. These impacts occur in a variety of forms, including shifting political and social values, changing land prices, net costs for municipal servicing, loss of agricultural land, restrictions on a range of agricultural commodities, conflict, and lost opportunities in the future value of farmlands.

The study results can be used to quantify at least two types of impacts: land restricted for livestock operations and land removed from agricultural production. According to the results, 16,475 new residential lots were created from 1990-2009. Using the method developed by Caldwell and Weir (2002), this can be further extrapolated to estimate the area of land where livestock operations are now restricted, based on minimum distance separation in Table 7.

Table 7: Agricultural land restricted by Minimum Distance Separation through residential lot creation

Livestock operation size	MDS setbacks	Total new residential lots	Area restricted by each new lot	Total area restricted
500 Livestock units (2,000 feeder hogs)	527m	16,475	215 acres	3,542,125
1,000 Livestock units (4,000 hogs)	650m	16,475	327 acres	5,387,325
2,500 Livestock units (10,000 hogs)	858m	16,475	570 acres	9,390,750

This example is for feeder hogs on liquid manure. Other types of livestock operations may have different setbacks. Note that each new lot would likely restrict only a portion of the potential restricted area, particular if developed in residential clusters. The estimated total area restricted should therefore be interpreted as an **illustration** of the impacts, rather than an **absolute measure** of lands impacted. According to the 2006 census, approximately 9,046,185 acres of land are currently farmed in Ontario. Based on the estimate above, 9,390,750 acres of land would be restricted by new residential lots since 1990 alone. If lots were distributed uniformly across the landscape, livestock operations above 2,500 livestock units would theoretically not be able to locate anywhere in the province. While specific inferences could not be drawn from the above calculation, it serves to demonstrate the tangible impacts of severed lots through application of MDS to new residential lots.

5.1.2 Increased cumulative lands removed from agricultural production

Although it is clear from the results that yearly residential lot creation has declined since 1990, and quite sharply after 2005, this must be understood in the context of cumulative impacts over time. Historically, severance numbers before 1990 seem to have been higher than in recent decades. An OMAFRA report in 1992 documented 75,113 severance applications

relevant to the lands in their jurisdiction from 1979 to 1989. In 2002, OMAFRA staff indicated that a large percentage of these applications received final approval. According to Penfold (1990, in Misek-Evans, 1992), the Foodland Guidelines of 1978 seemed to reduce severance activity in the early 1980s; but by 1989, about 12,000 rural severances had been granted in Ontario, which was an equivalent rate to severance activity prior to the Foodland Guidelines. Estimates before 1980 are currently not available in the literature or from MMAH or OMAFRA.

Although it is difficult to generalize based on these figures, if the lots created from 1979-1989 were added to the lots counted in this current research (1990-2009), the total would be 28,475 lots since 1979. Based on the assumption that all residential lots created in agricultural designations are at least one acre in size (an underestimate in the majority of cases), it is possible to calculate a minimum number of acres removed from agriculture since 1979. That number is the same as the number of residential lots created, or in other words, 28,475 new lots covering at least 28,475 acres. This is equivalent to an area of 115 square kilometres, which is roughly the size of Kitchener, Ontario. The land efficiency of housing in this case is clearly much lower for rural severances. Whereas Kitchener is home to 204,000 people, the lots created in Ontario 's agricultural designations could house only 115,000, even with an above average family size of 4 (this is a conservative estimate, given that not all of Kitchener's land area is residential).

5.1.3 Decreased rates of farm-related lot creation

This research indicates that an average of 2.31 lots have been created in a typical concession block in Ontario's agricultural designations from 1990-2009. While this continues to aggravate the cumulative impacts described above, it is also much lower than would be expected if lot creation had continued at the same rate as in the previous study (1990-1999).

This slowing rate has impacts for new farm-related lot creation, farm succession, the real estate sector and municipal financial planning and economic development, as discussed in the following sections.

5.1.4 Decreased rates of non-farm related lot creation

This research found that many municipalities have been permitting lower numbers of non-farm related severances after the 2005 PPS. In fact, a third of the municipalities in the study (12) now permit 2 or fewer new lots per year. The decline in residential lot creation in agricultural designations means that farmers will increasingly need to find other ways to monetize land assets or improve profitability. If the farmer has no need to farm the land, one of the remaining options is to lease it for other agricultural or related uses, until the farm can be sold to another farmer or farm operation.

A related risk may also emerge in which municipalities that have reached their saturation point allow 'creative' lot additions. These lot additions would allow farmers to sell sections of land to expanding residential properties. The tax assessment base may increase, but the land will be removed from agriculture. Subject to interpretation, this type of lot addition is not permitted under the PPS and should be avoided. Although lot additions were not counted in this study, anecdotal observations in several saturated municipalities indicated that lot additions have been the method of choice for conveying lands, even if the lands shift from agricultural to residential-related uses.

5.1.5 Increased farm consolidation

The research results indicate a trend towards further farm consolidation and a declining number of new farm lot creation (farm splits). The number of surplus dwellings permitted per year has increased 25% (comparing the post-2005 average to the pre-1996 average). At the

same time, farm splits have decreased by 61% (comparing the post-2005 average to the pre-1996 average). Each surplus dwelling indicates a farm consolidation, although not all farm consolidations require a surplus dwelling severance. Thus the research indicates an increase in farm consolidations and a decrease in farm splits. These results align with Agricultural Census data that indicate a decreasing number of farms and increasing average farm sizes (2006).

A common barrier faced by new farmers is access to affordable land, particularly close to urban areas. As identified in the literature review, smaller farms oriented to direct marketing make up a higher proportion of farms near Census Agglomeration Areas. Although restrictive severance policies may limit the availability of these small lots, it is still possible for landowners to lease land on a long term basis to new farmers and other operations. This may in fact lead to more efficient operations, in which farmers can operate on land near the farmstead, regardless of whether the farmer owns that land. This helps to avoid traffic issues and a host of detrimental impacts from farmers operating distant parcels. Long term leases also encourage investment by farmers in soil health and farm infrastructure. Opportunities exist to create markets in farm leases, allowing farmers to gain a return from improvements made to leased lands (see Section 5.2).

5.1.6 Decreased burden of scattered development on servicing costs

Results suggest that new residential lots are increasingly less likely to be created in agricultural designations, provided provincial policies remain equally restrictive. The impacts of this change will vary depending on the municipality, but it does indicate that municipalities will experience fewer pressures to increase services to scattered residential development. This has the effect of lowering the burden of residential servicing costs as a proportion of overall increases in costs. It also removes residential lot creation as a source of potentially higher tax

base in agricultural designations. Therefore, municipalities should consider how agriculture can be reinvigorated as a viable contributor to the tax base. Municipalities can seek to attract value-added activities and small scale agriculturally-related commercial and industrial development that supports existing and future agricultural uses. Food, fur and fibre focused economic development could also expand to include marketing efforts in biomass, biofuels, other forms of renewable energy, and farm based marketing for tourism, education and technology development. All of these forms of agricultural development are available as different approaches to increasing the tax base without depending on residential development.

5.2 Discussion of policy implications

The impacts described in section 5.1 have a number of policy implications. Overall, the province can be assured that the additional restrictions on lot creation introduced in the 2005 PPS did have the desired effect. After 2005, residential lot creation per year decreased across the province by 59% in agricultural designations. The Official Plans of most municipalities now permit only one type of residential severance: surplus dwelling severances (in addition to non-residential severance types). In most municipalities, the number of surplus dwellings increased slightly after 2005. However, the increase was not high enough to indicate that lots which would have previously been labeled 'infill' or 'retirement' were currently being labeled 'surplus'. In short, the 2005 PPS was effective.

A number of policy implications can be drawn directly with respect to severances in prime agricultural areas, as defined in the PPS. However, the impacts of the trends discussed in section 5.1 also have a number of policy implications that relate indirectly to lot creation in agricultural landscapes, but are important nevertheless. Thus the following section is organized as '5.2.1 Direct policy implications' and '5.2.2 Indirect policy implications'.

5.2.1 Direct policy implications for new lot creation in agricultural landscapes

5.2.1.1 Surplus dwelling severances

First, it must be determined whether or not surplus dwellings are indeed ‘farm-related’ severances. Surplus dwellings are prone to many of the same detrimental impacts as other residential lots. Solutions for surplus dwellings, which do not involve the creation of new lots, should be further explored. Understandably, farmers do not want to become residential landlords, and it is not always acceptable to destroy houses, especially when given a heritage value. The issue of surplus dwellings remains unresolved at a provincial level, but there are a number of conditions used by municipalities to ensure that impacts are mitigated and that the severed house is legitimately surplus as a result of farm consolidation. A building date could be required for a farm house to qualify as surplus (the date in the 1996 PPS was 1978, before removal in the 2005 PPS). Clarification is also needed for the definitions of ‘surplus farm dwelling’ and ‘farm consolidation’, based on the following considerations:

- Whether the farm consolidation can cross municipal boundaries;
- Whether the farm consolidation must be the action of a bona fide farmer;
- Whether the farm consolidation must involve abutting properties that will merge.

The prohibition of a new dwelling on the remnant parcel following a surplus dwelling consent, as required by Section 2.3.4.1 (c), should be supported by stronger measures. Many municipalities currently rely on local zoning by-laws to protect the remnant parcel, although the by-law could be amended in future – perhaps on the condition that a farmer has submitted a viable business plan. The prohibition should apply whether the house or the farmland is the severed parcel. One creative solution would be to work with land trusts to achieve protection in perpetuity by using conservation easements⁷.

⁷ An easement is a legal tool that can be used to bind all future landowners to specified land use restrictions. In this case, the land use would be restricted to agricultural uses. Farmland conservation

5.2.1.2 Agricultural related uses

Section 2.3.4.1 (a) of the 2005 PPS permits severances for agricultural related uses (small-scale industrial operations required in close proximity to the farm). As discussed earlier in Section 5.1.6, municipalities may seek alternative ways to increase their tax base through small scale agriculture-related commercial and industrial uses. This is in response to decreasing opportunities to increase the tax base through residential development, as demonstrated by the results of this research. Further guidance material for what is and is not agriculturally related may be helpful as municipalities explore this area. Adaptability, flexibility and the permanence of proposed developments will be key guiding criteria as municipalities switch from a residential- to an agricultural-development mindset. For example, municipalities may seek to support a diversity of agricultural related uses such as wineries, small packing plants, and locally-oriented storage and retail facilities. Though OMAFRA's current Guide to Lot Creation in Prime Agricultural Areas (OMAFRA, 2008b) does provide useful considerations for appropriate uses, it does not provide considerations for assessing the viability of proposed agricultural related uses that might require new lots, particularly in relation to appropriate lot size⁸.

5.2.1.3 Rural Areas

The province is strongly involved in defining what an agricultural or rural area is, and consequently, the province influences where residential development is or is not encouraged. The results of this research indicate improved protection of agricultural lands in Agricultural

easements could provide tax benefits to farm landowners under the Ministry of Natural Resources eco-gifts program. The Kawartha Heritage Conservancy and the Ontario Farmland Trust recently released a factsheet on current tax benefits of farmland conservation easements for land, available online (Kawartha, 2009).

⁸ Tools for assessing the viability of innovative farm uses that might require smaller lots would be helpful to municipalities. Additional tools for assessing the impact of agriculture in municipalities have been developed and implemented across Ontario (OFA, 2009). From a land use planning perspective, the BC Ministry of Agriculture and Lands has published a number of supporting documents for municipalities creating agricultural development plans at the municipal level (BCMAL, 2008).

designations. It does not prove in any way that farms in Rural designations are better protected from residential development. This is especially important in areas which do not have a high degree of Class 1, 2, and 3 soils, but are still committed to protecting the best locally-available farmlands.

The Provincial Policy Statement (PPS) defines rural areas as those which are not in a prime agricultural area and not in a settlement area. This leaves the definition of 'rural' notably ambiguous, compared to the definitions of agricultural and settlement areas. As such, it is somewhat unclear what the PPS means when it states that development must be "compatible with the rural landscape" in Section 1.1.4.1(d). This leaves interpretation of 'rural landscape' up to the municipality.

The PPS permits 'limited development' in rural areas in Section 1.1.4.1(a). This Section allows many municipalities to continue scattered residential development in Rural designations. This impacts existing farm operations in the Rural and neighboring Agricultural designations. Clarification could be added in Section 1.1.4.1(d) of the rural area policies in the PPS to promote development that is compatible with the multifunctional role of natural and agricultural features in rural landscapes. The PPS may also need to be revised to clarify what 'limited development' means in Section 1.1.4.1(a). Does limited mean one or two severances per year, or does it mean fifty?

5.2.2 Broader policy implications for rural development

5.2.2.1 Intensification in rural areas

Research results indicate that the proportion of severances in agricultural areas has been decreasing during the period 1990-2009. This may indicate that more development is being directed to rural settlement areas, which aligns well with current PPS policies. The PPS

contains policies that promote compact and mixed use development (1.1.3.2, 1.1.3.4). These policies require intensification and redevelopment in settlement areas to be in accordance with Sections 2 and 3 (1.1.3.3). Yet housing needs in rural and urban areas are divergent, and may require additional clarification as to appropriate residential development forms within rural settlement areas.

One illustration of these divergent housing needs is illustrated in the Statistics Canada Metropolitan Influence Zones (MIZ). Statistics Canada has determined that rural areas could be considered in three classes of Metropolitan Influence: Strong, Weak, and No Influence. These classes are based on the proportion of residents who commute to work in a nearby urban area. A strong MIZ is strongly influenced by commuters who work in the city. Strongly influenced areas tend to have higher average incomes, health indicators, and education (McNiven et al., 2000). In comparison, Weak- or No Influence MIZs tend to have lower average incomes and experience greater pressure for affordable housing and support for aging populations. As such, the development pressures and appropriate development forms in each of the MIZs are very different (McNiven et al., 2000). This may need to be reflected in future policy reviews.

5.2.2.2 Settlement area expansions

Expansion of settlement areas is a natural consequence of directing more growth to settlement areas, as is suggested by the decreasing proportion of severances in agricultural designations. Many rural municipalities already have surplus land designated for residential growth. However, when settlement area expansions are proposed, they increase development pressure and fragmentation in nearby agricultural landscapes. The PPS states the following regarding expansion of settlement areas:

1.1.3.9 A planning authority may identify a settlement area or allow the expansion of a settlement area boundary only at the time of a comprehensive review and only where it has been demonstrated that:

- a. sufficient opportunities for growth are not available through intensification, redevelopment and designated growth areas to accommodate the projected needs over the identified planning horizon;*
- b. the infrastructure and public service facilities which are planned or available are suitable for the development over the long term and protect public health and safety;*
- c. in prime agricultural areas:*
 - 1. the lands do not comprise specialty crop areas;*
 - 2. there are no reasonable alternatives which avoid prime agricultural areas; and*
 - 3. there are no reasonable alternatives on lower priority agricultural lands in prime agricultural areas; and*
- d. impacts from new or expanding settlement areas on agricultural operations which are adjacent or close to the settlement area are mitigated to the extent feasible.*

The words ‘reasonable alternatives’ and ‘to the extent feasible’ in Section 1.1.3.9 give planning authorities considerable discretion when faced with expanding a settlement area boundary onto prime agricultural land. While the policy is geared toward guiding residential development away from prime agricultural land, Section 1.1.3.9 does not fully prevent residential development. Some municipalities do not have ‘reasonable alternatives’ for siting settlement area expansions because they are surrounded by prime agricultural areas.

Section 1.1.4.1 of the PPS also strongly supports the restriction of residential development in rural areas in order to promote agricultural development.

- 1.1.3.2 Land use patterns within settlement areas shall be based on:*
- a) densities and a mix of land uses which:*
 - 1. efficiently use land and resources;*
 - 2. are appropriate for, and efficiently use, the infrastructure and public service facilities which are planned or available, and avoid the need for their unjustified and/or uneconomical expansion; and*
 - 3. minimize negative impacts to air quality and climate change, and promote energy efficiency in accordance with policy 1.8*

Rural and agricultural areas are typically the designation into which settlement areas would be expanding. Section 1.1.4.1 requires that permitted uses in rural areas be resource-based (which would include farmland resources). This section requires appropriate separation

between incompatible land uses, (1.1.4.1 (b,f)), and the designation and protection of local agricultural resources (1.1.4.1 (e)). Within this section, it may be prudent to highlight the importance of urban fringe areas for larger scale agricultural developments, as explained in the following paragraph.

Given the increasing global and local demand for agricultural land and its relative scarcity, as discussed in the literature review, settlement areas should not be expanding unless it is to serve the needs of surrounding agricultural industries. The edges of settlement areas are increasingly important for new large-scale agriculture-related industrial and commercial uses that require full or partial services and cannot be located on-farm. Such uses include organic waste processing, biogas collection, biofuel production, grain mills, food processing plants, markets and auctions, and abattoirs. These uses create employment for those living in the settlement area, but must be located an appropriate distance from residential development. Expanding residential development in such an area would actually reduce the serviced area available for large scale agricultural related uses, while introducing much higher risks for conflicts between residential and agricultural development. Introducing new residential uses in such areas would contradict Section 1.1.3.2 (a).

Section 1.1.3.9 (c) of the PPS could also apply threshold values to inform allocation of settlement area expansions. These threshold values could be based on the Land Evaluation and Area Review (LEAR) process that quantifies the long-term value of prime agricultural areas to the province. If the LEAR process identifies high capacity lands above a certain threshold value, the settlement expansion would not be permitted and would be directed to another settlement area.

5.2.2.3 Capacity building for planners, farmers and municipalities

Beyond provincial policy, this research identifies several capacity building opportunities within and between municipalities. For example, in many municipalities, a pre-screening process for severance applications proved to be effective in lowering costs to applicants and municipalities. Yet some municipalities still do not use a prescreening process.

Another area for improvement is the methods used by municipalities to consistently track and report on severance information. Such a method would assist municipal staff in updating new committee members on past trends and maintaining quick reference material for comparison to other municipalities. If municipalities used consistent methods across the province, it would streamline data collection for future PPS reviews. Currently, Municipal Performance Measures track the number of building permits granted beyond settlement areas, but within the MPM survey, none of the land use questions distinguish whether or not severances or building permits occurred in Agricultural designations.

Where possible, it may also be advisable for lower tier municipalities to form cost-sharing agreements with upper tiers for updating the parcel fabric with severance information using Geographic Information Systems (GIS). This allows for more accurate decisions based on landscape level characteristics and visual illustration of existing cumulative residential development in proximity to proposed new lots. A similar effect is currently achieved by municipalities that examine property survey information as part of the application package. However, survey information is often not available at landscape scales for small municipalities on tight budgets, which negates the possibility of considering cumulative impacts of new residential lots.

GIS mapping of severance information has proven useful for several municipalities in this study (e.g. Prescott Russell, Renfrew, Hamilton and Huron, which all have updated GIS parcel fabrics). Municipalities can use GIS to:

- Automatically generate biogeographical information as it relates to individual and group parcels.
- Inform decision makers by overlaying policy layers and associated policies with a spatial representation of environmental gradients and the parcel fabric (for example, overlay soil classes with zoning to understand agricultural capacity and related policy).
- Link planning reports and census data to create interactive reports about parcel clusters and inform cumulative, landscape-level thinking.
- Generate cost- and information-sharing platforms between provincial and municipal agencies.

A second capacity issue is that, as revealed in the research, the 2005 PPS changes impacted residential lot creation in agricultural designations more than other types of severances. A number of municipalities with small budgets and only one (or no) planning staff experienced spikes in application numbers before the 1996 and 2005 PPS revisions. This may be unavoidable, but additional capacity is needed by staff in these periods to accommodate the disproportionate impacts on small rural municipalities attempting to cope with application overload before policy changes. These same municipalities are also hard pressed to find the funding capacity for Official Plan amendments that incorporate PPS changes, and are thus vulnerable to OMB cases that devastate small municipal budgets and divide communities. Additional capacity is needed in these small rural departments. This could take the form of staff time or other support from the province to compensate for additional costs to municipalities when policies are changed.

Support materials should be developed for land use planners to educate new and retiring farmers about succession strategies and alternative land ownership models such as long-term leases (particularly those above 21 years, which require a consent). These ownership models would help to keep agricultural land in production and encourage farm investment while

maintaining a parcel fabric free of residential lot boundaries, associated land-price increases and other limitations to agriculture. There will be increasing pressure for models that make land affordable for new farmers as up to half of Ontario's baby boomer farmers seek to retire and sell the farm in the next 15 years (Learmonth, 2011). If the lands are purchased by developers or other non-farm interests, land prices will continue to increase beyond the point where new farmers can enter the industry, particularly close to processing clusters and markets in urban centres (Learmonth, 2011). This trend is already observable in the GGH (Bunce and Maurer, 2005).

A number of alternative models to farm ownership exist that may help to address the challenge of sustainable succession planning in agricultural landscapes. Farmland trusts have developed further materials indicating success in a number of these models (Ruhf et al., 2004; Learmonth, 2011; Gorsuch, 2009). Ideas for land ownership models that could be further promoted by land use planners include:

- Farmers pooling investments or buying shares to cooperatively manage land
- Leasing agreements between farmers and municipal or institutional landowners and conservation authorities⁹
- Retiring landowner and new farmer partnerships (e.g. 'Sweat equity' - work in exchange for a lower up front purchase price)
- Land trust purchase of land and resale or lease to new farmers

⁹ One example is the emphyteutic lease concept. An emphyteusis lessee gains the full use and benefit of the leased real property, on condition that the lessee does not substantially compromise the real property and alters it only by adding constructions, works or plantings that increase its value in a lasting manner. Although this tool is used principally in connection with large condominium and commercial projects of between 10 and 100 years, it has a history in Quebec civil law of being used to encourage cultivation of rural lands. In *Reitman v. Minister of National Revenue* (1967 CTC 368), the Canadian tax court noted the advantages of an emphyteusis lessee compared to a tenant under a commercial lease at common law.

Chapter 6: Conclusions and Further Research

There is a gap between provincial policies outlined in the PPS and the ongoing destruction of valuable agricultural land through residential lot creation in the countryside. However, the results of this research demonstrate that current restrictions on new residential lot creation are closing that gap. In addition to the detailed policy implications discussed in Chapter 5, this research demonstrates the importance of making informed policy choices based on an understanding of cumulative lot creation trends. If severance applications are considered on a case-by-case basis, the benefits of each lot may seem to outweigh the costs of residential development. Yet this research supports the argument that cumulative residential development in agricultural designations does pose a risk to the viability of many agricultural operations. New lot creation should therefore be considered at a landscape level, not only on a case-by-case basis. This leads to support for policies that encourage landscape-level planning policies and decision making structures. It also supports policies that acknowledge the need for rural municipalities to benefit from agricultural development, as residential development and larger industrial uses are increasingly directed to existing settlement areas.

The National Academy of Science (2010, p.222) states that, "Beyond the boundary of a farm, many elements of sustainability, such as product and market diversity and resilience, water resource quality and use, elements of ecosystem health, and community well-being, are highly influenced at landscape, watershed, and regional scales. Sustainability, thus, suggests and requires in most instances an appropriate mix and location of farming system types ... at the landscape level." In a similar way, managing residential lot creation requires addressing the collective lot creation trends of multiple applicants at a landscape level.

Each application for the division (or consolidation) of land should be understood as a renegotiation of public and private interests with significance at a larger landscape scale. This

renegotiation occurs between an individual, the local community, and the broader provincial interests in viable agricultural landscapes. The PPS has effectively influenced Official Plans and zoning by-laws to set a minimum level of protection of the provincial interest in prime agricultural areas. The lot creation process could be improved through refinements to the existing PPS, as discussed in detail in Section 5.2. Beyond changes to the PPS, the effectiveness and efficiency of the severance process could be further improved by continuing to restructure local, regional and provincial interests in agricultural land with appropriate levels of decision making at local, regional or provincial levels. This would have positive effects in allowing local municipalities to pursue agricultural and residential development forms that reflect the landscape in question, while ensuring that provincial interests remain protected.

Beyond the policy minimum, planners can play an active role in improving information storage, GIS capacity, and farm succession knowledge to ensure viable agricultural landscapes. The need for proactive capacity building for farmers and planners is at least as important as the need for policy reform.

Landscape or regional-level planning for agriculture is an efficient approach because it encourages collaboration across municipal boundaries, building on inter-agency strengths through collaboration with Conservation Authorities, Provincial Parks and Land Trusts. The technical elements of a landscape approach to land division are increasingly possible through the use of GIS, as described earlier¹⁰. This landscape-ecology informed approach to land division policy would also reduce application fees and staff time spent on convoluted applications by clarifying priorities and introducing area-specific policies that match the types of farm operations likely to occur in certain regions (e.g. cash crops, wineries, grazing beef, poultry and dairy, horticultural crops, and forest products).

¹⁰ There are notable limits to GIS, including costs, information storage limits, and interpretation of geographic trends which may or may not be linked.

Examples of landscape-level decision making structures already exist in Ontario. The Niagara Escarpment Commission is an example of a bioregional body with consent granting authority. The Oak Ridges Moraine and Greenbelt also exemplify provincial plans protecting agricultural lands overlaying consent granting authority at local levels. Similar bioregional scales are being developed through the *Clean Water Act* (2006) in the creation of Source Water Protection committees, and in the protection of Specialty Crop Areas.

The current land division structure in Ontario, inherited from a colonial government not informed by modern ecological and economic realities, has resulted in long-standing ambiguities in provincial priorities for residential and agricultural development. This ambiguity continues to facilitate destructive residential and extractive activities in prime agricultural areas. The provincially-led planning approach to identifying and protecting prime agricultural areas at the landscape scale is an important progression towards addressing the gap between private property interests and public values. It is also a progression towards a spatial planning approach (as opposed to a land use planning approach). Spatial planning uses multiple overlapping plans informed by local ecologies to address the multiple roles that landscapes play in the imaginations of diverse communities.

This research strives to illustrate key issues within planning policies for lot creation in agricultural designations. Based on the effectiveness of new lot restrictions in the 2005 PPS, it is apparent that continued planning reform is a valuable approach to ensuring sustainable use of prime agricultural lands. At the same time, more capacity building is required from the province to municipalities, and municipal staff to farmers, if policy reforms are to be implemented in ways that engage communities in defining visions for sustainable agricultural landscapes.

6.1 Further research

6.1.1 Additional applications for research data on lot creation from 1990-2009

This research provides a comprehensive, multi-layered, verified data set for use by researchers and policy makers. The data collected could be applied in a number of useful ways that were not possible in the current research due to time and funding constraints. The data prepared in this research could be used alongside other data sets and time series to determine how severance trends in specific municipalities correlate with various factors.

The Ministry of Natural Resources maintains the Land Information Ontario database, which is used by researchers and public servants to access spatial data files that are used in GIS applications. The data from this study could be integrated with the Land Information Ontario database to make it easier for municipalities to access the data in a GIS format.

Further spatial analysis in GIS could be used to better understand landscape patterns and severance trends as they relate to a number of factors. These factors are noted in the following list of data sets that could be mapped alongside the data gathered in this research. Each proposed data set is listed along with the questions that spatial analysis of the data set would address:

- Number and type of severances permitted within zoning by-law boundaries, addressing the question of whether zoning has an impact on severance activity
- Proximity of severances to urban areas, addressing the question of whether more severances are permitted closer to urban areas
- Presence or absence of large industrial developments, addressing the question of whether new jobs generate new real estate pressures and encourage population growth

- Livestock concentration and other commodities, addressing the question of whether different livestock types and concentration affect severance activity in certain areas
- Growth of non-farm population, or increases in the percentage of rural population as measured by the Census, addressing the question of whether more severances means more population growth, while distinguishing rural population growth from related urban trends
- Changes to the number, type and distribution of agricultural services, addressing the question of whether increased fragmentation leads to decreased agricultural services in an area
- Different severance trends in Municipal Influence Zones (using data available at the lower tier level), addressing the question of how commuting patterns impact severance activity
- Distribution of severance activity within GGH Greenbelt Plan and Places to Grow Plan areas, addressing the question of how these broad provincial policies specifically impact severance activity in the plan areas, as compared to the rest of the province

6.1.2 Further research questions

This research has raised a number of additional questions that would require more data collection and interviews. Further research questions could be addressed in a similar way, with graduate students working on long term funding contracts, or in a more collaborative way between universities, municipalities and provincial ministries.

Research results indicate that many municipalities continue to permit surplus dwelling severances. However, there is no comprehensive survey of the approaches municipalities have used to prevent residential development on the remnant parcel of farmland (which remains in

production after a surplus dwelling severance). Interviews with planners identified a number of interesting approaches, including zoning by-laws and special agricultural zones, the use of notes on title, revised Official Plan designations, and in one case the proposed use of a conservation easement. However, some of these approaches may work better than others. Further research could use interviews with planners to determine which approaches have been used and how they have worked over a period of years or decades.

As observed in this research, some municipalities continue to permit scattered residential development. In some cases, municipal leaders justify this form of development by claiming that it helps the municipality maintain or grow its population. However, there is no evidence that rural severances generally attract new people to the community. There could equally be a trend for existing members of the community to move from town into a larger lot in the country. This raises the question of demographics in residential areas created through severance activity. What are the demographics of groups attracted to living in surplus dwelling severances? What ages, ethnicities, or occupations predominate in different rural zones? Do these severances attract new population, growing families, retirees returning to old stomping grounds, or local residents? What are the social impacts of surplus dwelling severances, particularly with respect to the representation of agricultural interests at the municipal level?

This research outlines a specific method for measuring fragmentation of agricultural landscapes in Ontario. How does this measure compare to other measures of fragmentation used in planning, ecology and other disciplines? Although this measure of fragmentation also offers an approximation of farmland loss, a more comprehensive measure of farmland loss remains to be developed. This could draw from multiple existing information sources such as the Municipal Performance Measures land use questions, the Census of Agriculture, the Canada Land Inventory, remote sensing applications such as the Southern Ontario Land Resource

Information System (SOLRIS), and updated Municipal Property Assessment Corporation (MPAC) parcel fabric information.

This research indicates that farm consolidation continues, and farms are continuing to grow larger in size. It may not seem that there is any great need to consider what a minimum viable farm size would be, but the reality is that some new farmers or farmers who are attempting to innovate may require a smaller land base in order to afford start-up costs. If these opportunities are not available, the agricultural industry becomes homogenized and vulnerable to economic or environmental shocks. The need for a diverse mix of farm sizes and types leads to the question of whether restricting lot size is an appropriate approach to moderating impacts of non-farm development. This research demonstrates that there are effective ways to restrict non-farm development through specific limits set in the PPS. Perhaps it is therefore not as crucial to focus on viable farm size, but rather focus on permitting viable farm types and intensities. This does not mean that new small lots should be created in the countryside, as these will eventually be purchased by non-farm interests. Rather, further research could identify legal mechanisms that permit farmers long-term rights to operating specific parcels of land that might be smaller than the typical 100 or 200 acre parcel. Further economic research could also identify tools to be used for assessing the economic viability of innovative, untested farm business models.

This research demonstrates that PPS restrictions on residential lot-creation in agricultural designations have been effective. However, there is no evidence that this is an efficient or equitable approach to preventing fragmentation of agricultural landscapes. Further research could identify the economic impacts of restricting non-farm lot creation, particularly in terms of who receives the benefits and who pays the costs. A particular cost that is important to consider is time and effort invested in cases at the Ontario Municipal Board or the Farm

Practices Protection tribunal. If municipalities or private landowners pay more for the preservation of agricultural land than urbanites, are there opportunities for economic reform? For example, some consumers are willing to pay more for local food. Part of the additional cost could be considered to be a payment for rural amenities and preservation of agricultural land nearby. At the municipal level, there may be opportunities for tax reform in which MPAC adjusts rural non-farm residential taxes to include the higher costs of maintaining rural roads and services for residential use.

This research demonstrates the ability of the province to effectively focus policies on specific geographic areas (in this case, prime agricultural areas). However, the PPS also provides municipalities with considerable discretion in interpreting some policies, such as what 'limited development' means in Rural designations, and what 'agricultural related uses' are in Agricultural designations. It may be useful for the province to actively map the areas it considers to be prime agricultural areas, based on the CLI and additional LEAR type analysis. Further research would be required to determine the feasibility of such a mapping exercise, and its usefulness. This type of agricultural resource mapping may be a useful resource for the province in determining appropriate variations to lot creation policies in municipalities with different agricultural sectors and agroclimatic resource capacities. Further research could overlay existing municipal policies with the map of prime agricultural areas identified by the province. This overlay would compare how similar lands are being treated differently in various municipalities (or vice versa, how different lands, such as non-prime lands, are being treated the same as prime lands). This further research could reveal whether municipalities continue to apply restrictions in prime agricultural areas, or whether exceptions are made for severances on patches of lower quality soil (for example, until recently, severances on low quality soil were permitted in Ottawa).

One of the underlying assumptions of this research is that scattered residential development is more costly to service than more compact forms of development. This assumption is based on numerous studies of Costs of Community Services carried out in the United States. However, only two such studies have been carried out in Canada. Additional studies in Ontario would help to strengthen this assumption. Ontario municipalities operate in a fiscal context that bases services on a unique mix of property taxes, federal or provincial grants (often conditional), development charges, user fees, private servicing requirements and occasionally other grants. As such, the servicing costs and tax impacts of residential development may compare differently in Ontario as in other jurisdictions.

Many municipal councilors would find it interesting to know the relative costs of servicing various land uses, and the corresponding revenue generated. Thus it would be useful to conduct a number of case studies in Ontario focused on costs of community services. The results of these case studies could be correlated with severance trends recorded in the current research, allowing municipalities to connect higher or lower levels of fragmentation with higher or lower cost/benefit ratios.

Finally, this research identified considerable opportunities for capacity building in municipalities, and a strong need for knowledge transfer and translation of the current research results. Further research could identify what factors most influence consent granting authorities and committee members, and what types of information and research formats would be most desirable to these decision makers. This research could be carried out in partnership with the Ontario Association of Committees of Adjustment, the Association of Municipalities of Ontario, or the Ontario Professional Planners Institute. One example of a potential outcome of this capacity building work is a template summary sheet that could be introduced to municipal staff (e.g. secretary treasurers) during training courses. Staff could then track and report on

cumulative severance activity and trends in the municipality. This would further inform committee members considering cumulative impacts. It would also ensure a consistent format across the province for streamlined data collection in future studies.

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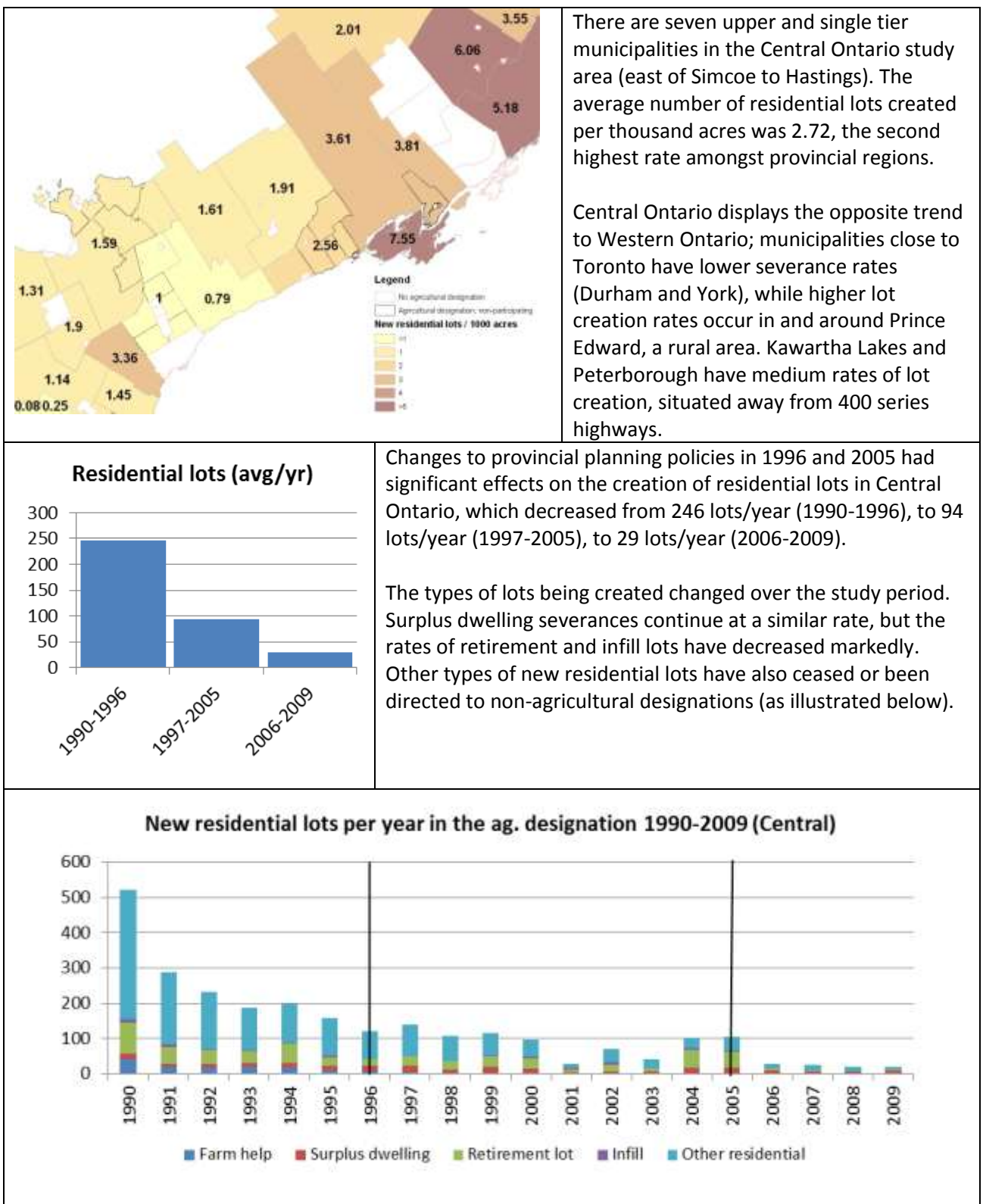
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Appendices

8.1 Appendix A: Central Ontario



Policy context and severance trends

The 2006 Census counted 8,705 farms in Central Ontario, down 3% from 2001. Average farm size has remained steady at 221 acres in 2001 and 2006. Central Ontario accounts for 15% of all farms in Ontario and 14% of the farmland operated.

Farm receipts for the region total \$746.6 million. The top three commodities in Central Ontario are dairy (\$150.4 million), floriculture, nursery, and sod (\$104.4 million) and soybeans (\$71.8 million). From 1990-2009, 3,200 out of 21,239 severance applications created new lots in agricultural designations in Central Ontario (an average of 15%/yr). Agricultural lot creation tends to comprise a slightly lower proportion of overall lots in Central Ontario.

Throughout the study period, the majority of severances in the agricultural designation created residential lots. Essex, Chatham-Kent and Niagara are three of only five municipalities in the province to have created more than 1,000 residential lots over the study period. The total number of farm splits in Southern Ontario is also the highest among regions. It is important to note that data for Brant is for one decade only (2000-2009) and that is why it appears lower than other municipalities where data is totaled for 1990-2009. A greater proportion of non-residential development was related to farm commercial and industrial uses compared to Central and Eastern Ontario.

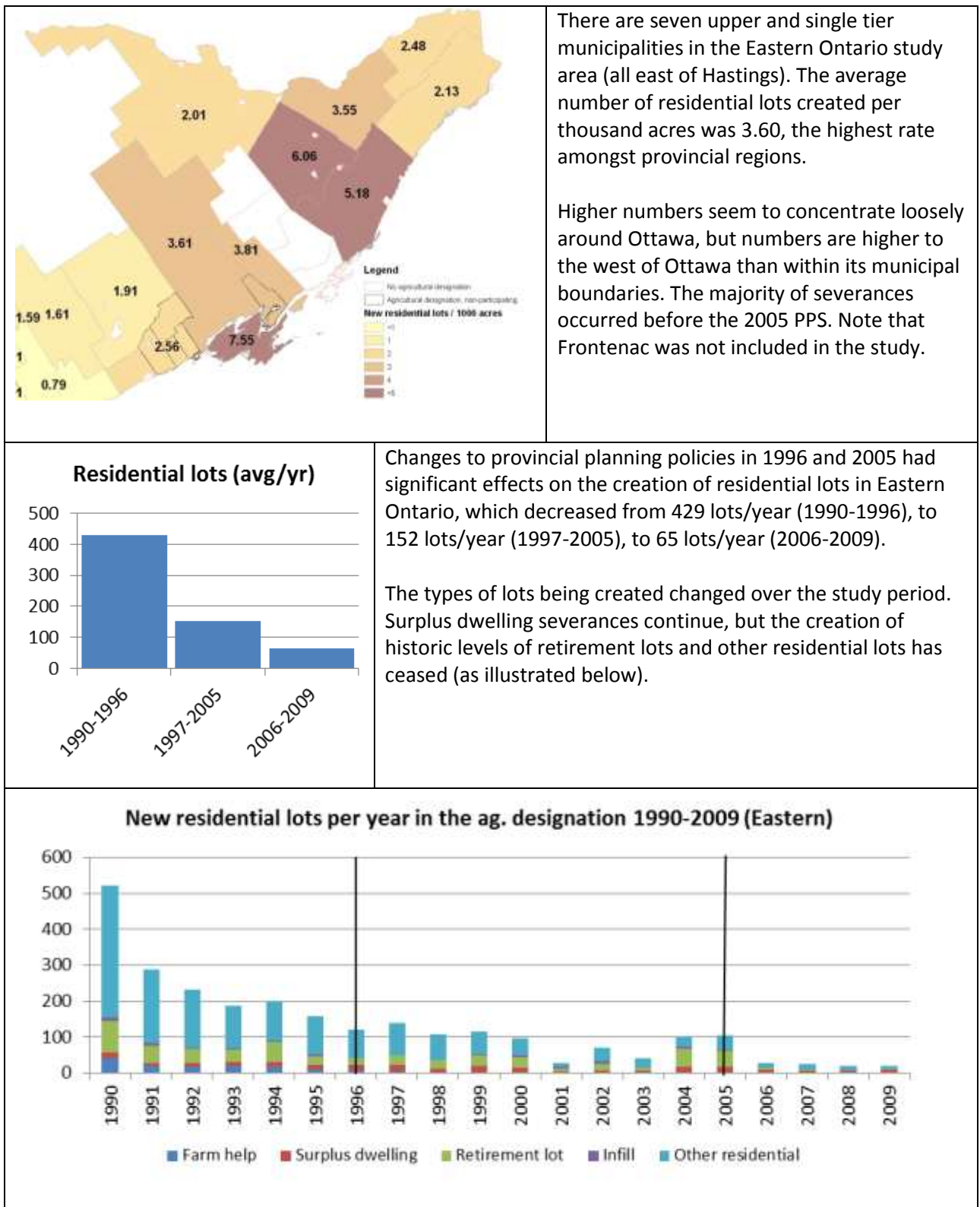
Central Ontario summary numbers by municipality (1990-2009)

Municipal name	Total severance applications	Total new lots in Ag. Designation	% ag. out of total	New residen'l lots	New farm splits	Other Non-residen'l	Residen'l Ratio /1000a
Durham	3663	272	8%	219	38	15	0.79
York	1704	131	8%	95	35	1	1.00
Kawartha_Lakes	2568	620	21%	530	68	22	1.61
Peterborough	3771	400	10%	263	77	38	1.91
Northumberland	2099	507	18%	458	46	3	2.56
Hastings	4586	489	9%	416	40	32	3.61
Prince_Edward	2848	781	27%	676	78	29	7.55
Totals/averages	21239	3200	15%	2657	382	140	2.72

Notes for data interpretation

Each municipality in Central Ontario has special notes that explain exceptions, any missing files, and other general notes for data interpretation. Please see individual municipal profiles for specific notes.

8.2 Appendix B: Eastern Ontario



Policy context and severance trends

The 2006 Census counted 8,864 farms in Eastern Ontario, down 5% from 2001. Average farm size has increased from 265 acres (2001) to 271 acres (2006). Eastern Ontario accounts for 15% of all farms in Ontario and 15% of the farmland operated.

Farm receipts for the region total \$995.4 million. The top three commodities in Eastern Ontario are dairy (\$449.9 million), soybeans (\$103.3 million) and corn (\$102.2 million). From 1990-2009, 5,738 out of 30,011 severance applications created new lots in agricultural designations (an average of 20%/yr).

Throughout the study period, the majority of severances in the agricultural designation created residential lots. Stormont, Dundas and Glengarry and Leeds and Grenville are two out of only five municipalities in the province to create more than 1,000 residential lots over the study period. The number of non-residential lots created is high in Eastern Ontario, with bush lots and recreational uses being popular in this region, mixed with some new agricultural commercial and industrial lots. Although Lanark appears as the highest municipality, this is due primarily to severances created before 1996, and concentrated over a relatively smaller amount of agricultural land (a trend which is common across the province, but especially pronounced in Lanark).

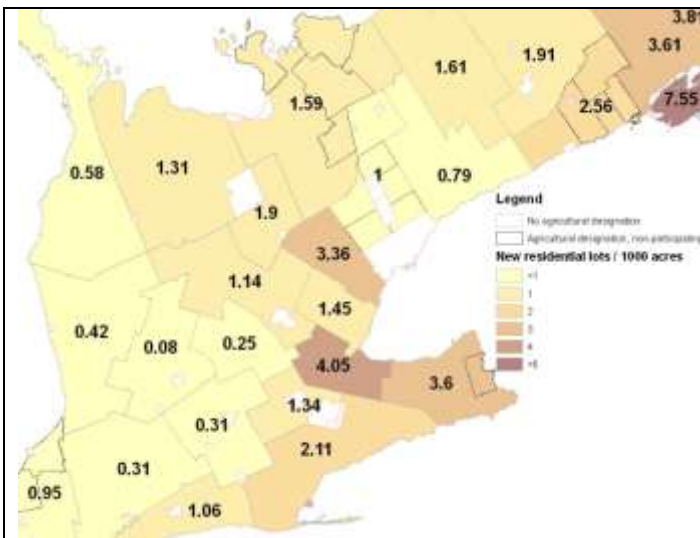
Eastern Ontario summary numbers by municipality (1990-2009)

Municipal name	Total severance applications	Total new lots in Ag. Designation	% ag. out of total	New residen'l lots	New farm splits	Other Non-residen'l	Residen 'l Ratio /1000a
Renfrew	5322	594	10%	186	184	224	2.01
Storm_Dund_Glen.	5207	1411	26%	1141	152	82	2.13
Prescott_Russell	4903	824	16%	712	104	8	2.48
Ottawa	2396	910	37%	837	56	17	3.55
Lennox_Addington	1396	286	23%	262	24	0	3.81
Leeds_Grenville	6144	1013	14%	892	75	42	5.18
Lanark	4643	700	13%	591	78	31	6.06
Totals/averages	30011	5738	20%	4621	673	404	3.60

Notes for data interpretation

Each municipality in Southern Ontario has special notes that explain exceptions, any missing files, and other general notes for data interpretation. Please see individual municipal profiles for specific notes.

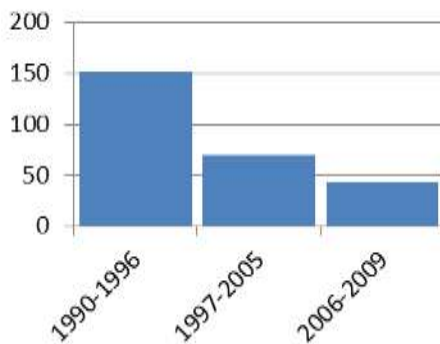
8.3 Appendix C: Western Ontario



There are ten upper tier and single tier municipalities in the Western Ontario study area (listed next page). The average number of residential lots created per thousand acres is 1.21, the lowest ratio in the province.

In proximity to Toronto, Peel, Halton are the highest ratios. Severances in the rest of Western Ontario decrease considerably further away. The far West may be low because there are no large urban centres and a high concentration of livestock.

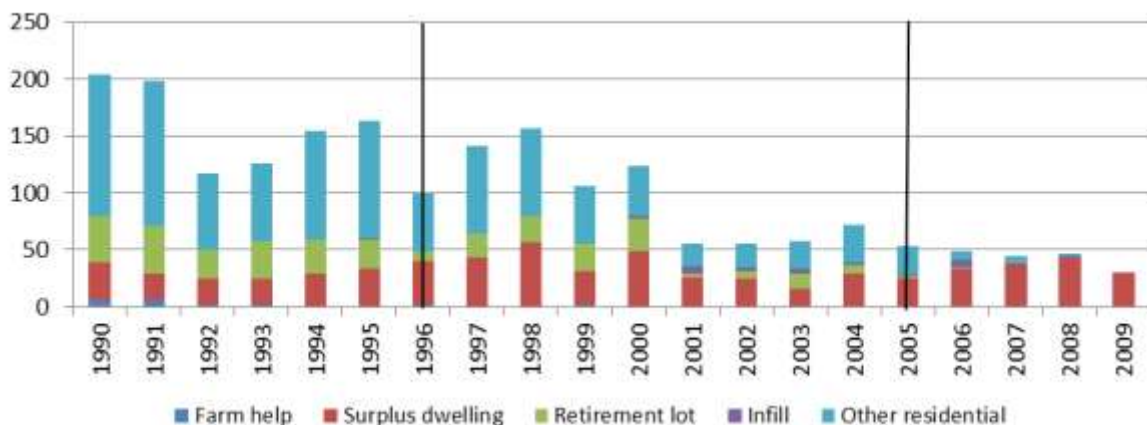
Residential lots (avg/yr)



Changes to provincial planning policies in 1996 had a significant effect on the creation of residential lots in Western Ontario, but changes in 2005 had minimal effects (less than 25% change). Residential lot creation per year decreased from 151 lots/year (1990-1996), to 70 lots/year (1997-2005), to 44 lots/year (2006-2009).

The types of lots being created changed over the study period. Surplus dwelling severances continue, but the creation of historic levels of retirement lots and other residential lots has ceased (as illustrated below).

New residential lots per year in the ag. designation 1990-2009 (Western)



Policy context and severance trends

The 2006 Census counted 18,498 farms in Western Ontario, down 4% from 2001. Average farm size has increased from 212 acres (2001) to 217.5 acres (2006). Western Ontario accounts for 32% of all farms in Ontario and 30% of the farmland operated. Farm receipts for the region total \$3.32 billion. The top three commodities in Western Ontario are dairy (\$677.7 million), cattle and calves (\$598.7 million) and hogs (\$382.7 million).

From 1990-2009, 3,130 out of 19,229 severance applications created new lots in agricultural designations in Western Ontario (an average of 18%/yr).

Throughout the study period, the majority of severances in the agricultural designation created residential lots. However, both Perth and Grey created more farm splits than residential lots, which is unusual in the province. The number of other non-residential lots is also higher than other regions for Perth, Huron, Bruce, and Wellington. The magnitude of residential lots is notably lower than other regions (except for Wellington). Although Peel permitted fewer lots than some other municipalities, its ratio is higher because of the relatively smaller amount of agriculturally designated land.

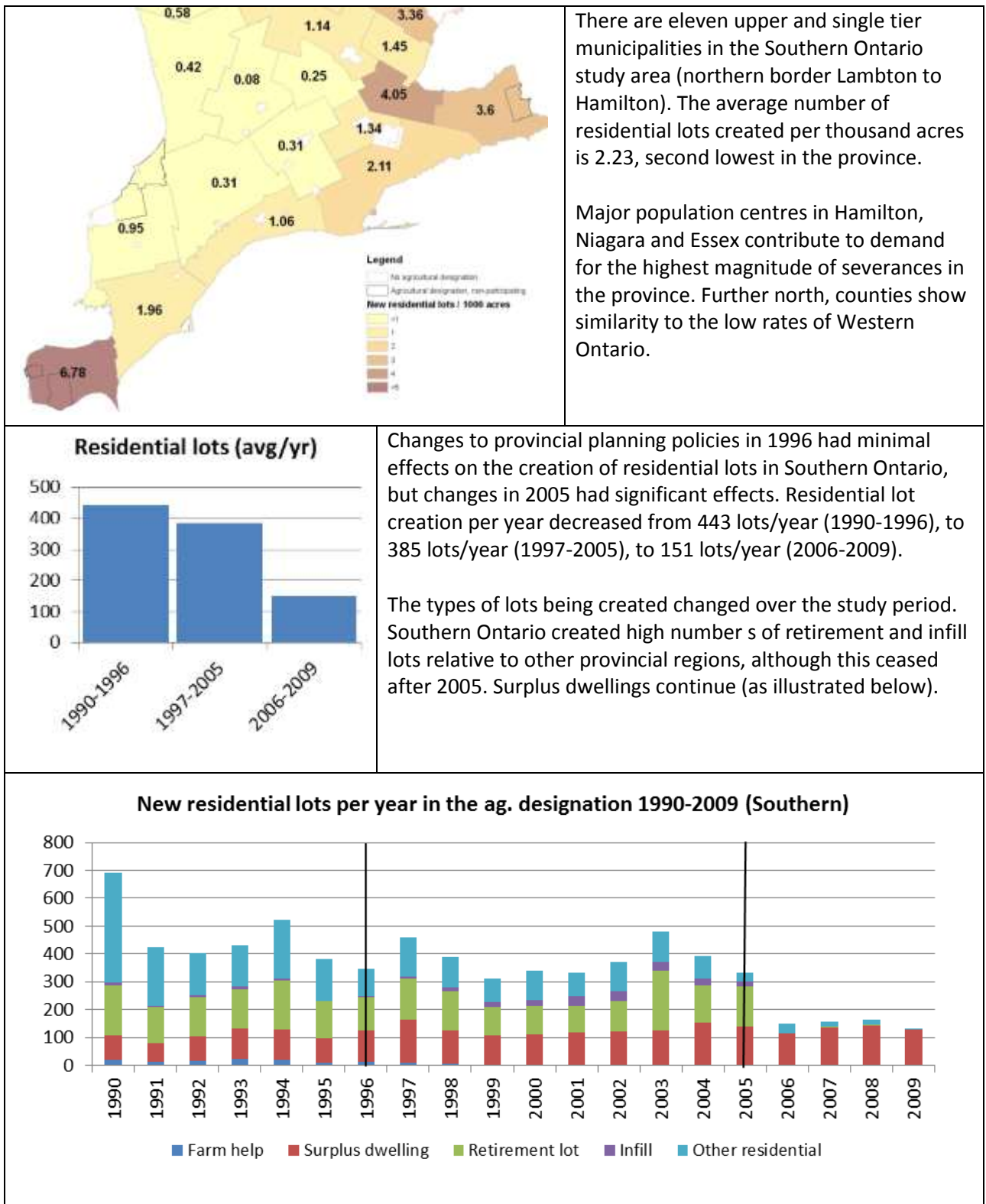
Western Ontario summary numbers by municipality (1990-2009)

Municipal name	Total severance applications	Total new lots in Ag. Designation	% ag. out of total	New residen'l lots	New farm splits	Other Non-residen'l	Residen'l Ratio /1000a
Perth	1037	223	19%	41	148	34	0.08
Waterloo	3608	97	3%	58	31	8	0.25
Huron	1781	601	34%	270	102	26	0.42
Bruce	3047	590	21%	315	211	64	0.58
Wellington	4089	655	15%	473	150	32	1.14
Grey	2119	159	9%	19	144	11	1.31
Halton	1370	75	5%	64	8	3	1.45
Simcoe	NA	NA	NA	NA	NA	NA	1.59
Dufferin	1138	484	39%	421	55	8	1.90
Peel	1040	246	18%	208	35	3	3.36
Totals/averages	19229	3130	18%	1869	884	189	1.21

Notes for data interpretation

Each municipality in Western Ontario has special notes that explain exceptions, any missing files, and other general notes for data interpretation. Please see individual municipal profiles for specific notes.

8.4 Appendix D: Southern Ontario



Policy context and severance trends

The 2006 Census counted 18,665 farms in Southern Ontario, down 5% from 2001. Average farm size has increased from 203 acres (2001) to 211 acres (2006). Southern Ontario accounts for 33% of all farms in Ontario and 30% of the farmland operated. Farm receipts for the region total \$4.53 billion. The top three commodities in Southern Ontario are soybeans (\$610.0 million), floriculture, nursery, and sod (\$573.3 million) and greenhouse vegetables (\$519.2 million).

From 1990-2009, 8,357 out of 36,880 severance applications created new lots in agricultural designations in Southern Ontario (an average of 23%/yr). Chatham-Kent has the highest proportion of lots in the agricultural designation in the province at 52%.

Throughout the study period, the majority of severances in the agricultural designation created residential lots. Essex, Chatham-Kent and Niagara are three of only five municipalities in the province to have created more than 1,000 residential lots over the study period. The total number of farm splits in Southern Ontario is also the highest among regions. It is important to note that data for Brant is for one decade only (2000-2009) and that is why it appears lower than other municipalities where data is totalled for 1990-2009.

Southern Ontario summary numbers by municipality (1990-2009)

Municipal name	Total severance applications	Total new lots in Ag. Designation	% ag. out of total	New residen'l lots	New farm splits	Other Non-residen'l	Residen'l Ratio /1000a
Middlesex	1350	162	12%	128	79	7	0.31
Oxford	2668	287	11%	136	134	16	0.31
Lambton	1891	575	33%	413	135	27	0.95
Elgin	2881	484	19%	430	47	7	1.06
Haldimand	2218	337	15%	330	5	2	1.18
Brant	858	154	18%	122	17	15	1.34
Chatham_Kent	2832	1429	52%	1144	260	25	1.96
Norfolk	3421	876	28%	865	11	0	3.04
Niagara	7957	1151	13%	1030	81	40	3.60
Hamilton	3639	541	15%	561	60	15	4.05
Essex	7165	2361	34%	2068	278	15	6.78
Totals/averages	36880	8357	23%	7227	1107	169	2.23

Notes for data interpretation

Each municipality in Southern Ontario has special notes that explain exceptions, any missing files, and other general notes for data interpretation. Please see individual municipal profiles for specific notes.

Note that additional upper/single tier profiles are available in a separate document at

www.waynecaldwell.ca