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THE EFFECT OF QUEBEC'S AGRICULTURAL PRESERVATION LAW
ON AGRICULTURE AND RURAL LAND USE
NEAR SHERBROOKE

by

Charlotte Alice McCallum, B.A.

A thesis submitted to the Faculty of Graduate Studies and Research
in partial fulfilment of
the requirements for the degree of

Master of Arts

Department of Geography

Carleton University

Ottawa, Ontario

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THE EFFECT OF QUEBEC'S AGRICULTURAL PRESERVATION LAW
ON AGRICULTURE AND RURAL LAND USE
NEAR SHERBROOKE

submitted by Charlotte Alice McCallum, B.A.
in partial fulfilment of the requirements for
the degree of Master of Arts

Iain Wallace

Thesis supervisor

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Chair, Department of Geography

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May 24, 1994

ABSTRACT

In 1978, Québec promulgated comprehensive legislation to preserve the province's agricultural land. This work synthesizes the socio-economic forces of periurban growth and wider counterurbanization whose impacts on agriculture are directly addressed by the legislation. Using census data, municipal records, and decisions authorizing non-conforming land uses in the protected zone, new methods are developed to measure the law's direct impact, including an index of demand for change, and assessment of the law's success in controlling land speculation derived from models of land value near growing cities. Examining the periurban zone of Sherbrooke, it is found that Québec's law has been mainly effective in controlling land use change due to counterurbanization but is less so near the city where a mix of land uses predated the law. Agriculture, in slow decline regionally, is consolidating in a specialized periurban form, implying that a re-evaluation of current policy concepts is necessary to protect this periurban industry.

ACKNOWLEDGEMENTS

Without the help and encouragement of many people, this work could not have been accomplished. I thank my husband, Hardy Granberg, and children, Birgit and Ingrid for their patience while I was resident in Ottawa and later during long months of field work and writing in Sherbrooke. I am grateful to the University's Faculty of Graduate Studies and Research, and Department of Geography for financial support in the form of a scholarship, a teaching assistantship and a conference travel grant. To Marilyn and Alan Torrance and Robin Kushigbor, and others whose warm hospitality and friendship allowed me to spend precious extra time in Ottawa, I owe my sincere appreciation.

Many people freely gave their time to help me create order from the chaos first met on embarking on this project; I particularly thank Christopher Bryant, Jane Matthews Glenn, Gary Caldwell, Jeanne Wolfe, and last but not least, my supervisor, Iain Wallace for their valuable help. Haut-St-François planner Céline Trépanier showed me the nuts and bolts of the problem and the classification method used for CPTAQ decisions which form the heart of the analysis. To my friends, Gladys and Norman O'Neill, who often took the place of a preoccupied mother and kept the piano in tune, I owe boundless gratitude.

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LIST OF ACRONYMS USED IN THE TEXT

APAL	- An Act to preserve agricultural land (official English title)
ARDA	- Agriculture and Rural Development Act
ARLUP	- An Act respecting land use planning (official English title)
CA	- Census Area (Canada)
CLI	- Canada Land Inventory
CMA	- Census Metropolitan Area (Canada)
CPTAQ	- <i>Commission de protection du territoire du Québec</i>
DREE	- Department of Regional Economic Expansion
LPTA	- <i>Loi sur la protection du territoire agricole du Québec</i> (official French title of APAL)
LAU	- <i>Loi sur l'aménagement et l'urbanisme</i> (official French title of ARLUP)
MAPAQ	- <i>Ministère d'Agriculture, pêcheries et alimentation du Québec</i>
MRC	- <i>Municipalité régionale de comté</i> (regional county municipality)
UPA	- <i>L'Union des producteurs agricoles</i> (union of agricultural producers)

CHAPTER ONE

INTRODUCTION

1.1 THE AIMS OF THIS WORK

As part of the general evolution of policy and in specific response to the effects of urban expansion on to agricultural lands near cities, in 1978 the province of Québec promulgated legislation to control this trend and protect the province's agricultural potential. The purpose of the present work is to assess the effects of Québec's agricultural protection legislation, *An Act to preserve agricultural land* (R.S.Q chapter P-41.1) (hereafter, APAL) on rural land use and agriculture near Sherbrooke, an expanding, mid-sized city in south-central Québec, situated in an area of medium agricultural potential (Figure 1.1). The work attempts to determine the local success or failure of the law's main aim, which is to preserve the existing and potential agricultural land base and activities for present and future farming.

Because the subject ranges across several disciplines, the research approach taken in this work combines a descriptive synthesis of the major political, legal and socio-economic issues with an empirical and quantitative evaluation of the statute's direct impact in the study area. The background chapters serve to establish the rationale for the structure and implementation of APAL. The character of, and recent change in agriculture in the study area have been compiled from primary sources in order to provide a local frame of reference for the land use analysis. Some methods and assumptions of previous works which evaluate the effect of this law using parameters relating to agricultural production or changing urban spatial geometry are rejected since these cannot easily be differentiated from the effects of other legislation or of more general

Figure 1.1: Study Area Location

C.M.

socio-economic trends.

The methods developed in this work quantify the effects of the law's constraining mechanisms to control land use change in the protected agricultural zone by analysis of the decisions handed down for each request for a non-conforming use. An index to measure this change has been developed which may be further developed and applied elsewhere in the province for comparative purposes. The study area's protected agricultural zone is mapped and changes to it are analyzed. Speculation in the rural land market at the edge of cities is considered to be a major threat to agriculture. Lacking comparable temporal sales data, a method to assess the law's possible impact on speculation in the study area is developed which is based on the land rent/distance function and using municipal assessment data for one year.

Within the special problem of periurban agriculture threatened by urbanization, land market speculation, and competition between land uses, this study finds that Québec's legislation has been partially effective in controlling rural residential growth and subdivision of the land base in the study area. In the protected zone, assessed land values of larger farm and vacant lots are lower than small ones and appear less related to distance from the city than the aggregated lots where a rapidly decaying value gradient with distance from the city is found.

It is concluded that the law has achieved its aims in areas more remote from the city and in small municipalites embedded within the periurban zone, but that near Sherbrooke, existing mixed land uses and the acquired rights of the owners create legal precedents for leniency in decisions regarding land use change. This threatens present and future specialized periurban farming which is developing in this area. In light of this, this work recommends that two major policy concepts used in

decision-making regarding APAL: landscape vocation and déstructuration of agricultural milieux, require modification.

On rural land not included in the agricultural zone, Québec's other major land use law, *An Act respecting land use and urban planning* (R.S.Q. Chapter A-19.1) (hereafter ARLUP) directs land use. Development interests have more liberty here and large expanses of rural land are now destined for urban, recreational, or other development. Between these two laws, a new spatial organization of society is expected to take place under direction of the governmental and judicial authorities which first designed and now uphold them.

1.1.2 Organization of the Work

This first chapter introduces the research question to be answered and provides the context of the global importance of agricultural land protection. A brief history of the antecedents of Québec's current policy on agriculture and its protection is given.

Chapter Two provides a general background and literature review of urban-to-rural land conversion and rural land use. The seemingly dichotomous themes of urbanization and agricultural land protection are introduced, as well as the place and function of agriculture in a periurban environment. This identifies the wider social context of the specific study and also the influence various research approaches have had on policy formation.

Chapter Three is a general discussion of the nature of public vs. private property rights, regional or rural planning and its role in development and agricultural protection. Different approaches to agricultural land protection are presented. The major articles of APAL and Québec's other major planning legislation are itemized and explained.

Chapter Four reviews the literature and offers a critique of studies concerning the effect of APAL on the province's land and agricultural economy. It then develops the theoretical and methodological bases upon which the answer to the research question is founded. A research hypothesis is formulated to directly test the effectiveness of APAL on speculation in the study region. The data set and its collection and analytical methods are described.

Chapter Five briefly describes the physical environment, history and settlement of the Sherbrooke study area, with a summary of recent urban growth and present agriculture. Recent and long-term (20-year) changes in agricultural land near the city are quantified which reveal some partial impacts of APAL.

Chapter Six attempts to measure the direct consequences of APAL's literal intent in the study area based on municipal data and analysis of the decisions handed down regarding changes to land under its jurisdiction. The research hypothesis developed in Chapter Four is tested which gives some indication of the speculative environment around the city.

Chapter Seven is comprised of discussion and conclusions regarding the Sherbrooke case and integration of the findings with the larger context presented in the preceding chapters.

1.2 AGRICULTURAL PROTECTION IN CONTEXT

1.2.1 The Global Context

Securing an adequate food supply will always remain a primordial human requirement and the formulation of agricultural policy will likely be an important element in the economic strategy of every nation

possessing arable land. Within this fundamental context, public or governmental activity in agricultural land protection becomes an important part of these strategies. In order to sustain the industry and the soil resource on which it is based, all reasonable actors would wish to mitigate the environmental degradation caused by agriculture wherever feasible.

But there is another dimension to agricultural protection besides its environmental sustainability. In densely settled countries and near the larger urban areas of less populous ones, farmers must struggle to sustain agriculture in an environment of intense non-agricultural competition for the scarce land resource. Decision-makers now create policy to protect farmers from this competition as well as weather and market vagaries.

Today, agriculture exists within an increasingly complex system of production, processing and trade in food which operates in an international marketplace. Effective distances have shrunk with modern transport and cheap fuel. Trade barriers are erected only to fall again in the now-prevailing climate of international competition and liberal trade policies (Drache and Gertler, 1991). Notions of national self-sufficiency and diversity of production are made to seem outdated and costly when compared to the efficiencies generated by the practices of large international corporations. Rather, comparative advantage and concomitant specialization ascend on this buoyant and optimistic current. At the same time, state and international intervention in farming and manipulation of supply, prices and markets has reached new heights to create a more or less artificial structure supported by lobbies, national interests, treaties and economic expediency. The recent (1994) decisions of GATT (General Agreement on Tariffs and Trade) will seriously alter present arrangements in many countries, including Canada and Québec.

As modernization proceeds, agriculture, in common with other primary industries, accounts for a declining proportional share of the total economic output of Canada (Howlett and Ramesh, 1992, p.118) and many other temperate countries. There also exists the novel situation wherein many industrialized nations, including Québec, are approaching a state of zero population growth. Since continual growth appears to be a key ingredient to the success of Western economic systems, this implies a static domestic demand for basic foodstuffs and threat of stagnation in the food sector unless new markets are found or generated.

Due to a combination of human and physical factors, some countries are not self-sufficient in agriculture and rely on imports to fill the demand. As well, the persistence of sporadic famine, notably in some African countries, means that on a global scale there is room for increased production of food. Some of this should obviously be supplied from the areas of surplus production or by opening new land for exploitation. Practically, however, although world governments and other agencies do have a genuine concern for these poor countries' problems, international efforts to alleviate hunger and mitigate environmental degradation are often mainly palliative, or worse, are detrimental to the economies and societies of these vulnerable countries.

Through innovations in irrigation, mechanization and tillage practices, improvements in fertilizers and pesticides and advanced genetic research in crop and animal science, the present yields of the world's agricultural systems are at record high levels. Partly as a result of these technologies there is now an overabundance of agricultural production throughout the temperate world. This has been accompanied by a decline in prices, which then requires active intervention in markets and subsidization of the producers. At the same time, modernization, rationalization of farms into fewer and larger holdings, specialization,

new corporate ownership arrangements and other industrial efficiencies mean that less land and manpower is now required to produce the same amount of food. The result is a generally efficient system of industrial production. In view of the environmental damage modern agriculture entails, serious, but so far unanswered, questions arise concerning the long-term sustainability of this new agriculture. Its deleterious effects on traditional agrarian societies are also frequently questioned.

With large surpluses of agricultural production, efforts to preserve or protect the agricultural economy and farmland become paradoxical in many temperate countries and efforts to divert agricultural land to other uses do occur (e.g. Potter, 1991). Whether through central policy such as the European Mansholt Plan earlier this century, or through market-led approaches, deliberate removal of land from production tends to be controversial. How do planners and governments justify direct agricultural protection, often accompanied by stringent zoning or other controls? Can, and should, farmers be protected from forces beyond their control when the international trading community demands more open markets? These are some of the fundamental new questions which must now be addressed.

The security of the land resource in the form of some kind of agricultural protection carries global importance but is by no means a problem having straight-forward and universally appealing solutions when applied locally. Resolving the paradox of preservation vs. over-production will occupy many in the years to come.

1.2.2 Québec's Agricultural Legislation in Context

Québec's agricultural economy long lagged behind that of other Canadian regions and provinces, notably Ontario (see e.g. J. McCallum, 1980), and was generally slower to modernize and industrialize. Since the first decades of this century, Québec farms have rapidly changed from the

original, small, family, subsistence operations which relied heavily on family labour and pluriactivity outside the farm (Kesteman et al., 1984). Morisset (1987) has described the history and evolution of the family farm in Québec through three distinct phases: from traditional (1854-1939) to a diversified market farming (1939-1966) to modern specialized agriculture since 1966.

Responding to increased demand for food early this century in war-ravaged Europe, provincial government efforts were directed to organize the farming population, modernize and increase production; in short, to create a market-based and diversified agriculture. Falling prices during the 1920s and the later depression slowed this modernization in agriculture but aided in the formation of various farmer organizations to promote their collective interests. In addition to government initiatives, the Church was intimately linked with this rural organization of farmers and farm women (e.g. Morissette, 1980) and their syndicalization. Key among these organizations was the *Union catholique des cultivateurs* (UCC). The Church was also very active in the colonization of new farmland in the more remote and marginal areas of the province such as Abitibi. This activity in the rural world was in the Church's interest because it sought to uphold and promote the traditional religious, linguistic and nationalistic values long attributed to the French-speaking rural inhabitants. It also hoped to stanch a rapid hemorrhage of Québec residents to the New England States and elsewhere. A strong solidarity among farmers was thus achieved and it has been said:

«L'UCC devient vraiment à cette époque le 'cerveau' d'un vaste mouvement de reconstruction sociale et économique des campagnes. Les efforts de l'association agricole tendent alors au regroupement des forces rurales, à l'organisation économique autonome de celles-ci, entre autres par les coopératives de tout genre, à l'encadrement des masses agricoles par l'éducation et la formation des chefs.»

(Kesteman et al., 1984, p.95)

(The UCC really became during this period the 'brain' of a vast movement of social and economic reconstruction of the countryside. The efforts of the agricultural association are directed to the gathering of rural forces, their autonomous economic organization, and with all the other cooperatives, the ordering of farm people by education and the training of leaders.)

(translation - C.M.)

In 1972 the UCC became the *Union des producteurs agricoles* (UPA) which now legally represents all farmers in Québec and is influential in the formulation of agricultural policy. Smith (1984a) describes the state of agriculture in Québec at the inception of its agricultural protection law; characterized by local decline in farming, supply imbalances, and lack of self-sufficiency in some products due to heavy specialization in dairy, pork and eggs.

The *Parti québécois* government of Québec, in exercising its mandate between 1976 and 1985, legislated radical, planned change for both the territory of Québec and for its society; a society which was already experiencing profound and rapid transformation. This legislation adhered to the social-democratic spirit of the party but was also noted for its strong nationalistic stance regarding Québec and its people. Although the main ambitions of political independence and survival of the French language claimed most attention, legislation touched on many other aspects of life, including agricultural protection.

Agricultural policy was drafted with the unswerving goal of self-sufficiency in food production for an autonomous Québec (*Les Éditions du*

Parti québécois, 1975; Morisset and Gouin, 1990). This self sufficiency was envisaged in the sense of both balance of payments and self-provision within the province of temperate goods (Archer, 1988).

To assist this evolution, a second major agricultural policy initiative was to increase the standard of living of farmers to the level of other skilled workers. The necessary mechanisms to enable this included the stabilization of prices and incomes, supply management or the regulation of production by quotas, provision of qualified advisory bodies and educational systems, and generous provision of farm credit, grants and tax benefits (ASDEQ, 1978).

As part of a strong nationalistic tendency among Québec's French-speaking majority, the original, agrarian society is revered by many today, even after a century of rapid urbanization. Concern for this agrarian *patrimoine** (see Appendix 1 for translation of terms marked with an asterisk) is apparent in some of the policy antecedents of modern Québec agricultural and planning legislation. The retention of family farming as the basic agricultural system is encouraged by UPA policy to preserve Québec's original agrarian *patrimoine*, to enable the farmers themselves to safeguard their own interests and in deliberate rejection of the huge farming systems of the United States, the (former) Soviet Union and multi-national plantations in the (former) Third World (UPA, 1992). To achieve these aims, agricultural protection to secure the land resource was seen as a fundamental requirement during the 1970s.

Agricultural protection also figured in another broad stream of public awareness. Generalized and growing concern over urban sprawl and rural-to-urban land conversion caused agricultural land protection to enter the contemporaneous nationalistic thinking of government, academics and professionals (Québec, 1975; *Ordre des agronomes du Québec*, 1975;

Université Laval, 1977; Garon, 1978; Québec, 1978; Martel, 1978). In this regard, the expropriation by the Federal Government of an unnecessarily large tract of farmland north of Montréal and displacement of its traditional agrarian community for construction of Mirabel airport was a major flashpoint in Québec consciousness; embers of which still smoulder. Also important was the issue of farming vs. development on Ile Laval, Ile Bizard, and other islands near Montreal where farms were threatened by urban encroachment.

An example of Québec's mood in the turbulent years leading up to the election of the *Parti québécois* government is found in the proceedings of the *Etats Généraux du Canada Français* of 1969; a convention of elected delegates ostensibly representing organizations from all levels of French-Canadian society from across Canada. The president of the assembly was the then, academic, Jacques-Yvan Morin. One major purpose of this assembly was to build a social consensus on many economic, social and political issues and produce a set of resolutions which then would be presented to the sitting *Union Nationale* government of Québec. Indicative of the nationalistic tide which eventually culminated in the election of the *Parti québécois* government in 1976, the collectivist, protectionist, nationalistic and *indépendantiste* mood of the Québec participants' deliberations was manifest. A large majority of delegates from outside Québec abstained from voting on many of the resolutions. Regarding Québec's future agriculture policy, the final resolutions that were drawn up were as follows:

- 1) The government of Québec should establish a true agricultural policy;
- 2) Québec should define the vocation* of its land;
- 3) Québec should encourage the maximum use of fertile land, within the framework of a regional policy;
- 4) Québec should halt speculation on arable land and require the municipal authorities to develop (*aménager**) their

territory according to the general interest;

- 5) Québec should encourage research which permits the creation of specialized crops which are highly profitable;
- 6) Québec should use land not suitable for agriculture for reforestation, industry and recreation;
- 7) Québec should effectively coordinate the various steps in production and marketing in order to respond to domestic (i.e. Québec) and outside markets;
- 8) Québec should control the import of agricultural products and impose tariffs on the import of certain competing goods;
- 9) Québec should abolish property taxes on buildings, farms and land in production;
- 10) Québec should create a consultative body which permits farmers to participate in the study of agricultural questions and in the formulation and execution of laws concerning agriculture;
- 11) Québec should control all constitutional or judicial powers relating to agriculture.

(Les Etats Généraux du Canada Français, 1969, pp.78, 379)

(translation - C.M.)

During the *Parti québécois* regime (and since), some of these recommendations have been modified and adopted in agricultural legislation.

1.2.3 Québec's Planning Legislation

Stemming from recommendations of the April and La Haye Commissions (which began deliberations in 1965 and 1963 respectively (Glenn, 1983)), the *Parti québécois* regime rapidly implemented a centralized planning philosophy with the aim of rationalizing all provincial space. Laws were enacted which partitioned the province's territory into regional administrative units for several sectoral purposes. A major reform was the promulgation of *An Act respecting land use planning* (R.S.Q. Chapter A-19.1) of 1979 (ARLUP). This statute reorganized the province's space into new administrative territories called *Municipalités régionales de comté* (regional county municipalities) or MRCs. The MRC is charged with creating and administering a complete regional five-year development plan, the

schéma d'aménagement*. This regional planning instrument has a broad mandate in directing the economic orientation and land use within its boundaries and in making recommendations for the urban plans of the individual municipalities within each unit.

Another major and universal reform was the promulgation in 1978 of a strong, comprehensive and centrally administered agricultural protection mechanism. This is *An Act to preserve agricultural land* (R.S.Q. Chapter P-41.1) whose articles currently take precedence over all other planning legislation within Québec. It applies to all land in the province which has any agricultural potential as defined in the Canada Land Inventory (CLI). In theory, the combined effect of these two laws directs the current use and land use evolution of the province's landscape. The major articles and function of these two laws are detailed in Chapter Three.

Despite the ringing consensus on the need for more central and collective control of agriculture and its land base reported in the 1969 *Etats Généraux* document, controversy immediately ensued on the promulgation of APAL. Within the wide-ranging reaction, the law was alternately seen as the salvation of the nation or as a Draconian nationalization of the territory. The commentary raged in the press (e.g. Bellemare, 1978; Martel, 1978; Berger, 1979; Tardif, 1979; Thellier, 1981; Vachon, 1978). A sober editorialist and advocate of the law recognized its larger significance in Québec life:

«Car cette mesure législative, qui n'excite guère l'imagination citadine, touche beaucoup plus que l'intérêt des producteurs agricoles ou que la satisfaction des écologistes. Tout autant que la grande aventure hydro-électrique, le redressement de la situation agro-alimentaire de la province devrait être au coeur des préoccupations collectives au cours des prochains années.»

(Bissonette, 1978)

(For this legislative measure, which scarcely stirs the urban consciousness, touches on much more than the interests of agricultural producers or the ecologists. As much as the great hydro-electric adventure, redressing the problems of the food sector of the province should be at the base of social concern over the coming years.)

(translation - C.M.)

In contrast, a Laval University teacher likened the act to a massive expropriation of land without indemnification and criticized the tardy implementation (1980) of the law in the present study area on the grounds that speculators were given plenty of time to sell out, partition the land or otherwise sidetrack the law. He continues:

«Actuellement, les citoyens sont à la merci d'un ésotérisme idiosyncratique et souvent arbitraire de technocrates "éclairés" parfois bien intentionnés, dont le statut théoriquement désintéressé, légitime hélas trop souvent un exercice dictatorial du pouvoir de l'Etat au nom d'un ordre rationnel (en principe) qui leur sert de tremplin social.»

(Wallot, 1980)

(Presently, citizens are at the mercy of an idiosyncratic, often arbitrary esoteric group of 'enlightened', though sometimes well-intentioned technocrats, for whom the statute - theoretically objective - legitimates, unfortunately too often, the dictatorial power of the State in the name of a supposedly rational order which furthers their social ends.)

(translation - C.M.)

Since the enactment of APAL, many others have debated its merits and researchers have examined its direct and indirect effects. Most often this has been near the large urban communities of Québec and Montréal; cities situated on the relatively fertile Saint Lawrence Plain where the major share of the province's population and agriculture is located (e.g. Québec, series 1982-84, Thibodeau, et al. 1986; Archambault, 1987; Gauthier, 1987; Dubost, 1990). Some economists and other academics have severely criticized the deleterious effects of the law on the more peripheral rural areas such as the Gaspé Peninsula, the lower north shore

of the Saint Lawrence River and areas along the Saguenay River (e.g. Vachon, 1984; 1987; GRIDUQ, 1981) where it was denounced as hindering diversity in economic development by freezing the land for agricultural uses* (Appendix 1). These areas are marginal in terms of agricultural potential and experience chronic rural outmigration and decline. Areas with medium agricultural potential, such as the present study area, have seldom been studied.

1.3 SUMMARY OF CHAPTER ONE

The sustainability of agriculture is a vital global concern and the effective protection of its land and human resource base is a crucial policy consideration of government. However, regional surpluses in production create a paradox regarding the amount of official support for the industry and the active preservation of its land resource. Intervention in Québec's agricultural affairs by farm organizations, the government and other institutions has greatly increased this century. Within an intensely nationalistic climate, agricultural protection legislation was formulated in 1978 to promote modernization, self-sufficiency and to halt the deleterious effects of city growth on the farmland resource. This legislation was designed to complement other universal planning legislation in the province which, for the first time, required all municipalities to create a complete regional and urban plan for their territories.

CHAPTER TWO
URBANIZATION AND RURAL-TO-URBAN LAND CONVERSION

2.1 THE USE OF RURAL SPACE

2.1.1 Defining Rural Space and Rural People

For Canadian census purposes, rural space is defined as the converse of urban space, which itself is positively defined as being "... a built-up area of 1000 or more people where the population density is at least 400 per square kilometer." Whereas, "The concept of rural area is that of a sparsely populated area. Statistics Canada defines rural areas as those areas of Canada lying outside urban areas." (Census of Canada, 1991). Officially then, Canada's rural area comprises the vast majority of the country without further differentiation. By extension, rural people are simply those who live there. The necessity for arbitrary statistical thresholds and definitions of the census means caution must be exercised in using this designation in social or other research.

Natural landscapes such as Canada's northern forest, the prairies and mountains carry certain symbolic or psychological connotations which are apparently culturally determined (e.g. Kaplan and Kaplan, 1989; Hamelin, 1988; Osborne, in progress), as is the notion of rurality (Zube and Zube, 1977; Dufresne, 1985). Rurality has formed the inspiration of so many literary and artistic works, especially since the Romantic movement of the nineteenth century, that it is accepted without argument in the present work as a real, though often idealized, psycho/social and physical state.

For the purposes of this work, rural space includes the human ecumene outside of cities but not the remote wilderness areas of this country. Small towns and villages could be functionally and socially part

of the rural world even if their population density assigns them to an urban category. This work further assumes that a distinct transitional zone exists between large urban areas and rural space which has unique characteristics.

Defining the rurality of populations is more difficult. Until very recently, rurality was overwhelmingly associated with agriculture and an agrarian lifestyle. The two have often been treated with disdain by more "sophisticated and worldly" urban observers. In many cultures, however, the countryside is regarded as the repository of worthy traditional values and agriculturalists are seen as natural stewards of the earth. Two British authors write of this "agricultural fundamentalism":

"This is the belief that any person who is actively engaged in performing agricultural processes and who is living and working amongst natural forces and with natural fauna and flora, develops traits of character which are different to those developed by people living in towns. This idea of a marked difference in the character and development of rural as against urban people quickly took on a fundamentalist attitude as urban areas began to grow and to suffer from the early problems of the Industrial Revolution."

(Davidson and Wibberley, 1977, p.12)

Since 1986, census data have been collected in Canada's rural areas with the assumption that the socio-economic characteristics of the people who live there are inherently different from those in urban areas (Census of Canada, Census Profiles, Urban and Rural Areas, 1986). Some sociologists find a definite and persistent sense of rural identity in the modern population; in Britain, for example (Bell, 1992). The Maritime Provinces of Canada, much of the Prairie Provinces, and parts of Ontario also seem to retain a distinctive traditional and rural cultural identity (McCann, 1987; Walker, 1991). Québec's rural areas, as well as its cities, have experienced rapid modernization and social change in the last half century (Fortin, 1971; Garique, 1971; Courville, 1990), particularly in

the areas affected by growing cities. Assuming the persistence of rural or urban archetypes in the modern population is dangerous in light of this change. Some researchers maintain that in spite of the homogenization caused by modernization, mobility, the mass media and diffusion of exurbanites into the countryside, there remains a fundamental difference between rural and urban people in large parts of Québec (Dugas and Vachon, 1991). Turning the question on its head, Lanthier's work (1992) confirms the frequently observed fact that the Québec urban family long remained closely connected to its traditional rural roots, both in terms of the reproduction of rural business and kinship relations and by frequent visits. Even brief contemplation of this paradox indicates a long and circular argument on whether Québec society is essentially urban or rural.

2.1.2 Rural Land Uses

The long dominance of agriculture as the major rural economic activity contributes to our agrarian perceptions of rurality. Today, though agriculture occupies a large part of rural territory and remains the major economic activity, the farm population is actually small. In Québec the population engaged in agriculture in 1991 was 129,370, or 1.9 percent of the provincial total. Even amongst Québec rural dwellers it accounted for only 7.9 percent (Statistics Canada, 1991). Strong laws, a powerful agricultural union (the UPA), reinforced by a lingering agricultural fundamentalism helps offset the declining social, and by extension, political role of agriculture in Québec. The collective needs of commercial agriculture in Québec are well expressed in policy.

Other primary economic activities associated with rural areas include mineral extraction and forestry. These mainly take place in the more peripheral regions or northern hinterland, though they also occur in the populated south (Bradley, 1984) including the Sherbrooke area. Agro-forestry, including the commercial management of farm woodlots, is

important in Canada (Fox and Macenko, 1985; Fox, 1988; Romon, in progress) and has a long tradition in the peripheral agricultural areas of Québec where many marginal farmers still work part of the year in the lumber or pulp wood industry. Significantly, for the purposes of Québec's agricultural laws, the forest is counted among agricultural land uses.

A newer dimension and important land use has been added to these primary economic activities in the Canadian rural landscape. Growing from society's rising affluence and increase in leisure time, the rural countryside is now seen as a recreational hinterland by modern city dwellers and tourists and this places heavy demands on the rural resource near cities. The national and provincial park organizations, local conservation areas and private land trusts, though ostensibly established as land and nature reserves, also form part of the recreational world with close links to the city (Wall, 1989). For these users, the preservation of nature and the visual amenity of the natural landscape is extremely important.

Rural recreational development is important in Québec (Saint-Amour, 1984) and includes both the long established settlements of second homes such as converted farm houses, lake-side cottages, vacation condominiums and rented lodgings, known collectively as *villégiature** as well as intensive private land uses such as lake-side marinas, golf courses, race tracks, drive-in theatres, ski resorts and private airfields. The agricultural and recreation worlds can be seen either as rivals (Pearse, 1969) or as subtly merging into agro-tourism, with the vacation farm, "pick-your-own" and Christmas tree farms, the *vignoble**/rustic restaurant of southern Québec and its coldweather counterpart, the *érablière**/rustic restaurant. Recreation is an important feature of land use change near Sherbrooke (Madeau, 1971; Gilbert, 1985; Longpré, 1989) and key sector of the regional economy recognized by the MRCs' *schémas d'aménagement*.

2.2 THE EFFECTS OF URBANIZATION ON THE RURAL WORLD

2.2.1 Urbanization

One of the most important forces shaping the Canadian landscape is urbanization. Its importance lies not only in the interior dynamics of city building but in the effect it has on rural areas both near and far from the growing cities themselves. In Canada, twentieth century urbanization has mainly been propelled by the twin forces of modernization and industrialization. Cities grow from two major sources; the first being growth generated through long-distance domestic and foreign in-migration and increases due to natural fertility. The second source derives from local migration of people from the surrounding rural areas in search of employment or other opportunity. Bourne (1991) provides a recent discussion of this tendency in Canada in general and it has long occurred in Québec (Keyfitz, 1962) including the study area (Gagnon and Paquette, 1967; Roy, 1992).

2.2.2 The Rural Problem

The second population source contributes manpower for urban industry, but the drain on the remaining rural population has caused many problems in the rapidly emptying rural landscape. In spite of decades-long efforts in Canada to revitalize the more peripheral rural areas through regional and/or rural development initiatives such as The Prairie Farm Rehabilitation Act, the Agricultural and Rural Development Act (ARDA), the Farm Credit Act, and DREE (Department of Regional Economic Expansion) (Canada, 1969; Pelletier, 1967; Buckley and Tihanyi, 1967), these problems remain serious in many places in Canada including parts of Québec (GRIDEQ, 1983; Frechette, 1984; Dugas, 1990). An overview of conditions in rural Canada is given by Troughton (1988; 1991) and for Québec by Jean (1988), Wampach (1991), and Jean and Vachon (1991).

Other rural problems include dependency on often unreliable, resource-based primary industries, general underdevelopment and lack of economic diversity. This has led to a decline in services and institutions necessary to maintain viable communities, with accompanying unemployment and poverty. These social ills and the depopulation caused by outmigration are both cause and effect of the decline in traditional rural/agrarian societies and contribute to a general demoralization amongst the remnants of the original rural population, further propelling younger people toward the city.

Modern tendencies and policies reinforce the rural problem, such as those which promote efficiencies and labour-saving practices in the primary industries, especially in agriculture (e.g. mechanization and economies of scale practices) leading to local unemployment. The abandonment or neglect of existing infrastructure (e.g. railways, grain elevators,) or rationalization of social services (e.g. hospitals, post offices, schools) into a few centers creates social isolation and unease for the remaining dispersed population.

Agriculture in many peripheral regions also tends to be marginal, partly due to poorer land capability (Canada, 1981), and farm abandonment is a chronic problem. Farmland abandonment also occurs closer to cities (e.g. Wolfe and Sack, 1978; Reid, 1979; Eberle, 1983; Dirschl, 1992) but mainly for other reasons; examined below in section 2.5.

This process of rural restructuring has received much academic treatment (e.g. *Actes du colloque, Rimouski*, 1976; Marsdon et al. 1990; International Conference on Innovative Rural Communities, 1991). The regions affected remain targets for assistance and programs for regional and rural development by many agencies and at all levels of government. Savoie (1992) provides a good summary of federal initiatives in regional

development throughout Canada.

Modernization and urbanization have contributed to decline and outright dereliction in the peripheral rural areas but a different dynamic exists in the rural areas closer to growing cities themselves. Here the influence of the city spreads far beyond the urban core and the rural world is literally invaded by an urban ethos. This is disseminated by the mass media and by exurbanites themselves who have come to diffuse in a continuum from the city to well into the rural countryside described above. The next sections describe this relatively new landscape.

2.3 URBAN-TO-RURAL MIGRATION OR COUNTERURBANIZATION

2.3.1 Effects on the People

Since about the 1940s, the widespread personal mobility afforded by the private automobile, provision of extensive modern highway networks, the rise in standards of living and large increase in personal leisure time have encouraged many new social trends. One of these is suburbanization; a mass lifestyle choice in North America. It results from the movement to the urban edge by mainly younger, middle-class families in search of cheaper and more spacious accommodation or to escape some of the social ills found in the older centres of many cities. Whether the creation of these suburbs is the panacea that was sought was soon questioned (e.g. Haar, 1972).

When this suburbanizing trend extends spatially to the countryside around the city it becomes counterurbanization or urban-to-rural migration (Champion, 1991). It is both a partial reversal of the rural-to-urban migration which first contributed to the growth of the city and as a form of extensive and diffuse urbanization (conceptualized in Figure 2.1).

Figure 2.1: Rural-to-Urban Migration and Counterurbanization

SCHEMATIC OF RURAL-TO-URBAN MIGRATION

AND

COUNTERURBANIZATION

C.M.

In Québec, much counterurbanization tends to remain within the cities' spheres of influence (Termote, 1984).

Exurbanites seek to add the perceived advantages of country living (e.g. Thompson, 1989) and a slower and more traditional lifestyle to the amenities already offered by the suburbs (Davies and Yeates, 1991). Many of the original rural dwellers and most of the newcomers to the countryside are employed in the city and so this new exurbia has come to stretch to the limits the commuting public is willing to bear. Encouraged by the provision of commuter rail and highway links, utilities and services, this can be long distances from the metropolitan center.

The effect of exurbanites mingling with rural societies has been analyzed in many countries (Marsden et al., 1990; Cloke, 1987; 1988; Benoit and Irrmann, 1989; Nyström, 1989; Cloke and Goodwin, 1991). Counterurbanization is a significant social feature of many areas in southern Canada (Keyfitz, 1962; McCrae, 1980; 1981; Smit and Flaherty, 1980; Joseph, et al., 1988). Nationally, counterurbanization has recently decreased in intensity (Bourne, 1991). Walker (1987, 1991) has identified some of the severe repercussions of exurban settlement on existing rural and agricultural societies in southern Ontario. Exurban migration has been examined in Québec by Massey (1977) and Courville (1990), among others, and near the present study area by Brunet (1980).

2.3.2 Effects on the Land

North American cities have tended to grow in a sprawling fashion along transportation corridors or by diffusion in low density development which is often promoted by large minimum lot size requirements of local zoning ordinances. Sprawl can also occur in leap-frog developments on to surrounding rural land followed by variable amounts of infilling between these nodes of development. In either case, large tracts of land

are consumed.

Low density urban sprawl and counterurbanization once occurred unhindered in much of North America for reasons such as the cheap and seemingly limitless availability of land, the prevailing ethos of the unencumbered rights of the owner over private property, and the cultural trait which favours single-family dwellings. These contributed to low density development. The desire to maximize returns by developers and speculators and the activities of municipal government and civic promoters likely also contributed to this effect. The early lack of potent, comprehensive urban planning and the prevalence of permissive or non-existent rural planning permitted often chaotic and uncontrolled expansion onto unincorporated territory surrounding cities and towns, where weaker administration was more likely.

As a result of North American city growth dynamics, a feature common to most cities is the general decrease in density of the population with distance from the city centre (Garner, 1968; Mercer, 1991). This is normally paralleled by a decrease in the intensity of the uses of the land. Therefore, unless deliberately altered, an inverse relationship between land value and distance from city centre is produced, i.e., land values decrease with distance. Chapter Four explores these concepts.

The general process of land use change in the zone affected by counterurbanization is that of rural-to-urban land conversion. From rural uses such as agriculture, forest, villages, quarries, or land in fallow, the land use typically changes to urban forms such as housing subdivisions, highways, commercial centers and industrial parks, and airports. Most of these cause the existing property base to become increasingly fragmented into smaller and irregularly shaped lots. A huge body of literature now exists concerning the extent, forms and effects in

Canada of rural-to-urban land conversion (e.g. Hind-Smith, 1962; Schmid, 1968; Gierman, 1977; Neimanis, 1979; Gierman and Lenning, 1980; Warren and Rump, 1981; SOE, 1989).

It has been found that the amount of land consumed in spreading cities is greater per capita in smaller cities than larger ones (Pierce, 1981). Gierman and Lenning (1980) confirmed this for Sherbrooke, a mid-sized city, in terms of rural-to-urban land conversion. In view of this, understanding and planning for the land dynamics of smaller cities should receive as much attention as is now primarily given to large metropolitan areas.

From a strictly urban point of view, sprawl has long been condemned by most planning authorities as being wasteful of the scarce land resource and costly in terms of the provision of transportation networks and utilities (Real Estate Research Corporation, 1974; Des Rosiers, 1992). From the rural perspective, urban sprawl has been represented as one of the most severe threats to rural land uses, especially to agriculture and to the rural societies found in this space.

The tendency for land use to change from rural to urban uses is largely related to speculation and competition for land in the zone outside the city. Urban growth usually occurs at the expense of the land at the immediate city edges, but the effect of this urbanization casts a long "urban shadow" into the rural landscape long before actual development occurs. Land values tend to adjust upwards in speculative anticipation of the oncoming development. This speculative rise in land values in the periurban zone is a fundamental issue in regard to agricultural protection. In this complex urban/rural transition zone, urban sprawl, fragmentation and speculation are recurring themes and these forces have concerned planners and politicians for many years. The efforts

to neutralize their negative impacts lie at the heart of Québec's agricultural preservation policy.

In contrast to the above view of sprawl there are those who maintain that the entire issue of rural-to-urban land conversion has been vastly overstated. The loss of agricultural land in particular is viewed as a canard foisted on the American population by extremist overreaction (Fischel, 1982; 1985; Baden, 1984). Fischel maintains that urbanization is no threat to the American land base, agricultural or otherwise, and presents evidence which discredits studies which raised the alarm on rural-to-urban conversion. Britain also has had strong adherents of the view that problems in the countryside are caused by the nature of modern agriculture itself and not primarily by urban encroachment (Best, 1978; Bowers and Cheshire, 1983). Des Rosiers (1992) gives an account of the causes and effects of current urban sprawl in Québec which suggests that sprawl may be a normal accompaniment of urban growth and one which tends to be self-regulating in a free market. Alternative viewpoints regarding the influence of the city specifically on agriculture will be further explored below (section 2.5).

2.4 EXURBIA IN ITS MANY FORMS

2.4.1 Urban Form

Thrall (1987) considered the various forces which shape and the characteristics which delineate the radial extent of cities, the rural or agricultural land outside them, and the periurban transition zone between. Using a variation of the rent/distance function (see Chapter Four for Thrall's models and a discussion of land rent), he formulated a theory of consumptive land use. This includes a system of city classification which is useful in the present discussion of urban sprawl and speculation.

Thrall classifies cities into three types: 1) interactive; in which land is considered urban where the urban land rent is greater than or equal to the cost of converting non-urban land to urban land utilization, 2) radially constrained; where the boundary of a city or its radial extent is determined exogeneously by a central planning authority or by a collusion of monopolistic landowners and 3) the solitary city; where indirect geographic determinants cause the population density to behave in some unspecified manner; e.g. when a city is defined according to an arbitrarily defined minimum population density. Urban areas are defined this way in the Canadian census, for example.

Thrall's interactive city represents the rapidly growing, sprawling, low density North American form described in this chapter. The radially constrained form is one resulting from the rigorous application of central planning such as was achieved in the (former) Eastern Bloc and in England with its "Greenbelt" legislation, for example. This city type bears some resemblance to the urban form envisaged by Québec's land use planning laws (ARLUP) in relation to the rural, agricultural world beyond the city.

2.4.2 Forms of Periurbanization

While analysis of the regionally dispersed city produced by suburbanization and counter migration has existed for many years, by the early 1940s the urban/rural zone was recognized as a specialized region with its own functions and dynamics (Wehreïn, 1942; McKain, 1953). This area has since become a focus of research for rural geographers and sociologists as well as urban planners and geographers. England has consistently been in the research vanguard concerning the issue of urbanization in the countryside (e.g. Cloke, 1988; Cloke and Little, 1990). The active management and preservation of the landscape and societies found in rural areas are fundamental to the public control of land in that country (Hall et al., 1973).

Gottmann's epic work (1961) effectively described the overall process and effects of regional urbanization in the once-rapidly expanding North-East of the United States, and his treatment of the subject remains exemplary. Clawson (1971) provides a lucid description of the mechanisms of suburbanization and land conversion in the United States, and Hayes (1976) later elaborated on the tendency in a more localized area in North Carolina. The tradition of French scholarly interpretation begun by Gottmann continues in the works of Bastie (1964), Benoit and Irrmann (1989) and Dezert et al. (1991) for example. In Canada, Gierman (1977), Geirman and Lenning (1980), Russwurm (1976), Bryant et al., (1982), Courville (1990) and many others have elucidated the urban process in the rural space and the effects of urbanization on these spaces. The intricacies of the socio-economic linkages within this urban diffusion increase with the size of the territory affected.

In 1986, the Canadian census distinguished both the "urban fringe" and "rural fringe" from either strictly urban or rural areas based on population size and density and collected information for these specialized regions (Census of Canada, 1986). Several terms exist for the regions around growing cities which are affected by the changes in the land and society which occur there. It can be said without reservation that they are all fundamentally urban rather than rural phenomena. Conforming to the basic characteristic of the regular decrease of density with distance from the city, they include: "suburbia", the "urban/rural fringe", "exurbia" the "city's countryside" (Bryant et al., 1982; Nyström, 1989) and the "urban field" (Friedman and Miller, 1965). Québec researchers referred to it as *la zone grise*. In France the urban/rural continuum is: *le faubourg*, *la banlieu*, and *la région périurbaine* (Dezert et al., 1991). In reference to the phenomenon of coalescence of urban areas, there is the "dispersed city" (e.g. Ginsburg, 1961; Burton, 1963; Hayes, 1976) the "regional city form" (Russwurm, 1976), "the urban

complex" (Weaver, 1964) and "megapolis" (Gottman, 1961).

Lyon (1983) and recently Deslauriers and Marois (1991) have reviewed the literature on the differences in morphology and processes attached to these designations. Work in this field has also been done by Fuguitt (1963), Smith (1967), Sinclair (1967), Pryor (1968), Moore (1970), Racine (1970), Jacobs (1972), Best and Rogers (1973), Found and Morley (1973), Martin (1975), Fesenmeier et al. (1979), Maquire (1979), Duchesne (1980), Parenteau (1980), Proudfoot (1981), Bryant (1982; 1991), Marsdon et al. (1990) and Des Rosiers (1992). A research methodology was established for the urban fringe by Martin (1977).

The French terms used to describe the special region near cities and the processes within it: *périurbain* and *périurbanisation*, usefully subsume much of the nuance of meaning within the categories of urban/rural space mentioned above and are used throughout the present work to describe the study region. For the purposes of this work, the periurban zone is taken to mean the area near the city which is strongly influenced by the activities of the city and its people and periurbanization is the process of change which creates this zone.

Because of the former close association between agriculture and the psycho-social concepts of rurality, the decline in status of agriculture in periurban and rural areas has prompted most public and academic concern about rural-to-urban land conversion. The agricultural land use of rural areas and its preservation are considered in the next section.

2.5 AGRICULTURE'S PLACE IN THE PERIURBAN ZONE

2.5.1 Processes

The specific relationship between urban growth and nearby

agricultural areas has been studied in many parts of the world (Wibberley, 1959; Hind-Smith, 1962; Boserup, 1965; Sermoniti, 1968; Munton, 1974; W.R. Bryant, 1975; OCDE, 1979; Moran, 1979; Chassagne, 1980; Lapping, 1980; Fischel, 1982; Woodruff, 1980; Thompson, 1981; Chaline, 1982; Coll-Hurtado, 1989; Bryant 1989; van Oort et al., 1991; Bryant and Johnston, 1992). In Québec, where urbanization has been rapid during this century and heavily centered around Montréal (e.g. Parenteau, 1980; Duchesne, 1980; Fauteux and Morin, 1983; St-Jean, 1990), several investigations of periurban agriculture have been made. The policy antecedents of APAL can often be detected in these works (e.g. *Institute d'urbanisme (Montréal)*, 1967; Clibborn, 1972; 1975; Lamonde, 1973; Québec, 1976). More recently, Dupré (1980), Jauron and Stanek (1984), Gervais and Jacovich (1984), Deslauriers and Marois (1991), Deslauriers et al. (1991a; 1991b) and Courville (1990) have studied agriculture near the urban community of Montréal.

Because the initial function of inland towns in North America was frequently as central places in the newly colonized agricultural landscape, the cities which later grew up from them now tend to be centered in areas of the best and most accessible farmland (SOE, 1989). With the proximity of good agricultural land to cities, the major concern of rural-to-urban land conversion becomes the permanent loss of this farmland by conversion to urban uses or simply by abandonment in the speculative shadow of cities. The urbanization of farmland evokes a strong, even emotional response from many quarters, and not simply for concern with the crop producing potential of the land. The loss of farms near the city creates a kind of collective regret and nostalgia amongst both urban and rural people at the passing of traditional folkways and the destruction of the landscapes of youth and of forebears. This poignancy is well portrayed by Zube and Zube (1977) for the United States and in Canada by Anderson (1977).

In Europe, the identification of rural and/or agricultural landscapes and their preservation is basic to much practical application of town and country planning (e.g. Clout, 1991), especially in Britain where the settled, rural, agrarian countryside has long been cherished (e.g. Fladmark et al., 1991; Potter, 1991; Bunce, 1982; Mingay, 1981). Volume 18 (1991) of *Landscape and Urban Planning* is entirely devoted to the subject of agricultural landscapes.

In Québec, preservation of rural *patrimoine* now plays a certain role in local planning though it mainly takes the form of conservation of discrete historical places and buildings, (e.g. *Patrimoine Estrie*). The heritage aspects of larger regions and landscapes receives some, as yet, minor interest in Québec (e.g. *Continuité*, vol. 28, 1985). In most of North America there appears to be little concern for the preservation of landscapes for their historical, social or amenity value *per se*. Most conservation effort has been directed toward the preservation or management of wilderness areas or other natural and semi-natural environments. Sometimes a quasi-association is suggested between the movement for conservation of farmland and conservation of the natural environment (Davidson and Wibberley, 1977; Gayler, 1982; Wright and Hiltz, 1993). Whether preservation of actively farmed land is a form of nature conservation is to be seriously questioned. Except in its function of holding space open, modern commercial agriculture actually bears little resemblance to any natural terrestrial ecosystem and is among one of the more environmentally damaging of human activities (e.g. Conway and Pretty, 1991).

The extent to which alternative or less intensive forms such as organic farming, agro-forestry, part-time and hobby farming contribute to the preservation of a rural or natural landscape appears not to have been seriously considered in this country by policy makers. The loss of

farmland to growing cities is viewed officially mainly as a threat to the security of the food supply and to the agricultural economy and this factor tends to direct North American policy on agricultural protection strategies.

Viewed in isolation of other producing regions and markets, Canadian concern appears to be justified. Though large in size, due to its northern location, the country has a relatively small share of farmland. Nationally, about 10.8 percent of the total land mass is considered arable, viz. that included in Classes 1 to 5 of the CLI. Québec has a much smaller ratio of arable land for its own territory; about 4.6 percent or 6,507,585 hectares, of which only 0.3 percent or 19,702 hectares is Class 1 land (CLI, 1976). Compared to the large expanse of American agricultural land or even neighbouring Ontario's, Québec has a small arable land base and concern with its agricultural potential is well placed.

2.5.2 Issues of Periurban Agriculture; the Pessimistic View and Speculation

Several key issues in American periurban agricultural land conversion were identified in seminal research several decades ago. Moore and Barlowe (1955) (quoted in Sinclair, 1967), in an empirical study near an expanding city in Michigan, found evidence of conversion to cash crops from traditional dairy, more extensive uses of land, increase in rental of farmland and part-time farming, and evidence of poor farming practices by those intending to leave production. These issues remain current today.

The two interrelated components of agricultural land conversion in the periurban environment are speculation in the land market and resulting fragmentation of the land base. Fragmentation is the subdivision and severance of larger properties to form smaller recreational, residential, industrial or commercial lots. This can occur by civic or private initiative; affecting large or small areas. Highway construction is also

a particularly important mechanism in carving up the existing land and property structures, creating enclaves of inaccessible land and permanently altering the physical appearance of the landscape. These roads also provide the access to rural areas for counterurbanization and recreational use, for example.

On farmland, severances for residential or other uses tends to create small, irregular and scattered fields which are considered difficult or inefficient to work using modern machinery and which cannot be easily reassembled into viable economic farm units. Various small-scale farming activity such as hobby (also known as recreational or lifestyle farming; or even *agriculture artisanale*; see Munton, 1974 for a discussion of the difficulties of clearly defining this activity) and some types of part-time farming have been implicated as agents of speculation and farmland fragmentation (Manning and McCuaig, 1977) inasmuch as the parcels involved are a result of severance for other uses. Hobby farming has been blamed for locally raising the price of farmland because its practitioners tend to be better placed economically to outbid other agricultural users on desirable properties, thereby raising the local land values. It is considered a severe threat in some jurisdictions (e.g. Daniels and Nelson, 1986).

A now receding and more peripheral issue in agricultural protection is that of foreign or non-residential ownership of land. It is thought that non-resident ownership of land is often for speculative or other non-productive purposes. In this case, it contributes to the local increase in land value and therefore participates in the forces of land conversion. Legislation controlling the purchase of farmland by non-residents has been enacted in Prince Edward Island for example to protect the province's major resource from competition from mainly touristic or recreational purposes (Manning, 1983). Québec also has erected controls on non-resident

ownership of agricultural property as part of its agricultural protection strategy.

In Québec, this fracturing of agricultural land by sale and conversion from agricultural to other uses is referred to as *lotissement** and *déstructuration**. This means fragmentation and conversion of the properties themselves, but also implies that the entire vocation of the landscape has been irrevocably altered by the non-agricultural land uses encroaching upon it. Also implied is a general decline in the local agricultural economy. This notion of *déstructuration* is of key importance in Québec's agricultural planning policies.

Land speculation has always been a major issue in studies of the periurban zone. Early American settlement history abounds in stories of the nefarious activities of land speculators and now, although not illegal, the practice often carries a perjorative connotation in Western culture. Like usury, its dark character also likely derives from early Christian and modern Islamic religious thought, where unearned gain is held to be immoral. The ethical dimension of modern land speculation was pondered by Clawson (1971) for example. Speculation can be construed as hoarding, and (when successful) as a source of ungainful profit. In a free and fluctuating market system, the probability that prices will behave in a certain manner cannot be predicted with perfect accuracy. Even amongst expert and knowledgeable speculators, a bad guess can be made and money lost. This introduces an element of gambling to speculation which contributes to its moral castigation. There are also purely economic reasons why speculative gambling, in this sense, is socially or monetarily wasteful (Samuelson and Scott, 1970). A working definition of land speculation for analytical purposes is developed in Chapter Four.

In today's markets, holding goods or property for future price

increases, or stock market trading in futures and risk-taking based on probabilities of future increases is an accepted commercial activity, but land speculation in the periurban zone is still often met with disapproval. Land use theorists and policy-makers are likely slow to modify their judgement of speculation in the periurban agricultural land market because of its impact on rural-to-urban land conversion. Its basic mechanism is described next.

Notwithstanding the cultivation of certain plants containing expensive medicinal or (illegal) narcotic chemicals, it is generally accepted that there is no agricultural land use which can compete with urban uses of the land in terms of economic return to the owner (e.g. Hoffman, 1978). Therefore, in an unconstrained or free-market situation, demand for conversion will shift land value upward in expectation of conversion of this land to some "higher" use. This is predicted from classical land rent theory and the notion of "highest and best use" which is described more fully in Chapter Four. Owners holding land in this environment can be said to be speculators and are gambling that the probable sales price will be higher for land which will be subdivided and sold for housing development, shopping centers or roads, than it would fetch if sold for agricultural uses.

Some farmers, especially those retiring, welcome the rise in values of their land and sell cheerfully to the highest bidder; their land proceeds becoming a large part of their retirement income. Others may doggedly continue operations in the midst of suburbia until old age forces retirement and sale. In this speculative environment, active farmers may find the price of periurban land too high to enlarge their holdings by purchase. As well, higher municipal taxation based on the higher assessments discourages the more extensive uses of land. When the costs of production, including land, outweigh the return to the farmer, holding the

land in this use instead of selling for conversion becomes irrational in a formal economic sense. The proximity to the city market is of much less significance today than formerly, given modern transportation and other linkages between city and the agricultural hinterland. Relocating a farm to a more remote and less competitive environment becomes feasible from this one perspective. It is supposed that those who continue to farm in this speculative landscape do so for personal rather than financial reasons. These intangible and personal reasons are as valid as any, if mainly impossible to integrate into econometric models. Jean (1993), in a recent study of the territorial tendencies of farmers has discovered that Québec farmers, more than in several other countries, are strongly attached both to their land and to their own region, showing less willingness to move to other areas or to sell their land for bigger or better farms elsewhere. This trait could be significant in the context of the study area as discussed in Chapters Five and Six.

Farmland within the urban speculative shadow is often idled or decapitalized as it awaits development in the process generally known as farmland abandonment. This abandonment is mainly driven by speculation, unlike that in the more peripheral rural regions, where land capability may be poorer, the local society or economy in general decline and the distance to market too far for viability. In the speculative periurban area, if development is not immediate, cropland may continue to be farmed by the owner or rented to other farmers. When it is not, it is abandoned; being first left to extensive uses such as rough hay or pasture and then to natural regrowth of weed, brush and, eventually, second growth forest. An ecologist would view this land as a case of normal and predictable plant succession.

The academic literature almost universally laments farmland abandonment as being a key indicator of speculation and the local failure

of agriculture (e.g. Wolf and Sack, 1978). Land reverting to brush can also provoke strong reactions in the general population, where it is often viewed as a great waste of land, labour or capital. It is possible that perceptions of this apparently unproductive, derelict and idle land are also coloured by an unconscious association with the rigours endured by the original settlers in clearing the land by hand implements and the waste of this enormous human effort that abandonment to regrowth represents. Reclaiming this land for cropland would not present an inordinate difficulty using modern machinery if conditions were to change allowing farming to profit once more in this environment. From an ecological perspective a rotation through brush wood might actually be beneficial to the soil and its water relations.

Part-time farming, a component of Canadian agriculture for many years (e.g. Bollman, 1982), is often considered to be related to nearby urbanization (Davidson and Wibberley, 1977; Dezert et al., 1991). It is often cast in a negative light; indicative of a social and economic system in decline. Frequently a focus of public and economic policy, part-time farming has been viewed officially as being inefficient and contributing a small share to the overall agricultural production. Other researchers interpret it positively as offering a diversity of choice for the rural population, enabling these people to remain on the land. Some maintain that it has no specific geographical or income characteristics linking it to the city or to socio-economic status (Hallberg et al., 1991) (for discussion, see e.g. Bartlett, 1986; Bollman and Smith, 1987; Fuller, 1990).

For its own purposes, Québec law clearly defines who is a *producteur**, or professional farmer, and who is not. The distinction is crucial to the province's management of its agricultural industry, to support programs for farmers, as the basis for a differential municipal

tax structure for producteurs and to the application of APAL. This definition is based, not on the time spent working on, or off, the farm, but on the proportion of income derived from farm activities.

A different tenure pattern also takes shape in the changeable periurban landscape with an increase in formal and informal rental arrangements among farmers. It is thought that rented farmland, especially near cities, is generally not managed in the same way as land farmed by the owner. Tenant farmers are thought to take a short-term view of land management and stewardship and become less willing to invest in improvements such as drainage or soil conservation projects on rented land. In the shadow of an encroaching city with expectation of rural-to-urban conversion, the soil may be mined of its nutrients by neglecting fertilizer or other soil treatments. This "farming to quit" can occur anywhere, not only in periurban areas, and may also be a practice of owner-operators who hope to soon sell to developers or speculators.

The future uncertainty and the generally high price of periurban farmland presents difficulties for those who are considering entering farming as a profession or who must acquire financing. This contributes to the aging of the farm population and the abandonment and idling of the land. A closely related issue is that of farm succession. The reproduction of the family farm as the desired system may be in jeopardy if no family member is financially able to take over the ownership and operation of the farm.

Other major issues surround agriculture when it occurs in a mix of land uses. These mainly concern conflict between the activities of modern, industrial agriculture and the activity of others who live and work in rural areas, especially with non-agricultural rural residents (Thompson, 1989). Many studies find that farming is incompatible with these other

uses. Vandalism of crops and equipment is reported, complaints about slow-moving farm vehicles occur and well-grounded fears about pollution of air and water from farm chemicals or wastes arise. Legal challenges by exurbanite rural residents, municipalities or developers to stop the noise, odour, chemicals and other nuisance aspects of modern commercial farming do occur. These are met by the right-to-farm movement of the commercial agricultural population (Lapping and FitzSimons, 1982; Platt and Macinko, 1983), which has been effective in some areas in deflecting these challenges. Québec deals with the rights to farm as part of its agricultural protection legislation.

2.5.3 Issues of Periurban Agriculture; the Optimistic View

Not all observers have painted quite so bleak a picture of periurban agriculture as described in the preceding section. Earlier analysts, such as Hayes (1976), were often generally positive about the changes to the landscape which occurred with periurbanization, perhaps because of the contemporaneous ethos of modernization, growth and prosperity in America. With the huge expanse of mid-western farmland becoming available, the concerns of the shrinking agricultural world in the east scarcely clouded the new horizons. Clawson (1971) makes only the brief comment that:

"... one can say that the high degree of urbanization of the Northeastern Urban Complex has not yet meant the end of agriculture in the urbanized counties. Rather, farming has persisted amazingly well and in some respects has actually been strengthened by the urbanization."

(Clawson, p. 203)

Writing of the coalescing cities of Japan, a like-minded researcher on the subject of agriculture in this environment states:

"The...population in the interstitial open areas probably should have agriculture as one of its major economic bases...but (it) would be so well integrated into metropolitan life...that (they) could best be called 'urbanized farms'."

(Ginsburg, 1961, quoted in Hayes, 1976)

The work of Wibberley (1959) and later Davidson and Wibberley (1977) describes the situation of periurban agriculture in Britain, and catalogues the pros and cons of farming near cities. These works provided much inspiration and momentum for later research.

Edward Higbee, in collaboration with Jean Gottmann (1961) described the many contradictions displayed in farming near cities in the American north-east in the 1950s and his incisive treatment of the issues remain fresh even in the current debate. During this period, farming was increasing in efficiency and otherwise adjusting to the growing population. Pointed out was the fact that:

"The efficient producer is well compensated in the market place. As some farms are eliminated by urban growth, others benefit by the improved market that results where more people are supplied by fewer producers."

(Gottmann, 1961, p. 259)

They note also the handsome benefits to be gained by farmers from land sales to developers. The wealth of diversity of production and farming types made possible by the proximity to the city is viewed positively. Some types, such as horticultural specialties and nurseries, can compete for a time in the speculative land market near the city, which is also a market and labour source.

Gottman and Higbee saw that land abandoned or idled by speculation or by economic sub-marginality arising from more efficient practices eventually reverts to forest, which can be seen as offering a certain potential for recreation. It also provides some amenity value in the form of green spaces for expanding suburbs, albeit perhaps only temporarily. The emergence of large areas of rented land in the speculative environment is seen as a boon to those remaining farmers who may leave good land rather than purchase at high rates. They also have no quarrel with the recreational and part-time aspects of farming near cities, admitting that

"gentlemen farmers" of means can act as preservation agents regarding the rural landscape and society. Ultimately though, the likely fate of periurban agriculture was plainly in view. In a statement which may have influenced Québec policy designers is this:

"Not all farmland in Megalopolis will be urbanized, but within the next century it is probable that commercial agriculture will substantially disappear between the larger cities along their main routes of spread. When this open land is gone a sort of grey zone will set in if, meanwhile, that space has not been used to avert rather than to promote congestion and obsolescence."

(Gottmann, 1961, p. 334)

Munton (1974) also early challenged the assumption that negative changes in farming near cities are wholly explicable in terms of direct urban influences. He found most change to be related to the increasing differential in land values between urban and rural uses, lax land use controls and changes in social structure. He suggested that farmers may, in fact, be responding fairly well to the major challenges of operating in periurban zones.

Recent adaptations in the periurban agricultural economy include increases in specialty and horticultural crops. The proliferation of direct sales at the farm gate and pick-your-own farms benefit from proximity to the city population and in the higher net income to the producer possible by direct retailing of the goods. Other quasi-agricultural or agro-tourist developments which depend on close contact with the large urban market are vacation farms, rural wineries/*vignobles**, *établières** and equestrian centers. The proximity of the city also offers farmers and members of their families the opportunity to work off-farm, the proceeds of which may be contributed to the farm enterprise. The sociological literature frequently explores the meanings to these new kinship arrangements and business partnerships (e.g. Charbonneau, 1983; Reimer and Shaver, 1988; Shucksmith, 1990; Hailberg and Findeis, 1991;

Gasson, 1992).

In Canada, an important alternative viewpoint to the pessimistic image of periurban agriculture has existed for several years. Bryant (1989) states that the usual image of periurban agriculture is misleading and stereotypical. Blaming a preoccupation with the safeguarding of the land resource over the human resource, Bryant finds that many studies fail to take into account the importance of socio-economic structures, including the personal role played by farmers and their families in overcoming the periurban challenge to agriculture. Interviewing farmers in a region east of Montreal but within that city's sphere of influence, Deslauriers, Marois and Bryant (1991b) find that recent changes in agriculture are not all negative and that processes affecting farming operations are not all related to nearby urbanization.

Bryant and Johnston (1992) offer an optimistic analysis of current farming and farming potential in the periurban zone. They point out that farm property fragmentation *per se* is not always negative but may simply reflect the enlargement of an individual's farm operation by purchase of non-adjacent lots. The availability of land for rental is also seen as positive for the expanding farmer and not necessarily merely symptomatic of the speculative shadow. Similarly they find little evidence that conflicts between farmers and other rural dwellers are a serious detriment to farming. These authors do find, however, a distinct difference between agriculture in the periurban zone and that to be found in the more purely rural areas beyond. In their summary they find:

1. A greater variety of farm types, including diversity of specialized farms and greater diversification on farms;
2. A greater variety of socio-economic structures of production;
  - capitalistic structures
  - part-time and hobby farmers
  - variety of different types of family farms

- alternative agriculture
  - greater involvement of family members in off-farm work;
3. Greater range of capital structures on farms;
  4. Greater ranges of types of farm operators;
  5. Greater development of direct marketing;
  6. Tendency towards polarization, bi-modal or greater spread of farms between different business size classes;
  7. Greater variety of intensities of production and types of intensity (capital-based and labour-based).

Clearly evident in this agriculture is the influence of the city and its large potential market which permits a complex diversity and flexibility of operational organization and production in the periurban zone.

Smith (1984b) studied Québec's vertically integrated industrial agricultural marketing hierarchy which is highly influenced by powerful political and consumer activity. Developing a vortex model to explain agricultural land use around the province's major cities, he finds that the impact of Québec's agribusiness system creates an inner zone of prosperous farmers, retailers and consumers around the city. Concentric zones of poorer contract farmers and then isolated and declining farming radiate outward into the rural space. This economic model is useful near the province's large urban conglomerations where the processing, wholesaling and retailing of food mainly occurs. It is less applicable in the study area since few of these agribusiness activities are present to account for land uses and their evolution in the periurban zone.

The dynamics of periurban agriculture are complex, messy and unpredictable and therefore disquieting to those who would prefer rational, orderly and manageable arrangements which are well integrated with larger social planning. By 1978, Québec's government had methodically identified most of the pessimistic issues discussed in this chapter as being of fundamental concern and announced its plan to combat the threat

to agriculture which they pose (Garon, 1978). A vigorous promotion of this planning stance now exists in the province. In a teaching document prepared for 14-year olds in the province, the essential contradictions of the rural/urban dichotomy explored in this thesis are restated and the planning law made explicit:

«Un défi ... comment concilier dans un milieu rural l'établissement humain et les exigences inhérentes à l'exploitation des ressources de ce milieu? Comment concilier la présence d'une agriculture industrialisée, les rejets de celle-ci avec la protection de l'environnement? Comment concilier la présence d'activités non-agricoles (chalets, bâtiments industriels, commerciaux etc.) leur compatibilité avec les activités agricoles et la protection du caractère rural? Et tout cela dans le but d'en arriver à une utilisation maximale des ressources tout en évitant le gaspillage.»

(Québec, *L'aménagement et l'urbanisme, plus qu'un jeu*, no date)

(The challenge... how to reconcile in rural areas human occupation and the demands for the resources of this environment? How to reconcile the existence of an industrial agriculture and its wastes with environmental protection. How to reconcile the presence of non-agricultural activities (cottages, industrial construction, commercial establishments etc.) and their compatibility with agricultural activity and the protection of the rural character. And all with the goal of achieving the maximum use of the resources and avoiding waste.)

(translation - C.M.)

The optimistic approach to periurban agriculture presently receives virtually no recognition in Québec's agricultural protection policy. APAL was designed to directly attack or forestall the negative impacts of periurbanization on farming.

2.6 SUMMARY OF CHAPTER TWO

North American urbanization has created large, sprawling cities of low density and counterurbanization has contributed to this phenomenon by extending the periurban zone to new limits. In the process of rural-to-urban land conversion, this periurbanization tends to resolve into a

dispersed regional urban form in terms of its human and economic linkages, rather than a densely populated rural landscape as once existed. The rural space usually affected by periurbanization is mainly devoted to agricultural land uses, but forestry and other resource-based extraction industries are also significant, as well as recreation-based uses. The place of commercial agriculture in this complex environment is considered from two contrasting schools of thought. The twin threats of loss of farmland and rural-to-urban land conversion are a concern for planners, policy makers, the general public and the remaining farming community. This partly explains the dualistic rural/urban approach to agricultural land protection that Québec has adopted in its twin planning mechanisms of APAL and ARLUP. The issues identified in the pessimistic viewpoint, especially speculation and land fragmentation are the forces which the agricultural protection legislation of Québec is designed to halt.

CHAPTER THREE

POLITICAL RESPONSE AND CONTROL: REASON OVER PASSION?

3.1 PUBLIC CONTROL AND PRIVATE PROPERTY

3.1.1 Private Property Rights vs. the Collective Good

It has been said that property is:

"The unrestricted and exclusive right to a thing; the right to dispose of a thing in every legal way, to possess it, to use it, and to exclude everyone else from interfering with it."

(*Black's Law Dictionary*, quoted in Sargent et al., 1991)

Since the close of the Middle Ages, during which the concept was invented, notions and practices surrounding real property (i.e. land and its immovables) have been basic to the legal and economic systems of most Western nations. With the Industrial Revolution and decline of the central economic position of agriculture, personal property (i.e. movable and intangible) became as important as real property. Land then became a commodity that could be bought and sold like anything else and the urge to do something useful with land has since permeated the Western mentality.

Within the doctrine of "bundle of rights", originating in Roman Law, ownership implies direct rights such as possession and the right to use, lease and dispose of real and personal property. Implicit is the protection of these rights by a State or sovereign body. Also within this doctrine, the State retains certain indirect rights, such as the power of eminent domain (expropriation) and escheate (reversion of property to the State, e.g. in the case of non-payment of taxes). The State may also tax and spend for the public good, control the public use of the land and private activity, and enforce police powers such as zoning and building codes (*Real Estate Appraising in Canada*, 1973; Sargent et al., 1991). Thus, a shifting and complex interplay of common/public and

individual/private rights and obligations is inherent in the concept of land as property. But, far from being a smoothly functioning symbiosis, this essential dichotomy between public and private control produces much human turmoil as economies and political philosophies evolve.

The antithetical nature of private property (in the sense of exclusive personal property rights) and public welfare was thoughtfully described by W. Bryant (1972). The legacy he describes of years of social and economic activity based on the ethos of private property cannot be regarded as a social ideal. He suggests an alternative scenario of a social system which acts in accordance with the principles of the common or public good. In this view, the living environment may still be privately held but is to be viewed as a commons to be respected by all and for which decisions for the benefit of society at large are made by unselfish and enlightened representatives. How this is to be actually achieved and whether it is essentially just is subject for countless years of philosophical debate.

Ackerman (1975) also plumbed the shifting philosophical, political and economic currents on which float our present notions of exclusive vs. common property rights. He basically agrees with Hardin's (1968) thesis that; given a demonstrably imperfect human condition, a just and sustainable communal use of land and its resources is inevitably doomed. Ackerman's anthology explores the reasons for regulating access and control over resources through an exclusive property system rather than a common property system. He also presents the consequences of the decision to give individuals the right to exclusive control and use over these resources; i.e. the establishment of a system where individuals may be granted "exclusive" property rights but where a wide-ranging and diverse set of governmental initiatives must be set in place limiting the freedom of action of property holders.

After European displacement of its indigenous people, and when the Crown or State, i.e. collective society, claimed to "own" most of the land in North America, the opportunity existed to exercise enlightened control; an opportunity largely lost in regions of colonization and later urban growth. Rather, the first European settlers, developers and speculators had great liberty of action and movement concerning the purchase and trade in land as a commodity. This existed until well into this century, and the prevalence of this ethos accounts for much of the sprawling characteristics of North American cities. Since about the 1960s, a change in attitude began to emerge concerning land and its use which questions, in practice, if not in law, some of the ancient rights associated with land ownership. Part of this trend is the growing tendency to regard the land as a common resource rather than as a commodity (e.g. Bray, 1980). New policies of intensive public scrutiny of land and community participation in decision-making are defended on public-interest grounds (e.g. Proudfoot, 1981). Whether this is a permanent and universal trend or part of cyclical socio/economic movements operating within regions remains to be seen. Ironically, as public control of land and its use increases in North America, public (i.e. governmental) control on the economy is being relinquished here and worldwide with privatization and return to market-led economies.

3.1.2 Planning and Development in a Private World

In cities, governments and their public authorities have always acted to control or contain certain activities and development. As part of the State's police powers over property, zoning is now a necessary planning procedure for most urban areas in Canada. Zoning and similar ordinances imply the dominance of public control and broad societal interest over private property and private interests. The general public has come to accept constraints on economic activities and individual behaviour as a necessary adjunct of modern urban civilization, though some

individuals or bodies may resist by legal or illegal means. Planning, ostensibly for the whole society's benefit, is now pervasive, with many actors involved in the design and execution of its schemes.

Until recently, rural areas had few public controls on the use and disposal of real property. As well, a strong sense of individuality in terms of personal decisions concerning lifestyle, activity and use were hallmarks of the inhabitants of many rural areas. Taken together with the innate sense of stewardship over the land possessed by many agrarian people, they could possibly account for a significant part of the psycho/social state of rurality discussed in Chapter Two. This rural world is now in rapid evolution and traditional rural/agrarian values are being replaced by modern, urban-centered ones. Geisler maintained more than a decade ago that private property rights in fact and as an ethos were disappearing in rural areas as land use control grew and land was divested to larger corporate interests (Geisler, 1980). When, as an exercise of public control over property, agricultural protection or other land use law is decreed, the level of control now common in cities is extended to the rural countryside. Such controls and the ethos creating them may not always be welcome among rural dwellers, even among the farmers whose land they are designed to protect. Although often unwelcome, agricultural protection in the form of zoning has withstood many legal challenges in the United States; the courts finding that the security of the land resource is of paramount public interest (e.g. Coughlin, 1991). In Québec, APAL has been tested in the Supreme Court which has determined that the public interest aspect of the agricultural protection mechanism outweighs individual property rights claims (e.g. Glenn, 1990).

Springing from a strong liberal tradition, regional development is a common process of promoting economic development in Canada. When applied centrally, by the Federal Government, for example, one of its main

purposes is to correct the inherent social and economic inequalities of this large and attenuated nation. These inequalities partly derive from variations in settlement history or the natural resource base which, until recently, supported the economy. The history of Federal initiatives and their relative success have been studied by Savoie (1992). Such rural planning as presently exists in Canada would tend to occur as a provincial activity as part of regional development plans (e.g. Dykeman, 1986).

In Canada, agricultural policy, unlike most land use policy, is presently a shared federal and provincial responsibility. As well, as a crucial primary industry, it tends to be treated sectorally rather than regionally or locally and so this policy forms a realm quite separate from other rural affairs (e.g. Wilson, 1990). It is not surprising that effective mingling of development plans in the rural countryside is difficult and that much non-agricultural activity generated at a local level now exists there.

In Québec, much emphasis is placed on planning and development. Concerted government and other collective efforts have been made to modernize, industrialize, finance and advance the economy and society of this near-nation. Arbour (1993) recently analyzed the effects of some of these *dirigiste* policies and questions their motivation and outcome. In order to ease relations between these interests and optimize the activity, regulation and bureaucratic growth has proceeded apace. Some commentators now tentatively ponder the limits which society can achieve by altruistic or benevolent intervention on the land and amongst people and the ultimate intent of systematic rural/regional planning, development and manipulation of the Western rural world and its resources (e.g. Cloke and Little, 1990). Québec also shows signs of turning from the idealistic and united vision it embraced in the 1960s. A directed effort is underway from various government offices to decentralize decision-making and activity in

certain spheres; particularly regional development. Dionne and Klein (1993) recently analyzed this trend in Québec and the reasons for the lack of success in fostering development by previous centralized approaches.

A recent burst of business activity and development in the province is explained by spontaneous local cooperation, initiative and entrepreneurship which is responsive to regional or local conditions (Hamel, 1991). Hamel notes, however, that such initiatives are often directed by business elites concerned with enhancing the prestige of the locality in order to attract power and influence, rather than with social development. In the same volume, Klein (1991) attributes this rise of local initiative and autonomy to a fundamental decline in the Statist style of administration which had hitherto characterized the province. He attributes this decline to a widespread crisis in the Nation-State and its social and spatial referents brought about by economic globalization. Dionne and Klein summarize current reforms in Québec as marking the end of an era which began with the New Deal in the United States, in post-war Europe and during the 1960s in Québec:

«Cette époque a été marquée par la mise sur pied de structures rigides, déconcentrées mais fortement centralisées, par l'application de normes définies nationalement pour l'ensemble du territoire et par l'adoption de politiques de développement régional cherchant à compenser par des actions sur le territoire les effets inégalitaires inhérents à l'accumulation du capital.»

(Dionne and Klein, 1993)

(This era was marked by the establishment of dispersed but rigid and strongly centralized structures, by the application of universally defined norms for the entire territory and by the adoption of regional development policy whose activities throughout the land were intended to compensate for the inequitable effects of the accumulation of capital.)

(translation - C.M.)

The implantation of the locally based MRCs is seen as the mechanism to effect a smooth passage from a keynesian to a post-keynesian management of

society or, as put later by Dionne and Klein, a change from Welfare State to Partner State.

Downplayed or ignored by these works is recognition that the MRCs were a creation of central planning under a strongly nationalistic regime to address the almost complete lack of rational or universal modern regional planning anywhere in the province before the 1970s. The MRCs do act locally, but their organization, precise mandate and methods for executing many of their activities were put in place by the provincial ministry of municipal affairs (*Ministère des Affaires municipales du Québec, MAMQ*), from which some of their funding now originates. From the beginning, the intent was to place decision-making and planning in the local hands of elected officials.

In Québec, local entrepreneurship does appear to be rising in some peripheral regions where large resource extraction industries are in recession (for a recent testimonial see Deschênes, 1992). Assisted by a burgeoning "rural dignity" movement, motions are underway to sustain some of these marginal rural communities by development of diverse small, home-grown industries. In contrast, planning for the agricultural economy and its professional producers appears to remain firmly centralized within the ministry with input from the UPA, itself a monopolistic federation put in place by the provincial government.

It is difficult to reconcile the forces of political centralization with those which arise at a local level. Certainly, the extreme examples of the centrally planned landscapes and economies of the former Eastern Bloc were in serious disrepute even before the collapse of this system from internal pressures. Such rigid, authoritarian structures and their accompanying bureaucracies are not compatible with the values of contemporary societies. On the other hand, can it not be said that it is

only when opportunity and the dictums by which we live are conceived in an egalitarian atmosphere and universally applied that a just democracy can prevail? Research, planning, development and management of the "commons" (or is it really simply "exploitation of natural resources"?) continues among academics, government, business and development interests, municipalities, interest groups or activist organizations toward some undefined upper level of rational and "wise" use. If Québec is now placing responsibility into the hands of local actors, it puzzles this observer that the activities of municipalities, development organizations and interest groups should be extolled simply on the basis of their apparently local and flexible rather than rigid and centrist operational characteristics. The role for individual decision-making remains submerged in this new rendering of an old scenario. Private entrepreneurship in local development interests is rising while public or common interests appear to recede. Who will watch and judge the new actors and who will bear the responsibility for the outcome and intangible effects of their activity in redefining regional and local economies and the landscapes in which they operate? Baldly put; at what point does "local initiative" become a "land grab"?

3.2 NORTH AMERICAN AGRICULTURAL PROTECTION

3.2.1 Review

Various approaches have been used to protect agriculture and its land. Garon (1978) and Phillipe (1980) have described the various forms occurring within the European Economic Community and elsewhere. In North America, active agricultural protection appears to have originated in California in 1965 with the California Land Conservation Act, but much of the momentum for research and action followed the National Agricultural Lands Study (NALS) instigated at the request of the American Government in 1979. Now, many jurisdictions have adopted some means of protecting the

land, the farmers or the markets. In 1982, Furuseth and Pierce compared North American programs of that era. Bray (1980) described the systems in use in several Canadian provinces to 1980 with emphasis on the juridical questions inherent in such land controls. Key among these is that, in Canada, such power is strictly a provincial concern. A good, if now dated, general review of Canadian and American types is found in volume 6 of *GeoJournal* (1982) including works by Bryant and Russwurm, Mundie, Hoffman, Pease, Lapping and FitzSimmons, and Todd and Brierley. Manning (1983) also reviewed the mechanisms in place in Canada during this time. More recently, Glenn (1985) compared the approaches used in agricultural protection between Ontario and Québec. Smit et al. (1987) considered the land rating systems in use to identify and categorize agricultural land for planning and zoning purposes. Coughlin (1991) discusses the various types of protection and advises on methods for the formulation and evaluation of agricultural zoning programs.

The body of literature concerning the actual effects or impacts of these policies is smaller than the many works which create or describe the systems in use. As Coughlin notes, "a convincing evaluation of the effectiveness of agricultural zoning is not easy to carry out, and few researchers have attempted it". Manning and Eddy (1979) analyzed British Columbia's efforts to protect its small resource and this province publishes an annual report on the program (British Columbia, 1992). Daniels and Nelson devised a method to quantitatively evaluate Oregon's farmland preservation laws from empirical study (1986). Giroux has recently described some of the less desirable impacts of Québec's APAL and called for a review of its effects (Giroux, 1992). A more thorough literature review of Québec's law is found in Chapter Four (section 4.1).

The major issues concerning agricultural protection still very much hinge on rural-to-urban land conversion and protection of "prime"

agricultural land and its soils, although defining what is meant by "prime" appears to be a major stumbling block to a universal consensus. The approaches toward agricultural protection can be distilled into three pairs of dichotomous and possibly intractable themes. The first revolves on the universality of the legal instrument; i.e. on whether it is centrally designed and administered or created in response to local conditions and needs. A second major set of themes concerns the comprehensiveness of the mechanism and a third, the placement of emphasis; on protection of the farmer and agricultural society or protection of the land and its biophysical resource.

Other terms to describe approaches to land use planning have been coined. Substituting for universal and centrist are "top-down" as opposed to the currently in-vogue "bottom-up", or "local" or "grass-roots" approaches. For direct action we have "proactive" as opposed to the negative and indirect "reactive" or "incremental muddling through" (see Mather, 1986). Such loaded semantic descriptors fairly give off sparks in today's nervous avoidance of perceived political incorrectness. Given the opportunity, some souls could interpret "pro-active" as authoritarian, and "muddling through" as sensitivity to individual cases in time and place. Some might dare to think that "top-down" approaches tend also to be egalitarian.

Attempts to integrate various of the above approaches also occur. Given the fundamental division of authority in this country between provincial and federal jurisdiction, and as the complexity of the major issues and numbers of cases increase, it is fair to question the utility or even the possibility of combining both human and land approaches in one policy instrument without monolithic bureaucracy, heavy state and judicial intervention in its implementation and policing with accompanying regimentation of the land and its people. At the same time, external

forces, notably of the globalization of economic forces and erosion of the State's ability to manipulate markets and production toward its own ends imposes limits on many forms of organized control. To add to these political and economic uncertainties, it would seem that effective empirical evaluation of various approaches to agricultural protection has not yet matured to a point where a final and definitive policy can be assigned at local or national levels.

In the United States, agricultural protection tends to be localized, often at the county level, as part of the existing general land use plan. Ordinances concerning large minimum lot sizes, or small building lot sizes and limits on building density are frequently used as tools to achieve the desired protection. Often, preferential tax assessments are given to farmers, which then threaten to become tax shelters for "non-productive" landowners such as hobby farmers (e.g. Allen, 1985) or speculators. Zoning of land for agriculture has been used to protect commercial farms and their resource. Its use has been criticized and/or legally tested for restricting or excluding residential or other development as an infringement of rights (e.g. Kinzler and Ritter, 1983).

In contrast, strong, centrist laws were early promulgated in Canada, first, in British Columbia and Prince Edward Island, often combining controls on non-resident ownership with protection of the land resource. Powerful, central and comprehensive agricultural protection laws are also currently in place in the United States and Oregon's is probably the best known (e.g. Pease, 1982). Sheronick (1991) finds that methods such as preferential tax shelters for farmers have been ineffective tools for agricultural protection in the United States and that only a direct and comprehensive law which works both to control city growth and to protect the agricultural resource is effective. After examination of Oregon's law he outlines a proposal for a similar law for Iowa which, though sketchy,

bears a startling resemblance to Québec's two major planning laws.

The policies of Ontario's *Foodland Guidelines*, conceived originally as indirect, flexible, sensitive to local conditions and locally applied (see e.g. Glenn, 1985) appear to be in evolution, and the province is developing an agricultural land protection program whose approach is more integrative and comprehensive. A recent discussion paper puts forth ideas which seem to be converging on some of the same policy tools Québec has used in drafting its own legislation (Ontario, 1992).

Québec's agricultural protection law concentrates squarely on the land resource. The protection of the farming population and the agricultural economy is handled by a large body of other legislation, except for the fund established to aid farmers facing legal action from other rural users and the articles defining permissible agricultural activities*. Criticism of the agricultural protection law often rests on its inflexibility and its inability to function in smooth tandem with the MRCs or the municipalities. These are structural problems, related to the central design of the the act itself and to the fact that MRCs are mandated to act only locally.

Québec's APAL is central and universal and is intended to remain so for several reasons; not the least of which is the fact that in its application it deals directly with issues of land law. As such, it must, in a democracy, be universal, impartial and applied equally throughout the jurisdiction. A central policy also substitutes for possible lack of adequate expertise in some rural municipalities. The Brière Commission (1989), reporting on the plans to enact a final and complete revision of the province's zoned agricultural area, addressed some of the issues surrounding the central nature of Québec's law. Of paramount importance to the province's agricultural policy is the protection of the soil and land

resource; regarded as non-renewable once converted to other uses such as urban development, industries or vacation activities. The protection policy is general by intent; applied equally throughout the province. In Québec, decision-making is by autonomous, neutral and impartial non-elected officials remote from local or regional interests. They are responsible to the elected government and their decisions carry the weight of law. The process is overt and the report responds to the questions surrounding the desirability of "transparency" of the entire process. Brière reminds the reader of the strict illegality of deflecting the functioning of public decision-making bodies toward private ends. In Québec, some public involvement is invited as part of the decision-making process and all deliberations and decisions are open to public scrutiny. These are strong arguments in support of a central and universal policy.

3.3 QUEBEC PLANNING LEGISLATION

3.3.1 An Act Respecting Land Use and Urban Planning (ARLUP)

Québec's recognition of a fundamental urban/rural dichotomy is reflected in its two statutes on land use and planning. APAL deals strictly with the preservation of the agricultural land resource and ARLUP with urban planning and regional development. The combined effects and legal implications of these two laws have been evaluated by Chagnon (1980), GRIDEQ (1981), Glenn (1983), Poirier (1983), Jauron and Stanek (1984), Cormier (1984), Cimon (1990), Wolfe and Glenn (1992) amongst others.

An Act respecting land use and urban planning (R.S.Q. Chapter A-19), promulgated in 1979 and administered by the *Ministère des Affaires municipales du Québec*, decreed a complete reorganization of the province's space into new administrative and municipal units which are funded jointly by the provincial government and the local municipalities. Three urban

communities (*communautés urbaines*: Montréal, Québec, Outaouais), three regional territories (Côte-Nord-du-Golfe-Saint-Laurent, Kativik, Municipalité de Baie-James) and ninety-five regional municipal counties, or MRC's (*municipalité régionale de comté*) were created. The MRC is governed by the mayors of the constituent municipalities and headed by a prefect chosen from among them. The main function of these units is to formulate a five-year regional planning instrument, the *schéma d'aménagement**, and coordinate planning between each other and for the individual municipalities within each MRC. In accomplishing this, the MRC must establish the needs of the population, the possibilities and constraints of the environment and take into account the decisions of the municipalities involved to address the following major areas of concern:

- 1) the major development or planning orientation of the territory (i.e. its economic vocation);
- 2) the major use of the territory;
- 3) delimiting the urban perimeters; i.e. the limits for planned future development;
- 4) the identification of zones where land use is subject to constraints relating to public security such as flooding, and landslides;
- 5) the identification of areas having a particular historic, cultural, aesthetic or ecological interest;
- 6) the identification and placement of intermunicipal infrastructure and that put in place by the government (e.g. hospitals, roads).

(Québec, MAMQ, 1985)

(translation - C.M.)

Figure 3.1 depicts a simplified and imaginary MRC composed of three municipalities to illustrate the division of space. Municipal space is divided into two domains having fixed boundaries; the first being the agricultural or "green" zone (stipled area); terms which are used interchangeably in this work. The area set aside for each municipality's built-up area, planned future urban development or for other purposes is known as the "white zone" which includes the urbanized areas. These two

Figure 3.1: An Idealized MRC

IDEALIZED AND SIMPLIFIED MRC
WITH THREE MUNICIPALITIES

C.H.

expressions, first used colloquially have now entered the language and will be used as such here. They derive simply from the tint used on the original maps delimiting them; "green zone" carries no particular ecological or environmental connotation. The white zone may include large expanses of rural space which can have functions such as land in waiting for urban development, industrial parks, recreational land, conservation areas, or other uses specified by the *schéma d'aménagement* or the individual urban plans of the municipalities. There may or may not be active farming in the white zone.

The rural world is thus firmly divided into the strictly agricultural zone and a residual rural area, each having separate vocations defined by the *schéma* and each operating under separate jurisdictions as far as land use control and planning are concerned. The MRC or its constituent municipalities control many activities and planning within their territory under the regulations of ARLUP, but within the agricultural zone the articles of APAL take precedence over all other legislation. Zones of special intervention may be established by the government within either of these designations. There remains no "unincorporated" rural territory in this scheme; all land is rationally accounted for.

3.3.2 An Act to Preserve Agricultural Land (APAL)

APAL is designed to preserve agricultural land* and activities*; achieved by creating an environment conducive to professional agriculture by excluding or controlling all non-agricultural uses, practices and activities which would be deleterious or disruptive to present or future professional agriculture in this province. These mostly derive from rural-to-urban conversion caused by urban growth and/or uncontrolled counterurbanization whose negative effects (identified in Chapter Two). They are:

- 1) the irredeemable loss of arable agricultural land to urbanization or other related uses;
- 2) land market speculation leading to inflated land prices, and concomitant idling of agricultural land as it waits for development of a "higher" use. Non-resident ownership of land is often implicated in this;
- 3) fragmentation of the land and its properties which creates an environment difficult for efficient farming;
- 4) conflict between agricultural activities and non-farm residents.

Each of these issues is systematically addressed by APAL or in related legislation as discussed below (section 3.4). The question of non-resident ownership of agricultural land is addressed in Québec by a separate statute (*An Act respecting the acquisition of farmland by non-residents* (R.S.Q. Chapter A-4.1), of 1979. However, individual cases are heard by the Commission which oversees APAL (*Commission de protection du territoire agricole* (CPTAQ)) and so logically forms part of the agricultural protection legislation.

Conflict between rural users is minimized by decreeing the agricultural zone itself, which defines a new vocation for the land or entrenches an existing one. This legitimates or justifies any commercial agricultural activities in this area. The issue of direct conflict with other rural residents regarding the nuisance aspects of farming is addressed by the APAL in Division V.1. Producers cannot be held responsible for their farming activities* as long as they conform to the *Environmental quality act* (R.S.Q. Chapter Q-2). Complaints are heard by the CPTAQ. In the event of a legal action against a farmer by a municipality, a special fund has been established by APAL to enable a judicial defence of nuisance factors of dust, odour, chemicals or noise resulting from the farming activities in the green zone. Thus, APAL also functions as "right to farm" legislation.

Other agricultural legislation touches on many aspects of farm

organization and the farming population, but one provision which is important in the present land use discussion is the differential tax structure of land in Québec. Under the terms of *An Act respecting municipal taxation* (R.S.Q. Chapter F-2.1), preferential land taxes are established for farms and wooded areas. As well, registered producers (i.e. professional farmers) may reclaim from MAPAQ up to 70 percent of the municipal and school tax assessment on their farmland if it is in the green zone. For registered land in the white zone, registered farmers may reclaim 40 percent. All others must pay the full rate (Glenn, 1988). By making this available only to registered farmers, "tax farming" by speculators or others is minimized. This also becomes a significant device to encourage commercial farming in the green zone and discourage it in the white zone. The fact that only professional farmers enjoy this status contributes to the dichotomization of the rural landscape.

ARLUP and APAL appear to rest solidly on the assumption that a clear-cut division of space into urban and rural entities either exists or will eventually be achieved on Québec's land. Any recognition of a functionally separate periurban zone as discussed in Chapter Two is absent from this long-term official vision. Depending on the degree of *déstructuration* in the city's periurban zone, the combined thrust of these laws points to the future inclusion of this complex landscape of mixed urban and rural uses into the municipality's white zone where it will come under its essentially urban-oriented planning instruments.

3.4 THE INTENT OF QUEBEC'S ACT TO PRESERVE AGRICULTURAL LAND

3.4.1 Restrictions Imposed by APAL

The CPTAQ, in consultation and cooperation with the UPA, municipalities and the public, designates a green zone for each municipality based on the agricultural capability determined by CLI

(Appendix 2). In this area, land use is controlled by CPTAQ. Some municipalities, such as Sherbrooke, and those in the northern part of the province have no green zone.

APAL strictly defines the meaning of such generic terms as "agriculture" or "agricultural land" according to its purposes and some key definitions are included in Appendix 1. Resulting from a broad interpretation of what constitutes agricultural land, the act directly applies to forest and land in various stages of regrowth as well as actively producing farms. The province's green zone, which covers 6,440,463 hectares is thus much larger than the combined area of its farms (3,638,462 hectares in 1986) (Québec, *Bilan final*, 1992).

The green zone may include any of the seven CLI soil capability classes or the unclassified organic soils, including Class 7 which has no agricultural capability. This is done to discourage "spot zoning", the inclusion or exclusion of small enclaves of land zoned green within larger white areas. The converse theoretically also applies and individuals normally are not successful in having a single property zoned white if it is enclaved within a larger green zone. The effect of this is to create viable, contiguous agricultural zones and compact, well-delineated white zones.

As part of Québec's determination to preserve the existing survey cadastre*, the boundaries of the green zones follow these lot boundaries rather than individual properties themselves or the mapped CLI areas of classification. This means that, on a micro-scale, any single green zone may contain properties, or parts of properties, which are quite incapable of being cultivated. This is a severely contentious issue with many owners, who may or may not receive permission for a re-zoning or to sell portions of their land, or for a non-agricultural land use, depending on

how the commissioner for the case decides to weigh the criteria.

Depending on the spatial extent of future development defined in each MRC's *schéma d'aménagement* and its constituent municipalities' urban plans, some land of high CLI potential may be included in a municipality's white zone. The vocation of this land is considered to have undergone a change and it is then destined for urban or other uses. Any operating farms within the white zones are then exposed to the full thrust of periurban forces of conversion, competition and speculation and full taxation even if urban development is not immediately forthcoming.

Although Québec is divided into six agricultural regions, APAL is applied within the formal arrangement of agricultural potential within each MRC established by ARLUP and not within larger natural physiographic or economic regions. It makes no attempt to respond to the needs of individual owners except through the following decision-making procedure.

The CPTAQ exercises its jurisdiction in the green zone by deciding, case-by-case, on applications for authorizations for subdivision and/or alienation of lots and for permission for non-agricultural uses such as construction of a residence, road-building, erection of power lines etc. (see Appendix 5). Also decided are applications for the inclusion or exclusion of lots from a designated green zone; in effect for a de-zoning. APAL applies to all bodies, whether individual, private or public, including other government departments. A separate procedure exists for agricultural producers* for declaring changes they may wish to make on their farms, since these people normally have certain personal rights to make these changes (section 3.4.2 below). Changes in land use declared by producers have not been included in this work but far outnumber the authorizations granted to other owners. Requests for change must also conform to any applicable municipal by-laws and the local *schéma*

d'aménagement. Still, individual owners or municipalities may seek authorization for an inclusion or exclusion of land from the green zone; in effect for a change of zoning, which is decided by the CPTAQ in consultation with the municipality and the UPA.

The restrictions of APAL state that it is forbidden, except with the authorization of the CPTAQ, to:

1. Use a lot* for any purpose other than agriculture* (commercial, industrial, institutional or residential);
2. Subdivide a lot by filing a plan of part of that lot with the *Service du cadastre of the ministère de l'Énergie et des Ressources* and the registry office, or by alienating part of that lot while retaining a right of ownership on a lot which is contiguous or deemed contiguous (for purposes of the Act, two lots separated by a public road, a railway, a public utility right of way or the surface of a lot on which there exists a recognized right are deemed contiguous);
3. Alienate* a lot while retaining a right of ownership on a lot which is contiguous or deemed contiguous;
4. Cut maple trees in a sugar bush*, except for the purposes of selection or thinning within the framework of forest management;
5. Remove topsoil*.

(CPTAQ, 1990)

3.4.2 Criteria for Decision-making

In authorizing a permission to alienate or to subdivide land, or for non-agricultural uses, the CPTAQ's commissioners must strictly consider all the following criteria:

1. The soil potential of the lot and of the neighbouring lots;
2. The possible uses of the lot for agricultural purposes;
3. The consequences of an authorization on the use and the possibilities of agricultural use of neighbouring lots;
4. The restrictions and effects resulting from the application of the Act and regulations, especially those relating to the environment and, more particularly, with respect to livestock operations;
5. The availability of other sites where restrictions on agricultural activities would be eliminated or reduced;

6. The homogeneity of the farming community, and its operations;
7. The impact of preservation on water and soil resources in the municipality and in the region;
8. The establishment of land holdings having an area sufficient for farming activities;
9. The impact on the economic development of the region upon the evidence submitted by a regional county municipality, a municipality, a community, a public agency or one providing public utilities.

Two optional criteria may also be applied:

1. The socio-economic conditions necessary for the viability of a rural community where the low density of occupancy of the territory and the isolation of the community within a region justify it;
2. The consequences of a refusal for the applicant.

However, the CPTAQ must not take into consideration:

1. The fact that the object of the application has been wholly or partly achieved;
2. The possible consequences of the decision on an infraction already committed;
3. Any fact or evidence not related to the criteria on which the Commission [i.e. the CPTAQ] must base itself in order to render a decision.

(Québec, CPTAQ, 1990)

The above outline of the law is greatly simplified and a lengthy legal or technical discussion is beyond the scope of this work. In plain language however, the first restriction responds to the issue of land use conversion and the next two to the issue of fragmentation of properties. The fourth places special emphasis on protecting sugar maple trees and forests and the last refers to the excavation and/or removal of any arable soil, including its removal as sod. As often used in agricultural zoning, minimum lot size is used, in this case to curb both residential expansion and lot fragmentation. Specific provisions are made to discourage land from being parcelled into sizes of less than 100 hectares. Residential

construction which may be permitted by authorization or by personal or acquired rights is now limited to a plot of land no larger than 5000 square meters (.5 ha), the remaining land must remain in agricultural uses. This land must be cropped if these rights are to be continued.

These are the fundamental mechanisms to maintain the agricultural vocation of the land. In application however, the law goes far beyond these simple measures to control the major agents of *déstructuration* and rural-to-urban land use conversion found in subdivision and residential construction. Since requests for numerous activities ranging from sale of land, laying of water pipes, cutting trees, road building, establishment of campgrounds, to construction of sheds must pass before first the municipality and then the CPTAQ, APAL provides a mechanism of control of a myriad of activities. A legal specialty has evolved to treat these cases.

APAL has undergone several amendments since introduced including a liberalization of the decision-making criteria into the above form. This evolution appears to be in response to criticism from several quarters concerning the law's impact on individuals, municipalities and the more marginal and underdeveloped areas of the province (Vachon, 1984; GRIDEQ, 1981). Academic debate now appears to be tempered by the desire on the part of some researchers for some kind of official action to control undesirable social effects of counterurbanization on the province's rural communities. APAL is seen as an instrument which could achieve this (ibid.).

The nine compulsory decision-making criteria are specifically site-oriented and decisions are taken for discrete properties at this geographic micro-scale. The common criticism that APAL does not act on a wider regional planning scale, was reiterated by Cimon, who makes the

comment:

« En dix années d'activité, la commission s'est révélée incapable d'élaborer une philosophie d'aménagement - de concert avec les urbanistes, les écologistes, les gestionnaires municipaux, etc. - de développer une sagesse et une crédibilité qui l'auraient rendue moins vulnérable aux pressions politiques que semblent s'étouffer avec les années.»

(Cimon, 1990, p.116)

(In ten years of activity, the commission has shown itself unable to formulate a development philosophy in concert with urban planners, environmentalists, municipal leaders etc., or to develop the wisdom and credibility which will make it less vulnerable to political pressure which has stifled it over the years.)

(translation - C.M.)

Wider regional development/planning for Québec is assigned to other bodies in other legislation, notably to the MRCs under ARLUP. There has always been considerable friction and lack of concerted purpose between these two jurisdictions and the various government bodies involved. APAL is not mandated to plan on a regional scale but the modification of the decision criteria into the present form allows a consideration of rural communities and economic conditions of the municipality in the which the individual decision occurs, thus humanizing and extending the scale of the process to some extent. The weight attached to these criteria remains the prerogative of the commissioner handling the case.

In 1990, APAL and the MRCs, in consultation with the public and the UPA, undertook a massive and final revision of the province's green zone. This followed review by the Brière Commission and the promulgation of Law 100 in 1989, which established the mechanism to revise the province's green zone. The revision was to more clearly delineate the truly agricultural areas of the province from out of the rather amorphous original green zone. Clearly stated in the final report was the intent to retain a centralized and pragmatic form of decision-making directed primarily by the potential offered by the physical environment and

maintaining a socially collectivist policy approach rather than one based on the outcome of discrete cases or for concern with individuals (CPTAQ, 1992). This legislation creates:

"...agricultural zones which are credible and permanent in nature, so that they will be seen no longer as rural or non-urban zones, but as zones truly set aside for acknowledged, respected agricultural use, as shown on the development plans [i.e. the MRCs' *schémas d'aménagement*] ... to protect fully our farming heritage within a realistic and practical perspective, taking into account the changing nature of our society; in other words, to give agriculture a permanent status as an economic activity."

(Québec, CPTAQ, 1992)

Future large-scale revisions of the green zone are not predicted for many years and will largely be at the initiative of the MRC's when they devise their (five-yearly) *schémas d'aménagement*. Another major change during this time concerns the establishment of exclusive zones within the green zone. Again, based on the physical agricultural potential determined by CLI, areas of Class 3 or better land will have special status and protection and the CPTAQ will be severely constrained in authorizing change in these sectors. This will enhance the regional farming vocation of the large areas of Québec having such soils (i.e. the Saint Lawrence Plain). Other amendments to APAL can be expected (personal communication, Louis-René Scott, former CPTAQ commissioner).

3.4.3 Personal and Acquired Rights

APAL contains several important exceptions to the proscriptions summarized above. For example, municipalities do not normally require authorizations for certain public works such as road repairs and provision of utilities. Agricultural producers or members of farm corporations possess certain personal rights denied to other owners of land, mainly regarding the construction of farm residences and other farm buildings. For example, these farmers may build a residence for themselves, for their children (if they are also registered producers) and their employees.

Another series of exceptions to the law are collectively known as acquired rights. These mainly derive from the land use which existed prior to the decree of a green zone by APAL or was planned by the municipality (in the case of serviced subdivisions for example). Therefore, the many non-conforming uses such as residences or commercial activities already legally in place remain unaffected by the law, but the residual part of each property not actually used for the non-agricultural use must be cropped or these rights expire and the owner must seek authorization for any future changes.

In light of principle 3 of the Brière Commission report and criteria 3 and 6 of APAL, the location and spatial pattern of properties having these acquired rights is very important in allowing authorizations for further non-agricultural uses or for rights to subdivide and/or sell the property in any one location. When many properties exist having acquired rights, where non-agricultural uses already exist or have been authorized, or when the cadastre has been already extensively fragmented by subdivision, the agricultural vocation of the landscape is considered by the CPTAQ to have been disassembled and the agricultural milieu is judged to be undergoing *déstructuration*. Within the school of thought which drafted APAL, farming is considered to be untenable in such a competitive and potentially conflictual environment. The force of this argument is such that the Brière Commission report recommended that these areas be de-zoned and placed in the municipality's white zone for this reason alone, thus removing them entirely from the rest of the commercial agricultural sphere. Cases near Montreal which have been re-zoned white at the suggestion of the CPTAQ stirred controversy (*Gazette*, Sept. 17, 1991). The Brière Commission report recognized that the CPTAQ had received a major blow to its credibility and suggested responses to the public perception that the de-zoning which occurred in the large periurban territory had been done to placate or advance development interests. The report states

that these de-zonings were in response to the local wishes and needs defined by the *schémas d'aménagement*. De-zoning of land within the study area has occurred at the suggestion of the CPTAQ.

The official position that farming is incompatible with other land uses is forcefully and frequently represented in the decisions of the CPTAQ in the study area. Authorizations for further non-agricultural uses, subdivision and sale are often granted in locations considered agriculturally destructured. Therefore, understanding the pattern of these pre-existing land uses and the activities now being authorized which set a precedent for further *déstructuration* is crucial to establishing the real impact of the law in any one location. The CPTAQ, itself, then contributes to changing the land's vocation from agriculture to other uses by its policy of isolation of registered, commercial farming from other uses and by its insistence that farming in an environment of mixed uses is not feasible.

3.5 SUMMARY OF CHAPTER THREE

Basic to any debate of land use and its planning is a consideration of property and the rights of the owners of this property in relation to the public good. Controls such as zoning tend to weaken some of these rights or nullify the ethos which created them, elevating the position of the public use and control of land. Agricultural protection, which can take various approaches, plays a role in regional planning which is now widespread and which, in Québec, is decentralized. Québec's agricultural protection law is one of the most stringent and all-encompassing in North America and a summary of it and Québec's other land use planning law is provided. The mechanisms designed to address the negative effects of periurbanization are explained.

CHAPTER FOUR
LITERATURE REVIEW, THEORETICAL ASSUMPTIONS,
METHODOLOGY AND DATA COLLECTION

4.1 REVIEW AND DISCUSSION OF THE LITERATURE CONCERNING THE IMPACT OF APAL

4.1.1 Review

Since its declaration in 1978, the merits of APAL have been debated and studies made to measure its success and/or its effects within Québec. These studies have mainly concerned the urban communities of Québec and Montréal whose periurban zones lie in the relatively fertile Saint Lawrence Plain where farming was first established in the province and where its intensity remains greatest today. Since these areas contain the large majority of the province's population, they are where potentially deleterious effects of urban sprawl and periurbanization pose the greatest threat (GRIDEQ, 1981; Cimon, 1990).

APAL has been studied from within different disciplines from many ideological perspectives and with diverse interpretations. The complete works which either analyze the effects of the law or where it formed part of the research subject are by: Cimon (1990), CPTAQ (annual reports), Cormier (1984), Debailleul (1988), Dubost (1990), Duval and Ratté (1985), Duval et al. (1983), Gascon (1980), Gauthier (1987), Gervais and Jaouich (1984), Glenn (1983), GRIDEQ (1981), Jauron and Stanek (1984), Monty (1983), Québec (1982-1983), Reid and Yeates (1991), St-Jean (1990), Thibodeau et al. (1986), Vachon (1978; 1984; 1987; 1988), Vaillancourt and Monty (1985), and Wolfe and Glenn (1992).

These studies fall into three main types each using direct and indirect data sources specific to that discipline. The first type - land use studies - are supported by published maps, aerial surveys or other

remote sensing techniques, ground surveys and municipal and cadastral data. The second type - socio-economic studies of the rural agricultural population, land market, agricultural and other economies - are mainly empirical, relying on social survey techniques, real estate data, building permits, census and other published data in the investigation. Thirdly, juridical and policy studies deal mainly with the formulation, meaning and interpretation of the law itself and depend heavily on the publicly available decisions of the CPTAQ on requests for authorization for subdivision or non-agricultural land uses.

The effect of the law on cities has been analyzed in regard to patterns of urban sprawl or its effect on prices of urban residential land in the white zone and its density of occupation (Vachon, 1984; Thibodeau et al., 1986; Reid and Yeates, 1991; Frenette, 1991; Wolfe and Sack, 1992). From the rural standpoint, its effects have also been studied by Vachon (1984) and Thibodeau et al. (1986). APAL's effects on land prices have been examined by Monty (1983) and Vaillancourt and Monty (1985) for an area 25 kilometers east of Montréal.

Published social surveys determining the effects of APAL on the population of the province are sparse and those available (e.g. Thibodeau et al., 1986; Deslauriers et al., 1991) tend to confine their enquiry to agricultural producers - a small minority even within rural areas. About 7.9 percent of the rural population of Québec is composed of rural farm dwellers (Census of Canada, 1991). Early criticism of the law by some social scientists regarding its potential impact on the marginal societies found in the peripheral areas of Québec has waned with time, with liberalization of the decision-making criteria, and by the rise of a strong rural dignity movement encouraged by academic participation (Vachon, 1991) and local development initiatives.

4.1.2 Critique

Except within the legalistic approach of juridical research, it appears that neither a research paradigm nor a methodology has been established to directly analyze the current effect of this law on society at large; whether farming or non-farming; rural or urban. Considering the large rural area APAL controls and the ongoing academic and lay interest in Québec's rural society, the dearth of empirical sociological enquiry concerning the actual effects of this law on the recomposition of rural society is astonishing. Even though APAL is mainly concerned with the land aspects of agricultural protection, its effects must surely be important to the people who now live within its constraints. In its application at the level of the individual farmers, APAL must act to limit individuals' major life decisions as well as enable them according to the broad collective policies now in place. At its inception, APAL's role as an instrument of social engineering was controversial (cf. Bissonette; Wallot, op. cit.). The neglect by the academic sociological community concerning this purported function of the law is inexplicable to this author.

Some preliminary work suggests that APAL and other Québec agriculture legislation have actively worked to curtail recreational or hobby farming in the green zone within the study area (McCallum, 1993). Similar effects on other types of part-time farming, whose practitioners do not conform to Québec's legal definition of producer, could be expected. The broader social and economic significance of this legislation regarding small farming and part-time farming in Québec's rural areas remains to be explained.

APAL patently recognizes the effects of unconstrained land market forces. In spite of the law's clear intention to halt speculation in the agricultural land market, no models have been found of the Québec

landscape which will be created by APAL in terms of land value, speculation or other parameters nor any analysis of its effects based on this approach, although some studies adopt the basic assumptions which would make up such a model (e.g. Vaillancourt and Monty, 1985). The simple model presented in this chapter is one attempt.

Many works evaluating the effects of APAL on Québec's rural space have used the publicly available decisions by the CPTAQ authorizing non-conforming uses and practices in the agricultural zone (Cimon, 1990; Québec, *Décisions*, 1986; Gascon, 1980; St-Jean, 1990; Reid and Yeates, 1991). The CPTAQ follows a rigorously prescribed procedure of site investigation (Appendix 4) and evaluation of each case using the specific criteria described in Chapter Three and an optional public hearing. The decisions are an important primary source of information on the local application of the law. The CPTAQ itself publishes a yearly summary in its annual report on the progress of the law in terms of these decisions (Québec, annual report since 1986).

At least one study suggests that more requests have recently succeeded near Montreal to the benefit of developers (Reid and Yeates, 1991). This is attributed to a more relaxed application of the law resulting from influence of the present Liberal provincial government. It is legitimate to suspect that political or local pressure might be successful in swaying decisions of a public body; that the process can be influenced in other words. CPTAQ commissioners do exercise much authority and autonomy. They also have a heavy legal responsibility to remain remote from any hint of conflict of interest. Since the law is clear and straightforward in its criteria and the decision-making process and documents are standardized, universal, thorough and open to public scrutiny, this author suggests that the law is applied stringently and impartially within the province in accordance with its original ideals. If

more requests are granted near Montreal it may be due simply to increased demand for change from the large population base already in place and to an increase in momentum of change induced by precedent in a zone undergoing *déstructuration*. According to the current ethos directing decision-making, a more lenient approach to decision-making by CPTAQ may legitimately be taken in these areas of mixed use within the formal structure of the law. The areas of the province which were strongly deconstructed before the introduction of APAL are now possibly undergoing accelerated conversion due to a domino effect of acquired rights and local precedent described in Chapter Three. They may already be destined for other uses by the coming round of *schémas d'aménagement*.

A clear distinction between urban and rural may eventually evolve in Québec, but there still remain large areas of periurbanization near the urban communities and other smaller cities, including the Sherbrooke study area, much of which is still zoned green. A group at the Université de Montréal (Bryant, 1989; 1990; Deslauriers et al., 1991; and Marois et al., 1991) does study Montréal's periurban zone as a functional entity, evaluating the potential and actual agriculture in this region. Parts of their extensive study area have experienced considerable *déstructuration* as defined by CPTAQ.

APAL applies throughout Québec and its effects in other regions are seldom studied. The research emphasis on periurbanization near Montreal and Québec has created some logical fallacies concerning the broader long-term impacts of the law. The Brière Commission report states that a major aim of the law should be to encourage the return of abandoned farmland to active use. Many studies evaluating the effect of this law assume that this remains a major goal within the periurban zone despite the admission that decision-making within the periurban zone is difficult and that different weight may be applied to the criteria here (Brière Commission,

1989). Another major assumption on the part of reviewers is that the major aim of APAL is to generally enhance agricultural growth and production in Québec (e.g. Gervais and Jacuich, 1984; Québec, *Serie*, 1982-1984; Thibodeau et al., 1986; Debailleul, 1988; Dubost, 1990; Deslauriers et al., 1991).

While protecting agricultural activity is within the mandate of APAL, defining the effects of the law or judging its local success by attempting to compare socio-economic parameters relating to farming and production over time is, in fact, erroneous. This is so for the following reasons. APAL, powerful as it is, is almost purely an enabling instrument; that is, it preserves the land for actual and potential agricultural use based on its capability determined by CLI. The law is mainly concerned with long-term goals regarding the land resource and not with short-term planning and management of the urban or rural land markets or of the agricultural economy. The economy and the farming population of Québec itself; the training and financing of farmers and the establishment, production, management and marketing of agricultural products is entirely the purview of other legislation (e.g. Glenn, 1988; Archer, 1988; Barreau du Québec, 1988; MAPAQ, 1990; Québec, *Agir ensemble*, 1990; *Aide aux exploiters*, 1991). Agriculture is also now subjected to the growing influences of exogenous modernization and globalization of markets. Directly attributing local rise and fall in agricultural economy, farm number, size and production to the effects of APAL is to ascribe to it powers it has never had. The only agricultural activities for which policy is directly stated by APAL are the maple sugar industry and activities like sod farming, which is equivalent to topsoil removal.

Another logical fallacy frequently made in assessing the effects of APAL concerns its success in halting urban sprawl (e.g. *Communauté urbaine de Montréal*, 1988). Although urban sprawl and loss of agricultural land

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PRECISION^{SM} RESOLUTION TARGETS

was a major issue which prompted its creation, comparing the city edge by remote sensing or other techniques before and after its introduction and attributing the results to the success or failure of APAL is simplistic. Other major factors which influence urban growth such as migration patterns, demographic trends and effects of economic boom and recession must also be integrated into these discussions. Effectively quantifying these variables and working out their relative impacts would be a formidable task. Incongruously, there is evidence from the study area that the articles and decision-making process of APAL actually contribute to linear or ribbon rural residential development in the green zone (McCallum, 1992).

Moreover, ARLUP specifically charges the MRCs and their constituent municipalities with the task of halting sprawl at the city limits in its requirement for municipalities to define their urban limits (Appendix 3) and plan for their regional needs in the *schéma d'aménagement*. These urban limits do not necessarily coincide with the edges of the agricultural zone. In other words, although APAL is often taken to be an instrument to control urban sprawl, this task is actually the concern of ARLUP. This misinterpretation of the aims of APAL was also recently enunciated by a CPTAQ commissioner and planner (Fahey, 1992).

Abandoned farmland undergoing gradual regrowth to forest at the edge of cities has been studied in connection with periurbanization and with APAL (Gervais and Jacovich, 1984). This *terre en friche**, as so neatly termed in French, is generally viewed negatively as either the product of periurban competition, speculation or the general local failure of the agricultural economy or society. The continued existence of vacant and idle land near cities could be taken as a failure of APAL to preserve or reactivate agriculture. That there is a strong component of speculation and competition in the creation and persistence of idle periurban land in

an unconstrained growing regional city is beyond argument. But, to suppose that such idle land now in a spatially constrained periurban green zone is indicative of the presence of these causal forces and therefore an indicator of the law's failure is fallacious for two reasons. The first is that it presumes that enabling agriculture to exist in an environment protected from speculation and competition means that farming should automatically increase in these areas. Since agriculture is now largely controlled by the State, whose aims of self-sufficiency have mainly been met (e.g. Drache and Gertler, p.88), the system reposes in equilibrium with regard to supply and markets. Other legal and economic initiatives acting on both a large and small-scale basis are required to change this. Therefore, in this carefully managed system, new entrants into farming are affected by these factors and policies as well as by the agricultural land preservation mechanism. Again, separating these various causes and effects could prove intractable. Furthermore, using reactivation of *terre en friche* *per se* as an indicator of the local success of the law implies that production in the city's periurban zone is closely connected to the immediate market. Given the breadth and complexity of present market linkages in agricultural products, this cannot be assumed. With the relaxation of trade barriers since the latest General Agreement on Tariffs and Trade (GATT) decision, these extensive trading linkages can only increase.

A further criticism of using reactivation of *terre en friche* or increases in production as an indicator of APAL's local success relates to Québec's regional specialization in dairy, pork and poultry to provide for remote markets as well as domestic. In other words, even if the agricultural land market is stabilized in terms of prices or rural-to-urban conversion, it does not follow that farming should locally reappear in the short term simply because there is a large concentration of people nearby. Local markets could well be saturated, and more distant marketing

initiatives stymied by factors beyond the control of either farmer or government.

Industrialized agriculture in Québec is becoming more efficient and is now approaching self-sufficiency in many temperate products (MAPAQ, 1992, *Situation générale de l'industrie bioalimentaire québécoise en 1992 et perspectives*). Unless active programs are instigated to increase production for outside markets there is no present reason for land once removed from cultivation to be immediately reactivated. Idle land in a state of unmanaged regrowth in the green zone near cities is most certainly being protected for (potential) agricultural purposes according to the law and therefore is a sign of its success no matter how untidy, derelict or unproductive it might be perceived to be. The law itself includes this land use as well as forest in its own definition of agricultural use. This work, then, propounds a new position on *terre en friche*: all else being equal, quantitative increases in this land in the green zone are indicators of APAL's success according to its stated direct aims, in the sense that this land has not undergone conversion to other uses. It, in effect, represents a kind of land bank or resource commons for the province, albeit perhaps an involuntary one from the point of view of individual owners of this land.

4.2 THE LITERAL EFFECTS OF APAL

4.2.1 Establishing the Literal Effects of the Law

As Coughlin (1991) has noted, few attempts have been made to effectively evaluate any agricultural zoning program. In order to judge the literal effect of APAL on the land, remote sensing methods, or ground survey can be used, but they fail to integrate the many social, economic and legal influences which direct land use in a settled environment. Although the resolution of satellite data is becoming better and better,

interpretation of these images remains largely the domain of highly trained and somewhat closeted professionals. Census data, municipal records, land registry and sales data are useful primary sources which reveal changes in tenure, size, land value and land use. The technical survey descriptions accompanying these allow pinpoint accuracy. Direct social survey of the farm and rural non-farm population is necessary regarding the major life decisions of residential location, entry, exit, farm succession, land tenure and locational choice. But we must remember that the major concern of the law is to protect the land resource.

For reasons relating to lack of expertise at the beginning of the project, the data for this study (see section 4.5) were collected first and then the methodology was developed for their analysis. The data omissions then required the use of some indirect approaches. To assess the literal effects of the law, this work uses information deriving directly from application of its major articles to achieve its aims, which are: 1) to create the agricultural zone, 2) to control (but not stop) non-agricultural land uses on zoned land, 3) to control (but not stop) the right of owners to subdivide their land into smaller holdings, and to 4) protect maple sugar bushes and the soil resource. Any intangible effects on the agricultural economy, urban spatial geometry etc., for the purposes of this research, will be considered ancillary or secondary effects of the law which exist in unknown and perhaps unquantifiable combination with other socio-economic factors and legislation. The exceptions are the maple sugar and soil exploiting activities such as sod farming which will be included in the discussion of its secondary effects on the farming economy in Chapter Five and in the analysis of CPTAQ decisions of Chapter Six.

APAL's intent has never been to permanently freeze all land under its jurisdiction for commercial farming. It does, however, powerfully control the decision-making in this large area to direct the long-term

biophysical and human organization of the Québec agricultural zone. Land use change in the green zone, including rural-to-urban conversion, proceeds with the approbation of APAL's articles and also by the municipalities' own *schémas d'aménagement*. Therefore, change *per se* does not constitute a failure of the law. It is the nature of that change by which APAL's effects are to be judged.

4.2.2 The Nature of Change in the Green Zone under APAL

It is possible to establish the direct local effect of APAL by measuring the four literal effects of the law defined in section 4.2.1 above. The creation of the green zone itself is the major strategy to halt speculation on farmland. The long term aim is to decrease the competition on agricultural land by making agricultural uses as defined in law the only permitted uses and therefore the "highest and best uses" (see section 4.3 below). That the law has established protected green zones in Québec, including the study region, and is presently fully exercising its mandate in these areas is beyond dispute and will require no further discussion. Changes to the green zone in the study area are examined in Chapter Six.

The practices proscribed by APAL in points 2 and 3 above (non-agricultural land uses, fragmentation and sale), especially anarchic rural residential development deriving from counterurbanization, are seen as the major mechanisms of *déstructuration* of the agricultural vocation of the landscape. These are directly measureable from analysis of the decisions of the CPTAQ authorizing these changes. A measurement of the law's ability to counter speculative land value increase provides a method to directly measure its impact. Developing these three indices, then, will form the methodological basis of this thesis.

4.3 LAND VALUE AND THE DISTANCE FUNCTION

4.3.1 The Bid-Rent Curve and Concept of Highest and Best Use

In the economic sense of the word, rent may be defined simply as: the unearned or surplus income over and above the cost of production. It has long been theorized that land has value because it can earn a rent and that these rents differ mainly depending on the use that can be made of the land (e.g. Clark, 1973). Based on long empirical observation, Von Thünen, in 1826, formulated an inverse relationship between distance from the central market (derived from transportation costs) and rent on agricultural land (adapted in Figure 4.1). Von Thünen used this relationship to predict an idealized concentric pattern of agricultural production and land uses around a market center. Variations of the bid-rent relationship have since been used to explain the location and pattern of productive land uses and by extension, rent or value, not only for agricultural but for urban land as well (Alonso, 1964; Topolov, 1984).

The theory that use determines rent and therefore the value of a parcel of land has been further developed into the modern doctrine of "highest and best use". This is "the use which is most likely to produce the greatest net return over a given period of time" (Real Estate Appraising in Canada, 1973) It was described by Garner (1968) as follows:

"Each activity has an ability to derive utility from every site in the urban area; the utility of a site is measured by the rent the activity is willing to pay for the use of the site. The greater the derivable utility, the greater the rent an activity is willing to pay. In the long run, competition in the urban land market for the use of available sites results in the occupation of each site by the 'highest and best' use, which is the use able to derive the greatest utility from the site and which is, therefore, willing to pay most to occupy it. As an outgrowth of the occupation of sites by 'highest and best' uses, an orderly pattern of land uses results in which rents throughout the system are maximized and all activities are optimally located."

(Garner, 1968, pp. 335, 336)

Figure 4.1: The Von Thünen Land Rent/Distance Function

Von Thünen analysis and pattern.

(a) Graph of profit per unit area for single land use

(b) Graph of profit per unit area for three land uses

(c) Resulting pattern of rural land use around one quadrant of city.

Mather, 1986

Garner agrees that the process of urban land use described above was identical to Von Thünen's work modelling agricultural land use patterns. The fact that the land market and its uses, in an unconstrained city, forms a continuum from the city centre far into the rural countryside suggests that this approach can be used to examine the land use itself in this rural transition area, an area now established as the periurban zone.

Thrall (1987), using the basic relationship of classical bid-rent, built an alternative theory of land rent based, not on production possible on the land, but on consumption of land. The relationships he established for different city types discussed in Chapter Two can be used to estimate the efficacy of APAL in controlling speculation in the study area. A similar relationship was earlier predicted by Boal (1970) who also theorized that in an unconstrained case the value of agricultural land would be depressed near the city and increase with distance. In a constrained city, agricultural land value would be higher near the zoning edge and then decline with distance. The rent-distance curves for Thrall's interactive or unconstrained city type are shown in Figure 4.2a, where:

h_1 is the radial extent of the urban area

$R[s]$ is rent per unit of land on annulus s

$\delta[s]$ is cost of converting nonurban land to urban utilization and

$\rho[s]$ is non-urban land rent.

(overhead costs include compensation for the nonurban landowner to replace immobile agricultural capital and the normal market price for agricultural land)

The urban region extends to radius h_1 where spatial equilibrium land rent $R[s]$ is equal to the cost of converting nonurban land to urban uses $\delta[s]$. The zone between h_1 and h^* is transitional in the sense that urban land rent is greater than nonurban land rent, though not by enough to lead to immediate development. Land speculation in this zone is likely.

In the radially constrained city (Figure 4.2b), the objective is to

Figure 4.2a: Thrall's Model of an Interactive City

Figure 4.2b: Thrall's Model of a Constrained City

Derivation of urban limits for
an interactive city (after
Thrall, 1980a)

Derivation of urban limits for a radially
constrained city (after Thrall, 1980a)

force the urban area to lie within a boundary less distant than would be generated by a freely operating market. The terms are the same as above, where in addition: h_2 represents the urban radius set by planners while h_1 is the initial urban fringe established for an interactive city. The population of the constrained city is thus squeezed into a smaller area which creates a higher density. Since higher density is coincident with higher land rent, R_2 represents the increase in land rent from R_1 . The present work attempts to use the predicted behaviour of land values shown in this model to test APAL's effectiveness in halting speculation in the agricultural land in the green zone.

4.3.2 Sales Price as Land Value

Early attempts in this project to use sales price to derive a value surface for the study area were frustrated by the flat refusal of the local real estate industry to release its own sales data for the region. The discovery of commercially available summaries such as TEELA (TEELA DMS, Montréal) was made too late. Even if the data had been available, viewing land value (over a large area) as the average of its aggregate sales prices is a valid measure of its market value only if we are ready to assume that sales figures are honestly reported by the parties involved and the records are complete. As well, the land market is idiosyncratic, and extreme low prices such as from "friendly" transactions between family members, or emergency sales of tax delinquent properties, or extreme high sales prices from indemnification for expropriation, or simply for sentimental reasons, creates uncertainty. More important, the volatility of the land market over time due to exogenous economic and social factors is not taken into account in temporal averaging sales prices. More advanced modelling than simple averaging of published sales prices is required to estimate the value of land.

Researchers have devised and successfully tested models of land

value which take into account other factors (e.g. Hushak, 1975; Dunford et al, 1985). Ideally, a working model of land price/value for the study region should be derived in order to assess the effect of APAL on the speculative environment near the city. However, given the logistical constraints, it was decided to use municipal property appraisals as proxies of land value.

4.3.3 Property Appraisal as a Proxy for Land Value

Property appraisal is a rigorous analytical procedure for estimating the value of property for a specified moment in time. It is done for several reasons such as for insurance purposes, tax assessments, establishing collateral in loans or for setting a sales price in real estate or for expropriation. This market value can be defined as: "The probable price at which a property would sell for [sic] at the date of appraisal, allowing for a reasonable time to find a purchaser." (AIC, 1973).

Fundamental to appraisal is the notion of land rent and the principle of "highest and best use" (ibid). The appraisal procedure is partially subjective and recognizes the intangible qualities of property value, and also that it depends on a combination of utility, scarcity, its value in use including sentimental value and the client's purchasing power. Neighbourhood and site analyses normally form a part of appraisal and in a thorough estimate, a miniature geographic analysis could be performed for the property regarding its location, description and use.

That the appraised value derived for municipal tax purposes may not closely match the actual sales price of an individual property is possible, and so this work must accept, with Keiper et al. (1961) that, "... what is generally called land is, in fact, a set of highly differentiated, or heterogeneous, factors of production, the value of which is often difficult to determine." In spite of this fundamental

difficulty, the research hypothesis developed in section 4.4 rests on the frank assumption that all land has value, even though that value approaches zero at times. This value may be either intrinsic or derived from its use or its potential use, in the sense of "highest and best use". It is assumed that a parcel's location in relation to other land and to conglomerations of people plays a role, though not the only role, in the formation of its value. The rent of agricultural land must be at least partly related to the physical potential of its soils and the climate they experience in spite of modern systems of agriculture which are less sensitive to natural conditions.

4.3.4 Speculation in the Land Market

In the commodity futures market, speculation is simply the purchase of rights to something at a certain date and price and holding it in the expectation that its value will increase. With sale at a higher price a profit is made and when land is viewed as a commodity, the same principle applies. Speculation in the land market *per se* does not alter the land rent-distance function of land. Rent, as an expression of land value, declines with distance in a speculative environment just as in a non-speculative one. But the rent curve is shifted upwards from what it would have been if a city were static in growth and speculation non-existent. In reality, many things could, of course, alter this idealized curve, such as innovation in transportation technology which extends the effective range of goods. "Static" and speculative rent curves are modelled in Figure 4.3a and 4.3b where:

Figure 4.3: Model of Land Value Behaviour around a City

C.M.

- R = Land value (in terms of rent)
- D = Distance from the city
- R_u = Land value in an unconstrained, static situation
(Von Thünen's relationship)
- R_s = Land value in an unconstrained, speculative environment
- R_c = Land value in a landscape constrained by agricultural zoning
- u = Urban area
- t = Zone of transition between urban and rural environments
- r = Rural land
- W = Constrained urban (white) zone
- G = Constrained rural (green) zone

Based on this, for the purposes of the present work, the effects of speculation around an expanding city can be defined as: the raising of an expected sales value artificially above that predicted by a rent-distance function for any one location under static (i.e. neither constrained nor speculative) conditions. The relative effect holds whether the city's expansion is due to a spatial decrease in density or to an absolute increase in numbers at the same density although its magnitude would vary.

4.4 RESEARCH HYPOTHESIS AND METHODOLOGY OF THIS STUDY

4.4.1 Determining APAL's Effect on Speculation

Speculation by small independent investors as well as by major developers is seen as a major destructive force affecting the agricultural potential of Québec because of its effect of raising land values to levels above which agricultural uses can compete. By decreeing the agricultural zone for Québec, APAL aims to halt speculation on farmland and potential farmland, phenomena which are especially pronounced in the periurban zone. If APAL has succeeded in checking speculation by preventing non-agricultural uses in the green zone and thereby making agriculture the highest and best use, the rent-distance function should be altered to create an abrupt drop in land value at the boundary of the green zone. This is predicted by Thrall's model for a city radially constrained by stringent urban zoning policy. But even if the constraining mechanism is from agricultural rather than city zoning, periurban speculation should

still be confined to the white zone (W in Figure 4.3). Variations in vacant and agricultural land value in the green zone should, in a perfect case, become related only to the agricultural land market.

One study of the effect of APAL on vacant land near Montreal demonstrated this theoretical effect by finding that the price per acre of land in the green zone was indeed less than that of similar vacant land in the white zone (Vaillancourt and Monty, 1985). If the speculative urban shadow is perfectly nullified, the new rate of decrease of value with distance will abruptly come into equilibrium with the original land value (rent)/distance curve, but much closer to the city. If, as some suspect, the relative importance of transport costs to the total costs of production is declining, thereby decreasing the locational advantages of proximity to markets, an equal-value surface in the green zone ought to be eventually established. This trend toward land value isotropy in a constrained landscape is modelled in Figure 4.3c.

As required by provincial law, the municipal appraisals in the study area are derived largely from sales prices within the immediately preceeding two-year period (personal communication, Sylvie Carrière, Morin, Roy Desilets & Associés, Sherbrooke - appraisers). Each municipality is appraised separately using the same formula and so the values represented are comparable with one another. The location of the municipality or individual property in relation to distance from the city of Sherbrooke played no part in the calculation. Furthermore, appraisals are made as if the property were in the white zone (personal communication, MRC Ste-Catherine-de-Hatley) and so the highest and best use of the land is not considered agricultural even though it is zoned green. These assessments can, therefore, be used as a measure of speculative value on all land within the green zone and the analysis is not simply decomposing the original formula used to estimate the land value.

If all appraised land values (expressed as value per hectare) are regressed on distance to obtain a linear regression curve line, the possible solutions would be a variation of one of the following slopes:

If APAL has succeeded perfectly in halting speculation in the green zone, a form like (a) would be seen; in other words land values would be isotropic and there would be no relation between distance and value. If the distribution of properties produces a negative regression line, then we can assume that land values are behaving as for an unconstrained city/rural continuum, either static or speculative.

If we assume that: 1) the Sherbrooke periurban zone is functionally isolated from other influence, 2) the city casts a speculative urban shadow on its periurban zone, 3) in a non-constrained or interactive city there is an inverse relationship between distance from the city and land value, and 4) changes in the intangible notion of value are more or less instantaneous and universal, we may assess the success of the law in this particular aim of halting speculation by testing the following hypothesis: In the 12 years since its application in the study region, APAL can be said to have failed to stop speculation in the green zone if there is a strong negative correlation between distance and land value in the green zone, i.e., if a value gradient similar to R_p in Figure 4.3 can be found empirically.

This work attempts to find the relationship between land value and distance from the center of Sherbrooke, using municipal appraisals as a

proxy for individual land values in the green zone. If a strong negative correlation is found, from the stated assumptions we can conclude APAL has failed to curb normal market forces and establish an isotropic land value surface. If other trends emerge, such as of an isotropic value surface, or if value increases with distance, we may cautiously conclude that these trends may have been at least partly due to the effect of APAL. But many other factors regarding the land market and various other socio-economic factors are involved. The data collection for this project was done before the discovery of this model and formulation of this research hypothesis, and only green zone values were retrieved. The model would be better tested if data on similar vacant or agricultural white zone land had also been obtained, which would have enabled a determination of any abrupt drop in land values at the boundary. As it is, only the land represented in G of Figure 4.3c can be analysed.

4.4.2 Determining the Effects of APAL on Land Fragmentation

The literature suggests that farms are more fragmented and smaller near growing cities, both considered negative features in terms of farming viability. The long-term aim of APAL appears to be to permit the creation of larger, more efficient and economically viable farm properties near the city at a price comparable to those more distant. This is done by controlling the fragmentation of the land base and of the individual properties in the green zone in order to create or sustain large, and presumably profitable farms.

Following the logic presented in 4.3.1 above, if we assume that: 1) proximity to the city promotes land fragmentation and 2) distance from the city is a factor governing property size, then, in an unconstrained case, fragmentation would, indeed, be greatest near the city where intensity of use increases and demand for land conversion, especially severances for residential use is greatest. In this situation, properties would tend to

increase in size with distance from the city. Empirical evidence demonstrating changes in these variables would be found in two comparable data sets for property size; from before and after the introduction of the law. Unfortunately, these data were impossible to obtain and so an alternate measure of the success of the law on controlling land fragmentation is suggested.

Changes in property size are not instantaneous in the way changes in value are, and so it would be wrong to assume that the law has failed to stop fragmentation if a distinct negative correlation between distance and size is found, or that it has succeeded if another trend emerges. APAL is a long-term plan and since only 12 years have elapsed since its introduction in the study region such modifications to the property base may not have developed, nor are they necessarily possible in a periurban zone experiencing *déstructuration*. Nevertheless the relationship between property size and distance from the city will be established as a base datum for future work in this area.

The long-term effect of APAL may be to create large farm properties near the city whose market value is comparable to those more distant, but the legal mechanism is simply to discourage property fragmentation into parcels smaller than 100 hectares on land zoned green (whether in farms or not) and prevent residential parcels of larger than one-half hectare (articles 31 and 29.2). The small maximum residential lot size protects the adjacent land because the residual land must remain in agricultural uses. We may use these two mechanisms to make a judgement concerning APAL's partial success in this matter and state the following: The incidence of residential properties of exactly one-half hectare or less in the green zone or other property equal to or greater than 100 hectares is indicative of the success of APAL's precise intent in respect to limiting fragmentation of agricultural land and its removal from cultivation. These

data are available from the current *rôle d'évaluation foncière* for the municipalities. The date of the entry of the property to the record is generally available, which allows us to place this before or after the introduction of APAL. By analyzing the ratio of small (≤ 5 ha) residential lots to larger ones before and after the law we can evaluate the success of the law in achieving its aim. Analysis of CPTAQ decisions provides an even more direct measure of the law's ability to keep properties from being further fragmented or for the consolidation of farms.

4.4.3 Evaluating the Demand for Change in the Green Zone

Thibodeau et al. (1986) used an index of *déstructuration* in their study of the Montréal periurban zone based on eight variables of progress and viability in agriculture. These are: 1) changes in size of farms, 2) number of farms with low sales, 3) per hectare value of capital in livestock, 4) per hectare value of capital in machinery and tools, 5) the percentage of farmers older than 45 years and 6) demographic trends for these older farmers, 7) absolute amount of land rented and 8) trends in this class. This index is very similar to an index of *déstructuration* devised for a study of Québec agriculture which predates the introduction of APAL (Québec, 1973). In this earlier study, the index was used to measure the change in agriculture in the periurban zone of transition between strictly urban and rural land use (*la zone grise**).

Gauthier (1987) also applied an index of *déstructuration* very similar to Thibodeau's et al. and analyzed the results by principal components analysis to assess the effect of APAL on periurban land near the urban community of Québec. His study is not conclusive, possibly because his census data were collected only three years after the introduction of the law. Dubost (1990) evaluated the effect of the law north of Montreal also using numerous farming activity and production variables to measure the state of farming.

Deslauriers et al. (1991) used principal components analysis to analyze 10 variables relating to transformations in agriculture in the periurban zone of Montreal. These variables measured growth in: total population, agricultural population, number of people per farm, the average size of farms, total agricultural area, rented land, area cultivated, number of cows, number of cows per hectare.

Such indices are derived for measuring global problems in periurban agriculture in an unconstrained case, notably *déstructuration* of the agricultural milieu by the influence of the city. They include variables which relate to Québec's established specialization in agricultural production, notably dairy. They also all include variables which are influenced by many socio-economic tendencies and legislative instruments as well as the agricultural protection law. To use these indices to evaluate the effects of a law whose mandate is simply to protect the land from competing uses is questionable. To measure APAL's direct effects in the green zone, the methods must be related to the literal intent of the law and application of its articles.

Various land uses occurred in Québec's green zone when APAL came into effect and now continue by acquired rights under the law. These existing non-agricultural uses were not outlawed, neither does the law require that land in the green zone actually be farmed. Therefore, the law itself cannot be held accountable for these pre-existing land use patterns, nor directly for changes in the actual area being farmed, or for the fact the land is not being farmed. Given this, analysis of the types and rates of land use change subsequent to its introduction are the only quantifiable measures of the success of the law in achieving its aims.

Mapping the locations of decisions handed down by the CPTAQ in the study area reveals the spatial patterns of authorized change. This can be

broken down as 1) absolute change; measured by requests which succeed and 2) demand for change (the sum of successes and failures). If agglomerations of decisions permitting changes are revealed, especially for residential construction, they can be considered areas of incipient failure of the law to preserve the agricultural vocation of the land.

The type and rates of change can be derived from the decisions themselves. Therefore: If there is an increase in the rates of change permitted to the land, we may conclude that the precedents established by existing acquired and personal rights or changes authorized by CPTAQ are contributing to an increase in disassembling the agricultural milieu, in other words of promoting *déstructuration*. An alternate, but unlikely, explanation is that decision-making is being influenced covertly, or that a liberalisation in granting permissions for change has occurred, both of which would have the same effect. This will be interpreted as an actual or incipient local failure of the law, which may adversely affect present and potential farming operations in their own right or if the municipality pushes for a change of zoning either through its next *schéma d'aménagement* or by direct request to the CPTAQ, or if the CPTAQ itself eventually suggests such a change. If areas can be identified which have been re-zoned white as the aggregate result of individual or municipal success for authorized change or during the major revision of the provincial green zone, we may conclude that other forces, notably of periurbanization and of the strength of purpose of the local municipalities in redefining the land's vocation have overcome the local ability of APAL to protect its agricultural vocation and by extension its farming potential.

4.5 DATA COLLECTION

4.5.1 Municipal Data

Because this project relies heavily on municipal data, the periurban zone of Sherbrooke was defined simply as those municipalities in closest

proximity to the city (Figure 5.4). They are all within a 45 minute drive of the city center, which places them within a reasonable commuting distance (in terms of travel time). It is acknowledged that overlapping influence from other cities or towns may exist here. For example, although Westbury completely surrounds the municipality of East Angus, and is likely influenced directly from it, it is treated as part of Sherbrooke's periurban zone. East Angus itself was not examined, though it does have a small green zone. Brompton similarly surrounds Bromptonville which is included in the study area. Waterville and Lennoxville are two other towns which are mainly enclaved within another municipality. The portion of Magog Canton which is considered part of Sherbrooke's zone is very small, the rest coming under the influence of the city Magog as well as Sherbrooke, but the whole municipality is used for certain analyses. Further definition of what constitutes Sherbrooke's functional periurban zone could not be undertaken for this work.

The toponomy can bewilder in this area and care must be taken to not confuse Magog Canton with the city of Magog or Compton Canton with the village of Compton or the county and former census division of Compton, or Hatley Canton with Hatley-Partie-Ouest or the village of Hatley or of North Hatley; and to distinguish between the city of Sherbrooke proper, the municipality of Sherbrooke and the MRC and census division of Sherbrooke. The study region comprises the following municipalities:

MRC Sherbrooke:	Sherbrooke Va, Deauville Vl, Waterville V, Lennoxville V, Rock Forest V, Fleurimont SD, Ascot SD, St-Elie-d'Orford P
MRC Memphrémagog:	Hatley CT, Hatley-Partie-Ouest CT, Magog CT, Ste-Catherine-de-Hatley SD
MRC Le Haut-St-François:	Eaton CT, Westbury CT, Ascot Corner SD, Cookshire V
MRC Le Val-St-François:	Brompton CT, St-Denis-de-Brompton P, Bromptonville V, Stoke CT,
MRC Coaticook:	Compton CT, Compton Station SD

(ΔV=ville (city, town), VL=village (village), CT=canton (roughly, township), SD=sans désignation (non-designated), P=paroisse (parish))

Detailed municipal data for the entire study area could not be obtained due to time constraints. The MRC offices or municipal offices of Ascot, Ascot Corner, Brompton, Bromptonville, Deauville, Fleurimont, Rock Forest, St-Denis-de-Brompton, St-Elie-d'Orford and Stoke were visited to consult the public *rôle d'évaluation foncière*. These appraisals were prepared by the professional firm of Morin, Roy, Desilets et Associés, of Sherbrooke. Because of the cumbersome and slow method of data retrieval and large numbers involved, for Ascot Corner, St-Elie-d'Orford and Stoke, the record was split so that part of the *rôle d'évaluation* was retrieved with 100 percent coverage and part sampled systematically for one in four cases as they occurred in the *rôle*. No significance testing is done for these samples and the sampled part and total coverage part of the relevant municipalities are either treated separately or the data were simply multiplied by four and added to the unsampled portion to approximate the total data. The inferences drawn for these municipalities are therefore rather approximate. Only the current year (normally 1992 except where noted) was made available and so a comparable data set from before the introduction of the law could not be obtained. However, a summary of the *rôle* is available, generally for three consecutive years which permits a short-term evaluation of change.

Requests for data in computerized format were turned down. For most of these municipalities, data for each property in the green zone were transcribed to obtain the following:

- date the property was entered into the records;
- the size of the property, in hectares;
- the address of each (rural roads in the study area have names and the houses street numbers as in a city);

- appraised values for buildings and for the land;
- the standardized provincial land use code;

An unfortunate error was made by not recording the cadastral number of each property, which would have allowed a precise fix on the location. However, the approximate distance of each property from the center of Sherbrooke was estimated by map from its address. In total, data for 3,276 properties were recorded in the green zone in Sherbrooke's periurban area representing about 65 percent of the total green zone properties. The following information was obtained from the summary of the rôle d'évaluation foncière:

- area of the municipality;
- the total residential properties and their area;
- the total number of vacant properties and their area;
- total number of properties in agricultural use (as defined by the municipality, not in APAL's definition of agricultural land) and their area;
- registered agricultural properties according to law (R.S.Q. Chapter F-2.1, art. 56 and 231.3); divided into those zoned agricultural (green zone), non-agricultural (white zone) and those of mixed zonage, and their respective areas;
- the appraised values of land and buildings both taxable and non-taxable were obtained for these property classes.

4.5.2 CPTAQ Decisions

Each MRC makes available for public scrutiny the decisions of the CPTAQ authorizing non-agricultural land uses, alienations and subdivisions for each municipality within it. These are a standardized format of varying length depending on the complexity of the case and identify the parties involved and reasons for the refusal or acceptance of each. It was assumed that the records were complete for each municipality. Because of the large number (1,237) of these cases in the study region, logistical constraints limited their analysis to the land use aspects which form the base of the present work. The decisions themselves contain a wealth of

other information which may be used to assess the sociological effects of this law and perhaps devise a new research paradigm for further enquiry. The decisions were coded in the same format as was done in a major survey done by one MRC to quantify the effect of the law within its territory (MRC de Coaticook, 1992). For each decision the following information was obtained:

- the CPTAQ file number;
- the type of request: (A) for non-agricultural use, (B) for permission to alienate a property, (C) to subdivide a property, (X) for exclusion from the agricultural zone, (I) for inclusion in the agricultural zone;
- the specific reason(s) given for the request, of a possible 65, e.g. to build a residence, for a servitude, to install pipes, cut trees;
- the cadastral lot number and range;
- the date of the decision;
- acceptance, refusal and existence of any conditions attached;
- the area affected by the request.

4.5.3 Other Data Sources

The Canadian census and other federal and provincial government documents are used to describe and characterize the agricultural land use and local agricultural economy in the study area. Since 1986, new census divisions based on the MRCs have replaced the old ones based on the original township survey (Figure 4.4). This now causes problems regarding data comparability over time, which when added to subtle variations in census questions and definitions, weakens the validity of these data. For some analyses it was possible to recombine the former census divisions and this is done where indicated.

By comparing the 22 census subdivisions which comprise the "study area" with the larger census division of which they form a part; termed the "study region", it is possible to determine variations between the

actual periurban zone and the larger surrounding region. Analysis of these trends gives some indication of the temporal effects of the city and some secondary effects of APAL on the periurban agricultural economy.

Expert opinion on various aspects of APAL and agriculture was solicited through numerous informal interviews of officials, farmers, academics, and civil servants. Agricultural zoning maps obtained for the MRCs within the study area from the CPTAQ were combined to form the first base map of the agricultural zone centered on the city of Sherbrooke. Extensive reconnaissance of the entire study area was done for familiarization purposes.

Figure 4.4

C.M.

4.6 SUMMARY OF CHAPTER FOUR

This chapter describes the literature and some of the methods and assumptions of existing work on the effect of APAL. Several logical fallacies evident in the literature, have been identified, including the law's supposed effects on urban sprawl, the reactivation of idle land and the enhancement of local agricultural production. This critique explains the methods which have been developed in order to directly quantify the impact of APAL. The study area municipalities are identified and the data set is described. For lack of longitudinal municipal data, a model derived from the land rent/distance function of classical and neoclassical economics is used to formulate a research hypothesis which may be tested to judge the effect of APAL near Sherbrooke on the speculative environment. It is also possible to quantify changes in the agricultural land use and fragmentation of holdings, which gives an indication of APAL's impacts in this regard. A description of current local agriculture also provides a partial qualitative measure of APAL's influence in the protection of agricultural activities. By analysis of CPTAQ decisions and residential property size, a measure of local *déstructuration* of the agricultural land may be derived.

CHAPTER FIVE
THE SHERBROOKE CASE: OVERVIEW

5.1 DESCRIPTION OF THE STUDY AREA

5.1.1 Physical Environment

The Sherbrooke study area (45.4° latitude, 72.0° longitude) (Figure 1.1) lies near the hilly north-western edge of the Appalachian Range. The land generally rises to the south-east from about 152 meters above sea level at Sherbrooke to about 395 meters at the south-eastern edge of the study area. The major sedimentary and metamorphic geologic structures are complex and transect the study area in a south-east to north-west direction. Mount Orford and its associated hills immediately to the west are igneous intrusive features.

The region lies within a natural vegetation zone of mixed deciduous/coniferous forest. Regionally, a second growth forest now occupies about 60 percent of the land (Canada/Québec, 1990). The humid-continental climate (Köppen Dfb) produces a growing season of between 194 and 201 days. The area is drained by many small streams to the non-navigable St-François (Saint Francis) which flows north-west to the Saint Lawrence. Several lakes lie within and near the study area, especially near Mount Orford.

The Wisconsin glaciation left numerous examples of moraines and fluvio-glacial features amid large areas of undifferentiated till. The soils are variably sandy or sandy-loams and are somewhat podsolized. Scattered areas of relatively more fertile organic soils and loamy soils exist, especially along the many stream valleys. A simplified mosaic of CLI agricultural capability for the Sherbrooke area was prepared for this study showing the variable nature of soil fertility and farming

CANADA LAND INVENTORY

AGRICULTURAL LAND CAPABILITY NEAR SHERBROOKE

Soil Classes

0

1, 2, 3

4

5

6, 7

urban area,
water bodies

scale: 0 5 10 15 km

source: Canada Land Inventory

potential in this area (Figure 5.1)(see Appendix 1 for details on CLI classes). The map's soil classes were chosen to differentiate the Class 3 and better soils which, with the tiny areas of organic soils (Class 0), are to become exclusive sectors within the green zone. These generally occur to the south and north of the city. Unlike many towns in Canada, the soils within and immediately surrounding the hilly city are not well suited to cultivation.

The area between Sherbrooke and Mount Orford to the west has mediocre potential associated with the steep slopes and rocky soils overlying the Mount Orford hills. Areas of low potential occur along the axis formed by the steep escarpment south of the city, north-east to the Sherbrooke-Stoke Range. Agricultural potential declines toward the south-east and east mainly due to an increase in elevation and slope. Corn heat units*, an agro-climatic index used to delineate the original green zone of Québec, decline from 2300 at Sherbrooke to 1900 at the Maine border to the east due mainly to this increase in elevation (Canada/Quebec, *Inventaire des problèmes*, 1990). In spite of this less than optimum physical base, large parts of the study area have been successfully farmed since first colonized.

5.1.2 History and Settlement

The study area was first occupied by the now mainly submerged Abenaki nation of the Algonkian group (Kerr, 1966). Coming to be known as the Eastern Townships or *Cantons de l'Est*, the area was first surveyed on the township system and opened to colonization in 1791 to American and British settlers who established farms, villages and small industries throughout the region. After the abolition of the seigneurial system in Québec in 1854, rapid French-Canadian colonization from the Saint Lawrence Plain began to displace this population and now forms a large majority in the region. The name given the present administrative region; "Estrie" is

overtaking the original designation although the two areas' boundaries are not congruent.

Hyatt's Mills, the forerunner of Sherbrooke, was founded in 1802 at the confluence of the St-François and Magog Rivers to exploit the water power offered by the Magog. The town became a regional center, and textile, metal and timber industries were soon established (*Société d'histoire des Cantons de l'Est*, 1988). The city has spread westwards and to a lesser extent north-eastwards this century, generally following the rivers and the major roads paralleling them (Figure 5.2). A few remaining farms are now enclaved within the city boundaries.

Sherbrooke's economy, for a time based on heavy manufacturing and textiles, is diversifying into lighter industries, education and other tertiary activities. The once-dense rail network continually declines but the city is well-served by highways. The forest sector is important, especially the pulp and paper industry, as is agriculture. The combination of scenic wooded mountains and lakes has recently made tourism a major player in the economy, especially around Mount Orford and the city of Magog.

5.1.3 Urbanization and Counterurbanization

With a population of about 112,400, Sherbrooke's metropolitan urban area is the largest in south-central Québec. The population dynamics of this area have been studied by Stanek (1972), Lefebvre, (1976), Barrière (1982) and Beaulieu (1989) for example. In the rural areas surrounding the Sherbrooke periurban zone, numbers have declined for many decades. Gagnon and Paquette (1967) traced the changes in rural population, farm size and numbers to 1966. Roy (1992) identifies recent significant rural outmigration from Le Haut-St-François by young people in search of opportunity. Brunet (1980) found that counterurbanization deriving from

Figure 5.2: Growth of the City of Sherbrooke

local towns tended to remain near those towns. Superimposed on these local migration dynamics is a larger, though more tenuous, pattern of permanent and seasonal migration from the urban communities of Montréal and Québec which diffuses in a wide field across the region. Figure 5.3 shows the twenty-year population trends for the larger study region encompassing the 1,695 square kilometer study area.

Keddie and Joseph (1991) found that, in general, a reversal of population trends had occurred in the province in the decade between 1976 and 1986. From widespread rural population growth in the period between 1976-1981, they found that this had changed in the period between 1981-1986 to a net decrease of rural population. This and slow growth in the urban centers was largely attributed to net provincial out-migration.

There has been an absolute population increase for the entire region of 29,156 (14.6 percent) in two decades, or about 0.7 percent per year. A decline in growth rate occurred between 1981 and 1986 followed by a surge since then. In the two decades, the former census divisions of Compton and Richmond have declined in population. Stanstead grew by less than 4,000 leaving the census division of Sherbrooke accounting for most of the growth. Therefore, in spite of the fairly small size of the city proper, the periurban zone is an important growth pole.

Figure 5.4 gives the location of and Figure 5.5 the size and 1992 population of the study area municipalities. Most study area census subdivisions have grown in population with corresponding increase in density. Ascot Corner and rapidly growing Deauville, Fleurimont, St-Elie-d'Orford and Rock Forest all have areas of suburbanization near the city of Sherbrooke with a rural remainder. Growth in Magog, St-Denis de Brompton, Ste-Catherine-de-Hatley, Brompton, Compton, Eaton, Hatley, Stoke and Westbury is representative of more diffuse counterurbanization.

Figure 5.3: Regional Population Trends, 1971-1991**115**

CD	1971	1976	1981	1986	1991¹
Compton	21,367	20,512	20,536	20,110	20,246
Richmond	41,044	39,969	40,871	38,653	40,080²
Sherbrooke	101,470	109,515	115,983	120,551	129,120
Stanstead	36,266	36,737	38,185	38,747	39,857
Totals	200,147	206,733	215,575	218,061	229,303
% Regional Change for Successive Census Periods		3.3	4.3	1.2	5.2

% Increase for 20 year Period = 14.6

¹ 1986 CDs were reconstituted using 1991 small area data

² 1992 data - source: *Répertoire des municipalités du Québec*

source: Census of Canada, 1971-1991

Figure 5.4: Study Area Municipalities

Figure 5.5: Twenty-One-Year Changes in Population and Population Density in Study Area Census Subdivisions (CSDs)

CSD	Area km ² 1992	1971		1992	
		Population	Density (pop/km ²)	Population	Density (pop/km ²)
Ascot SD	122.1	4294	35.2	9500	77.8
Ascot Corner SD	83.4	1708	20.5	2290	27.5
Brompton CT	69.5	1042	15.0	2040	29.4
Bromptonville V	6.7	2771	413.6	3230	483.5
Compton CT	100.5	812	8.1	1210	12.0
Compton Station SD	98.7	827	8.4	890	9.1
Cookshire V	10.2	1484	145.5	1550	152.7
Deauville VL	29.1	761	26.2	2020	69.5
Eaton CT	223.3	1596	7.1	1940	8.7
Fleurimont SD	34.9	2802	80.3	4600	418.1
Hatley CT	42.3	575	13.6	840	19.8
Hatley-Partie- Ouest CT	47.5	440	9.3	460	9.7
Lennoxville V	11.7	3859	329.8	4050	346.4
Magog CT	124.2	1624	13.1	4170	33.6
Rock Forest V	54.2	5098	94.1	3100	241.8
St-Denis-de Brompton P	64.5	820	12.7	2180	33.3
Ste-Catherine- de-Hatley SD	87.4	987	11.3	1460	16.7
St-Elie-d'Orford P	101.2	1720	17.0	4131	40.8
Sherbrooke V	57.6	80736	1401.7	77629	1372.0
Stoke CT	241.0	1453	6.0	2350	9.8
Waterville V	19.3	1476	76.5	1380	71.4
Westbury CT	65.8	733	11.1	990	15.1
Totals	1695.1	117618	69.4	132010	77.9

Percent population change
for 20 year period + 12.2

source: Census of Canada, 1971;
Study Area Municipalities, 1992

Bromptonville, Cookshire, Lennoxville and Waterville are small centers with local industry embedded within the larger Sherbrooke periurban zone. East Angus, a municipality surrounded by Westbury is growing in influence within the larger Sherbrooke periurban zone. The city of Magog's periurban zone merges with and likely overlaps Sherbrooke's.

Rapid urbanization and/or rural-to-urban migration focused on the Sherbrooke periurban zone is clearly evident; the surrounding municipalities are growing at a faster rate than either the city or the more remote rural regions beyond. This growth is not equal however, and those to the west and north-east of the city show the fastest growth, following the trends established earlier this century. The areas to the south and east of the city have grown slowly or declined in population. An absolute decrease in population of the city of Sherbrooke indicates that suburbanization and/or counterurbanization from the city is likely contributing to the surrounding municipalities' growth.

A distinct rural/urban dichotomy is present in the study area. Five census subdivisions are classified as urban, 14 as rural and 4 have both rural and urban components. Overall, the study areas's rural population is growing at a faster rate than the urban at 5,883 (17.7 %) compared to 4,890 (4.5 %) (Census of Canada, 1991). What composes this rural population, however, is not necessarily dispersed rural residential settlement, and one long-established town and municipality (Waterville) simply slipped beneath the statistical definition threshold due to a small decrease in population.

5.2 MRC SCHEMAS D'AMENAGEMENT

5.2.1 Overview of Regional Agricultural Policy

The following brief description of the major agricultural orientation identified in recent or current *schémas d'aménagement* for the

study region will likely soon change with the next round of plans. About 64 percent of Le Val-St-François was forested and 85 percent zoned green when the last plan was prepared (1987). One major aim of this plan was to protect the existing agro-forestry and agricultural land use. Two large pulp and paper producers have plants and large private holdings in the territory and this fact directs much of the major economic orientation. Small farm woodlots form about 20 percent of forested areas. The plan defines a recreation/forestry area within its south-western corner. While adhering to the articles of APAL regarding construction in the green zone, it acknowledges the phenomenon of *déstructuration* of the agricultural milieu and defines its characteristics for its own purposes which will provide for its consolidation and (presumed) eventual removal from the green zone.

The *schéma* of the MRC of Memphrémagog describes the rapid ongoing population growth and change in economic orientation in this area. Forest covers about 72 percent of the territory, almost all in private hands. Second-home ownership in the form of lake-side cottages and country residences accounts for about 40 percent of the population. The major economic orientation of this area is recreational and touristic and the major thrust of planning will be devoted to the promotion, development, management and rationalization of this vocation. Agricultural decline and abandonment is described, with considerable attention to large, new areas of *terre en friche* on areas of poor agricultural capability. The proximity of the city of Sherbrooke is thought to account for large-scale sale of agricultural land to non-farmers in Hatley Canton. Apart from the official green zone, the MRC identifies its own agricultural area consisting of reasonably active farms in a homogeneous agricultural landscape and states its intention to seek revision of the green zone to conform to this area. Present areas of former farming activity or low agricultural potential which are owned by second-home owners receive a 'rural' rather than

agricultural designation.

In its 1988 plan, the MRC of Sherbrooke states that its major aim is to establish a strong, regional, *métropole** and that planning policy will be directed towards the rational organization of space to achieve this and to enhance the quality of life for the people within this space. Agriculture was retained as one of the major economic orientations within this periurban context ... "the main aim being to protect the soils of highest potential in order to permit profitable agriculture" (translation - C.M.), but it is clearly left to APAL rather than the MRC to establish and protect or promote these areas. Residual rural areas are recognized, characterized mainly by the low density of population and lower agricultural potential.

The MRC of Coaticook produced a plan in 1986 which essentially affirmed the agricultural vocation of its territory and stated that agricultural activities should not be hindered by rural residential developments. But there is actually little technical discussion about agriculture in this *schéma*. A wish for more diversity in the major orientations, into agro-forestry and tourism, was expressed. The MRC recently (informally) reaffirmed its major agricultural vocation, stating that current plans for touristic development should take this into account (Doyen, 1994).

The brief and non-technical 1986 plan of Le Haut-St-François plainly states that "The regional reality shows us that the primary vocation of the MRC is agro-forestry." (translation - C.M.). Of the 80 percent of the territory which forms the green zone, 14 percent is actually farmed. Data on agricultural land use are presented which state that farmland abandonment is mainly occurring in the high, southern and eastern parts of the MRC and mainly on Class 4 and 5 soils, but that farming is

concentrating in the western end, nearer Sherbrooke.

These quick sketches of the agricultural vocation and land use of the MRC's, though incomplete, indicate a rather shallow regionally-based treatment of a still important economic sector. With the exception of Coaticook, no area sees farming as a major regional industry and there seem to be no efforts to promote it. Why this should be is a crucial question to be answered in view of Québec's deliberate policy of decentralization of economic development policy to local and regional expertise. Agricultural policy for now, from the farm up, remains centralized by the agricultural ministry of Québec and the UPA.

5.3 CHARACTERIZING AGRICULTURE IN THE SHERBROOKE REGION

5.3.1 Current Status and Twenty-Year Trends

The agricultural land use, population and economy of the general region have often been studied (e.g. Juaire, 1978; Beaudoin, 1985; Barbeau, 1986) with frequent emphasis on farmland abandonment and decline in farm population in the study area (Townshipper's Association, 1988; Olivier, 1978; Tétrault, 1976; Sadler, 1982; Boucher et al., 1971; Blais, 1977). These processes were well established before the introduction of APAL as part of general rural decline and outmigration associated with the marginal agricultural potential of the land, poverty of the population, and possibilities for employment in the city.

Estrée farms made up 6.8 percent of the provincial production or \$224 million in 1990 (Québec, 1992, *Profil économique*). Production is diverse (Figure 5.6a) but the major specialty is milk (54 percent in terms of value), followed by beef and pork (11 and 10 percent). Provincial supply management of milk, eggs and poultry strongly directs the number of dairy producers and the size of their herds. Many farmers produce maple

Figure 5.6a: Farm Operations, Estrie Region; 1990
Breakdown by Number and Value

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Production	Number Reporting ¹	Estimated Value of production (\$)	Average Value per report
Milk	1184	120,785,315	102,015
Beef	1193	24,912,814	20,882
Pork	158	21,944,924	138,892
Sheep	88	1,722,732	19,577
Eggs	80	2,828,514	35,356
Poultry	40	833,908	20,848
Cereals and oil seeds	1208	7,633,448	6,319
Maple products	1027	14,709,043	14,322
Apiary products	19	420,205	22,116
Potatoes	25	947,731	37,909
Canning vegetables	5	40,652	8,130
Other vegetables	68	768 458	11,301
Fruit and small fruit	138	3,014,663	21,845
Greenhouse produce	55	5,043,812	91,706
Forest products	1111	6,203,971	5,584
Nursery products and sod	39	4,516,883	115,818
Mushrooms	2	2,778,900	1,389,450
Aquaculture	33	4,794,614	145,291
Estrie Region	-	223,900,587	-
Estrie/Province of Québec (%)	-	6.8	.83

¹ Reporters: a producer could report several types of production and therefore the total does not correspond to the number of agricultural enterprises.

source: MAPAQ, 1991, compiled by *Ministère de l'Industrie du Commerce et de la Technologie*, 1992

(translation - C.M.)

products and large numbers are engaged in the cultivation of cereals, oilseeds and forest products though these bring less return. Aquaculture and pork production generate a high average value and a particularly lucrative specialty is the cultivation of mushrooms though only two producers were engaged in this. Nursery products and sod farming also yield a high average value.

The most recent small area census data were not available at the time of writing to describe farm types for the study area and direct comparison of Figures 5.6a and 5.6b is not possible since only in the census do the reports match the total number of farms. For the larger study region, Figures 5.b and c show that agricultural production differs from the wider region of Estrie. Here, less lucrative cattle raising is reported by more producers than dairying, except in Sherbrooke census division where the two types are almost even. Since very little milk is processed in the study area, local dairy production is likely in a static equilibrium. A considerable number of farmers (119) are occupied in fruit, vegetable or other field crops even though their average value per producer is also lower than dairy or pork for example. Only a few are occupied in cereal and grain production. Production is diverse and generally occurs as specialties; such specialization is reported by 238 farms while only 44 report a mixed farm type.

Forest products are important in the census divisions of Le Haut-St-François, Le Val-St-François and Memphrémagog but much less so in Sherbrooke. Maple syrup production, on the other hand, is more evenly distributed throughout the region. Sugar bushes are specifically protected by APAL and the large current surpluses in Québec can be seen as evidence of the direct success of the law in the preservation of the resource and promotion of this industry.

Figure 5.6b: Farm Types in Regional Census Divisions (CDs); 1990 124
Farms Reporting \$2,500 or More Gross Receipts

Farm Type	Number and Percent of the CD's Farms Reporting Census Division								Total %	
	Le Haut St-François		Le Val St-François		Memphré-magog		Sherbrooke		No.	%
	No.	%	No.	%	No.	%	No.	%		
Dairy	157	29.3	224	39.3	59	21.3	41	27.2	481	31.4
Cattle	233	43.5	184	32.3	120	43.3	43	28.5	580	37.8
Pigs	17	3.2	21	3.7	5	1.8	2	1.3	45	2.9
Poultry	5	0.9	4	0.7	9	3.2	2	1.3	20	1.3
Wheat	0	0	0	0	0	0	0	0	0	0
Other small grains	1	0.2	3	0.5	2	0.7	1	0.7	7	0.5
Other field crops	29	5.4	25	4.4	13	4.7	6	4.0	73	4.8
Fruit	12	2.2	9	1.6	9	3.2	8	5.3	38	2.5
Vegetables	4	7.5	0	0	2	0.7	2	1.3	8	0.5
Specialty	64	11.9	86	15.1	49	17.7	39	25.8	238	15.4
Mixed	14	2.6	14	2.5	9	3.2	7	4.6	44	2.9
CD totals	536	34.9	570	37.2	277	18.1	151	9.8	1534	100

source: Census of Canada, 1991

Figure 5.6c: Farm Types in Regional Census Divisions (CDs); 1990

Farm Type	Number and Percent of the CD's Farms Reporting Census Division								Total No. %	
	Le Haut St-François		Le Val St-François		Memphré-magog		Sherbrooke		No.	%
	No.	%	No.	%	No.	%	No.	%		
Forest products	254	65.3	148	55.0	99	60.0	28	48.3	529	60.1
Farms with maple taps	125	32.1	108	40.1	58	35.2	22	37.9	313	35.6
Nursery	8	2.1	10	3.7	6	3.6	6	10.3	30	3.4
Sod farms	2	0.5	3	1.1	1	0.6	2	3.4	8	0.9
Totals	389	65.8	269	43.7	164	51.3	58	32.6	880	51.6
Total farms (CD)	591		616		320		178		1705	

source: Census of Canada, 1991

Figure 5.6d: Farm Types in Regional Census Divisions (CDs); 1976-1986
Evolution of Nursery and Sod Farms

Farm Type and Year	Number and Area of CD's Farms Reporting Census Division								Totals No. (ha)	
	Compton No. (ha)		Richmond No. (ha)		Sherbrooke No. (ha)		Stanstead No. (ha)			
Nursery products										
1976	3	8	1	na	1	na	4	21	9	na
1981	7	48	6	50	7	9	5	21	25	na
1986	6	33	4	na	8	50	4	na	22	na
Sod farms										
1976	na	na	na	na	na	na	na	na	na	na
1981	na	na	na	na	na	na	na	na	na	na
1986	3	na	0	0	4	55	5	53	12	na

source: Census of Canada, 1976-1986

Figure 5.7: Farm Capital and Profit, in Dollars; 1990
Census Subdivisions Reconstituted

Census Division	Farms	Total Farm Capital	Gross Profits	Average Farm Capital/farm	Average Profits/farm
Compton	713	231,805,451	15,293,090	325,113	21,449
Richmond	560	154,418,775	8,715,661	275,748	15,564
Sherbrooke	229	69,045,485	2,424,945	301,509	10,589
Stanstead	504	184,787,790	9,654,908	366,642	19,159
Totals	2006	640,057,501	36,088,559	319,072	17,990

source: Census of Canada, 1991

Though the census record is sketchy (Figure 5.6d), activity in nursery products and sod farming has increased over the past 15 years to 39 producers in 1991 which accounts for most of Estrie's production. Expansion in nursery and sod specialties would be contingent on local demand since transport costs would be high for these heavy and bulky products. The high product value of sod farming makes it one agricultural specialty which could compete even in the white zone of the municipalities where taxes are high for registered farmers.

Figure 5.7 gives the present status and Figure 5.8 traces the twenty-year trends in average farm capital and average gross profits (calculated as the difference between gross receipts and expenditures) for the region's four original census divisions. The figures are not in constant dollars and gross profits should not be construed as the entire financial balance of the farms involved. Average gross profits have increased for the period, but a marked drop in gross profits occurred for all census divisions in 1985 followed by partial recovery in 1990. This may have been due more to changes in definition of census farm (see Appendix 4) than changes in the farm economy. From a roughly equal level in 1970, average gross profit has diverged in the four census divisions. Reconstituting the former census divisions for 1990, Compton had the highest average gross profit of \$21,449 per farm followed by Stanstead and Richmond at \$19,159 and \$15,564 respectively. Sherbrooke lags at \$10,589 per farm. Average farm capital increased in all census divisions in two decades, except for a slight drop in 1985. These curves have also diverged from a roughly similar status in 1970 so that in 1990, former Stanstead ranks first at \$366,642 followed by Compton, Sherbrooke and Richmond at \$325,113, \$301,509 and \$275,748 respectively.

**Figure 5.8: Trends in Farm Capital and Gross Profit;
1970-1990 Original Census Divisions (CDs)**

Reconstituted for 1990

source: Census of Canada

**Figure 5.9: Average Capital and Gross Profit of Study Area Farms; 1990
Comparison of Amalgamated Census Subdivisions (ACSDs) with
their Respective Census Division (CD)**

ACSD	Average Farm Capital (\$)		Difference of CSD and CD as % of CD	Average Gross Profit (\$) ¹		Difference of CSD and CD as % of CD
	ACSD	CD		ACSD	CD	
Ascot	353,152	321,557	9.8	10,572	12,744	-17.0
Ascot Corner	197,210	268,386	-26.5	2,293	12,584	-81.8
Brompton ²	267,943	264,120	1.4	17,630	17,556	0.4
Compton	404,274	(386,175)	4.7	24,928	(26,995)	-7.7
Compton Station	411,122	(386,175)	6.5	23,645	(26,995)	-12.4
Eaton	323,603	(268,386)	20.6	11,549	(12,584)	-8.2
Hatley-Partie-Ouest ³	310,111	340,178	-8.8	3,259	13,176	-75.3
Magog	401,245	(340,178)	18.0	9,926	(13,176)	-24.7
Rock Forest ⁴	253,994	(321,557)	-21.0	16,015	(12,744)	25.7
St-Elie-d'Orford	309,278	(321,557)	-3.8	15,492	(12,744)	21.6
Ste-Catherine-de-Hatley	300,487	(340,178)	-11.7	42,815	(13,176)	224.9
Stoke	270,052	(264,120)	2.2	10,546	(17,556)	-39.9
Westbury	283,934	(268,386)	5.8	15,030	(12,584)	19.4
Average	314,339	316,083	-5.5	15,669	16,611	-6.0

¹ Average Gross Profit is calculated as the difference between Farm Receipts and Farm Expenses as reported in the census

² Includes Bromptonville

³ Includes Hatley CT

⁴ Includes Sherbrooke, Fleurimont

source: Census of Canada, 1991

Using small area data, Figure 5.9 compares the general economic health of the farms in the periurban municipalities to the current census divisions immediately beyond. There is great variability within the study area and even within Sherbrooke's amalgamated census subdivisions (comprising Rock Forest, St-Elie-d'Orford and Ascot). No strong relationship exists between average farm capital and average gross profits for the study area (Pearson correlation coefficient of .1905) and only a weak one between total farm capital and gross profits (Pearson correlation coefficient of .6251). However, a strong correlation exists, and has consistently done so for the two decades, between total farm capital and profits for the larger region (Pearson coefficient of .9215 for 1990; .9925 for 1980; .9899 for 1970). This indicates that farm investment farther from the periurban subdivisions is more likely to pay off in terms of gross profits. The average gross profit for the region was about \$1,000 more than the study area. Ste-Catherine-de-Hatley had the largest average gross profit (\$42,815). Compton, Compton Station, Brompton, Rock Forest and Stoke also had higher profits than the entire study area average. Ascot Corner had the lowest (\$2,293) matched closely by Hatley-Partie-Ouest. Eight of the 13 amalgamated census subdivisions showed higher farm capitalization than their census division.

5.4 AGRICULTURAL LAND USE AND TRENDS IN THE STUDY AREA

5.4.1 Description and Trends

Gierman and Lenning (1980) catalogued rural-to-urban land conversion between 1966 and 1971 for Sherbrooke's built-up area and found a rate of 181 acres per year (73.3 ha) or 184 acres (74.5 ha) per 1000 of population. During this time the population density decreased slightly from 7.97/acre (19.7/ha) to 7.76/acre (19.2/ha). Gierman (1981) mapped land use from aerial photographs in the Sherbrooke area for 1980, about

Figure 5.10a

source: Gierman, 1981

LAND USE SOUTH-EAST OF SHERBROOKE, 1988

Figure 5.10b

approximate area
of overlap →

0   5   10
km

source: Canada Centre for Remote Sensing - SPOT image, 1988

the time APAL was introduced for the study area. The agricultural classes from this map have been combined for this study to show the major agricultural and forest land uses (Figure 5.10a). Large areas of farmland recently abandoned or in extensive uses such as pasture are evident. A rough visual interpretation of a partially overlapping 1986 SPOT satellite image shows that this farmland abandonment continued in large areas of land south of the city and that forest growth increased (Figure 5.10b).

The major changes over the past two decades in agricultural land use for the study area and the immediate region are shown in Figures 5.11 and 5.12. Farm size has increased over 20 years in all census divisions except Sherbrooke, but much less than the provincial average (9 hectares per farm compared to 19 for the province). The number of farms declined 29.5 percent compared to a provincial average of 37.8 percent. Farmland area declined 19.7 percent compared to 21.5 percent for the province (Census of Canada, 1991). Figure 5.13 graphs the changes in farm area over time showing that the largest drop occurred between 1971 and 1976. A small increase occurred for every census division in 1981 but a slow decline persists everywhere but (former) Compton census division. The ratio of improved-to-unimproved land is available to 1986 and, except for Sherbrooke, it is larger in 1991 than 1971, though less than the peak year of 1981 in all census divisions. Crop-to-total-farm ratio has increased slightly for all census divisions but is most pronounced in Sherbrooke, suggesting increases in idle land.

Figure 5.14 enlarges on the two decades change in census farm size distribution in acres (1 acre = .405 ha). The size classes with conversions to metric are as follows:

Figure 5.11: Farm Change in Regional Census Divisions; 1971-1991
CDs Reconstituted for 1991

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Census Division	1971			1981			1991		
	No. farms	Area (ha)	Avg. size	No. farms	Area (ha)	Avg. size	No. farms	Area (ha)	Avg. size
Compton	1016	104571	103	864	92020	107	713	87857	123
Richmond	880	72206	82	697	56599	81	560	51374	92
Sherbrooke	278	19183	69	279	17808	64	229	14108	62
Stanstead	714	65800	92	607	60253	99	535	56809	106
Totals	2888	261760	87	2447	226680	88	2037	210148	96

source: Census of Canada, 1971-1991

Figure 5.12: Changes in Agricultural Land Use near Sherbrooke; 1971-1991
Census Divisions Reconstituted for 1991

Census Division	Change in number of farms	Change in total area of farms	Change in average farm area	Change in crop area	Change in crop area/farm ratio
Compton	-29.8	-16.0	+19.7	-11.3	+5.6
Richmond	-36.4	-28.9	+11.7	-26.5	+3.4
Sherbrooke	-17.6	-26.1	- 0.7	-18.3	+10.5
Stanstead	-29.4	-18.8	+15.0	-10.1	+11.6
Total	-30.5	-21.0	+10.5	-16.2	+ 6.1

source: Census of Canada, 1971-1991

Figure 5.13:

Trends in Agricultural Land Use; 1971-1991

Original Census Divisions Reconstituted for 1991

———— farm area (ha)
 ----- improved/unimproved ratio (%)
 ..... crops/farm area ratio (%)

source: Census of Canada

- 1 - less than 3 acres (<1.2 ha)
- 2 - 3 to 9 acres (1.2 - 3.6 ha)
- 3 - 10 to 79 acres (4.1 - 32.0 ha)
- 4 - 80 to 129 acres (32.4 - 52.2 ha)
- 5 - 130 to 179 acres (52.7 - 72.5 ha)
- 6 - 180 to 239 acres (72.9 - 96.8 ha)
- 7 - 240 to 399 acres (97.2 - 161.6 ha)
- 8 - 400 to 559 acres (162.0 - 226.4 ha)
- 9 - 560 to 759 acres (226.8 - 307.4 ha)
- 10 - 760 to 1119 acres (307.8 - 453.2 ha)
- 11 - 1120 to 1599 acres (453.6 - 647.6 ha)
- 12 - equal or greater than 1600 acres (≥ 648 ha)

A slight general decline has occurred in the number of very small farms of less than 10 acres (i.e. the first two classes), indicating that severing of farms into small units (e.g. for hobby purposes) has not been marked in the study area during this time period. Hobby farming still exists here, often on larger farms but is actively discouraged by the CPTAQ in the green zone (McCallum, 1993). For all census divisions except Sherbrooke, a persistent peak in farms of 240-399 acres (97-162 ha) occurs throughout the two decades. Sherbrooke has smaller farms, the distribution peaking at 10-69 acres (4-28 ha) and 70-129 acres (28-52 ha). Farms larger than 227 acres (92 ha) were very few in Sherbrooke and Richmond to 1986, occurring more often in Compton and Stanstead. The 1991 study region shows a slight tendency toward a bi-modal distribution peaking at the 70-129 acre (28-52 ha) class and again at 240-249 acres (97-162 ha). Again, neither very large farms nor very small ones are common in the region.

Figure 5.15 compares the census farm land use within the study area to the more remote surrounding study region, but, since Rock Forest, Ascot, and St-Elie-d'Orford amalgamated census subdivisions comprise the entire census division of Sherbrooke, these cases form the inner core of the periurban municipalities and no distance comparison of each to its census division is possible.

There were 794 census farms in the study area, or 35 percent of the farms in the regional census divisions, occupying 68,167 hectares or 29 percent of the region's farm area. These periurban farms are smaller than

Changes in Farm Size Distribution for Census Divisions; 1971-1991

A new text for site classes in acres and hectares

source: Census of Canada, 1971-1991

those farther from the city, averaging 80.4 hectares compared to 96.3 for the study region. Although smaller, farms in each periurban municipality but Ste-Catherine-de-Hatley tend to have a larger crop-area to farm-area ratio than those more remote. The two regions' averages are similar, however.

Though the data are not strictly comparable to the above census figures, a more detailed view of agricultural land use for the actual study area is possible from analysis of municipal data. Figure 5.16 maps for 1992, and Figure 5.17 densely summarizes this agricultural land use in the study area for 1992 and short-term change about this date. The actual time frame is either 1990-1992 or 1991-1993 inclusive; a reflection of the lengthy data collection period.

The municipal summary differentiates between registered* farmland (according to *An Act respecting municipal taxation, R.S.Q. Chapter F-2.1 art. 56 and 231.3*) and agricultural land in general which, for the purposes of this work, is called generic* agricultural land. Residual* farmland is considered to be the difference between registered and generic farmland and represents the non-registered agricultural land in the study area. It could be held by collective bodies, non-professional farmers or other individuals. It could be zoned white, green, or be a mix and could represent land attached to country residential development, recreationally farmed or farmed part-time by non-registered farmers, rented to active farmers, recently idled, or under speculation. It could also be farmed solely to maintain the acquired or personal rights of the owners under articles 101 and 102 (Division X) of APAL. It is unlikely that registered

Figure 5.15: Comparison of Agricultural Land Use in Study Area Amalgamated Census Subdivisions (ACSDs) to their Respective Census Divisions (CDs); 1991

ACSD	Total farms			Total farm area (ha)			Average size (ha)		Crop to area ratio	
	CD	ACSD	%	CD	ACSD	%	CD	ACSD	CD	ACSD
Ascot	178	104	58	11301	7669	68	63.5	73.7	.40	.44
Ascot Corner	591	40	7	70654	2807	4	119.5	70.2	.26	.34
Brompton 1	616	58	9	55822	4573	9	90.6	78.8	.31	.41
Compton	556	90	16	65451	9117	14	117.7	101.3	.38	.42
Compton Station	(556)	77	14	(65451)	8259	13	(117.7)	107.3	(.38)	.47
Eaton	(591)	138	23	(70654)	14779	21	(119.5)	107.1	(.26)	.27
Hatley-Partie Ouest 2	320	52	16	28791	3782	13	90.0	72.7	.26	.35
Magog	(320)	39	12	(28791)	3000	10	(90.0)	76.9	(.26)	.26
Rock Forest 3	(178)	43	24	(11301)	1894	15	(63.5)	44.0	(.40)	.37
St-Elie-d'Orford	(178)	31	17	(11301)	1738	15	(63.5)	56.1	(.40)	.30
Ste-Catherine de-Hatley	(320)	43	13	(28791)	3805	13	(90.0)	88.5	(.26)	.25
Stoke	(616)	47	8	(55822)	4273	8	(90.6)	90.9	(.31)	.32
Westbury	(591)	32	5	(70654)	2471	3	(119.5)	77.2	(.26)	.27
Totals	2261	794	35	232019	68167	29	96.3	80.4	.32	.34

1 Includes Bromptonville

2 Includes Hatley

3 Includes Fleurimont, Sherbrooke

source: Census of Canada, 1991

Figure 5.16: Agricultural Land Use in the Study Area

Figure 5.17: Agricultural Land Use and Recent Change¹ in the Study Area; 1992

Municipality	A g r i c u l t u r a l L a n d U s e s							
	Area (A) in ha 3-year change (%)		All Farmland ha % A	Registered Farmland ha (RF)				Residual ² Farmland ha % A
				Zoning			all RF as % A	
				White	Green	Mix		
Ascot (12214 ha) change %	7863	64.4 2.0	(125 .3	5268 -9.4	106) -2.4	45.0 -11.5	2364	19.4 13.8
Ascot Corner (8338 ha) change %	2359	28.3 -13.3	(76 -1.7	2228 -8.4	na) na	27.6 na	55	.3 na
Brompton (6948 ha) change %	5126	73.4 1.3	(32 0	3821 -.2	0) 0	55.5 -.2	1273	18.3 .2
Bromptonville (668 ha) change %	145	21.7 .8	(0 0	22 -15.0	0) 0	3.3* -15.0	122	18.3 0
Compton (10054 ha) change %	7724	76.8 -17.5	(0 0	7504 -12.3	219) 1.9	76.8 -10.4	1	0 -4.7
Compton Station (9766 ha) change %	8230	84.3 -7.2	(0 1.3	7983 -9.8	0) 0	81.7 -8.6	247	2.5 1.5
Deauville (290 ha) change* %	497	17.1 0	(120 0	227 0	0) 0	11.9 0	159	5.2 0
Eaton (22330 ha) change* %	13967	62.6 .5	(64 .3	11320 -10.5	63) .2	51.3 -10.0	2520	11.3 10.4
Fleurimont (3492 ha) change %	783	22.4 -1.6	(56 2.4	91 -7.8	0) -1.3	4.2 -6.7	636	18.2 9.1
Hatley (4234 ha) change* %	1266	29.9 -2.1	(16 .4	1235 -3.1	6) -.2	29.7 -2.9	9	.2 .2

continued...

Hatley-Partie								
Ouest								
(4747 ha)	2157	45.4	(0	1982	174)	45.4	1	0
change* %	-15.0		0	-18.3	-.3	-18.6		-.3
Magog								
(12424 ha)	2720	21.9	(31	2457	177)	21.5	55	.4
change %	-10.0		.3	-6.0	-1.5	-7.2		.4
Rock Forest								
(5417 ha)	1364	25.2	(0	1098	103)	22.2	163	3.0
change %	1.4		1.3	-8.5	.8	-6.4		9.4
St-Denis-de-								
Brompton								
(6547 ha)	2523	38.5	(62	230	0)	4.5	2231	34.1
change %	-1.5		1.0	-11.3	0	-10.3		9.8
St-Elie-								
d'Orford								
(10120 ha)	2426	24.0	(349	1342	64)	17.3	671	6.6
change %	-8.6		3.3	-10.9	-1.3	-8.9		.3
Ste-Catherine-								
de-Hatley								
(8738 ha)	2992	34.2	(7	2589	385)	34.1	11	.1
change %	-5.7		.1	-7.1	.3	-6.7		.1
Stoke								
(49861 ha)	25677	51.5	(36	23385	0)	47.0	2256	4.5
change %	-.1		.1	-4.4	-.1	-4.4		4.3
Westbury								
(6578 ha)	2168	33.0	(79	2070	0)	32.7	19	.3
change %	-9.0		1.1	-9.5	-.1	-8.5		-.5
Totals - 1992								
(137393 ha)	89987	65.5	(1053	74852	1291)	55.7	12784	9.3
Total 3-year change in absolute area and by %								
	-4234	-3.1	(785	-11558	-1209)	-8.7	6176	4.5
				(net = -11902)				

¹ Changes are measured over three consecutive years from 1990, the actual years varying for each municipality

² Residual farmland includes all non-registered farmland

* 2-year change only

Missing: Waterville and Sherbrooke

source: MRCs, *Sommaire du rôle d'évaluation foncière*

producers would chose to retain unregistered status on such lots since a higher tax is levied on this land. Therefore, we can view this residual farmland as being more sensitive to periurban forces including rural-to-urban land conversion than registered farmland which is mainly confined to the green zone and constrained by the articles of APAL.

Figure 5.16 shows the study area's distribution of farmland in terms of these legal divisions. Not surprisingly, Stoke, the largest municipality also has the largest amount of farmland. The municipalities to the east and south of Sherbrooke also have large absolute amounts of farmland. However, the proportion of registered farmland to the total declines immediately around the city and on an east-west axis across the study area. St-Denis-de-Brompton, especially, has a large proportional share of residual farmland. These areas can be interpreted as areas of declining professional agriculture, experiencing agricultural land abandonment. In contrast, although small in absolute size, the proportion of registered land to total is high in the south, south-west and north-east parts of the study area and here is where professional farming remained relatively intact in 1992. The short term change summarized in Figure 5.17 shows that rapid evolution of this farmland is underway and that swift decline in registered farmland is occurring in many of these municipalities, often accompanied by increases in residual farmland. This is marked for Ascot, Eaton, Fleurimont, Rock Forest and St-Denis-de-Brompton.

In 1992 a total of 89,987 hectares of generic agricultural land (about 65 percent of the total municipal area) existed in the study area. In three years this generic farmland was reduced by 4,234 hectares or 3.1 percent. Of the total generic agricultural land, 74,852 hectares were held by registered farmers in the green zone. Registered farmland in the green zone made up 55.7 percent of the study area in 1992, but showed a marked

decrease of 11,558 hectares (15.5%) over three years.

Only 1,050 hectares represent registered farms in the white zone, but this category has increased in three years in most municipalities by a total of 785 hectares for the entire study area. This could represent land which has recently undergone a change in zoning from green to white, e.g. during the final revision of the green zone, or it could represent farm operations which are expanding into the white zone. More work is required to determine the dynamics of this small but important category of farmland. Its importance stems from the fact that individually, the persistence and growth of registered farms in the white zone may indicate the owners' deliberate choice in remaining in this area, unprotected as it is by APAL.

Registered farmland of mixed zoning decreased by 1,209 hectares which may represent adjustments in the land market or in zoning to resolve lots into one or other zone. Occurring in every municipality but one, this decrease was especially pronounced in Hatley-Partie-Ouest, Bromptonville, Compton, Eaton and St-Elie-d'Orford. It was least in Brompton, Hatley and Stoke. Deauville showed no change in its small amount of registered farmland. For all classes of registered farmland, a decrease of 11,982 hectares or 8.7 percent occurred in three years.

Residual farmland increased in most municipalities. It decreased in Compton, as did all classes of agricultural land in that municipality. Both increases and decreases in residual farmland can be interpreted as a decline in serious agricultural activity in the study area. An increase probably derives from registered producers relinquishing their status and/or selling land to non-producers and an absolute decrease means that other land uses (e.g. urban uses, forest cover, vacant land) now occur on this property. There is nothing in the data to suggest that increases in

residual agricultural land represent new land coming into production or a reactivation of idle or vacant farmland.

Figure 5.18 shows the variations in lot size among the four legal classes of agricultural land. Some obvious errors in the original data source were discovered but it is apparent that registered farm properties in the green zone are larger than either residual or those zoned white. They range from 4.4 hectares per lot in Bromptonville to 320.3 in Stoke. Most are between 40 and 50 hectares. Average size of residual farm property is smaller and is more variable. Registered farm properties of mixed zonage are the largest class for some municipalities to the west of Sherbrooke. These were the same municipalities which experienced little or no loss in this category of agricultural land over three years. This could represent efforts to expand existing operations even though the farm extends into the white zone. Comparison of the two sets of data show that the census report on farm area is not identical to the municipal definition of agricultural land although they are closely related (Figure 5.19). Stoke, which has very large agricultural lots, is anomalous, possibly due to ambivalence in defining agro-forestry operations.

Farm fragmentation has been interpreted both positively and negatively in the periurban literature. The positive school sees it as an adaptive strategy to expand operations while the negative equates it with general land fragmentation and *déstructuration*. A rough farm fragmentation index can be derived from these two data sets since the census reports by farm and the municipality by individual lot or parcel (Figure 5.19). Farms in the study area do not appear to be highly fragmented though it seems that most have more than one parcel, varying from 1.1 lots per farm in Hatley-Partie-Ouest to 2.9 in Stoke. Caution is still required, however, since these lots could actually be adjacent on the ground.

Figure 5.13: Size Analysis of Municipal Agricultural Land; 1992

Municipality	Average Size of Agricultural Lots (ha)			
	Residual	White zone	Registered Green zone	Mixed
Ascot	35.8	20.8	46.6	53.0
Ascot Corner	*	15.2	45.5	na
Brompton	25.0	10.7	45.0	-
Bromptonville	17.4	-	4.4	-
Compton	.3	-	45.5	43.8
Compton Station	22.5	-	46.7	-
Deauville	26.5	30.0	37.8	-
Eaton	41.3	64.0	51.5	15.8
Fleurimont	20.5	8.0	30.3	-
Hatley	*	16.0	45.7	6.0
Hatley-Partie-Ouest	*	-	56.6	87.0
Magog	27.5	3.4	53.4	88.5
Rock Forest	4.9	17.3	19.0	21.5
St-Denis-de-Brompton	25.9	15.5	46.0	-
St-Elie-d'Orford	25.8	21.8	33.6	64.0
Ste-Catherine-de-Hatley	11.0	7.4	49.8	64.2
Stoke	36.4	18.0	320.3	-
Westbury	*	39.5	47.0	-
Averages	22.9	20.5	56.9	49.3

1991 data

* error in source data for residual lot number

source: MRC Rôles d'évaluation foncière

Figure 5.19: Farm Fragmentation Index; 1991
By Comparison of Census and Municipal Data

ACSD or Municipality	Census Data		Municipal Data		Fragmentation Index	
	Total census farms	Area (ha)	Generic Farmland (lots)	Registered Farmland (lots)	Generic Area (ha)	(generic lots/census farm)
Ascot	104	7669	173	159	7595	1.6
Ascot Corner	40	2807	83	65	3498	2.1
Brompton 1	59	4573	151	96	5177	2.6
Compton	90	9117	211	203	9458	2.3
Compton Station	77	8259	197	192	8926	2.6
Eaton	138	14779	279	275	13866	2.0
Hatley-Partie-Ouest 2	52	3782	57	56	2986	1.1
Magog	39	3000	60	53	2692	1.5
Rock Forest 3	43	1894	119	88	2338	2.8
St-Elie-d'Orford	31	1738	85	85	3304	2.7
Ste-Catherine-de-Hatley	43	3805	56	54	2730	1.3
Stoke	47	4273	135	135	25680	2.9
Westbury	32	2471	66	64	2743	2.1
Totals	795	68167	1672	1526	90993	2.1

¹ includes Bromptonville

² includes Hatley

³ includes Fleurimont and Sherbrooke

Missing: Deauville, Waterville, St-Denis-de-Brompton which is included in another CSD outside the study area

source: Census of Canada, 1991; MRC rôles d'évaluation foncière

5.5 SUMMARY OF CHAPTER FIVE

This chapter describes the study area, its population and the past and present character of its farms' economies, size and land use. Viewing these characteristics over time reveals APAL's general effects though these are undifferentiated from many other influences. Simultaneous counterurbanization and urbanization processes occur within the study area. Steady growth is occurring in several periurban municipalities around a medium-sized city which itself is declining slowly in population but is expanding spatially. Migration from the city supports growth to these periurban communities but growth is also derived from more remote rural areas, or elsewhere.

Changes in periurban agriculture in the Sherbrooke region are fairly new, indicating the relatively recent establishment of an active and functional periurban zone around this city. In this periurban environment a different type of agriculture occurs with an increase in cropping, decrease in dairy and pork, and increase in nursery and sod farming. More intensive cropping occurs such as for vegetables, fruit and other field crops but these are less lucrative than the major specialty of milk, which is supply managed. Forest products are important in this region though less so in the more urbanized zone represented by the Sherbrooke census division. Activity in maple production is, however, evenly distributed, possibly attributable to the success of APAL in protecting this industry and its land use near the city.

Such periurban intensification of production has often been described in the literature. Other attributes of periurban agriculture are present in the Sherbrooke zone such as the existence of smaller and somewhat fragmented farms. Some of the characteristics of Bryant and Johnston's summary discussed in Chapter Two (section 2.5.3) are present,

such as the tendency for specialization, evidence of capital structures, intensity of production and recent bi-modalization of farm-size distribution.

Farming in Sherbrooke's periurban zone has diverged in the past two decades from a relatively similar state for the four census divisions in 1970. This divergence is perhaps indicative of the fairly recent establishment and now expanding influence of the periurban zone of this city. In the periurban zone, farming now tends to be higher capitalized but is less profitable and therefore more risky than even a relatively short distance away. An important exception is Ste-Catherine-de-Hatley where there is a high gross profit for farms. Brompton, Rock Forest, St-Elie-d'Orford (which are closer to the city) and Westbury also had higher average gross profits than their respective census divisions. Brompton, Compton, Compton Station and Ste-Catherine-de-Hatley had farm profits which were higher than the entire regional average. Some specialty products do compete here and some could do so even in land zoned white.

The data indicate that farms and total farmland area have declined regionally, though not as much as the provincial average, and that the rate of decline has recently slowed. Unimproved land (which could be construed as abandoned or *terre en friche*) has increased, but so has the amount of land being cropped, especially in the Sherbrooke census division. This contraction and increase in intensity is reflected in the large number of farms reporting field crops, vegetables and fruits in the larger study region. Agriculture is clearly viable in this periurban environment, though seemingly less profitable than somewhat farther away. In spite of mediocre agricultural potential defined by CLI and the rapidly expanding periurban population, it appears to be adapting to local conditions and exogenous factors by specialization in fairly lucrative production.

Recent change in the legal status of agricultural land revealed in the municipal documents suggests major changes in the near future. A precipitous decline in status of registered farmland has occurred in the green zone over three years, some of it likely entering the non-registered class of farmland. There may or may not be a change in the actual ownership of this land. This green zone registered farmland is composed of larger (i.e. more viable and less fragmented) properties than other types of agricultural land, and represents the land base of professional commercial farming. This decline could represent oncoming "farming to quit", being part of the long general decline in farmland in this area.

Though not equal in size to the drop in registered land, generic agricultural land area is declining, as is registered agricultural land of mixed zonage. This land forms a substantial percent of municipal territory in the municipalities nearest the city, where it is likely regarded as an area of potential urban or other development by the municipalities involved. Generic agricultural land in the green zone is theoretically protected from conversion by APAL and becomes, in effect, a type of land bank unless authorization is given for other uses by the CPTAQ. The small increase in registered farmland in the white zone is perhaps an early indicator of the adaptive mechanisms at play here; alternately it could represent land which was de-zoned during the final global revision of the province's green zone.

Since only a small area in this periurban zone falls within the exclusive (CLI Class 3 and better) sectors newly defined by APAL, the poorer capability areas now face special risk of *déstructuration* even though farming presently occurs there. APAL could foster further stability of the agricultural economy by rigorous application of its regulatory mechanisms and preservation of the green zone and its farms. Chapter Six directly quantifies the success of APAL in achieving this.

CHAPTER SIX
THE SHERBROOKE CASE: APPLICATION OF APAL

6.1 THE FINAL REVISION OF THE GREEN ZONE

6.1.1 Provincial and Study Area Summaries

Following the final revision of Québec's green zone, negotiated by 1991, the permanent agricultural zone of the province was established. The net provincial changes from the original area decreed by APAL are shown in Figure 6.1. Changes made during the final revision for each study area municipality are not available but change for the five MRCs of the region is given in Figure 6.2. Considerable variation exists between MRCs, but in total the green zone was diminished by 3.8 percent, which is close to the provincial figure. Currently, 4,5,036 hectares or 71.7 percent of this territory is zoned agricultural. This compares to the 232,019 hectares of census farms in 1991 (Census of Canada, 1991) and so the land reserve for potential agriculture is more than twice the size of the present area farmed. Although the green zone is large, the MRCs succeeded in having only 18,934 hectares de-zoned from the 48,261 requested during the final revision and Memphrémagog's original de-zoning request was severely cut during negotiations. Still, this MRC and Sherbrooke de-zoned the largest areas in absolute and percentage terms and have the smallest percentage of their territory devoted to the green zone (45.7 % and 38.5 % respectively).

Figure 6.3 is a mosaic of the current green (blank) and white (shaded) zones for Sherbrooke's periurban area defined for this study. The white zone is more or less contiguous around the major urban conglomeration extending west to St-Elie-d'Orford, Rock Forest and Deauville and east to Fleurimont and Ascot Corner. Establishment of such contiguity and complementarity of adjacent municipal uses is required

Figure 6.1: Net Change to Québec's Agricultural Zone, in Hectares

Original agricultural zone	5,440,463
Land excluded	-208,741
Land included	+2,494
Revised agricultural zone	6,234,216

(net decrease of 206,247 ha or 3.2 %)

source: Québec, CPTAQ, *Rapport annuel*, 1991-1992, 1993

Figure 6.2: Final Revisions to the Study Region's Agricultural Zone, in Hectares

MRC and area	Original green zone	Exclusion requested by MRC	Land Exc-luded	Land Inc-luded	Revised green zone	Percent of MRC	Percent Change
Coaticook 116,701 ha	103620	4605	2900	17	100703	86.3	-2.8
Le Haut-St-François 235,039 ha	185579	405	1094	21	184462	78.5	-.6
Le Val-St-François 139,714 ha	117476	4470	2662	0	114854	82.2	-2.2
Memphrémagog 128,111 ha	66712	31581	8211	0	58501	45.7	-12.3
Sherbrooke 42,908 ha	20643	7200	4067	60	16516	38.5	-20.0
Totals 662,473 ha	494030	48261	18934	100	475036	71.7	-3.8

source: Québec CPTAQ, *Bilan final*, 1992

Figure 6.3:

source: compiled from CPTAQ, 1986

C.M.

under ARLUP. The rectilinear boundaries, deriving from the underlying cadastre, contrast sharply with the smooth outlines of the CLI soil classes of Figure 5.1. Both high and low capability soils exist in both zones; a pragmatic response to the requests of the expanding urban municipalities. Much low capability land between the two lakes was included in the green zone, sandwiched between areas of heavy recreational demand. Eaton, Compton and Hatley-Partie-Ouest are almost entirely zoned green, though Eaton has large areas of low capability. St-Elie-d'Orford's relatively large green zone protects the Class 4 land in this municipality. The small enclaves of land zoned white within the large areas of green represent villages and hamlets, or uses such as the airport in the northeast corner of Eaton. Areas near lakes are normally zoned white in response to the recreational orientation and vocation of those lands. The large block zoned white in Stok comprises reserves of hilly forested land owned and/or managed by the local pulp and paper companies which have been permanently removed from the commercial agricultural sphere. Elsewhere, forest land uses are normally included with agricultural uses in APAL's definition and agro-forestry is a concern of the province's agricultural policy.

The zoning boundary is irregular near the urbanized areas, evidence of present or former farming activity and the recent activities of owners and/or producers to include or exclude land in the green zone. Despite APAL policy regarding spot zoning, a few enclaves of green zone are evident within the white; some being the result of long battles between the municipalities, the ministry of transport or CPTAQ and individual registered producers in their effort to keep their land intact or to have it re-zoned green (e.g. CPTAQ # 65383 in Rock Forest, CPTAQ #130325 in Lennoxville).

6.2 CPTAQ DECISIONS

6.2.1 Provincial and Study Area Summaries

The CPTAQ received 4,352 requests for authorization (*démandes d'autorisation*) for a non-conforming use of agricultural land from all of Québec in the year 1991-1992, for a cumulative total of 83,556 at the end of March, 1992 (CPTAQ, *Rapport annuel*, 1991-1992). In contrast, total declarations submitted by registered producers to effect changes on their land far outnumber the number of requests for authorization (104,032). Only 1,422 requests have been made to purchase farmland by non-residents.

The study area had generated about 1,237 requests (1.48 % of the provincial total) by the end of 1992, 78 of which were submitted in that year. Of the 1,237 cases examined in the study area, 1,106 were retained for analysis. Those dropped were mainly ones which had been withdrawn by the petitioner or were rejected by CPTAQ as unnecessary. Some records were found to be incomplete or ambiguous and were excluded from the data set or from some of the analyses.

6.2.2 CPTAQ Decisions for the Study Area

Figure 6.4 gives the breakdown of the 1,106 study area decisions by authorization or purpose of the request, according to the established categories. A total of 694 (63 %) successful requests were recorded in the study area over the decade, some beneficial and some detrimental to farming activities. The most common single purpose was for a non-agricultural use of land (378 cases) and these succeeded 58 percent of the time. Request for authorization to subdivide and alienate land (ABC) accounted for 337 of the cases, succeeding 66 percent of the time. The class BC (combining alienation and subdivision) was the third most important purpose (89 cases) and 76 percent of these succeeded. About 43

Figure 6.4: Summary of Study Area CPTAQ Decisions and Area Influenced by them; 1982-1992, by Type of Authorization

Code	Accepted			Refused			Total		% of study area
	ha	no	avg size	ha	no.	avg size	ha	no	
A	- 819.01	221	3.71	680.83	157	4.34	1499.84	378	.89
B	- 847.42	54	15.69	248.58	40	6.21	1096.00	94	.65
C	- 237.82	19	12.52	8.64	4	2.16	246.46	23	.15
AB	- 190.88	44	4.34	34.06	24	1.42	224.94	68	.13
AC	- 93.00	35	2.66	141.47	23	6.15	234.47	58	.14
BC	-1348.13	68	19.83	309.46	21	14.74	1657.59	89	.99
ABC	- 723.17	221	3.27	1341.60	116	11.57	2064.77	337	1.23
D	- -	-	-	.76	3	.26	.76	3	.00
E	- 48.70	10	4.87	68.85	3	22.95	117.55	13	.07
I	- 395.01	10	39.50	6.15	2	3.08	401.16	12	.24
X	- 397.79	12	33.15	387.64	19	20.40	785.43	31	.47
totals	5100.93	694	7.35	3228.04	412	7.83	8328.97	1106	4.96

Authorizations:

- A - use a property for non-agricultural purpose
- B - alienate a property
- C - subdivide a property
- AB, AC, BC, ABC - combinations of the above
- D - appeal of a decision
- E - other request
- I - include a property in the green zone
- X - exclude a property from the green zone

missing: Waterville

excluded: 94 cases which were incomplete or ambiguous

source: Québec, CPTAQ, *Décisions*, 1982-1992

percent of requests for alienation of land (usually by sale) were refused. Only 23 requests to simply subdivide land were received but these mainly succeeded. These two classes, alone and combined, account for a large area of land affected by decisions.

Though not given here, many authorizations are conditional, especially those concerning the environment and the soil resource. For example, gravel pits and other excavations must be rehabilitated after the purpose has been achieved to restore the soil resource. Another common condition is to restrict the size of an authorized residential construction to one-half hectare. Judging from the failure of the few appeals, decisions of the CPTAQ tend to be firm. Some modified requests were accepted (often forming part of the legal category of Figure 6.7).

It is suspected that the record is incomplete regarding inclusion or exclusion of lots to the agricultural zone by individual authorizations. Of the cases found however, all but two requests for inclusion of a property in the green zone succeeded, effectively increasing it by 395 hectares. Conversely, although a majority (19 of 31) of requests for exclusion of a property from the green zone were refused, the total amount of land involved was about the same (397.79 and 387.64 ha respectively). Between the authorizations for inclusion and exclusion, slight net change has occurred but it can be said APAL has protected the green zone to the extent of the refused cases of exclusion.

About 8,329 hectares, or 5 percent of the total study area has been directly affected by the decision-making process in ten years of application. If this rate were to persist, 50 percent of the territory would be affected in one century. However, the decisions alone may not be construed as rural-to-urban conversion. Many authorizations have no direct visible effect on the land, although they probably do create a climate of

activity and change which may set the stage for *déstructuration*. More work is required to effectively quantify and model the relationships between the various classes of decisions and rural-to-urban land conversion.

Figure 6.5 maps the spatial distribution of decisions to 1992 for the study area in terms of acceptance or refusal by the CPTAQ. Many records either neglected to include the cadastral information or contained errors and so the mapped record is incomplete. As well, the precise north/south location of Compton's decisions could not be read from the maps used in this study and so only their east/west location is given.

Many decisions are now on land which has been de-zoned and placed in the white zone. This illustrates the retreat of the green zone boundary by accumulated individual request and during the recent final revision. There is some tendency for decisions to decrease with distance from the city, mainly in the northern tier of municipalities, but the dispersion is fairly even in Ascot, Eaton and Compton Station. Logically, there is a tendency for them to follow the road network. Definite clusters of successes and refusals occur, often together, representing areas of strong demand for change. This is so especially in the recreation/forest landscapes to the west and to the north-east in Stoke, Brompton and St-Denis-de-Brompton. Large numbers have been refused in Brompton where farming remains viable. The *rôle d'évaluation foncière* reports considerable numbers of second homes or cottages in St-Denis-de-Brompton and Stoke (349 and 121 respectively). It is possible that clusters of successful requests represent a domino-effect generated by the establishment of precedents in these developing recreational landscapes. If so, Stoke's intact agricultural milieu can be considered to be at risk. Many decisions have occurred in Rock Forest and Ste-Catherine-de-Hatley in this very scenic area between the two lakes. These municipalités have experienced considerable rural residential development and represent an

CPTAQ DECISIONS

SHERBROOKE PERIURBAN ZONE,

TO 1992

Figure 6.5:

scale: km
source: CPTAQ, 1982-1992
C.M.

area of contention between the MRC and CPTAQ regarding landscape vocation with the latter determined to safeguard the remaining profitable farms.

Figure 6.6 gives the municipal breakdown of cases and land area involved for the study area. It is seen that heaviest activity occurs in Stoke, Brompton and Ascot, with Magog, St-Elie-d'Orford, St-Denis-de-Brompton, Ascot Corner, Ste-Catherine-de-Hatley and Rock Forest having large numbers of cases. The variations in average size of land involved in the different types of authorization (Figure 6.4, Figure 6.6) indicate a slight bias toward refusals for larger properties which would contribute to the maintenance of the agricultural vocation, or at least the status quo of the land. Where the average size of the refused cases is larger than those accepted, larger properties are protected and tendencies toward fragmentation are reduced. For example, Ascot had 63 acceptances with an average size of 2.59 hectares and 31 refusals with average size of 6.35 hectares. This basic tendency also exists for Ascot Corner, Fleurimont, Magog, Rock Forest, St-Denis-de-Brompton, St-Elie-d'Orford and Stoke. But, in Brompton, Compton, Compton Station, Cookshire, Eaton, Hatley-Partie-Ouest and Westbury the reverse is true and average size of acceptances is larger than the refusals. These are areas experiencing greater change, perhaps in the form of fragmentation and *déstructuration*.

A breakdown showing more specific sub-categories or reasons for the authorization requested is presented in Figure 6.7. Some petitioners state more than one reason and so the total reasons do not match the total cases. From 65 possible reasons for requesting an authorization (see Appendix 5), six classes were compiled for this study: 1) all residential reasons, 2) all public works related reasons, 3) all farm related activities 4) reasons concerning the use of the soil, 5) all commercial and recreational uses (except the construction of a cottage which was included with 1), and 6) all reasons of a legal nature.

Figure 6.6: Land Area Affected by Decisions, in Hectares; 1982-1992
By Municipality, for All Types of Authorization

Municipality	Accepted ha	Accepted no.	Accepted avg size	Refused ha	Refused no.	Refused avg size	Total Area	Total Cases	% of total area
Ascot	163.17	63	2.59	196.99	31	6.35	360.16	94	4.0
Ascot Corner	150.11	50	3.00	415.88	24	17.33	565.99	74	6.2
Brompton	466.19	66	7.06	311.21	66	4.72	777.40	132	8.5
Bromptonville	1.24	4	.31	2.09	5	.42	3.33	9	<.1
Compton	431.56	21	20.55	3.71	6	.62	435.27	27	4.8
Compton Station	578.10	17	34.00	52.78	3	17.59	630.88	20	6.9
Cookshire	25.51	6	4.25	10.11	5	2.02	35.62	11	0.4
Deauville	-	-		4.05	1	4.05	4.05	1	<.1
Eaton	461.74	43	10.74	134.39	24	5.60	596.13	67	6.6
Fleurimont	193.40	16	12.09	214.60	4	53.65	408.00	20	4.5
Hatley	102.86	25	4.11	143.27	12	11.94	246.13	37	2.7
Hatley-Partie- Ouest	706.89	16	44.18	30.02	10	3.00	736.91	26	8.1
Lennoxville	101.25	1	101.25	-	-	-	101.25	1	1.1
Magog	611.27	47	13.01	583.29	34	17.16	1194.56	81	13.1
Rock Forest	178.31	44	4.05	141.74	21	6.75	320.05	65	3.5
St-Denis-de- Brompton	161.09	46	3.50	150.54	29	5.19	311.63	75	3.4
St-Elie- d'Orford	171.36	40	4.28	326.74	40	8.17	498.10	80	5.5
Ste-Catherine- de-Hatley	317.74	46	6.91	221.02	22	10.05	538.76	68	5.9
Sherbrooke 1	.41	1	.41	-	-	-	.41	1	<.1
Stoke	535.64	92	5.82	446.61	49	9.11	982.25	141	10.8
Westbury	253.70	36	7.05	95.52	14	6.82	349.22	50	3.8
(unknown or incomplete cases)								(30)	(2.8)
Totals	5611.54	680	8.25	3484.56	400	8.71	9096.10	1080	100

missing: Waterville

1 Sherbrooke municipality currently has no green zone

source: Québec, CPTAQ *Décisions*, 1982-1992

Figure 6.7: CPTAQ Decisions for the Study Area; 1982-1992
By Classified Reason for Request

Municipality	Total Cases	Classified Reasons					
		1. Residential		2. Public Works		3. All Farm	
		accept	refuse	accept	refuse	accept	refuse
Ascot	114	36	24	6	1	6	3
Ascot Corner	91	22	17	5	0	3	1
Brompton	139	47	48	1	0	7	3
Bromptonville	9	3	5	0	0	0	0
Compton	35	7	5	2	0	6	2
Compton Station	27	4	2	1	0	13	3
Cookshire	11	0	3	1	0	1	0
Deauville	1	0	1	0	0	0	0
Eaton	69	22	17	4	0	5	1
Fleurimont	22	5	3	6	2	0	0
Hatley	38	14	10	3	0	3	0
Hatley-							
Partie-Ouest	33	8	8	4	3	4	0
Lennoxville	1	0	0	0	0	0	0
Nagog	93	33	27	2	0	1	2
Rock Forest	68	25	10	1	4	2	0
St-Denis-de							
-Brompton	86	34	25	6	0	1	2
St-Elie-d'Orford	81	29	15	3	0	3	4
Ste-Catherine-							
de-Hatley	88	28	28	3	0	4	0
Sherbrooke	1	1	0	0	0	0	0
Stoke	163	66	36	8	2	16	6
Westbury	52	18	11	7	0	6	2
Totals	1222	402	295	63	12	81	29
Percent of Total	100	32.9	24.1	5.2	1.0	6.6	2.4

continued..

4. All Soil		5. All Commerce/ Recreation 1		6. All Legal		Total		Unknown
accept	refuse	accept	refuse	accept	refuse	accept	refuse	
3	1	5	3	12	6	68	38	8
9	1	2	1	16	7	57	27	7
6	0	3	4	8	5	72	60	7
0	0	0	0	1	0	4	5	0
2	0	0	0	6	2	23	9	2
0	0	1	0	3	0	22	5	0
0	0	3	0	1	1	6	4	2
0	0	0	0	0	0	0	1	0
4	2	3	1	4	1	42	22	5
0	0	1	0	2	0	14		3
0	0	1	1	4	1	25	12	1
0	0	0	0	3	0	19	11	3
0	0	0	0	0	0	0	0	1
1	0	5	2	6	3	48	34	11
4	0	2	2	7	5	41	21	6
6	0	1	0	2	6	50	33	3
2	1	6	2	6	4	49	26	6
0	0	4	2	9	6	48	36	4
0	0	0	0	0	0	1	0	0
9	4	0	2	8	4	107	54	2
0	0	2	0	5	0	38	13	1
46	9	39	20	103	51	734	416	72
3.8	0.7	3.2	1.6	8.4	4.2	60.0	34.0	5.9

1 All commercial and private recreational activities except cottages which are classed with residential uses

See Appendix 5 for complete list of reasons

source: Québec, CPTAQ, *Décisions*, 1982-1992

The total number of decisions varies greatly between individual municipalities; ranging from one for Lennoxville to 163 for Stoke. The largest class of reasons for the entire study area and for each municipality was that relating to residential uses of the land (57.0 %). More than half of these were accepted by CPTAQ and many of these were to construct a single residence. The next largest class relates to legal matters (12.6 %); accepted in 67 percent of cases. Another important class of reasons relates to farms and their activities (9.0 %); accepted 74 percent of the time. Two-thirds of the commercial and recreational requests succeeded, although this class is small (4.8 %). Most public works were permitted (84 %) and activities relating to the soil (84%), although these also form a small class of cases (4.5 %). Overall, 60.0 percent of the requests succeeded and 34.0 percent were refused. A considerable number of ambiguous or deferred decisions or those stating no reasons, only the major authorization, were found in the record (5.9 % of the total).

Recombining reasons into a separate class relating to the fundamental aim of minimizing land fragmentation shows the impact of APAL in this domain. About 1,963 hectares of land were involved in the 63 decisions relating to the subdivision or consolidation of land over ten years (Figure 6.8). Keeping in mind that farm-related requests are not necessarily by registered producers, the most important single reason was for the consolidation of a farm, and almost all cases succeeded. It is thought that these represent new entrants to the occupation. Most of these decisions were in Brompton, Compton, Compton Station, and Stoke. Comparison with the farm fragmentation index generated in Figure 5.19 shows that these are the municipalities whose farms have a higher index than elsewhere in the study area. It is therefore likely that farm fragmentation in this area can be a positive feature associated with farm

Figure 6.8: Summary of Decisions Relating to Land Fragmentation or Consolidation; 1982-1992

Reason	Accept area (ha)		Refuse area (ha)		Total area (ha)	
Purchase or sale of a parcel next to a farm	8	298.3	1	53.0	9	351.3
Partition of a farm	6	290.5	8	194.3	14	484.8
Cede a lot with the residential site	5	45.1	4	5.1	9	50.1
Separation of lots and the construction of a residence	1	.7	2	1.4	3	2.1
Consolidation of a farm	27	1064.9	1	10.1	28	1075.0
Totals	47	1699.4	16	263.9	63	1963.3

source: Québec, CPTAQ, *Décisions*, 1982-1992

Figure 6.9: Summary of Decisions Relating to Soil Removal and Sugar Bushes

Reason	Accepted		Refused		Total Area cases (ha)	
	no. cases	Area (ha)	no. cases	Area (ha)		
Felling a sugar bush	-	-	1	14.18	1	14.18
Removal of arable soil	8	23.69	2	110.18	10	133.87
Removal of sod	6	39.92	-	-	6	39.92
Totals	14	63.61	3	124.36	17	187.97

source: Québec, CPTAQ, *Décisions*, 1982-1992

expansion rather than a negative one associated with subdivision of active farms.

The next largest category is for the partition of a farm. More of these requests were refused than accepted but the surface area involved in the accepted requests was greater. In this respect, parcelling of farms occurs in this region, but seemingly among already small farms. The rationale for acceptance of these requests is often the *déstructuration* of the immediate neighbourhood or poor soil capability.

Requests for purchase or sale of a parcel adjacent to a farm mainly occurred in Eaton, involving 298 hectares and all succeeded but one (of 53 ha). The ceding of a lot with sale of the residence was authorized slightly more often than not, occurring mainly in Brompton and Compton. This, and the few cases requesting the separation of lots and construction of a residence from Eaton and Westbury accounted for a small amount of land (52 ha).

Figure 6.9 summarizes the decisions regarding the actual soil resource and sugar bushes, activities directly addressed by APAL (Div. 3 art. 27 and Div. V). The restrictions on soil removal could potentially curtail lucrative sod farming in the green zone, but all six of these cases (from Ascot, Ascot Corner, Eaton, St-Denis and St-Elie) were accepted, totaling about 64 hectares. Removal of topsoil for other purposes was authorized in eight cases (most originating from Rock Forest and Stoke) but the area involved (24 ha) was much smaller than the two refusals (110 ha). Maple production is widespread in the study area, becoming potentially more profitable as it becomes more closely linked to agro-tourism. Only one request to cut maple trees came before the CPTAQ and it was refused.

Figure 6.10: CPTAQ Decisions for the Study Area; 1982-1992 Demand for Change Index by Classified Reason for Request 165

Municipality	Reasons						Total
	1. Residen- tial	2. Public Works	3. Farm	4. Soil	5. Commerce/ Recreation	6. Legal	
Ascot	.60	.86	.66	.75	.63	.67	.64
Ascot Corner	.56	1.00	.75	.90	.67	.69	.67
Brompton	.49	1.00	.70	1.00	.43	.62	.55
Bromptonville	.39	-	-	-	-	1.00	.44
Compton	.58	1.00	.75	1.00	-	.85	.72
Compton Station	.67	1.00	.81	-	1.00	1.00	.81
Cookshire	0	1.00	1.00	-	1.00	.50	.60
Deauville	0	-	-	-	-	-	0
Eaton	.56	1.00	.83	.67	.75	.80	.66
St-Armon	.63	.75	-	-	1.00	1.00	.74
Hatley	.58	1.00	1.00	-	1.00	.80	.66
Hatley-Partie Ouest	.50	.57	1.00	-	-	1.00	.63
Lennoxville	-	-	-	-	-	-	-
Magog	.55	1.00	.30	1.00	.71	.67	.59
Rock Forest	.71	.20	1.00	1.00	.50	.58	.66
St-Denis-de Brompton	.57	1.00	.33	1.00	1.00	.25	.60
St-Elie- d'Orford	.66	1.00	.43	.67	.75	.60	.65
Ste-Catherine- de-Hatley	.50	1.00	1.00	-	.60	.57	.60
Sherbrooke	1.00	-	-	-	-	-	1.00
Stoke	.65	.80	.73	.69	0	.67	.66
Westbury	.62	1.00	.75	-	1.00	1.00	.75
Study Area	.58	.84	.74	.84	.71	.67	.64

Index = the number of successful requests divided by total requests

source: Québec, CPTAQ, *Décisions*, 1982-1992

6.2.3 Demand for Change in the Study Area

The number of CPTAQ cases is indicative of the pressure for change on the green zone itself. The amount of land involved in the request is also useful to define the pressure for change. A simple demand for change index can be derived for these two parameters which standardizes changes to the *status quo* in the green zone; simply being the ratio of successes to the total number of cases. An index of 0 means that all requests were refused for this class; one of 1.0 means all requests were authorized. Figure 6.10 standardizes the information in Figure 6.7 in this way. The index is useful for revealing areas where subtle changes in vocation of the landscape are occurring, but is not significant where there are very few cases, such as in Lennoxville.

Ranking or grouping municipalities by total demand for change shows which municipalities are similar in terms of proportion of successful requests; in other words where leniency in decisions exists (for whatever reason). Ignoring Sherbrooke, which no longer has a green zone and Deauville and Lennoxville, which have too few cases to be significant, this gives:

1. Compton Station, Westbury, Fleurimont, Compton;
2. Ascot Corner, Eaton, Hatley, Rock Forest, Stoke, St-Elie-d'Orford, Ascot, Hatley-Partie-Ouest;
3. Cookshire, St-Denis-de-Brompton, Ste-Catherine-de-Hatley, Magog;
4. Brompton, Bromptonville (with 9 cases, possibly not significant).

Compton Station has the greatest rate of success and Bromptonville the lowest although these two municipalities both rank low in terms of actual number of decisions and area affected by them. Although few cases may actually have occurred, high ranking municipalities could now be primed for a cascade of more authorizations by the precedents established by the successes.

Figure 6.11:

source: CPTAQ, 1982-1992

Figure 6.11 graphs demand for change and total number of cases in the study area from 1982 to 1992. The total number of cases rose rapidly after 1983 to a peak of 153 in 1987. The dip in 1988 before another peak in 1989 may be partly due to a temporary moratorium on changes to the agricultural zone while the final revision of the green zone was being negotiated. Strong activity during this period also may be related to a deadline for submission of residential requests for change. Since 1989 there has been a marked decline in the number of cases; dropping to 78 in 1992.

The 100 percent success rate of the two cases in the first two years is not significant. This rate falls abruptly in 1984 to about 58 percent where it varies with the total number over the middle interval, peaking in 1989 to 75 percent. A divergence occurs in 1992 with a drop in number of cases but increase in their success rate.

A single index can be made of the pressure on the green zone by ranking the study area municipalities according to four demand parameters: 1) number of decisions, 2) amount of land involved, 3) by demand for change index in terms of number of cases succeeding and 4) by demand for change index by the area succeeding (Figure 6.12a). Stoke is first in number of decisions but second in terms of area, Mago's area being largest. Ascot ranked high in terms of decisions but low in terms of total area, as did St-Denis-de-Brompton, the demand for change being very high in these areas. Brompton ranks high for both. Compton Station ranks low in terms of decisions but high in terms of area as does Hatley-Partie-Ouest.

Adding the rankings creates a single score or index for change (high score equates with low level of change) which gives the intensity of the climate of change and/or the actual change in the study area green zone. It may be possible to relate this to *déstructuration* of the agricultural

Municipality	By no. of decisions	By area of decisions	By demand for change regarding:		Scores
			no. of cases	by total area	
Ascot	3	12	7	15	37
Ascot Corner	7	7	6	19	39
Brompton	2	3	13	8	26
Bromptonville	17	20	14	17	68
Compton	13	10	4	3	20
Compton- Station	15	5	2	4	26
Cookshire	16	10	12	7	53
Deauville	18	19	15 ^Δ	20 ^Δ	72
Eaton	9	6	9	5	29
Fleurimont	15	11	3	14	43
Hatley	12	16	6	16	50
Hatley-Partie- Ouest	14	4	10	2	30
Lennoxville	18	17	1 ^Δ	1 ^Δ	37
Magog	4	1	11	13	29
Rock Forest	10	14	6	10	40
St-Denis-de Brompton	6	15	10	12	33
St-Elie-d'Orford	5	9	6	9	29
Ste-Catherine- de-Hatley	8	8	13	18	47
Sherbrooke	18	21	1 ^Δ	1 ^Δ	41
Stoke	1	2	8	11	22
Westbury	11	13	5	6	35

^Δ not significant due to low number of cases

source: Québec, CPTAQ, *Décisions*, 1982-1992

Figure 6.12b: Municipal Ranking by Demand for Change Scores

1. Compton	9. Ascot
2. Stoke	9. Lennoxville (not significant)
3. Compton Station	10. Ascot Corner
4. Brompton	11. Rock Forest
5. Magog	12. Sherbrooke (not relevant)
5. Eaton	13. Fleurimont
5. St-Elie-d'Orford	14. Ste-Catherine-de-Hatley
6. Hatley-Partie-Ouest	15. Hatley
7. St-Denis-de-Brompton	16. Cookshire
8. Westbury	17. Bromptonville
	18. Deauville (not significant)

milieu. They are ranked from high intensity of change to low in Figure 6.12b.

6.3 PROPERTY SIZE

6.3.1 Property Size and Land Use

In order to ascertain APAL's efficiency in restricting residential property size to one-half hectare or less in the green zone, Figure 6.13a compares the numbers of green zone residential lots in some study area municipalities before and after APAL's introduction here in 1980. Ascot Corner, Brompton, St-Elie-d'Orford and Stoke are estimates based on a combination of 100 percent and sampled coverage. Ascot Corner and St-Elie report base dates of 1982 and 1981 respectively and so the municipalities are not entirely comparable.

About 1,229 residential lots predated the introduction of the law, indicating the extent of green zone counterurbanization in these municipalities. Ascot had the largest numbers of these properties (265) followed by Brompton (219), Stoke (206) and St-Elie-d'Orford (156). Both diffuse counterurbanization and planned, compact, suburban subdivision and development are responsible for this growth. The number of residential properties since 1980 has increased in all the municipalities studied, again by varying amounts. Ascot, Brompton, Bromptonville, St-Elie, Stoke, Rock Forest and Waterville doubled their numbers or more. Fleurimont's percentage increase was greatest but the small number of cases decreases its significance. Deauville and St-Denis' increase was less and only Ascot Corner can be said to have sustained only a small increase (33 %) in residential lots.

Figure 6.13a: Change in Green Zone Residential Lots since the
Local Introduction of APAL - Selected Municipalities

Municipality	All residential lots entered on or before 1980	All residential lots entered after 1980	Total	% increase
Ascot	265	255	520	96.2
Ascot Corner	164	54	218	32.9
Brompton	219	220	439	100.5
Bromptonville	13	17	30	130.8
Deauville	6	5	11	83.3
St-Denis- de-Brompton	38	32	70	84.2
St-Elie-d'Orford	156	148	304	94.9
Stoke	206	213	419	103.4
Fleurimont	1	11	12	1100.0
Rock Forest	128	150	278	117.2
Waterville	33	47	80	142.4
Totals	1229	1152	2381	93.7

source: Municipal Rôles d'évaluation foncière

Figure 6.13b: Breakdown of Green Zone Residential Lot Size for
Selected Study Area Municipalities; Entered to the
Records Before and After the Local Introduction of
APAL

Municipality	Residential Lot Size in the Study Area							
	On or before 1980			After 1980			Total residential lots ≤.50 ha	
	≤.50 ha	% of this group	>.50 ha	≤.50 ha	% of this group	>.50 ha		% change
Ascot	143	54.0	122	151	59.2	104	56.3	+2.3
Ascot Corner*	79	48.2	85	31	57.4	23	50.5	+2.3
Brompton*	117	53.4	102	121	55.0	99	54.2	+0.8
Bromptonville	9	69.2	4	16	94.1	1	83.3	+14.1
Deauville	2	50.0	4	2	66.7	3	36.4	-13.6
St-Denis-de Brompton	18	47.4	20	19	59.4	13	52.9	+5.5
St-Elie- d'Orford*	95	60.9	61	82	55.4	66	58.2	-2.7
Stoke*	80	38.8	126	79	37.1	134	37.9	-0.9
Fleurimont	0	0	1	7	63.6	4	58.3	+58.3
Rock Forest	66	51.6	62	91	60.7	59	56.5	+4.9
Waterville	17	51.5	16	34	72.3	13	63.8	+12.3
Totals	629	51.1	603	633	54.9	519	53.0	+1.9

* estimated from combination of sample and 100 % coverage

source: Municipal Rôles d'évaluation foncière, 1992, 1993

**Figure 6.14: Large Lots (≥ 100 ha) in Selected Study Area
Municipalities in Comparison to Farm Lots
(green zone only)**

Municipality	No. of Large Lots	No. Farm Lots	Total Lots
Ascot	13	176	956
Ascot Corner*	14	55	470
Brompton*	6	116	704
Bromptonville	0	7	53
Deauville	0	10	24
Rock Forest	1	12	390
St-Denis-de-Brompton	0	55	180
St-Elie-d'Orford*	4	55	494
Stoke*	22	139	722
Waterville	2	27	140
Totals	62	652	4133

* estimated from combination of sample and 100 % coverage

missing: Westbury, Eaton, Hatley, Hatley-Partie-Ouest, Compton,
Compton Station, Magog, Ste-Catherine-de-Hatley

source: Municipal *Rôles d'évaluation foncière*, 1992-1993

By grouping properties less than one-half hectare by date of their entry into the *rôle d'évaluation foncière* we may directly test articles 31 and 31.1 of APAL which limit residential lots to this size (Figure 6.13b). Comparing columns showing the number of lots less than or equal to one-half hectare for each time division reveals that only a partial success in this has been achieved. In total, the proportional share of the required small lots (≤ 0.50 ha) increased by 1.9 percent attesting to some municipal cooperation with APAL and the CPTAQ decision-making. Again, the distribution of increase in conforming lot size is uneven; ranging from -3.6 in Deauville to +58.3 percent in Fleurimont. Bromptonville and Waterville also had sizeable increases in the proportion of conforming lot sizes. The increase in Brompton was slight and in St-Elie-d'Orford and Stoke actually decreased after 1980 indicating laxity or leniency in these three municipalities.

It must be mentioned that APAL itself was lenient in permitting already planned subdivision to proceed when it was first introduced, and so the threshold date used in this measurement of the success of the law is imperfect. So, many of the authorized constructions may be within planned subdivisions, not scattered throughout the countryside. Also, decision-making both by CPTAQ and the municipality is not dogmatic and rigid in areas of mixed uses. A sale of a residential lot of somewhat more than one-half hectare likely goes through intact if not directly influencing a farm. Requests are fairly freely granted in areas already having mixed uses. Further analysis of residential lot size and its variation is required to make a final judgement concerning the influence of APAL.

Lots in the green zone may not be subdivided into parcels smaller than 100 hectares (i.e. 1 km^2). This would be large, even for an entire farm in this part of Québec. Figure 6.14 identifies these properties in the selected municipalities. Large lots of 100 hectares or more in the

green zone are uncommon here; there being only 62 (all land uses but mainly consisting of farming) compared with a total of about 4133 lots in this sub-sample of municipalities. So, except for these cases, the large lot size provision of the law is mainly redundant in this region of traditionally rather small farms.

Stoke has the most large properties, some more than 1000 hectares, which represent large tracts of forest land. Ascot Corner also has large forest tracts. Ascot's large properties are mainly in farming use. Brompton and St-Elie also retain several large lots. These would likely be rigidly protected by CPTAQ from subdivision should this demand arise as long as the land was actually owned by farmers. Given the established record on the frequency of authorization for land division in these two municipalities, this cannot be guaranteed if the operator should decide to stop farming.

6.4 LAND VALUE AND THE DISTANCE FUNCTION

6.4.1 Testing the Research Hypothesis

The hypothesis formulated in Chapter Four predicts an isotropic land value surface in the green zone if APAL has worked perfectly to halt land speculation. This hypothesis was tested by plotting land value per hectare and distance from the center of Sherbrooke for 2,950 lots of all land uses (representing 58 percent) whose value was less than \$75,000 per hectare (for plots see Appendix 6). This is smaller than the total number of properties recorded mainly because the location could not be determined for many which were subsequently dropped from the analysis. A few lots of extremely high value are occupied by a large pulp mill and were excluded from this plot. The distribution is widely scattered but it is seen that there is a negative, non-linear relationship between land value and distance in the study area green zone and that land values per hectare

decay rapidly with distance (A6.1). The linear regression statistics are given but do not reflect the true regression line which would be in the form of a reversed J in the range of these values. The correlation coefficient between land value and distance is negative rather than zero thus conforming in a general way to a transitional area around an unconstrained city as predicted from the hypothesis rather than a city constrained by the agricultural zoning mechanism. The wide scatter however indicates a relatively random value surface rather than an isotropic one. The rapid fall in value with distance suggests an effect of the nearby city, i.e. the presence of a speculative urban shadow. There appears to be a break in land values at about 16 kilometers from the city center which may indicate its effective range.

Periurban green zone farm lots valued less than \$75,000 per ha were plotted against distance from the center of Sherbrooke, using the same scale (A6.2). This scale somewhat masks the trend of many lower range values, but less relationship with distance is apparent and the correlation coefficient is closer to zero than for the whole ensemble. The range in land values is much less for farm property than the total.

The distribution of vacant lots in the Sherbrooke periurban green zone resembles the distribution of lots of all uses but has a slightly more negative correlation coefficient (A6.3). Many vacant lots and some farm lots are less than one hectare which means they have little use as farm fields from the point of view of actual or potential cultivation. Their highest and best use appears to be residential and they carry a high assessment and high tax rate. Since they cannot be built or otherwise used without authorization from CPTAQ, such lots would be difficult to sell except to contiguous, expanding farmers willing to pay a high price for farmland. Since authorization for residential construction is now granted

only about half the time, the land market is likely sluggish with speculation in this market being very risky.

Vacant and farm properties greater or equal to one hectare (which is chosen arbitrarily as a minimum viable field size) are plotted against distance using the same scales as above (A6.4, A6.5). The correlation coefficients are almost the same for the two, showing a smaller tendency for variation with distance than total vacant lots and a slightly larger tendency for variation with distance for all agricultural lots. For these larger lots which are potentially useful for agriculture then, land value per hectare is less than other property and is more stable with respect to distance.

Since the distributions are not linear, the linear graphs used to conceptualize the speculative landscape in Chapter Four cannot be directly applied here though the general positive or negative tendencies may be. This, and the large standard errors of estimate diminish the capability of predicting a single property value for any distance from these graphs. These distributions do demonstrate, however, that larger farm and vacant lots are valued less and are less related to distance effects of the city and therefore are not definitely excluded from farming simply because of speculative pressure on them. Because these lots are in the green zone, CPTAQ has the authority to deny permission for their subdivision and sale or conversion to other uses. It would appear then, that APAL has been effective in enabling existing and potential agriculture to operate within this otherwise speculative landscape. It is concluded that, with respect to price, farmland near the city remains accessible to those who wish to farm it, if APAL's existing mechanisms of APAL remain in force and are applied.

6.4.2 Property Size and Distance

Property size is theorized to increase with distance from a non-constrained city with freely acting market forces. It has been found that farms are larger in census divisions which are farther from the city (Figure 5.12). Chapter Four's discussion suggests that if APAL has halted speculation and equilibrated agricultural land values, this pattern should eventually change. Since farm fragmentation for this area appears to be the result of purchase of separate of farm lots rather than the partitioning of farms, the lot size data collected for this work are not by themselves very useful to judge possible distance effects of the city on farm size. The land registry system and the municipal *rôle d'évaluation* in Québec records property primarily by the lot and not by owner, creating difficulties in tracing actual units of ownership. Nevertheless, to assess the current relationship between the city and lot size, the graph of size and distance for all lots in the periurban green zone has been plotted (Appendix 6.6). Within the large scatter, a weak trend toward increase in lot size with distance from the city center is apparent. It is likely that market and speculative forces associated with an unconstrained city has created this distribution but it is impossible to know whether this pattern is an artifact of past or present conditions.

The vertically trending distribution for farm lots shows no relation at all between lot size and distance from the city center (Appendix 6.7). This random pattern suggests that present farm lot size is independent of a systematic influence of distance from the city. This is interpreted here to mean that farmland is under less pressure than other land in respect to fragmentation for subdivision.

3 of/de 3

PM-1 3½"x4" PHOTOGRAPHIC MICROCOPY TARGET
NBS 1010a ANSI/ISO #2 EQUIVALENT

PRECISION^{SM} RESOLUTION TARGETS

6.5 SUMMARY OF CHAPTER SIX

The final revision of the province's green zone de-zoned about 3 percent of the existing agricultural zone. This percentage is similar to the study region's which now has a green zone of about 475,000 hectares or 72 percent of the territory. The 1,106 CPTAQ decisions analyzed for the study area (to 1992) affect about 5 percent of the territory and about 63 percent have succeeded in their purpose. The proportion of successes has recently increased although total numbers have declined. Important in the context of counterurbanization, the most frequent reason for an authorization was to build a residence, succeeding 58 percent of the time. Subdivision and sale of land also accounts for a large number of cases. A bias in refusals of large properties is apparent. The decisions are fairly evenly dispersed throughout the southern part of the territory but tend to cluster to the north and west, especially near the edges of the white zone. The decisions reflect CPTAQ policy of encouraging individual farming in the area in that requests for inclusion of land in the green zone, consolidation of farms and sod farming were mainly accepted. The recent success of the maple syrup industry in Québec has likely largely been enabled by policy protecting this resource.

An index of demand for change has been created based on the ratio of successes to failures and the amount of land involved and Compton, Stoke, Compton Station, Brompton, Magog, Eaton, St-Elie-d'Orford, Hatley-Partie-Ouest, St-Denis-de-Brompton and Westbury ranked highest in terms of this index (descending order).

Analysis of a sub-set of municipalities reveals that residential properties in the green zone had approximately doubled in the twelve years since APA¹ had been instituted in this area. Overall, there has been only a small success in implantation of the small maximum residential lot size

(.5 ha) but this varies considerably between municipalities. Definite leniency in regard to residential lot size occurs in St-Elie-d'Orford and Stoke. Stoke, Ascot Corner and Ascot each have some large properties of 100 hectares or more, but in general, the provision of the law protecting these large lots is redundant in this part of Québec.

Regarding the speculative environment, no clearly defined isotropic land value surface for farmland or vacant land has emerged in the green zone which indicates that APAL has not halted general land speculation. Rather, the distribution of land value against distance for all lots appears similar to Thrall's expanding, unconstrained city. It is a fragmented, complex and variable land base of various sized properties having large variations in land value. However, larger (one hectare and greater) vacant and farm lots have a lower value and appear less related to distance from the city which suggests that they remain accessible for farming purposes as long as APAL's mechanisms are applied. If leniency develops due to the mix of uses or local precedents, or if the location is considered deconstructed, these lots will become part of the general speculative field here.

Small farm and vacant lots are appraised far higher per hectare than larger ones which indicates that the highest and best use for these is likely for rural residential property. They are probably speculatively frozen, awaiting fundamental modification to APAL or the moment when the municipality or the CPTAQ pronounces on the local state of *déstructuration* and authorizes the precedent-setting permission to build. In this respect only, does APAL exert a braking influence on speculation for these small open lots.

CHAPTER SEVEN

CONCLUSIONS, DISCUSSION AND SUGGESTIONS FOR FUTURE RESEARCH

7.1 CONCLUSIONS REGARDING THE SHERBROOKE CASE

The data presented in Chapter Five show that both rural-to-urban migration from more remote rural areas and counterurbanization from the city are occurring simultaneously in the Sherbrooke area. Since about 1970, this has produced a rapidly evolving and definite periurban zone around the city even though it is not a large urban community such as Montréal. As such, it is likely that the land and population dynamics and the issues of rural-to-urban land conversion and speculation outlined in Chapters Two and Three are operating here.

A long, slow decline in number of farms and area farmed in the region has been accompanied by an increase in farm size. In the study area this decline and size increase is at a slower rate than the provincial average. The number of farms has stabilized and the area cropped has increased in the Sherbrooke census division which, paradoxically, is the most heavily urbanized and also has the smallest green zone.

Areas such as former Compton and Richmond census divisions (roughly, Le Haut-St-François and Le Val-St-François) show signs that agriculture is being replaced by agro-forestry, or simply, forestry. Physical marginality due to elevation and poorer agricultural capability are the likely factors for decline in Le Haut-St-François but Val-St-François has good agricultural potential and it is more likely that decline here is due to socio-economic processes. Decline in former Stanstead census division is partly associated with a new orientation towards recreation and tourism around the major lakes and ski hills in the region to the west and south-west of Sherbrooke.

The decree in 1978 of the original green zone here, as elsewhere in Québec, was an exercise in universally applied central planning. The recent final revision of this area leaves the study region with a green zone twice the present total farm area. Sherbrooke and Memphrémagog MRCs successfully withdrew much more land from the green zone than elsewhere in the study region but not nearly as much as requested. This can be interpreted as a gross measure of the success of APAL in achieving its aim of preserving land for actual or potential agriculture for the future. There is then, ample scope for future professional agriculture to occur here if economic conditions evolve which make it profitable and otherwise worthwhile. Much of this will be determined by policy originating elsewhere although local periurban growth will contribute to some new production possibilities.

The growing regional city's needs for future westward growth are well satisfied in its present large and sprawling white zone. This is an area whose economic orientation is diversifying rapidly into tertiary sectors and industry linked with the agro-forest resource, tourism and recreation. This white zone becomes the effective boundary of future development and unless demographic trends within this area change radically, appears more than adequate for urban uses for long into the future. The municipality of Sherbrooke now has no green zone although a few white-zoned registered farm lots occur within its borders.

The western part of St-Elie-d'Orford and St-Denis-de-Brompton are linked with the emerging tourist and *villégiature* landscapes near Magog-Orford while St-Elie's eastern edge, abutting Sherbrooke's westward march, undergoes urbanization. During the final revision, CPTAQ recommended that Ascot Corner's white zone be shifted west toward the expanding city (personal communication, Céline Trépanier, MRC planner). The city has thus been confined somewhat and suburbanization farther east appears blocked by

strong response of APAL in protecting the agricultural (and forestry) operations in Ascot Corner. Fleurimont's small green zone also seems to have been secured for the operating farm within it, as does Ste-Catherine-de-Hatley and Rock Forest's for their few remaining farms. Westbury though, appears vulnerable, perhaps from influence from East Angus which it enclaves or from demand which is leap-frogging over Ascot Corner. To the north, Brompton and Stoke appear to be undergoing rapid evolution in land vocation and originate many requests for authorization from CPTAQ. Ascot, to the south, is also a source of requests to CPTAQ for non-conforming uses though farming also still occurs here. Agriculture remains the major economic activity to the south in Coaticook MRC. Farther east and north-east in Eaton and Stoke, the local economic base is increasingly toward forestry or agro-forestry, although Stoke presently has large and successful farms (e.g. Nadeau, 1993).

The rural hamlets within the green zone in the study area are each confined by their own small white zones, encouraging future construction to remain within these nodes rather than dispersing throughout the countryside. The green zones of small municipalities such as Deauville, Bromptonville and Cookshire and to a lesser extent, Waterville, tend to be well protected by APAL. The law appears highly successful in halting counterurbanization in this smaller-scale setting remote from the city edge.

The persistence of small enclaves of green zone within the white indicates that the locational advantages of proximity to the city or attachment to a particular site continue to be important to some periurban producers. For more producers to farm here, the weight of municipal resolutions; either for or against, is important, though not crucial, to the outcome of future requests for inclusion of land in the green zone. The small increase in registered farmland in the white zone identified in

this study is possibly part of the actual struggle for producers (some highly specialized and capitalized) to remain close to the city with its potential markets and where producers, or their families, may take advantage of urban amenities and employment opportunities. When these farms are in the white zone on residual agricultural land (e.g. Figure 5.1) their future is uncertain. Chapter Five identifies a small increase in registered farming on residual agricultural land in the white zone. In order to have their land included in the green zone (i.e. spot zoning) with its protection against nuisance complaints and to take advantage of a lower tax rate, these registered producers would have to overcome the combined force of the municipality, the MRC *schéma d'aménagement* and the CPTAQ, all of which would prefer to consolidate commercial farming in the non-destructured or exclusive sectors well away from the city environment where they are more easily defended from competing uses. The UPA, usually highly supportive of its members, expressed reluctance to become embroiled in such cases (personal communication, Robert Trudeau, UPA) and appears resigned to the fate of such white zone farms. For those actually enclaved within the urban municipalities, eventual conversion to urban or other uses seems inevitable.

If the exclusive sectors within the green zone on Class 3 land (and better) become truly entrenched, the high capability soils to the north and south of the city will be protected. Given the large expanses of this fairly extensively-used land, the persistence of periurban farming is likely one cause of the ongoing friction between UPA, CPTAQ and the MRCs. The desire to farm in the lower capability, periurban environment must surely be seen as illogical by municipal authorities and government officials. Areas of lower capability agricultural land are at risk of losing this status, then, from growing MRCs such as Sherbrooke and Memphrémagog which may redefine the vocation of their land, or by an increasingly permissive response by CPTAQ to requests for authorizations

in the green zone either because the region is undergoing *déstructuration* or because of its innate lower agricultural potential. This would be detrimental to the remaining farming operations which occupy "niches" within this lower capability land. It is especially threatening to the specialized periurban producers close to the city itself.

The number of decisions coming before the CPTAQ has declined substantially in the study area since 1986 but there is an indication that the success rate is increasing. It is concluded here that the rural non-agricultural population in the green zone now originating most of the requests has adjusted to the authority of the CPTAQ; and on the advice of their legal consultants are less likely to submit futile requests. The extent to which the recent decline in rural population of Québec identified by Keddie and Joseph (1991) can be attributed to the effects of APAL in discouraging settlement and free activity in the countryside must be addressed in empirical sociological research.

APAL's decision-making procedure has strongly encouraged the consolidation of farms in this area, a factor which may have led to their apparent fragmentation reported in Chapter Five. However, the mildly positive success rate for authorizations to subdivide land or which permit the juxtaposition of potentially conflictual uses may well have the effect of establishing precedent for future *déstructuration* or for conflict between owners. It appears that a systematic bias occurs in refusing requests for authorization for larger properties in some municipalities; an effect not related to the decision-making criteria except conceivably number 8 (the establishment of land holdings having an area sufficient for farming activities). For whatever cause, this will have the long-term effect of decreasing land fragmentation.

Though not quantified here, CPTAQ decisions often make judgements on the non-profitability or viability of proposed farming activities in requests for authorization from small-scale, hobby and unregistered operators, which have been used to deny this type of agricultural activity (e.g. CPTAQ 13245, Ascot; CPTAQ 89927, St-Elie-d'Orford). The effect of this must be discouraging to small farmers, some part-time farmers and those wishing to enter the occupation of farming without the usual large commitments in terms of time, credit, capital outlay and property purchase. This will tend to consolidate large, viable, independent producers as the major agricultural players in the green zone. The effect of this on the rural communities must now be addressed in empirical sociological research. Leniency in decisions relating to sod farming as opposed to soil removal by other means is detected. This may well be in recognition of the economic success of this type of production and its promotion by the CPTAQ.

The single, though areally extensive, refusal for authorization to cut maple trees may not be significant, but the fact that no similar requests have been submitted in a largely forested landscape suggests that it is either considered futile to do so, or that cutting of trees occurs unauthorized and undetected by CPTAQ; for commercial or personal use as firewood for instance. As well, despite periodic surpluses and occasional marketing problems in the local maple syrup industry (e.g. *The Record*, March 27, 1992, p.5) CPTAQ is firmly committed to the active protection and promotion of this industry and its products.

The demand for change scores generated in Chapter Six indicate that the municipalities of Compton, Stoke, Compton Station, Brompton, Magog, Eaton, St-Elie-d'Orford, Hatley-Partie-Ouest, St-Denis-de-Brompton and Westbury rank highest in terms of the subtle and authorized changes occurring on the land, some of which may contribute to the *déstructuration*

of its agricultural milieu. Farming in these municipalities can be considered to be at risk. Of this group, Brompton, Compton, Compton Station, and St-Elie-d'Orford were identified in Chapter Five as having higher gross profits in farming than their respective regions. Other municipalities, including some suburban ones, generate fewer requests but are where much white zone residential development has occurred (e.g. Rock Forest, Ste-Catherine-de-Hatley). Small municipalities embedded within this larger periurban zone show little activity and their own small green zones tend to be well protected.

The mapped pattern of decisions in the study area show some tendency to cluster near the edges of the white zone. Its boundary has advanced in some of these areas of clustered decisions either during the final revision or through individual petition for an exclusion from the green zone. This, and the fact that so many concern residential construction suggest that the forces of counterurbanization and suburbanization which are thought to account for rural-to-urban land conversion or *déstructuration* of the agricultural milieu are still at play in this environment and exert a pressure on the green zone boundaries. Authorization for residential construction in the countryside is only partly restrained by APAL; more than half of the requests have succeeded. Of all the categories of requests however, this one is refused most often and so concern for this phenomenon remains at the forefront.

For the study area as a whole, the recent decrease in the amount of registered agricultural land indicates that land adjustments relating to the contraction and concentration of farming near the city have not ended and farmland abandonment continues. This land theoretically becomes frozen into a land bank if not farmed and is effectively removed from the urban land market. So far, APAL has mainly succeeded in preventing other uses from occupying much of this land where it may now be perceived to be idle

land undergoing regrowth to brush. It appears that APAL has effectively secured the green zone to enable remaining active farms to continue and to permit great potential expansion.

Large variations in assessed land value per hectare occur between and within municipalities but small (about 1 ha) agricultural and vacant lots have uniformly high values. Though forming part of the speculative landscape, residential construction on these lots is theoretically constrained by the need for authorization from CPTAQ for any non-conforming uses. This authorization will likely be granted if the locality is declared to be destructured. Larger farm and vacant lots are lower valued and appear to be less related to distance from the city.

From municipal appraisals, the hypothesis that land value should tend to become isotropic in a constrained environment is not borne out in this periurban zone and land values are, instead, highly variable, and decline rapidly with distance from the city center. This means that speculation, as defined in Chapter Four, is likely present in this area, unhalted by any effects of APAL. Normal market forces associated with periurbanization appear to outweigh any influence of APAL to stabilize and equilibrate land values in general in the green zone around this city but larger agricultural and vacant lots do tend to be much lower valued and do not appear as closely related to distance and so APAL appears to exert a stabilizing influence on this land.

7.2 DISCUSSION

APAL has succeeded in establishing and maintaining a large green zone for this periurban area. However, this alone has not been sufficient to reverse the long-established trend of agricultural decline and abandonment which is related to endogeneous and exogeneous socio-economic

forces beyond the law's control. Large areas of abandoned farmland are protected from large-scale conversion to other uses by their permanent inclusion in the green zone. This land is rapidly growing back to brush and eventually to second growth forest which will possibly place it within the sphere of actively managed agro-forestry if farming in the usual sense is not reactivated.

The actual land resource here is a patchwork of mediocre agricultural potential. Small pockets of farming can and do profit in this periurban environment, but the legal protection mechanisms now in place are not well equipped to handle the mix of enclaved uses which would result. Still, in its decision-making near Sherbrooke, there is evidence to suggest that CPTAQ is pragmatically responding to the needs of individual farms by authorizing their inclusion in the green zone, permitting sale and purchase of land to amalgamate farms and to prevent the undue fragmentation of larger and more viable properties, and to encourage sod farming. The frequent refusal to authorize scattered, rural residential development arising from counterurbanization is easily justified by CPTAQ in areas of farming which are considered to be intact. The success here, and elsewhere in Québec, of APAL in maintaining the sugar maple resource is unqualified.

The establishment of the provincial green zone is an expression of public control over land as a common resource, but Québec's long tradition of private real property rights are reasonably well-maintained in the design and application of this law. In areas where significant counterurbanization existed before the introduction of the law, APAL is heavily constrained by the personal and acquired rights of the existing property owners. These rights and precedents established in areas classified as destructured now set the stage for a more lenient treatment by CPTAQ for subsequent subdivision and construction. As a result, rural

residential construction in this periurban zone has almost doubled since the law took effect. Fragmentation of the land base is restrained by the small maximum lot size (.5 ha) but is by no means halted and this rule is not equally applied throughout the study area.

That agricultural decline is less here than elsewhere in the province and that producers are showing signs of adjustment to the new periurban experience indicates that a revision of the whole concept of *déstructuration* in the periurban zone may be necessary. The green zone legally enables farmers, who so choose, to operate close to the city and a definite periurban form of agriculture is emerging here. In the existing mechanism of authorizing or refusing non-conforming uses, precedence is now permitted to redefine the vocation of the landscape incrementally. In its decision-making, APAL often interprets such areas of mixed use to be an untenable environment for professional farming. This essential contradiction of the law must be addressed. Presently, some 794 farms; many in Eaton, Ascot, Compton and Compton Station now coexist in Sherbrooke's periurban green zone with a mix of other uses in a complex and fragmented ownership pattern. These farms will be at risk if unfettered periurbanization is permitted to re-establish itself.

The necessity for CPTAQ to consider these long-term questions and to contribute to the regional planning dialogue becomes obvious. The need for MRCs to cooperate in this endeavour is even more crucial. Regional (i.e. intra-MRC) planning and decision-making has been decentralized, or, more accurately, de-concentrated, to the MRCs. The regional *schémas d'aménagement* presently show agricultural planning to have low priority compared to the possibilities offered by urban development, industrial expansion, tourism or forestry; initiatives which are largely in the hands of medium and large business interests. Comprehensive, integrated regional planning is stymied by the fact that jurisdiction over agricultural policy

is treated sectorally and centrally and remains shared with the Federal Government.

The inability of the two planning laws and their bureaucracies to work together in a local or regional capacity has often been decried and the blame always attached to APAL. Even if this were to change, populist and local-based action in planning of the agricultural world and its land may well be impossible because of the quite justifiable philosophy embraced by APAL and CPTAQ of universal and equitable action; remote from any narrow self-interest which could characterize many local development initiatives which are now encouraged.

The agricultural zone is presently safeguarded by strong policy directed to the public control of the essential land resource and the occupational and business interests of the professional, registered producers who inhabit and work in this space. With stewardship over the agricultural lands awarded to the producers, the city is to be confined in its own orderly structures with any necessary future expansion clearly defined and predicted. Given the propensity to equate ruralism with agrarianism, the whole issue of rural-to-urban land conversion then becomes obsolete if this binary landscape of the Québec plan becomes permanently established. The private and business perspective will be that the province's ample agricultural territory and its farmers are secure within the collective approach to resource management established by APAL and that the rest is nobody's business but their own. Rural-to-urban (or rural-to-other use) land conversion is transformed from a negative product of anarchic, low density urbanization driven by speculation and individual behaviour to a normative working out of an optimum, collective, and above all, rational plan based on the potentials offered by the "empty" and "unused" residual rural space and its resources.

If large rural areas of sub-optimum agricultural use are not officially upheld by APAL, or the MRCs' *schémas d'aménagement*; i.e. that lower capability land will be "let go", their vocation will be officially re-defined to fit the uses established for the area by planners and other agents. In terms of provincial resource strategy, the study area's small contribution to the provincial agricultural economy means that the local mediocre potential is of small consideration compared to the large region of higher classed land on the Saint Lawrence Plain. To the remaining individual producers and those intending to specialize in periurban specialized production however, it likely does matter very much that CPTAQ, the municipalities and soon, the general public will consider their land to be agriculturally worthless and best suited for other urban-directed or recreational purposes. Disquietingly, having been stripped of its original landscape vocation, large areas of residual rural areas zoned white are now, literally, up for grabs. This land will surely be seen as a commodity rather than a common resource; for urban or residential development, resource exploitation, recreational development and for small-scale or hobby farming activity and rural residential expansion.

This work concludes then, that APAL has thoroughly and conscientiously done its job as legally mandated in this area, creating and maintaining a large green zone which enables active and future agricultural activity. But this effort has not stopped the long-established trends of farmland abandonment which are related to wide national and international forces. APAL has only partially halted, and has in some cases, encouraged, the forces of periurbanization which have long been thought to threaten farmland and which largely prompted the creation of the law.

7.3 SUGGESTIONS FOR FUTURE WORK

This work has not analyzed land use change initiated by registered producers to effect change on their land. Since more declarations for change are received from producers than requests for authorization from others in the green zone, such an analysis should logically complement this study. The dynamics of farming on the actual interface between green and white zones is not well established and the causes for the recent increase in white zone registered farming need further investigation.

More work is needed to model the various classes of CPTAQ decisions to relate them to possible rural-to-urban land conversion. To do this, the establishment of a geographical information system for CPTAQ decisions is a crucial next step to analyze the meaning and pattern of the CPTAQ decisions on the land. This could be integrated with municipal data on land value and land use.

The demand for change score generated in Chapter Six represents an attempt to provide a universal index based on standardized data which are accessible throughout the province. Such an index is related directly to the juridical process which holds the decision-making power in this rural environment and not to intangibles generated by other socio-economic and production parameters. This index can be tested and refined for future comparative research which is malleable to various other regions which may be recomposed apart from the established MRCs.

The work begun here to test APAL's effectiveness in stopping speculation by testing Boal's and Thrall's theory of land value behaviour around a constrained city shows some promise and the use of municipal appraisals, now standardized for the province, seem valid proxies of market value. Although derived mainly from real sales prices, these

assessed land values represent the potential speculative environment, not the actual land market and so the relationship between assessed and real sales price must be established to determine whether or not the relationships discovered are meaningful in the land market.

Future tests of the land value model based on the land rent/distance function would be improved with comparative data on vacant or agricultural land in the white zone to determine any abrupt change in land values at the boundary between white and green zones. Changes in lot size with distance should be followed over time to determine the fragmentation dynamics here. Future retrieval of data from farther afield of the city would be appropriate, but unless the information is supplied in computer compatible format, such work will be tedious and expensive. The study area is not identical in land value behaviour and there is much scope for future sectoral work throughout the study area using the data collected here.

Given the limited time-frame of a Master's degree, this thesis reluctantly but deliberately did not pursue any direct inquiry of rural society in relation to APAL in the form of social survey, yet this is a most urgent need. It is hoped that further work will be undertaken by interested researchers and that the present contribution provides sufficient social context of the legal, demographic and economic forces which are now shaping Québec's landscape and by extension, the lives of its people.

Québec's devotion to its original cadastral survey as a patrimonial icon has influenced policy in regard to APAL. This and the origins of Québec's strong perceptions associated with landscape vocation, *déstructuration* and reasonable human use of the land beg for further exploration and understanding. Bureau's (1984) savage satire tracing

Québec's long-entrenched, culturally-based drive for the implantation of a cartesian, rational and utopian order on its landscape is an extraordinary example of such an enquiry which could be approached from a more tempered viewpoint.

In spite of the decades of work in urban/rural dynamics, the fundamental question yet to be definitively answered here and likely elsewhere, is whether counterurbanization causes farms to leave production or whether it arrives because farms are on their way out. The poor and declining condition of agriculture in Le Val-St-François, an area with good agricultural capability and a long tradition of farming, but having no large cities, requires detailed analysis. Any relation between the recent decline in rural population of Québec identified by Keddie and Joseph (1991) and the effects of APAL in discouraging settlement and free activity in the countryside awaits the attention of empirical sociological enquiry.

The recent precipitous decline in registered farmland in the study area should be studied in greater detail in order to understand the reasons for this, and by extension, the future of the professional producers who now hold this land. Direct enquiry of producers, in this light, as to their plans, strategies and expectations is a logical next step in understanding the periurban agricultural dynamics in this system. However, given the reality of counterurbanization here and elsewhere, it is strongly suggested that neglecting to integrate other rural dwellers, who now form a large majority of the rural population, into such an enquiry would be to perpetuate the blinkered vision which has created the dual planning system now in effect in Québec.

APPENDICES

APPENDIX 1: TRANSLATION NOTES AND DEFINITIONS

- * **agricultural activity** - (for the purposes of Division V.1 of APAL) means agriculture including letting the land lay fallow, the utilization of chemical, organic or mineral products and the use of farming machinery and implements. The storing, processing, transformation and sale of farm products on the farm by a producer whose principal occupation is agriculture shall also constitute farming activities.
- * **agricultural land, generic** - for the purposes of this work, all agricultural land designated in the municipal *rôle d'évaluation foncière*.
- * **agricultural land, registered** - for the purposes of this work, all agricultural land owned by *producteurs* under *An Act respecting municipal taxation (R.S.Q. Chapter F-2.1)* as designated in the municipal *rôle d'évaluation foncière*.
- * **agricultural land, residual** - for the purposes of this work, the difference between generic agricultural land and registered agricultural land.
- * **agriculture** - for official purposes means the cultivation of the soil and plants, leaving land uncropped or using it for forestry purposes, or the raising of livestock, and ... the making, construction or utilization of works, structures or buildings, except residences.
- * **alienate, alienation** - means any conveyance or any declaratory act of ownership of property, including sale with a right of redemption,

emphyteutic lease, alienation for rent, declaration of contribution to a partnership, voluntary partition or licitation, transfer of a right contemplated in section 8 of the *Mining Act* (R.S.Q. Chapter M-13.1) and transfer of timber limits under the *Lands and Forests Act* (R.S.Q. Chapter T-9), except a) transmission owing to death; b) forced sale within the meaning of articles 1585 and 1591 of the Civil Code, including sale for unpaid taxes, redemption and any conveyance resulting from the *Expropriation Act* (R.S.Q. Chapter E-24); c) giving in payment to the extent that it is an accessory clause to a deed of sale or deed of hypothec and that the person receiving payment becomes the owner of the whole lot or of all of the lots concerned in the deed.

* *aménager, schéma d'aménagement* - to develop, regional plan; translates "planning", in the sense of the methodical development of the physical and economic potential of an area toward a predetermined end. The *Ministère des Affaires municipales* uses it to mean to organize the space in which we live in a global manner to respond to the needs of the people.

* *cadastre* - *cadastre*, the land registry.

* *corn-heat unit* - a maturity rating for corn hybrids which makes use of maximum and minimum daily temperatures. Grain corn requires at least 2,500 units while silage corn requires 2,100 units.

* *déstructuration, déstructurer* - terms dating from the 1960s meaning the converse of *structuration* and *structurer*; in the sense of the loss of structure of something rendering an amorphous state. In Québec, these terms carry strong negative connotations in relation to the dismantling or "destructuring" of the agricultural vocation of the land, its agrarian society and economy.

- * *érablière* - literally a "sugar bush", but has come to mean the expanded "sugar shack" or restaurant where commercial "sugaring offs" are held, serving traditional Québec meals, often for large parties.
- * *farming activity* - For the purposes of Division V.1 of APAL only, means agriculture* including letting the land lay fallow, the utilization of chemical, organic or mineral products and the use of farming machinery and implements. The storing, processing, transformation and sale of farm products on the farm by a producer whose principal occupation is agriculture shall also constitute farming activities.
- * *friche, terre en friche* - from middle Dutch *versch* meaning "fresh" (*Petit Robert*). Literally; uncultivated or abandoned land. Conveys a sense of land lying in waste and uncared for rather than temporarily idle or resting in the sense of fallow.
- * *lot* - in Québec means a parcel of land designated by a separate number on the official plan of the cadastre or on a subdivision plan prepared and deposited in accordance with articles 2174b and 2175 of the Civil Code, a parcel of land described in a deed of conveyance by metes and bounds, or that part of a parcel of land designated by a separate number which remains after the separation of the parcels of land described in the deeds of conveyance by metes and bounds and the subdivisions, including those prepared and deposited in accordance with articles 2174b and 2175 of the Civil Code.
- * *lotissement* - the dividing up of goods or parcelling out of land, also a building plot or development.
- * *métropole* - capital, metropolis.

- * *patrimoine* - heritage (especially of buildings) or inheritance with an emphasis on ancestral origins.
- * *producer, or producteur* - means a person within the meaning of paragraph j of section 1 of the *Farm producers act* (R.S.Q. Chapter P-28) which is a person engaged in the production of a farm product except: 1) a person engaged in such production as an employee within the meaning of the *Labour Code* (R.S.Q. Chapter C-27); 2) a person who exploits the forest, except when he exploits a wooded portion of his farm; 3) an individual engaged in the production of a farm product consumed entirely by himself and the members of his family; 4) a person whose farm production intended for marketing has an annual value of less than \$3000 or taking into account the variation in the price of the farm products, any other sum the Government may determine by order, which comes into force on the date of publication in the *Gazette officielle du Québec* or on any later date fixed therein.
- * *rôle d'évaluation foncière* - municipal property appraisal document; now standardized for the province.
- * *sugar bush* - a stand of trees suitable for the cultivation of maple sugar.
- * *topsoil* - soil having the properties that make it suitable for plant growth.
- * *vignoble* - vinyard.
- * *villégiature* - refers to private second homes in the country or cottages and to smaller commercial hotels, condominium developments etc. serving the recreation industry.

- * *vocation* - literally, vocation, but in terms of land use, this goes beyond simply the actual use. Implied is a pre-ordained destiny or quality possessed by the land itself which is its natural and fitting condition.

- * *la zone grise* - literally, the gray zone; referring to the transitional periurban zone between country and city.

APPENDIX 2: CANADA LAND INVENTORY AGRICULTURAL CAPABILITY CLASSES

Class 1 - Soils having no significant limitations for crop use. They are generally level or have gentle slopes, are deep, well-to-imperfectly drained and have good water holding capacity.

Class 2 - Soils having moderate limitations that restrict the range of crops or require moderate conservation practices. Class 2 soils are deep and have good water-holding capacity. Limitations are moderate and crops can be grown on these soils with little difficulty. The limitations of the soils in this class may be for example, adverse regional climate, moderate base, poor soil structure or low fertility which is readily correctible.

Class 3 - Soils having moderately severe limitations that restrict the range of crops or require special conservation practices. These soils are still fair to moderately high in productivity for a fairly wide range of field crops adapted to the region. Classes 1-3 are considered to be capable of sustained annual production of common cultivated crops.

Class 4 - These soils have severe limitations that either restrict the range of crops or require special conservation practices or both. They are suitable for only a few crops, or the yield for a range of crops is low, or crop failure is high. These soils are low to medium in productivity for a narrow range of crops but may have higher productivity for a specially adapted crop.

Class 5 - These soils have very severe limitations that restrict their capability to produce perennial forage crops. Class 5 soils have such serious physical, climatic or other limitations that they

are not capable of use for sustained production of annual field crops. But, with intensive management practices they may be used for permanent pasture. They are suitable for most forage crops.

Class 6 - Soils of this class are capable only of producing perennial forage crops and improvement practices are not feasible. They can support periodic rough grazing.

Class 7 - These soils have no capability for arable culture or permanent pasture. Combinations of severe climatic and physical limitations preclude economic use of the land for agriculture. This class includes exposed rock and water bodies too small to delineate on maps.

Class 0 - This group includes unclassified organic soils.

Various sub-classes may also be applied dealing with climate, erosion, flooding, stoniness, slope, soil thickness or other conditions unfavourable to agricultural uses.

(source, Canada Land Inventory, Land Capability for
Agriculture, Preliminary Report No. 10, 1976)

APPENDIX 3: SAMPLE ANALYSIS REPORT FORM FOR CPTAQ INVESTIGATIONS

Dossier No.

Code Géographique

1. IdentificationDemandeur

-adress & tel
-occupation

Mandataire

-adress
-occupation

Municipalité

-i.d.
-secrétaire-trésorière

UPA

-locale

Mis en cause

-nom, adress
-occupation

MRC

-i.d.
-secrétaire-trésorière

Fiche Technique du terrain visé par la demande

No. du lot:

Superficie visée:

Rang:

Cadastre:

Division d'enregistrement

2. Faits, Renseignements et Représentations

2.1 Documents fournis par le demandeur à l'appui de la demande

2.2 Nature de la demande et motif(s) du demandeur

2.3 Renseignements recueillis en cours d'analyse

2.4 Résolution de la corporation municipale

3. Données biophysiques et socio-économiques

3.1 Potentiel agricole des sols du secteur et du sol

3.2 Le terrain visé par la demande

3.3 L'utilisation des lots adjacents

3.4 Le milieu environnant

3.5 La disponibilité d'autres emplacements

3.6 Le morcellement de la propriété foncière

4. Synthèse et conclusion

APPENDIX 4: THE EVOLUTION OF CENSUS FARM DEFINITIONS

1971: A farm, ranch or other agricultural holding of one acre or more with sales of agricultural products during the 12 month period prior to the census of \$50 or more (can include separate tracts).

1976: A farm, ranch or other agricultural holding of one acre or more with sales of agricultural products during the year 1975 of \$1200 or more.

1981: A farm, ranch or other agricultural holding with sales of agricultural products during the past 12 months of \$250 or more. Operations which anticipated sales of \$250 or more in 1981 were also included.

1986: A farm, ranch or other agricultural holding with sales of agricultural products during the past 12 months of \$250 or more. Operations with anticipated sales of \$250 or more in 1986 were also included.

1991: A farm, ranch or other agricultural holding which produces at least one of the following products intended for sale: crops, livestock, poultry, animal products, greenhouse or nursery products, mushrooms, sod, honey or maple syrup products. Census farms are also commonly referred to as farm operations or agricultural holdings.

source: Census of Canada, 1971-1991

**APPENDIX 5: REASONS FOR REQUESTS TO CPTAQ FOR AUTHORIZATION FOR A
NON-CONFORMING LAND USE IN THE GREEN ZONE**

1) **RESIDENTIAL:** construction of a residence, construction of a cottage, construction of a garage or of an agricultural building, enlargement of a residence, enlargement of residential land, severance of lots and construction of a residence, residential development, modification of the use of a non-agricultural building;

2. **PUBLIC WORKS:** construction of a bridge, construction of a road and/or sewer and water mains, construction of an access road, construction or correction of road turning circle, rail road works, hydro lines, construction of a telecommunication mast, widening of a road, redevelopment of an access road, lumber roads, other road works, construction of a municipal garage;

3. **FARM-RELATED:** aquaculture, construction of an agricultural garage, apiary activities, Christmas tree plantation, sale or purchase of an agro-forest plantation, sale or purchase of a farm holding, long-term lease of a farm, sale or purchase of a parcel adjacent to a farm, subdivision of a farm, enlargement of residential land for agro-forestry, use of an agricultural garage for other reasons, enlargement of an agricultural building, purchase of land for greenhouse, cutting of a sugar bush, construction of a lumberjack's camp, animal crossing;

4. **THE SOIL AND ITS REMOVAL:** drainage, construction of cess ponds, ditches, gravel pits, grading of a layer of arable soil, opening a quarry, removal of sod, treatment of sewage sludge, composting, manure pit control, ground water control, digging of a pit, construction or servitude for provision of water, removal of arable soil;

5. COMMERCIAL AND RECREATIONAL (except construction of a cottage): construction of a meeting center, enlargement of ski center or vacation village, development or enlargement of a golf course, development of a hunting camp, scrapyard, development of a playing field, establishment of a commerce or industry, other recreational use or construction, all-terrain-vehicle trail, development of the land;

6. LEGAL AFFAIRS: sale of land, exchange or adjustment of land or property, aquired rights, to cede land with the residential site, enlargement of non-residential or non-agricultural land; extension of aquired rights, to regularize a sale, to regularize an existing use.

APPENDIX 6: PLOTS OF PERIURBAN PROPERTY AND DISTANCE RELATIONSHIPS

A6.1 2950 unweighted cases accepted. SPSS/PC+

2683 cases plotted. Regression statistics of LANDVAL on DIST:
Correlation -.25823 R Squared .06668 S.E. of Est 11477.3668 Sig. .0000

Intercept(S.E.) 21323.0266(755.69073) Slope(S.E.) -855.09369(61.78427)

A6.2 482 unweighted cases accepted. SPSS/PC+

RELATIONSHIP BETWEEN LAND VALUE AND DISTANCE
PERIURBAN GREEN ZONE FARM LOTS <\$75000 PER HA

436 cases plotted. Regression statistics of LANDVAL on DIST:
Correlation -.11175 R Squared .01249 S.E. of Est 3581.68157 Sig. .0196
Intercept(S.E.) 3538.88266(605.38757) Slope(S.E.) 111.75207 (47.70227)

A6.3

641 unweighted cases accepted. SPSS/PC+

RELATIONSHIP BETWEEN LAND VALUE AND DISTANCE
PERIURBAN GREEN ZONE VACANT LOTS <\$75000 PER HA

575 cases plotted. Regression statistics of LANDVAL on DIST:
Correlation $-.35588$ R Squared $.12665$ S.E. of Est 9742.29862 sig. $.0000$
Intercept(S.E.) 20410.2616(1259.9241) Slope(S.E.) $-916.57041(100.54937)$

A6.4

265 unweighted cases accepted. SPSS/PC+

RELATIONSHIP BETWEEN LAND VALUE AND DISTANCE
 PERIURBAN GREEN ZONE VACANT LOTS <\$75000 PER HA
 AND >1 HA

241 cases plotted. Regression statistics of LANDVAL on DIST:
 Correlation $-.17608$ R Squared $.03100$ S.E. of Est 3149.41221 Sig. $.0061$

Intercept(S.E.) $4170.37106(648.09930)$ slope(S.E.) $-129.63946(46.88151)$

A6.5 46.2 unweighted cases accepted. SPSS/PC+

RELATIONSHIP BETWEEN LAND VALUE AND DISTANCE
PERIURBAN GREEN ZONE FARM LOTS <\$75000 PER HA
AND > 1 HA

A6.6 2950 unweighted cases accepted. SPSS/PC+

**RELATIONSHIP BETWEEN LOT SIZE AND DISTANCE
PERIURBAN GREEN ZONE LOTS LESS THAN 300 HA**

2724 cases plotted. Regression statistics of SIZEW on DIST:
Correlation .14371 R Squared .02065 S.E. of Est 20.85114 Sig. .0000
Intercept(S.E.) .20781(1.37216) Slope(S.E.) .85138(.11238)

A6.7

641 unweighted cases accepted.

577 cases plotted. Regression statistics of SIZE on DIST:

Correlation .29795 R Squared .08877 S.E. of Est 14.34903 Sig. .0000

Intercept(S.E.) -6.97616(1.86677) Slope(S.E.) 1.11631(.14915)

A6.8

482 unweighted cases accepted.

SPSS/PC+

434 cases plotted. Regression statistics of SIZE on DIST:

Correlation .0674 R Squared .00460 S.E. of Est 31.45889 sig. .1583

Intercept(S.E.) 30.65609(5.32737) Slope(S.E.) .59350(.41996)

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