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The Battle Over Our Land: Urbanization versus Farmland Preservation in the Greater Golden Horseshoe

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THE BATTLE OVER OUR LAND: URBANIZATION VERSUS FARMLAND PRESERVATION IN THE GREATER GOLDEN HORSESHOE

By

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Abstract

Urban sprawl continues to advance further and further into the countryside, as individuals trade cramped urban spaces for much larger rural lots and longer commutes to work. This increased sprawl permanently converts productive agricultural land to urban uses, especially in regions surrounding rapidly expanding cities. It is for this reason that farmland preservation has become a significant issue for policy officials in recent decades. According to the literature, there are numerous methods of protecting prime agricultural land in the face of urbanization; however there are few studies that focus on how these different policy techniques affect farmers. The Ontario government recently implemented a Greenbelt Plan in an attempt to 'protect environmentally sensitive lands from development' (MMAH, 2005), in the Greater Golden Horseshoe region of Ontario. This study uncovers farmers' perceptions of both the processes and implications of the recent legislation. Farmers in this region feel that they have been left out of the decision making process and they do not believe that the Greenbelt Plan will effectively maintain agricultural viability or control urban expansion.

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Chapter 1 – Introduction

1.1 Introduction

The preservation of agriculture in areas of rapid urbanization has been a concern for public officials for several decades. According to Bunce and Maurer (2005) the most significant issue is the conversion of productive farmland to urban uses. Supporters of farmland preservation are strongly in favor of policies that protect or maintain the agricultural land base. Although the design and implementation of farmland preservation programs varies widely by location, the collective premise is that protecting farmland from urban sprawl is a land use planning issue that requires shifting some quantity of land use control to agriculture (Bunce and Maurer, 2005). In North America, agricultural preservation has most often been treated as a unique and independent land use issue, whereas in Western Europe, the trend has been to incorporate farmland preservation into more expansive countryside planning strategies. According to Bunce and Maurer (2005) agricultural preservation policies were well established by the 1980s in most provincial and state authorities in Canada and the United States, and as indicated by the extensive amount of literature written on the topic, has been a significant planning issue ever since. Nevertheless, the conversion of farmland to urban uses persists in many regions surrounding metropolitan centres and agricultural preservation continues to be a controversial issue.

The purpose of this research project is to examine a recent contentious planning issue in the Province of Ontario introduced in 2005, the Ontario Greenbelt Plan. The Greenbelt Plan is a piece of legislation that was designed by the government with the objective of

preserving farmland and limiting sprawl in the rapidly urbanizing region surrounding Toronto. This thesis will examine various characteristics of the legislation to determine its effectiveness at preserving agriculture as well as uncover farmers' perceptions of the land use planning strategy.

1.2 Background – Agricultural Land Conversion

Agricultural land is being converted to non-agricultural land uses at an alarming rate. In 2001, urban lands occupied approximately 14,900 square kilometers of dependable agricultural land in Canada, almost double the 6,900 square kilometers of dependable agricultural land that was consumed by urban land uses in 1971 (Hofmann et al, 2005). Dependable agricultural land is defined as Class 1 - 3 agricultural lands by the Canada Land Inventory. These categories represent the most fertile land in Canada. Despite its size, Canada's dependable agricultural land is a scarce resource with only about 5 percent of the nation's landmass having significant agricultural qualities (Hoffman et al, 2005).

In 2006, approximately 675,000 square kilometers of land were being used for agriculture in Canada (Statistics Canada, 2006). As of 2001, three-quarters of Canada's dependable agricultural land was concentrated in three provinces: Saskatchewan (38.6%); Alberta (21.6%); and Ontario (15.5%) (Hoffman et al, 2005). However, agricultural land in the Province of Ontario is particularly significant because it includes more than half (56.3%) of all of the Class 1 agricultural land in Canada. According to the Canada Land Inventory this is the only type of agricultural land that has no constraints to crop production, making it the most valuable. In 2001, close to 46 percent of urban land in Canada was located on dependable agricultural land, occupying approximately 3 percent of the total that is available (Hofmann et al, 2005). More significantly, urban lands

occupied approximately 7.5 percent of the total class 1 agricultural land in Canada (Hofmann et al, 2005).

The loss of farmland is especially evident in areas surrounding major metropolitan centres, and is most apparent in the Province of Ontario. Much of the Class 1 agricultural land in Ontario is concentrated in the heavily urbanized southern part of the province (Hofmann et al, 2005). In 2001, it was estimated that close to 19 percent of dependable agricultural land in Ontario had been consumed by urban land uses, most of it in the southern regions of the Province (Hofmann, 2001). As urban boundaries in this desirable region continue to expand, it is anticipated that southern Ontario will be a hotspot of conflict between developers and farmers.

According to the Ministry of Municipal Affairs and Housing (MAH) (2005), the Golden Horseshoe, the area that surrounds the city of Toronto and is currently home to 6.7 million people, is one of the fastest growing regions in North America. Estimates suggest that in the next 30 years, the population in this region could increase by a further 4 million people, and the number of jobs could increase by 2 million. Inevitably, this increase in population will impact surrounding farmland as further pressure is put on the area for new residential and industrial developments. The possibility of a substantial increase in population reveals the significance of the current situation in southern Ontario, and suggests that it is critical to contain urban expansion in order to save some of the best available farmland in Canada before it is permanently lost for all agricultural purposes.

1.3 Land Use Conflicts and Farmland Preservation

The demand for residential development on the fringe of urban centres and the concern over the consequent loss of farmland in these areas creates the potential for land use conflicts. According to Bunker (2003), the urban fringe is a region where rural activities are merged with low-density, car reliant residential developments. He suggests that the fringe is subject to frequent land use conflicts that arise from this mix of uses and varied expectations. Peterson (1983) indicates that it is rural land uses, particularly agriculturally-related activities, which typically lose in these battles.

There is an obvious need to find a balance between protecting agricultural land while accommodating population expansion. It is for this reason that a major concern for public officials is how to protect these valuable resource lands while also allowing our cities to grow. Another issue according to Bunce and Maurer (2005, p.21), is 'the fact that farming is as much a lifestyle choice as a business opportunity creates conflicting views of the value of agriculture on the part of farmers and the general public'. Many farmers contest farmland preservation strategies because they feel they are in conflict with their rights as land owners and some also perceive preservation as a way of maintaining the landscape for urbanites. Conversely, non-farm residents would prefer to enjoy the countryside without the sights, noise, or odors of intense farming operations. It is this paradox between the value that agriculture represents to non-farm residents and the actual business of farming that creates misunderstandings between these two groups of individuals trying to share the urban fringe (Bunce and Maurer, 2005).

Numerous studies have examined the various methods of preserving farmland in the face of urbanization (Bunce 1998, Daniels 2005, Ryan and Hansel Walker 2004) but few

of these analyses have been concerned with farmers' perceptions of agricultural preservation programs or farmland protection in general. One recent study in the GTA region did uncover farmers' perceptions about some aspects of agriculture in the Toronto Region (Bunce and Maurer, 2005) but it left important gaps in terms of evaluating farmland preservation programs based on farmers' views. One of the major findings from the Bunce and Maurer study was that in general farmers do not feel the government should have a place in farmland preservation. Farmers want the government to be more concerned with financial support for agriculture and less concerned with regulations related to farming practices, particularly the recent regulations that have been put in place for environmental purposes. They were dissatisfied that the Ministry of the Environment was administering the Nutrient Management Act instead of the Ministry of Agriculture and Rural Affairs. The study also found that farmers are not in broad agreement with farmland preservation.

A recent initiative by the Ontario Government to preserve farmland in the Greater Golden Horseshoe region is to establish a Greenbelt around the City of Toronto, where development is prohibited (MMAH, 2005). The Greenbelt legislation has been in effect since February 2005 and it is now timely to take stock of how farmers perceive the new policy because it is that group of individuals who will be most affected by the presence of the Greenbelt. Understanding the concerns of farmers about the current legislation and farmland preservation in general can help to establish more effective and successful methods of maintaining agricultural viability in the face of urban expansion.

1.4 Research Goals

The goal of this research project is to determine if farmers in the Greater Golden Horseshoe region consider the Ontario Greenbelt Plan to be an effective approach to preserving agriculture in the rapidly urbanizing region surrounding Canada's largest city. The Greenbelt was enacted by the provincial Liberal Government in an attempt to protect some of the best farmland in Ontario. The main goal of this research is to determine what farmers think of this legislation and how effective it will be in preserving agriculture in their area. Additional objectives of this research include determining whether or not farmers identify the Greenbelt as an effective urban containment policy or farmland preservation program, and to generate recommendations that may increase the effectiveness of future agricultural preservation policies in the region. Previous studies evaluating farmland protection policies have tended to ignore farmers' thoughts or opinions on the legislations. This study, therefore, fills an important gap in knowledge by determining if the Greenbelt policy, aimed at protecting agriculture, is supported by farmers in the region.

1.5 Outline of Research Paper

Following this introduction, the thesis is organized into four chapters. A review of previous studies on urban containment and farmland preservation is presented in Chapter Two. Here, a discussion is presented on the key reasons why farmland protection has become an increasingly significant concern for policy officials in recent years. The majority of the chapter examines the way in which farmland can be protected, either by utilizing urban containment strategies or farmland preservation programs. The chapter

details some of the most frequently used farmland protection techniques that have been utilized in various agricultural regions of the world but focuses mainly on the United States where there is a relatively long history of such policies. The final section of this chapter introduces the Ontario Greenbelt Plan, the most recent Provincial environmental legislation, which is focused on protecting agriculture in the Greater Golden Horseshoe region. The plan is envisioned by the government as both an urban containment strategy and a technique that ultimately will protect valuable farmland in the region.

Chapter Three illustrates the methods that were used in order to determine farmers' perceptions of the new farmland preservation policy. There is a discussion of the types of questions that were asked of farmers as well as an overview of the type of analysis that was undertaken. Chapter Four reveals the major themes that emerged from interviews with farmers in the Greenbelt region. The main purpose was to determine what farmers actually thought about the Greenbelt and the legislation process. The majority of this chapter discusses whether or not participants believe the Greenbelt supports its functions as a) and urban containment strategy and b) a farmland preservation program. The final chapter presents the conclusions of the study along with several recommendations from farmers on ways to preserve agriculture more effectively in the face of urban expansion. Future areas of research for agricultural preservation in the GTA are also considered.

Chapter 2 – Literature Review

2.1 Introduction

One significant issue that is currently plaguing the agricultural industry is the conversion of agricultural lands to urban uses. The rate of conversion has increased dramatically in recent decades as urban sprawl advances farther into the countryside, especially in regions surrounding major metropolitan areas. Urban uses consume valuable agricultural land and permanently take significant resource lands out of production. Consequently, there is a need to find a balance between accommodating the increasing number of people who want to live in fringe areas and maintaining a significant agricultural land base so farmers can continue producing food. The beginning of this chapter discusses the trend of agricultural land being converted to urban uses in the United States and Canada and briefly discusses the area known as the urban fringe. The majority of the research presented in this chapter will focus on two very different techniques used to preserve farmland in the face of urbanization; urban containment policies and farmland preservation programs. The chapter concludes by discussing the current greenbelt legislation used by the Ontario government to protect agricultural land in the Greater Golden Horseshoe region.

2.2 Urban Sprawl

The mid-1970s was a positive time of financial windfall for North American farmers due to falling interest rates and a booming export economy. However, this decade also brought along with it a new setback for agricultural landowners in the form of declining productive agricultural lands from urban expansion. At the end of the 1960s, a large

urban and non-farm population began their flight to the countryside. The development of residential subdivisions and commercial centres flourished on what was previously prime agricultural land. According to a study undertaken by the USDA's Soil Conservation Service, rural land in the US had been converted to urban uses at a rate three times the historical average between 1967 and 1975 (Moriola, 2005). The US Department of Agriculture Natural Resource Conservation Service indicates that approximately 12 million hectares of resource lands were converted to urban uses between 1982 and 1997. More then half of the conversion occurred on agricultural land and a further third occurred on forest lands (Hasse and Lathrop, 2003).

The situation is similar in Canada. According to Hoffman (2001), half of all land converted to urban uses in Canada between 1971 and 1996 was dependable agricultural land, accounting for 590,000 hectares. By 1996, urban uses occupied 3.2 percent of the total dependable agricultural land in Canada (Hoffman, 2001). The hastened expansion of Canadian urban areas has been influenced by housing and location preferences (Smith and Haid, 2004). Families chose to live away from the central core in single detached homes with large lots, and relied on their automobiles for their daily activities (Hoffman, 2001). This has resulted in more land per urban dwelling with declining average densities, falling from 1,030 persons per km^2 in 1971 to 796 per km^2 in 1996 (Smith and Haid, 2004).

The urban development trends that have been witnessed in North America are characteristic of urban sprawl. Features of sprawl include low density development, increased dependence on the automobile, segregated land uses, and a lack of centralized planning (Kaplan and Austin, 2004, Bengston et al. 2004). Brueckner (2001) adds that

urban sprawl is the spatial growth of cities that is excessive relative to what is socially desired. The increased trend of urban development sprawling out into the country is now, more than ever, being recognized internationally. There is a very large body of literature on the phenomenon of urban sprawl, especially in regards to the impacts it is having on resource lands and rural landscapes. Urban sprawl is increasingly viewed as a significant issue, with growing concerns for the social and environmental costs that accompany this trend. The phenomena can be illustrated by comparing urban expansion rates with population growth in two North American cities – Chicago and Cleveland. Between 1970 and 1990, the spatial size of the metropolitan area of Chicago expanded by 46 percent, while population growth in the region grew by only 4 percent (Brueckner, 2001). During the same period, the Cleveland metropolitan area increased by 33 percent, while its population actually declined by 8 percent (Brueckner, 2001). There are many other areas in North America where it is possible to make similar comparisons. Brueckner (2001) points to three reasons that account for increased urban sprawl. These include population growth, rising household incomes and a decline in the relative cost of commuting.

Concerns with the impact of urban sprawl did not occur until the boom in suburban development began following World War II. Consciousness of the environmental and social costs of sprawl was raised still further by the environmental movement in the 1960s and 1970s. In recent years, these concerns have increased considerably (Bengston et al. 2004). According to Brueckner (2001) opponents of sprawl claim that the expansion of urban development encroaches on agricultural land, which leads to a loss of amenity benefits from open space and further depletes farmland resources that are already

in short supply. These critics also argue that extended commutes generated by urban expansion create excessive traffic congestion, air pollution (Brueckner 2001) and additional highway infrastructure (Wassmer, 2006). A further argument is that growth at the urban fringe is thought to reduce the incentive for redeveloping land close to downtown areas, leading to decaying city centres. Opponents of sprawl also argue that low-density suburban expansion spreads people out and decreases social interaction (Brueckner 2001). Harcourt (2006), in the Final Report for the External Advisory Committee on Cities and Communities, also recognizes the severe impacts of urban sprawl on communities. These include greater servicing and infrastructure costs, ineffective public transit systems, estimated annual costs of over $2 billion due to increased traffic congestion as commuting distances become greater, and the displacement of many acres of prime farmland. Harcourt (2006) acknowledges that 'there needs to be a new creative voice for city and community planning and design in Canada' (p.51), and the committee recommends the economic incentives that promote sprawling communities need to be addressed, and where possible, reversed or eliminated. This report indicates that the Federal government appears to be taking the issue of sprawl seriously.

Despite its negative consequences, urban sprawl continues, along with leapfrogging development and the destruction of some of the most significant natural resources available. A drive through the countryside illustrates the arrival of big houses located on large lots that were once covered by farmland or forests. Individuals desire space and privacy, as well as being surrounded by natural elements. These desires are being met by residential development in the urban fringe but it comes at great environmental costs.

Existing forest and farmland is eliminated to make room for residential subdivisions; wildlife habitats are destroyed; the number of impervious surfaces increases the potential of flooding; and the chemicals used to maintain sizable lawns is detrimental for entire watersheds (Kaplan and Austin, 2004). The tendency for open space and natural resource lands to be sacrificed for expanding urban development has sparked intense interest over the challenges associated with urban sprawl.

2.3 Farmland Conversion

An additional reason for increased residential development in the countryside is the fact that farmers are struggling to make ends meet, and the opportunity to sell their lands for substantial amounts of money to developers is an attractive option. Farming operations require long hours, hard work, and a considerable investment but in return farmers typically receive low earnings. The average age of farmers in North America is on the rise. The typical Canadian farmer is approximately 52 years old (Statistics Canada, 2006). In Canada, 50 percent of farmers are between 35- 54 years, and an additional 41 percent are over 55 (Statistics Canada, 2006). This leaves a mere 9 percent of the farming population under the age of 35 and in a position to be able to carry on the long-term future of the farming industry. Farmers in this age category have declined drastically from 20 percent of the farming population in 1991. Older farmers nearing retirement age are finding it difficult to pass on the family farm to an heir because many of their children do not want to be involved in a farm operation that encounters high costs and low returns. According to Daniels (1999), in an ideal world farmers would earn enough from their farming operations that they would not be tempted to sell their land for development. However, the temptation is easy to understand when you observe that the

typical value of an acre of farmland is a few thousand dollars and the value of that same land as residential development can be tens of thousands of dollars. Farmers usually have most of their net worth tied up in the land they own, and the challenge they face is how to extract some of that value from the land, while having sufficient left to generate a profit from farming.

2.4 The Urban Fringe

Even when farmers find a way to stay involved in farming operations, it is not uncommon for conflicts to arise between them and their non-farm neighbours. Nelson (1999) indicates that this conflict typically occurs along the fringe of land between built up urban areas and the countryside, an area that he refers to as *exurbia*. Other authors (Audirac 1999, Daniels and Bowers 1997, Bourne et al 2003) have referred to this region as the *rural-urban fringe* or *urban-rural fringe*, the *urban fringe*, the *peri-urban fringe*, or simply the *fringe*. In this paper, all of these definitions will be used interchangeably to represent the transition region between city and country. Bourne et al (2003) suggest that the peri-urban fringe is the region experiencing the most rapid growth and change, and is the area that is the least understood. Audirac (1999) believes that the fringe is understudied because it is too urban to interest traditional rural researchers, and too rural to provoke urban academic examination. But one thing is certain – more and more people are moving to the fringe. Moreover, it is becoming a challenge to distinguish where urban boundaries end and rural land begins.

It is estimated that nearly one-fifth of all residents in the US are living in this exurban zone (Nelson, 1999) but this land is being consumed also for other purposes. Daniels and

Bowers (1997), for example, note that the boundaries between the urban and the rural are obscured by two types of development.

1. A continued wave of large residential and commercial development away from expanding population centres.
2. The scattered development of homes and commercial strips held together by highways.

Developers often bid up the price of land beyond what farmers can afford to pay, which persuades them to sell their land for development. Consequently, amid the subdivisions and strip malls are large areas of open space and farmland. This dispersed development has greatly increased the potential for confrontation between farmers and non-farm neighbours (Daniels 1999, Daniels and Bowers 1997, Henderson 2003). The problems that arise from city and country merging into one another are abundant. Non-farm neighbours increasingly protest about odor, noise, dust, chemicals, and slow moving farm machinery on roads. On the other hand, farmers experience lost crops and livestock from trespassing, vandalism, and pets. Increased housing developments surrounding farms produce stormwater that runs onto farmland causing erosion as well as an increased competition for water supplies in the area. As farm operators become minorities in their own communities, there is the possibility that nuisance regulations may be approved, which can restrict farming practices. This could result in farming becoming too much of a hassle, leading to further farmland sales. Furthermore, the likelihood exists that remaining farmers will stop investing in their farms because ultimately they anticipate selling their land for development (Daniels and Bowers, 1997).

The conflicts that emerge and the negative externalities for farmers from residents moving into the countryside indicate that measures need to be taken in order to preserve the remaining farmland in the fringe. Increasing urban expansion, along with increasing costs and decreasing profits for farmers, is limiting the amount of productive agricultural land that is available. Consequently, effective preservation methods are necessary for fringe areas.

2.5 Protection and Preservation of Valuable Farmland

The protection of valuable resource lands, such as farmland and forests has become an increasingly significant goal of public officials in recent years as residential, commercial, and industrial uses have expanded into rural areas. With urban and rural uses now competing for land in the urban fringe, that was once used only for agriculture, public officials seek to protect resource lands, either directly through open space and farmland preservation programs, or indirectly by adjusting the rate, location, and nature of development through land use planning (Kline and Alig, 1999). Since the 1970s, state and provincial governments in North America have acted in response to farmland conversion, using diverse programs and policies. These planning approaches range from indirect urban containment measures to direct farmland preservation programs, as illustrated in Table 2.1.

Table 2.1 – Programs and policies used to preserve agricultural land

	Land Use Controls	*Incentive Programs*
Urban Containment (indirect measures)	Urban Growth Boundaries (UGB) Greenbelt	
Farmland Preservation (direct measures)	Agricultural Zoning	Purchase of Development Rights (PDR) Transfer of Developemt Rights (TDR) Tax Assessments Right-to-farm Laws

Modified from Beesley (1999) and Bengston et al. (2004)

Urban containment policies should lead to the preservation of resource lands because compact urban development strategies impede urban uses from encroaching on sensitive resource lands located in the urban fringe. Land use controls used to preserve farmland restrict the use of land for farming purposes only (Beesley, 1999). Incentive programs used to preserve farmland are designed to discourage farmland owners from selling or converting their lands to non-farm uses (Beesley, 1999) and to protect the farmer's right to use the land for agricultural purposes regardless of objections from non-farm neighbours (Bengston et al. 2004).

2.6 Urban Containment Policies

According to Wassmer (2006), urban containment policies are used to restrict or prohibit the type and/or amount of urban settlement beyond a specific area. Dawkins and Nelson (2002) describe urban containment policies as being designed to limit the expansion of key public facilities and urban infrastructure and/or urban development beyond a recognized urban boundary. In general, urban containment programs can be differentiated from conventional land use management approaches through the existence of policies explicitly designed to control the development of land outside a defined urban

area, while encouraging infill development and redevelopment inside the urban centre (Nelson et al, 2004).

A major function of urban containment policies is to create compact and contiguous metropolitan development patterns. Pendall et al. (2002), suggest that the goals of urban containment strategies involve four features:

1. Preserving natural resource lands; mainly farmland and extraction lands that cannot keep up with the economic competition of urban development.
2. Cost-efficient construction and use of urban infrastructure.
3. Reinvestment in existing urban areas.
4. Creation of high density land use patterns that promote mixed-use development and support public transportation.

Lexington, Kentucky was the first region in North America to implement limitations on future urban development in 1958. Since then, a multitude of additional localities have employed this type of planning strategy (Dawkins and Nelson, 2002) including Miami-Dade County, Minneapolis-St. Paul, Boulder, Sarasota, and Sacramento, and across the state of Oregon. In the mid 1980s, Florida's growth management legislation permitted local governments to adopt several forms of urban containment strategies, although few have done so. In the early 1990s the state of Washington employed Oregon-style containment laws, and utilized them in most urbanized counties (Nelson et al, 2004). A recent survey indicates that approximately one quarter of all metropolitan areas in the US currently utilizes an urban containment policy as a component of their land use planning efforts (Dawkins and Nelson, 2002).

The majority of urban containment policies are governed at the local scale, but certain programs are managed by regional governments. There are a few cases where metropolitan-level urban containment programs are required by law, e.g. in Oregon, Washington, and Tennessee. Wassmer (2006), states that there are 127 local urban containment policies in the US; 28 regional plans, 67 county plans, and 32 municipal plans. However, Pendall et al. (2002) suggest that all metropolitan areas in the US employ some type of urban containment strategy. However, not all urban policies and practices are thoughtfully designed, or deliberately coordinated to shape the physical patterns of urban development in a region. Whether they are planned or unintentional, the characteristics of these land use practices affect the way in which growth is permitted in urban centres. Pendall et al. (2002) suggest three ways in which virtually all metropolitan areas in the US are shaped:

1. public land holdings – whether by federal, state, or local government;
2. land use policies and regulation decisions of local governments – including local comprehensive or general plans and individual planning and zoning decisions to permit or disallow development of specific pieces of property; and,
3. the way a metropolitan area's public infrastructure is financed and by the timing and location of public infrastructure development.

Thus, as indicated by Pendall et at. (2002), urban containment policies are merely an attempt to intentionally use their public land acquisitions, land-use regulations, and infrastructure investments to control, shape, or guide growth to particular locations. The

most common types of urban containment policies used to shape metropolitan growth include *urban growth boundaries* and *greenbelts.*

2.6.1 Urban Growth Boundaries

An urban growth boundary (UGB) is a planning policy tool that has been established to promote more compact development. According to Daniels and Bowers (1997, pg. 136), the purpose of growth boundaries is "to contain urban development within planned urban areas where basic services, such as sewers, water facilities, and police and fire protection, can be economically provided" and "to provide for an orderly and efficient transition from rural to urban land use". Brueckner (2001) proposes that the implementation of such a boundary involves drawing a circle around a metropolitan area and prohibiting urban development outside of the circle. A UGB is created through an agreement between a city and county (or surrounding township) in which a particular area of county land adjacent to the city is designated for urban density expansion. Within the boundary of a growth area and the city there should be sufficient available land to accommodate future development and population growth. This long term supply of land prevents atypical shortages of land that could drive up property prices. However, the growth boundary should not be drawn so distant from the city's edge as to allocate too much land for development, creating further sprawl. Daniels and Bowers (1997) suggest that cities and counties should compile the following studies before deciding on where to draw a growth boundary.

1. Projections of population growth rates, future housing requirements, and land needs for residential, commercial, industrial, and public spaces.

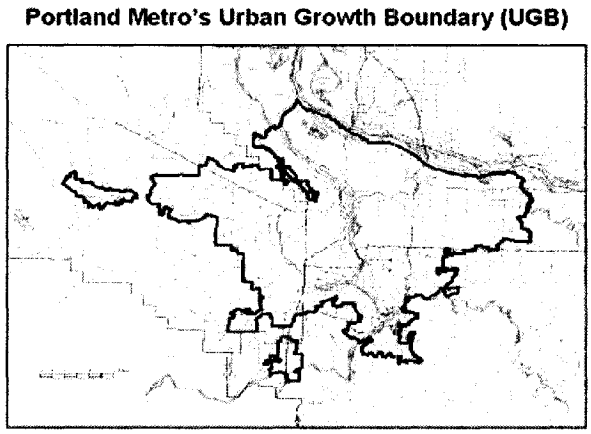
2. A record of public facilities, their capacity, and projected needs for the future.
3. An estimation of a twenty year supply of available land for development – while considering issues such as; topography, availability of public facilities, and a 'market factor' of 10-15 percent (to ensure that land supplies are not constrained)

Once the boundary line is drawn, the city and county must agree that there will be no further expansion of urban services, including public sewer and water lines, beyond the UGB – even though the boundary itself may change in time. This creates efficient and cost-effective infrastructure development, as well as curbing sprawl by making it difficult for infrastructure to impinge upon the countryside.

The fear of increased housing prices is one of the most common concerns for public officials when determining whether or not to implement a growth boundary. However, the other side to this argument is that if boundaries are implemented too loosely, or can be altered easily, urban sprawl will likely continue (Knapp and Hopkins, 2001). An evaluation of the UGB in Portland, Oregon, which is the most widely recognized growth boundary in North America, will help to illustrate this planning policy's strengths and weaknesses.

The UGB in Portland was adopted in 1979 and was developed from a rural standpoint to protect farmland and forests from encroaching urban development. The UGB in Portland covers 24 cities, and 232,000 acres of land, or 940 square kilometers (Harvey and Works, 2002), and approximately 1.3 million people (Figure 2.1, Song, 2002).

Figure 2.1 Portland, Oregon – Schematic of UGB



(http://www.metro-region.org)

According to Phillips and Goodstein (2000), Portland's UGB draws a very tight zoning band around the city that is designed to reduce urban sprawl and promote high density and infill development. Portland's success in containing urban sprawl is, indeed, commendable, especially with respect to US cities of similar size. The UGB in Portland has been applauded for its effort in effectively shaping urban form, containing development of urban densities, and preserving prime agricultural and forest lands from invading urban development (Weitz and Moore, 1998). Nelson (1992) goes further to imply that Portland's UGB has also been successful at focusing development inside of the UGB, creating more dense housing patterns, creating 'fast tracking' – or lesser wait times – to process development permits inside the UGB, all without having a significant impact on housing prices. However, a closer examination of the performance of the Portland UGB reveals that it has not been able to do everything that its advocates had anticipated (Weitz and Moore, 1998). Daniels (1999) explains some of the anticipated and unanticipated consequences of the UGB.

It has been found that the UGB is more inflexible than first thought (Daniels, 1999). From a farmland preservation perspective, this is appropriate because boundary expansion is not a simple task. However, from a policy perspective it is too complicated to make minor boundary alterations that may allow more efficient development within the UGB. This downfall for policymakers is really a victory for vulnerable farmland. However, it has also been found that it may be easier to develop outside of the UGB, in 'exception' lands, than within the UGB. Lands outside the UGB that are not considered suitable for resource uses due to poor terrain or soils, or are currently zoned rural residential, rural commercial, or rural industrial are specified as an exception where low density development is permitted (Nelson and Moore, 1993). Urban development on exception lands outside of the UGB is not subject to the technical review and development conditions that are compulsory for development within the UGB. The result is that low density residential development is leapfrogging outside of the growth boundary (Daniels and Bowers, 1997) which permanently converts farmland to urban uses. According to Nelson (1992), the UGB in Portland failed to consider the demands for hobby farms and exurban development during the implementation process. Potential hobby farmers and rural residents often require only one or two acres of land, while most exception areas are limited to five, ten, and even twenty acre minimum lot sizes. This forces those who want a rural lifestyle to purchase lots that are much bigger than necessary, which leads to the absorption of further agricultural land (Nelson, 1992). Smaller minimum size lots would have been more appropriate in exception lands to create higher density development that inevitably was going to occur.

A further concern is raised by farmers in the urban fringe as to whether or not the implementation of a UGB will prevent them from cashing in their land for urban development. Daniels and Bowers (1997) reason that a growth boundary is not designed to be a perpetual, fixed limit to urban growth. They argue that growth boundaries simply impact the location and timing of future development so that urban growth is permitted in an organized and gradual manner. If this is the case, a growth boundary simply postpones the conversion of valuable farmlands to urban uses and is not an effective farmland preservation approach.

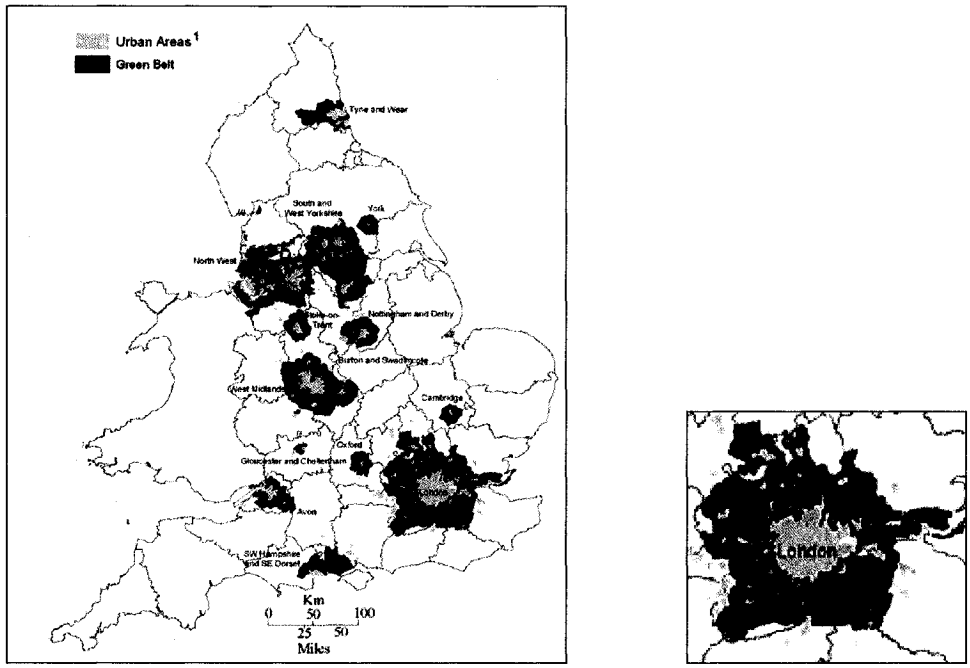
2.6.2 Greenbelts

A greenbelt is an additional urban containment approach that is used to create more compact development and limit sprawl. Pendall et al (2002) describe the concept of a greenbelt as a line that is positioned fairly tightly around an urban centre. This border is used to separate urban uses from open space and countryside. Greenbelts are intended to be a permanent planning approach and modifications to boundary limits are difficult to make. The majority of greenbelts are fashioned by public acquisition of open space or of development rights on farmland. There are only a small number of urban regions in the US that employ planned greenbelts, but among them is Boulder, Colorado (Pendall et al, 2002).

The greenbelt design originated from the Garden City movement in England, following World War II. The concept of open space surrounding a major metropolitan centre and embracing smaller settlements located in the backdrop of a 'core' city created the foundation for British town and country planning (Longley et al, 1991). The purpose

of London's greenbelt (Figure 2.2) was to prevent expansion of the city, while preserving open land for farming and recreation (Longley, 1991).

Figure 2.2 London's Greenbelt



(Amati and Yokohari, 2006)

The Province of Ontario implemented a greenbelt plan in 2005. The objective of Ontario's greenbelt is to improve the quality of life by permanently protecting green space and curbing sprawl in the Golden Horseshoe, one of the fastest growing regions in North America (MMAH, 2005). The greenbelt identifies where urban development should not occur, providing preservation of agricultural lands and natural features on the landscape.

Several Asian mega cities have also recently implemented greenbelt planning approaches. According to Yokohari et al (2000) Tokyo, Seoul, and Bangkok have all employed western planning methods, such as greenbelts, to restrain explosive urban growth. However, the implementation of most greenbelts in Asia has been problematic,

as indicated by the chaotic landscapes associated with the fringe. It has been noted also that although a greenbelt program may seem successful at the outset, it often takes time to reveal its actual effectiveness. The greenbelt plans in both Boulder, Colorado and Seoul, Korea initially look as if they have urban expansion under control. However, upon further investigation, the greenbelt in Seoul has actually promoted urban sprawl in satellite cities located directly outside of the greenbelt boundary (Yokohari et al, 2000). The greenbelt in Boulder, Colorado has also promoted the emergence of satellite cities. Some of these satellite communities are not self contained which means they rely on the metropolitan city of Boulder for various amenities and commuters cross back and forth over the greenbelt to get from home to work (Pendall et al, 2002), losing the meaning of environmental preservation in the process. Pendall et al (2002) argue that greenbelt planning strategies may be capable of encouraging a systematic approach of protecting open space in a specific region, but do little to prevent growth from leapfrogging to other nearby fringe areas. So although farmland may be protected in the greenbelt region, the farmland that is outside of the boundary is more at risk of being converted to urban uses as a result of the greenbelt implementation.

2.7 Farmland Preservation Programs

The topic of urban conversion of farmland first gained public interest in Canada and the US in the 1970s (Bunce, 1998). Government funded studies were carried out to examine rates of change of farmland and urban growth. In response to these studies, many farmland preservation policies have been implemented with the hope of protecting valuable farmland from urban encroachment. Bunce (1998) notes that the motivations for restricting the conversion of farmland have been widely recognized and include the

control of urban expansion, the preservation of rural amenity, the protection of the natural environment, and the continuance of rural communities and farming as a working landscape. Daniels (2000) implies that it is this concept of a working landscape that distinguishes farmland preservation policies from other programs that focus on protecting open space. A working landscape shapes part of a local or regional economic base and produces essential goods (food, minerals, etc.) that provide employment directly on the land. Private open space that is not part of an active working landscape may provide further goods (scenery, wildlife habitat, recreational uses, etc.) but owners of these lands are not dependant on it in order to make a living. Open space is compatible with nearby residential development, whereas a working landscape is, in reality, an industrial site that does not mix well with adjacent residences due to externalities such as noise, odors, and chemical use (Daniels, 2000). Consequently, the unique characteristics of a working landscape require unique preservation efforts, and cannot simply be included in open space preservation programs as a means of protection.

Daniels (2000) suggests five goals for an effective working landscape protection program:

1. The protection of a critical mass of farmland that will allow the maintenance of commercial farming and the continuation of support businesses
2. The maintenance of affordable land prices – for potential farm operation expansion as well as the entry of new farmers
3. Long-term reliability – in order to gain support from farmers and the public
4. Cost-effectiveness – preservation must come at a fair cost relative to the benefits

5. Sustained social and political resources through support of the public and public officials

There are two types of farmland preservation programs that strive to reduce urban conversion of farmland while attempting to meet the above goals of a working landscape protection policy: *land use controls* and *incentive programs.*

2.7.1 Land Use Controls

The intention of land use controls is to restrict the use of agricultural land for farming purposes (Beesley, 1999). According to Beesley (1999), land use controls are the most significant farmland preservation tool available to local and provincial governments. The most common type of land use control is *agricultural zoning.*

2.7.1.1 Agricultural Zoning

Agricultural zoning is the most frequently used approach of restricting urban expansion into agricultural areas. Beesley (1999) states that this is the case partly because of the low costs and political acceptability associated with zoning. Peterson (1983) disagrees slightly by noting that agricultural zoning is often subject to political pressures that may change when different political interests secure office, thus making zoning fairly easy to change. This implies that what is zoned today as agricultural land may not remain so in the future, especially in areas encountering rapid urban growth such as the urban fringe (Peterson, 1983). However, this type of land use control continues to be popular. More than 500 communities in the US rely on some type of agricultural zoning to protect farmland (Daniels and Bowers, 1997), and three states utilize state-wide

agricultural zoning – Oregon, Washington, and Hawaii – while the majority are implemented at the local scale (Beesley, 1999).

Nelson (1992) refers to two types of zoning: exclusive and nonexclusive. In exclusive agricultural zones, land is specifically zoned for agricultural purposes—usually on the basis of soil quality or location, while other types of land uses are prohibited (Bengston et al, 2004). Nonexclusive zoning restricts lot sizes in agricultural zones from 1 to 160 acres (Nelson, 1992), meaning that development is limited but not prohibited (Beesley, 1999). Nonexclusive zoning is more popular than exclusive zoning because it is not mandatory and thus is more politically acceptable in Canada and the US (Beesley, 1999). However, nonexclusive zoning will do little to prevent the conversion of farmland in the long-term unless large minimum lot size restrictions are established (Nelson, 1992). Nevertheless, a consequence of large lot zoning is the possibility of decreasing property values for which land owners are not compensated (Bengston et al, 2004).

Consequently, exclusive agricultural zoning is more effective than nonexclusive zoning for preventing the conversion of farmland to urban development. But exclusive zoning remains contentious because farmers no longer have the option of selling their property to a developer, which limits the value that is placed on their land (Daniels, 1998). Daniels (2001) also notes that zoning frequently encourages the fragmentation of farmland into large residential lots reducing the capacity for agricultural production. He goes on to state that even when agricultural zoning firmly restricts land use, it is not a permanent solution as zones can be changed. Nelson (1992) and Daniels (1998) agree that the key component for a successful zoning policy is a commitment to agricultural production in the farming community.

2.7.2 Incentive Programs

Incentive programs are frequently used in the US to preserve farmland and are designed to discourage farmland owners from selling or converting their land to non-farm uses (Beesley, 1999) and to protect the farmer's right to use the land for agricultural purposes regardless of objections from non-farm neighbours (Bengston et al. 2004). Incentive programs include *development and transfer of development rights*, *right-to-farm laws*, and *tax incentives*. Several authors (Peterson 1983, Daniels 1998, Beesley 1999) disagree with some or all of these policy classifications, suggesting they are additional types of land use controls. However, this paper will illustrate how the above programs can create incentives for farmers to continue farming.

2.7.2.1 Purchase and Transfer of Development Rights

Although different in design, both purchase and transfer of development rights provide farmers with some compensation in exchange for giving up the development rights on their property, either in perpetuity or for an extendable amount of time (Johnston and Madison 1997, Feather and Bernard 2003, Pruetz 2003). Purchases of development rights (PDR) programs involve the acquisition by local governments of development rights (also known as conservation easements). The direct payment that farmers receive from PDR programs normally reflects the difference between the value of land for agricultural uses and for development uses (Feather and Bernard, 2003). At the urban fringe, the market value for development usually exceeds the agricultural value because the land has other characteristics, such as open space benefits that are desirable (Adelaja and Shilling, 1999). Nelson (1992) notes that while the intention of PDR programs are to permanently protect agricultural land, farm lands that are created by

these programs can become appealing to wealthy individuals who are less interested in farming and more keen on privacy and open space. Thus the critical mass of farmland that Daniels (2000) proposes for an effective preservation program is not always guaranteed.

Transfers of development rights (TDR) programs involve the removal of development rights on a landowner's property. These development rights are transferred to an area where higher density development is allowed (Adelaja and Shilling, 1999), thereby preserving farmland in one area (sending zones) and creating more compact, infill development in a more suitable area (receiving zones). TDR programs have the benefit of preserving farmland at no direct cost to taxpayers (Nelson, 1992). TDR programs have not been used in Canada, and are sparsely utilized in the US. Beesley (1999) attributes that fact to their administrative complexity. The most successful, or widely recognized TDR program in the US is in Montgomery County, Maryland where as of 2001, 40,000 acres of farmland have been preserved through TDR methods alone (Pruez, 2003). Due to the fact that this type of preservation program is voluntary, farmland owners located furthest away from urban areas will likely be the ones to participate in the program. Farmland owners adjacent to urban centres foresee eventual windfalls from development opportunities and do not participate in the preservation program. This random application of TDR programs promotes scattered subdivisions on farmland tracts, which prevents the critical mass of farmland from being maintained (Nelson, 1992).

Nelson (1992) indicates that both TDR and PDR programs are merely effective open space techniques. In terms of preserving farmland, they are complex, do not efficiently preserve the local farming economy and can turn agricultural districts into exclusive

closed societies of wealthy estate owners who destroy productive farmland. Consequently, although there is an incentive for farmers to participate in these programs (the value of conservation easements), it is possible they will receive greater profits from holding on to their land for the eventual sale to developers when the price is right.

2.7.2.2 Tax Assessments

Lower taxes for rural residents can be justified because many of these residents pay privately for the use of facilities and infrastructure, including road maintenance and construction, sewage treatment, police and fire services. In addition, it is likely that rural residents consume fewer services per dollar value of land owned than residential and commercial landowners in identical taxing areas (Morris, 1998). This is one of the reasons that many state or local governments grant tax relief to farmland owners. In fact, all states in the US have some form of property tax reduction program, designed to encourage farmers to continue farming.

The most widely used incentive strategy to preserve farmland is to provide farmers with property tax assistance. According to Beesley (1999), the most common type of tax assistance program being used in the US is differential tax assessment, in which land is taxed according to its usage. This tax policy creates an incentive for landowners to keep their property in agricultural uses in order to be taxed according to the value of their land in its current use rather than at the value in the free market. The difference between the two values represents the parcel's development value (Williams et al, 2004). Tax assessment programs are needed especially in fringe areas where land values are relatively high; otherwise taxes on farmland would be extremely high, which would impede agricultural viability (Adelaja and Schilling 1999).

Beesley (1999) notes three varieties of differential tax assessment: preferential assessment, deferred taxation, and restrictive agreements. Preferential tax assessment programs do not apply a penalty to landowners who remove their land from agricultural uses. Deferred taxation and restrictive agreements are additional tax assessment programs whereby governments reduce taxes by deferring them with a 'rollback' penalty if the land is removed from farming uses or by requiring that farmland owners enter into agreements that restrict the use of the land for a specific period of time (Beesley, 1999). In Canada, the majority of tax incentives for farmers are provided through provincial assessment or municipal acts, which utilize preferential tax assessment methods. The Province of Alberta, along with two states – Michigan and Washington, use an additional tax incentive called circuit breaker taxation. This type of taxation policy offers lower property tax rates to farmers but the tax value is determined according to personal incomes and property tax burdens of the farmer. Consequently, this type of taxation program provides the greatest savings to lower income farmers (Beesley, 1999).

All types of tax relief programs reduce the property taxes that farmers have to pay. The purpose of these programs is to decrease operating costs for farmers, which encourages them to remain in the farming business. Daniels (2001) notes that the tax breaks that are offered to farmers typically are small in comparison to the sums offered by developers and they merely finance farmers' holding costs until they choose to sell for development. Nelson (1992) also suggests that all property tax relief programs create or increase speculation from farmers that their land will eventually be converted to urban uses. This is known as the 'impermanence syndrome' – an expectation from farmers that there is a limited future in farming and that urbanization will consume the farm in the

not-to-distant future (Nelson, 1992). So although taxation policies do encourage farmers to stay in farming, they may be only a short-term solution, until farms are eventually converted for development.

2.7.2.3 Right-to-farm laws

Right-to-farm laws protect farmers' rights to use land for agricultural purposes regardless of objections from non-farm neighbours (Bengston et al. 2004). As farmers and non-farming residents are brought into close contact through the expansion of urban boundaries, it is anticipated that conflicts will occur between these two opposing interests. Right-to-farm laws have been implemented in the majority of US states to safeguard farmers from costly lawsuits that arise from complaints from non-farm neighbours. Although right-to-farm laws may not be an effective policy in preserving farmland, they are a necessary tool to minimize the problems that farmers incur while learning to live with their non-farm neighbours. Right-to-farm laws likely will not be effective at preserving a critical mass of farmland in the long term (Nelson, 1992), but they do encourage farming (Beesly, 1999), which is critical in the fight to preserve agricultural viability.

2.8 Effective Preservation Requires a Combination of Techniques

The majority of farmland and open space preservation literature suggests that it is unlikely that one single preservation technique will be effective on its own. Several authors (Nelson, 1992, Daniels and Bowers, 1997, Daniels 2001, Bengston et al 2004) recommend that a combination of techniques be utilized to preserve natural resource lands. For example, Daniels and Bowers (1997) state that in order for a UGB to work

effectively, the county must also implement ample agricultural zoning outside of the boundary. It is suggested that this will not only protect farmland, but also the water supply, wildlife habitats, and other vulnerable rural lands. Agricultural zoning on the outskirts of the growth boundary helps to ensure that large residential and commercial developments do not easily leapfrog over the UGB. It also prevents agricultural areas from becoming overrun with 'ranchettes' and hobby farms. Bengston et al (2004) recognize that without zoning policies to protect farmland or open space, any purchase of development rights programs will create a fragmented area of protected lands that probably will attract development on unprotected neighbouring land.

Daniels (2001) claims that a comprehensive planning and public finance program that brings together purchase of development rights and use-value taxation policies can effectively reduce sprawl by achieving both preservation of farmland and more compact urban development. He argues that a regional growth management plan could incorporate both strategies by deciding when and where a sufficient amount of development has occurred (the need for farmland preservation) as well as when and where more development is needed (the need for more compact, infill development).

Nelson (1992) suggests that the most significant lesson from Oregon's renowned planning strategy is that an effective farmland preservation program depends on a package of methods that support one another. Exclusive farming zones preserve farmland for farming, growth boundaries prevent urban sprawl, tax assessments and right-to-farm laws create incentives for farmers to keep farming, and comprehensive plans endorse the complete package.

While there are many types of agricultural land protection programs, there is no single solution for communities interested in both protecting farmland and keeping farming economically viable. Communities need to be resourceful, which may mean taking existing models and revising them to achieve their own objectives (Ryan and Hansel Walker, 2004). Ultimately, the success of farmland protection depends on the strong commitment of farmland owners to remain in farming (Daniels, 1998). This signifies the need to determine what supporting elements are required to keep farmers dedicated to farming before it is possible to design an effective farmland preservation strategy.

2.9 Protecting Agriculture in Ontario using a Greenbelt Plan

As mentioned previously, the Province of Ontario has recently implemented a Greenbelt strategy that focuses on protecting various environmental features in the Greater Golden Horseshoe region of Ontario (Figure 2.3) of which the most significant is probably agricultural land. Concern has been expressed over the issue because farmland is being threatened by the booming urban growth of the region. In February 2005 the Ontario Government passed the Greenbelt legislation that according to the Ministry of Municipal Affairs and Housing (MMAH 2005) is 'a cornerstone of Ontario's proposed Greater Golden Horseshoe Growth Plan which is an overarching strategy that will provide clarity and certainty about urban structure, where and how future growth should be accommodated, and what must be protected for current and future generations.' In particular, the Greenbelt determines what agricultural and environmentally sensitive areas are to be protected from urbanization. The plan builds on two previously implemented plans in the region that had similar purposes, the Niagara Escarpment Plan (1985) and the

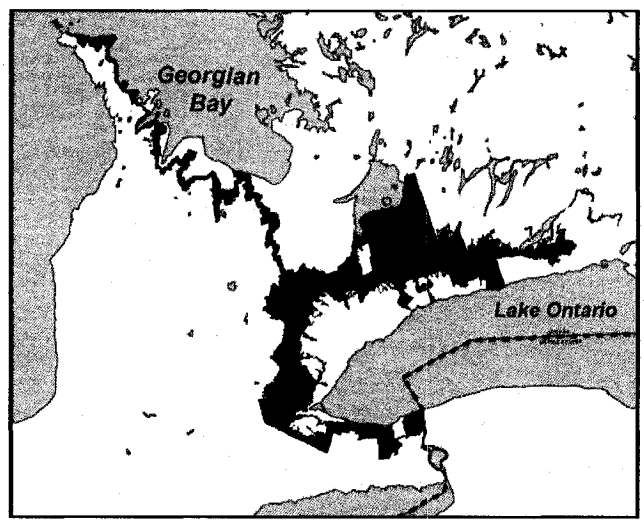
Oak Ridges Moraine Plan (2001) (Ambroski, 2006), both of which were designed to protect unique environmentally sensitive features in southern Ontario.

Figure 2.3 – the location of the Greater Golden Horseshoe region in Ontario

(Ministry of Public Infrastructure Renewal, 2006)

The Greenbelt is comprised of 1.8 million acres of land that extends from Rice Lake in the east (near Peterborough) to the Niagara Peninsula in the southwest (Figure 2.4). The plan includes 800,000 acres of land that previously were protected under the Niagara Escarpment and Oak Ridges Moraine plans, and 1 million additional newly protected acres known as the protected countryside (MMAH, 2005).

Figure 2.4 – The Greenbelt Plan Area



(Ministry of Municipal Affairs and Housing, 2005)

The MMAH (2005) states that the boundaries of the Greenbelt were defined using 'a "systems-approach", a well-established method of land-use planning and analysis', but does not add any further detail about what specific analysis was used to select land that was to be included in the protected area.

In terms of agriculture, there are a number of aspects that the Government was concerned with when designing the Greenbelt Plan. Many of the concerns focused on the importance of specialty and tender fruit crops in the region, as well as ensuring the preservation of the most productive farmland. The MMAH hopes that the Greenbelt will achieve five goals for agriculture. Of these, the most important for agriculture is to protect prime agricultural areas by preventing further fragmentation and loss of the farmland base caused by urban sprawl and the creation of urban lots. Another goal is to provide appropriate flexibility to allow agriculture, agricultural-related activities, and normal farming practices to continue, ensuring the continued prosperity of the rural economy. A further goal is to protect the specialty crop land base in the region while also

allowing supportive infrastructure and value-added uses that are necessary for sustainable agriculture. Another goal of the Greenbelt is to support and promote the specialty crop areas in the Niagara Peninsula as an important agri-tourism destination related to the grape and tender fruit production in the area. The final goal is to increase certainty for the agricultural sector by promoting long-term investment in, improvement to, and management of the land.

According to Daniels (2000), preserving farmland is not the same as protecting agricultural viability. The MMAH (2004) released a Greenbelt Task Force Discussion Paper prior to the implementation of the Greenbelt Plan which contained a brief section dedicated to the viability of agriculture. It states that the taskforce has recognized the importance of ensuring the viability of agriculture and has acknowledged that land use provisions alone are not enough to ensure the long-term agricultural viability within the Greenbelt region. This is one of the most significant issues that will be discussed further in the research paper to determine if the Greenbelt is in fact a step in the right direction to ensure the viability of agriculture in the Greater Golden Horseshoe region.

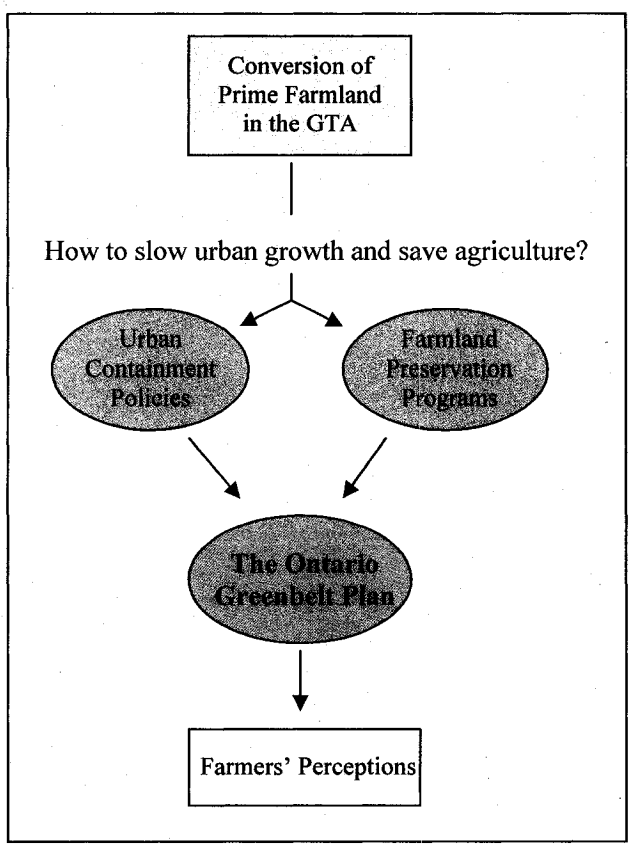
2.10 Introduction to the Research

This research project will draw on the above goals of the Ontario Greenbelt Plan and combine the recommendations of effective farmland preservation techniques from the literature along with farmers' perceptions of the legislation to determine the effectiveness of the Greenbelt Plan as a growth strategy to protect valuable farmland in Ontario. It is essential to recognize farmers' opinions regarding the Greenbelt strategy because farmers, as a group, will ultimately experience the greatest affects from this legislation. Frequently, farmers are ignored in the policy making process. However, this research

project will allow farmers in the Greenbelt region to voice their opinions on one of the most important land use regulations enacted in the Province that will undoubtedly have significant and long-term consequences for farming in Ontario.

The current trend of farmland conversion in the GTA, along with the literature reviewed on numerous methods of agricultural preservation and the information provided about the recent Ontario Greenbelt Plan by the government has shaped a framework for this research project (Figure 2.5).

Figure 2.5 – Conceptual Framework



Farmland in the GTA is rapidly being converted to urban uses because of increased urban sprawl. Low density development is moving further and further into the countryside, permanently removing agricultural land from production. There are two main techniques used to slow the conversion of farmland to urban uses: urban containment policies and

farmland preservation programs. Urban containment policies ultimately protect resource lands by utilizing compact urban development strategies that inhibit urban land uses from moving into the countryside. Farmland protection programs focus on maintaining productive tracts of agricultural lands in a region by supporting farmers. In 2005, the Ontario Government elected to utilize a Greenbelt to address the issue of farmland conversion in the GTA. The goal of the Greenbelt is to preserve agricultural land by controlling urban development. This research project will focus on farmers' perceptions of the Greenbelt to determine how successful they believe the legislation will be at limiting sprawl and preserving agriculture in the Greater Golden Horseshoe region.

Chapter 3 - Methodology

3.1 Introduction

This chapter introduces the methodology used to uncover the perceptions of farmers in the Greater Golden Horseshoe on the value of the Ontario Greenbelt Plan. To accomplish this objective, interviews were conducted with 22 farmers living in various regions of the Greenbelt to determine how effective farmers think this new legislation will be in controlling the conversion of farmland to urban uses in the GTA. The interviews focused on finding out whether and how the Greenbelt Plan affected their farming operations and, most importantly, what their perceptions were of the Greenbelt Plan as a tool to preserve agriculture. The study area was geographically limited to the regions that contained the majority of the additional protected lands (land that was not previously protected under the Niagara Escarpment Plan (1985) or the Oak Ridges Moraine Plan (2001), which represents approximately 55 percent of the total area protected under the Greenbelt Plan (MMAH, 2005).

This chapter briefly discusses the literature that was used to familiarize the researcher with the details of the Greenbelt Plan in Ontario before data collection could begin. The chapter details the selection of participants and sample size and describes the characteristics of the farmers who participated in the research project. The chapter then discusses the methods used to collect and analyze the data.

3.2 Literature Review

An extensive review of literature on farmland preservation and the Ontario Greenbelt Legislation was conducted before the start of data collection (see Chapter 2). The literature that the Ontario Ministry of Municipal Affairs and Housing (MMAH) made available to the public on their website regarding the Ontario Greenbelt was a key resource that was examined for detailed information on the recent planning strategy (MMAH, 2005). The Official Greenbelt Plan website provided information on the visions and goals of the plan, maps of the plan's boundaries and details on the policies for the protected area. Although the Official Plan provided considerable detail about the land use strategy, information regarding specifics of the plan's implementation was not made available, nor was there any information on how the boundaries were delineated.

During the initial research process several mailing lists were accessed that provided up to date news releases on the topic. These include Friends of the Greenbelt Foundation, Greenbelt Watch, and the Halton Region Federation of Agriculture. Currently few studies exist that explore the perceptions and attitudes of farmers towards plans to protect agricultural land. However research has been conducted in the Toronto area to seek farmers' perspectives about agriculture in the region (Bunce and Maurer, 2005). The study provided insight for this research project, particularly on how to approach farmers for interviews.

An extensive body of literature on a variety of farmland preservation methods was reviewed. This information provided details about various farmland preservation strategies in various regions of the world. However, the majority of the literature focused on protected plans in North America, mostly in the United States. This review provided

valuable information regarding what factors influence an effective preservation plan, and how to evaluate these plans. The findings from these studies were used as a guide in formulating the interview questions.

3.3 Interview Questions

Interview questions were developed before data collection commenced (Appendix A). Since this research focused on the perceptions of participants, broad, open-ended questions regarding the Greenbelt Plan were developed. It was assumed that participants would reveal more information if questions were less structured. The questions that were developed for the participants were designed to uncover farmers' feelings regarding the Greenbelt and how they were made aware of the new legislation. Participants were also asked questions regarding the public meetings that were held on the Greenbelt and what types of recommendations were discussed at these hearings. An important aspect of the research was to determine whether or not the suggestions that came from farmers at these meetings were taken into consideration. Participants were also asked if their viability or future plans had been changed by the Greenbelt, and if so in what way? The conclusion of each interview focused on whether farmers thought that the Greenbelt was in fact an effective approach to preserve farmland and they were also asked to recommend a more successful farmland preservation technique that should be considered by the government.

3.4 Data Collection

3.4.1 Initial Organization

To gain an understanding of how farmers perceive the new legislation, interviews were conducted with 22 farmers living inside or very near to the protected area of the

Greenbelt. For this research project, interviews were the sole method of gathering information on farmers' perceptions of the Ontario Greenbelt Plan. Farmers living in close proximity to the Greenbelt were chosen because they were more likely than others living farther away to have strong opinions on the planning strategy.

Prior to the start of the research, a telephone script was developed that was to be used to recruit potential participants (Appendix B). The telephone script provided background information on the Greenbelt Plan and a brief overview of the research project. Contacts were then asked if they would be willing to participate in the research project. There were many instances when an answer was not immediately forthcoming. The researcher's contact information was provided to these individuals in the hope that they would accept the request for an interview. A participation rate of close to 50 percent was achieved. Approximately 50 individuals were contacted and invited to contribute to the research project while 22 interviews were actually conducted. There were several reasons why farmers declined to participate in the research project. These include being too busy, not knowing enough about the legislation, or simply not being interested. It is expected that the results of this study may have looked somewhat different if these individuals had participated in the study.

The telephone script, interview questions, and consent form were submitted to the Research Ethics Board at Wilfrid Laurier University to ensure the rights and wellbeing of all participants was protected. The consent form (Appendix C) informed the participants about the research project, explained their role as a participant, and set out their rights and responsibilities (Office of Research Services, 2007).

3.4.2 Selection of participants

The sampling method chosen for this research project was based on purposive sampling. Purposive sampling methods are used frequently for qualitative research and can be defined as selecting participants based on a specific purpose associated with answering a research study's questions (Teddlie and Yu, 2007). Maxwell (1997) adds that purposive sampling is a type of sampling in which 'particular settings, persons, or events are deliberately selected for the important information they can provide that cannot be gotten as well from other choices' (p. 87). This research project is concerned with farmers' perceptions of the Greenbelt Plan in Ontario. Consequently all participants invited to participate in this project were members of the farming community in the Greenbelt region.

Teddle and Yu (2007) suggest that the researcher should select participants from whom he or she can learn the most. Given that this research project is concerned with uncovering farmers' perspectives of the Greenbelt Plan in the Greater Golden Horseshoe region, it was determined that the most detailed information would come from individuals who are farming in this region. Although farmers who have land in the Niagara Escarpment or the Oak Ridges Moraine protected areas may also be affected by the Greenbelt regulations, farmers whose land has recently been protected under the 'Protected Countryside' of the Greenbelt, would be most likely to offer the strongest opinions on the legislation. However, as farmers were generally contacted using website information or phone numbers provided by prior participants, it was difficult to initially determine if a farmer's entire agricultural land holdings were within the area of the 'Protected Countryside'. This made it difficult to limit the interviews to those farmers

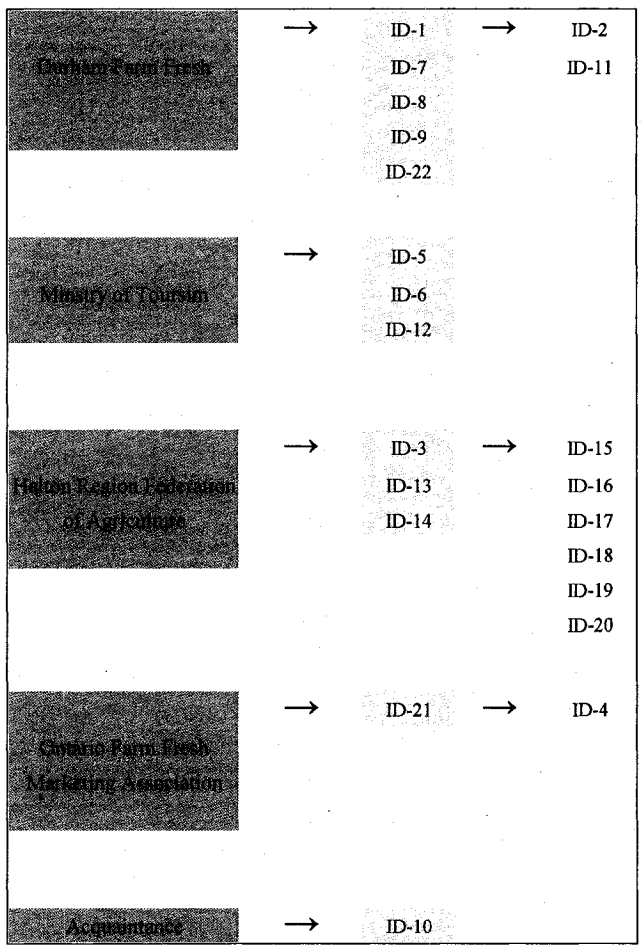
who owned land only in the newly protected region of the Greenbelt. The farmers that were invited to participate in the research were all located in close proximity to the Greenbelt boundary and were very familiar with the protection plan, which made them appropriate participants for this study.

This research project utilizes a type of purposive sampling called 'snowball sampling', sometimes referred to as chain sampling. Snowball sampling is defined by Bailey (1994) as 'a nonprobabilistic form of sampling in which persons initially chosen for the sample are used as informants to locate other persons having necessary characteristics making them eligible for the sample' (p. 438). According to Teddlie and Yu (2007) snowball sampling is a type of sequential sampling, where initial participants are selected to become part of the research project. These preliminary participants then identify other individuals who will be relevant to the research topic. The theoretical foundation of snowball sampling is that members of a particular population are familiar with others in that population (Penrod, 2003). One concern outlined by Teddlie and Yu (2007) with snowball sampling is that the social network may become limited which, in turn, may limit the application of the findings. However for this project, the researcher utilized a number of initial sources to avoid the problem of tapping into the same social networks.

For this study, the researcher utilized several farm associations and government websites to produce 13 initial participants. From these preliminary participants, 9 other individuals were identified (Figure 3.1). The participation rate of the initial participants was much lower than the participation rate of the referred individuals. Individuals gave various reasons for not participating in the research. Some indicated that they were too busy to participate, others did not feel comfortable with the situation or did not have

enough understanding of the topic in question, and others simply said 'no' without an explanation. On the other hand, when the referred participants were contacted by telephone and told that their contact information had been provided by one of their colleagues who participated in the research project, these individuals appeared to be more willing to participate in the study. Consequently, the majority of these individuals agreed to take part in the research.

Figure 3.1 – Participant selection based on snowball sampling



3.4.3 Sample size

In qualitative research, the number of people interviewed is less important than the quality and quantity of the people who are interviewed (Bradshaw and Stratford, 2005). Teddlie and Yu (2007) note that the sample size used in purposive sampling is typically small, usually 30 participants or less, and that the sample is selected before and/or during the beginning of the research. Patton (1990) insists that 'there are no rules for sample size in qualitative inquiry' (p. 184), and the information and validity generated from qualitative research are more dependant on the analytical ability of the researcher than on the size of the sample.

This study is based on information gathered from 22 interviews with farmers in the Greenbelt region to determine their perceptions of the Greenbelt Plan. Of these, 13 interviews were organized from contact information available on the internet or via email. Nine interviews were with participants whose names had been provided by previous interviewees. Once 22 interviews had been conducted it became evident that no new information was being provided and that 'saturation' had been achieved (Charmaz, 2000). Moreover, the participants represented a diverse range of farming backgrounds, including horticulture, tender fruit and grape, dairy, and entertainment farming (see description in Section 3.5), and thus the decision was made not to conduct any further interviews (Bradshaw and Stratford, 2005).

3.4.4 Interviews

Interviews were chosen as the research technique for this project due to the type of information the researcher wanted to obtain. The main concern for the project was uncovering farmers' perceptions of the Greenbelt Plan. It was determined that a survey

instrument would not be as effective as interviews because participants would be less likely to go into detail about their opinions if they had to produce written responses. Additionally, the participation rate would have been much lower if a survey instrument was used because individuals tend to ignore or throw away surveys that are delivered by mail. According to Neuman (2006) mail questionnaires are not an effective method for obtaining answers to open-ended questions. The researcher was concerned about participation from the beginning of the project because the time of year that research was to take place coincided with one of the busiest times a year for farmers. It is for this reason that initial contact to request participation was made over the telephone instead of sending a request form in the mail. It was determined that individuals would be more likely to participate if they were personally informed of the research project by the researcher prior to the interview instead of reading an information sheet sent via mail. Face-to-face interviews were preferred over telephone interviews because it was determined that participants would be more willing to discuss their perceptions of the Greenbelt after they had met the researcher. Neuman (2006) also suggests that a disadvantage of telephone interviews is that open-ended questions are difficult to use. Since the questions that were developed for this research project were mostly open-ended it was determined that face-to-face interviews would be better suited to this project than telephone interviews.

During the research period, 21 face-to-face interviews were conducted in the field using a semi-structured instrument, with only the researcher and the participant present. The remaining interview was conducted over the telephone as the individual indicated that he did not have sufficient time to meet for a formal face-to-face interview.

According to Bradshaw and Stratford (2003) it is important to utilize semi-structured, in-depth interviews because they produce a deeper, more detailed understanding of the underlying issues. They suggest conversing with participants for as long as possible regarding the interview topic. The interviews for this research project were conducted with farmers in their homes or on their farms. By utilizing a semi-structured instrument the interviews were conducted so that participants were in control of the length of the interview, depending on the strength of their feelings and perceptions on the topic. Every effort was made to set up interviews far enough apart so that the researcher would not have to cut short the participants who wanted to discuss the topic in great detail. The interviews varied in length. The majority lasted approximately 45 minutes, while some lasted less than 30 minutes and others lasted well over an hour. It appeared that participants who had the strongest opinions on the topic were comfortable discussing the issue in more detail than others who were less fervent on the subject.

3.5 Characteristics of Participants

This research project involved 22 interviews with farmers in the following regions: 9 in the Halton Region, 8 in the Durham Region, 4 in the Region of Niagara, and 1 in Wellington County. Of the 22 farmers interviewed 18 were male. The remaining 4 were females who were very involved in the day-to-day operations of the family farm (see Table 3.1). The table illustrates that the majority of participants interviewed farmed or owned land in the Greenbelt region, while several participants were very near the Greenbelt boundary but the land they owned was not protected under the Greenbelt legislation. Several of the participants owned land that lay both inside and outside the Greenbelt boundary. Additionally, some farmers in the Greenbelt region owned land that

was previously protected under the Niagara Escarpment Plan (NEP). According to the Niagara Escarpment Commission (2007), the NEP was established in 1985 as 'a framework of objectives and policies to strike a balance between development, preservation and the enjoyment of this important resource [Niagara Escarpment]'. Consequently, the farmers whose land was formerly protected under the NEP may not have experienced the same affects from the Greenbelt legislation as other farmers whose land has recently been protected. The table shows that the type of farming operations was quite varied among participants. The main types of farming operations include horticulture, orchards, dairy, grape and tender fruit, and entertainment. Entertainment farming is described by Adam (2004) as a 'new, highly consumer-focused type of agriculture' that often includes educational agricultural tours, pick-your-own operations, pumpkin patches and farm stores.

The size of farming operations was diverse among the participants. Some farmers owned roughly 100 acres of farmland, while others owned well over 500 acres. The geographic location of participants was also varied. Farmers were located in four different regions throughout the Greenbelt area including Durham, Halton, Niagara and Wellington County. Since the sample of participants represents numerous diverse characteristics of farmers in the Greenbelt region, it may be possible to form cautious generalizations of the larger farming population in the Greater Golden Horseshoe region from this sample.

Table 1. Participant Characteristics

Participant	Region	Gender	Farming Type	Greenbelt Location
ID-1	Durham	M	entertainment	inside
ID-2	Durham	M	entertainment, horticulture	inside
ID-3	Halton	M	horticulture	inside
ID-4	Halton	F	orchards (apples)	inside
ID-5	Halton	M	entertainment	inside BUT previously NEP
ID-6	Halton	M	horticulture, flowers, ent	owns inside, rents outside
ID-7	Durham	M	entertainment	inside
ID-8	Durham	M	horticulture, beef cattle, meat goats	inside
ID-9	Durham	M	organic horticulture	inside
ID-10	Durham	M	cash crops, apples	outside
ID-11	Durham	M	dairy cattle	inside
ID-12	Halton	M	orchards (apples, pears)	inside
ID-13	Halton	M	horticulture	inside BUT previously NEP
ID-14	Wellington	F	horticulture	inside
ID-15	Halton	M	cash crops, feedlot	some inside, majority outside
ID-16	Halton	F	dairy cattle, cash crops	outside
ID-17	Niagara	F	poultry, tender fruit and grapes	inside BUT partially NEP
ID-18	Niagara	M	hogs, grapes, cash crops	inside
ID-19	Niagara	M	grapes, orchards (apples, pears)	inside
ID-20	Niagara	M	grapes, cash crops	half inside, half outside
ID-21	Durham	M	horticulture, flowers	inside
ID-22	Halton	M	entertainment, horticulture	inside

3.6 Data Analysis

After data collection was complete the data were analyzed qualitatively. Each of the 21 face-to-face interviews was recorded using a digital voice recorder. These files were transferred from the handheld device to the researchers' laptop immediately after the completion of each interview. These files were then transcribed using a voice recognition software package. The answers to the open-ended questions were repeatedly examined until several common themes appeared. The recurring themes include; farmers' general perceptions of the Greenbelt, issues regarding the public meetings that were held on the Greenbelt, the Greenbelt affecting viability or future plans for farmers, whether farmland preservation is in fact necessary, and alternative or more effective farmland preservation techniques that farmers think the Government of Ontario should consider. These themes

were then examined against the framework discussed in Chapter 2 to determine if and how the Greenbelt Plan satisfies the characteristics of an urban containment strategy and a farmland preservation program.

3.7 Summary

This chapter has highlighted the methods that were used to evaluate the Greenbelt legislation and determine farmers' perceptions of the policy. Characteristics of the participants as well as the researcher were described in this chapter along with the technique that was used to select participants. The chapter highlights the importance of broad, open-ended questions and face-to-face interviews for the purpose of this research project. The findings from the data collected will be presented in the following chapter.

Chapter 4 – Analysis

4.1 Introduction

This chapter highlights the findings from the analysis of the data collected during interviews with farmers in the Greater Golden Horseshoe region about various aspects of the recent Greenbelt legislation. The majority of the chapter focuses on identifying the major themes that emerged from the research. The opening theme discusses why farmers' felt they were not adequately informed of the Greenbelt legislation. The following theme uncovers farmers' opinions of the public meetings that were held to inform individuals about the Greenbelt prior to the legislation being enacted by the Government of Ontario. The third theme uncovers farmers' perceptions about the way the plan was developed, including the organization of the plan and the Greenbelt Committee. The subsequent theme details whether or not farmers think the Greenbelt will affect them personally in terms of their ability to carry on farming and how their plans for the future may be impacted by the legislation. The remainder of the chapter focuses on farmers' opinions relating to whether the Greenbelt supports its functions as a farmland preservation program and an urban containment policy.

4.2 Farmers Uninformed about Greenbelt Legislation

After asking participants about when and how they were informed about the Greenbelt legislation it was apparent that many were never officially informed by the Ontario Ministry of Municipal Affairs and Housing (MMAH) about the plan. Several farmers learned about the Greenbelt by chance while reading community newspapers or newsletters. However, the majority of participants were informed about the new

legislation through various farm organizations, including the Federation of Agriculture and the Ontario Fruit and Vegetable Growers Association. Many believe that they would not have been aware of the plan at all had it not been for these farm organization meetings that nearly every participant attends on a regular basis. Several farmers were disappointed that they were not informed of any preliminary discussion regarding the Greenbelt. The majority of participants learned about the Greenbelt, not directly from the applicable Ministry, but from various farm organizations. Some farmers were not aware of the Greenbelt until the Official Draft had been released.

4.3 Farmers Dissatisfied with Public Meetings

4.3.1 Timing and Location of Meetings

Following the release of the Draft Plan farmers were informed of the public meetings taking place where they could discuss various recommendations for the Greenbelt. The majority of participants attended at least one of the public meetings that were held around the Greenbelt region in May and June of 2004. Some farmers attended several of the meetings because they wanted to hear what other farmers were saying in different regions of the Greenbelt. However, a common complaint from participants was the meetings that were open to farmers to raise issues and suggest recommendations were being held during one of the busiest times of year for them. Several participants believed that the MMAH arranged the meetings during this time period specifically to make it difficult for farmers to attend. Participants believed that the government did not want to listen to their concerns. Several participants felt that the notice given was too short to enable them to rearrange their schedules to attend. Consequently, participants who did not attend the

meetings did so because they were held at an inconvenient time, not because they were not concerned about the Greenbelt. Another complaint from participants about the meetings was that they were held too far away from rural areas. Many of the meetings that were supposed to be focused on farmer input were held in larger cities, such as Oakville and Oshawa. Farmers believed that the meetings should have been held in rural areas closer to their farms to make it easier for them to attend.

4.3.2 Farmers' Suggestions Made No Difference

Participants who attended the farmer input sessions agreed that most of the farmers present at these meetings had very strong opinions on the subject of the Greenbelt. They also indicated that there were many recommendations and suggestions made by farmers to the officials at these meetings, including reasons why certain parcels of farmland should not be included in the Greenbelt. A further criticism of the Greenbelt Plan by farmers included the lack of compensation for potential land value losses and the lack of support for agricultural research in the protected area.

The main concern that most farmers had was that they wanted to be left with some options, and they felt that the current plan they were commenting on was not providing those. The majority of participants were quite positive that the opinions they offered at the meetings would be ignored and would make no difference to the legislation:

> It didn't seem to matter who said what at any of the meetings; the decision had already been made (ID-7).

One participant suggested that the officials at these meetings did not even try to hide the fact that it was too late to change anything in the Greenbelt legislation. This farmer says that while at one of the meetings he was asked to complete a questionnaire. He asked the

Chair of the Greenbelt Taskforce, who he knew quite well, how the questionnaires that farmers were filling in would become part of the Greenbelt document:

> I can't believe my eyes or ears, but he picked up the thick document, that they prepared way back, in front of him and said this is the document right here. So that told me it was a done deal... we were very disappointed and disgusted (ID-15).

Several participants remained hopeful that their suggestions would be considered by the government but realistically assumed that their opinions might be ignored. One of the participants implied that they had no way of knowing what was taken into serious consideration by members of the Taskforce. The reason for this may be because, as noted by several participants, that the officials attending the meetings sat at the front and listened to comments from attendees. One farmer was quite upset that there were no politicians speaking at any of the meetings. This farmer was also disappointed with the lack of discussion between the public and the Greenbelt Taskforce:

> There was no real response from the board, they just wrote everything down, and they didn't ask real questions. It should be a real debate (ID-9).

Many participants believed that the only reason that farmer input sessions were assembled was so that the government could say they had consulted with farmers before the legislation was passed. Many participants thought that the meetings were used more as a venting session for angry farmers than as a consultative process to resolve issues surrounding the Greenbelt. It was suggested by one farmer that he was invited to the meetings to complain and 'sound off' but that the Greenbelt decisions had been made long before any complaints were ever heard.

After talking to the sole practicing farmer on the Greenbelt Taskforce, it appears that

the participants were correct in believing that their comments made no difference to the final Greenbelt Plan. She said that the Taskforce received many very well thought out submissions from farmers at these meetings. However, she admits that if the submissions did not fit in with the views of the politicians that initiated the Greenbelt, then the recommendations simply were not acknowledged. She believes that close to 1200 proposals were submitted by farmers in the Greenbelt region to the Taskforce. She is unsure what happened with them but in the end received:

> three legal sized pieces of paper of charts with summaries, summarizing the 1200 submissions, and low and behold they all agreed. All of the submissions that we got on this chart agreed with what we already had in our recommendations (ID-18).

She believes that the Greenbelt process was completed even before she and other members of the Taskforce began their work on the project. She acknowledged that the Taskforce was handed their recommendations at the beginning of each meeting, and admitted that none of the recommendations stemmed from the meetings. She felt she was put into a difficult position because she agreed with many of the recommendations that came out of the farmer input sessions but she also knew from the beginning that the only thing that she would be able to do was to try and 'massage' the details of the Greenbelt Plan that had been put in motion by several Ministries in the months prior to her joining the Taskforce. She also suggests that she was hampered in terms of getting input from her peers about what was happening with the Greenbelt because the Taskforce was required to sign a confidentiality agreement at their first meeting and rarely received their information ahead of time.

She described the public meetings as 'a bit of a farce' and explained that individuals on the Taskforce were merely responsible for sitting at the front of the room during the

farmer input sessions to listen to comments, but not say anything or ask any questions. She claims that the worst part of the entire process was that each meeting focused on a separate topic with suggested recommendations to go along with them. She noted that only the suggested recommendations were included as the final recommendations for the plan.

4.4 Farmers Disappointed by Development Process of the Greenbelt

After asking farmers about their perceptions on the Greenbelt one of the major themes that emerged was their discontent with how the Greenbelt legislation came into existence, as well as the details of the plan. Several farmers mentioned that it was not necessarily the concept of the Greenbelt that they were in disagreement with, but it was the way that the plan was implemented and the process that went along with it. Many farmers simply were not happy with how the plan was handled by the government. A number of farmers referred to the Greenbelt process as being 'wrongly done' and 'sneaky'. One farmer even described the Greenbelt process as being 'like a dictatorship'. He noted that officials at the public meetings used the map from the draft Greenbelt Plan to illustrate to individuals what lands would be protected under the new plan. However, when the Official Greenbelt Plan was released, the boundaries had changed. This meant that there were many landowners, including farmers, who had believed their land would not be included in the Greenbelt (which they mentioned they were quite happy with) but were now suddenly included in the protected area under the Official Plan, with no option to appeal the decision. These farmers felt 'betrayed' and many thought that the process could have been done differently. Although no specific suggestions were mentioned, farmers felt

they should have had a more influential role in the process and that more actual consulting should have taken place before the legislation was approved.

Several participants used the term 'motherhood' to describe the concept of the Greenbelt. One farmer insinuated that the notion of protecting farmland for farming is not one that most people would argue with, which is why the broader public thinks the idea of the Greenbelt is very positive. It is for this reason that farmers believe that the Greenbelt was approved so easily, without meaningful consultation with landowners in the region. There are very few members of the public who would argue against having more green space around a large city such as Toronto. At the same time, the majority of participants believe that they are being directly affected by the broader public's desire for green space because they feel they have been 'designated keepers of the park'. Despite their disappointment in the process, many participants were very persistent about one thing; that the land is still privately owned, and in many cases by a farmer.

An interesting notion that arose from participants in the Niagara Region was the initial concept of the Greenbelt Plan. Farmers interviewed in the Niagara Region all suggested that the vision for the Greenbelt originated there. They suggested that the Wine Council wanted to designate a special grape growing area on the Niagara Peninsula. According to one farmer, Don Ziraldo who is a winery executive, felt there was not going to be enough land in the Niagara Region to grow the required number of grapes needed for the wine industry's big vision, which was basically a 'Napa Valley North' (Meyers, 2004). The Niagara farmers indicated that his comments marked the first time they had heard anything about having an area of protected land:

> Don Ziraldo wanted another Napa Valley, that's all he wanted. To be fair to him that is all he wanted, but what the government did was the whole GTA, the whole

> Golden Horseshoe. So they dragged in other land, and froze all of the farmers on that land (ID-18).

Participants wondered if the concept of a Greenbelt had been initiated before the wine industry suggested a protected grape growing region, or whether the Greenbelt idea actually started with Don Ziraldo:

> Their vision was to save all of the agricultural land to grow grapes and the next thing we heard, this whole Greenbelt thing just sort of snowballed (ID-17).

One of the farmers in the Niagara Region sympathized with other farmers in the Greenbelt area who had no idea that the Greenbelt was going to be proposed:

> We at least knew here because we got our ears close enough to the ground that we knew it was happening (ID-20).

4.5 Farmers Dissatisfied with Organizational Features of the Greenbelt Plan

One concern that farmers had of the Greenbelt Plan right from its inception was the composition of the Greenbelt Taskforce. Farmers were disappointed that only one practicing farmer was on the Taskforce but that the invitation to participate had been extended to many 'business' people from the city. They believed that the proposed Greenbelt would have the most direct impact on them as farmland owners and felt that they deserved more representation on the Taskforce:

> Basically the farmers probably own 70 percent of the land, but we only had one voice (ID-15).

Other farmers thought the Taskforce was just another way for the government to bring together a group of people who all had the same views as the Premier in order for the legislation to pass quickly and with ease. Comments from the farmers suggested that they

were discouraged with the design of the Taskforce that limited farmer input but were not surprised with the way that it was handled:

> They usually do very minimal farmer input into what basically affects farmers and it should be weighted against farmers (ID-2).

Farmers were also curious as to why the legislation fell under the Ministry of Municipal Affairs and Housing. They thought that the Ministry of Agriculture should have played a more important role in the decision-making because so many farmers would be affected by the Greenbelt. In coming to decisions, participants felt that the MMAH did not give sufficient consideration to how the plan would affects farmers.

Another characteristic of the legislation that farmers were not satisfied with was the lack of an appeal process. As stated above, after attending the public meetings, some farmers believed they would not be included in the Greenbelt only to realize when the Official Plan was released that their land was now included. These farmers were not provided with an opportunity to explain why their land should not be included in the Greenbelt. Unlike other farmers, these farmers had not spoken up at the public meetings because they had believed their land would fall outside the protected area under the Greenbelt legislation. With the changed boundaries they felt that they should have had the opportunity to appeal the final decision:

> ... through the planning act you're supposed to be notified, you're supposed to be able to comment on it, but by the process they went through... sure we commented on the first draft plan, which we were in favor of not being in the Greenbelt, but we never had a comment on the final draft. To me, that's not right. We had no notice that they wanted us to even be in the Greenbelt (ID-11).

4.6 Farmers' Perceptions about the Greenbelt Affecting the Viability of Agriculture

It was clear from the interviews that farmers were divided on whether they thought the Greenbelt would have an affect on agricultural viability. Approximately half of the participants maintained that the Greenbelt would have no negative affect on their viability while the remaining half believed that the Greenbelt will, if not immediately, have an affect. The participants who believe the Greenbelt will not affect farming viability did not give specific reasons for their decision. However, they may be associated with the location of their farms. Several farmers who thought their viability would not be negatively affected by the Greenbelt were located just outside the Greenbelt boundaries. It is likely that their location outside the Greenbelt has affected their perception of viability. However, several farmers located inside the Greenbelt boundaries also believed that the new legislation would have no negative affects on their agricultural viability. It is important to note, however, that all the participants who commented that the Greenbelt would not have a negative affect on viability also indicated that there would be no positive impacts on their viability with the establishment of the Greenbelt. Participants agreed unanimously that the viability of their farm operations would not be altered in any way as a result of the Greenbelt and certainly would not be enhanced by its existence.

The participants who believed the Greenbelt would negatively affect their viability offered various reasons as to why they felt that way. One farmer (ID-11) suggested that the Greenbelt would impact the cost effectiveness of farming. He believed that the government is taking a stab at the agricultural sector because the Greenbelt legislation is 'tying up' his land, which he described as his number one business asset. He went further and stated that no business would be able to continue operating if their number one asset

was tied up and he believed that farming is no different. He was adamant in believing that the government is asking farmers to do the 'unthinkable'. Another participant (ID-20) agreed, adding that the Greenbelt has made it more difficult to continue farming due to the amount of money that land is being sold for. Another participant (ID-18) suggested that the Greenbelt would affect viability simply because it leaves farmers without any options. The Greenbelt is forcing farmers to keep their land in agriculture. Another participant noted that the Greenbelt would make his farm less viable because it increases regulations and further burdens farmers. He argued that the government persists in making things more difficult for the agricultural sector and wonders how much more farmers can put up with and still have a viable business. One participant (ID-5) was unsure of how the Greenbelt would affect the viability of his farm but assumed it would not be in his best interest because the government was attempting to restrict land use.

Several participants were not satisfied with the way viability was addressed in the Greenbelt legislation. The majority of farmers believe that viability is the most significant aspect to consider when developing a protection plan designed to preserve agriculture. Participants suggested that agricultural viability was ignored during the Greenbelt process:

> My big thing is the viability of farming and they didn't pay attention to that. And really there was no part of this that had to do with viability (ID-6).

Another farmer pointed out that viability was barely discussed in the Official Greenbelt Plan:

> If you read the plan there is just one paragraph that talks about economic viability in farming...That we have to find a way to do something. Yeah, well what would that be? (ID-18)

Some participants believed that the Greenbelt Plan was written up using 'political jargon' so the government could claim they had addressed all the important issues. Although the Greenbelt document does address the fact that preserving farmland does not ensure the long-term viability of agriculture there are no recommendations as to how viability can be preserved.

4.7 Farmers' Perceptions about the Greenbelt Affecting Future Plans

Another issue that divided participants was whether and how the Greenbelt would change their plans for the future. The majority did not believe that the Greenbelt would affect their future plans. Among these were several who stated that their farms will be passed down to other family members and will continue to operate in a similar fashion. On the other hand, there were others who believed that the legislation would lead to an alteration of their plans for the future. One participant (ID-11), whose farm is located immediately next to a quickly expanding urban centre, was planning on selling his land to a developer and moving his operation further out into the countryside. Now that his farmland has been protected under the Greenbelt, however, it can no longer be sold for development. The only option that remains for him is to continue farming directly next to the urban centre, which likely will have a negative affect on his operation. The issues that might arise include non-farm neighbours trespassing on his farm, complaints about noise and odor from his farming operation, as well as problem with transporting farm machinery through heavy traffic, which can be very dangerous. He believed that the Greenbelt has definitely hindered his plans for the future because he has been denied any alternative options. He can no longer sell to a developer because of the Greenbelt and no other farmer would want to buy his land because of its close proximity to the city. He felt

he is being compelled to remain where he is and deal with the consequences of his non-farm neighbours. The majority of other participants who agreed that the Greenbelt will affect their plans for the future also anticipated they may plan to sell their farm one day. These farmers believed that they are stuck in agriculture with no options to sell their land. An interesting perception from a farmer living outside of the Greenbelt boundaries was that he may actually be more inclined to sell his land to a developer because of the Greenbelt:

> I would maybe sell because I am scared of what the government might do next, what regulatory thing they might put on. You know, I would like to get out while the getting is good (ID-15).

Consequently, the Greenbelt, which is supposed to be preserving farmland, may actually be influencing farmers who are outside of the boundaries to sell their land for development quickly because they are concerned they may not be able to sell it in the future, or that the land may lose much of its value. If the Greenbelt was truly supporting its function as a farmland protection program, then it would have considered all the productive farmland outside of the Greenbelt boundaries to be just as significant for farming purposes as the productive farmland inside of the boundaries

4.8 The Greenbelt as an Urban Containment Strategy

Although the Ontario Greenbelt Plan is concerned with preserving more than just farmland, including environmentally sensitive lands and areas of tourism and recreation, one of its most significant interests was in fact to preserve agricultural lands in the region. The legislation suggests that agricultural land will be permanently protected in the region because urban development will be controlled.

According to the Pendall et al (2002), a Greenbelt Plan typically falls under the category of an urban containment policy. The border of a greenbelt is used to separate urban uses from the countryside and greenbelts are generally intended to be used as a permanent planning approach (Pendall et al, 2002). The Ontario government has claimed that the Greenbelt has permanently protected agricultural land in the Greater Golden Horseshoe but the legislation states that there will be a review of the plan in 10 years, at which time the boundaries may be amended (MAH, 2005). Although the legislation states that the actual protected area of the Greenbelt may not be reduced after the 10 year period, there is nothing that prohibits productive agricultural land from being removed if the government deems it necessary to shift the boundaries for further urban development. According to Pendall et al. (2002) one of the key functions of an urban containment strategy is to create compact and contiguous development in existing urban areas while at the same time preserving natural resource lands. The Ontario government also released 'The Places to Grow Act' (MMAH, 2005), shortly following the approval of the Greenbelt Plan. Although this illustrates where future infill development should take place in the region, the actual Greenbelt Plan does not function as a policy that promotes compact development. The Greenbelt legislation simply identifies where development cannot take place in the area within the Greenbelt boundaries. Some farmers believe that if the function of the Greenbelt was to provide a more effective planning tool for developers to utilize, then the Greenbelt may be successful in the long term. However, the majority of participants agreed that the Greenbelt should have been proposed long ago if its sole purpose was to protect the best farmland in the region. Many believe that the Greenbelt was initiated far too late for it to be successful. In the words of one farmer:

It's a little late closing the barn door after the horse is gone (ID-16).

According to the participants, the Greenbelt does not entirely support its function of an urban containment strategy for two reasons. The first reason is because the *boundaries* that were developed for the Greenbelt Plan do not coincide with the best farmland in the area. The second reason is because the Greenbelt promotes *leapfrogging*, where developers simply jump over the boundaries of the Greenbelt and urban sprawl continues farther into the countryside.

4.8.1 Boundaries

The boundaries of the Greenbelt are a sensitive issue for many of the farmers in the region. During this research project, participants had very strong opinions on the issue of the Greenbelt boundaries. The majority believed that the boundaries were never intended to protect the region's best farmland and that they were not created based on science but were designed in the best interest of developers.

4.8.1.1 Not preserving the most Productive Farmland

Every farmer interviewed believed that the Greenbelt did in fact preserve many acres of farmland; however they did not feel that the government was at all concerned with preserving the most productive farmland. The consensus was that much of the farmland that was protected under the Greenbelt was not the most productive farmland in the region and that many acres of very valuable farmland that should have been preserved were excluded from the plan. A farmer in the Niagara Region suggested that:

> They saved the agricultural land around Toronto; they didn't save the best agricultural land. They are preserving all sorts of land down here that is marginal at best (ID-18).

Several farmers believed that if the purpose of the Greenbelt was to preserve the best farmland in the Province that the Greenbelt should have covered the entire Province of Ontario. They feel that would have been the only way to ensure that all of the most valuable land was protected. Others believed that all of the agricultural land in southwestern Ontario should have been included in the Greenbelt, including areas in Simcoe County, Wellington County, Middlesex County and Chatham-Kent. Many farmers suggested that the farmland in those areas is much more productive than some of the land that was included in the Greenbelt. One farmer suggested that:

> There is farmland in Simcoe County that is probably 10 times more productive than the farmland they've saved. To save a circle of farmland around a city is totally ridiculous. The infrastructure is not here to save the farmers because they have all moved out (ID-4).

Participants recommended that existing agricultural infrastructure should have been considered when determining the Greenbelt boundaries. Although there are a large number of acres of productive farmland in the Greater Golden Horseshoe Region, many areas no longer have a viable agricultural support industry to utilize. One farmer in Halton Region said that there are no support-businesses remaining in his area and that he must go outside the region for everything from buying equipment to taking his grain to an elevator.

> Just to say that you can see the bulk of the class one prime agricultural land from the CN Tower... yes, you can but if it is not managed properly, if you don't have support services, if you don't have an industry behind you, is it really prime agricultural land?(ID-15).

A farmer in the Niagara Region suggested that some of the farmland that was included in the Greenbelt may have been considered valuable grape land back in the 1970s but due to changed demographics and varieties presently being demanded by processors, it should

no longer be considered good grape land. And it is not certain these areas have a place in the Greenbelt. This farmer points out what many other farmers also commented on

> The best land is already gone, especially in the St. Catherine's area; the best tender fruit land is already paved over (ID-17).

4.8.1.2 Not Based on Scientific Data

Many participants were not satisfied with the location of the boundaries. There were several farmers who claimed that the government did not utilize any 'science' to develop the boundaries, nor did they ever try to justify them. One farmer described his feelings of discouragement after he discovered where the lines of the Greenbelt had been drawn. He felt as though the location of the Greenbelt just did not make any sense and suggested that political leaders had too much influence on the legislation. Another farmer said it could be anybody's guess as to how the boundary lines were determined. He also revealed that he was told that the boundaries were based on a Land Evaluation and Area Review (LEAR) System for Agriculture report, which he believes was never completed for the Greenbelt region. According to the Ministry of Agriculture (2002), the goal of these reports is to 'identify prime agricultural areas for the purposes of establishing an agricultural designation in a municipal Official Plan'. It is uncertain whether these reports were used to determine the Greenbelt boundary because it was never mentioned in the Official Plan. One participant was quite determined to find out more about the location of the boundary lines and attempted to talk with the groups that had apparently completed the scientific reviews, including the Ministry of Agriculture. She was told that there were studies done on individual farms, but they have yet to see any evidence of these reports.

Another theory on how the boundaries were created came from a farmer in the Niagara Region who believed that the Ministry of Agriculture hired two students from Guelph University to do a 'windshield survey'. He says they drove up and down the roads and wherever a vineyard was visible would mark it on a map. He also suggests that there were very large vineyards that were overlooked and were left outside of the Greenbelt. One farmer provided a suggestion for what should have been considered when determining the boundary lines. He believes not only that the government should have utilized soil mapping, (it is uncertain if it did), but that they should have focused also on heat units, or the number of growing days per season. He believes some of the farmland that was protected under the Greenbelt legislation was not productive farmland because of the soil type or growing conditions. He feels farmland that cannot produce high quality crops does not have a place in the Greenbelt and believes farmers with that type of farmland should be able to sell it for development and other urban purposes since the land is not valuable for agriculture. Consequently, there is a wide variety of reasons why farmers in the Greenbelt region believe that the government did not consider sufficient scientific information when determining the boundaries of the Greenbelt.

4.8.1.3 Based on who owned the land

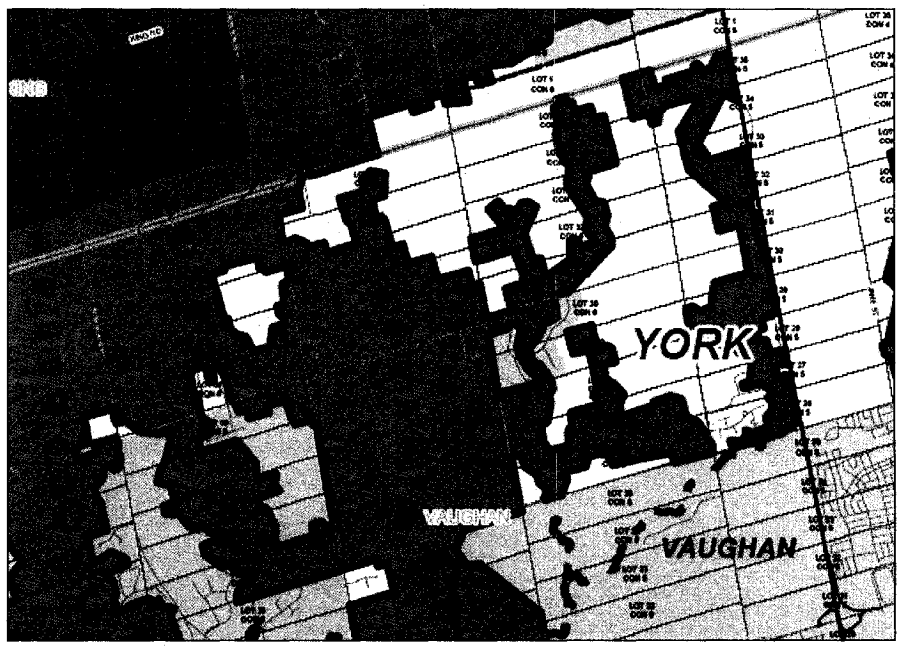
Many participants were confident that the Greenbelt had nothing to do with science and everything to do with who owned the land. One farmer said that:

> It seems the lines of the Greenbelt are dependant on who owned the land and not on any scientific lines where it is the edge of a valley or natural features of the land. It seemed to depend on who owned it and who didn't own it (ID-7).

He noted also that there is an area near the intersection of Highways 401 and 115 near Peterborough, which was excluded from the Greenbelt. He suggested that it is the nicest

piece of farmland in the area because of how flat it is and argued there are nearly 20 000 acres that should have been included in the Greenbelt if its purpose was to preserve productive farmland. He believes that it is mostly owned by developers who intend to build subdivisions on it. Another example can be found in the Halton Region where one of the participants knows of a piece of 'beautiful farmland' that he would love to be able to utilize for agricultural purposes but that it is also owned by developers and has been excluded from the plan. While talking to one farmer in the Durham Region he brought to my attention the pockets of land that were in the Greenbelt region but were not protected under the plan (Figure 4.1). Many participants believe that their existence proves the government was not interested in saving the most productive land in the region because the agricultural characteristics of the 'pockets' were exactly the same as the surrounding area that were included in the Greenbelt.

Figure 4.1 – An Example of a 'Pocket' of Land not Protected in the Greenbelt Region



(MMAH, 2005 - http://www.mah.gov.on.ca/Asset4294.aspx)

According to the farmers, the only difference was that developers owned these 'pockets' of land. A farmer in the Halton Region agrees that:

> The lines of the Greenbelt were drawn by the people that owned them. Where it cuts through part of a farm, a large company owns it, so it zigzags down the road and back up again (ID-15).

The perceptions that farmers had about the boundaries being dependant upon who owned the farmland was strengthened by the sole practicing farmer on the Greenbelt Taskforce who indicated that one of the only things that was changed during the Greenbelt process was freeing up some of the land in the Greenbelt that belonged to development companies:

> At the very end they changed some of the boundaries and it was to the advantage of the developers. That is why the developers on the Taskforce did not get too excited about anything [discussions regarding which lands to include] (ID-18).

She also pointed out that the Taskforce did not have much control over these types of decisions. She explained that they were not made aware of the changes until the day of the last meeting and by that point there was nothing that could be done. Consequently, it appears that there may be very good reasons why the majority of participants believed that developers were getting, as one farmer referred to it, 'the golden handshake'.

4.8.2 Leapfrogging

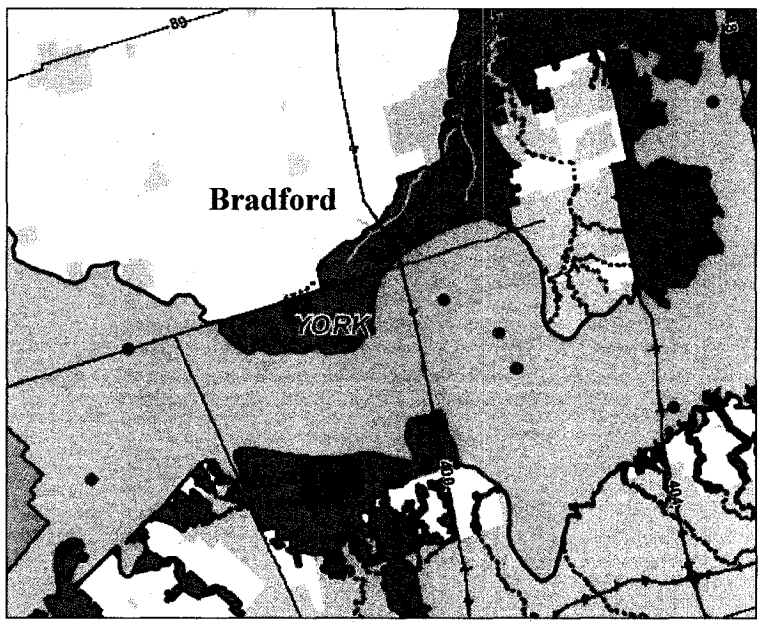
Participants also believed that the Greenbelt was not supporting its function of an urban containment strategy because it would ultimately lead to leapfrog development on the other side of Greenbelt boundaries. Leapfrogging refers to urban development that occurs farther out into the countryside, away from Greenbelt boundaries (Amati and Yokohari, 2005). The farmers' concerns about leapfrog development include unnecessary urban sprawl beyond the boundaries and additional traffic through the Greenbelt region.

Many participants believe that rather than controlling urban development, the Greenbelt will actually promote further excessive sprawl of the Greater Toronto Area. The reason for this is because urban development is prohibited in the Greenbelt area but because there are several areas just north of the Greenbelt that are still within commuting distance of Toronto, urban sprawl will likely move to regions adjacent to the Greenbelt. According to one farmer in the Durham Region:

> Urban sprawl needs to get controlled and I don't think the Greenbelt is the answer. Now developers are buying land in the Lindsay area, huge amounts of land, because it is not in the Greenbelt. Now people are going to be driving from Lindsay to Toronto instead of from Durham Region to Toronto (ID-5).

Several other farmers suggest that the town of Bradford (Figure 4.2) is where major leapfrog development is going to take place.

Figure 4.2 –Location of the Town of Bradford Relative to the Greenbelt Boundaries



(MMAH, 2005 - http://www.mah.gov.on.ca/Asset1293.aspx)

One farmer close to the Bradford area says:

> ...basically, the map of the Greenbelt keeps you 2 hours away from downtown [Toronto], except for Bradford. There you are quick hop over to the 400 into town. They left that whole block out and there are land values of over $200 000 an acre and almost everything in that area has been bought up by speculators. They are still eating up farmland; they are just leapfrogging (ID-15).

This same farmer, along with several others in the Greenbelt region, is particularly concerned about leapfrog development in the Bradford area because of the area's successful agricultural support businesses. These farmers indicated that they thought the Greenbelt will actually lead to the conversion of some of the best farmland that is currently available in the Greater Golden Horseshoe:

> And getting back to Bradford where there is leapfrogging, I mean that is where they still have a support industry and a lot of dairy farmers, farm co-ops, and grain elevators. You are going to see the slow deterioration of agriculture out there (ID-15).

Other farmers believe that there is also going to be leapfrog development in areas such as Woodstock, Guelph and Kitchener where, according to farmers, there are many acres of productive farmland. The concern from farmers is the same as it is for the Bradford area; that developers are now going to buy land and speculate in these regions where there is currently an abundance of productive agricultural land, thus leading to the permanent conversion of valuable farmland.

Along with the increase of unwanted sprawl in areas directly outside of the boundaries, many farmers are also disturbed by the fact that ultimately there will be increased traffic through the Greenbelt. Many farmers believe that as new communities spring up outside the Greenbelt these new residents will want to drive through the protected areas while commuting to their work in Toronto. Participants were concerned about more traffic in the Greenbelt for two reasons. The first is that there will be

increased pollution in the Greenbelt region from additional traffic. Farmers believed that the Greenbelt was intended to be an environmentally friendly initiative with the purpose of protecting significant environmental features. They feel it is unfair the Greenbelt forces them to remain in agriculture in order to preserve farmland but that the government does not seem to mind that leapfrog development will lead to increased pollution in the Greenbelt region:

> When there are going to be new communities built, like the one in Bradford, we are going to have a whole influx of traffic coming in through the Greenbelt. They preserve it for agriculture but then where does the traffic go? They will just jam another road in the Greenbelt (ID-15).

The other concern farmers have with increased traffic in the Greenbelt is their safety when operating farm machinery. Many farmers indicated that drivers are not sufficiently cautious when approaching slow moving farm machinery on the road and several participants were worried that increased traffic in the Greenbelt may lead to more collisions.

Although many participants feel that it is important to control urban development in the Greater Golden Horseshoe the majority do not believe that the Greenbelt is supporting its function as an urban containment strategy. The main reasons for their opinions include the location of the boundary lines and the fact that the Greenbelt is promoting leapfrog development.

4.9 The Greenbelt as a Farmland Protection Program

According to the literature, a Greenbelt is not generally considered a farmland protection program (Amati and Yokohari 2005, Bengston and Youn 2006). The Ontario government has claimed that the Ontario Greenbelt Plan is a policy that is concerned with

protecting agriculture in the Greater Golden Horseshoe region. Daniels (2000) argues that there are several important goals that should be considered when designing an effective farmland preservation program. The most significant of these include protecting a critical mass of farmland to allow the preservation of farming operations and the necessary support businesses, the continuation of affordable land prices to expand farming operations or the entry of new farmers, long-term reliability, and the cost effectiveness of the program. The remainder of this chapter will discuss farmers' perceptions on the extent to which the legislation will preserve farmland.

There are two reasons why farmers indicated the Greenbelt was not supporting its function as an effective agricultural protection policy. These include farmers and or landowners not being paid for their environmental work in protecting the land, and the belief that the plan was only intended to create green space for urban dwellers.

4.9.1 Compensation

According to Daniels (2000) a characteristic of an effective farmland preservation program is cost-effectiveness. The majority of participants felt that the Greenbelt has been costly for them since there is no provision for compensation to be paid to farmers by the Ontario Government for preserving the land in agriculture. Nearly every participant believed that the government should have provided some monetary payment to farmers because they are preserving farmland as an environmental benefit to society. It upset many farmers to witness the government's plans for nearly two million acres of farmland that did not belong to it. Participants believed that if the government wanted to permanently protect the farmland around the Greater Golden Horseshoe then it should have paid landowners what the land was worth. Nearly every participant believed that it

was unfair for the government to impose the Greenbelt legislation on them without providing any compensation for complying with regulations that were put in place to benefit society:

> You know when we are doing something to benefit society; society should really be compensating us or something. In this case society is the government and they are not offering to do that (ID-19).

Another farmer was in agreement and also believed that it would have been possible for payments to be made to farmers:

> They could have paid farmers for the environmental services they provide to keep the Greenbelt green (ID-18).

According to one individual on the Greenbelt Taskforce, the idea of compensation was immediately rejected by those in charge of the decision-making.

One participant suggested that farmers were being forced to finance the policy because the government has decided that farmers have no choice but to keep the land in agricultural production without being compensated to do so. He argued that if there was a loss in land value, due to the fact that speculation and the demand for farmland has decreased because development is prohibited, then the only individuals who are going to incur any loses from the Greenbelt are those who own the land. Consequently farmers believed that they are paying a price for the Greenbelt whether or not they are in agreement with it and that the government is getting exactly what it wants without having to pay for it. It is the farmers who are maintaining the land and they feel as though the Greenbelt is forcing them to continue its maintenance. Several noted that they feel they no longer have any options, that they are being compelled to carry on their farming operations and truly believe that the government should not have the right to force that upon them.

An expression used by several farmers during the interviews was 'expropriation without compensation'. Many participants believe that the Greenbelt has been very beneficial for the government in terms of allowing it to purchase relatively cheap land for urban infrastructure development. Some participants even feel that the government may have had an ulterior motive for initiating the Greenbelt Plan. Without the legislation the government would have had to compete with developers to purchase the land. Now that the Greenbelt prohibits urban expansion inside the boundaries, it is expected that the price that individuals are willing to pay for an acre of farmland will decrease. Several participants believe that the government is taking advantage of farmers by not providing them with any compensation for the land they are preserving, and at the same time they now have access to inexpensive farmland for their infrastructure projects:

> The Greenbelt is exempt from garbage dumps, pipelines, hydro towers and highways... all of the things that urban people need. You can turn our farm into Greenbelt but still build a dump on it... or a highway? The highway has to go somewhere, I don't disagree with that, but all of a sudden farmland is like the lowest price it has been for the last 20 years, now the government will come along and say we will pay you the value of the farmland, whatever the going rate is. They protected buying expensive farmland to build urban [infrastructure] (ID-7).

It is not certain what will happen to land values in the future but many farmers believe that farmland in the Greenbelt likely will decrease in value as a result of the legislation. It is also not clear where the agricultural industry is headed in Canada, but most fear that commodity prices will continue to decrease as well. If that is the case, many farmers are firm in the belief that eventually they will no longer be able to afford to farm because of the increased cost of inputs and the rapidly declining profits earned by farmers. In many cases, farmers have viewed their land as a retirement plan. Without any compensation

from the government for the Greenbelt Plan, and a likely decrease in land values, many feel that the legislation will have a definite impact on their assets:

> And our argument has always been, and more so now because of the farm income crisis, that our land is our pension (ID-15).

> Why should the farmer give up the right to sell his property to make money, because he can't make it off of farming? (ID-9)

If land values decrease due to the implementation of the Greenbelt, farmers who were hoping to sell their land and receive a 'pension' will be significantly impacted because they will receive less money for their land than they would have prior to the Greenbelt being established. Due to the lack of compensation from the Ontario Government that was provided to landowners living in the protected region, farmers would have no way of recovering their lost revenue from the sale of their land. As a result, it may be very costly for farmers who are looking to get out of farming, if land values decline.

One farmer believes that the millions of dollars that has recently been made available to various farming organizations from the Friends of the Greenbelt Foundation, a not-for-profit organization focused on promoting the Greenbelt's living countryside (Greenbelt: Our Living Countryside, 2006), should have been used to compensate farmers instead of marketing agriculture in the Greenbelt:

> What is coming out now, these Greenbelt funds... millions of dollars that should have gone to compensate farmers in the Greenbelt. But now they are for new initiatives to make the Greenbelt look good (ID-12).

Farmers' desperately hoped that they would receive some sort of payment for keeping their land in agriculture and strongly believed that compensation was deserved. The fact that the legislation will likely cost farmers a share of their pension indicates that the

Greenbelt Plan is not successful at preserving agricultural viability, and thus, is not an effective farmland preservation policy.

4.9.2 Greenbelt Created for Urban Dwellers instead of Farmers

According to Daniels (2000) an effective farmland preservation program would protect a critical mass of farmland, which according to Blankenship (2001), is adequate farmland in a region to support its agricultural infrastructure. Daniels (2000) adds that a successful program would also allow the continuation of farming operations and support businesses. Many participants believe that the government's plan for the Greenbelt legislation was not intended to protect the most productive farmland in the Greater Golden Horseshoe region or to ensure the continuation of the agricultural sector in southwestern Ontario. Several farmers believed that the government initiated the Greenbelt Plan to appeal to the urban population:

> It was not really about saving the best farmland; it was all about saving green space for urban people (ID-5).

Several farmers even suggested that the Ontario Government established the Greenbelt in the hopes of gaining popularity with a greater part of the voting public. It appears that urban dwellers may view the plan as a step in the right direction by trying to control urban sprawl and protect farmland:

> It [the Greenbelt] was so popular with the broader public; I mean who is against preserving farmland, right? (ID-18)

Along the same lines, many farmers believe that the government's intention was to simply create green space around the City of Toronto to provide a recreational space for Toronto's residents:

> People don't care about farming for food production, its only aesthetics. The whole idea of having green around Toronto, that's really what it's about (ID-18).

Many participants feel that the government does not realize that saving farmland for green space or parks is not equivalent to saving farmland for food production. To say that farmers are required to keep their land in agriculture does not mean the agricultural industry in the protected area will be viable. After talking with one individual from the Greenbelt Taskforce about the process of creating the boundaries it is quite clear that the members of that Taskforce, the majority of whom had no background in agriculture, were very firm on the belief that farmland should be preserved at all costs because that was what would save the agricultural industry:

> It was saved for very selfish reasons by people who don't live here. People who aren't in the community don't understand how the community works; don't understand farming, the stresses of farming, or the economics of farming. People who have a regular paycheck will never understand farming... they can't. But those are the people making the decisions (ID-18).

An additional reason that participants believed the government had created the Greenbelt for urban dwellers to enjoy additional green space was because of the promotional material that was developed to launch the Greenbelt in the Greater Golden Horseshoe region. Many farmers commented on their dissatisfaction with the way the Greenbelt was being portrayed in the media. They felt that the pictures and information that was provided to the public focused on the environment and recreational opportunities in the Greenbelt region and not on agriculture. The material appeared to depict the Greenbelt as a park where people from the city could come and enjoy outdoor activities. This portrayal of the Greenbelt upset the majority of farmers given that land is privately owned. They believed that if the government wanted to create more parkland for city dwellers then it should have purchased the land for that explicit purpose:

> The ads that they ran for a little while, making it sound like the Greenbelt was somewhere where people in the city could come out and frolic all over the Greenbelt, when in fact it is all privately owned land. And if they want people to come out of the city and tour around it, then they should be buying the land for parks (ID-16).

> We [farmers] have been designated keepers of the park (ID-7).

Participants felt that the primary purpose of the Greenbelt was not to preserve agriculture in the region, but was designed for people in urban areas to have more green space to enjoy. In the process, the Greenbelt has also generated increased popularity for the current government from many urban dwellers, who comprise a large segment of the voting public, by being able to claim that it is protecting agriculture. One farmer even suggested that it will not matter if there are any farmers actually farming the land, because as long as it looks like farmland the urban population will be content:

> And in the end if you don't have farmers in the Greenbelt, does it matter? Does it matter to society? They will still have food at the grocery store, they'll have what they want around here, they won't care... it will look like farmland (ID-18).

From these arguments, it appears that the Greenbelt may not be supporting the agricultural industry or its support businesses, indicating that it is not an effective farmland preservation program.

The following table summarizes the recurring themes that have emerged from this research study (Table 4.1). The table indicates the number of farmers, out of the 22 that were interviewed, that agreed or disagreed with each of the themes. It is evident that the majority of farmers had very similar opinions regarding each of these different themes. There was a variation between farmers' perceptions regarding if and how the Greenbelt would affect agricultural viability or future plans. Many farmers were uncertain how they

would be affected by the legislation in the long-term but speculated what may happen in the future.

Table 4.1 – Number of farmers in agreement with each theme

Themes	*Number of Participants that agreed*	*Number of Participants that disagreed*	*Number of Participants that did not comment*
Farmers uniformed about Greenbelt Legislation	14	3	5
Farmers dissatisfied with public meetings	19	1	2
Farmers Disappointed by development process and organizational features	16	2	4
Vaibility and future plans will change because of the Geenbelt	13	8	1
The Greenbelt does not effectively contain urban expansion	18	2	2
The Greenbelt is not an effective preservation program	19	1	2

As the table indicates, farmers were overwhelmingly unhappy with the legislations, believing that the process was highly flawed, and that the Greenbelt would neither contain urban expansion or preserve agriculture.

4.10 Conclusion

This chapter has discussed the main themes that have emerged from interviews with farmers in the Greater Golden Horseshoe region regarding various aspects of the Greenbelt. The key purpose of this research project was to examine farmers' perceptions on the Ontario Greenbelt Plan as a policy that is concerned with preserving farmland in one of the fastest growing regions of North America (MMAH, 2005). Important themes

that emerged from the interviews included farmers' perceptions of how they were not informed about the legislation as well as their dissatisfaction about the public meetings that were held to discuss the proposal. Another theme that materialized was farmers' perceptions on the process of enacting the Greenbelt legislation and the organization of the plan. Additional themes included farmers' perceptions regarding how they would be affected by the Greenbelt in terms of agricultural viability and future plans for their own farming operations. The most significant themes that emerged were farmers' perceptions on whether or not the Greenbelt supported its functions as an urban containment policy or as a farmland preservation program. The chapter attempts to evaluate the Ontario Greenbelt Plan by utilizing information provided by farmers in and near the protected area as well as additional literature on effective farmland preservation programs. The succeeding chapter discusses recommendations to improve the current Greenbelt strategy as well as future areas of research.

Chapter 5 – Conclusions

5.1 Introduction

The conversion of farmland to other uses, most notably for urban expansion, has become an extremely important topic of concern in recent years, especially in the rapidly growing areas around the city of Toronto. The result has been a surge in support by the general public and planning officials for farmland preservation strategies to slow the trend of development sprawling into the countryside and permanently converting agricultural land to urban uses. This final chapter restates the goals of this research project and discusses the significant conclusions that were uncovered with regards to the recent Ontario Greenbelt Plan. This chapter also provides recommendations from farmers to improve the implementation process of the Greenbelt as well as recommendations to improve the plan's effectiveness. Suggestions for areas of future research are also considered.

5.2 Research Goals

Farmland preservation programs have a direct effect on farmers who live in the region where agricultural land is being protected. The majority of studies that previously have been conducted on the issue of farmland preservation have not usually taken into account farmers' perceptions of these programs. Literature written on the evaluation of farmland preservation techniques also tends to exclude the concerns of farmers and their opinions on the utility of these methods. The main objective of this research project was to uncover farmers' perceptions of the Ontario Greenbelt Plan as a means of preserving agriculture in the Greater Golden Horseshoe region. An additional objective is to

determine whether or not farmers feel the Greenbelt legislation has fulfilled its stated functions as an urban containment strategy and a farmland preservation policy. The final goal of this thesis is to generate recommendations that will lead to more effective preservation of the agricultural sector in the future, particularly where it is carried out in close proximity to large and growing urban areas.

5.3 Farmers' Perceptions of the Greenbelt as a Means to Preserve Agriculture

Farmers in the Greater Golden Horseshoe region do not feel that the Ontario Greenbelt will effectively preserve agriculture in the GTA or prevent the conversion of farmland to urban uses. Following discussions on the recent Greenbelt legislation with farmers who are located in the protected area, as well as farmers located near the boundary but whose land is not protected, it is evident that farmers in the region do not feel the Greenbelt will be an effective tool to preserve agriculture in the rapidly expanding area around the City of Toronto. None is arguing against the fact that the Greenbelt *is* preserving a large quantity of agricultural land in the region. On paper, the objectives of the Greenbelt Plan appear to be a reasonable effort to preserve a significant resource base for the agricultural community. However, the maintenance of a large agricultural land base alone does not ensure that farmers in the Greenbelt region will be able to sustain or improve their agricultural viability. The Greenbelt Plan did not address sufficiently the issue of agricultural viability; rather its focus was on protecting agricultural land at all costs.

Although the Greenbelt has protected 1.8 million acres of agricultural land in the Greater Golden Horseshoe region, the land that was preserved was not the most significant or productive agricultural land in the region. Farmers believe that many acres of unproductive farmland were included in the Greenbelt and could have been utilized for

urban development instead of forcing farmers to remain in agriculture with unproductive resources. According to farmers in the Greenbelt region, if the purpose of the Greenbelt was simply to protect farmland, then that goal may have been achieved. However, they believe that the objective of the Greenbelt should have been to preserve the agricultural industry in an ever-expanding urban region, which the Greenbelt has failed to achieve.

5.4 The Greenbelt: Urban Containment Strategy or Farmland Preservation Policy?

The Greenbelt legislation was introduced by the government as both a policy to control excessive urban sprawl and to preserve prime agricultural land within the Greater Golden Horseshoe region. One objective of this research project was to determine whether or not farmers in the region believed that the Greenbelt Plan was supporting these functions. After discussing various aspects of the legislation with farmers in the Greenbelt region, it was evident that participants did not feel the Greenbelt Plan would be successful at controlling urban sprawl or achieving the goals of an effective farmland preservation program.

On the question of limiting the spread of urban sprawl farmers argued that the legislation would allow developers to 'leapfrog' over the boundaries and continue converting farmland in areas outside of the Greenbelt. In fact, several farmers believed that the Greenbelt would actually increase the rate of urban sprawl because landowners located outside the boundaries may be more inclined to sell their land to developers because they are fearful that they may be included in a similar protection program in the future. Another reason why farmers in the Greenbelt region feel the legislation is not supporting its function of an urban containment policy is due to the location of the Greenbelt boundaries. According to many farmers, scientific data were not used to

determine the location of the boundaries and there are many areas inside the Greenbelt where land owned by developers has been excluded from the protected area even though their land is surrounded by land that falls within the large protected region. Participants are angered that developers seemed to have received more favourable consideration than farmers who own land in the Greenbelt. Farmers believe that the boundaries of the Greenbelt essentially were created based on who owned the land rather than on the need to control sprawl by saving the most productive agricultural land. Consequently, farmers in the Greenbelt region feel that the legislation has failed to support its function of an urban containment policy because it continues to advance urban sprawl further into the countryside by way of leapfrog development and because the boundaries were not created with the intention of controlling sprawl.

It is also very apparent that farmers in the Greater Golden Horseshoe region feel strongly that the Greenbelt Plan has not successfully supported its function of a farmland preservation program. One of the major reasons for this is because farmers sense that the Greenbelt legislation will decrease land values in the region. Since development is prohibited in the Greenbelt, speculators are no longer interested in purchasing land in this region, thereby decreasing demand for land in the Greenbelt and thus decreasing the price of that land. Another indication that the Greenbelt is not an effective farmland preservation policy is because farmers were not compensated for the significant costs involved in providing environmental services to society by permanently protecting agricultural land located inside the Greenbelt boundaries. Participants in this study believe that the Ontario government is not supporting agriculture in Ontario but instead is compelling farmers to remain in agriculture because they can no longer sell their land for

development. A final reason that farmers feel the Greenbelt is not supporting its function as a farmland preservation program is because farmers believe that the legislation was enacted primarily to gain political support for the current government from urban dwellers who believe that the Greenbelt is an impressive attempt to protect environmental and agricultural lands in the face of urban sprawl.

According to Daniels (2000), an effective farmland preservation program should maintain a critical mass of farmland, ensure land price affordability, be reliable in the long-term, and be cost effective. The boundaries of the Greenbelt were never designed with the intention of preserving the most productive farmland in the region. Thus, it can be concluded that the Greenbelt is not an effective farmland preservation policy because the land that was protected does not create the critical mass of farmland that is necessary to support agricultural viability. Additionally, the lack of compensation to farmers for protecting agricultural land and the potential decrease in land values for farmers indicates that the policy can not be considered cost-effective for land owners in the region. It is uncertain whether or not the Greenbelt will be reliable in the long-term. However, it is evident that farmers in the Greenbelt region have severe doubts that the legislation will control urban sprawl in the Greater Golden Horseshoe region with any level of success. It is also very clear that farmers do not believe that the Greenbelt will increase or even maintain agricultural viability for those still involved in farming operations in the Greenbelt region. Consequently, the consensus among farmers is that the government has failed the agricultural community by creating a Greenbelt Plan that does not effectively preserve farmland for the purpose of food production or maintain agricultural viability for farmers living in the protected area.

5.5 Recommendations

Farmers are often left out of the discussions by governments considering farmland preservation programs (Westphal 2001, Hellerstein et al. 2002). However, it is these farmers who are the ones affected directly by agricultural-related policies. Their opinions should be considered in the formation of such policies. Their understanding of farming practices is especially relevant in designing programs that will benefit the agricultural sector.

Two broad areas of recommendations evolved from discussions with farmers in the Greenbelt region. The first section discusses recommendations that would have improved the implementation process of the legislation. The second section provides recommendations that would improve the effectiveness of the Greenbelt Plan.

5.5.1 Recommendations to Improve the Implementation Process

1. Additional farmer involvement to increase effectiveness of policy designs

Farmers have a much better understanding of the economics of agriculture than most government officials or policy makers. If the government was truly concerned with developing a program to assist the agricultural community, then it should involve farmers in the process because they are the ones who are directly affected by farm policies and regulations. The current legislation was developed without any meaningful input from farmers and the result is dissatisfaction with the plan from the farming community. Allowing farmers to become engaged in the decision making process will provide programs that offer a balance between the needs of the agricultural sector to sustain a viable and profitable industry and the desire by the development industry to build new suburbs on farmland surrounding rapidly growing areas of the Province.

2. Utilize more scientific information to designate the Greenbelt boundaries

Farmers do not support the current Greenbelt Plan because they are dissatisfied with the way the boundary lines were developed. The current legislation does not preserve the most productive land in the region and farmers believe that the boundary lines were not based on scientific data. The legislation would have been more successful, and would have gained more support from farmers, if scientific information had been used to justify the location of the boundaries. The Greenbelt boundary should be redrawn using soil maps and information on heat units to ensure that the boundaries are located in such a way as to preserve the most productive farmland in the region.

5.5.2 Recommendations to Improve the Legislation

1. Provide compensation to farmers for permanently preserving farmland

The majority of farmers would have been more favourably disposed to the Greenbelt legislation if the government had offered compensation for their environmental services in preserving farmland. Farmers, many of whom had planned to sell their land to support their retirement, believe that the government has taken advantage of them by forcing them to remain in agriculture and removing this option from their future plans. A financial plan to compensate farmers for preserving the land and to redress the issue of loss of value would go a long way to assist farmers in sustaining, or even expanding, their existing farming operations within the Greenbelt. Without compensation, farmers will continue to struggle to make a profit in agriculture and will not be able to sell their land to move into another occupation or even retire. Compensation would have gained farmer support for the Greenbelt legislation.

2. The legislation should have included all productive land in southwestern Ontario

Many farmers are confused as to why the Greenbelt is confined to the area surrounding the Greater Golden Horseshoe. They feel that if the government was concerned with preserving the most productive farmland in rapidly urbanizing southern Ontario, then the Greenbelt should have included other regions, especially areas to the west such as Woodstock and Chatham-Kent, where agricultural land is very productive. In its present form, thousands of acres of farmland are included in the protected region of the Greenbelt that are not nearly as productive as other areas of the Province, particularly in southwestern Ontario. The Greenbelt Plan should be redesigned so that only the most productive acres of farmland are preserved in southwestern Ontario, regardless of their proximity to the Greater Golden Horseshoe. The revised Greenbelt legislation would have included land that is currently excluded, and would have excluded some land that is presently included. This may have prevented 'leapfrog' development from consuming valuable agricultural land because the land outside the Greenbelt, which developers are now seeking to utilize, would include only the less productive farmland.

3. Protect the economics of farming before protecting farmland

Nearly every farmer interviewed agreed that the most successful way to preserve agriculture would be to ensure that the economic viability of farmers was maintained by permitting them to earn adequate profits from their operations. Farmers argued strongly that if agricultural operations were profitable, then they would not need to sell their land to speculators or developers. Thus, they argued, the best farmland preservation strategy is to ensure that farming is profitable. Consequently, it is important to find a way to increase farm incomes, by pressuring the federal government and other institutions to

work to remove subsidies in the US and Europe so that farmers can compete on a level playing field with other global producers. The government needs be more concerned with developing programs that offer farmers the means to enhance their business and less concerned with forcing farmers to preserve marginal farmland by not allowing them to sell it for development.

4. Push the agricultural industry to support itself

Preserving a large quantity of farmland does not ensure the preservation of the agricultural industry in the face of demands for more suburban development. In order for agriculture to prosper in the region consumers will have to be more supportive of local food producers. The location of the Greater Golden Horseshoe, in close proximity to the United States, along with the substantial subsidies that US farmers receive, makes it difficult for local farmers to compete. Farmers find it difficult to sell their produce locally because consumers have access to low-cost imported products at the grocery store, even when local produce is in season. Educational programs that promote or strongly encourage consumers to buy local produce would improve the bottom line for local farmers. Implementing regulations that make it obligatory for all food products processed in the region to contain a certain percentage of locally grown products would be another way for farmers to obtain added profits. The government needs to focus attention on increasing the amount of locally grown food that is purchased by consumers and processors in order to assist the agricultural industry in Ontario.

5.6 Future Research Requirements

This research project has provided an initial reaction from farmers in the Greenbelt region on the current legislation aimed at controlling sprawl and preserving farmland. It

has also provided several recommendations for improving the current Greenbelt Plan and providing direction for future farmland preservation in the Greater Golden Horseshoe. Future research can help build on the ideas presented in this thesis. The following are areas of research that will enhance the information brought forward in this study.

1. Examine the requirements necessary to support agricultural viability

Although the present research has highlighted the fact that the current Greenbelt Plan has not addressed the issue of agricultural viability, this study did not attempt to discover how viability could be achieved. Further research needs to focus on programs or techniques that will allow farmers to improve their economic viability.

2. Examine the affects of the Greenbelt as it nears the ten-year review

It is difficult currently to estimate what direct effects the Greenbelt will have on farmers or the agricultural industry because the legislation is still quite recent. It is important to determine what these effects will be so that an appropriate evaluation of the plan can be completed for a ten-year review proposed in the legislation. Future research needs to compare the land values prior to the Greenbelt legislation with the most recent land values in order to determine how farm resources have been affected.

3. Further comparison between farmers living in the protected area and those located outside

Although this research project has included perceptions from both farmers living inside the Greenbelt region and those living outside of the boundaries, the majority of interviews were conducted with individuals located in the protected area. Future research should focus on comparing farmers' perceptions of the Greenbelt depending on their location in the Greenbelt region. It is believed from the current study that most farmers, regardless of their location in the general region, have similar perceptions of the Greenbelt. A future comparison study would reinforce this assumption.

4. Conduct a similar study in the off-season

Data collection for this research project coincided with a very demanding time of year for farmers. The interest from participants about this project was remarkable; however, future research on the topic should take place during the winter months so as to increase the opportunities for farmers to participate. Farmers face fewer demands on their time during the winter, and thus may have more time to discuss their experiences and opinions.

5.7 Concluding Comments

This chapter has demonstrated that the research goals of this project have been achieved by uncovering farmers' perceptions of the Greenbelt legislation. It has also considered how the Greenbelt Plan has supported its goals of an urban containment policy and a farmland preservation program. Farmers believe that the Greenbelt Plan has failed to preserve the agricultural industry in the region. Farmers offered a number of criticisms of the plan and recommended several ways to improve the current Greenbelt legislation. Further suggestions were provided which can help guide the future of farmland preservation in southern Ontario. Following these and other recommendations based on additional research will help direct government officials to establish farmland preservation policies that will enhance the viability of farmers in the region.

It is important to reaffirm that the process that resulted in the Greenbelt legislation was ineffective because farmers were not consulted before the plan was developed. Although the Ontario government believes that farmers were part of the decision-making process it is very evident that farmers' suggestions were ignored during the Greenbelt process and they had no influence on any aspect of the legislation. In the end, the

Greenbelt legislation created a 'lose-lose' situation. Farmers were left with no options and were forced to remain in agriculture even though much of the land is not productive. On the other side, 'leapfrog' development continues to convert prime farmland to urban uses outside of the Greenbelt boundaries, as suburbs expand further into the countryside where some of the most productive agricultural land is located.

References

Adam, K. "Entertainment Farming and Agri-Tourism", National Sustainable Agriculture Information Service, September 2004, August 17, 2007, <http://attra.ncat.org/attra-pub/PDF/entertn.pdf>

Adelaja, Adesoji and Schilling, Brian. "Innovative approaches to farmland preservation". Contested Countryside: The Rural Urban Fringe in North America. Ed. Furuseth, Edward and Lapping, Mark B. England: Ashgate Publishing Ltd. 1999. 113-135.

Amati, Marco and Yokohari, Makoto. "Temporal changes and local variations in the functions of London's green belt", Landscape and Urban Planning, 75, 1-2, (2006): 125-142.

Amborski, David. (2006) "Regional Containment Policies to Control Growth: The Greenbelt in the Greater Toronto Region", 18th European Advanced Studies Institute in Regional Science.

Audirac, Ivonne. "Unsettled Views about the Fringe: Rural-urban or Urban-rural Frontiers?". Contested Countryside: The Rural Urban Fringe in North America. Ed. Furuseth, Edward and Lapping, Mark B. England: Ashgate Publishing Ltd. 1999. 7-21.

Bailey, K. D. (1994). *Methods of social research.* New York: Free Press.

Beesley, Kenneth B. "Agricultural Land Preservation in North America: A review and survey of expert opinion". Contested Countryside: The Rural Urban Fringe in North America. Ed. Furuseth, Edward and Lapping, Mark B. England: Ashgate Publishing Ltd. 1999. 57-91.

Bengston, David; Fletcher, Jennifer and Nelson, Kristen. "Public policies for managing urban growth and protecting open space: policy instruments and lessons learned in the United States", Landscape and Urban Planning, 69, 2-3, (2004): 271-286.

Bengston, D. And Youn, Y. "Urban Containment Policies and the Protection of Natural Areas: The case of Seoul's Greenbelt", Ecology and Society, 11(1), 3, (2006): 1-15.

Bourne, L.S; Bunce, M; Taylor, L et al. "Contested Ground: The Dynamics of Peri-Urban Agriculture in the Toronto Region", Canadian Journal of Regional Science, 26, 2-3, (2003): 251-270.

Blankenship, K. "Researchers working to define 'critical mass' of farmland", Chesapeake Bay Journal, 11, 4, (2001): 8-13.

Bradshaw, M. and Stratford, E. (2005). Qualitative Research Design and Rigour. In I. Hay (Ed) Qualitative Research Methods in Human Geography (pp.67-76). Austrailia: Oxford University Press.

Bruekner, Jan K. "Urban Sprawl: Lessons from urban economics", Brookings-Wharton Papers on Urban Affairs, (2001): 65-98.

Bunce, Michael. "Thirty Years of Farmland Preservation in North America: Discourses and Ideologies of a Movement" Journal of Rural Studies, 14, 2, (1998): 233-247.

Bunce, Michael and Maurer, Jeanne. 'Prospects for Agriculture in the Toronto Region: The Farmer Perspective', *Neptis Studies on the Toronto Metropolitan Region*, August 2005.

Bunker, Raymond. 'Prospects for the rural-urban fringe in Australia: Observations from a brief history of the landscapes around Sydney and Adelaide', Australian Geographical Studies, 41, 3, (2003): 303-323.

Charmaz, Kathy. (2000). Grounded Theory: Objectivist and Constructivist Methods. In N. Denzin and Y. Lincoln (Ed) Handbook of Qualitative Research, 2nd ed. (509-536). USA: Sage Publications.

Daniels, T. "Integrated Working Landscape Protection: The Case of Lancaster County, Pennsylvania", Society & Natural Resources, 13, 3, (2000): 261-271.

Daniels, T. "Managing Growth in the Fringe Countryside." When City and Country Collide, USA: Island Press, 1999. 211-238.

Daniels, T. "Smart Growth: A New American Approach to Regional Planning", Planning Practice and Research, 16, 3-4, (2001): 271 – 279.

Daniels, T. "The purchase of developmental rights, agricultural preservation and other land use policy tools – The Pennsylvania experience", Department of Geography and Planning. 1998. State University of New York at Albany. 20 April 2005 < http://www.farmfoundation.org/1998NPPEC/daniels.pdf>

Daniels, Tom and Bowers, Deborah. "Holding Our Ground: Protecting America's Farms and Farmland", USA, Island Press: 1997.

Dawkins, Casey J. and Nelson, Arthur C. "Urban containment policies and housing prices: an international comparison with implications for future research", Land Use Policy, 19, 1 , (2002): 1-12.

Feather, Peter and Barnard, Charles. "Retaining Open Space with Purchasable Development Rights Programs" Review of Agricultural Economics, 25, 2, (2003): 369-384.

Greenbelt: Our Living Countryside, 2006. August 14, 2007, < http://www.ourgreenbelt.ca/foundation>

Harvey, T. and Works, M. "Urban Sprawl and Rural Landscapes: perceptions of landscape as amenity in Portland, Oregon", Local Environment, 7, 4, (2002): 381-396.

Hasse, John E. and Lathrop, Richard G. "Land resource impact indicators of urban sprawl", Applied Geography, 23, 2-3 , 2003: 159–175.

Hellerstein, D; Nickerson, C; Cooper, J. et al. "Farmland Protection: The Role of Public Preferences for Rural Amenities", Agricultural Economic Report No. 815 (2002)

Henderson, Steven R. "Agricultural Adaptation to Real Regulation on the Urban Fringe: The Chicken Meat Industry's Response to Land-use Conflict in the Western Port Region of Victoria, Australia", Australian Geographical Studies, 41, 2, (2003): 156-170.

Hofmann, N. "Urban Consumption of Agricultural Land", Rural and Small Town Canada Analysis Bulletin, 3, 2 (2001): 1-13.

Hofmann, N., Filoso, G. and Schofield, M. "The loss of dependable agricultural land in Canada", Rural and Small Town Canada Analysis Bulletin, 6, 1 (2005): 1-16.

Johnston, Robert A and Madison, Mary E. "From landmarks to landscapes: A review of current practices in the transfer of development rights', Journal of the American Planning Association, 63, 3, (1997): 365 – 378.

Kaplan, Rachel and Austin, Maureen E. "Out in the country: sprawl and the quest for nature nearby", Landscape and Urban Planning, 69, 2-3, (2004): 235-243.

Kline, Jeffrey and Alig, Ralph. "Does Land Use Planning Slow the Conversion of Forest and Farmlands?", Growth and Change, 30, 1 (1999): 3-22.

Knapp, Garrit J. and Hopkins Lewis D. "The inventory approach to urban growth boundaries", Journal of the American Planning Association, 67, 3, (2001): 314-326.

Longley, Paul; Batty, Michael; Shepherds, John et al. "Do Green Belts Change the Shape of Urban Areas? A Preliminary Analysis of the Settlement Geography of South East England", Regional Studies, 26, 5, (1991): 437-452.

Maxwell, J. (1997). Designing a qualitative study. In L. Bickman & D. J. Rog (Eds.) Handbook of applied social research methods (pp. 69-100). Thousand Oaks, CA: Sage Publications.

Meyers, Jim. The Greenbelt: Preservation or Imprisonment? Business Niagara Magazine December 2004. May 9, 2007. *<http://www.bizniagara.com/business_news/Greenbelt_Dec_04.php>*

Ministry of Municipal Affairs and Housing (MMAH), Greenbelt Plan 2005, Feb. 2005, April 20, 2006, < http://www.mah.gov.on.ca/userfiles/HTML/nts_1_22087_1.html>

Ministry of Municipal Affairs and Housing (MMAH), 'Toward a Golden Horseshoe Greenbelt', Greenbelt Task Force Discussion Paper, Queen's Printer for Ontario: May 2004.

Moriola, Matthew J. "Losing ground: Farmland preservation, economic utilitarianism, and the erosion of the agrarian ideal", Agriculture and Human Values, 22,2, (2005): 209–223.

Morris, Adele C. "Property tax treatment of farmland: does tax relief delay land development?" Local Government Tax and Land Use Policies in the United States: Understanding the Links. Helen Ladd. Great Britain: MPG Books Ltd, 1998. 144-167.

Nelson, Arthur. "Preserving prime farmland in the face of urbanization: Lessons from Oregon", Journal of the American Planning Association, 58, 4, (1992): 467-487.

Nelson, Arthur. "The Exurban Battleground." Contested Countryside: The Rural Urban Fringe in North America, Great Britain: Ashgate, 1999. 137-149.

Nelson, A. and Moore, T. "Assessing urban growth management: The case of Portland, Oregon, the USA's largest urban growth boundary", Land Use Policy, 10, 4 (1993): 293-302.

Nelson, Arthur C; Sanchez, Thomas W; and Dawkins, Casey J. "The effect of urban containment and mandatory housing elements on racial segregation in US metropolitan areas, 1990-2000", Journal of Urban Affairs, 26, 3, (2004): 339-350.

Neuman, W.L. (2006) "Social Research Methods Qualitative and Quantitative Approaches", 6th edn. (USA: Pearson Education Inc).

Niagara Escarpment Commission, The Niagara Escarpment Plan, 2006

Office of Research Services, (2007). WLU Research Ethics Policy, Wilfrid Laurier University

Ontario Ministry of Agriculture, a Guide to the Land Evaluation and Area Review (LEAR) System for Agriculture, 2002

Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage Publications.

Pendall, Rolf; Martin, Jonathon and Fulton, William. "Holding the Line: Urban Containment in the United States", *The Brookings Institution Center on Urban and Metropolitan Policy*, August 2002.

Penrod, J., Bray Preston, D., Cain, R. et al. (2003). "A Discussion of Chain Referral As a Method of Sampling Hard-to-Reach Populations", Journal of Transcultural Nursing, 14, 2, pp. 100-107.

Peterson, Gil. "Methods for retaining agriculture land in the urban fringe in the U.S.A.", Landscape Planning, 9 (1983): 271-278.

Phillips, Justin and Goodstein, Eban. "Growth Management and Housing Prices: The case of Portland, Oregon", Contemporary Economic Policy, 18, 3, (2000): 334-344.

Pruetz, Rick. "Transfer of Development Rights." Beyond Takings and Givings: Saving Natural Areas, Farmland, and Historic Landmarks with Transfer of Development Rights and Density Transfer Charges, USA: Cushing-Malloy Inc, 2003. 29-96.

Ryan, Robert and Hansel Walker, Juliet. "Protecting and managing private farmland and public greenways in the urban fringe", Landscape and Urban Planning, 68, 2-3, (2004): 183-198.

Smith, Barry E. and Haid, Susan. "The Rural-Urban Connection: Growing Together in Greater Vancouver", Plan Canada, 44, 1, (2004): 36-40.

Song, Y. "Impacts of Urban Growth Management on Urban Form: A Comparative Study of Portland, Oregon, Orange County, Florida and Montgomery County, Maryland. 2002. Nov 23 2005, < http://www.smartgrowth.umd.edu/events/pdf/Song_Paper2.pdf>

Statistics Canada. (2006). *2006 Agricultural Census.*

Teddlie, C. and Yu, F. (2007). "Mixed Methods Sampling: A Typology with Examples", Journal of Mixed Methods Research, 1, 1, pp.77-100.

Wassmer, Robert W. "The influence of local urban containment policies and statewide growth management on the size of United States urban areas", Journal of Regional Science, 46, 1, (2006): 25-65.

Weitz, Jerry and Moore, Terry. "Development inside urban growth boundaries: Oregon's empirical evidence of contiguous urban form", Journal of the American Planning Association, 64, 4, (1998): 424-440.

Westphal, J. "Managing Agricultural Resources at the Urban-rural Interface: a case study of the Old Mission Peninsula", Landscape and Urban Planning, 57 (2001): 13-24.

Williams, E. Douglass; Gottfried, Robert; Brockett, Charles; Et al. "An integrated analysis of the effectiveness of Tennessee's Forest Greenbelt Program", Landscape and Urban Planning, 69, 2-3, (2004): 287-297.

Yokohari, Makoto; Takeuchib, Kazuhiko; Watanabec, Takashi; et al. "Beyond greenbelts and zoning: A new planning concept for the environment of Asian mega-cities", Landscape and Urban Planning, 47, 3-4, (2000): 159-171.

Appendices

Appendix A – Interview Questions

- What do you think about the new Ontario Greenbelt Plan?
- Were you made aware of the new Greenbelt legislation? When? How were you informed?
- Did you take part in any forums or discussions that were presented on the Greenbelt Plan?
    - Were you satisfied with the information provided?
    - Do you feel that the information presented at the forum is accurate to the plan that was implanted?
    - Were there any suggestions that you (or other farmers) made at these forums that were not incorporated into the plan?
- Was your farmland viable before the implementation of the Greenbelt?
- Now that your farmland lies within the protected area of the Greenbelt, do you feel your farm is more or less viable? Explain.
- What was your plan for the farm before the Greenbelt was introduced?
- How has the Greenbelt altered your plans for the future?
- In your opinion, what would be the most effective farmland preservation policy?

Demographics

Age:

Do you own this farm, or do you rent the land for farming?

How many acres of farmland do you farm? In the Greenbelt? Outside?

How long have you been farming?

What type of farming? (eg. Dairy, horticulture, etc.)

Is farming your only source of income?

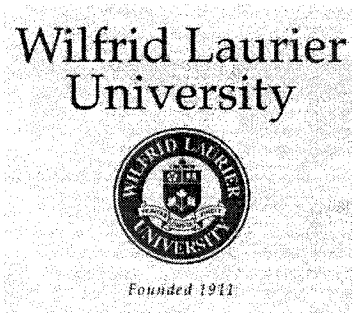
If not, what proportion of your income comes from farming?

Appendix B – Telephone Script

Breaking Ground: Farmers' Perceptions of Ontario's Greenbelt Plan

Hello. My name is Kali Mikulica, a graduate student at Wilfrid Laurier University. I would like to interview farmers who live in / close to the new protected area under Ontario's Greenbelt Plan. Your name appeared in the municipal tax assessment rolls / was given to me by another individual. I would like to ask you a number of questions concerning your perceptions of the new Greenbelt Plan and to hear your views about alternative ways of protecting agricultural land in sensitive areas. The interview is expected to last about one hour, and will be audio taped with your permission. If you are willing to participate in this study, the information that you provide will remain anonymous and confidential. General information from all of the interviews that I conduct with farmers in the region will be published in an academic thesis as part of my Master's degree. Could we set up a time to meet at your convenience?

Appendix C – Consent Form



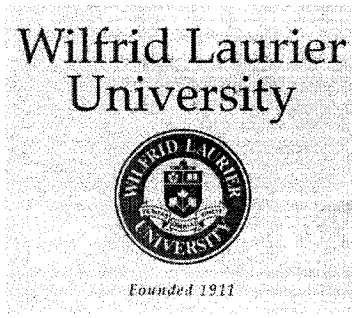
Breaking Ground: Farmers' Perceptions of Ontario's Greenbelt Plan

Hello. My name is Kali Mikulica, a graduate student at Wilfrid Laurier University. I am interested in your perceptions of the new Greenbelt Plan in Ontario and in hearing your views about alternative ways of protecting agricultural land in sensitive areas. I intend to interview between 20-30 participants. The research is part of my Master's degree and the results will be published in an academic thesis. My advisor's name is Dr. Judy Bates, a geography and environmental studies professor, at Wilfrid Laurier University. Dr. Bates and I are the only individuals who will have access to the information that you provide. Following the interview, I will be responsible for transcribing your comments. These transcripts and tapes will be destroyed when the thesis is complete.

Throughout this study I will make every effort to conform to ethical guidelines that offer privacy, confidentiality, and informed consent. By signing this form below, or by giving verbal permission on a recording disk, you acknowledge my commitment to these guidelines.

I, _____ (please print your name)

- Agree to be interviewed for the purposes of the above research;
- Have been informed of the uses to which the research material will be put and understand that my privacy and confidentiality will be respected throughout the research;
- May request to review the notes, transcripts, or other data collected during the research;
- Understand that my participation is completely voluntary and that I may withdraw at any time and request that my comments remain "off the record";



- I may / may not (please circle one) be quoted directly. (If you agree to be quoted directly, your comments will remain anonymous and a pseudonym will be used);
- If quoted directly, I hereby grant copyright permission to the researcher for the purposes of publication;
- I may omit any question(s) that I do not wish to answer

Participant: _____ Date: _____

Researcher: _____ Date: _____

If you have questions at any time about the study, or the procedures, you may contact the researcher (Kali Mikulica at 519-591-9971 or at miku5470@wlu.ca. This project has been reviewed and approved by the University Research Ethics Board at Wilfrid Laurier University. If you feel you have not been treated according to the descriptions in this form, or your rights have been violated as part of the research, you may contact Dr. Bill Marr, Chair, University Research Ethics Board, Wilfrid Laurier University at 519-884-0710. Ext: 2468.